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Мы работаем только с юридическими лицами(организациями) и ИП и только по безналичному расчёту.

каталог, описание, технические, характеристики, [datasheet](#), параметры, маркировка, габариты, фото

**IXYS КАТАЛОГ 2017г. Минск**

**IGBT, MOSFET модуль**

**SiC**

**IPM ( SKiiP )**

**тиристорно - диодный модуль**

**мост диодный, однофазный, трёхфазный,**

**диоды, тиристоры,**

**драйверы**

**охладители, радиатор**

каталог документация, [datasheet](#), описание, технические характеристики [скачать](#)



**SEP ELECTRONIC CORP.**

*Edition 1.5*

# SHORT FORM CATALOG

<http://www.sep-semi.com>



*Reliable Manufacturer of Power Semiconductor*

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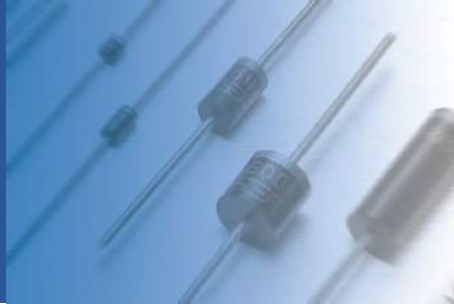
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## General Purpose Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_O@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>1.0 AMP General Purpose Rectifiers</b>									
1A1	50	1	25	30	1.1	1	5	50	R-1
1A2	100	1	25	30	1.1	1	5	100	R-1
1A3	200	1	25	30	1.1	1	5	200	R-1
1A4	400	1	25	30	1.1	1	5	400	R-1
1A5	600	1	25	30	1.1	1	5	600	R-1
1A6	800	1	25	30	1.1	1	5	800	R-1
1A7	1000	1	25	30	1.1	1	5	1000	R-1
1N4001	50	1	75	30	1	1	5	50	DO-41
1N4002	100	1	75	30	1	1	5	100	DO-41
1N4003	200	1	75	30	1	1	5	200	DO-41
1N4004	400	1	75	30	1	1	5	400	DO-41
1N4005	600	1	75	30	1	1	5	600	DO-41
1N4006	800	1	75	30	1	1	5	800	DO-41
1N4007	1000	1	75	30	1	1	5	1000	DO-41
BY135	200	1	75	30	1.1	1	5	200	DO-41
BY134	600	1	75	30	1.1	1	5	600	DO-41
BY133	1300	1	75	30	1.1	1	5	1300	DO-41
<b>1.0 AMP General Purpose Rectifiers</b>									
M1	50	1	100	30	1.1	1	5	50	SMA/DO-214AC
M2	100	1	100	30	1.1	1	5	100	SMA/DO-214AC
M3	200	1	100	30	1.1	1	5	200	SMA/DO-214AC
M4	400	1	100	30	1.1	1	5	400	SMA/DO-214AC
M5	600	1	100	30	1.1	1	5	600	SMA/DO-214AC
M6	800	1	100	30	1.1	1	5	800	SMA/DO-214AC
M7	1000	1	100	30	1.1	1	5	1000	SMA/DO-214AC
SM4001	50	1	100	30	1.1	1	5	50	SMA/DO-214AC
SM4002	100	1	100	30	1.1	1	5	100	SMA/DO-214AC
SM4003	200	1	100	30	1.1	1	5	200	SMA/DO-214AC
SM4004	400	1	100	30	1.1	1	5	400	SMA/DO-214AC
SM4005	600	1	100	30	1.1	1	5	600	SMA/DO-214AC
SM4006	800	1	100	30	1.1	1	5	800	SMA/DO-214AC
SM4007	1000	1	100	30	1.1	1	5	1000	SMA/DO-214AC
LL4001	50	1	100	30	1.1	1	5	50	MELF
LL4002	100	1	100	30	1.1	1	5	100	MELF
LL4003	200	1	100	30	1.1	1	5	200	MELF
LL4004	400	1	100	30	1.1	1	5	400	MELF
LL4005	600	1	100	30	1.1	1	5	600	MELF
LL4006	800	1	100	30	1.1	1	5	800	MELF
LL4007	1000	1	100	30	1.1	1	5	1000	MELF
<b>1.5 AMP General Purpose Rectifiers</b>									
1N5391	50	1.5	75	50	1.1	1.5	5	50	DO-41
1N5392	100	1.5	75	50	1.1	1.5	5	100	DO-41
1N5393	200	1.5	75	50	1.1	1.5	5	200	DO-41
1N5395	400	1.5	75	50	1.1	1.5	5	400	DO-41
1N5397	600	1.5	75	50	1.1	1.5	5	600	DO-41
1N5398	800	1.5	75	50	1.1	1.5	5	800	DO-41
1N5399	1000	1.5	75	50	1.1	1.5	5	1000	DO-41



## General Purpose Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_O@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	μA	V	
<b>1.5 AMP General Purpose Rectifiers</b>									
SM5391	50	1.5	100	50	1.1	1.5	5.0	50	SMA/DO-214AC
SM5392	100	1.5	100	50	1.1	1.5	5.0	100	SMA/DO-214AC
SM5393	200	1.5	100	50	1.1	1.5	5.0	200	SMA/DO-214AC
SM5395	400	1.5	100	50	1.1	1.5	5.0	400	SMA/DO-214AC
SM5397	600	1.5	100	50	1.1	1.5	5.0	600	SMA/DO-214AC
SM5398	800	1.5	100	50	1.1	1.5	5.0	800	SMA/DO-214AC
SM5399	1000	1.5	100	50	1.1	1.5	5.0	1000	SMA/DO-214AC
<b>2.0 AMP General Purpose Rectifiers</b>									
RL201	50	2.0	75	70	1.1	2.0	5.0	50	DO-15
RL202	100	2.0	75	70	1.1	2.0	5.0	100	DO-15
RL203	200	2.0	75	70	1.1	2.0	5.0	200	DO-15
RL204	400	2.0	75	70	1.1	2.0	5.0	400	DO-15
RL205	600	2.0	75	70	1.1	2.0	5.0	600	DO-15
RL206	800	2.0	75	70	1.1	2.0	5.0	800	DO-15
RL207	1000	2.0	75	70	1.1	2.0	5.0	1000	DO-15
<b>2.0 AMP General Purpose Rectifiers</b>									
S2A	50	2.0	80	50	1.15	2.0	5.0	50	SMB/DO-214AA
S2B	100	2.0	80	50	1.15	2.0	5.0	100	SMB/DO-214AA
S2D	200	2.0	80	50	1.15	2.0	5.0	200	SMB/DO-214AA
S2G	400	2.0	80	50	1.15	2.0	5.0	400	SMB/DO-214AA
S2J	600	2.0	80	50	1.15	2.0	5.0	600	SMB/DO-214AA
S2K	800	2.0	80	50	1.15	2.0	5.0	800	SMB/DO-214AA
S2M	1000	2.0	80	50	1.15	2.0	5.0	100	SMB/DO-214AA
<b>3.0 AMP General Purpose Rectifiers</b>									
1N5400	50	3.0	75	200	1.0	3.0	5.0	50	DO-27
1N5401	100	3.0	75	200	1.0	3.0	5.0	100	DO-27
1N5402	200	3.0	75	200	1.0	3.0	5.0	200	DO-27
1N5404	400	3.0	75	200	1.0	3.0	5.0	400	DO-27
1N5406	600	3.0	75	200	1.0	3.0	5.0	600	DO-27
1N5407	800	3.0	75	200	1.0	3.0	5.0	800	DO-27
1N5408	1000	3.0	75	200	1.0	3.0	5.0	1000	DO-27
<b>3.0 AMP General Purpose Rectifiers</b>									
S3A	50	3.0	40	100	1.15	3.0	5.0	50	SMC/DO-214AB
S3B	100	3.0	40	100	1.15	3.0	5.0	100	SMC/DO-214AB
S3D	200	3.0	40	100	1.15	3.0	5.0	200	SMC/DO-214AB
S3G	400	3.0	40	100	1.15	3.0	5.0	400	SMC/DO-214AB
S3J	600	3.0	40	100	1.15	3.0	5.0	600	SMC/DO-214AB
S3K	800	3.0	40	100	1.15	3.0	5.0	800	SMC/DO-214AB
S3M	1000	3.0	40	100	1.15	3.0	5.0	100	SMC/DO-214AB
<b>6.0 AMP General Purpose Rectifiers</b>									
P600A	50	6.0	75	400	1.0	6.0	5.0	50	R-6
P600B	100	6.0	75	400	1.0	6.0	5.0	100	R-6
P600D	200	6.0	75	400	1.0	6.0	5.0	200	R-6
P600G	400	6.0	75	400	1.0	6.0	5.0	400	R-6
P600J	600	6.0	75	400	1.0	6.0	5.0	600	R-6
P600K	800	6.0	75	400	1.0	6.0	5.0	800	R-6
P600M	1000	6.0	75	400	1.0	6.0	5.0	1000	R-6
6A05	50	6.0	75	400	1.0	6.0	5.0	50	R-6
6A1	100	6.0	75	400	1.0	6.0	5.0	100	R-6
6A2	200	6.0	75	400	1.0	6.0	5.0	200	R-6
6A4	400	6.0	75	400	1.0	6.0	5.0	400	R-6
6A6	600	6.0	75	400	1.0	6.0	5.0	600	R-6
6A8	800	6.0	75	400	1.0	6.0	5.0	800	R-6
6A10	1000	6.0	75	400	1.0	6.0	5.0	1000	R-6



SMA  
DO-214AC



SMB  
DO-214AA



SMC  
DO-214AB



DO-27



DO-15



R-6







## Fast Recovery Rectifiers

1.0 AMP Fast Recovery Rectifiers .....	8
2.0 AMP Fast Recovery Rectifiers .....	8
3.0 AMP Fast Recovery Rectifiers .....	9
6.0 AMP Fast Recovery Rectifiers .....	9

**Fast Recovery Rectifiers**

Part Number	Peak Repetitive Reverse Voltage	Reverse Recovery Time	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$T_{RR}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	nS	A	°C	A	V	A	μA	V	
<b>1.0 AMP Fast Recovery Rectifiers</b>										
1F1	50	150	1.0	25	25	1.3	1.0	5.0	50	R-1
1F2	100	150	1.0	25	25	1.3	1.0	5.0	100	R-1
1F3	200	150	1.0	25	25	1.3	1.0	5.0	200	R-1
1F4	400	150	1.0	25	25	1.3	1.0	5.0	400	R-1
1F5	600	250	1.0	25	25	1.3	1.0	5.0	600	R-1
1F6	800	500	1.0	25	25	1.3	1.0	5.0	800	R-1
1F7	1000	500	1.0	25	25	1.3	1.0	5.0	1000	R-1
FR101	50	150	1.0	75	30	1.3	1.0	5.0	50	DO-41
FR102	100	150	1.0	75	30	1.3	1.0	5.0	100	DO-41
FR103	200	150	1.0	75	30	1.3	1.0	5.0	200	DO-41
FR104	400	150	1.0	75	30	1.3	1.0	5.0	400	DO-41
FR105	600	250	1.0	75	30	1.3	1.0	5.0	600	DO-41
FR106	800	500	1.0	75	30	1.3	1.0	5.0	800	DO-41
FR107	1000	500	1.0	75	30	1.3	1.0	5.0	1000	DO-41
1N4933	50	200	1.0	75	30	1.3	1.0	5.0	50	DO-41
1N4934	100	200	1.0	75	30	1.3	1.0	5.0	100	DO-41
1N4935	200	200	1.0	75	30	1.3	1.0	5.0	200	DO-41
1N4936	400	200	1.0	75	30	1.3	1.0	5.0	400	DO-41
1N4937	600	200	1.0	75	30	1.3	1.0	5.0	600	DO-41
BA157	400	150	1.0	75	30	1.3	1.0	5.0	400	DO-41
BA158	600	250	1.0	75	30	1.3	1.0	5.0	600	DO-41
BA159	1000	500	1.0	75	30	1.3	1.0	5.0	1000	DO-41
<b>1.0 AMP Fast Recovery Rectifiers</b>										
SM4933	50	150	1.0	75	30	1.3	1.0	5.0	50	SMA/DO-214AC
SM4934	100	150	1.0	75	30	1.3	1.0	5.0	100	SMA/DO-214AC
SM4935	200	150	1.0	75	30	1.3	1.0	5.0	200	SMA/DO-214AC
SM4936	400	150	1.0	75	30	1.3	1.0	5.0	400	SMA/DO-214AC
SM4937	600	150	1.0	75	30	1.3	1.0	5.0	600	SMA/DO-214AC
<b>2.0 AMP Fast Recovery Rectifiers</b>										
FR201	50	150	2.0	75	70	1.3	2.0	5.0	50	DO-15
FR202	100	150	2.0	75	70	1.3	2.0	5.0	100	DO-15
FR203	200	150	2.0	75	70	1.3	2.0	5.0	200	DO-15
FR204	400	150	2.0	75	70	1.3	2.0	5.0	400	DO-15
FR205	600	250	2.0	75	70	1.3	2.0	5.0	600	DO-15
FR206	800	500	2.0	75	70	1.3	2.0	5.0	800	DO-15
FR207	1000	500	2.0	75	70	1.3	2.0	5.0	1000	DO-15
<b>2.0 AMP Fast Recovery Rectifiers</b>										
FR2A	50	150	2.0	90	50	1.3	2.0	5.0	50	SMB/DO-214AA
FR2B	100	150	2.0	90	50	1.3	2.0	5.0	100	SMB/DO-214AA
FR2D	200	150	2.0	90	50	1.3	2.0	5.0	200	SMB/DO-214AA
FR2G	400	150	2.0	90	50	1.3	2.0	5.0	400	SMB/DO-214AA
FR2J	600	250	2.0	90	50	1.3	2.0	5.0	600	SMB/DO-214AA
FR2K	800	500	2.0	90	50	1.3	2.0	5.0	800	SMB/DO-214AA



**Fast Recovery Rectifiers**

Part Number	Peak Repetitive Reverse Voltage	Reverse Recovery Time	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$T_{RR}$	$I_O@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	nS	A	°C	A	V	A	μA	V	
<b>3.0 AMP Fast Recovery Rectifiers</b>										
FR301	50	150	3.0	75	200	1.3	3.0	5.0	50	DO-27
FR302	100	150	3.0	75	200	1.3	3.0	5.0	100	DO-27
FR303	200	150	3.0	75	200	1.3	3.0	5.0	200	DO-27
FR304	400	150	3.0	75	200	1.3	3.0	5.0	400	DO-27
FR305	600	250	3.0	75	200	1.3	3.0	5.0	600	DO-27
FR306	800	500	3.0	75	200	1.3	3.0	5.0	800	DO-27
FR307	1000	500	3.0	75	200	1.3	3.0	5.0	100	DO-27
<b>3.0 AMP Fast Recovery Rectifiers</b>										
BY396	100	150	3.0	75	200	1.3	3.0	10.0	100	DO-27
BY397	200	150	3.0	75	200	1.3	3.0	10.0	200	DO-27
BY398	400	150	3.0	75	200	1.3	3.0	10.0	400	DO-27
BY399	800	500	3.0	75	200	1.3	3.0	10.0	800	DO-27
<b>3.0 AMP Fast Recovery Rectifiers</b>										
FR3A	50	150	3.0	75	100	1.3	3.0	10.0	50	SMC/DO-214AB
FR3B	100	150	3.0	75	100	1.3	3.0	10.0	100	SMC/DO-214AB
FR3D	200	150	3.0	75	100	1.3	3.0	10.0	200	SMC/DO-214AB
FR3G	400	150	3.0	75	100	1.3	3.0	10.0	400	SMC/DO-214AB
FR3J	600	250	3.0	75	100	1.3	3.0	10.0	600	SMC/DO-214AB
FR3K	800	500	3.0	75	100	1.3	3.0	10.0	800	SMC/DO-214AB
<b>6.0 AMP Fast Recovery Rectifiers</b>										
FR601	50	150	6.0	75	300	1.3	6.0	5.0	50	R-6
FR602	100	150	6.0	75	300	1.3	6.0	5.0	100	R-6
FR603	200	150	6.0	75	300	1.3	6.0	5.0	200	R-6
FR604	400	150	6.0	75	300	1.3	6.0	5.0	400	R-6
FR605	600	250	6.0	75	300	1.3	6.0	5.0	600	R-6
FR606	800	500	6.0	75	300	1.3	6.0	5.0	800	R-6
FR607	1000	500	6.0	75	300	1.3	6.0	5.0	100	R-6





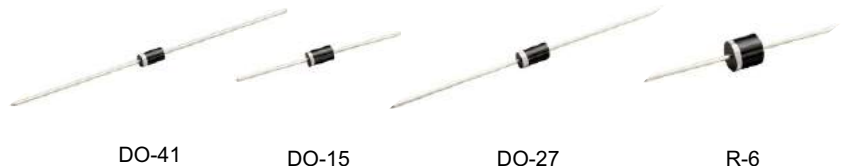


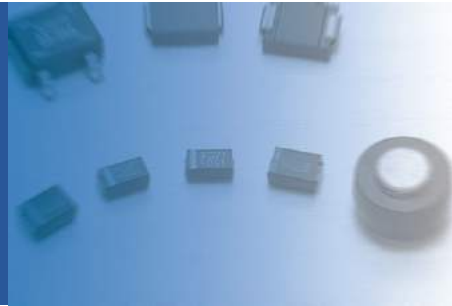
# Super Fast Recovery Rectifiers

1.0 AMP Super Fast Recovery Rectifiers .....	12
2.0 AMP Super Fast Recovery Rectifiers .....	12
3.0 AMP Super Fast Recovery Rectifiers .....	12
5.0 AMP Super Fast Recovery Rectifiers .....	12
6.0 AMP Super Fast Recovery Rectifiers .....	12

**Super Fast Recovery Rectifiers**

Part Number	Peak Repetitive Reverse Voltage	Reverse Recovery Time	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$T_{RR}$	$I_O@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	nS	A	°C	A	V	A	µA	V	
<b>1.0 AMP Super Fast Recovery Rectifiers</b>										
SF11	50	35	1.0	55	30	0.95	1.0	10.0	50	DO-41
SF12	100	35	1.0	55	30	0.95	1.0	10.0	100	DO-41
SF13	150	35	1.0	55	30	0.95	1.0	10.0	150	DO-41
SF14	200	35	1.0	55	30	0.95	1.0	10.0	200	DO-41
SF15	300	35	1.0	55	30	1.25	1.0	10.0	300	DO-41
SF16	400	35	1.0	55	30	1.25	1.0	10.0	400	DO-41
SF17	600	35	1.0	55	30	1.50	1.0	10.0	600	DO-41
<b>2.0 AMP Super Fast Recovery Rectifiers</b>										
SF21	50	35	2.0	55	60	0.95	2.0	10.0	50	DO-15
SF22	100	35	2.0	55	60	0.95	2.0	10.0	100	DO-15
SF23	150	35	2.0	55	60	0.95	2.0	10.0	150	DO-15
SF24	200	35	2.0	55	60	0.95	2.0	10.0	200	DO-15
SF25	300	35	2.0	55	60	1.25	2.0	10.0	300	DO-15
SF26	400	35	2.0	55	60	1.25	2.0	10.0	400	DO-15
SF27	600	35	2.0	55	60	1.50	2.0	10.0	600	DO-15
<b>3.0 AMP Super Fast Recovery Rectifiers</b>										
SF31	50	35	3.0	55	125	0.95	3.0	10.0	50	DO-27
SF32	100	35	3.0	55	125	0.95	3.0	10.0	100	DO-27
SF33	150	35	3.0	55	125	0.95	3.0	10.0	150	DO-27
SF34	200	35	3.0	55	125	0.95	3.0	10.0	200	DO-27
SF35	300	35	3.0	55	125	1.25	3.0	10.0	300	DO-27
SF36	400	35	3.0	55	125	1.25	3.0	10.0	400	DO-27
SF37	600	35	3.0	55	125	1.50	3.0	10.0	600	DO-27
<b>5.0 AMP Super Fast Recovery Rectifiers</b>										
SF51	50	35	5.0	55	150	0.95	5.0	10.0	50	DO-27
SF52	100	35	5.0	55	150	0.95	5.0	10.0	100	DO-27
SF53	150	35	5.0	55	150	0.95	5.0	10.0	150	DO-27
SF54	200	35	5.0	55	150	0.95	5.0	10.0	200	DO-27
SF55	300	35	5.0	55	150	1.25	5.0	10.0	300	DO-27
SF56	400	35	5.0	55	150	1.25	5.0	10.0	400	DO-27
SF57	600	35	5.0	55	150	1.50	5.0	10.0	600	DO-27
<b>6.0 AMP Super Fast Recovery Rectifiers</b>										
SF61	50	35	6.0	55	150	0.95	6.0	10.0	50	DO-27
SF62	100	35	6.0	55	150	0.95	6.0	10.0	100	DO-27
SF63	150	35	6.0	55	150	0.95	6.0	10.0	150	DO-27
SF64	200	35	6.0	55	150	0.95	6.0	10.0	200	DO-27
SF65	300	35	6.0	55	150	1.25	6.0	10.0	300	DO-27
SF66	400	35	6.0	55	150	1.25	6.0	10.0	400	DO-27
SF67	600	35	6.0	55	150	1.50	6.0	10.0	600	DO-27





## High Efficiency Rectifiers

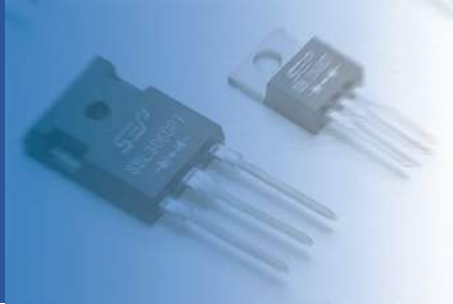
1.0 AMP High Efficiency Rectifiers .....	14
1.5 AMP High Efficiency Rectifiers .....	14
2.0 AMP High Efficiency Rectifiers .....	14
3.0 AMP High Efficiency Rectifiers .....	14
5.0 AMP High Efficiency Rectifiers .....	14

High Efficiency Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Reverse Recovery Time	Max. Average Rectified Current		Max. Peak Forward Surge Current (t)	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$T_{RR}$	$I_O@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	nS	A	°C	A	V	A	µA	V	
<b>1.0 AMP High Efficiency Rectifiers</b>										
1H1	50	50	1.0	55	30	1.00	1.0	5.0	50	R-1
1H2	100	50	1.0	55	30	1.00	1.0	5.0	100	R-1
1H3	200	50	1.0	55	30	1.00	1.0	5.0	200	R-1
1H4	300	50	1.0	55	30	1.00	1.0	5.0	300	R-1
1H5	400	50	1.0	55	30	1.30	1.0	5.0	400	R-1
1H6	600	75	1.0	55	30	1.70	1.0	5.0	600	R-1
1H7	800	75	1.0	55	30	1.70	1.0	5.0	800	R-1
1H8	1000	75	1.0	55	30	1.70	1.0	5.0	1000	R-1
UF4001	50	50	1.0	55	30	1.30	1.0	10.0	50	DO-41
UF4002	100	50	1.0	55	30	1.30	1.0	10.0	100	DO-41
UF4003	200	50	1.0	55	30	1.30	1.0	10.0	200	DO-41
UF4004	400	50	1.0	55	30	1.30	1.0	10.0	400	DO-41
UF4005	600	75	1.0	55	30	1.70	1.0	10.0	600	DO-41
UF4006	800	75	1.0	55	30	1.70	1.0	10.0	800	DO-41
UF4007	1000	75	1.0	55	30	1.70	1.0	10.0	1000	DO-41
HER101	50	50	1.0	55	30	1.00	1.0	5.0	50	DO-41
HER102	100	50	1.0	55	30	1.00	1.0	5.0	100	DO-41
HER103	200	50	1.0	55	30	1.00	1.0	5.0	200	DO-41
HER104	300	50	1.0	55	30	1.30	1.0	5.0	300	DO-41
HER105	400	50	1.0	55	30	1.30	1.0	5.0	400	DO-41
HER106	600	75	1.0	55	30	1.85	1.0	5.0	600	DO-41
HER107	800	75	1.0	55	30	1.85	1.0	5.0	800	DO-41
HER108	1000	75	1.0	55	30	1.85	1.0	5.0	1000	DO-41
<b>1.5 AMP High Efficiency Rectifiers</b>										
HER151	50	50	1.5	55	50	1.00	1.5	10.0	50	DO-15
HER152	100	50	1.5	55	50	1.00	1.5	10.0	100	DO-15
HER153	200	50	1.5	55	50	1.00	1.5	10.0	200	DO-15
HER154	300	50	1.5	55	50	1.30	1.5	10.0	300	DO-15
HER155	400	50	1.5	55	50	1.30	1.5	10.0	400	DO-15
HER156	600	75	1.5	55	50	1.85	1.5	10.0	600	DO-15
HER157	800	75	1.5	55	50	1.85	1.5	10.0	800	DO-15
HER158	1000	75	1.5	55	50	1.85	1.5	10.0	1000	DO-15
<b>2.0 AMP High Efficiency Rectifiers</b>										
HER201	50	50	2.0	55	60	1.00	2.0	10.0	50	DO-15
HER202	100	50	2.0	55	60	1.00	2.0	10.0	100	DO-15
HER203	200	50	2.0	55	60	1.00	2.0	10.0	200	DO-15
HER204	300	50	2.0	55	60	1.30	2.0	10.0	300	DO-15
HER205	400	50	2.0	55	60	1.30	2.0	10.0	400	DO-15
HER206	600	70	2.0	55	60	1.85	2.0	10.0	600	DO-15
HER207	800	70	2.0	55	60	1.85	2.0	10.0	800	DO-15
HER208	1000	70	2.0	55	60	1.85	2.0	10.0	1000	DO-15
<b>3.0 AMP High Efficiency Rectifiers</b>										
UF5400	50	50	3.0	55	150	1.30	3.0	10.0	50	DO-27
UF5401	100	50	3.0	55	150	1.30	3.0	10.0	100	DO-27
UF5402	200	50	3.0	55	150	1.30	3.0	10.0	200	DO-27
UF5403	300	50	3.0	55	150	1.30	3.0	10.0	300	DO-27
UF5404	400	50	3.0	55	150	1.30	3.0	10.0	400	DO-27
UF5406	600	75	3.0	55	150	1.70	3.0	10.0	600	DO-27
UF5407	800	75	3.0	55	150	1.70	3.0	10.0	800	DO-27
UF5408	1000	75	3.0	55	150	1.70	3.0	10.0	1000	DO-27
HER301	50	50	3.0	50	150	1.00	3.0	10.0	50	DO-27
HER302	100	50	3.0	50	150	1.00	3.0	10.0	100	DO-27
HER303	200	50	3.0	50	150	1.00	3.0	10.0	200	DO-27
HER304	300	50	3.0	50	150	1.30	3.0	10.0	300	DO-27
HER305	400	50	3.0	50	150	1.30	3.0	10.0	400	DO-27
HER306	600	70	3.0	50	150	1.85	3.0	10.0	600	DO-27
HER307	800	70	3.0	50	150	1.85	3.0	10.0	800	DO-27
HER308	1000	70	3.0	50	150	1.85	3.0	10.0	1000	DO-27
<b>5.0 AMP High Efficiency Rectifiers</b>										
HER501	50	50	5.0	50	200	1.00	5.0	10.0	50	DO-27
HER502	100	50	5.0	50	200	1.00	5.0	10.0	100	DO-27
HER503	200	50	5.0	50	200	1.00	5.0	10.0	200	DO-27
HER504	300	50	5.0	50	200	1.30	5.0	10.0	300	DO-27
HER505	400	50	5.0	50	200	1.30	5.0	10.0	400	DO-27
HER506	600	70	5.0	50	200	1.85	5.0	10.0	600	DO-27
HER507	800	70	5.0	50	200	1.85	5.0	10.0	800	DO-27
HER508	1000	70	5.0	50	200	1.85	5.0	10.0	1000	DO-27







## Schottky Barrier Rectifiers

1.0 AMP Schottky Barrier Rectifiers .....	16
2.0 AMP Schottky Barrier Rectifiers .....	16
3.0 AMP Schottky Barrier Rectifiers .....	16
5.0 AMP Schottky Barrier Rectifiers .....	16
8.0 AMP Schottky Barrier Rectifiers .....	17
10.0 AMP Schottky Barrier Rectifiers .....	17
16.0 AMP Schottky Barrier Rectifiers .....	17

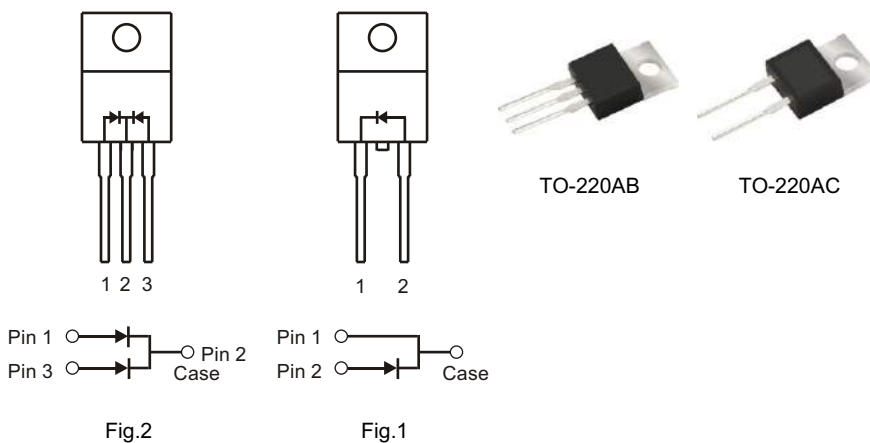
## Schottky Barrier Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	μA	V	
<b>1.0 AMP Schottky Barrier Rectifiers</b>									
SR120	20	1.0	75	30	0.45	1.0	1.0	20	DO-41
SR130	30	1.0	75	30	0.55	1.0	1.0	30	DO-41
SR140	40	1.0	75	30	0.55	1.0	1.0	40	DO-41
SR150	50	1.0	100	30	0.70	1.0	1.0	50	DO-41
SR160	60	1.0	100	30	0.70	1.0	1.0	60	DO-41
SR180	80	1.0	100	30	0.85	1.0	1.0	80	DO-41
SR1100	100	1.0	100	30	0.85	1.0	1.0	100	DO-41
1N5817	20	1.0	90	25	0.45	1.0	1.0	20	DO-41
1N5818	30	1.0	90	25	0.55	1.0	1.0	30	DO-41
1N5819	40	1.0	90	25	0.60	1.0	1.0	40	DO-41
SS12	20	1.0	90	25	0.50	1.0	0.5	20	SMA/DO-214AC
SS14	40	1.0	90	25	0.50	1.0	0.5	40	SMA/DO-214AC
SS16	60	1.0	90	25	0.70	1.0	0.5	60	SMA/DO-214AC
SM5817	20	1.0	90	25	0.45	1.0	1.0	20	SMA/DO-214AC
SM5818	30	1.0	90	25	0.55	1.0	1.0	30	SMA/DO-214AC
SM5819	40	1.0	90	25	0.60	1.0	1.0	40	SMA/DO-214AC
<b>2.0 AMP Schottky Barrier Rectifiers</b>									
SR220	20	2.0	75	50	0.45	2.0	1.0	20	DO-15
SR230	30	2.0	75	50	0.55	2.0	1.0	30	DO-15
SR240	40	2.0	75	50	0.55	2.0	1.0	40	DO-15
SR250	50	2.0	100	50	0.70	2.0	1.0	50	DO-15
SR260	60	2.0	100	50	0.70	2.0	1.0	60	DO-15
SR280	80	2.0	100	50	0.85	2.0	1.0	80	DO-15
SR2100	100	2.0	100	50	0.85	2.0	1.0	100	DO-15
SS22	20	2.0	75	50	0.6	2.0	0.5	20	SMB/DO-214AC
SS24	40	2.0	75	50	0.6	2.0	0.5	40	SMB/DO-214AC
SS26	60	2.0	75	50	0.7	2.0	0.5	60	SMB/DO-214AC
<b>3.0 AMP Schottky Barrier Rectifiers</b>									
SR320	20	3.0	75	80	0.50	3.0	1.0	20	DO-27
SR330	30	3.0	75	80	0.50	3.0	1.0	30	DO-27
SR340	40	3.0	75	80	0.50	3.0	1.0	40	DO-27
SR350	50	3.0	100	80	0.74	3.0	1.0	50	DO-27
SR360	60	3.0	100	80	0.74	3.0	1.0	60	DO-27
SR380	80	3.0	100	80	0.85	3.0	1.0	80	DO-27
SR3100	100	3.0	100	80	0.85	3.0	1.0	100	DO-27
1N5820	20	3.0	75	80	0.475	3.0	3.0	20	DO-27
1N5821	30	3.0	75	80	0.500	3.0	3.0	30	DO-27
1N5822	40	3.0	75	80	0.525	3.0	3.0	40	DO-27
SS32	20	3.0	75	100	0.50	3.0	0.5	20	SMC/DO-214AB
SS34	40	3.0	75	100	0.50	3.0	0.5	30	SMC/DO-214AB
SS36	60	3.0	75	100	0.75	3.0	0.5	40	SMC/DO-214AB
<b>5.0 AMP Schottky Barrier Rectifiers</b>									
SR520	20	5.0	60	150	0.55	5.0	5.0	20	DO-27
SR530	30	5.0	60	150	0.55	5.0	5.0	30	DO-27
SR540	40	5.0	60	150	0.55	5.0	5.0	40	DO-27
SR550	50	5.0	85	150	0.70	5.0	5.0	50	DO-27
SR560	60	5.0	85	150	0.70	5.0	5.0	60	DO-27
SR580	80	5.0	85	150	0.85	5.0	5.0	80	DO-27
SR5100	100	5.0	85	150	0.85	5.0	5.0	100	DO-27



**Schottky Barrier Rectifiers**

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package	Circuit Figure
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$			
	V	A	°C	A	V	A	µA	V		
<b>8.0 AMP Schottky Barrier Rectifiers</b>										
SBL830	30	8.0	90	200	0.55	8.0	0.5	30	TO-220AC	Fig.1
SBL835	35	8.0	90	200	0.55	8.0	0.5	35	TO-220AC	Fig.1
SBL840	40	8.0	90	200	0.55	8.0	0.5	40	TO-220AC	Fig.1
SBL845	45	8.0	90	200	0.55	8.0	0.5	45	TO-220AC	Fig.1
SBL850	50	8.0	115	200	0.70	8.0	0.5	50	TO-220AC	Fig.1
SBL860	60	8.0	115	200	0.70	8.0	0.5	60	TO-220AC	Fig.1
<b>10.0 AMP Schottky Barrier Rectifiers</b>										
SBL1030	30	10.0	95	250	0.60	5.0	1.0	30	TO-220AC	Fig.1
SBL1035	35	10.0	95	250	0.60	5.0	1.0	35	TO-220AC	Fig.1
SBL1040	40	10.0	95	250	0.60	5.0	1.0	40	TO-220AC	Fig.1
SBL1045	45	10.0	95	250	0.60	5.0	1.0	45	TO-220AC	Fig.1
SBL1050	50	10.0	120	250	0.75	5.0	1.0	50	TO-220AC	Fig.1
SBL1060	60	10.0	120	250	0.75	5.0	1.0	60	TO-220AC	Fig.1
SBL1030CT	30	10.0	95	175	0.55	5.0	0.5	30	TO-220AB	Fig.2
SBL1035CT	35	10.0	95	175	0.55	5.0	0.5	35	TO-220AB	Fig.2
SBL1040CT	40	10.0	95	175	0.55	5.0	0.5	40	TO-220AB	Fig.2
SBL1045CT	45	10.0	95	175	0.55	5.0	0.5	45	TO-220AB	Fig.2
SBL1050CT	50	10.0	120	175	0.70	5.0	0.5	50	TO-220AB	Fig.2
SBL1060CT	60	10.0	120	175	0.70	5.0	0.5	60	TO-220AB	Fig.2
<b>16.0 AMP Schottky Barrier Rectifiers</b>										
SBL1630	30	16.0	90	275	0.57	8.0	1.0	30	TO-220AC	Fig.1
SBL1635	35	16.0	90	275	0.57	8.0	1.0	35	TO-220AC	Fig.1
SBL1640	40	16.0	90	275	0.57	8.0	1.0	40	TO-220AC	Fig.1
SBL1645	45	16.0	90	275	0.57	8.0	1.0	45	TO-220AC	Fig.1
SBL1650	50	16.0	120	275	0.75	8.0	1.0	50	TO-220AC	Fig.1
SBL1660	60	16.0	120	275	0.75	8.0	1.0	60	TO-220AC	Fig.1
SBL1630CT	30	16.0	90	250	0.55	8.0	0.5	30	TO-220AB	Fig.2
SBL1635CT	35	16.0	90	250	0.55	8.0	0.5	35	TO-220AB	Fig.2
SBL1640CT	40	16.0	90	250	0.55	8.0	0.5	40	TO-220AB	Fig.2
SBL1645CT	45	16.0	90	250	0.55	8.0	0.5	45	TO-220AB	Fig.2
SBL1650CT	50	16.0	120	250	0.70	8.0	0.5	50	TO-220AB	Fig.2
SBL1660CT	60	16.0	120	250	0.70	8.0	0.5	60	TO-220AB	Fig.2







## High Voltage Rectifiers

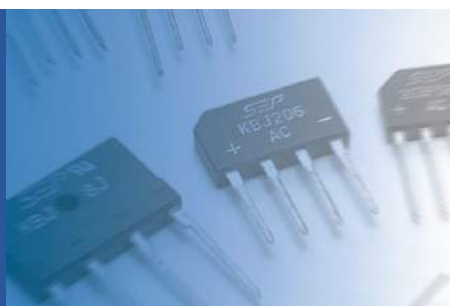
0.75 AMP High Voltage Silicon Rectifiers .....	20
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**High Voltage Rectifiers**

Part Number	Peak Repetitive Peverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>0.75 AMP High Voltage Silicon Rectifier</b>									
HVP5	5000	0.75	55	50	10	0.75	5.0	5000	HVP
HVP8	8000	0.75	55	50	10	0.75	5.0	8000	HVP
HVP10	10000	0.75	55	50	10	0.75	5.0	10000	HVP
HVP12	12000	0.75	55	50	14	0.75	5.0	12000	HVP
HVP14	14000	0.75	55	50	14	0.75	5.0	14000	HVP
HVP15	15000	0.75	55	50	16	0.75	5.0	15000	HVP
HVP16	16000	0.75	55	50	16	0.75	5.0	16000	HVP



HVP



## Bridge Rectifiers

0.5 AMP Bridge Rectifiers .....	22
1.0 AMP Bridge Rectifiers .....	22
1.5 AMP Bridge Rectifiers .....	23
2.0 AMP Bridge Rectifiers .....	24
3.0 AMP Bridge Rectifiers .....	24
4.0 AMP Bridge Rectifiers .....	25
5.0 AMP Bridge Rectifiers .....	25
6.0 AMP Bridge Rectifiers .....	26
8.0 AMP Bridge Rectifiers .....	27
10.0 AMP Bridge Rectifiers .....	28
15.0 AMP Bridge Rectifiers .....	30
25.0 AMP Bridge Rectifiers .....	32
35.0 AMP Bridge Rectifiers .....	34
40.0 AMP Bridge Rectifiers .....	35
50.0 AMP Bridge Rectifiers .....	35

Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>0.5 AMP Single-Phase Bridge Rectifiers</b>									
B05S	50	0.5	40	30	1.1	0.5	10.0	50	MiniDip
B1S	100	0.5	40	30	1.1	0.5	10.0	100	MiniDip
B2S	200	0.5	40	30	1.1	0.5	10.0	200	MiniDip
B4S	400	0.5	40	30	1.1	0.5	10.0	400	MiniDip
B6S	600	0.5	40	30	1.1	0.5	10.0	600	MiniDip
B8S	800	0.5	40	30	1.1	0.5	10.0	800	MiniDip
B10S	1000	0.5	40	30	1.1	0.5	10.0	1000	MiniDip
<b>1.0 AMP Single-Phase Bridge Rectifiers</b>									
DF005	50	1.0	40	50	1.1	1.0	10.0	50	DB
DF01	100	1.0	40	50	1.1	1.0	10.0	100	DB
DF02	200	1.0	40	50	1.1	1.0	10.0	200	DB
DF04	400	1.0	40	50	1.1	1.0	10.0	400	DB
DF06	600	1.0	40	50	1.1	1.0	10.0	600	DB
DF08	800	1.0	40	50	1.1	1.0	10.0	800	DB
DF10	1000	1.0	40	50	1.1	1.0	10.0	1000	DB
DF005M	50	1.0	40	50	1.1	1.0	10.0	50	DB
DF01M	100	1.0	40	50	1.1	1.0	10.0	100	DB
DF02M	200	1.0	40	50	1.1	1.0	10.0	200	DB
DF04M	400	1.0	40	50	1.1	1.0	10.0	400	DB
DF06M	600	1.0	40	50	1.1	1.0	10.0	600	DB
DF08M	800	1.0	40	50	1.1	1.0	10.0	800	DB
DF10M	1000	1.0	40	50	1.1	1.0	10.0	1000	DB
DF005S	50	1.0	40	50	1.1	1.0	10.0	50	DBS
DF01S	100	1.0	40	50	1.1	1.0	10.0	100	DBS
DF02S	200	1.0	40	50	1.1	1.0	10.0	200	DBS
DF04S	400	1.0	40	50	1.1	1.0	10.0	400	DBS
DF06S	600	1.0	40	50	1.1	1.0	10.0	600	DBS
DF08S	800	1.0	40	50	1.1	1.0	10.0	800	DBS
DF10S	1000	1.0	40	50	1.1	1.0	10.0	1000	DBS
DB101	50	1.0	40	50	1.1	1.0	10.0	50	DB
DB102	100	1.0	40	50	1.1	1.0	10.0	100	DB
DB103	200	1.0	40	50	1.1	1.0	10.0	200	DB
DB104	400	1.0	40	50	1.1	1.0	10.0	400	DB
DB105	600	1.0	40	50	1.1	1.0	10.0	600	DB
DB106	800	1.0	40	50	1.1	1.0	10.0	800	DB
DB107	1000	1.0	40	50	1.1	1.0	10.0	1000	DB
DB101S	50	1.0	40	50	1.1	1.0	10.0	50	DBS
DB102S	100	1.0	40	50	1.1	1.0	10.0	100	DBS
DB103S	200	1.0	40	50	1.1	1.0	10.0	200	DBS
DB104S	400	1.0	40	50	1.1	1.0	10.0	400	DBS
DB105S	600	1.0	40	50	1.1	1.0	10.0	600	DBS
DB106S	800	1.0	40	50	1.1	1.0	10.0	800	DBS
DB107S	1000	1.0	40	50	1.1	1.0	10.0	1000	DBS
RS101	50	1.0	50	30	1.0	1.0	10.0	50	RS1
RS102	100	1.0	50	30	1.0	1.0	10.0	100	RS1
RS103	200	1.0	50	30	1.0	1.0	10.0	200	RS1
RS104	400	1.0	50	30	1.0	1.0	10.0	400	RS1
RS105	600	1.0	50	30	1.0	1.0	10.0	600	RS1
RS106	800	1.0	50	30	1.0	1.0	10.0	800	RS1
RS107	1000	1.0	50	30	1.0	1.0	10.0	1000	RS1



MiniDip



DB



DBS



RS1



Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>1.5 AMP Single-Phase Bridge Rectifiers</b>									
DF15005	50	1.5	40	50	1.1	1.0	10.0	50	DIP
DF1501	100	1.5	40	50	1.1	1.0	10.0	100	DIP
DF1502	200	1.5	40	50	1.1	1.5	10.0	200	DIP
DF1504	400	1.5	40	50	1.1	1.5	10.0	400	DIP
DF1506	600	1.5	40	50	1.1	1.5	10.0	600	DIP
DF1508	800	1.5	40	50	1.1	1.5	10.0	800	DIP
DF1510	1000	1.5	40	50	1.1	1.5	10.0	1000	DIP
DF15005S	50	1.5	40	50	1.1	1.5	10.0	50	DIP-S
DF1501S	100	1.5	40	50	1.1	1.5	10.0	100	DIP-S
DF1502S	200	1.5	40	50	1.1	1.5	10.0	200	DIP-S
DF1504S	400	1.5	40	50	1.1	1.5	10.0	400	DIP-S
DF1506S	600	1.5	40	50	1.1	1.5	10.0	600	DIP-S
DF1508S	800	1.5	40	50	1.1	1.5	10.0	800	DIP-S
DF1510S	1000	1.5	40	50	1.1	1.5	10.0	1000	DIP-S
DB151	50	1.5	40	50	1.1	1.5	10.0	50	DIP
DB152	100	1.5	40	50	1.1	1.5	10.0	100	DIP
DB153	200	1.5	40	50	1.1	1.5	10.0	200	DIP
DB154	400	1.5	40	50	1.1	1.5	10.0	400	DIP
DB155	600	1.5	40	50	1.1	1.5	10.0	600	DIP
DB156	800	1.5	40	50	1.1	1.5	10.0	800	DIP
DB157	1000	1.5	40	50	1.1	1.5	10.0	1000	DIP
DB151S	50	1.5	40	50	1.1	1.5	10.0	50	DIP-S
DB152S	100	1.5	40	50	1.1	1.5	10.0	100	DIP-S
DB153S	200	1.5	40	50	1.1	1.5	10.0	200	DIP-S
DB154S	400	1.5	40	50	1.1	1.5	10.0	400	DIP-S
DB155S	600	1.5	40	50	1.1	1.5	10.0	600	DIP-S
DB156S	800	1.5	40	50	1.1	1.5	10.0	800	DIP-S
DB157S	1000	1.5	40	50	1.1	1.5	10.0	1000	DIP-S
RB151	50	1.5	50	50	1.1	1.5	10.0	50	WOB
RB152	100	1.5	50	50	1.1	1.5	10.0	100	WOB
RB153	200	1.5	50	50	1.1	1.5	10.0	200	WOB
RB154	400	1.5	50	50	1.1	1.5	10.0	400	WOB
RB155	600	1.5	50	50	1.1	1.5	10.0	600	WOB
RB156	800	1.5	50	50	1.1	1.5	10.0	800	WOB
RB157	1000	1.5	50	50	1.1	1.5	10.0	1000	WOB
W005M	50	1.5	50	50	1.1	1.5	10.0	50	WOB
W01M	100	1.5	50	50	1.1	1.5	10.0	100	WOB
W02M	200	1.5	50	50	1.1	1.5	10.0	200	WOB
W04M	400	1.5	50	50	1.1	1.5	10.0	400	WOB
W06M	600	1.5	50	50	1.1	1.5	10.0	600	WOB
W08M	800	1.5	50	50	1.1	1.5	10.0	800	WOB
W10M	1000	1.5	50	50	1.1	1.5	10.0	1000	WOB
KBP005	50	1.5	50	50	1.1	1.5	10.0	50	KBP
KBP01	100	1.5	50	50	1.1	1.5	10.0	100	KBP
KBP02	200	1.5	50	50	1.1	1.5	10.0	200	KBP
KBP04	400	1.5	50	50	1.1	1.5	10.0	400	KBP
KBP06	600	1.5	50	50	1.1	1.5	10.0	600	KBP
KBP08	800	1.5	50	50	1.1	1.5	10.0	800	KBP
KBP10	1000	1.5	50	50	1.1	1.5	10.0	1000	KBP
KBP005M	50	1.5	50	50	1.1	1.5	10.0	50	KBP
KBP01M	100	1.5	50	50	1.1	1.5	10.0	100	KBP
KBP02M	200	1.5	50	50	1.1	1.5	10.0	200	KBP
KBP04M	400	1.5	50	50	1.1	1.5	10.0	400	KBP
KBP06M	600	1.5	50	50	1.1	1.5	10.0	600	KBP
KBP08M	800	1.5	50	50	1.1	1.5	10.0	800	KBP
KBP10M	1000	1.5	50	50	1.1	1.5	10.0	1000	KBP



DB



DBS



WOB



KBP

## Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>2.0 AMP Single-Phase Bridge Rectifiers</b>									
2W005	50	2.0	25	60	1.1	2.0	10.0	50	WOB
2W01	100	2.0	25	60	1.1	2.0	10.0	100	WOB
2W02	200	2.0	25	60	1.1	2.0	10.0	200	WOB
2W04	400	2.0	25	60	1.1	2.0	10.0	400	WOB
2W06	600	2.0	25	60	1.1	2.0	10.0	600	WOB
2W08	800	2.0	25	60	1.1	2.0	10.0	800	WOB
2W10	1000	2.0	25	60	1.1	2.0	10.0	1000	WOB
2KBP005M	50	2.0	50	60	1.1	2.0	10.0	50	KBP
2KBP01M	100	2.0	50	60	1.1	2.0	10.0	100	KBP
2KBP02M	200	2.0	50	60	1.1	2.0	10.0	200	KBP
2KBP04M	400	2.0	50	60	1.1	2.0	10.0	400	KBP
2KBP06M	600	2.0	50	60	1.1	2.0	10.0	600	KBP
2KBP08M	800	2.0	50	60	1.1	2.0	10.0	800	KBP
2KBP10M	1000	2.0	50	60	1.1	2.0	10.0	1000	KBP
RS201	50	2.0	50	50	1.1	2.0	10.0	50	RS2
RS202	100	2.0	50	50	1.1	2.0	10.0	100	RS2
RS203	200	2.0	50	50	1.1	2.0	10.0	200	RS2
RS204	400	2.0	50	50	1.1	2.0	10.0	400	RS2
RS205	600	2.0	50	50	1.1	2.0	10.0	600	RS2
RS206	800	2.0	50	50	1.1	2.0	10.0	800	RS2
RS207	1000	2.0	50	50	1.1	2.0	10.0	1000	RS2
<b>3.0 AMP Single-Phase Bridge Rectifiers</b>									
KBPC1005	50	3.0	50	50	1.1	3.0	10.0	50	BR3
KBPC101	100	3.0	50	50	1.1	3.0	10.0	100	BR3
KBPC102	200	3.0	50	50	1.1	3.0	10.0	200	BR3
KBPC104	400	3.0	50	50	1.1	3.0	10.0	400	BR3
KBPC106	600	3.0	50	50	1.1	3.0	10.0	600	BR3
KBPC108	800	3.0	50	50	1.1	3.0	10.0	800	BR3
KBPC110	1000	3.0	50	50	1.1	3.0	10.0	1000	BR3
BR305	50	3.0	50	50	1.1	3.0	10.0	50	BR3
BR31	100	3.0	50	50	1.1	3.0	10.0	100	BR3
BR32	200	3.0	50	50	1.1	3.0	10.0	200	BR3
BR34	400	3.0	50	50	1.1	3.0	10.0	400	BR3
BR36	600	3.0	50	50	1.1	3.0	10.0	600	BR3
BR38	800	3.0	50	50	1.1	3.0	10.0	800	BR3
BR310	1000	3.0	50	50	1.1	3.0	10.0	1000	BR3



WOB



KBP



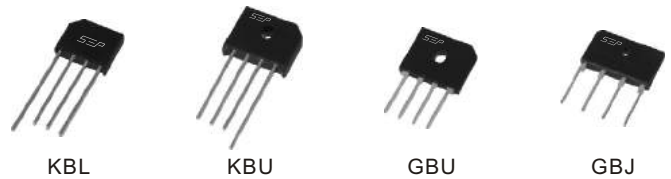
RS2



BR3

Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>4.0 AMP Single-Phase Bridge Rectifiers</b>									
KBL005	50	4.0	50	200	1.1	4.0	10.0	50	KBL
KBL01	100	4.0	50	200	1.1	4.0	10.0	100	KBL
KBL02	200	4.0	50	200	1.1	4.0	10.0	200	KBL
KBL04	400	4.0	50	200	1.1	4.0	10.0	400	KBL
KBL06	600	4.0	50	200	1.1	4.0	10.0	600	KBL
KBL08	800	4.0	50	200	1.1	4.0	10.0	800	KBL
KBL10	1000	4.0	50	200	1.1	4.0	10.0	1000	KBL
KBL4005	50	4.0	50	200	1.1	4.0	10.0	50	KBL
KBL401	100	4.0	50	200	1.1	4.0	10.0	100	KBL
KBL402	200	4.0	50	200	1.1	4.0	10.0	200	KBL
KBL404	400	4.0	50	200	1.1	4.0	10.0	400	KBL
KBL406	600	4.0	50	200	1.1	4.0	10.0	600	KBL
KBL408	800	4.0	50	200	1.1	4.0	10.0	800	KBL
KBL410	1000	4.0	50	200	1.1	4.0	10.0	1000	KBL
RS401L	50	4.0	50	200	1.1	4.0	10.0	50	KBL
RS402L	100	4.0	50	200	1.1	4.0	10.0	100	KBL
RS403L	200	4.0	50	200	1.1	4.0	10.0	200	KBL
RS404L	400	4.0	50	200	1.1	4.0	10.0	400	KBL
RS405L	600	4.0	50	200	1.1	4.0	10.0	600	KBL
RS406L	800	4.0	50	200	1.1	4.0	10.0	800	KBL
RS407L	1000	4.0	50	200	1.1	4.0	10.0	1000	KBL
KBU4A	50	4.0	100	200	1.1	4.0	10.0	50	KBU
KBU4B	100	4.0	100	200	1.1	4.0	10.0	100	KBU
KBU4D	200	4.0	100	200	1.1	4.0	10.0	200	KBU
KBU4G	400	4.0	100	200	1.1	4.0	10.0	400	KBU
KBU4J	600	4.0	100	200	1.1	4.0	10.0	600	KBU
KBU4K	800	4.0	100	200	1.1	4.0	10.0	800	KBU
KBU4M	1000	4.0	100	200	1.1	4.0	10.0	1000	KBU
GBJ4005	50	4.0	100	120	1.1	4.0	10.0	50	GBJ
GBJ401	100	4.0	100	120	1.1	4.0	10.0	100	GBJ
GBJ402	200	4.0	100	120	1.1	4.0	10.0	200	GBJ
GBJ404	400	4.0	100	120	1.1	4.0	10.0	400	GBJ
GBJ406	600	4.0	100	120	1.1	4.0	10.0	600	GBJ
GBJ408	800	4.0	100	120	1.1	4.0	10.0	800	GBJ
GBJ410	1000	4.0	100	120	1.1	4.0	10.0	1000	GBJ
GBU4005	50	4.0	100	150	1.1	4.0	5.0	50	GBU
GBU401	100	4.0	100	150	1.1	4.0	5.0	100	GBU
GBU402	200	4.0	100	150	1.1	4.0	5.0	200	GBU
GBU404	400	4.0	100	150	1.1	4.0	5.0	400	GBU
GBU406	600	4.0	100	150	1.1	4.0	5.0	600	GBU
GBU408	800	4.0	100	150	1.1	4.0	5.0	800	GBU
GBU410	1000	4.0	100	150	1.1	4.0	5.0	1000	GBU



Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>6.0 AMP Single-Phase Bridge Rectifiers</b>									
KBL6005	50	6.0	50	200	1.1	6.0	10.0	50	KBL
KBL601	100	6.0	50	200	1.1	6.0	10.0	100	KBL
KBL602	200	6.0	50	200	1.1	6.0	10.0	200	KBL
KBL604	400	6.0	50	200	1.1	6.0	10.0	400	KBL
KBL606	600	6.0	50	200	1.1	6.0	10.0	600	KBL
KBL608	800	6.0	50	200	1.1	6.0	10.0	800	KBL
KBL610	1000	6.0	50	200	1.1	6.0	10.0	1000	KBL
KBU6A	50	6.0	100	250	1.1	6.0	10.0	50	KBU
KBU6B	100	6.0	100	250	1.1	6.0	10.0	100	KBU
KBU6D	200	6.0	100	250	1.1	6.0	10.0	200	KBU
KBU6G	400	6.0	100	250	1.1	6.0	10.0	400	KBU
KBU6J	600	6.0	100	250	1.1	6.0	10.0	600	KBU
KBU6K	800	6.0	100	250	1.1	6.0	10.0	800	KBU
KBU6M	1000	6.0	100	250	1.1	6.0	10.0	1000	KBU
KBU6005	50	6.0	100	250	1.1	6.0	10.0	50	KBU
KBU601	100	6.0	100	250	1.1	6.0	10.0	100	KBU
KBU602	200	6.0	100	250	1.1	6.0	10.0	200	KBU
KBU604	400	6.0	100	250	1.1	6.0	10.0	400	KBU
KBU606	600	6.0	100	250	1.1	6.0	10.0	600	KBU
KBU608	800	6.0	100	250	1.1	6.0	10.0	800	KBU
KBU610	1000	6.0	100	250	1.1	6.0	10.0	1000	KBU
RS601	50	6.0	100	250	1.1	6.0	10.0	50	KBU
RS602	100	6.0	100	250	1.1	6.0	10.0	100	KBU
RS603	200	6.0	100	250	1.1	6.0	10.0	200	KBU
RS604	400	6.0	100	250	1.1	6.0	10.0	400	KBU
RS605	600	6.0	100	250	1.1	6.0	10.0	600	KBU
RS606	800	6.0	100	250	1.1	6.0	10.0	800	KBU
RS607	1000	6.0	100	250	1.1	6.0	10.0	1000	KBU
KBJ6005	50	6.0	170	170	1.1	6.0	10.0	50	KBJ
KBJ601	100	6.0	170	170	1.1	6.0	10.0	100	KBJ
KBJ602	200	6.0	170	170	1.1	6.0	10.0	200	KBJ
KBJ604	400	6.0	170	170	1.1	6.0	10.0	400	KBJ
KBJ606	600	6.0	170	170	1.1	6.0	10.0	600	KBJ
KBJ608	800	6.0	170	170	1.1	6.0	10.0	800	KBJ
KBJ610	1000	6.0	170	170	1.1	6.0	10.0	1000	KBJ
GBU6005	50	6.0	175	150	1.1	6.0	5.0	50	GBU
GBU601	100	6.0	175	150	1.1	6.0	5.0	100	GBU
GBU602	200	6.0	175	150	1.1	6.0	5.0	200	GBU
GBU604	400	6.0	175	150	1.1	6.0	5.0	400	GBU
GBU606	600	6.0	175	150	1.1	6.0	5.0	600	GBU
GBU608	800	6.0	175	150	1.1	6.0	5.0	800	GBU
GBU610	1000	6.0	175	150	1.1	6.0	5.0	800	GBU
KBPC6005	50	6.0	125	125	1.1	6.0	10.0	50	BR6
KBPC601	100	6.0	125	125	1.1	6.0	10.0	100	BR6
KBPC602	200	6.0	125	125	1.1	6.0	10.0	200	BR6
KBPC604	400	6.0	125	125	1.1	6.0	10.0	400	BR6
KBPC606	600	6.0	125	125	1.1	6.0	10.0	600	BR6
KBPC608	800	6.0	125	125	1.1	6.0	10.0	800	BR6
KBPC610	1000	6.0	125	125	1.1	6.0	10.0	1000	BR6
BR605	50	6.0	125	125	1.1	6.0	10.0	50	BR6
BR61	100	6.0	125	125	1.1	6.0	10.0	100	BR6
BR62	200	6.0	125	125	1.1	6.0	10.0	200	BR6
BR64	400	6.0	125	125	1.1	6.0	10.0	400	BR6
BR66	600	6.0	125	125	1.1	6.0	10.0	600	BR6
BR68	800	6.0	125	125	1.1	6.0	10.0	800	BR6
BR610	1000	6.0	125	125	1.1	6.0	10.0	1000	BR6



KBL



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GBU



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BR6

Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>8.0 AMP Single-Phase Bridge Rectifiers</b>									
KBU8A	50	8.0	100	300	1.1	8.0	10.0	50	KBU
KBU8B	100	8.0	100	300	1.1	8.0	10.0	100	KBU
KBU8D	200	8.0	100	300	1.1	8.0	10.0	200	KBU
KBU8G	400	8.0	100	300	1.1	8.0	10.0	400	KBU
KBU8J	600	8.0	100	300	1.1	8.0	10.0	600	KBU
KBU8K	800	8.0	100	300	1.1	8.0	10.0	800	KBU
KBU8M	1000	8.0	100	300	1.1	8.0	10.0	1000	KBU
KBU8005	50	8.0	100	300	1.1	8.0	10.0	50	KBU
KBU801	100	8.0	100	300	1.1	8.0	10.0	100	KBU
KBU802	200	8.0	100	300	1.1	8.0	10.0	200	KBU
KBU804	400	8.0	100	300	1.1	8.0	10.0	400	KBU
KBU806	600	8.0	100	300	1.1	8.0	10.0	600	KBU
KBU808	800	8.0	100	300	1.1	8.0	10.0	800	KBU
KBU810	1000	8.0	100	300	1.1	8.0	10.0	1000	KBU
RS801	50	8.0	100	300	1.1	8.0	10.0	50	KBU
RS802	100	8.0	100	300	1.1	8.0	10.0	100	KBU
RS803	200	8.0	100	300	1.1	8.0	10.0	200	KBU
RS804	400	8.0	100	300	1.1	8.0	10.0	400	KBU
RS805	600	8.0	100	300	1.1	8.0	10.0	600	KBU
RS806	800	8.0	100	300	1.1	8.0	10.0	800	KBU
RS807	1000	8.0	100	300	1.1	8.0	10.0	1000	KBU
KBJ8005	50	8.0	100	170	1.1	8.0	10.0	50	KBJ
KBJ801	100	8.0	100	170	1.1	8.0	10.0	100	KBJ
KBJ802	200	8.0	100	170	1.1	8.0	10.0	200	KBJ
KBJ804	400	8.0	100	170	1.1	8.0	10.0	400	KBJ
KBJ806	600	8.0	100	170	1.1	8.0	10.0	600	KBJ
KBJ808	800	8.0	100	170	1.1	8.0	10.0	800	KBJ
KBJ810	1000	8.0	100	170	1.1	8.0	10.0	1000	KBJ
GBU8005	50	8.0	100	200	1.1	8.0	5.0	50	GBU
GBU801	100	8.0	100	200	1.1	8.0	5.0	100	GBU
GBU802	200	8.0	100	200	1.1	8.0	5.0	200	GBU
GBU804	400	8.0	100	200	1.1	8.0	5.0	400	GBU
GBU806	600	8.0	100	200	1.1	8.0	5.0	600	GBU
GBU808	800	8.0	100	200	1.1	8.0	5.0	800	GBU
GBU810	1000	8.0	100	200	1.1	8.0	5.0	1000	GBU
KBPC8005	50	8.0	50	125	1.1	8.0	10.0	50	BR8
KBPC801	100	8.0	50	125	1.1	8.0	10.0	100	BR8
KBPC802	200	8.0	50	125	1.1	8.0	10.0	200	BR8
KBPC804	400	8.0	50	125	1.1	8.0	10.0	400	BR8
KBPC806	600	8.0	50	125	1.1	8.0	10.0	600	BR8
KBPC808	800	8.0	50	125	1.1	8.0	10.0	800	BR8
KBPC810	1000	8.0	50	125	1.1	8.0	10.0	1000	BR8
BR805	50	8.0	50	125	1.1	8.0	10.0	50	BR8
BR81	100	8.0	50	125	1.1	8.0	10.0	100	BR8
BR82	200	8.0	50	125	1.1	8.0	10.0	200	BR8
BR84	400	8.0	50	125	1.1	8.0	10.0	400	BR8
BR86	600	8.0	50	125	1.1	8.0	10.0	600	BR8
BR88	800	8.0	50	125	1.1	8.0	10.0	800	BR8
BR810	1000	8.0	50	125	1.1	8.0	10.0	1000	BR8



KBU



GBU



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BR8

Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>10.0 AMP Single-Phase Bridge Rectifiers</b>									
KBU10005	50	10.0	100	300	1.05	10.0	10.0	50	KBU
KBU1001	100	10.0	100	300	1.05	10.0	10.0	100	KBU
KBU1002	200	10.0	100	300	1.05	10.0	10.0	200	KBU
KBU1004	400	10.0	100	300	1.05	10.0	10.0	400	KBU
KBU1006	600	10.0	100	300	1.05	10.0	10.0	600	KBU
KBU1008	800	10.0	100	300	1.05	10.0	10.0	800	KBU
KBU1010	1000	10.0	100	300	1.05	10.0	10.0	1000	KBU
RS10005	50	10.0	100	300	1.1	10.0	10.0	50	KBU
RS1001	100	10.0	100	300	1.1	10.0	10.0	100	KBU
RS1002	200	10.0	100	300	1.1	10.0	10.0	200	KBU
RS1004	400	10.0	100	300	1.1	10.0	10.0	400	KBU
RS1006	600	10.0	100	300	1.1	10.0	10.0	600	KBU
RS1008	800	10.0	100	300	1.1	10.0	10.0	800	KBU
RS1010	1000	10.0	100	300	1.1	10.0	10.0	1000	KBU
KBJ10005	50	10.0	100	170	1.05	10.0	10.0	50	KBJ
KBJ1001	100	10.0	100	170	1.05	10.0	10.0	100	KBJ
KBJ1002	200	10.0	100	170	1.05	10.0	10.0	200	KBJ
KBJ1004	400	10.0	100	170	1.05	10.0	10.0	400	KBJ
KBJ1006	600	10.0	100	170	1.05	10.0	10.0	600	KBJ
KBJ1008	800	10.0	100	170	1.05	10.0	10.0	800	KBJ
KBJ1010	1000	10.0	100	170	1.05	10.0	10.0	1000	KBJ
GBU10005	50	10.0	100	220	1.05	10.0	5.0	50	GBU
GBU1001	100	10.0	100	220	1.05	10.0	5.0	100	GBU
GBU1002	200	10.0	100	220	1.05	10.0	5.0	200	GBU
GBU1004	400	10.0	100	220	1.05	10.0	5.0	400	GBU
GBU1006	600	10.0	100	220	1.05	10.0	5.0	600	GBU
GBU1008	800	10.0	100	220	1.05	10.0	5.0	800	GBU
GBU1010	1000	10.0	100	220	1.05	10.0	5.0	1000	GBU
MP10005S	50	10.0	55	300	1.05	5.0	10.0	50	MPS
MP1001S	100	10.0	55	300	1.05	5.0	10.0	100	MPS
MP1002S	200	10.0	55	300	1.05	5.0	10.0	200	MPS
MP1004S	400	10.0	55	300	1.05	5.0	10.0	400	MPS
MP1006S	600	10.0	55	300	1.05	5.0	10.0	600	MPS
MP1008S	800	10.0	55	300	1.05	5.0	10.0	800	MPS
MP1010S	1000	10.0	55	300	1.05	5.0	10.0	1000	MPS
BR1005	50	10.0	50	150	1.1	5.0	10.0	50	BR8
BR101	100	10.0	50	150	1.1	5.0	10.0	100	BR8
BR102	200	10.0	50	150	1.1	5.0	10.0	200	BR8
BR104	400	10.0	50	150	1.1	5.0	10.0	400	BR8
BR106	600	10.0	50	150	1.1	5.0	10.0	600	BR8
BR108	800	10.0	50	150	1.1	5.0	10.0	800	BR8
BR1010	1000	10.0	50	150	1.1	5.0	10.0	1000	BR8



KBU



GBU



KBJ



BR8



MPS

Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>10.0 AMP Single-Phase Bridge Rectifiers</b>									
KBPC10005	50	10.0	55	300	1.05	5.0	10.0	50	KBPC
KBPC1001	100	10.0	55	300	1.05	5.0	10.0	100	KBPC
KBPC1002	200	10.0	55	300	1.05	5.0	10.0	200	KBPC
KBPC1004	400	10.0	55	300	1.05	5.0	10.0	400	KBPC
KBPC1006	600	10.0	55	300	1.05	5.0	10.0	600	KBPC
KBPC1008	800	10.0	55	300	1.05	5.0	10.0	800	KBPC
KBPC1010	1000	10.0	55	300	1.05	5.0	10.0	1000	KBPC
KBPC10005W	50	10.0	55	300	1.05	5.0	10.0	50	KBPCW
KBPC1001W	100	10.0	55	300	1.05	5.0	10.0	100	KBPCW
KBPC1002W	200	10.0	55	300	1.05	5.0	10.0	200	KBPCW
KBPC1004W	400	10.0	55	300	1.05	5.0	10.0	400	KBPCW
KBPC1006W	600	10.0	55	300	1.05	5.0	10.0	600	KBPCW
KBPC1008W	800	10.0	55	300	1.05	5.0	10.0	800	KBPCW
KBPC1010W	1000	10.0	55	300	1.05	5.0	10.0	1000	KBPCW
MP10005	50	10.0	55	300	1.05	5.0	10.0	50	MP
MP1001	100	10.0	55	300	1.05	5.0	10.0	100	MP
MP1002	200	10.0	55	300	1.05	5.0	10.0	200	MP
MP1004	400	10.0	55	300	1.05	5.0	10.0	400	MP
MP1006	600	10.0	55	300	1.05	5.0	10.0	600	MP
MP1008	800	10.0	55	300	1.05	5.0	10.0	800	MP
MP1010	1000	10.0	55	300	1.05	5.0	10.0	1000	MP
MP10005W	50	10.0	55	300	1.0	5.0	10.0	50	MPW
MP1001W	100	10.0	55	300	1.0	5.0	10.0	100	MPW
MP1002W	200	10.0	55	300	1.0	5.0	10.0	200	MPW
MP1004W	400	10.0	55	300	1.0	5.0	10.0	400	MPW
MP1006W	600	10.0	55	300	1.0	5.0	10.0	600	MPW
MP1008W	800	10.0	55	300	1.0	5.0	10.0	800	MPW
MP1010W	1000	10.0	55	300	1.0	5.0	10.0	1000	MPW



KBPC



KBPCW



MP



MPW

Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>15.0 AMP Single-Phase Bridge Rectifiers</b>									
KBU15005	50	15.0	100	300	1.0	7.5	10.0	50	KBU
KBU1501	100	15.0	100	300	1.0	7.5	10.0	100	KBU
KBU1502	200	15.0	100	300	1.0	7.5	10.0	200	KBU
KBU1504	400	15.0	100	300	1.0	7.5	10.0	400	KBU
KBU1506	600	15.0	100	300	1.0	7.5	10.0	600	KBU
KBU1508	800	15.0	100	300	1.0	7.5	10.0	800	KBU
KBU1510	1000	15.0	100	300	1.0	7.5	10.0	1000	KBU
RS15005	50	15.0	100	300	1.0	7.5	10.0	50	KBU
RS1501	100	15.0	100	300	1.0	7.5	10.0	100	KBU
RS1502	200	15.0	100	300	1.0	7.5	10.0	200	KBU
RS1504	400	15.0	100	300	1.0	7.5	10.0	400	KBU
RS1506	600	15.0	100	300	1.0	7.5	10.0	600	KBU
RS1508	800	15.0	100	300	1.0	7.5	10.0	800	KBU
RS1510	1000	15.0	100	300	1.0	7.5	10.0	1000	KBU
KBJ15005	50	15.0	100	240	1.0	7.5	10.0	50	KBJ
KBJ1501	100	15.0	100	240	1.0	7.5	10.0	100	KBJ
KBJ1502	200	15.0	100	240	1.0	7.5	10.0	200	KBJ
KBJ1504	400	15.0	100	240	1.0	7.5	10.0	400	KBJ
KBJ1506	600	15.0	100	240	1.0	7.5	10.0	600	KBJ
KBJ1508	800	15.0	100	240	1.0	7.5	10.0	800	KBJ
KBJ1510	1000	15.0	100	240	1.0	7.5	10.0	1000	KBJ
GBU15005	50	15.0	100	240	1.0	7.5	5.0	50	GBU
GBU1501	100	15.0	100	240	1.0	7.5	5.0	100	GBU
GBU1502	200	15.0	100	240	1.0	7.5	5.0	200	GBU
GBU1504	400	15.0	100	240	1.0	7.5	5.0	400	GBU
GBU1506	600	15.0	100	240	1.0	7.5	5.0	600	GBU
GBU1508	800	15.0	100	240	1.0	7.5	5.0	800	GBU
GBU1510	1000	15.0	100	240	1.0	7.5	5.0	1000	GBU
MP15005S	50	15.0	55	300	1.0	7.5	10.0	50	MPS
MP1501S	100	15.0	55	300	1.0	7.5	10.0	100	MPS
MP1502S	200	15.0	55	300	1.0	7.5	10.0	200	MPS
MP1504S	400	15.0	55	300	1.0	7.5	10.0	400	MPS
MP1506S	600	15.0	55	300	1.0	7.5	10.0	600	MPS
MP1508S	800	15.0	55	300	1.0	7.5	10.0	800	MPS
MP1510S	1000	15.0	55	300	1.0	7.5	10.0	1000	MPS
KBPC15005	50	15.0	55	300	1.0	7.5	10.0	50	KBPC
KBPC1501	100	15.0	55	300	1.0	7.5	10.0	100	KBPC
KBPC1502	200	15.0	55	300	1.0	7.5	10.0	200	KBPC
KBPC1504	400	15.0	55	300	1.0	7.5	10.0	400	KBPC
KBPC1506	600	15.0	55	300	1.0	7.5	10.0	600	KBPC
KBPC1508	800	15.0	55	300	1.0	7.5	10.0	800	KBPC
KBPC1510	1000	15.0	55	300	1.0	7.5	10.0	1000	KBPC
KBPC15005W	50	15.0	55	300	1.0	7.5	10.0	50	KBPCW
KBPC1501W	100	15.0	55	300	1.0	7.5	10.0	100	KBPCW
KBPC1502W	200	15.0	55	300	1.0	7.5	10.0	200	KBPCW
KBPC1504W	400	15.0	55	300	1.0	7.5	10.0	400	KBPCW
KBPC1506W	600	15.0	55	300	1.0	7.5	10.0	600	KBPCW
KBPC1508W	800	15.0	55	300	1.0	7.5	10.0	800	KBPCW
KBPC1510W	1000	15.0	55	300	1.0	7.5	10.0	1000	KBPCW



KBU



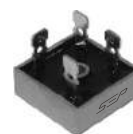
GBU



KBJ



MPS



KBPC



KBPCW



Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>15.0 AMP Single-Phase Bridge Rectifiers</b>									
MP15005	50	15.0	55	300	1.0	7.5	10.0	50	MP
MP1501	100	15.0	55	300	1.0	7.5	10.0	100	MP
MP1502	200	15.0	55	300	1.0	7.5	10.0	200	MP
MP1504	400	15.0	55	300	1.0	7.5	10.0	400	MP
MP1506	600	15.0	55	300	1.0	7.5	10.0	600	MP
MP1508	800	15.0	55	300	1.0	7.5	10.0	800	MP
MP1510	1000	15.0	55	300	1.0	7.5	10.0	1000	MP
MP15005W	50	15.0	55	300	1.0	7.5	10.0	50	MPW
MP1501W	100	15.0	55	300	1.0	7.5	10.0	100	MPW
MP1502W	200	15.0	55	300	1.0	7.5	10.0	200	MPW
MP1504W	400	15.0	55	300	1.0	7.5	10.0	400	MPW
MP1506W	600	15.0	55	300	1.0	7.5	10.0	600	MPW
MP1508W	800	15.0	55	300	1.0	7.5	10.0	800	MPW
MP1510W	1000	15.0	55	300	1.0	7.5	10.0	1000	MPW



MP



MPW

Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>25.0 AMP Single-Phase Bridge Rectifiers</b>									
KBU25005	50	25.0	100	350	1.0	12.5	10.0	50	KBU
KBU2501	100	25.0	100	350	1.0	12.5	10.0	100	KBU
KBU2502	200	25.0	100	350	1.0	12.5	10.0	200	KBU
KBU2504	400	25.0	100	350	1.0	12.5	10.0	400	KBU
KBU2506	600	25.0	100	350	1.0	12.5	10.0	600	KBU
KBU2508	800	25.0	100	350	1.0	12.5	10.0	800	KBU
KBU2510	1000	25.0	100	350	1.0	12.5	10.0	1000	KBU
RS25005	50	25.0	100	350	1.1	12.5	10.0	50	KBU
RS2501	100	25.0	100	350	1.1	12.5	10.0	100	KBU
RS2502	200	25.0	100	350	1.1	12.5	10.0	200	KBU
RS2504	400	25.0	100	350	1.1	12.5	10.0	400	KBU
RS2506	600	25.0	100	350	1.1	12.5	10.0	600	KBU
RS2508	800	25.0	100	350	1.1	12.5	10.0	800	KBU
RS2510	1000	25.0	100	350	1.1	12.5	10.0	1000	KBU
KBJ25005	50	25.0	100	350	1.0	12.5	10.0	50	KBJ
KBJ2501	100	25.0	100	350	1.0	12.5	10.0	100	KBJ
KBJ2502	200	25.0	100	350	1.0	12.5	10.0	200	KBJ
KBJ2504	400	25.0	100	350	1.0	12.5	10.0	400	KBJ
KBJ2506	600	25.0	100	350	1.0	12.5	10.0	600	KBJ
KBJ2508	800	25.0	100	350	1.0	12.5	10.0	800	KBJ
KBJ2510	1000	25.0	100	350	1.0	12.5	10.0	1000	KBJ
GBU25005	50	25.0	100	300	1.0	12.5	5.0	50	GBU
GBU2501	100	25.0	100	300	1.0	12.5	5.0	100	GBU
GBU2502	200	25.0	100	300	1.0	12.5	5.0	200	GBU
GBU2504	400	25.0	100	300	1.0	12.5	5.0	400	GBU
GBU2506	600	25.0	100	300	1.0	12.5	5.0	600	GBU
GBU2508	800	25.0	100	300	1.0	12.5	5.0	800	GBU
GBU2510	1000	25.0	100	300	1.0	12.5	5.0	1000	GBU
MP25005S	50	25.0	55	300	1.0	12.5	10.0	50	MPS
MP2501S	100	25.0	55	300	1.0	12.5	10.0	100	MPS
MP2502S	200	25.0	55	300	1.0	12.5	10.0	200	MPS
MP2504S	400	25.0	55	300	1.0	12.5	10.0	400	MPS
MP2506S	600	25.0	55	300	1.0	12.5	10.0	600	MPS
MP2508S	800	25.0	55	300	1.0	12.5	10.0	800	MPS
MP2510S	1000	25.0	55	300	1.0	12.5	10.0	1000	MPS
KBPC25005	50	25.0	55	300	1.0	12.5	10.0	50	KBPC
KBPC2501	100	25.0	55	300	1.0	12.5	10.0	100	KBPC
KBPC2502	200	25.0	55	300	1.0	12.5	10.0	200	KBPC
KBPC2504	400	25.0	55	300	1.0	12.5	10.0	400	KBPC
KBPC2506	600	25.0	55	300	1.0	12.5	10.0	600	KBPC
KBPC2508	800	25.0	55	300	1.0	12.5	10.0	800	KBPC
KBPC2510	1000	25.0	55	300	1.0	12.5	10.0	1000	KBPC
KBPC25005W	50	25.0	55	300	1.0	12.5	10.0	50	KBPCW
KBPC2501W	100	25.0	55	300	1.0	12.5	10.0	100	KBPCW
KBPC2502W	200	25.0	55	300	1.0	12.5	10.0	200	KBPCW
KBPC2504W	400	25.0	55	300	1.0	12.5	10.0	400	KBPCW
KBPC2506W	600	25.0	55	300	1.0	12.5	10.0	600	KBPCW
KBPC2508W	800	25.0	55	300	1.0	12.5	10.0	800	KBPCW
KBPC2510W	1000	25.0	55	300	1.0	12.5	10.0	1000	KBPCW



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KBPCW

## Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	μA	V	
<b>25.0 AMP Single-Phase Bridge Rectifiers</b>									
MP25005	50	25.0	55	300	1.0	12.5	10.0	50	MP
MP2501	100	25.0	55	300	1.0	12.5	10.0	100	MP
MP2502	200	25.0	55	300	1.0	12.5	10.0	200	MP
MP2504	400	25.0	55	300	1.0	12.5	10.0	400	MP
MP2506	600	25.0	55	300	1.0	12.5	10.0	600	MP
MP2508	800	25.0	55	300	1.0	12.5	10.0	800	MP
MP2510	1000	25.0	55	300	1.0	12.5	10.0	1000	MP
MP25005W	50	25.0	55	300	1.0	12.5	10.0	50	MPW
MP2501W	100	25.0	55	300	1.0	12.5	10.0	100	MPW
MP2502W	200	25.0	55	300	1.0	12.5	10.0	200	MPW
MP2504W	400	25.0	55	300	1.0	12.5	10.0	400	MPW
MP2506W	600	25.0	55	300	1.0	12.5	10.0	600	MPW
MP2508W	800	25.0	55	300	1.0	12.5	10.0	800	MPW
MP2510W	1000	25.0	55	300	1.0	12.5	10.0	1000	MPW
<b>25.0 AMP Three-Phase Bridge Rectifiers</b>									
MT25005	50	25.0	55	300	1.0	12.5	10.0	50	MT
MT2501	100	25.0	55	300	1.0	12.5	10.0	100	MT
MT2502	200	25.0	55	300	1.0	12.5	10.0	200	MT
MT2504	400	25.0	55	300	1.0	12.5	10.0	400	MT
MT2506	600	25.0	55	300	1.0	12.5	10.0	600	MT
MT2508	800	25.0	55	300	1.0	12.5	10.0	800	MT
MT2510	1000	25.0	55	300	1.0	12.5	10.0	1000	MT
MT2512	1200	25.0	55	300	1.0	12.5	10.0	1200	MT
MT2514	1400	25.0	55	300	1.0	12.5	10.0	1400	MT
MT2516	1600	25.0	55	300	1.0	12.5	10.0	1600	MT



MP



MPW



MT

Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>35.0 AMP Single-Phase Bridge Rectifiers</b>									
KBU35005	50	35.0	100	400	1.0	17.5	10.0	50	KBU
KBU3501	100	35.0	100	400	1.0	17.5	10.0	100	KBU
KBU3502	200	35.0	100	400	1.0	17.5	10.0	200	KBU
KBU3504	400	35.0	100	400	1.0	17.5	10.0	400	KBU
KBU3506	600	35.0	100	400	1.0	17.5	10.0	600	KBU
KBU3508	800	35.0	100	400	1.0	17.5	10.0	800	KBU
KBU3510	1000	35.0	100	400	1.0	17.5	10.0	1000	KBU
RS35005	50	35.0	100	350	1.1	17.5	10.0	50	KBU
RS3501	100	35.0	100	350	1.1	17.5	10.0	100	KBU
RS3502	200	35.0	100	350	1.1	17.5	10.0	200	KBU
RS3504	400	35.0	100	350	1.1	17.5	10.0	400	KBU
RS3506	600	35.0	100	350	1.1	17.5	10.0	600	KBU
RS3508	800	35.0	100	350	1.1	17.5	10.0	800	KBU
RS3510	1000	35.0	100	350	1.1	17.5	10.0	1000	KBU
MP35005S	50	35.0	55	400	1.0	17.5	10.0	50	MPS
MP3501S	100	35.0	55	400	1.0	17.5	10.0	100	MPS
MP3502S	200	35.0	55	400	1.0	17.5	10.0	200	MPS
MP3504S	400	35.0	55	400	1.0	17.5	10.0	400	MPS
MP3506S	600	35.0	55	400	1.0	17.5	10.0	600	MPS
MP2508S	800	35.0	55	400	1.0	17.5	10.0	800	MPS
MP2510S	1000	35.0	55	400	1.0	17.5	10.0	1000	MPS
KBPC35005	50	35.0	55	400	1.0	17.5	10.0	50	KBPC
KBPC3501	100	35.0	55	400	1.0	17.5	10.0	100	KBPC
KBPC3502	200	35.0	55	400	1.0	17.5	10.0	200	KBPC
KBPC3504	400	35.0	55	400	1.0	17.5	10.0	400	KBPC
KBPC3506	600	35.0	55	400	1.0	17.5	10.0	600	KBPC
KBPC3508	800	35.0	55	400	1.0	17.5	10.0	800	KBPC
KBPC3510	1000	35.0	55	400	1.0	17.5	10.0	1000	KBPC
KBPC35005W	50	35.0	55	400	1.0	17.5	10.0	50	KBPCW
KBPC3501W	100	35.0	55	400	1.0	17.5	10.0	100	KBPCW
KBPC3502W	200	35.0	55	400	1.0	17.5	10.0	200	KBPCW
KBPC3504W	400	35.0	55	400	1.0	17.5	10.0	400	KBPCW
KBPC3506W	600	35.0	55	400	1.0	17.5	10.0	600	KBPCW
KBPC3508W	800	35.0	55	400	1.0	17.5	10.0	800	KBPCW
KBPC3510W	1000	35.0	55	400	1.0	17.5	10.0	1000	KBPCW
MP35005	50	35.0	55	400	1.0	17.5	10.0	50	MP
MP3501	100	35.0	55	400	1.0	17.5	10.0	100	MP
MP3502	200	35.0	55	400	1.0	17.5	10.0	200	MP
MP3504	400	35.0	55	400	1.0	17.5	10.0	400	MP
MP3506	600	35.0	55	400	1.0	17.5	10.0	600	MP
MP3508	800	35.0	55	400	1.0	17.5	10.0	800	MP
MP3510	1000	35.0	55	400	1.0	17.5	10.0	1000	MP
MP35005W	50	35.0	55	400	1.0	17.5	10.0	50	MPW
MP3501W	100	35.0	55	400	1.0	17.5	10.0	100	MPW
MP3502W	200	35.0	55	400	1.0	17.5	10.0	200	MPW
MP3504W	400	35.0	55	400	1.0	17.5	10.0	400	MPW
MP3506W	600	35.0	55	400	1.0	17.5	10.0	600	MPW
MP3508W	800	35.0	55	400	1.0	17.5	10.0	800	MPW
MP3510W	1000	35.0	55	400	1.0	17.5	10.0	1000	MPW



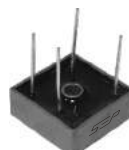
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KBPCW



MP



MPW

## Bridge Rectifiers

Part Number	Peak Repetitive Reverse Voltage	Max. Average Rectified Current		Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RRM}$	$I_o@T$		$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	A	°C	A	V	A	µA	V	
<b>35.0 AMP Three-Phase Bridge Rectifiers</b>									
MT35005	50	35.0	55	400	1.0	17.5	10.0	50	MT
MT3501	100	35.0	55	400	1.0	17.5	10.0	100	MT
MT3502	200	35.0	55	400	1.0	17.5	10.0	200	MT
MT3504	400	35.0	55	400	1.0	17.5	10.0	400	MT
MT3506	600	35.0	55	400	1.0	17.5	10.0	600	MT
MT3508	800	35.0	55	400	1.0	17.5	10.0	800	MT
MT3510	1000	35.0	55	400	1.0	17.5	10.0	1000	MT
MT3512	1200	35.0	55	400	1.0	17.5	10.0	1200	MT
MT3514	1400	35.0	55	400	1.0	17.5	10.0	1400	MT
MT3516	1600	35.0	55	400	1.0	17.5	10.0	1600	MT
<b>40.0 AMP Single-Phase Bridge Rectifiers</b>									
MP40005S	50	40.0	55	400	1.0	20	10.0	50	MPS
MP4001S	100	40.0	55	400	1.0	20	10.0	100	MPS
MP4002S	200	40.0	55	400	1.0	20	10.0	200	MPS
MP4004S	400	40.0	55	400	1.0	20	10.0	400	MPS
MP4006S	600	40.0	55	400	1.0	20	10.0	600	MPS
MP4008S	800	40.0	55	400	1.0	20	10.0	800	MPS
MP4010S	1000	40.0	55	400	1.0	20	10.0	1000	MPS
<b>50.0 AMP Single-Phase Bridge Rectifiers</b>									
KBPC50005	50	50.0	40	400	1.05	25	10.0	50	KBPC
KBPC5001	100	50.0	40	400	1.05	25	10.0	100	KBPC
KBPC5002	200	50.0	40	400	1.05	25	10.0	200	KBPC
KBPC5004	400	50.0	40	400	1.05	25	10.0	400	KBPC
KBPC5006	600	50.0	40	400	1.05	25	10.0	600	KBPC
KBPC5008	800	50.0	40	400	1.05	25	10.0	800	KBPC
KBPC5010	1000	50.0	40	400	1.05	25	10.0	1000	KBPC
KBPC50005W	50	50.0	55	400	1.05	25	10.0	50	KBPCW
KBPC5001W	100	50.0	55	400	1.05	25	10.0	100	KBPCW
KBPC5002W	200	50.0	55	400	1.05	25	10.0	200	KBPCW
KBPC5004W	400	50.0	55	400	1.05	25	10.0	400	KBPCW
KBPC5006W	600	50.0	55	400	1.05	25	10.0	600	KBPCW
KBPC5008W	800	50.0	55	400	1.05	25	10.0	800	KBPCW
KBPC5010W	1000	50.0	55	400	1.05	25	10.0	1000	KBPCW
MP50005	50	50.0	55	400	1.05	25	10.0	50	MP
MP5001	100	50.0	55	400	1.05	25	10.0	100	MP
MP5002	200	50.0	55	400	1.05	25	10.0	200	MP
MP5004	400	50.0	55	400	1.05	25	10.0	400	MP
MP5006	600	50.0	55	400	1.05	25	10.0	600	MP
MP5008	800	50.0	55	400	1.05	25	10.0	800	MP
MP5010	1000	50.0	55	400	1.05	25	10.0	1000	MP
MP50005W	50	50.0	55	400	1.05	25	10.0	50	MPW
MP5001W	100	50.0	55	400	1.05	25	10.0	100	MPW
MP5002W	200	50.0	55	400	1.05	25	10.0	200	MPW
MP5004W	400	50.0	55	400	1.05	25	10.0	400	MPW
MP5006W	600	50.0	55	400	1.05	25	10.0	600	MPW
MP5008W	800	50.0	55	400	1.05	25	10.0	800	MPW
MP5010W	1000	50.0	55	400	1.05	25	10.0	1000	MPW
MP50005S	50	50.0	55	400	1.05	25	10.0	50	MPS
MP5001S	100	50.0	55	400	1.05	25	10.0	100	MPS
MP5002S	200	50.0	55	400	1.05	25	10.0	200	MPS
MP5004S	400	50.0	55	400	1.05	25	10.0	400	MPS
MP5006S	600	50.0	55	400	1.05	25	10.0	600	MPS
MP5008S	800	50.0	55	400	1.05	25	10.0	800	MPS
MP5010S	1000	50.0	55	400	1.05	25	10.0	1000	MPS



MPS



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KBPCW



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MPW



MT





# Transient Voltage Suppressor

400W Transient Voltage Suppressor .....	38
500W Transient Voltage Suppressor .....	40
600W Transient Voltage Suppressor .....	42
1500W Transient Voltage Suppressor .....	44
5000W Transient Voltage Suppressor .....	46

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Max. Clamp Voltage	Peak Plus Current	Reverse Leakage	Package
			$V_{BR}@I_T$						
Uni	BI	$V_{RWM}$	Min.	Max.	$I_T$	$V_C@I_{PP}$	$I_{PP}$	$I_R@V_{RWM}$	
			V	V					
<b>400W Transient Voltage Suppressor</b>									
P4KE6.8A	P4KE6.8CA	5.80	6.45	7.14	10	10.5	39.00	1000	DO-41
P4KE7.5A	P4KE7.5CA	6.40	7.13	7.88	10	11.3	36.30	500	DO-41
P4KE8.2A	P4KE8.2CA	7.02	7.79	8.61	10	12.1	33.90	200	DO-41
P4KE9.1A	P4KE9.1CA	7.78	8.65	9.55	1	13.4	30.60	50	DO-41
P4KE10A	P4KE10CA	8.55	9.50	10.50	1	14.5	28.30	10	DO-41
P4KE11A	P4KE11CA	9.40	10.50	11.60	1	15.6	26.30	5	DO-41
P4KE12A	P4KE12CA	10.20	11.40	12.60	1	16.7	24.60	5	DO-41
P4KE13A	P4KE13CA	11.10	12.40	13.70	1	18.2	22.50	5	DO-41
P4KE15A	P4KE15CA	12.80	14.30	15.80	1	21.2	19.30	5	DO-41
P4KE16A	P4KE16CA	13.60	15.20	16.80	1	22.5	18.20	5	DO-41
P4KE18A	P4KE18CA	15.30	17.10	18.90	1	25.2	16.10	5	DO-41
P4KE20A	P4KE20CA	17.10	19.00	21.00	1	27.7	14.80	5	DO-41
P4KE22A	P4KE22CA	18.80	20.90	23.10	1	30.6	13.40	5	DO-41
P4KE24A	P4KE24CA	20.50	22.80	25.20	1	33.2	12.30	5	DO-41
P4KE27A	P4KE27CA	23.10	25.70	28.40	1	37.5	10.90	5	DO-41
P4KE30A	P4KE30CA	25.60	28.50	31.50	1	41.4	9.90	5	DO-41
P4KE33A	P4KE33CA	28.20	31.40	34.70	1	45.7	9.00	5	DO-41
P4KE36A	P4KE36CA	30.80	34.20	37.80	1	49.9	8.20	5	DO-41
P4KE39A	P4KE39CA	33.30	37.10	41.00	1	53.9	7.60	5	DO-41
P4KE43A	P4KE43CA	36.80	40.90	45.20	1	59.3	6.90	5	DO-41
P4KE47A	P4KE47CA	40.20	44.70	49.40	1	64.8	6.30	5	DO-41
P4KE51A	P4KE51CA	43.60	48.50	53.60	1	70.1	5.80	5	DO-41
P4KE56A	P4KE56CA	47.80	53.20	58.80	1	77.0	5.30	5	DO-41
P4KE62A	P4KE62CA	53.00	58.90	65.10	1	85.0	4.80	5	DO-41
P4KE68A	P4KE68CA	58.10	64.60	71.40	1	92.0	4.50	5	DO-41
P4KE75A	P4KE75CA	64.10	71.30	78.80	1	103.0	4.00	5	DO-41
P4KE82A	P4KE82CA	70.10	77.90	86.10	1	113.0	3.60	5	DO-41
P4KE91A	P4KE91CA	77.80	86.50	95.50	1	125.0	3.30	5	DO-41
P4KE100A	P4KE100CA	85.50	95.00	105.00	1	137.0	3.00	5	DO-41
P4KE110A	P4KE110CA	94.00	105.00	116.00	1	152.0	2.70	5	DO-41
P4KE120A	P4KE120CA	102.00	114.00	126.00	1	165.0	2.50	5	DO-41
P4KE130A	P4KE130CA	111.00	124.00	137.00	1	179.0	2.30	5	DO-41
P4KE150A	P4KE150CA	128.00	143.00	158.00	1	207.0	2.00	5	DO-41
P4KE160A	P4KE160CA	136.00	152.00	168.00	1	219.0	1.90	5	DO-41
P4KE170A	P4KE170CA	145.00	162.00	179.00	1	234.0	1.80	5	DO-41
P4KE180A	P4KE180CA	154.00	171.00	189.00	1	246.0	1.70	5	DO-41
P4KE200A	P4KE200CA	171.00	190.00	210.00	1	274.0	1.50	5	DO-41
P4KE220A	P4KE220CA	185.00	209.00	231.00	1	328.0	1.30	5	DO-41
P4KE250A	P4KE250CA	214.00	237.00	263.00	1	344.0	1.20	5	DO-41
P4KE300A	P4KE300CA	256.00	285.00	315.00	1	414.0	1.00	5	DO-41
P4KE350A	P4KE350CA	300.00	332.00	368.00	1	482.0	0.85	5	DO-41
P4KE400A	P4KE400CA	342.00	380.00	420.00	1	548.0	0.75	5	DO-41
P4KE440A	P4KE440CA	376.00	418.00	462.00	1	602.0	0.68	5	DO-41
P4KE480A	P4KE480CA	408.00	456.00	504.00	1	658.0	0.61	5	DO-41
P4KE510A	P4KE510CA	434.00	485.00	535.00	1	698.0	0.57	5	DO-41
P4KE530A	P4KE530CA	450.00	503.50	556.50	1	725.0	0.55	5	DO-41
P4KE540A	P4KE540CA	459.00	513.00	567.00	1	740.0	0.54	5	DO-41
P4KE550A	P4KE550CA	467.00	522.50	577.50	1	760.0	0.52	5	DO-41



DO-41



Part Number		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Max. Clamp Voltage	Peak Plus Current	Reverse Leakage	Package
			$V_{BR}@I_T$						
Uni	BI	$V_{RWM}$	Min.	Max.	$I_T$	$V_C@I_{PP}$	$I_{PP}$	$I_R@V_{RWM}$	
			V	V					
<b>500W Transient Voltage Suppressor</b>									
SA5.0A	SA5.0CA	5.00	6.40	7.07	10	9.2	54.3	600	DO-15
SA6.0A	SA6.0CA	6.00	6.67	7.37	10	10.3	48.5	600	DO-15
SA6.5A	SA6.5CA	6.50	7.22	7.98	10	11.2	44.6	400	DO-15
SA7.0A	SA7.0CA	7.00	7.78	8.60	10	12.0	41.7	150	DO-15
SA7.5A	SA7.5CA	7.50	8.33	9.21	1	12.9	38.8	50	DO-15
SA8.0A	SA8.0CA	8.00	8.89	9.83	1	13.6	36.8	25	DO-15
SA8.5A	SA8.5CA	8.50	9.44	10.43	1	14.4	34.7	10	DO-15
SA9.0A	SA9.0CA	9.00	10.00	11.10	1	15.4	32.5	5	DO-15
SA10A	SA10CA	10.00	11.10	12.30	1	17.0	29.4	3	DO-15
SA11A	SA11CA	11.00	12.20	13.50	1	18.2	27.5	3	DO-15
SA12A	SA12CA	12.00	13.30	14.70	1	19.9	25.1	3	DO-15
SA13A	SA13CA	13.00	14.40	15.90	1	21.5	23.3	3	DO-15
SA14A	SA14CA	14.00	15.60	17.20	1	23.2	21.6	3	DO-15
SA15A	SA15CA	15.00	16.70	18.50	1	24.4	20.5	3	DO-15
SA16A	SA16CA	16.00	17.80	19.70	1	26.0	19.2	3	DO-15
SA17A	SA17CA	17.00	18.90	20.90	1	27.6	18.1	3	DO-15
SA18A	SA18CA	18.00	20.00	22.10	1	29.2	17.1	3	DO-15
SA20A	SA20CA	20.00	22.20	24.50	1	32.4	15.4	3	DO-15
SA22A	SA22CA	22.00	24.40	27.00	1	35.5	14.1	3	DO-15
SA24A	SA24CA	24.00	26.70	29.50	1	38.9	12.9	3	DO-15
SA26A	SA26CA	26.00	28.90	31.90	1	42.1	11.9	3	DO-15
SA28A	SA28CA	28.00	31.10	34.40	1	45.4	11.0	3	DO-15
SA30A	SA30CA	30.00	33.30	36.80	1	48.4	10.3	3	DO-15
SA33A	SA33CA	33.00	36.70	40.60	1	53.3	9.4	3	DO-15
SA36A	SA36CA	36.00	40.00	44.20	1	58.1	8.6	3	DO-15
SA40A	SA40CA	40.00	44.40	49.10	1	64.5	7.8	3	DO-15
SA43A	SA43CA	43.00	47.80	52.80	1	69.4	7.2	3	DO-15
SA45A	SA45CA	45.00	50.00	55.30	1	72.7	6.9	3	DO-15
SA48A	SA48CA	48.00	53.30	58.90	1	77.4	6.5	3	DO-15
SA51A	SA51CA	51.00	56.70	62.70	1	82.4	6.1	3	DO-15
SA54A	SA54CA	54.00	60.00	66.30	1	87.1	5.7	3	DO-15
SA58A	SA58CA	58.00	64.40	71.20	1	93.6	5.3	3	DO-15
SA60A	SA60CA	60.00	66.70	73.70	1	96.8	5.2	3	DO-15
SA64A	SA64CA	64.00	71.10	78.60	1	103.0	4.9	3	DO-15
SA70A	SA70CA	70.00	77.80	86.00	1	113.0	4.4	3	DO-15
SA75A	SA75CA	75.00	83.30	92.10	1	121.0	4.1	3	DO-15
SA78A	SA78CA	78.00	86.70	95.80	1	126.0	4.0	3	DO-15
SA85A	SA85CA	85.00	94.40	104.30	1	137.0	3.6	3	DO-15
SA90A	SA90CA	90.00	100.00	110.50	1	146.0	3.4	3	DO-15
SA100A	SA100CA	100.00	111.00	122.70	1	162.0	3.1	3	DO-15
SA110A	SA110CA	110.00	122.00	134.80	1	177.0	2.8	3	DO-15
SA120A	SA120CA	120.00	133.00	147.00	1	193.0	2.6	3	DO-15
SA130A	SA130CA	130.00	144.00	159.20	1	209.0	2.4	3	DO-15
SA150A	SA150CA	150.00	167.00	184.60	1	243.0	2.1	3	DO-15
SA160A	SA160CA	160.00	178.00	196.70	1	259.0	1.9	3	DO-15
SA170A	SA170CA	170.00	189.00	208.90	1	275.0	1.8	3	DO-15



DO-15

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Max. Clamp Voltage	Peak Plus Current	Reverse Leakage	Package
			$V_{BR}@I_T$						
Uni	BI	$V_{RWM}$	Min.	Max.	$I_T$	$V_C@I_{PP}$	$I_{PP}$	$I_R@V_{RWM}$	
			V	V					
<b>600W Transient Voltage Suppressor</b>									
P6KE6.8A	P6KE6.8CA	5.80	6.45	7.14	10	10.5	58.1	1000	DO-15
P6KE7.5A	P6KE7.5CA	6.40	7.13	7.88	10	11.3	54.0	500	DO-15
P6KE8.2A	P6KE8.2CA	7.02	7.79	8.61	10	12.1	50.4	200	DO-15
P6KE9.1A	P6KE9.1CA	7.78	8.65	9.55	1	13.4	45.5	50	DO-15
P6KE10A	P6KE10CA	8.55	9.50	10.50	1	14.5	42.1	10	DO-15
P6KE11A	P6KE11CA	9.40	10.50	11.60	1	15.6	39.1	5	DO-15
P6KE12A	P6KE12CA	10.20	11.40	12.60	1	16.7	36.5	5	DO-15
P6KE13A	P6KE13CA	11.10	12.40	13.70	1	18.2	33.5	5	DO-15
P6KE15A	P6KE15CA	12.80	14.30	15.80	1	21.2	28.8	5	DO-15
P6KE16A	P6KE16CA	13.60	15.20	16.80	1	22.5	27.1	5	DO-15
P6KE18A	P6KE18CA	15.30	17.10	18.90	1	25.2	24.2	5	DO-15
P6KE20A	P6KE20CA	17.10	19.00	21.00	1	27.7	22.0	5	DO-15
P6KE22A	P6KE22CA	18.80	20.90	23.10	1	30.6	19.9	5	DO-15
P6KE24A	P6KE24CA	20.50	22.80	25.20	1	33.2	18.4	5	DO-15
P6KE27A	P6KE27CA	23.10	25.70	28.40	1	37.5	16.3	5	DO-15
P6KE30A	P6KE30CA	25.60	28.50	31.50	1	41.4	14.7	5	DO-15
P6KE33A	P6KE33CA	28.20	31.40	34.70	1	45.7	13.3	5	DO-15
P6KE36A	P6KE36CA	30.80	34.20	37.80	1	49.9	12.2	5	DO-15
P6KE39A	P6KE39CA	33.30	37.10	41.00	1	53.9	11.3	5	DO-15
P6KE43A	P6KE43CA	36.80	40.90	45.20	1	59.3	10.3	5	DO-15
P6KE47A	P6KE47CA	40.20	44.70	49.40	1	64.8	9.4	5	DO-15
P6KE51A	P6KE51CA	43.60	48.50	53.60	1	70.1	8.7	5	DO-15
P6KE56A	P6KE56CA	47.80	53.20	58.80	1	77.0	7.9	5	DO-15
P6KE62A	P6KE62CA	53.00	58.90	65.10	1	85.0	7.2	5	DO-15
P6KE68A	P6KE68CA	58.10	64.60	71.40	1	92.0	6.6	5	DO-15
P6KE75A	P6KE75CA	64.10	71.30	78.80	1	103.0	5.9	5	DO-15
P6KE82A	P6KE82CA	70.10	77.90	86.10	1	113.0	5.4	5	DO-15
P6KE91A	P6KE91CA	77.80	86.50	95.50	1	125.0	4.9	5	DO-15
P6KE100A	P6KE100CA	85.50	95.00	105.00	1	137.0	4.5	5	DO-15
P6KE110A	P6KE110CA	94.00	105.00	116.00	1	152.0	4.0	5	DO-15
P6KE120A	P6KE120CA	102.00	114.00	126.00	1	165.0	3.7	5	DO-15
P6KE130A	P6KE130CA	111.00	124.00	137.00	1	179.0	3.4	5	DO-15
P6KE150A	P6KE150CA	128.00	143.00	158.00	1	207.0	2.9	5	DO-15
P6KE160A	P6KE160CA	136.00	152.00	168.00	1	219.0	2.8	5	DO-15
P6KE170A	P6KE170CA	145.00	162.00	179.00	1	234.0	2.6	5	DO-15
P6KE180A	P6KE180CA	154.00	171.00	189.00	1	246.0	2.5	5	DO-15
P6KE200A	P6KE200CA	171.00	190.00	210.00	1	274.0	2.2	5	DO-15
P6KE220A	P6KE220CA	185.00	209.00	231.00	1	328.0	1.9	5	DO-15
P6KE250A	P6KE250CA	214.00	237.00	263.00	1	344.0	1.8	5	DO-15
P6KE300A	P6KE300CA	256.00	285.00	315.00	1	414.0	1.5	5	DO-15
P6KE350A	P6KE350CA	300.00	332.00	368.00	1	482.0	1.3	5	DO-15
P6KE400A	P6KE400CA	342.00	380.00	420.00	1	548.0	1.1	5	DO-15
P6KE440A	P6KE440CA	376.00	418.00	462.00	1	602.0	1.0	5	DO-15
P6KE480A	P6KE480CA	408.00	456.00	504.00	1	658.0	0.9	5	DO-15
P6KE510A	P6KE510CA	434.00	485.00	535.00	1	698.0	0.9	5	DO-15
P6KE530A	P6KE530CA	450.00	503.50	556.50	1	725.0	0.8	5	DO-15
P6KE540A	P6KE540CA	459.00	513.00	567.00	1	740.0	0.8	5	DO-15
P6KE550A	P6KE550CA	467.00	522.50	577.50	1	760.0	0.8	5	DO-15



DO-15

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Max. Clamp Voltage	Peak Plus Current	Reverse Leakage	Package
			$V_{BR}@I_T$						
Uni	BI	$V_{RWM}$	Min.	Max.	$I_T$	$V_C@I_{PP}$	$I_{PP}$	$I_R@V_{RWM}$	
			V	V					
<b>1500W Transient Voltage Suppressor</b>									
1.5KE6.8A	1.5KE6.8CA	5.80	6.45	7.14	10	10.50	144.8	1000	DO-201
1.5KE7.5A	1.5KE7.5CA	6.40	7.13	7.88	10	11.30	134.5	500	DO-201
1.5KE8.2A	1.5KE8.2CA	7.02	7.79	8.61	10	12.10	125.6	200	DO-201
1.5KE9.1A	1.5KE9.1CA	7.78	8.65	9.50	1	13.40	113.4	50	DO-201
1.5KE10A	1.5KE10CA	8.55	9.50	10.50	1	14.50	104.8	10	DO-201
1.5KE11A	1.5KE11CA	9.40	10.50	11.60	1	15.60	97.4	5	DO-201
1.5KE12A	1.5KE12CA	10.20	11.40	12.60	1	16.70	91.0	5	DO-201
1.5KE13A	1.5KE13CA	11.10	12.40	13.70	1	18.20	83.5	5	DO-201
1.5KE15A	1.5KE15CA	12.80	14.30	15.80	1	21.20	71.7	5	DO-201
1.5KE16A	1.5KE16CA	13.60	15.20	16.80	1	22.50	67.6	5	DO-201
1.5KE18A	1.5KE18CA	15.30	17.10	18.90	1	25.20	60.3	5	DO-201
1.5KE20A	1.5KE20CA	17.10	19.00	21.00	1	27.70	54.9	5	DO-201
1.5KE22A	1.5KE22CA	18.80	20.90	23.10	1	30.60	49.7	5	DO-201
1.5KE24A	1.5KE24CA	20.50	22.80	25.20	1	33.20	45.8	5	DO-201
1.5KE27A	1.5KE27CA	23.10	25.70	28.40	1	37.50	40.5	5	DO-201
1.5KE30A	1.5KE30CA	25.60	28.50	31.50	1	41.40	36.7	5	DO-201
1.5KE33A	1.5KE33CA	28.20	31.40	34.70	1	45.70	33.3	5	DO-201
1.5KE36A	1.5KE36CA	30.80	34.20	37.80	1	49.90	30.5	5	DO-201
1.5KE39A	1.5KE39CA	33.30	37.10	41.00	1	53.90	28.2	5	DO-201
1.5KE43A	1.5KE43CA	36.80	40.90	45.20	1	59.30	25.6	5	DO-201
1.5KE47A	1.5KE47CA	40.20	44.70	49.40	1	64.80	23.5	5	DO-201
1.5KE51A	1.5KE51CA	43.60	48.50	53.60	1	70.10	21.7	5	DO-201
1.5KE56A	1.5KE56CA	47.80	53.20	58.80	1	77.00	19.7	5	DO-201
1.5KE62A	1.5KE62CA	53.00	58.90	65.10	1	85.00	17.9	5	DO-201
1.5KE68A	1.5KE68CA	58.10	64.60	71.40	1	92.00	16.5	5	DO-201
1.5KE75A	1.5KE75CA	64.10	71.30	78.80	1	103.00	14.8	5	DO-201
1.5KE82A	1.5KE82CA	70.10	77.90	86.10	1	113.00	13.5	5	DO-201
1.5KE91A	1.5KE91CA	77.80	86.50	95.50	1	125.00	12.2	5	DO-201
1.5KE100A	1.5KE100CA	85.50	95.00	105.00	1	137.00	11.1	5	DO-201
1.5KE110A	1.5KE110CA	94.00	105.00	116.00	1	152.00	10.0	5	DO-201
1.5KE120A	1.5KE120CA	102.00	114.00	126.00	1	165.00	9.2	5	DO-201
1.5KE130A	1.5KE130CA	111.00	124.00	137.00	1	179.00	8.5	5	DO-201
1.5KE150A	1.5KE150CA	128.00	143.00	158.00	1	207.00	7.3	5	DO-201
1.5KE160A	1.5KE160CA	136.00	152.00	168.00	1	219.00	6.9	5	DO-201
1.5KE170A	1.5KE170CA	145.00	162.00	179.00	1	234.00	6.5	5	DO-201
1.5KE180A	1.5KE180CA	154.00	171.00	189.00	1	246.00	6.2	5	DO-201
1.5KE200A	1.5KE200CA	171.00	190.00	210.00	1	274.00	5.5	5	DO-201
1.5KE220A	1.5KE220CA	185.00	209.00	231.00	1	328.00	4.6	5	DO-201
1.5KE250A	1.5KE250CA	214.00	237.00	263.00	1	344.00	4.4	5	DO-201
1.5KE300A	1.5KE300CA	256.00	285.00	315.00	1	414.00	3.7	5	DO-201
1.5KE350A	1.5KE350CA	300.00	332.00	368.00	1	482.00	3.2	5	DO-201
1.5KE400A	1.5KE400CA	342.00	380.00	420.00	1	548.00	2.8	5	DO-201
1.5KE440A	1.5KE440CA	376.00	418.00	462.00	1	602.00	2.5	5	DO-201
1.5KE480A	1.5KE480CA	408.00	456.00	504.00	1	658.00	2.3	5	DO-201
1.5KE510A	1.5KE510CA	434.00	485.00	535.00	1	698.00	2.1	5	DO-201
1.5KE530A	1.5KE530CA	450.00	503.50	556.50	1	725.00	2.1	5	DO-201
1.5KE540A	1.5KE540CA	459.00	513.00	567.00	1	740.00	2.0	5	DO-201
1.5KE550A	1.5KE550CA	467.00	522.50	577.50	1	760.00	2.0	5	DO-201

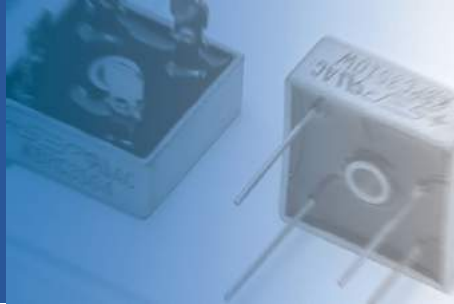


DO-201

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Max. Clamp Voltage	Peak Plus Current	Reverse Leakage	Package
			$V_{BR}@I_T$						
Uni	BI	$V_{RWM}$	Min.	Max.	$I_T$	$V_C@I_{PP}$	$I_{PP}$	$I_R@V_{RWM}$	
			V	V					
<b>5000W Transient Voltage Suppressor</b>									
5KP5.0A	5KP5.0CA	5.0	6.40	7.00	50	9.2	544.0	5000	R-6
5KP6.0A	5KP6.0CA	6.0	6.67	7.37	50	10.3	486.0	5000	R-6
5KP6.5A	5KP6.5CA	6.5	7.22	7.98	50	11.2	447.0	2000	R-6
5KP7.0A	5KP7.0CA	7.0	7.78	8.60	50	12.0	417.0	1000	R-6
5KP7.5A	5KP7.5CA	7.5	8.33	9.21	5	12.9	388.0	250	R-6
5KP8.0A	5KP8.0CA	8.0	8.89	9.83	5	13.6	368.0	150	R-6
5KP8.5A	5KP8.5CA	8.5	9.44	10.40	5	14.4	348.0	10	R-6
5KP9.0A	5KP9.0CA	9.0	10.00	11.10	5	15.4	325.0	10	R-6
5KP10A	5KP10CA	10.0	11.10	12.30	5	17.0	295.0	10	R-6
5KP11A	5KP11CA	11.0	12.20	13.50	5	18.2	275.0	10	R-6
5KP12A	5KP12CA	12.0	13.30	14.70	5	19.9	252.0	10	R-6
5KP13A	5KP13CA	13.0	14.40	15.90	5	21.5	233.0	10	R-6
5KP14A	5KP14CA	14.0	15.60	17.20	5	23.2	216.0	10	R-6
5KP15A	5KP15CA	15.0	16.70	18.50	5	24.4	205.0	10	R-6
5KP16A	5KP16CA	16.0	17.80	19.70	5	26.0	193.0	10	R-6
5KP17A	5KP17CA	17.0	18.90	20.90	5	27.6	181.0	10	R-6
5KP18A	5KP18CA	18.0	20.00	22.10	5	29.2	172.0	10	R-6
5KP20A	5KP20CA	20.0	22.20	24.50	5	32.4	154.0	10	R-6
5KP22A	5KP22CA	22.0	24.00	26.90	5	35.5	141.0	10	R-6
5KP24A	5KP24CA	24.0	26.70	29.50	5	38.9	129.0	10	R-6
5KP26A	5KP26CA	26.0	28.90	31.90	5	42.1	119.0	10	R-6
5KP28A	5KP28CA	28.0	31.10	34.40	5	45.4	110.0	10	R-6
5KP30A	5KP30CA	30.0	33.30	36.80	5	48.4	103.0	10	R-6
5KP33A	5KP33CA	33.0	36.70	40.60	5	53.3	93.9	10	R-6
5KP36A	5KP36CA	36.0	40.00	44.20	5	58.1	86.1	10	R-6
5KP40A	5KP40CA	40.0	44.40	49.10	5	64.5	77.6	10	R-6
5KP43A	5KP43CA	43.0	47.80	52.80	5	69.4	72.1	10	R-6
5KP45A	5KP45CA	45.0	50.00	55.30	5	72.7	68.8	10	R-6
5KP48A	5KP48CA	48.0	53.30	58.90	5	77.4	64.7	10	R-6
5KP51A	5KP51CA	51.0	56.70	62.70	5	82.4	60.7	10	R-6
5KP54A	5KP54CA	54.0	60.00	66.30	5	87.1	57.5	10	R-6
5KP58A	5KP58CA	58.0	64.40	71.20	5	93.6	53.5	10	R-6
5KP60A	5KP60CA	60.0	66.70	73.70	5	96.8	51.7	10	R-6
5KP64A	5KP64CA	64.0	71.10	78.60	5	103.0	48.6	10	R-6
5KP70A	5KP70CA	70.0	77.80	86.00	5	113.0	44.3	10	R-6
5KP75A	5KP75CA	75.0	83.30	92.10	5	121.0	41.4	10	R-6
5KP78A	5KP78CA	78.0	86.70	95.80	5	126.0	39.7	10	R-6
5KP85A	5KP85CA	85.0	94.40	104.00	5	137.0	36.5	10	R-6
5KP90A	5KP90CA	90.0	100.00	111.00	5	146.0	34.3	10	R-6
5KP100A	5KP100CA	100.0	110.00	123.00	5	162.0	30.9	10	R-6
5KP110A	5KP110CA	110.0	122.00	135.00	5	177.0	28.3	10	R-6
5KP120A	5KP120CA	120.0	133.00	147.00	5	193.0	26.0	10	R-6
5KP130A	5KP130CA	130.0	144.00	159.00	5	209.0	24.0	10	R-6
5KP150A	5KP150CA	150.0	167.00	185.00	5	243.0	20.6	10	R-6
5KP160A	5KP160CA	160.0	178.00	197.00	5	259.0	19.3	10	R-6
5KP170A	5KP170CA	170.0	189.00	209.00	5	275.0	18.2	10	R-6
5KP180A	5KP180CA	180.0	200.00	221.00	5	292.0	17.6	10	R-6
5KP190A	5KP190CA	190.0	211.00	233.00	5	310.0	9.7	10	R-6
5KP200A	5KP200CA	200.0	222.00	246.00	5	329.2	9.1	10	R-6
5KP210A	5KP210CA	210.0	233.00	258.00	5	349.5	8.6	10	R-6
5KP220A	5KP220CA	220.0	244.00	270.00	5	371.1	8.1	10	R-6



R-6



## Switching Diodes

500 mWatts Switching Diodes .....	50
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Switching Diodes

Part Number	Peak Reverse Voltage	Reverse Recovery Time	Power Dissipation	Max. Peak Forward Surge Current	Forward Voltage Drop		Max. Reverse Current		Package
	$V_{RM}$	$T_{RR}$	$P_{TOT}$	$I_{FSM}$	$V_F@I_F$		$I_R@V_R$		
	V	nS	mW	A	V	A	$\mu A$	V	
500 mWatts Switching Diodes									
1N4148	100	4.0	500	0.5	1.0	0.1	25	100	DO-35
LL4148	100	4.0	500	0.5	1.0	0.1	25	100	Mini-MELF



DO-35



Mini-MELF

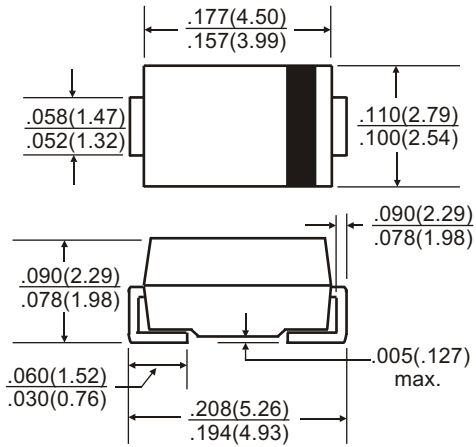


## Appendix

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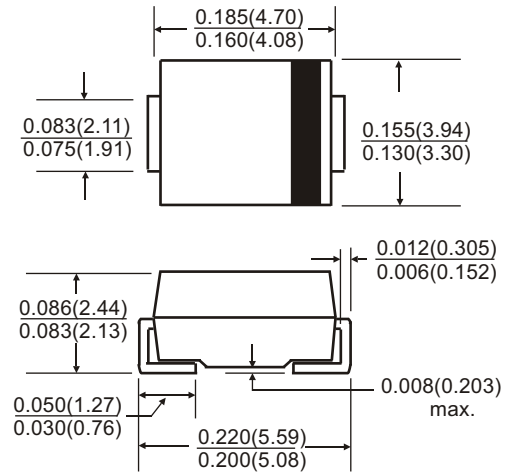
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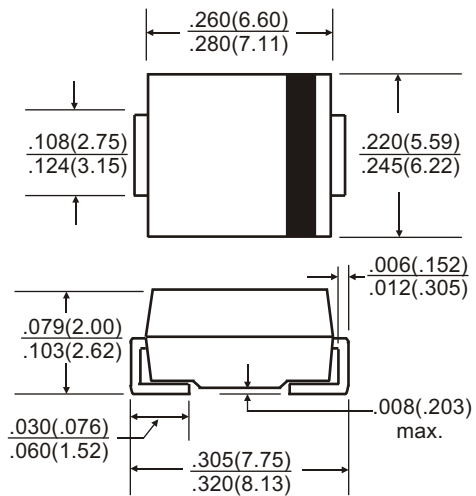
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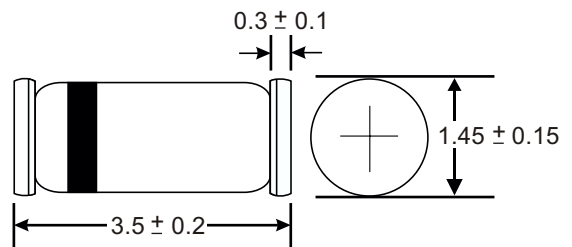
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### SMC / DO-214AB



Dimensions in inches and (millimeters)

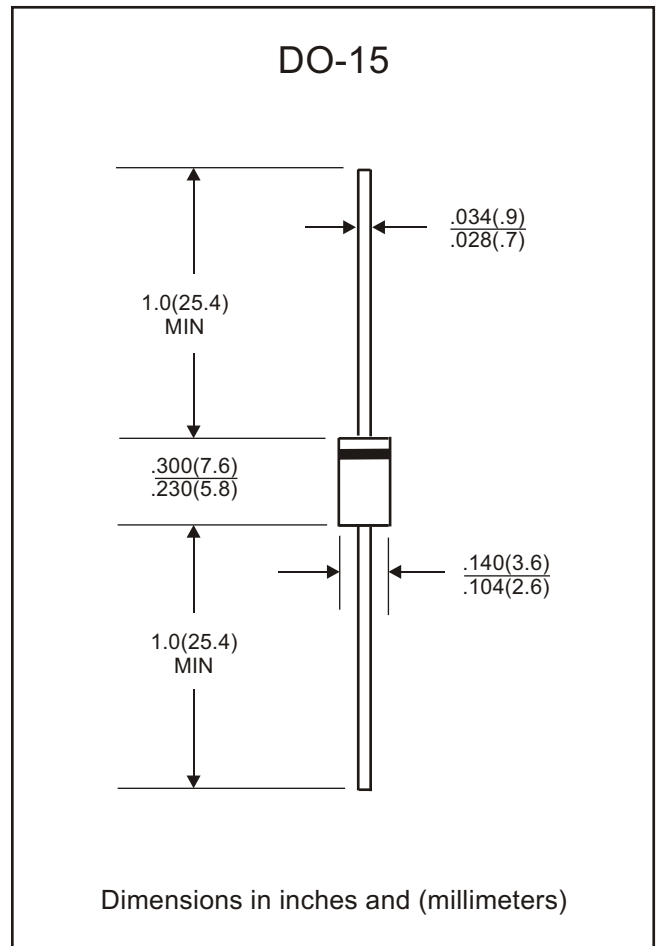
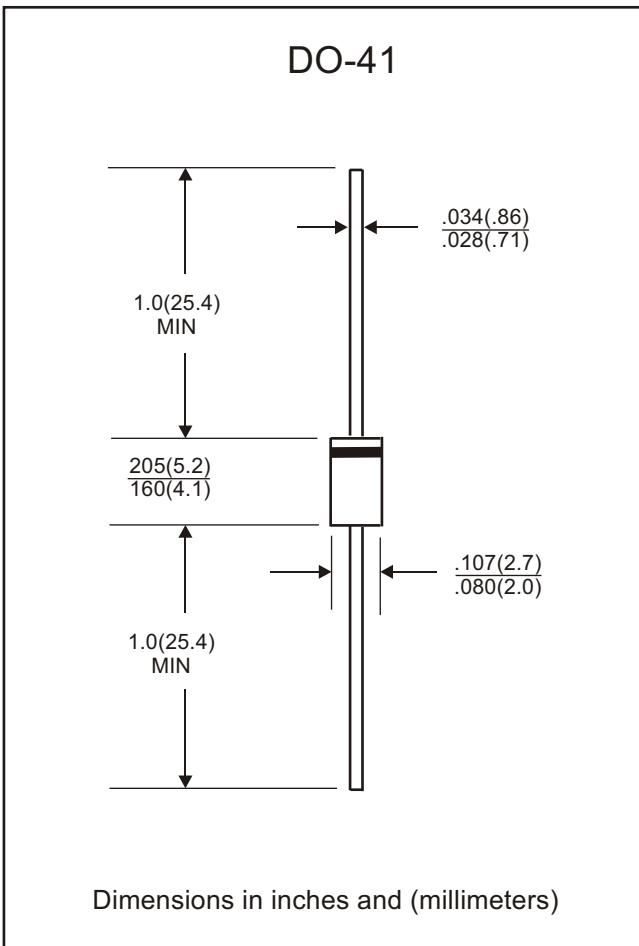
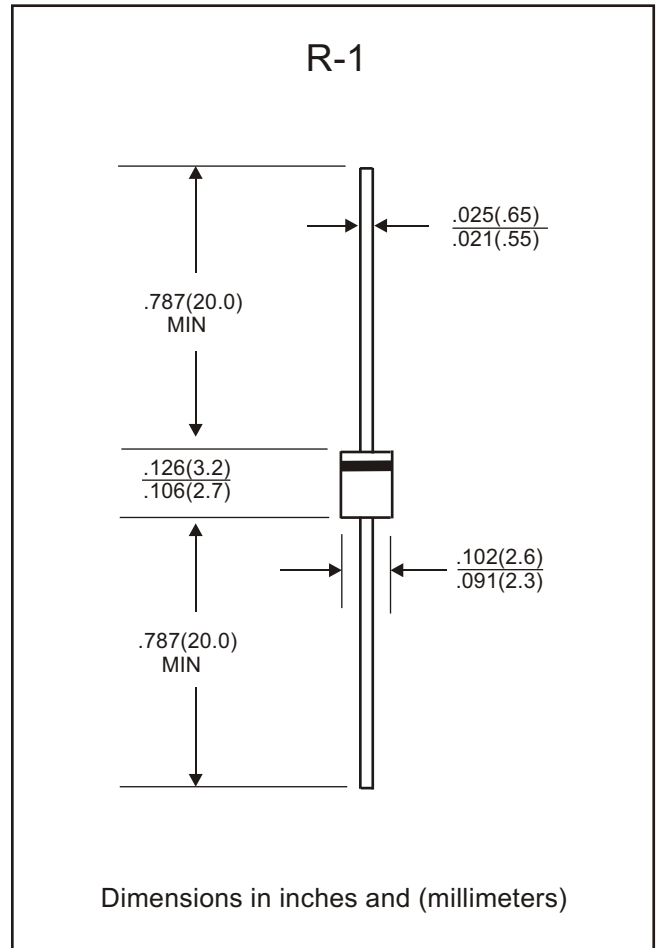
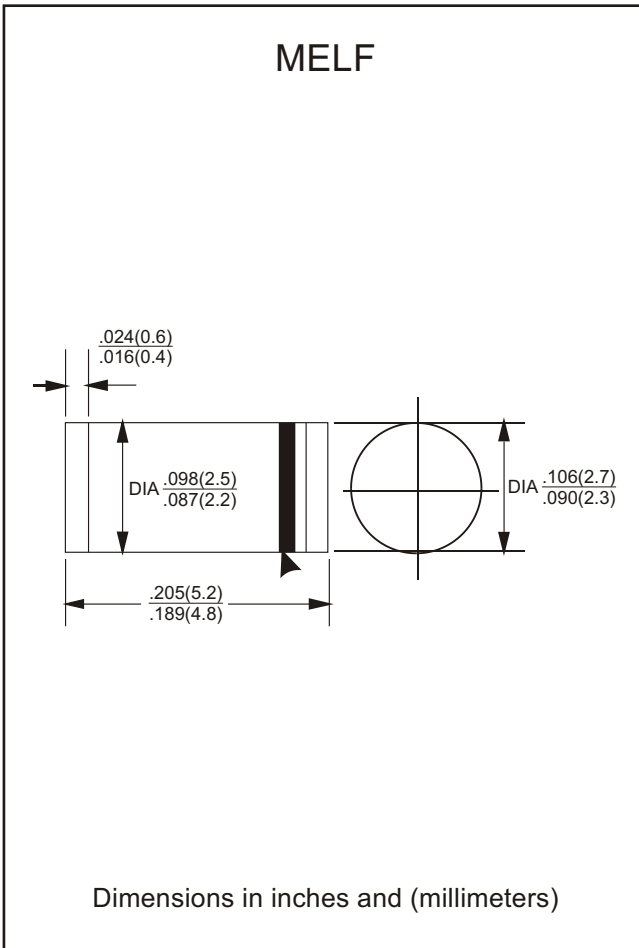
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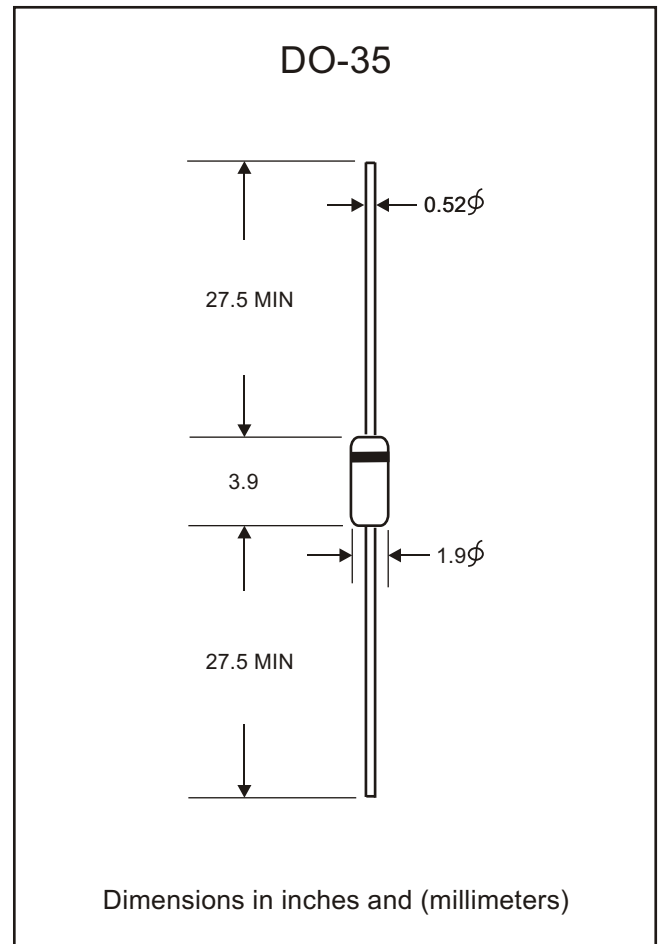
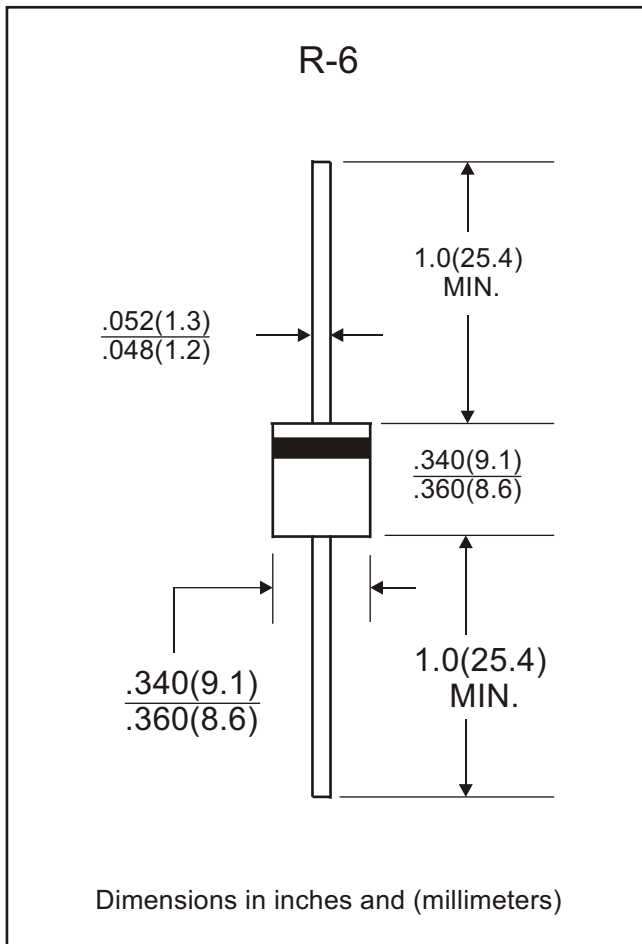
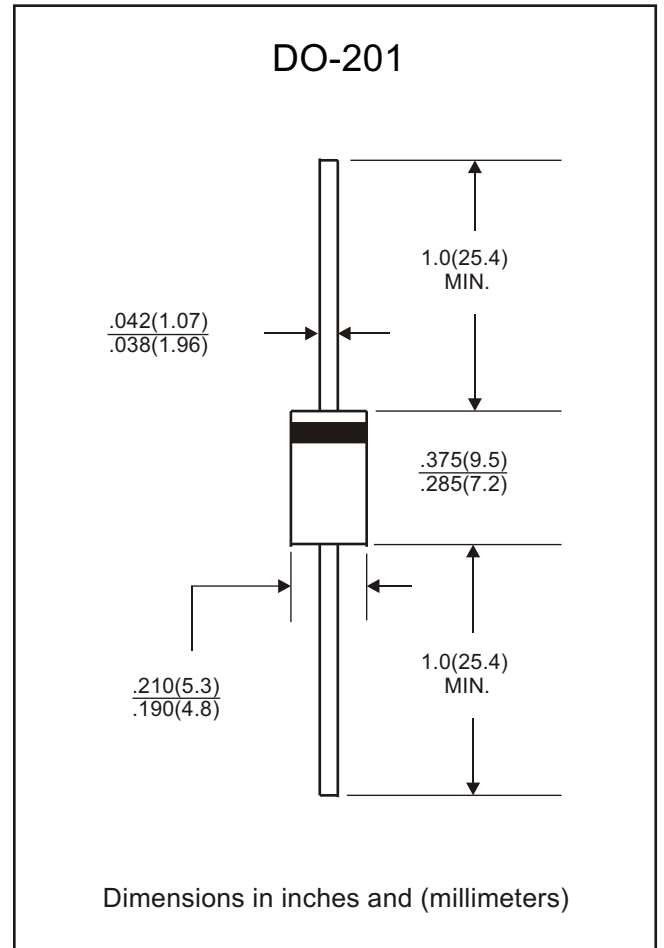
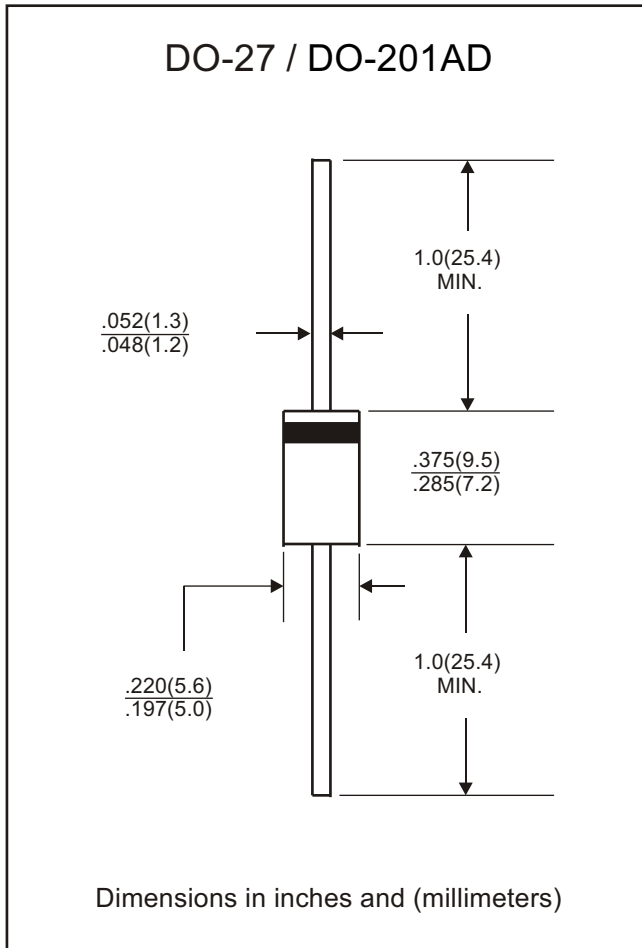
Dimensions in millimeters



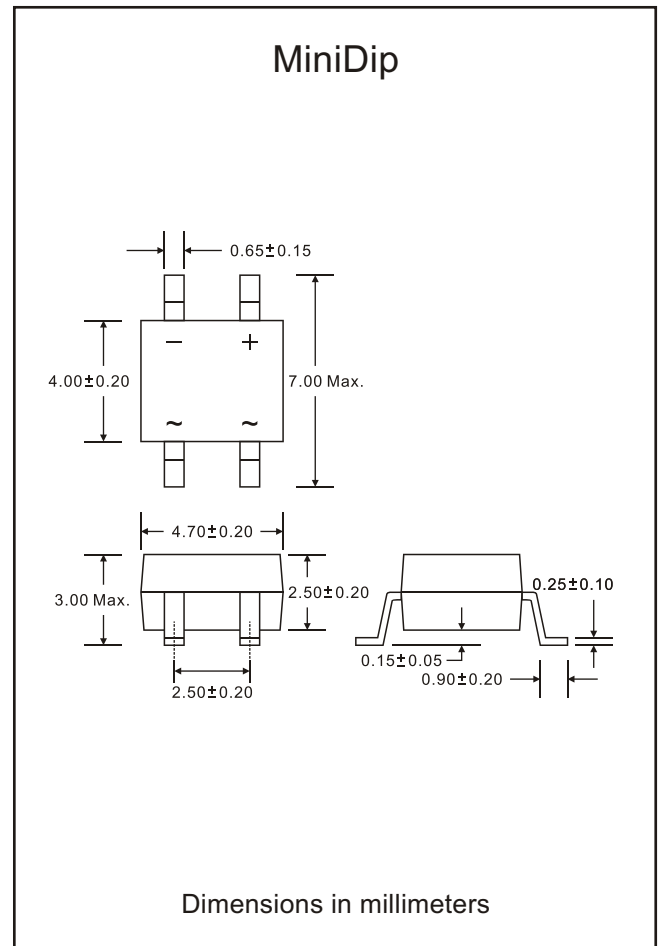
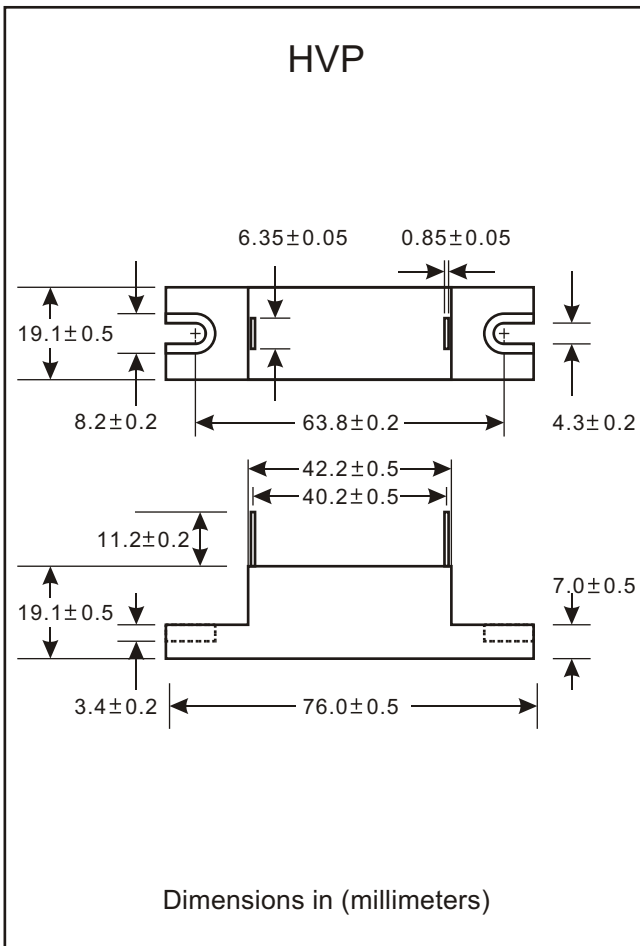
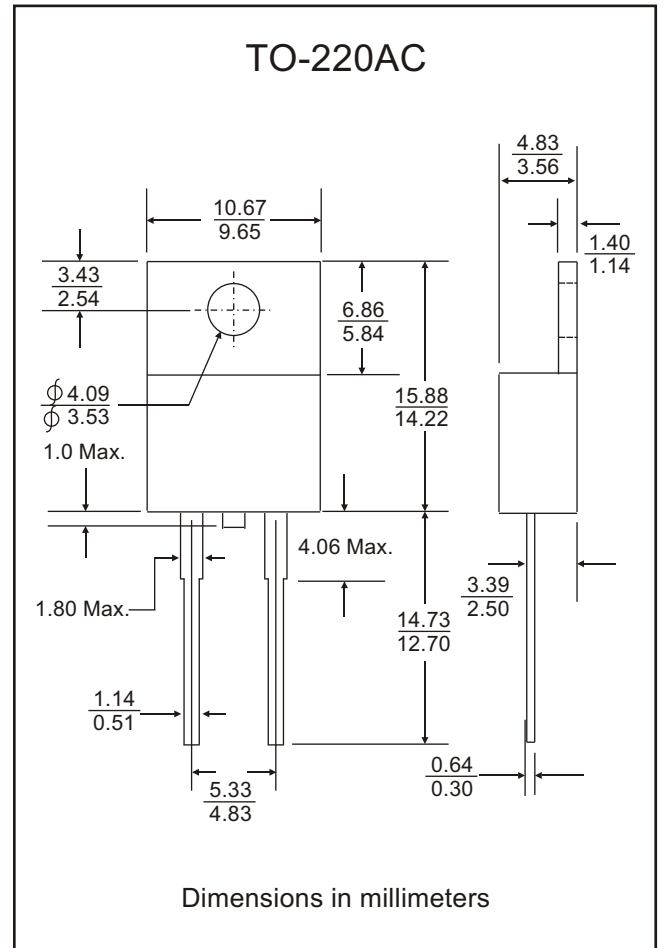
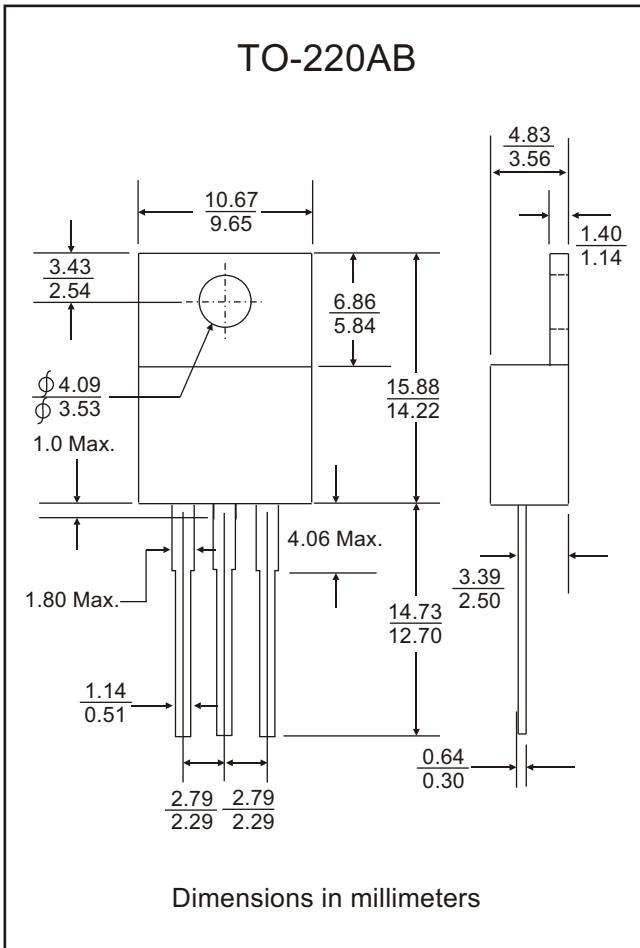
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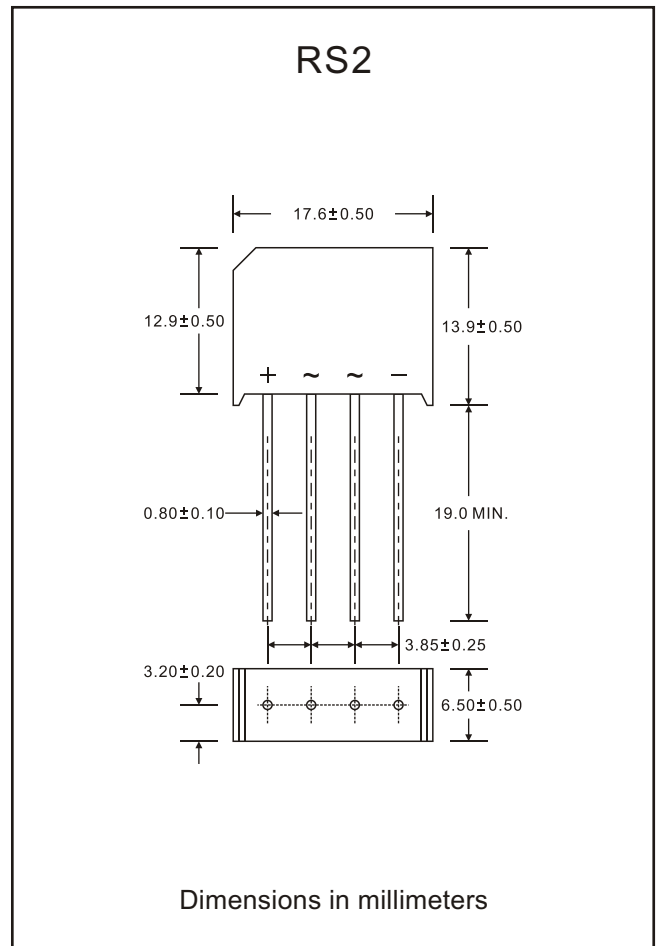
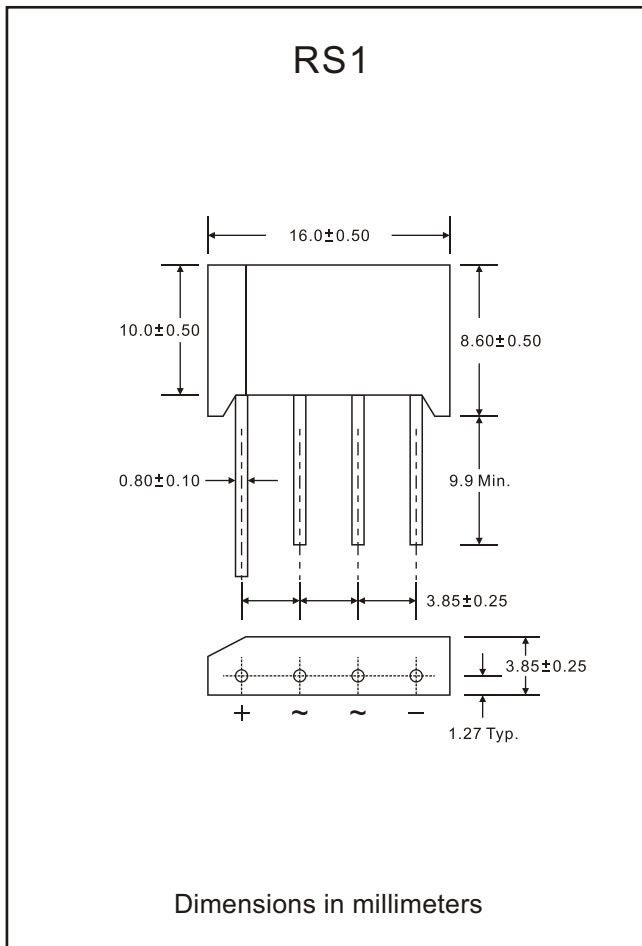
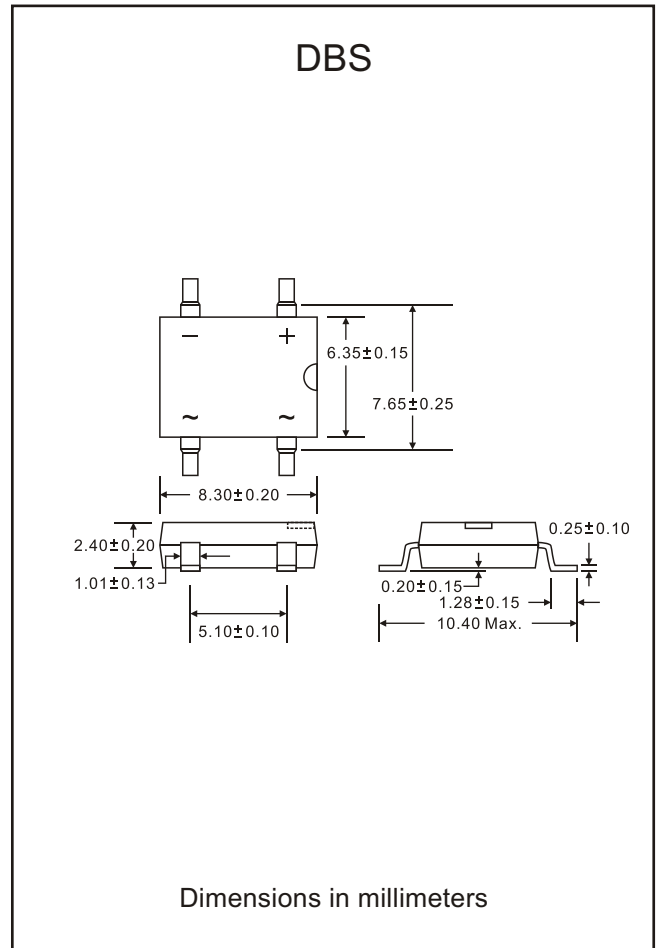
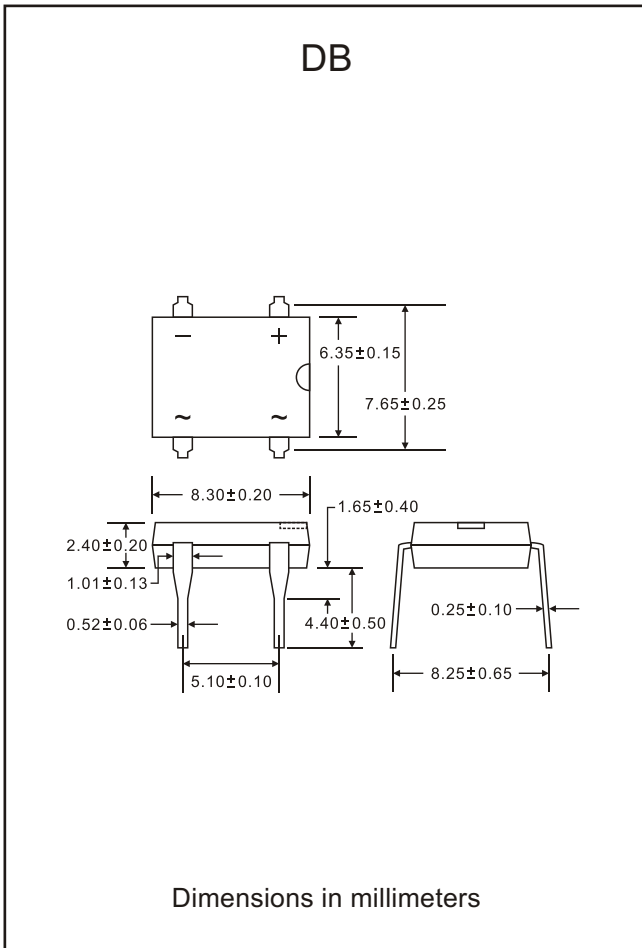
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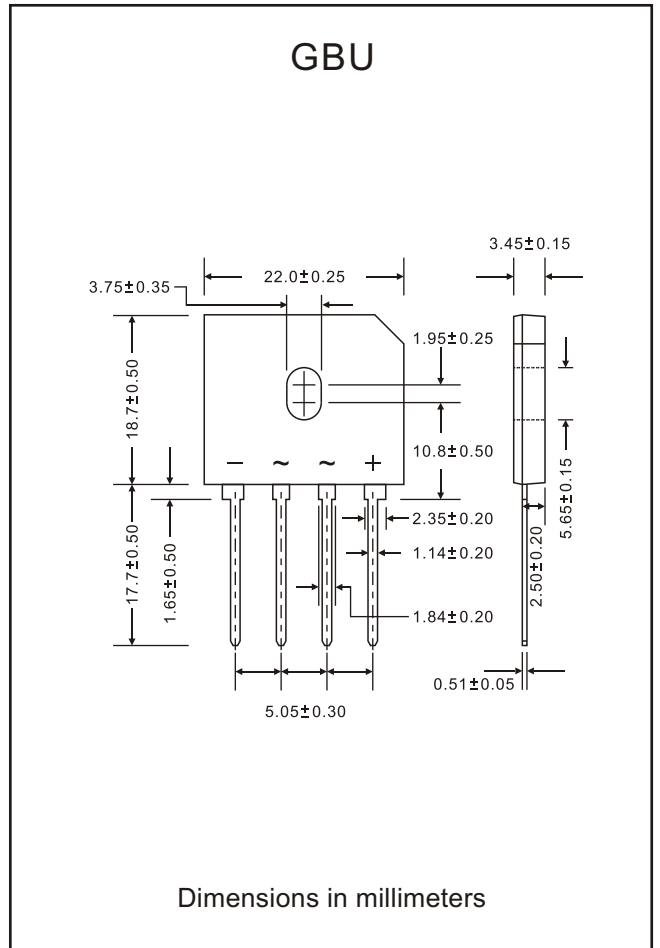
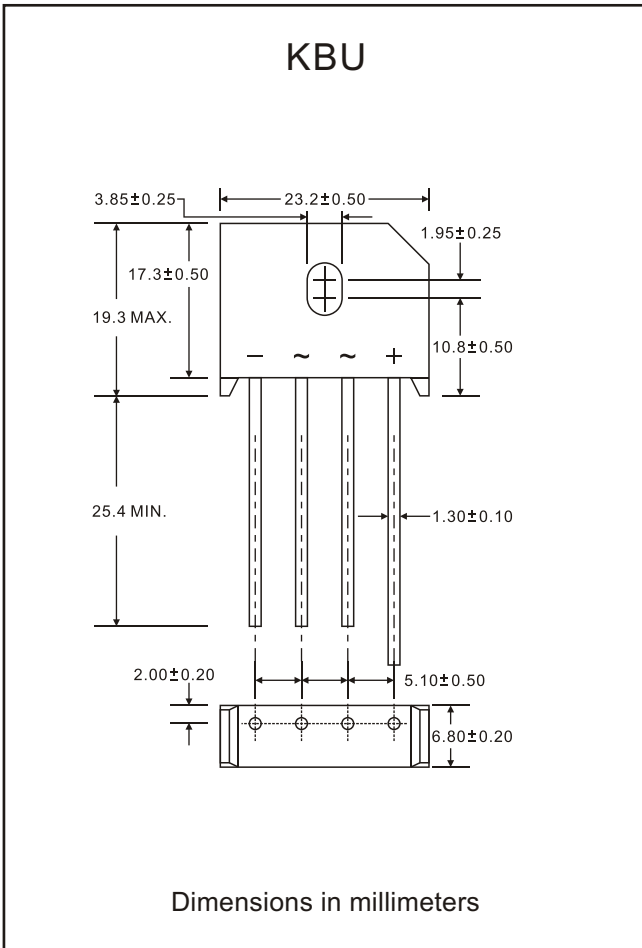
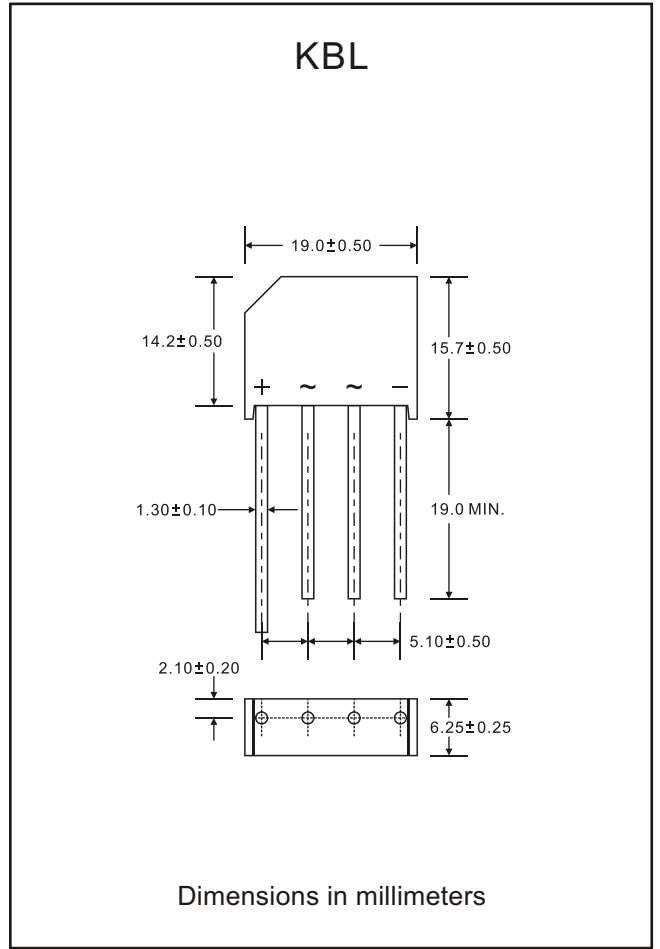
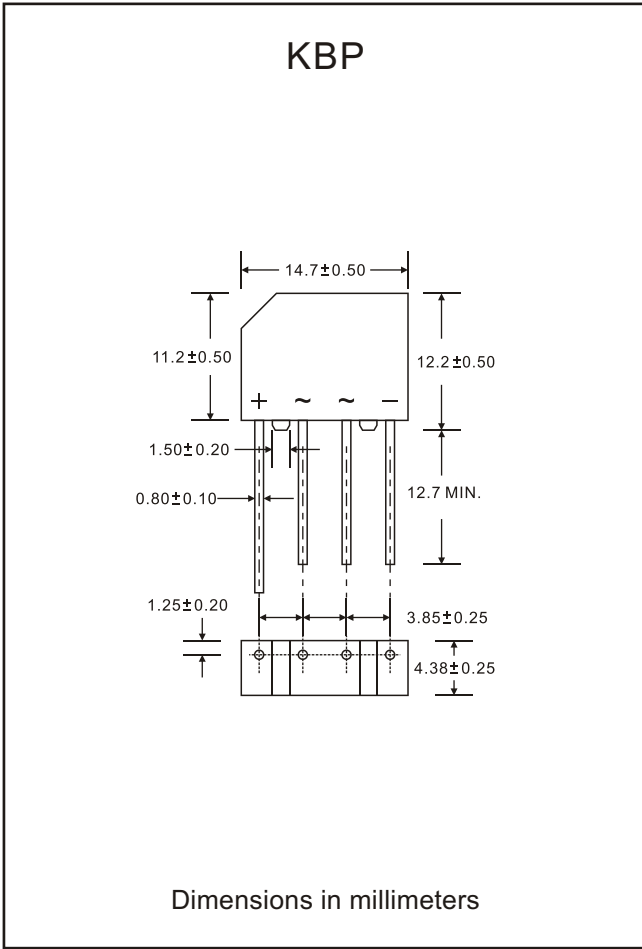
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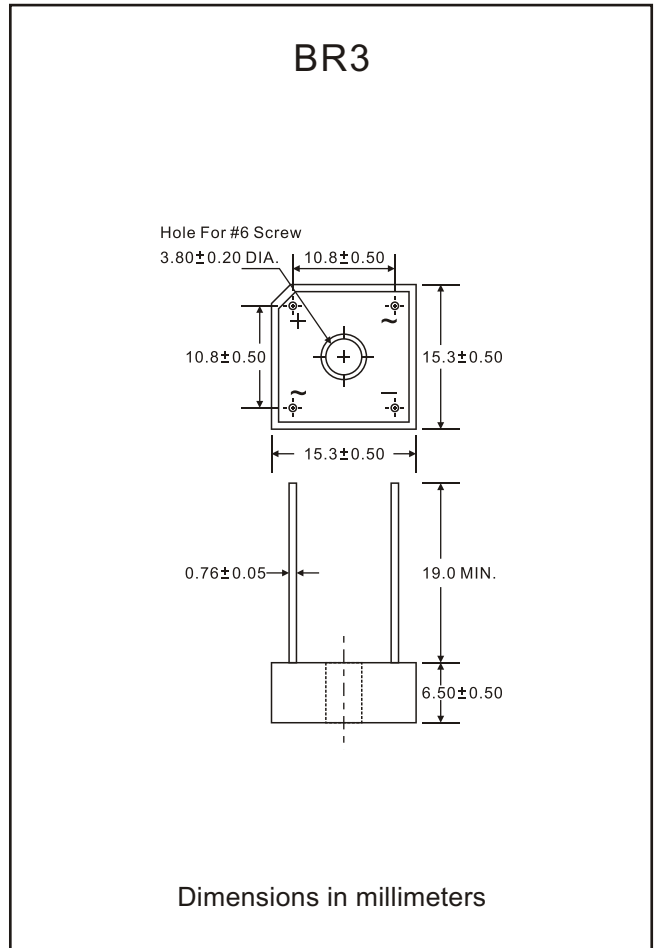
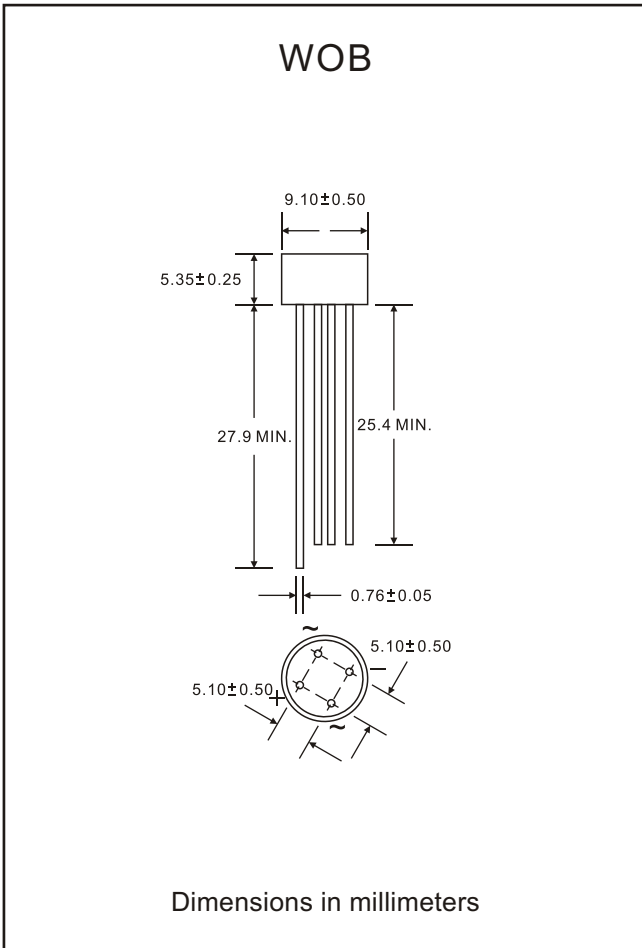
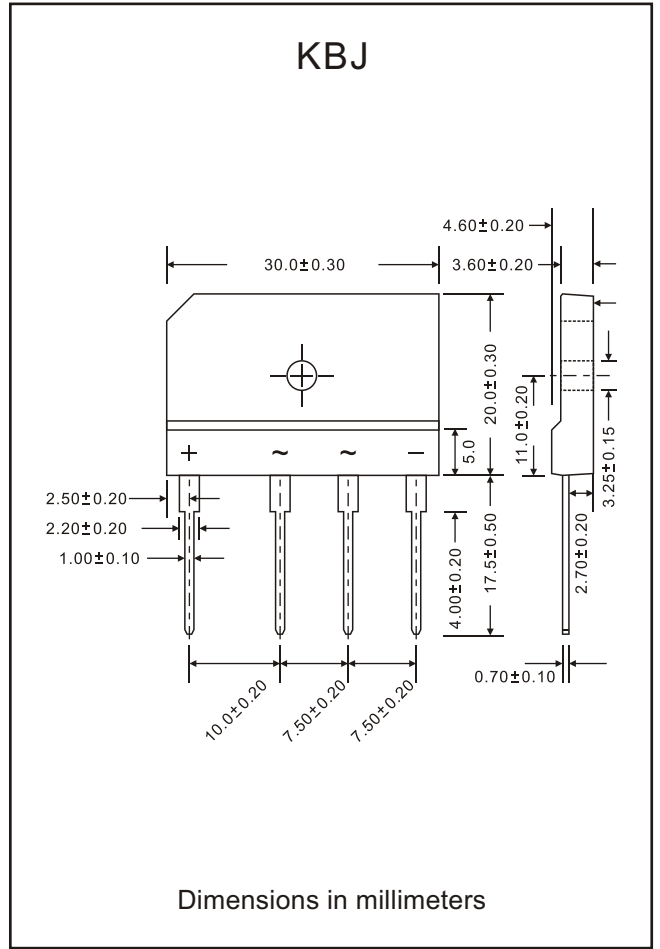
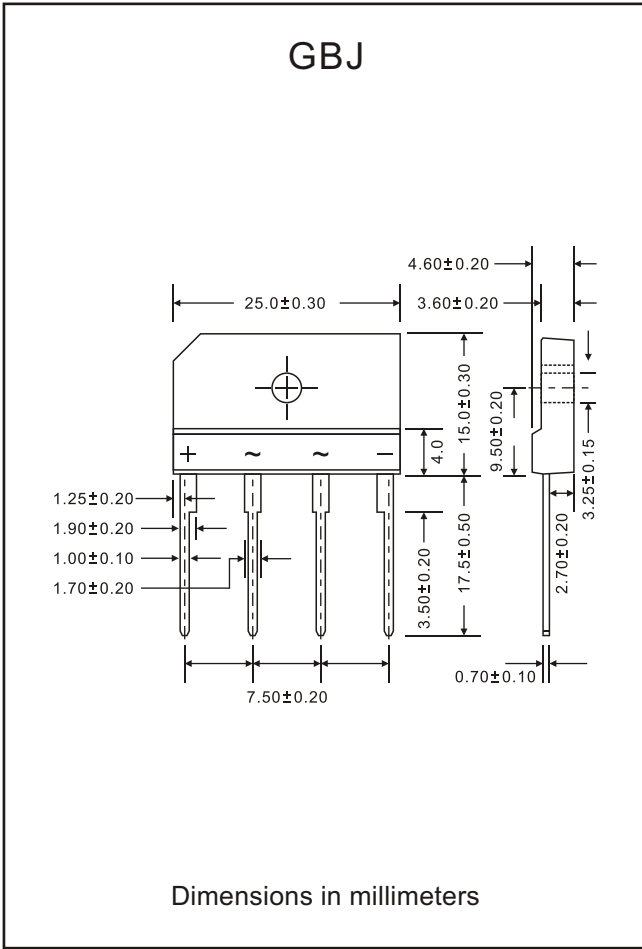
# Outline Drawing



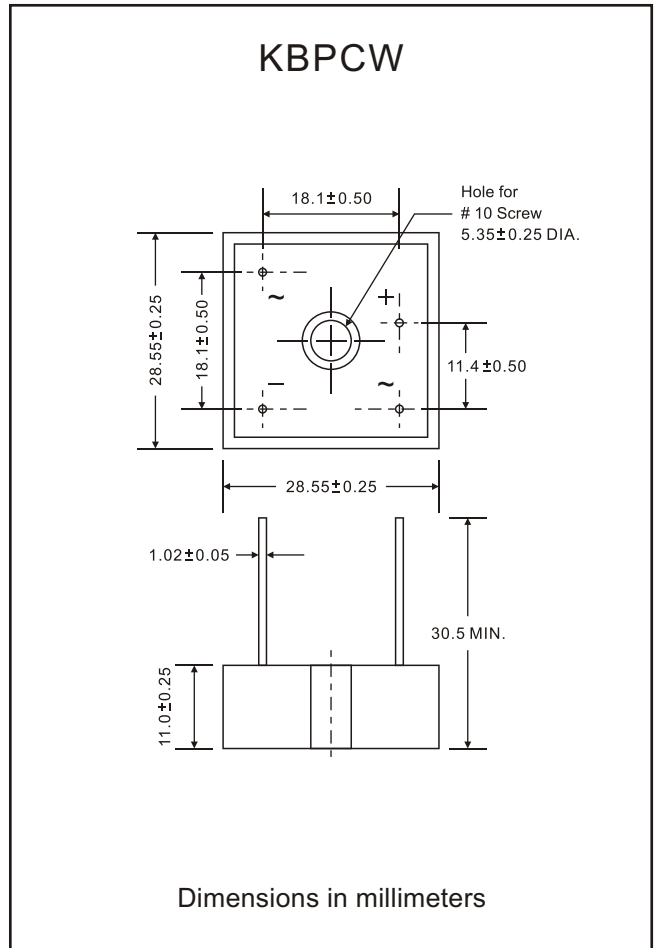
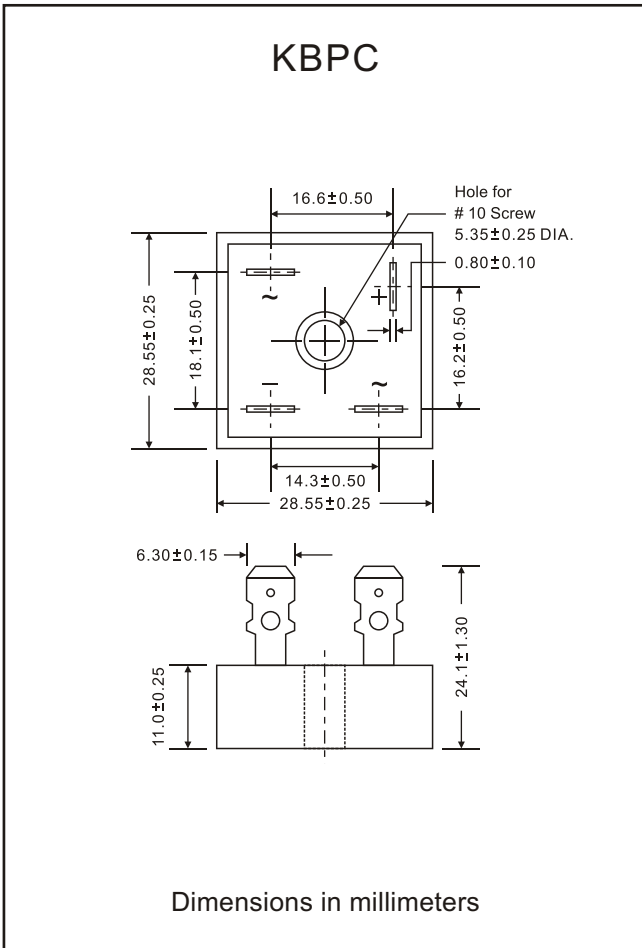
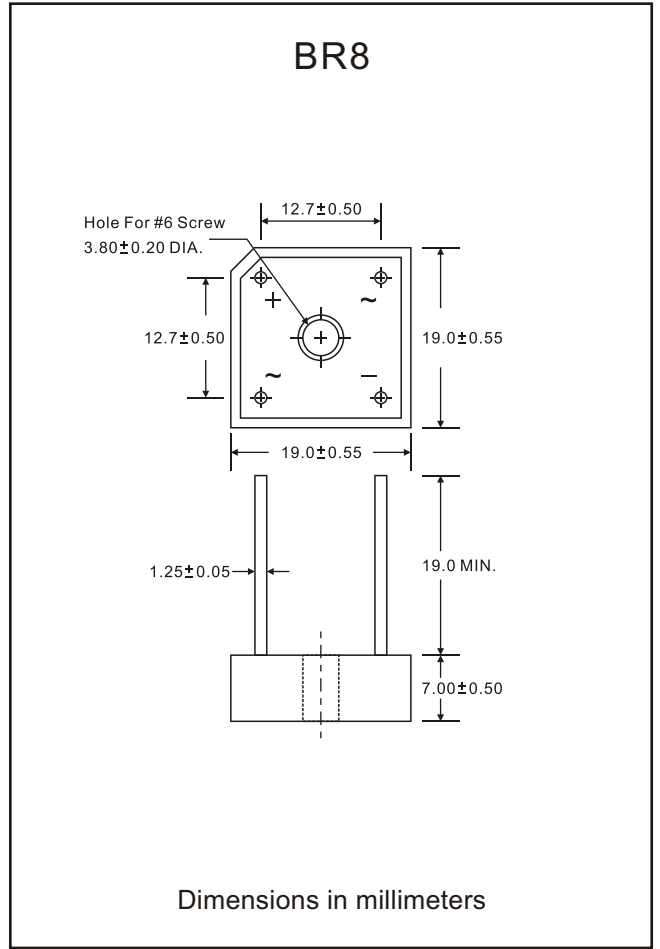
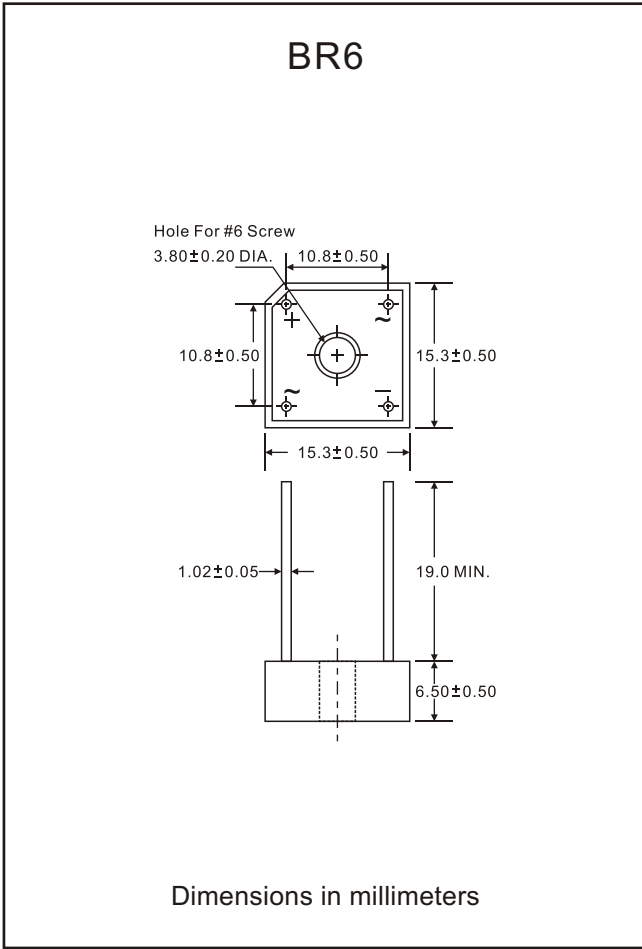
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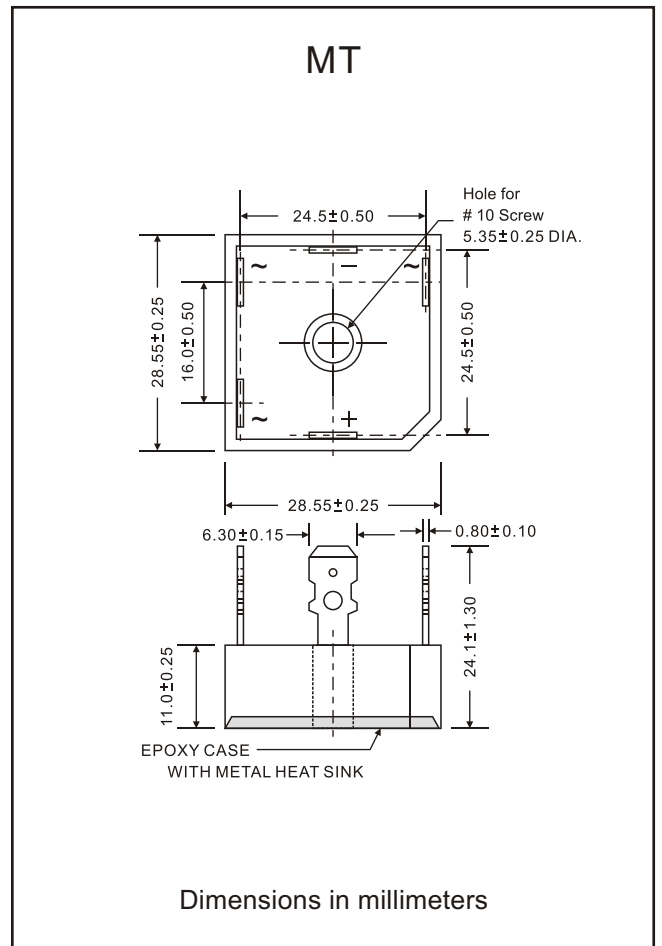
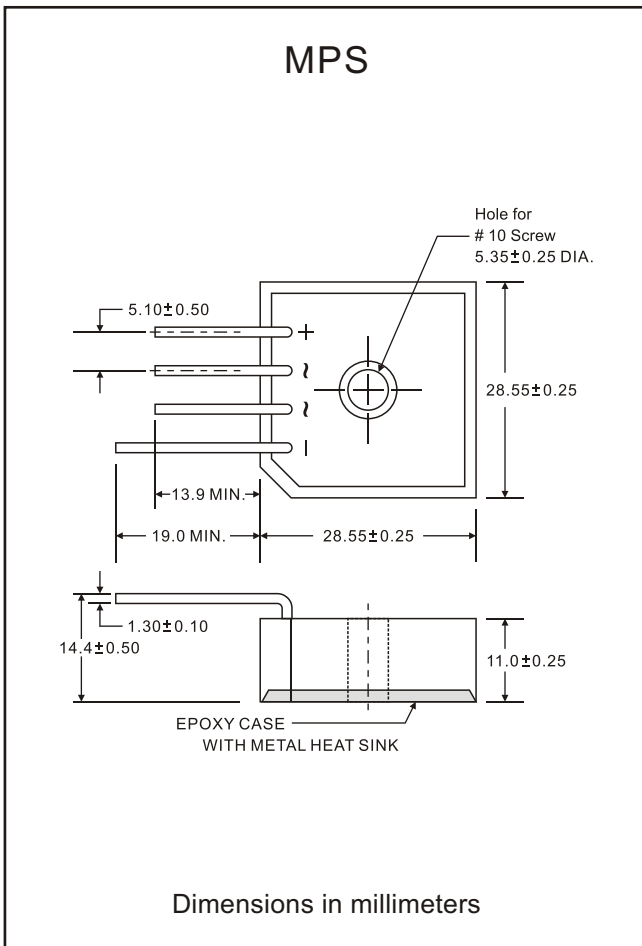
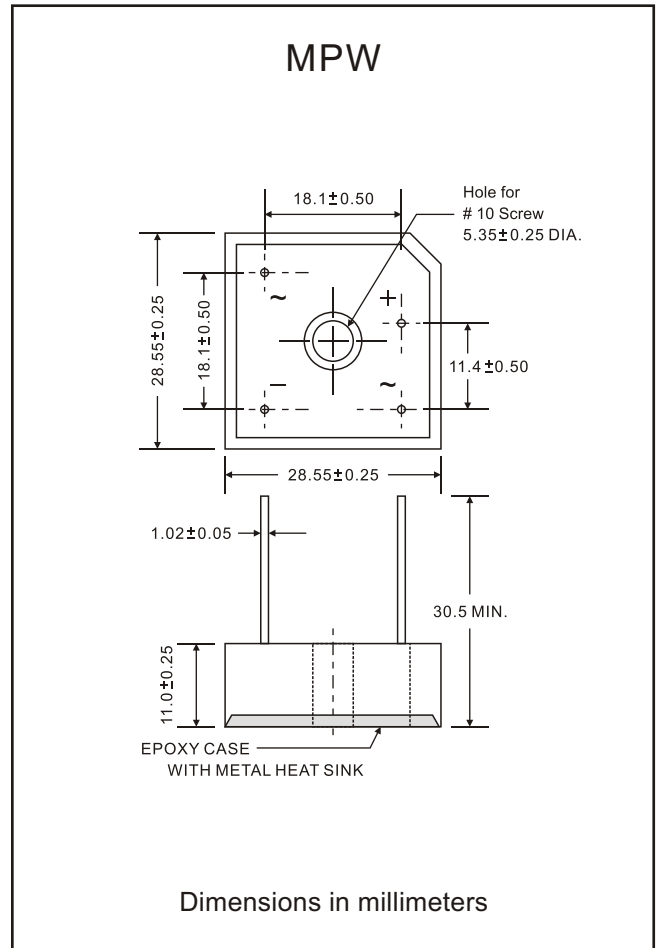
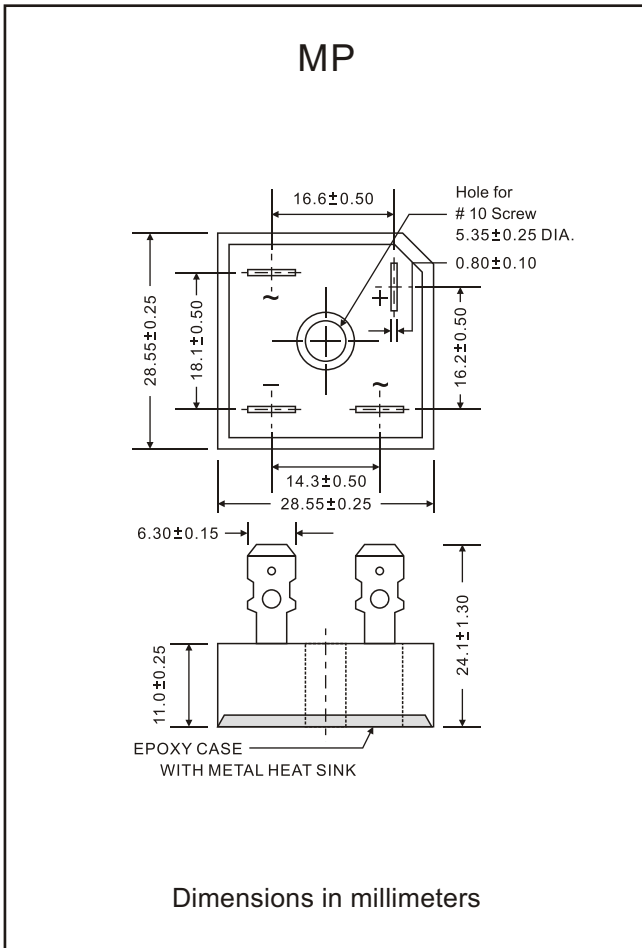
# Outline Drawing



# Outline Drawing



# Outline Drawing





## Product Carton Specification

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### RELL PACKAGING ( T/R )

PACKAGE	REEL (pcs)	PITCH OF BODY (m/m)	CARTON SIZE (m/m)	CARTON (EA)	APPROX. GROSS WEIGHT(Kg)
DO-27	1,200	5.0	360x350x430	6,000	11.2
DO-201AD	1,200	5.0	360x350x430	6,000	11.2
DO-41	5,000	5.0	350x350x350	20,000	10.5
DO-15	4,000	5.0	350x350x350	16,000	10.0
DO-35	1,200	10.0	350x350x350	4,800	9.2
R-6	750	10.0	350x350x350	3,000	7.8
SMA	1,800/7,500	4.0	350x350x350	144,000/120,000	19.5/16.6
SMB	500/3,000	8.0	364x356x340	40,000/48,000	12.6/13.1
SMC	500/3,000	4.0	364x356x340	30,000/42,000	15.6/18.6
MELF	5,000	4.0	364x356x340	80,000	19.0
DL-35	2,500	8.0	350x350x440	100,000	13.2

### AMMO BOX PACKAGING ( T/B )

PACKAGE	AMMO (pcs)	PITCH OF BODY (m/m)	BOX SIZE (m/m)	CARTON SIZE (m/m)	CARTON (EA)	APPROX. GROSS WEIGHT(Kg)
DO-27	1,200	5.0	210x75x140	470x275x235	12,000	19.5
DO-201AD	1,200	5.0	210x75x140	470x275x235	12,000	19.5
DO-41	5,000	5.0	255x85x105	410x350x275	50,000	19.0
DO-15	2,000	5.0	255x85x105	465x275x240	20,000	11.0
DO-35	800	10.0	255x85x105	465x275x240	8,000	13.0
R-6	300	10.0	255x85x85	4.5x275x240	3,000	9.0

### BULK PACKAGING

PACKAGE	BOX (EA)	BOX SIZE (m/m)	CARTON SIZE (m/m)	CARTON (EA)	APPROX. GROSS WEIGHT(Kg)
DO-41	1,000	185x83x20	450x210x250	50,000	19.2
DO-15	500	203x83x254	465x275x233	12,000	17.0
DO-27	500	305x75x40	350x350x350	12,000	18.0
DO-201AD	500	305x75x40	350x350x350	12,000	18.0
R-6	200	305x75x40	350x350x350	4,800	14.0
DB	5,000	500x160x150	510x330x160	10,000	9.0
MB-S	5,000	500x160x150	510x330x160	10,000	9.0
RB15	1,000	210x202x70	480x230x440	10,000	14.5
WOM	1,000	210x202x70	480x230x440	10,000	14.5
RS1	600	215x110x35	410x210x195	5,000	11.0
KBP	500	195x195x35	440x230x023	5,000	13.0
RS2	500	230x220x40	420x340x175	6,000	17.0
KBL	500	230x230x50	480x240x180	3,000	19.7
RS4L	500	230x230x50	480x240x180	3,000	19.7
RS5	200	230x230x50	480x240x280	2,000	22.0
KBU	400	230x230x50	480x240x180	2,400	20.8
RS6-25	400	230x230x50	480x240x180	2,400	20.8
GBU	400	230x230x50	480x240x180	2,400	20.8
KBJ	400	195x195x35	420x210x260	2,500	19.0
KBPC1	200	200x200x45	420x210x260	2,000	10.6
KBPC6	200	200x200x45	420x210x260	2,000	10.6
BR3	200	200x200x45	420x210x260	2,000	10.6
BR6	200	200x200x45	420x210x260	2,000	10.6
KBPC8	200	230x230x50	480x240x280	2,000	16.0
BR8	200	230x230x50	480x240x280	2,000	16.0
BR10	200	230x230x50	480x240x280	2,000	16.0
KBPC	50	200x200x45	420x210x260	500	16.3
MP	50	200x200x45	420x210x260	500	11.8
MP-S	120	220x220x40	440x230x230	1,200	22.0
TO-220	1,000	555x155x95	560x300x180	5,000	14.5
TO-3P	500	555x155x95	560x300x180	2,000	16.8

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TH97/2478



TH09/2479



IATF 0113686  
SGS TH07/1033

## KBPC3500 - KBPC3510

**PRV : 50 - 1000 Volts**  
**Io : 35 Amperes**

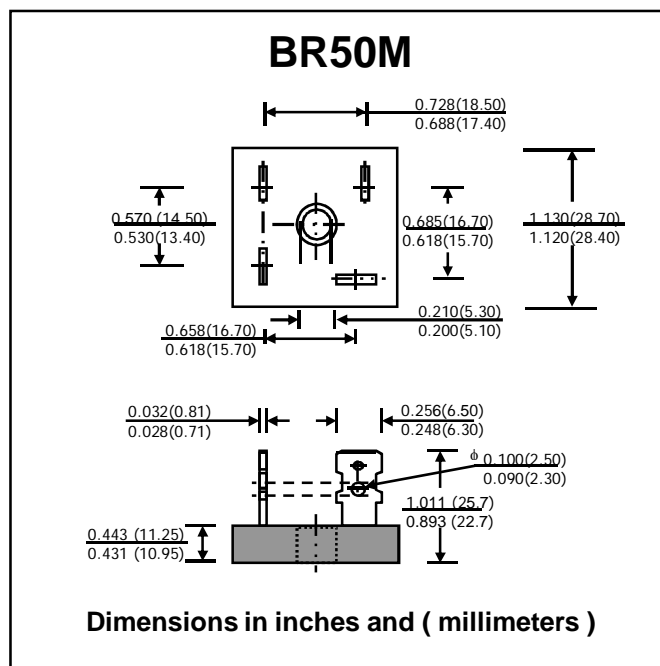
### FEATURES :

- \* High current capability
- \* High surge current capability
- \* High reliability
- \* Low reverse current
- \* Low forward voltage drop
- \* Pb / RoHS Free

### MECHANICAL DATA :

- \* Case : Metal Case
- \* Epoxy : UL94V-0 rate flame retardant
- \* Terminals : plated .25" (6.35 mm). Faston
- \* Polarity : Polarity symbols marked on case
- \* Mounting position : Bolt down on heat-sink with silicone thermal compound between bridge and mounting surface for maximum heat transfer efficiency.
- \* Weight : 17.1 grams

## SILICON BRIDGE RECTIFIERS



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

RATING	SYMBOL	KBPC 3500	KBPC 3501	KBPC 3502	KBPC 3504	KBPC 3506	KBPC 3508	KBPC 3510	UNIT
Maximum Recurrent Peak Reverse Voltage	V <sub>RRM</sub>	50	100	200	400	600	800	1000	V
Maximum RMS Voltage	V <sub>RMS</sub>	35	70	140	280	420	560	700	V
Maximum DC Blocking Voltage	V <sub>DC</sub>	50	100	200	400	600	800	1000	V
Maximum Average Forward Current T <sub>c</sub> = 55°C	I <sub>F(AV)</sub>	35							A
Peak Forward Surge Current Single half sine wave Superimposed on rated load (JEDEC Method)	I <sub>FSM</sub>	400							A
Current Squared Time at t < 8.3 ms.	I <sup>2</sup> t	660							A <sup>2</sup> S
Maximum Forward Voltage per Diode at I <sub>F</sub> = 17.5 A	V <sub>F</sub>	1.1							V
Maximum DC Reverse Current Ta = 25 °C at Rated DC Blocking Voltage Ta = 100 °C	I <sub>R</sub>	10							μA
	I <sub>R(H)</sub>	200							μA
Typical Thermal Resistance (Note 1)	R <sub>θJC</sub>	1.5							°C/W
Typical Thermal Resistance at Junction to Ambient	R <sub>θJA</sub>	10							°C
Operating Junction Temperature Range	T <sub>J</sub>	- 40 to + 150							°C
Storage Temperature Range	T <sub>STG</sub>	- 40 to + 150							°C

### Note :

1. Thermal Resistance from junction to case with units mounted on a 7.5" x 3.5" x 4.6" (19cm.x 9cm.x 11.8cm.) AL-Finned Plate



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TH97/2478



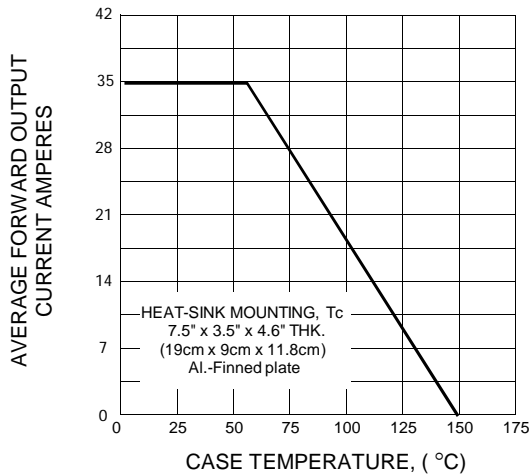
TH09/2479



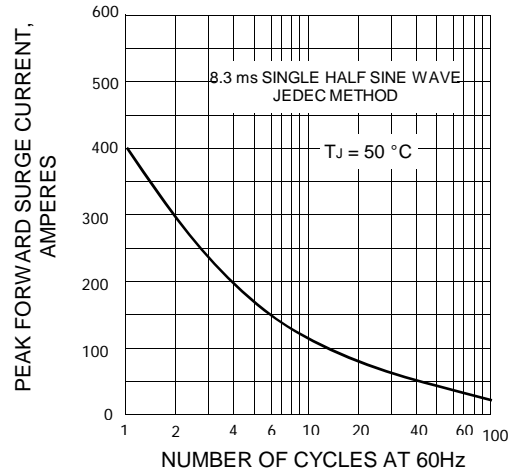
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SGS TH07/1033

**RATING AND CHARACTERISTIC CURVES ( KBPC3500 - KBPC3510 )**

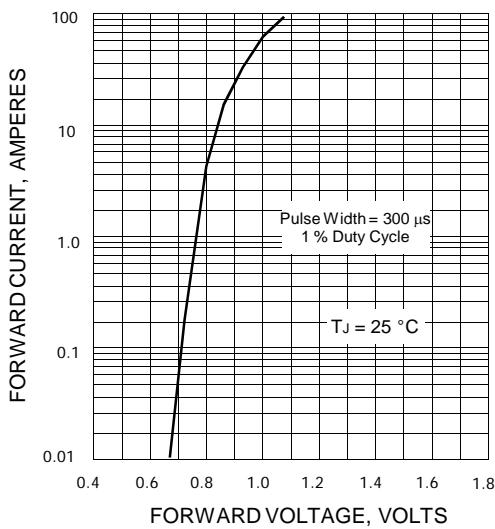
**FIG.1 - DERATING CURVE FOR OUTPUT RECTIFIED CURRENT**



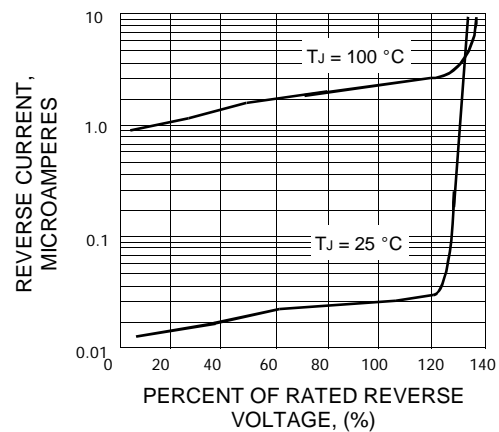
**FIG.2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**



**FIG.3 - TYPICAL FORWARD CHARACTERISTICS PER DIODE**



**FIG.4 - TYPICAL REVERSE CHARACTERISTICS PER DIODE**





## GBPC50005(W)-GBPC5010(W)

Technical Data  
Data Sheet N1852, Rev. -

Green Products

### GBPC50005(W)-GBPC5010(W)

#### Single-Phase 50A Glass Passivated Bridge Rectifier

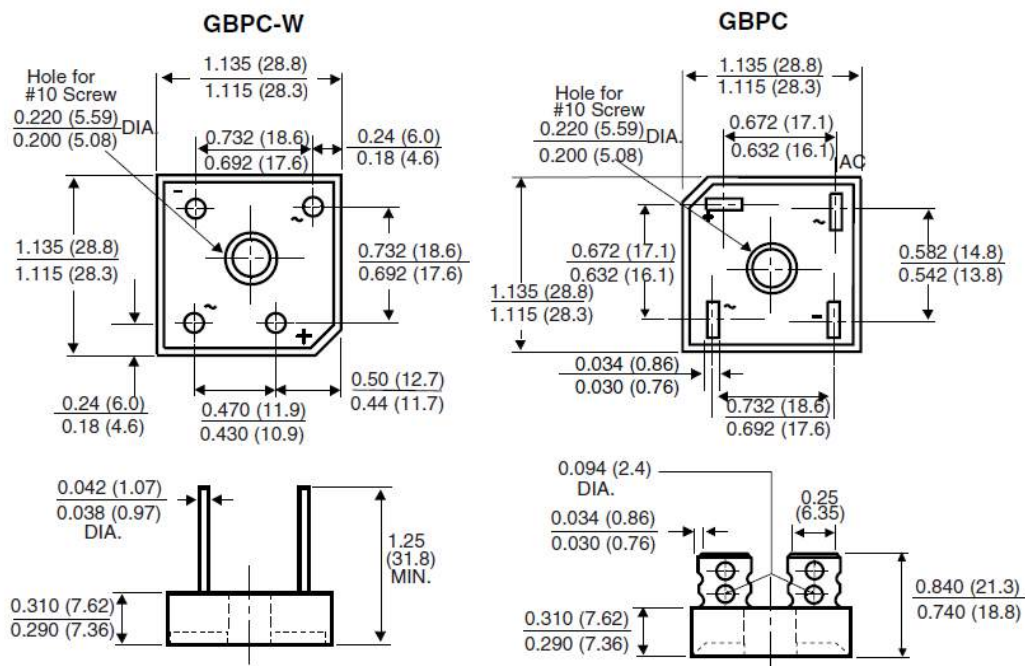
##### Features:

- Universal 3-way terminals: snap-on, wire wrap-around, or P.C.B. mounting
- Typical IR less than 0.3  $\mu$ A
- High surge current capability
- Low thermal resistance
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- This is a Pb – Free Device
- All SMC Parts are Traceable to the Wafer Lot
- Additional testing can be offered upon request

##### Mechanical Data:

- Case: GBPC, GBPC-W, Molded plastic
- Terminals: Nickel plated on faston lugs or Silver plated on wire leads, solderable per J-STD-002B and JESD22-B102D. E4 suffix for commercial grade. Suffix letter "W" added to indicate wire leads (e.g.GBPC15005W).
- Polarity: As marked, positive lead by beveled corner
- Mounting Position: Any
- Marking: Type Number
- Mounting Torque: 20 inches-lbs. max.

##### Mechanical Dimensions: In Inches/mm



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## GBPC50005(W)-GBPC5010(W)

Technical Data  
Data Sheet N1852, Rev. -

Green Products

### Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Single Phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

Type Number	Symbol	GBPC 50005	GBPC 5001	GBPC 5002	GBPC 5004	GBPC 5006	GBPC 5008	GBPC 5010	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_{DC}$	50	100	200	400	600	800	1000	V
RMS Reverse Voltage	$V_{RMS}$	35	70	140	280	420	560	700	V
Maximum average forward rectified output current (see Fig. 1)	$I_{F(AV)}$	50							A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method)	$I_{FSM}$	500							A
Maximum instantaneous forward drop per diode @ $I_F = 25A$	$V_F$	1.1							V
Maximum reverse DC current at rated DC blocking voltage per diode	$I_R @ T_A = 25^\circ C$	5.0							$\mu A$
	$I_R @ T_A = 125^\circ C$	500							
Typical Junction Capacitance(per leg) @ 4 V, 1 MHz	$C_J$	300							pF
Typical Thermal Resistance (per leg)	$R_{\theta JC}$	1.4							$^\circ C/W$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150							$^\circ C$
Case Style	GBPC/ GBPC-W								

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# GBPC50005(W)-GBPC5010(W)

Technical Data  
Data Sheet N1852, Rev. -

Green Products

## RATINGS AND CHARACTERISTICS CURVES

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

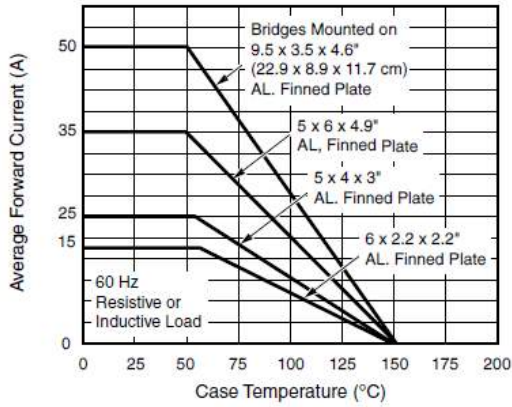


Figure 1. Maximum Output Rectified Current

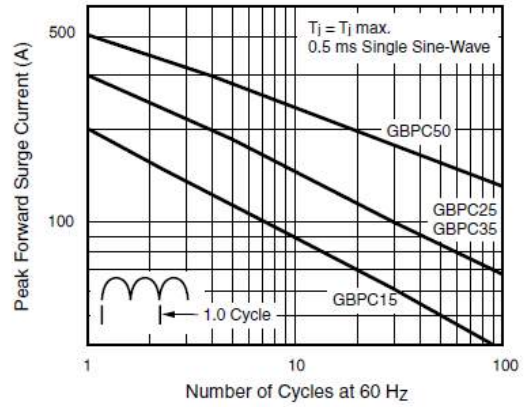


Figure 4. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

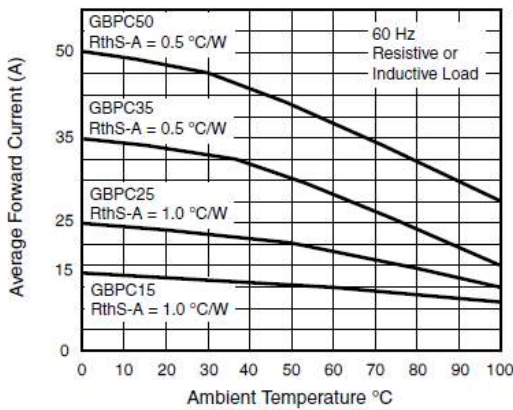


Figure 2. Maximum Output Rectified Current

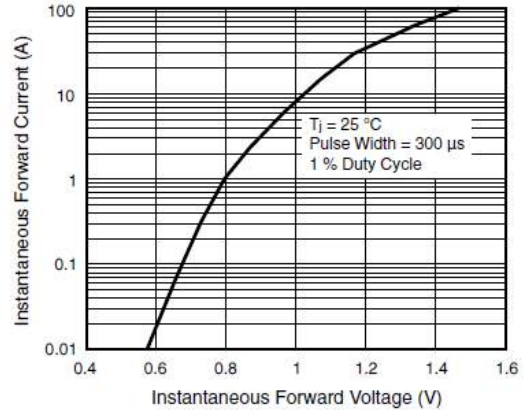


Figure 5. Typical Instantaneous Forward Characteristics Per Diode

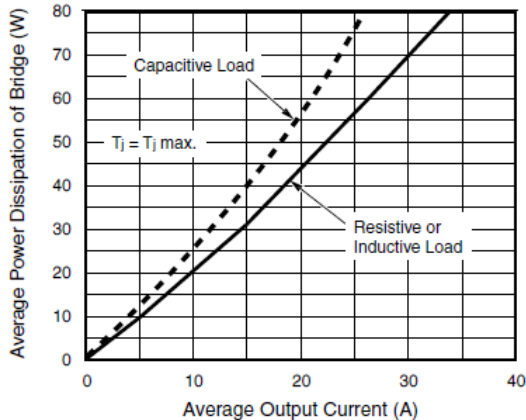


Figure 3. Maximum Power Dissipation

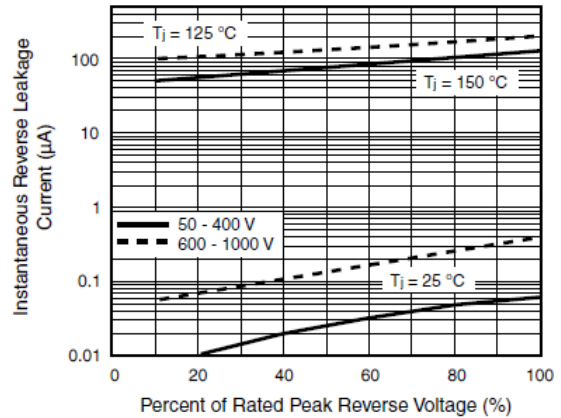


Figure 6. Typical Reverse Leakage Characteristics Per Diode





## GBPC50005(W)-GBPC5010(W)

Technical Data  
Data Sheet N1852, Rev. -

Green Products

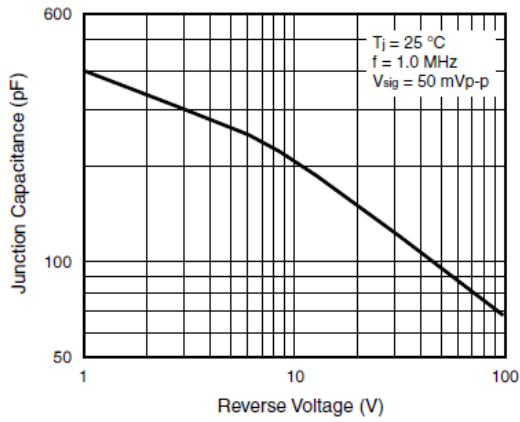


Figure 7. Typical Junction Capacitance Per Diode

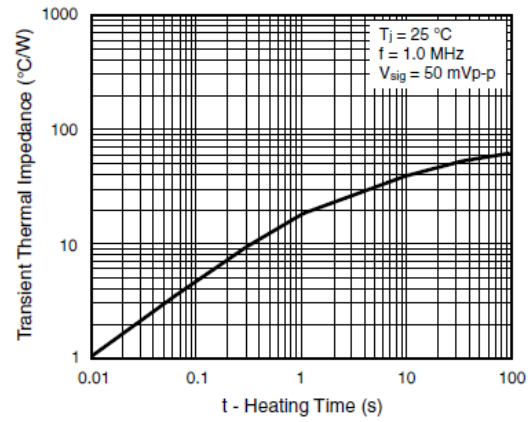


Figure 8. Typical Transient Thermal Impedance Per Diode



## GBPC50005(W)-GBPC5010(W)

Technical Data  
Data Sheet N1852, Rev. -

*Green Products*

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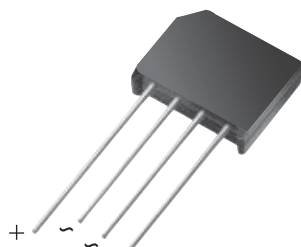
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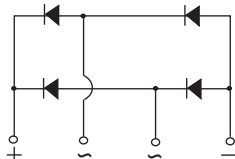
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## Single-Phase Bridge Rectifier



Case Style KBL



Case Style KBL

### FEATURES

- UL recognition, file number E54214
- Ideal for printed circuit boards
- High surge current capability
- High case dielectric strength of 1500 V<sub>RMS</sub>
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

RoHS  
COMPLIANT

### TYPICAL APPLICATIONS

General purpose use in AC/DC bridge full wave rectification for monitor, TV, printer, SMPS, adapter, audio equipment, and home appliances applications.

### MECHANICAL DATA

**Case:** KBL

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E4 - RoHS-compliant, commercial grade

**Terminals:** Silver plated leads, solderable per J-STD-002 and JESD22-B102

**Polarity:** As marked on body

**Mounting Torque:** 10 cm-kg (8.8 inches-lbs) max.

**Recommended Torque:** 5.7 cm-kg (5 inches-lbs)

PRIMARY CHARACTERISTICS	
Package	KBL
I <sub>F(AV)</sub>	4 A
V <sub>RRM</sub>	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V
I <sub>FSM</sub>	200 A
I <sub>R</sub>	5 μA
V <sub>F</sub> at I <sub>F</sub> = 4 A	1.1 V
T <sub>J</sub> max.	150 °C
Diode variations	In-line

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	KBL005	KBL01	KBL02	KBL04	KBL06	KBL08	KBL10	UNIT
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	100	200	400	600	800	1000	V
Maximum RMS voltage	V <sub>RMS</sub>	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V <sub>DC</sub>	50	100	200	400	600	800	1000	V
Maximum average forward current at T <sub>A</sub> = 50 °C	I <sub>F(AV)</sub>	4.0							A
Peak forward surge current single sine-wave superimposed on rated load	I <sub>FSM</sub>	200							A
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-50 to +150							°C

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)										
PARAMETER	TEST CONDITIONS	SYMBOL	KBL005	KBL01	KBL02	KBL04	KBL06	KBL08	KBL10	UNIT
Maximum instantaneous forward drop per diode	I <sub>F</sub> = 4.0 A	V <sub>F</sub>	1.1						V	
Maximum DC reverse current at rated DC blocking voltage per diode	T <sub>A</sub> = 25 °C	I <sub>R</sub>	5.0						μA	
	T <sub>A</sub> = 125 °C		1.0						mA	



# KBL005, KBL01B, KBL02, KBL04, KBL06, KBL08, KBL10

www.vishay.com

Vishay General Semiconductor

THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)									
PARAMETER	SYMBOL	KBL005	KBL01	KBL02	KBL04	KBL06	KBL08	KBL10	UNIT
Typical thermal resistance	$R_{\theta JA}$ (2)	19							$^\circ\text{C/W}$
	$R_{\theta JL}$ (1)	4.0							

**Notes**

- (1) Thermal resistance from junction to ambient with units mounted on 3.0" x 3.0" x 0.11" thick (7.5 cm x 7.5 cm x 0.3 cm) aluminum plate
- (2) Thermal resistance from junction to lead with units mounted on PCB at 0.375" (9.5 mm) lead length and 0.5" x 0.5" (12 mm x 12 mm) copper pads

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
KBL06-E4/51	6.0	51	300	Anti-static PVC tray

**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

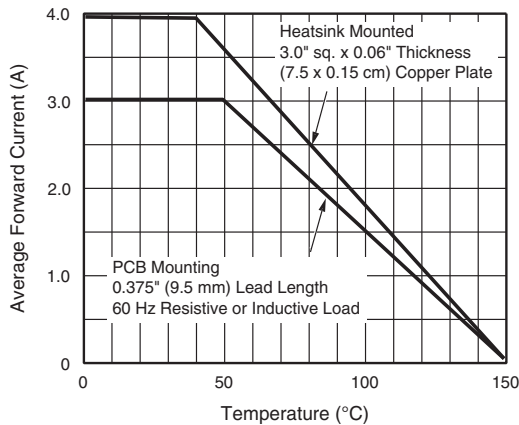


Fig. 1 - Derating Curve Output Rectified Current

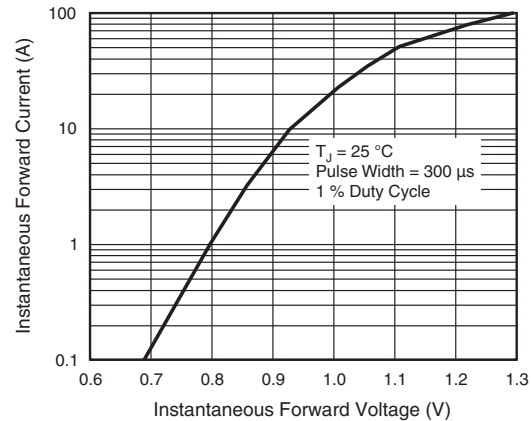


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

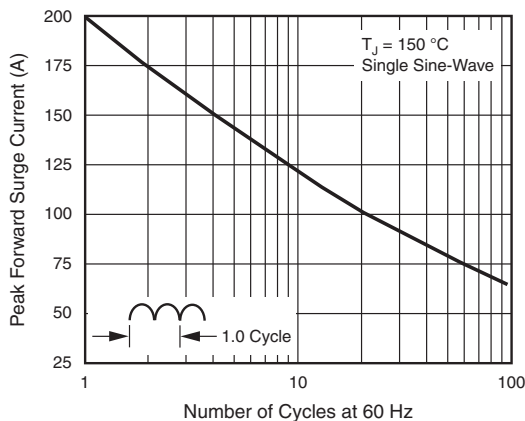


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

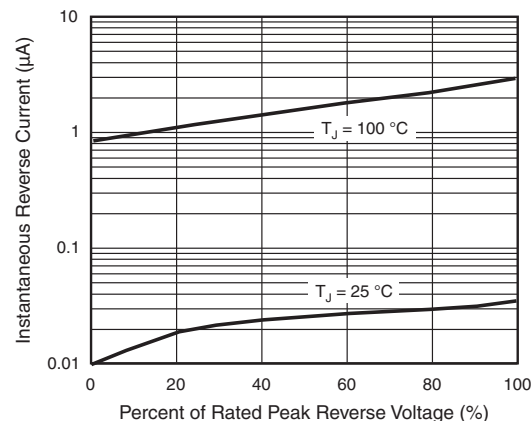


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

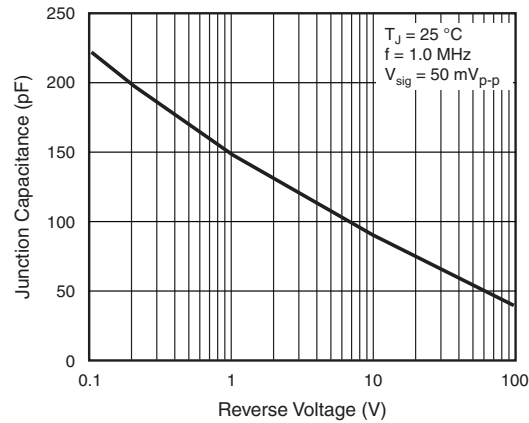
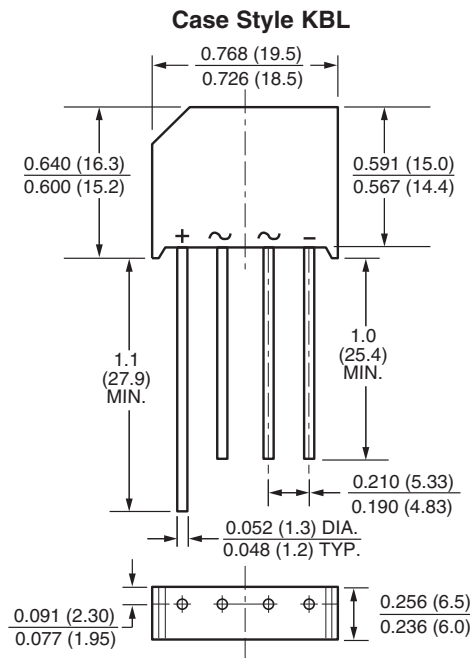


Fig. 5 - Typical Junction Capacitance Per Diode

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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## Bridge Rectifiers

Bridge

Part No.	Cross-Reference	Max. Average Rectified Current	Peak Repetitive Reverse Voltage	Peak Forward Surge Current	Max. Forward Voltage @ Rated Io	Max. Reverse Current @ V <sub>RRM</sub>	Package	Outline (Typ. in Inches)																																									
		I <sub>o</sub> (AV)	V <sub>RRM</sub> (V)	I <sub>FSM</sub> (A)	V <sub>F</sub> (V)	I <sub>R</sub> (μA)	Bulk																																										
RB151 RB152 RB153 RB154 RB155 RB156 RB157	- - - - - - -	1.5 A	50 100 200 400 600 800 1000	50	1.0 @ 1 A	5.0	250(bag) 1000(box)	<p>RB</p>																																									
W005M W01M W02M W04M W06M W08M W10M	- - - - - - -		50 100 200 400 600 800 1000						50	1.0 @ 1 A	5.0	250(bag) 1000(box)	<p>WOM</p>																																				
2W005M 2W01M 2W02M 2W04M 2W06M 2W08M 2W10M	2W005 2W01 2W02 2W04 2W06 2W08 2W10		50 100 200 400 600 800 1000											50	1.1	5.0	250(bag) 1000(box)	<p>2WOM</p>																															
BR805DTP200 BR81DTP201 BR82DTP202 BR84DTP204 BR86DTP206 BR88DTP208 BR810DTP210	KBP005M KBP01M KBP02M KBP04M KBP06M KBP08M KBP10M		50 100 200 400 600 800 1000																50	1.0 @ 1 A 1.3 @ 1.57 A	5.0	250(bag) 1000(box)	<p>TP</p>																										
TB305 TB31 TB32 TB34 TB36 TB38 TB310	KBPC1005 KBPC101 KBPC102 KBPC104 KBPC106 KBPC108 KBPC110		50 100 200 400 600 800 1000																					50	1.1 @ 1.5 A	5.0	200	<p>TB3</p>																					
TL400 TL401 TL402 TL404 TL406 TL408 TL410	KBL005 KBL01 KBL02 KBL04 KBL06 KBL08 KBL10		50 100 200 400 600 800 1000																										200	1.1	5.0	400	<p>TL</p>																
TU400 TU401 TU402 TU404 TU406 TU408 TU410	KBU4A KBU4B KBU4D KBU4G KBU4J KBU4K KBU4M		50 100 200 400 600 800 1000																															200	1.0	5.0	400	<p>TU</p>											
TU600 TU601 TU602 TU604 TU606 TU608 TU610	KBU6A KBU6B KBU6D KBU6G KBU6J KBU6K KBU6M		50 100 200 400 600 800 1000																																				250	1.0	5.0	400	<p>TU</p>						
			6.0 A																																														

## Bridge Rectifiers

## Bridge

Part No.	Cross-Reference	Max. Average Rectified Current	Peak Repetitive Reverse Voltage	Peak Forward Surge Current	Max. Forward Voltage @ Rated Io	Max. Reverse Current @ V <sub>RRM</sub>	Package	Outline (Typ. in Inches)																									
		I <sub>o</sub> (AV)	V <sub>RRM</sub> (V)	I <sub>FSM</sub> (A)	V <sub>F</sub> (V)	I <sub>R</sub> (μA)	Bulk																										
TB605 TB61 TB62 TB64 TB66 TB68 TB610	KBPC6005 KBPC601 KBPC602 KBPC604 KBPC606 KBPC608 KBPC610	6.0 A	50 100 200 400 600 800 1000	125	1.0 @ 3 A	5.0	200	TB6																									
TB805 TB81 TB82 TB84 TB86 TB88 TB810	KBPC8005 KBPC801 KBPC802 KBPC804 KBPC806 KBPC808 KBPC810		8.0 A					50 100 200 400 600 800 1000	125	1.1 @ 4 A	5.0	200	TB10																				
TU800 TU801 TU802 TU804 TU806 TU808 TU810	KBU8A KBU8B KBU8D KBU8G KBU8J KBU8K KBU8M							10.0 A					50 100 200 400 600 800 1000	300	1.0	5.0	400	TU															
MP1005M MP101M MP102M MP104M MP106M MP108M MP1010M	MB1005 MB101 MB102 MB104 MB106 MB108 MB1010												10.0 A					50 100 200 400 600 800 1000	150	1.1 @ 5 A	5.0	100(bag) 400(box)	MP6										
TB1005 TB101 TB102 TB104 TB106 TB108 TB1010	BR1005 BR101 BR102 BR104 BR106 BR108 BR1010																	10.0 A					50 100 200 400 600 800 1000	150	1.1 @ 5 A	5.0	200	TB10					
MP1005 MP101 MP102 MP104 MP106 MP108 MP1010	BRS1005 BRS101 BRS102 BRS104 BRS106 BRS108 BRS1010																						10.0 A					50 100 200 400 600 800 1000	150	1.1 @ 5 A	5.0	200	MP10
TU1000 TU1001 TU1002 TU1004 TU1006 TU1008 TU1010	KBU1001 KBU1002 KBU1003 KBU1004 KBU1005 KBU1006 KBU1007																											15.0 A					50 100 200 400 600 800 1000
MP1505M MP151M MP152M MP154M MP156M MP158M MP1510M	- - - - - - -	15.0 A		50 100 200 400 600 800 1000	300	1.1 @ 7.5 A	10.0																										200



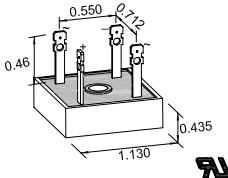
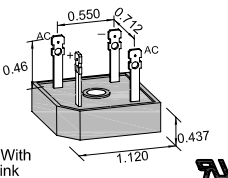
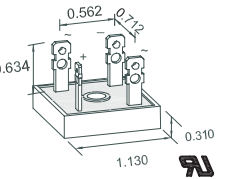
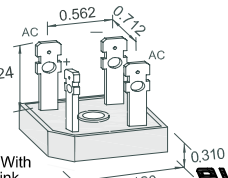
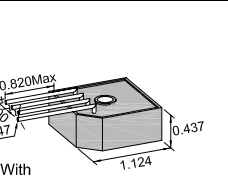
## Bridge Rectifiers

## Bridge

Part No.	Cross-Reference	Max. Average Rectified Current	Peak Repetitive Reverse Voltage	Peak Forward Surge Current	Max. Forward Voltage @ Rated Io	Max. Reverse Current @ V <sub>RRM</sub>	Package	Outline (Typ. in Inches)					
		I <sub>o</sub> (AV)	V <sub>RRM</sub> (V)	I <sub>FSM</sub> (A)	V <sub>F</sub> (V)	I <sub>R</sub> (μA)	Bulk						
MB1505	SB1505	15.0 A	50	300	1.1 @ 7.5 A	10.0	50						
MB151	SB151		100										
MB152	SB152		200										
MB154	SB154		400										
MB156	SB156		600										
MB158	SB158		800										
MB1510	SB1510		1000										
MB1505W	SB1505W		50						300	1.1 @ 7.5 A	10.0	50	
MB151W	SB151W		100										
MB152W	SB152W		200										
MB154W	SB154W		400										
MB156W	SB156W		600										
MB158W	SB158W		800										
MB1510W	SB1510W		1000										
TB1505	KBPC15-005	50	300	1.1 @ 7.5 A	10.0	50							
TB151	KBPC15-01	100											
TB152	KBPC15-02	200											
TB154	KBPC15-04	400											
TB156	KBPC15-06	600											
TB158	KBPC15-08	800											
TB1510	KBPC15-10	1000											
TB1505W	KBPC15-005W	50						300	1.1 @ 7.5 A	10.0	50		
TB151W	KBPC15-01W	100											
TB152W	KBPC15-02W	200											
TB154W	KBPC15-04W	400											
TB156W	KBPC15-06W	600											
TB158W	KBPC15-08W	800											
TB1510W	KBPC15-10W	1000											
MB2505	SB2505	25.0 A	50	300	1.1 @ 12.5 A	10.0	50						
MB251	SB251		100										
MB252	SB252		200										
MB254	SB254		400										
MB256	SB256		600										
MB258	SB258		800										
MB2510	SB2510		1000										
MB2505W	SB2505W		50					300	1.1 @ 12.5 A	10.0	50		
MB251W	SB251W		100										
MB252W	SB252W		200										
MB254W	SB254W		400										
MB256W	SB256W		600										
MB258W	SB258W		800										
MB2510W	SB2510W		1000										
TB2505	KBPC25-005	50	300	1.1 @ 12.5 A	10.0	50							
TB251	KBPC25-01	100											
TB252	KBPC25-02	200											
TB254	KBPC25-04	400											
TB256	KBPC25-06	600											
TB258	KBPC25-08	800											
TB2510	KBPC25-10	1000											
TB2505W	KBPC25-005W	50						300	1.1 @ 12.5 A	10.0	50		
TB251W	KBPC25-01W	100											
TB252W	KBPC25-02W	200											
TB254W	KBPC25-04W	400											
TB256W	KBPC25-06W	600											
TB258W	KBPC25-08W	800											
TB2510W	KBPC25-10W	1000											

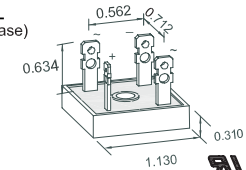
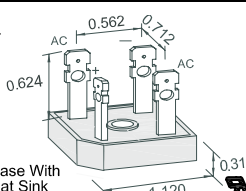
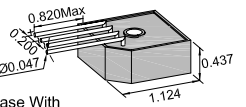
## Bridge Rectifiers

## Bridge

Part No.	Cross-Reference	Max. Average Rectified Current	Peak Repetitive Reverse Voltage	Peak Forward Surge Current	Max. Forward Voltage @ Rated I <sub>o</sub>	Max. Reverse Current @ V <sub>RRM</sub>	Package	Outline (Typ. in Inches)					
		I <sub>o</sub> (AV)	V <sub>RRM</sub> (V)	I <sub>FSM</sub> (A)	V <sub>F</sub> (V)	I <sub>R</sub> (μA)	Bulk						
MB3505	SB3505	35.0 A	50	400	1.1 @ 17.5 A	10.0	50	MB35 (Metal Case) 					
MB351	SB351		100										
MB352	SB352		200										
MB354	SB354		400										
MB356	SB356		600										
MB358	SB358		800										
MB3510	SB3510		1000										
MB3505W	SB3505W		50										
MB351W	SB351W		100										
MB352W	SB352W		200										
MB354W	SB354W		400										
MB356W	SB356W		600										
MB358W	SB358W		800										
MB3510W	SB3510W		1000										
TB3505	KBPC35-005	50	400	1.1 @ 17.5 A	10.0	50	TB35 Plastic Case With Metal Heat Sink 						
TB351	KBPC35-01	100											
TB352	KBPC35-02	200											
TB354	KBPC35-04	400											
TB356	KBPC35-06	600											
TB358	KBPC35-08	800											
TB3510	KBPC35-10	1000											
TB3505W	KBPC35-005W	50											
TB351W	KBPC35-01W	100											
TB352W	KBPC35-02W	200											
TB354W	KBPC35-04W	400											
TB356W	KBPC35-06W	600											
TB358W	KBPC35-08W	800											
TB3510W	KBPC35-10W	1000											
MB4005	-	40.0 A	50	400	1.2 @ 20 A	10.0	50	MB35L (Metal Case) 					
MB401	-		100										
MB402	-		200										
MB404	-		400										
MB406	-		600										
MB408	-		800										
MB4010	-		1000										
TB4005	-		50						400	1.1 @ 20.0 A	5.0	50	TB35L Plastic Case With Metal Heat Sink 
TB401	-		100										
TB402	-		200										
TB404	-		400										
TB406	-		600										
TB408	-		800										
TB4010	-		1000										
KBPC40-005S	-	50	400	1.1 @ 20 A	10.0	80	KBPCS Plastic Case With Metal Heat Sink 						
KBPC40-01S	-	100											
KBPC40-02S	-	200											
KBPC40-04S	-	400											
KBPC40-06S	-	600											
KBPC40-08S	-	800											
KBPC40-10S	-	1000											

## Bridge Rectifiers

## Bridge

Part No.	Cross-Reference	Max. Average Rectified Current	Peak Repetitive Reverse Voltage	Peak Forward Surge Current	Max. Forward Voltage @ Rated I <sub>o</sub>	Max. Reverse Current @ V <sub>RRM</sub>	Package	Outline (Typ. in Inches)					
		I <sub>o</sub> (AV)	V <sub>RRM</sub> (V)	I <sub>FSM</sub> (A)	V <sub>F</sub> (V)	I <sub>R</sub> (μA)	Bulk						
MB5005	-	50.0 A	50	400	1.2 @ 25 A	10.0	50	MB35L (Metal Case) 					
MB501	-		100										
MB502	-		200										
MB504	-		400										
MB506	-		600										
MB508	-		800										
MB5010	-		1000										
TB5005	-		50						450	1.1 @ 25.0 A	5.0	50	TB35L 
TB501	-		100										
TB502	-		200										
TB504	-	400											
TB506	-	600											
TB508	-	800											
TB5010	-	1000											
KBPC50-005S	-	50.0 A	50	450	1.1 @ 25 A	10.0	80	KBPCS 					
KBPC50-01S	-		100										
KBPC50-02S	-		200										
KBPC50-04S	-		400										
KBPC50-06S	-		600										
KBPC50-08S	-		800										
KBPC50-10S	-		1000										

# IGBT & Rectifier Modules

M A Y 2 0 0 7



**Selector Guide incl.:**

Product Overview Tables

Application Overview

Technology Overview

MiniPack 2

**NEW**

Press-Pack IGBTs

- POWER DEVICES
  - Power MOSFET Discreets
  - RF Power MOSFETs
  - IGBT Discreets
  - >>> IGBT Modules
    - Ultra Fast Rectifiers
    - Silicon Schottky Rectifiers
    - GaAs Schottky Rectifiers
    - SCRs and Thyristors
  - >>> Rectifier Bridges
- ICS AND GATE DRIVERS
  - MOSFET and IGBT Gate Drivers
  - RF Power MOSFETs
  - PWM Controllers
- FUNCTIONAL SOLUTIONS
  - PCF Modules
  - Converter/Brake/Inverter Modules
  - Boost & Buck Power Modules



IXYS Corporation is a global supplier of Power and Control Semiconductors with a wide range of Power MOSFETs, IGBTs, Bipolar products, GaAs RF devices, Mixed-Signal ICs, Modules and subsystem solutions that provide higher efficiency, reduced energy cost and improved performance in a wide range of power management and system applications. For over 20 years, IXYS has been at the forefront of Power Semiconductor and IC technologies having over 120 patents and innovations in the development of the IGBTs, High Current Power MOSFETs, Fast Recovery Diodes, BiMOSFETs, Reverse Blocking IGBTs, Gate Driver ICs, SOI technology, Opto-coupled ICs for telecommunication and VOIP, flat and flexible Display Driver ICs, Solar cells and GaAs RF PHEMT.

Since the beginning of the Internet boom, IXYS has been recognized as the leader in the Telecom and IT infrastructure Power Supply market with its family of »ruggedized« Power MOSFETs known as HiPerFETs™. IXYS also achieved a leadership position in the burgeoning Factory Automation market with its innovation in Direct Bond Copper (DCB) module technology and a

family of industrial rated Power Semiconductors and Integrated Power Modules.

IXYS serves a variety of consumers and industries, including energy management and conservation, wind power, medical, automotive, transportation, military and aerospace, through an extensive product portfolio produced by its seven divisions. Headquartered in Santa Clara, California, IXYS is a public company trading on the **NASDAQ**. IXYS continually focuses on serving the global market through its divisions: IXYS Corp and IXYS Semiconductor GmbH for power products, Westcode for high power bipolar products, Clare and Micronix for Mixed Signal ICs and ASICs, MWT for GaAs RF products, and IXYS COLORADO for RF POWER systems and RF Silicon products.

To date, IXYS has substantially grown its business around its key strategic objective to become a more diversified supplier of medium to high power devices, mixed signal ICs, optoelectronic and RF semiconductors, keeping the emphasis on »power« as the company's strategic theme.



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**For further products see main catalog 2006/2007**

**Please note:**

IXYS offers the broadest line of IGBT technology, including our PT line of IGBT's that we introduced in 1986, which we improved on.

Please refer to factory for your special requirement of our Fast PT IGBT based products.



## IGBT & Rectifier Modules Catalog, Edition 2007

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**Note**

As far as patents or other rights of third parties are concerned, liability is only assumed for components per se, not for applications, processes and circuits implemented with components or assemblies. The information describes the type of component and shall not be considered as assured characteristics. Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability. Terms of delivery and rights to change design or specifications are reserved. Changes have been made to earlier published specifications. The data herein supersedes all previously published informations.

### Life support applications

IXYS products used in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury must be expressly authorized for such purposes.

**Sales Representatives  
and Distributors:  
See „Sales Offices“ at  
[www.ixys.com](http://www.ixys.com)**

# QA and Environmental Management Systems

## Certificates



ISO 9001:2000



ISO/TS 16949:2002  
(includes ISO 9001:2000)  
ISO 14001:2004



ISO 9001:2000



ISO 9001:2000



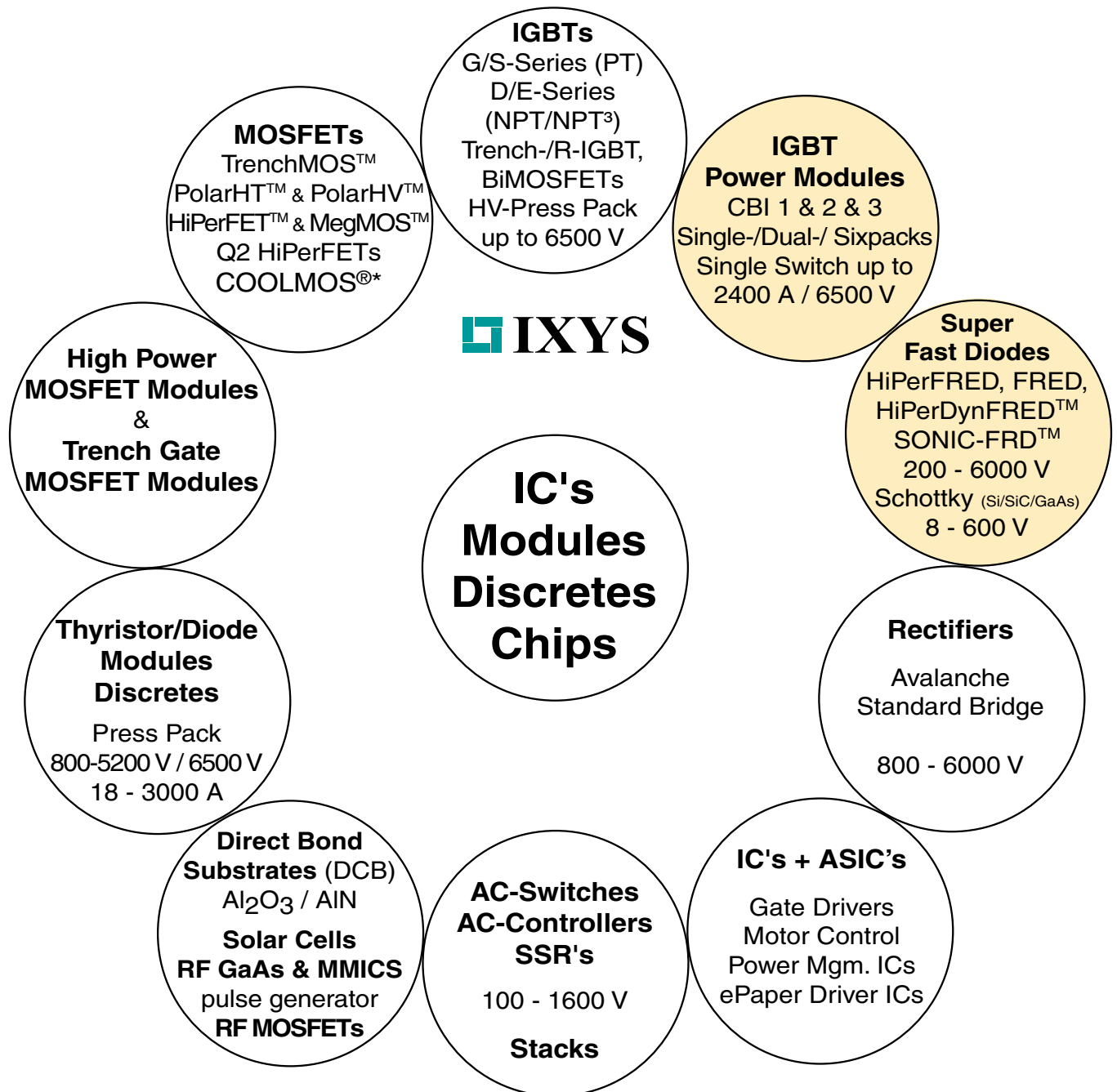
BS EN 9001:2000



ISO 9001:2000



# IXYS Product Portfolio



\* COOLMOS is a trademark of Infineon Technologies AG.



# Symbols and Terms

# Nomenclature

<b>(-)<i>di/dt</i></b>	Rate of change of current
<b><i>E<sub>off</sub></i></b>	Turn-off energy per pulse
<b><i>E<sub>on</sub></i></b>	Turn-on energy per pulse
<b><i>I<sub>C</sub></i></b>	Collector current
<b><i>I<sub>CES</sub></i></b>	Leakage current
<b><i>I<sub>GES</sub></i></b>	Gate - emitter leakage current
<b><i>I<sub>C25</sub></i></b>	Continuous DC collector current at $T_c = 25^\circ\text{C}$
<b><i>I<sub>C90</sub></i></b>	Continuous DC collector current at $T_c = 90^\circ\text{C}$
<b><i>I<sub>CM</sub></i></b>	Maximum pulsed collector current in on state
<b><i>I<sub>DAV</sub></i></b>	Average DC output current (rectifier output)
<b><i>I<sub>D(AV)M</sub></i></b>	Maximum average DC output current
<b><i>I<sub>F</sub></i></b>	Forward current (diode)
<b><i>I<sub>FAV</sub></i></b>	Average forward current
<b><i>I<sub>FSM</sub></i></b>	Maximum surge forward current
<b><i>I<sub>RM</sub></i></b>	Maximum reverse recovery current
<b><i>I<sup>2</sup>t</i></b>	<i>I<sup>2</sup>t</i> value for fusing
<b>NTC</b>	Thermistor
<b><i>Q<sub>r</sub></i></b>	Reverse recovery charge
<b><i>r<sub>T</sub></i>, <b><i>R<sub>0</sub></i></b></b>	Slope resistance (for power loss calculation)
<b><i>R<sub>thJC</sub></i></b>	Thermal resistance junction to case
<b><i>R<sub>thJK</sub></i>; <b><i>R<sub>thJH</sub></i></b></b>	Thermal resistance junction to heatsink
<b><i>T<sub>C</sub></i></b>	Case temperature
<b><i>T<sub>Jmax</sub></i>; <b><i>T<sub>vJM</sub></i></b></b>	Maximum virtual junction temperature
<b><i>t<sub>rr</sub></i></b>	Reverse recovery time
<b><i>V<sub>CE(sat)</sub></i></b>	Collector emitter saturation voltage
<b><i>V<sub>CES</sub></i></b>	Collector emitter voltage
<b><i>V<sub>RRM</sub></i></b>	Maximum repetitive reverse voltage
<b><i>V<sub>T0</sub></i>, <b><i>V<sub>0</sub></i></b></b>	Threshold voltage (for power loss calculation)
<b><i>V<sub>GE(th)</sub></i></b>	Threshold voltage

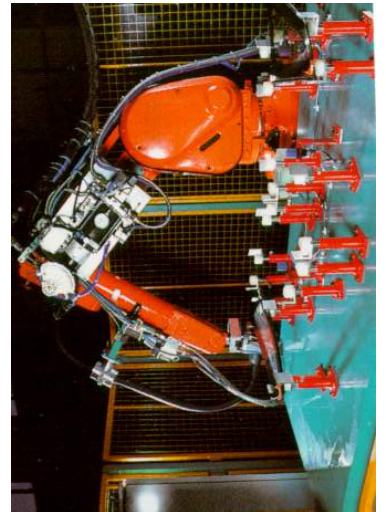
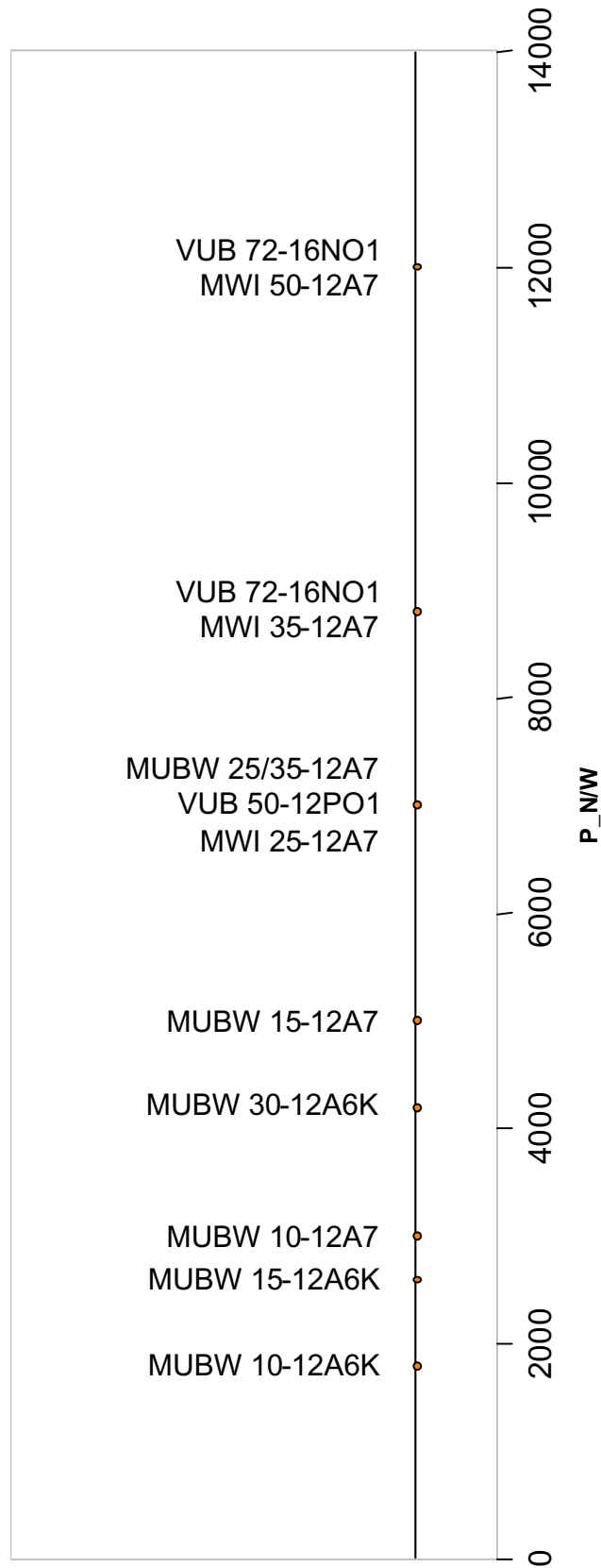
IGBT Modules			
M	W	I 100 -12	T 8 T (Example)
F			ISOPLUS-I4
M			Module
V			Module
	C		Thyristor
	D		Diode
	I		IGBT with SCSSOA capability
	M		MOSFET
	W		Three phase bridge
	U		Uncontrolled 3 phase input rectifier
	C		Thyristor
	D		Diode
	I		IGBT with SCSSOA capability
	K		Common cathode
	M		MOSFET
	O		No meaning. Reserved for future function
	BW		Brake chopper and IGBT sixpack
		<b>100</b>	Current rating 100 = 100 A
		<b>-12</b>	Voltage class, 12 = 1200 V
			A NPT IGBT
			E NPT <sup>3</sup> IGBT
			F Fast NPT IGBT
			G PT IGBT
			T Trench IGBT
			6K E1 Package
			7 E2 Package
			8 E3 Package
			9 E+ Package
			10 High Power Module
			11 High Power Module with enlarged clearance and creepage distance
			T NTC temperature sensor

New nomenclature							
M	I	AA	10	WB	600	T	MH Example
M							Module
	I						IGBT
		AA					NPT
		TA					Trench standard version
		TB					Trench fast version
			<b>10</b>				Current
				W			Six-Pack
				WB			Six-Pack with 3~ bridge and brake
				WD			Six-Pack with 1~ bridge
				WE			Six-Pack with 1~ bridge and brake
				WF			Six-Pack with 3~ bridge
					<b>600</b>		Voltage
						T	NTC inside
						MH	MiniPack 2 housing

# Product Overview

## CBI-Modules 1200 V

Estimation of typ. nom. power of the drive connection to 230/400 V 3~



# Product Overview

## Sixpack Modules

I <sub>C80</sub> [A]	NPT	NPT <sup>3</sup>	SPT <sup>+</sup>	Trench IGBT	PT IGBT	Package
<b>➤ New</b>						
<b>600 V</b>						
41					MWI 60 - 06 G6K	E1
30	MWI 30 - 06 A7(T)					E2
50	MWI 50 - 06 A7(T)					
60	MWI 75 - 06 A7(T)					
88	MWI 100 - 06 A8 (T)					E3
115	MWI 150 - 06 A8 (T)					
155	MWI 200 - 06 A8 (T)					
<b>1200 V</b>						
13	MWI 15 - 12 A6K					E1
21		➤ MWI 30 - 12 E6K				
31				MWI 45 - 12 T6K		
36		➤ MWI 50 - 12 E6K				
41				MWI 60 - 12 T6K		
56				MWI 80 - 12 T6K		
20	MWI 15 - 12 A7					E2
35	MWI 25 - 12 A7(T)	MWI 25 - 12 E7				
44	MWI 35 - 12 A7(T)					
50				MWI 50-12T7T*		
60	MWI 50 - 12 A7(T)					
62		MWI 50 - 12 E7				
75				MWI 75-12T7T*		
75				MWI 75-12T8T*		E3
85	MWI 75 - 12 A8 (T)					
90		MWI 75 - 12 E8				
100				MWI 100-12T8T*		
110	MWI 100 - 12 A8 (T)					
115		MWI 100 - 12 E8				
150				MWI 150-12T8T*		
250		➤ MWI 225 - 12 E9				E9
375		➤ MWI 300 - 12 E9				
440		➤ MWI 450 - 12 E9				
<b>1700 V</b>						
235		➤ MWI 225 - 17 E9				E9
350		➤ MWI 300 - 17 E9				
440			➤ MWI 451 - 17 E9			

\* different pin-out compared to NPT and NPT<sup>3</sup> modules

# Product Overview

## CBI Modules

I <sub>C80</sub> [A]	NPT	NPT <sup>3</sup>	Trench Standard	Trench Fast	Package
<b>➤ New</b>					
<b>600 V</b>					
13	➤ MIAA10WB600TMH				MiniPack2
16	➤ MIAA15WB600TMH				
20	➤ MIAA20WB600TMH				
27	➤ MIAA30WB600TMH				
8	MUBW 10 - 06 A6K				E1
14	MUBW 15 - 06 A6K				
17	MUBW 20 - 06 A6K				
21	MUBW 25 - 06 A6K				
29	MUBW 35 - 06 A6K				
15	MUBW 10 - 06 A7				E2
18	MUBW 15 - 06 A7				
25	MUBW 20 - 06 A7				
35	MUBW 30 - 06 A7				
50	MUBW 50 - 06 A8				E3
65	MUBW 75 - 06 A8				
85	MUBW 100 - 06 A8				
<b>1200 V</b>					
11			➤ MITA10WB1200TMH	➤ MITB10WB1200TMH	MiniPack2
17			➤ MITA15WB1200TMH	➤ MITB15WB1200TMH	
13	MUBW 15 - 12 A6K				E1
21	MUBW 30 - 12 A6K	➤ MUBW 30 - 12 E6K			
32			➤ MUBW 45 - 12 T6K		
15	MUBW 10 - 12 A7		➤ MUBW 15-12T7		E2
25	MUBW 15 - 12 A7		➤ MUBW 25-12T7		
35	MUBW 25 - 12 A7				
35	MUBW 35 - 12 A7	MUBW 35 - 12 E7		➤ MUBW 40-12T7	
40					
35	MUBW 35 - 12 A8				E3
50			➤ MUBW 50 - 12 T8		
60	MUBW 50 - 12 A8	MUBW 50 - 12 E8			
75			➤ MUBW 75 - 12 T8		
<b>1700 V</b>					
53			MUBW 50 - 17 T8		E 3
80			MUBW 80 - 17 T8		

## Full Bridge Modules (Four Pack)

I <sub>C80</sub> [A]	NPT	Fast NPT	NPT <sup>3</sup>	Trench Standard	Package
<b>600 V</b>					
67				MWI 80 - 06 T6K	E1
45	MKI 50 - 06 A7(T)				E2
67	MKI 65 - 06 A7 (T)				
85	MKI 75 - 06 A7				
<b>1200 V</b>					
45		MKI 50 - 12 F7			E2
62			MKI 50 - 12 E7		
85		MKI 100 - 12 F8			E3
90			MKI 75 - 12 E8		
115			MKI 100 - 12 E8		

# Insulated Gate Bipolar Transistor (IGBT) Modules

The IGBT is a combination of bipolar and MOS technologies. The best features of bipolar transistors are merged with the voltage-controlled properties of MOSFETs.

Advantages to the user:

- rugged, short-circuit-proof device (S-series, D-series and E-series)
- operation without protective snubber networks possible
- frequency range to well above 100 kHz
- low switching losses
- compact equipment design
- high efficiency

The IGBT is suitable for numerous applications in power electronics, especially in Pulse Width

Modulated servo and three-phase drives requiring high dynamic range control and low noise. It also can be used in Uninterruptible Power Supplies (UPS), Switch Mode Power Supplies (SMPS), and other power circuits requiring high switch repetition rates. IGBTs improve dynamic performance and efficiency and reduce the level of audible noise. IGBTs are equally suitable in resonant converter circuits. Optimized IGBTs are available for both low conduction loss and low switching loss. See table 1 and 2.

Discrete standard „G“ series IGBTs are characterized by a high control gain, which limits their short-circuit withstand time. Newer „S“, „D“ and „E“ series products utilize newly

developed IGBT chips capable of withstanding up to 10 ms in short-circuit, even with a 15 V gate drive.

A switch is only as good as its companion free-wheeling diode. For this reason, all IGBTs with integrated diodes incorporate ultra-fast-recovery epitaxial diodes (FREDs) with very low reverse recovery charge ( $Q_{rr}$ ). These same diodes are also available as separate elements for use in IGBT circuits or any other application requiring high diode switching speeds.

The IGBT modules use **Direct Copper Bonded (DCB)** substrates, which consist of an aluminium oxide ( $Al_2O_3$ ) insulator to which copper is directly bonded using the latest techniques developed by IXYS.

Chip Type	Low $V_{CEsat}$	Low Switching Losses	$R_{thJC}$	Short Circuit Rated	Optimized Operation Frequency
Low loss NPT	-	-	++	yes	up to 20 kHz
Fast NPT	--	++	++	yes	up to 30 kHz
NPT <sup>3</sup>	o	+	++	yes	10 to 20 kHz
Standard Trench	++	o	+	yes	up to 8 kHz
Fast Trench	++	+	+	yes	up to 12 kHz
PT IGBT	-	+++	++	no/yes	up to 50 kHz
PT IGBT LV*	+++	++++	++	no	up to 200 kHz

## IGBT Modules

- PT IGBT      punch through IGBT, very low switching losses, someone short circuit rated
- PT IGBT LV\*      punch through IGBT 250 - 300 V, very fast, low  $V_{SAT}$  up to 200 kHz switching, *for new products consult factory*
- NPT IGBT      non-punch through insulated gate bipolar transistor; square RBSOA, short circuit rated
- NPT<sup>3</sup> IGBT      improved NPT IGBT
- reduced  $V_{cesat}$
  - reduced switching losses
  - optimized for switching frequencies from 10 kHz up to 25 kHz
- Trench IGBT      improved NPT IGBT
- very low  $V_{cesat}$
  - reduced switching losses
  - optimized for switching frequencies up to 10 kHz
- SPT+      soft punch through IGBT, improved NPT<sup>3</sup> IGBT

# CBI Modules


CBI = Converter Brake Inverter

Rectifier, IGBT brake chopper, three phase IGBT inverter, temperature sensor

\* PT IGBT (LV 250 V, 300 V, 600 V) are available too, *consult factory*

Type	Rectifier 3~			Inverter 3~					Brake chopper		
	$V_{RRM}$	$I_{DAVM}$ $T_H = 80^\circ C$	$R_{thJC}$ typ.	$V_{CES}$	$I_C$ $T_C = 25^\circ C$	$I_C$ $T_C = 80^\circ C$	$V_{CE(sat)}$ typ.	$R_{thJC}$ typ.	$V_{CES}$	$I_C$ $T_C = 80^\circ C$	$R_{thJC}$ typ.
	V	A	K/W	V	A	A	V	K/W	V	A	K/W
<b>600 V NPT IGBT</b>											
MIAA10WB600TMH	1600	62	2.1	600	18	13	2.1	1.8	600	13	1.8
MIAA10WF600TMH		62	2.1		18	13	2.1	1.8	no brake chopper included		
MIAA15WB600TMH		62	2.1		23	16	2.1	1.6	600	16	1.6
MIAA20WB600TMH		62	2.1		29	20	2.1	1.3	600	20	1.3
<b>600 V Trench IGBT</b>											
MITA30WB600TMH	1600	90	1.4	600	40	27	1.5	1.4	600	27	1.4
<b>1200 V Trench IGBT</b>											
MITA10WB1200TMH	1600	62	2.1	1200	17	12	1.8	1.9	1200	12	1.9
MITA15WB1200TMH		62	2.1		30	21	1.8	1.1		21	1.1
MITB10WB1200TMH		62	2.1		17	12	1.9	1.85		12	1.85
MITB15WB1200TMH		62	2.1		29	20	1.7	1.2		17	1.6

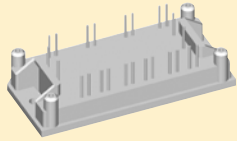
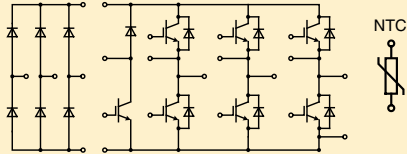
Type	Rectifier			Inverter					Brake chopper		
	$V_{RRM}$	$I_{DAVM}$ $T_H = 80^\circ C$	$R_{thJC}$ typ.	$V_{CES}$	$I_C$ $T_C = 25^\circ C$	$I_C$ $T_C = 80^\circ C$	$V_{CE(sat)}$ typ.	$R_{thJC}$ typ.	$V_{CES}$	$I_C$ $T_C = 80^\circ C$	$R_{thJC}$ typ.
	V	A	K/W	V	A	A	V	K/W	V	A	K/W
<b>600 V NPT IGBT</b>											
MIAA10WE600TMH	1600	23	2.1	600	18	13	2.1	1.8	600	13	1.8
MIAA10WD600TMH		23	2.1		18	13	2.1	1.8	no brake chopper included		
MIAA15WE600TMH		23	2.1		23	16	2.1	1.6	600	16	1.6
MIAA15WD600TMH		23	2.1		23	16	2.1	1.6	no brake chopper included		
MIAA20WE600TMH		23	2.1		29	20	2.1	1.3	600	20	1.3
MIAA20WD600TMH		23	2.1		29	20	2.1	1.3	no brake chopper included		

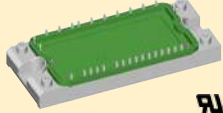
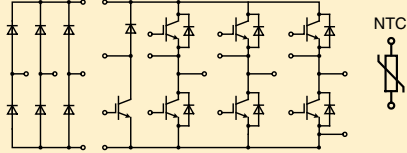
<b>Mechanical mounting part</b>		IXKU 5-505

# CBI Modules

CBI = Converter Brake Inverter

Rectifier, IGBT brake chopper, three phase IGBT inverter, temperature sensor

<b>CBI 1</b> IGBT Modules				<b>X111 E1-pack</b> <b>Package style</b> Outline drawings on pages O-1...O-3 See data sheet for pin arrangement							
				Rectifier 3~			Inverter 3~				
Type	$V_{RRM}$ V	$I_{DAVM}$ $T_H = 80^\circ C$ A	$R_{thJC}$ typ. K/W	$V_{CES}$ V	$I_C$ $T_C = 25^\circ C$ A	$I_C$ $T_C = 80^\circ C$ A	$V_{CE(sat)}$ typ. V	$R_{thJC}$ typ. K/W	$V_{CES}$ V	$I_C$ $T_C = 80^\circ C$ A	$R_{thJC}$ typ. K/W
<b>600 V NPT IGBT</b>											
MUBW 10-06A6K	1600	61	2.1	600	12	8	2.5	2.8	600	8	2.8
MUBW 15-06A6K		65	1.9		19	14	2.4	1.7		8	2.8
MUBW 20-06A6K		65	1.9		25	17	2	1.5		8	2.8
MUBW 25-06A6K		65	1.9		31	21	2.1	1.25		14	1.7
MUBW 35-06A6K		89	1.4		42	29	2.3	0.95		17	1.5
<b>1200 V NPT IGBT</b>											
MUBW 15-12A6K	1600	89	1.4	1200	19	13	3	1.35	1200	13	1.35
MUBW 30-12A6K		89	1.4		30	21	3	0.95		13	1.35
<b>1200 V NPT<sup>3</sup> IGBT</b>											
MUBW 30-12E6K	1600	89	1.4	1200	30	21	3.1	0.95	1200	13	1.35
<b>1200 V Trench IGBT</b>											
MUBW 45-12T6K	1600	104	1.1	1200	43	31	2.5	0.8	1200	13	1.35

<b>CBI 2</b> IGBT Modules				<b>X112 E2-pack</b> <b>Package style</b> Outline drawings on pages O-1...O-3 See data sheet for pin arrangement							
				Rectifier 3~			Inverter 3~				
Type	$V_{RRM}$ V	$I_{DAVM}$ $T_H = 80^\circ C$ A	$R_{thJC}$ typ. K/W	$V_{CES}$ V	$I_C$ $T_C = 25^\circ C$ A	$I_C$ $T_C = 80^\circ C$ A	$V_{CE(sat)}$ typ. V	$R_{thJC}$ typ. K/W	$V_{CES}$ V	$I_C$ $T_C = 80^\circ C$ A	$R_{thJC}$ typ. K/W
<b>600 V NPT IGBT</b>											
MUBW 10-06A7	1600	18	1.5	600	20	15	1.9	1.5	600	15	1.5
MUBW 15-06A7		18	1.5		25	18	1.9	1.3		15	1.5
MUBW 20-06A7		24	1.3		35	25	1.9	1		18	1.4
MUBW 30-06A7		24	1.3		50	35	1.9	0.7		18	1.3
MUBW 50-06A7		29	1.1		75	50	1.9	0.5		25	1
<b>1200 V NPT IGBT</b>											
MUBW 10-12A7	1600	18	1.5	1200	20	15	2.3	1.2	1200	15	1.2
MUBW 15-12A7		24	1.3		35	25	2	0.7		15	1.2
MUBW 25-12A7		24	1.3		50	35	2.2	0.55		15	1.2
MUBW 35-12A7		29	1.1		50	35	2.5	0.55		25	0.7
<b>1200 V NPT<sup>3</sup> IGBT</b>											
MUBW 35-12E7	1600	29	1.1	1200	52	36	2.2	0.55	1200	25	0.7
<b>1200 V Trench IGBT</b>											
MUBW15-12T7	1600	24	1.3	1200	25	15	1.7	1.2	1200	15	1.2
MUBW25-12T7		24	1.3		40	25	1.7	0.8		15	1.2
MUBW40-12T7		80	1.3		62	44	2.0	0.8		25	0.7



# CBI Modules

CBI = Converter Brake Inverter

Rectifier, IGBT brake chopper, three phase IGBT inverter, temperature sensor

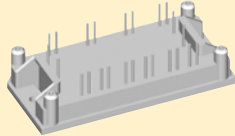
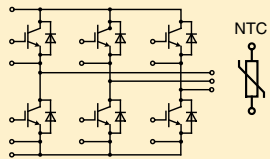
Type	Rectifier 3~			Inverter 3~					Brake chopper		
	$V_{RRM}$ V	$I_{DAVM}$ $T_H = 80^\circ C$ A	$R_{thJC}$ typ. K/W	$V_{CES}$ V	$I_C$ $T_C = 25^\circ C$ A	$I_C$ $T_C = 80^\circ C$ A	$V_{CE(sat)}$ typ. V	$R_{thJC}$ typ. K/W	$V_{CES}$ V	$I_C$ $T_C = 80^\circ C$ A	$R_{thJC}$ typ. K/W
<b>600 V NPT IGBT</b>											
MUBW 50-06A8		40	1.1		75	50	1.9	0.5		25	1
MUBW 75-06A8	1600	46	0.94	600	100	65	2	0.39	600	35	0.75
MUBW 100-06A8		60	0.73		125	85	1.9	0.3		50	0.55
<b>1200 V NPT IGBT</b>											
MUBW 35-12A8	1600	27	1.3	1200	50	35	2.5	0.55	1200	25	0.7
MUBW 50-12A8		46	0.94		85	60	2.2	0.35		35	0.55
<b>1200 V NPT<sup>3</sup> IGBT</b>											
MUBW 50-12E8	1600	50	0.94	1200	90	62	1.9	0.35	1200	35	0.55
<b>1200 V Trench IGBT</b>											
MUBW 50-12T8	1600	50	0.94	1200	75	50	1.7	0.45	1200	35	0.55
MUBW 75-12T8		50	0.94		105	75	1.7	0.35		35	0.55
<b>1700 V Trench IGBT</b>											
MUBW 50-17T8	2200	120	1.1	1700	74	53	2.0	0.43	1700	34	0.62
MUBW 75-17T8		140	0.95		113	80	2.0	0.48		34	0.62

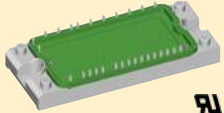
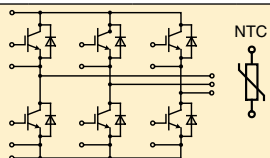
# Phase-Leg Modules

Type	$V_{CES}$ V	$I_{C25}$ A $T_C = 25^\circ C$ IGBT	$I_{C80}$ A $T_C = 80^\circ C$ IGBT	$V_{CE(sat)}$ typ V $T_J = 25^\circ C$ IGBT	$E_{off}$ mJ $T_J = 125^\circ C$ IGBT	$R_{thJC}$ K/W IGBT	$I_{F25}$ A $T_C = 25^\circ C$ diode	$I_{F80}$ A $T_C = 80^\circ C$ diode	Fig.
<b>1200 V Half Bridge with 3<sup>rd</sup> generation NPT<sup>3</sup></b>									
➤ MII 300-12E4	1200	280	200	2.0	20	0.11	300	190	X130a
➤ MII 400-12E4		420	300	2.2	30	0.08	450	290	
<b>1200 V Boost chopper with 3<sup>rd</sup> generation NPT<sup>3</sup></b>									
➤ MID 400-12E4	1200	420	300	2.2	30	0.08	450	290	X130b
<b>1200 V Buck chopper with 3<sup>rd</sup> generation NPT<sup>3</sup></b>									
➤ MDI 400-12E4	1200	420	300	2.2	30	0.08	450	290	X130c

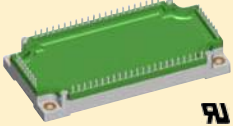

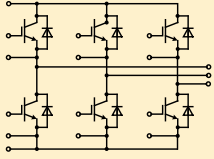


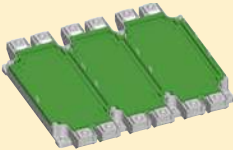

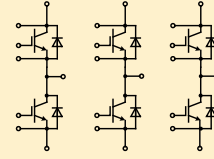
# Sixpack configuration

<b>Sixpack</b> IGBT Modules				<b>X111 E1-pack</b> Package style Outline drawings on pages O-1...O-3 See data sheet for pin arrangement					
Type	$V_{CES}$ V	$I_{C25}$ A $T_C = 25^\circ C$ IGBT	$I_{C80}$ A $T_C = 80^\circ C$ IGBT	$V_{CE(sat)}$ typ V $T_J = 25^\circ C$ IGBT	$E_{off}$ mJ $T_J = 125^\circ C$ IGBT	$R_{thJC}$ K/W IGBT	$I_{F25}$ A $T_C = 25^\circ C$ diode	$I_{F80}$ A $T_C = 80^\circ C$ diode	NTC
<b>600 V PT IGBT</b>									
MWI 60-06G6K	600	60	41	2.3	0.5	0.7	48	33	•
<b>1200 V NPT IGBT</b>									
MWI 15-12A6K	1200	19	13	3	1.1	1.37	24	16	•
<b>1200 V NPT<sup>3</sup> IGBT</b>									
MWI 30-12E6K	1200	29	21	2.5	1.8	0.95	24	16	•
MWI 50-12E6K		51	36	2.4	2.6	0.6	49	32	•
<b>1200 V Trench IGBT</b>									
MWI 45-12T6K	1200	43	31	1.9	3.4	0.8	49	32	•
MWI 60-12T6K		58	41	1.9	4.8	0.62	49	32	•
MWI 80-12T6K		80	56	2	6.5	0.46	80	51	•

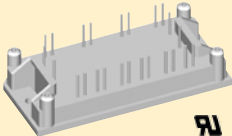
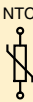
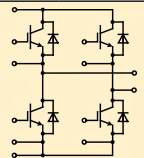
<b>Sixpack</b> IGBT Modules				<b>X112 E2-pack</b> Package style Outline drawings on pages O-1...O-3 See data sheet for pin arrangement					
Type	$V_{CES}$ V	$I_{C25}$ A $T_C = 25^\circ C$ IGBT	$I_{C80}$ A $T_C = 80^\circ C$ IGBT	$V_{CE(sat)}$ typ V $T_J = 25^\circ C$ IGBT	$E_{off}$ mJ $T_J = 125^\circ C$ IGBT	$R_{thJC}$ K/W IGBT	$I_{F25}$ A $T_C = 25^\circ C$ diode	$I_{F80}$ A $T_C = 80^\circ C$ diode	NTC
<b>600 V NPT IGBT</b>									
MWI 30-06A7	600	45	30	1.9	1	0.88	36	24	•
MWI 30-06A7T		45	30	1.9	1	0.88	36	24	
MWI 50-06A7		75	50	1.9	1.7	0.55	72	45	
MWI 50-06A7T		75	50	1.9	1.7	0.55	72	45	
MWI 75-06A7		90	60	2.1	2.5	0.44	140	85	
MWI 75-06A7T		90	60	2.1	2.5	0.44	140	85	
<b>1200 V NPT IGBT</b>									
MWI 15-12A7	1200	30	20	1	1.8	0.88	25	17	•
MWI 25-12A7		50	35	2.2	2.8	0.55	50	33	
MWI 25-12A7T		50	35	2.2	2.8	0.55	50	33	
MWI 35-12A7		62	44	2.2	4.2	0.44	50	33	
MWI 35-12A7T		62	44	2.2	4.2	0.44	50	33	
MWI 50-12A7		85	60	2.2	5.6	0.35	110	70	
MWI 50-12A7T		85	60	2.2	5.6	0.35	110	70	
<b>1200 V NPT<sup>3</sup> IGBT</b>									
MWI 25-12E7	1200	52	36	1.9	2.5	0.55	50	33	•
MWI 50-12E7		90	62	2.1	4	0.35	110	70	
<b>1200 V Trench IGBT</b>									
MWI 50-12T7T	1200	75	50	1.7	6.5	0.49	110	70	•
MWI 75-12T7T		105	75	1.7	9.5	0.35	150	100	

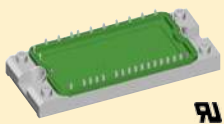
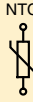
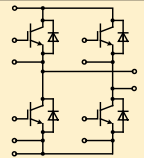
# Sixpack configuration

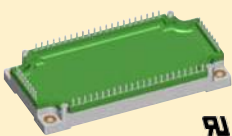
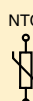
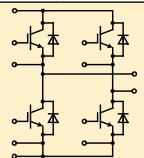
<b>Sixpack</b> IGBT Modules				<b>X113 E3-pack</b> Package style Outline drawings on pages O-1...O-3 See data sheet for pin arrangement					
Type	$V_{CES}$ V	$I_{C25}$ A $T_C = 25^\circ C$ IGBT	$I_{C80}$ A $T_C = 80^\circ C$ IGBT	$V_{CE(sat)}$ typ V $T_J = 25^\circ C$ IGBT	$E_{off}$ mJ $T_J = 125^\circ C$ IGBT	$R_{thJC}$ K/W IGBT	$I_{F25}$ A $T_C = 25^\circ C$ diode	$I_{F80}$ A $T_C = 80^\circ C$ diode	NTC
<b>600 V NPT IGBT</b>									
MWI 100-06A8	600	130	88	2	2.9	0.3	140	88	
MWI 100-06A8T		130	88	2	2.9	0.3	140	88	•
MWI 150-06A8		170	115	2	4.6	0.24	210	130	
MWI 150-06A8T		170	115	2	4.6	0.24	210	130	•
MWI 200-06A8		215	155	2	6.3	0.18	260	165	
MWI 200-06A8T		215	155	2	6.3	0.18	260	165	•
<b>1200 V NPT IGBT</b>									
MWI 75-12A8	1200	125	85	2.2	10.5	0.25	150	100	
MWI 75-12A8T		125	85	2.2	10.5	0.25	150	100	•
MWI 100-12A8		160	110	2.2	14.6	0.19	200	130	
MWI 100-12A8T		160	110	2.2	14.6	0.19	200	130	•
<b>1200 V NPT<sup>3</sup> IGBT</b>									
MWI 75-12E8	1200	130	90	2	7.5	0.25	150	100	
MWI 100-12E8		165	115	2	10.0	0.19	200	130	
<b>1200 V Trench IGBT</b>									
MWI 75-12T8T	1200	100	75	1.7	9.5	0.35	150	100	•
MWI 100-12T8T		140	100	1.7	12.0	0.26	200	130	•
MWI 150-12T8T		200	150	1.7	17.0	0.18	tbd	tbd	•

<b>Sixpack</b> IGBT Modules				<b>X114 E9-pack</b> Package style Outline drawings on pages O-1...O-3 See data sheet for pin arrangement					
Type	$V_{CES}$ V	$I_{C25}$ A $T_C = 25^\circ C$ IGBT	$I_{C80}$ A $T_C = 80^\circ C$ IGBT	$V_{CE(sat)}$ typ V $T_J = 25^\circ C$ IGBT	$E_{off}$ mJ $T_J = 125^\circ C$ IGBT	$R_{thJC}$ K/W IGBT	$I_{F25}$ A $T_C = 25^\circ C$ diode	$I_{F80}$ A $T_C = 80^\circ C$ diode	NTC
<b>1200 V NPT<sup>3</sup> IGBT</b>									
MWI 225-12E9	1200	355	250	2.1	20	0.09		205	•
MWI 300-12E9		530	375	2	30	0.06		300	•
MWI 450-12E9		640	440	2.2	45	0.057		450	•
<b>1700 V NPT<sup>3</sup> IGBT</b>									
MWI 225-17E9	1700	335	235	2.5	54	0.085		200	•
MWI 300-17E9		500	350	2.3	80	0.057		290	•
<b>1700 V SPT<sup>+</sup> IGBT</b>									
MWI 451-17E9	1700	580	475	2.25	90	0.057		450	•

# Full Bridge configuration

<b>Full Bridge</b> IGBT Modules				<b>X111 E1-pack</b> Package style Outline drawings on pages O-1...O-3 See data sheet for pin arrangement			 		
Type	$V_{CES}$ V	$I_{C25}$ A $T_C = 25^\circ\text{C}$ IGBT	$I_{C80}$ A $T_C = 80^\circ\text{C}$ IGBT	$V_{CE(sat)}$ typ V $T_J = 25^\circ\text{C}$ IGBT	$E_{off}$ mJ $T_J = 125^\circ\text{C}$ IGBT	$R_{thJC}$ K/W IGBT	$I_{F25}$ A $T_C = 25^\circ\text{C}$ diode	$I_{F80}$ A $T_C = 80^\circ\text{C}$ diode	NTC
<b>600 V Trench IGBT</b>									
➤ MKI 80-06T6K	600	89	67	1.8	2.8	0.6	105	67	•

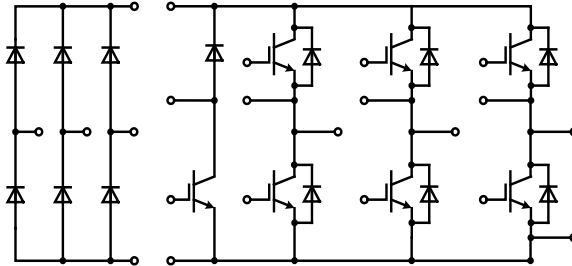
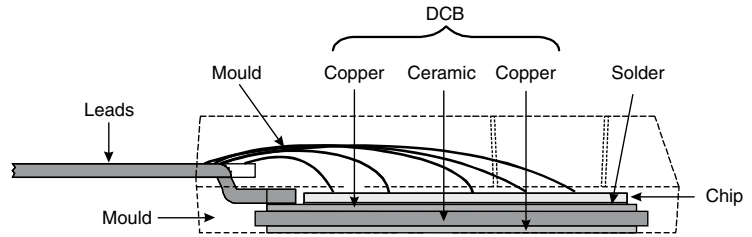
<b>Full Bridge</b> IGBT Modules				<b>X112 E2-pack</b> Package style Outline drawings on pages O-1...O-3 See data sheet for pin arrangement			 		
Type	$V_{CES}$ V	$I_{C25}$ A $T_C = 25^\circ\text{C}$ IGBT	$I_{C80}$ A $T_C = 80^\circ\text{C}$ IGBT	$V_{CE(sat)}$ typ V $T_J = 25^\circ\text{C}$ IGBT	$E_{off}$ mJ $T_J = 125^\circ\text{C}$ IGBT	$R_{thJC}$ K/W IGBT	$I_{F25}$ A $T_C = 25^\circ\text{C}$ diode	$I_{F80}$ A $T_C = 80^\circ\text{C}$ diode	NTC
<b>600 V NPT IGBT</b>									
MKI 50-06A7		72	50	1.9	1.7	0.55	72	45	•
MKI 50-06A7T		72	50	1.9	1.7	0.55	72	45	•
➤ MKI 65-06A7T	600	100	67	2.0	2.3	0.39	140	85	•
MKI 75-06A7		90	60	2.5	6.3	0.44	140	85	•
MKI 75-06A7T		90	60	2.5	6.3	0.44	140	85	•
<b>1200 V Fast NPT IGBT</b>									
MKI 50-12F7	1200	65	45	3.2	2.5	0.35	110	70	
<b>1200 V NPT<sup>3</sup> IGBT</b>									
MKI 50-12E7	1200	90	62	1.9	4.0	0.35	110	70	

<b>Full Bridge</b> IGBT Modules				<b>X113 E3-pack</b> Package style Outline drawings on pages O-1...O-3 See data sheet for pin arrangement			 		
Type	$V_{CES}$ V	$I_{C25}$ A $T_C = 25^\circ\text{C}$ IGBT	$I_{C80}$ A $T_C = 80^\circ\text{C}$ IGBT	$V_{CE(sat)}$ typ V $T_J = 25^\circ\text{C}$ IGBT	$E_{off}$ mJ $T_J = 125^\circ\text{C}$ IGBT	$R_{thJC}$ K/W IGBT	$I_{F25}$ A $T_C = 25^\circ\text{C}$ diode	$I_{F80}$ A $T_C = 80^\circ\text{C}$ diode	NTC
<b>1200 V Fast NPT IGBT</b>									
MKI 100-12F8	1200	65	45	3.2	2.5	0.35	110	70	
<b>1200 V NPT<sup>3</sup> IGBT</b>									
MKI 75-12E8	1200	130	90	2.0	7.5	0.25	150	100	
MKI 100-12E8		150	115	2.0	10	0.19	200	130	

# IXYS ISOPLUS Technology

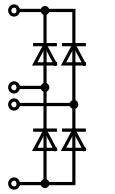
## DCB base plate

- 2500 V electrical isolation
- low thermal resistance
- increased power & temperature cycling
- saves space
- replaces multiple discretes
- reduces parasitic inductance and capacitance
- reduces EMI
- heat spreading

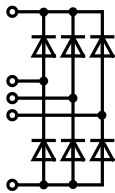


### Rectifier Bridge

FBO 16-12N  
FBO 40-12N

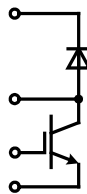


FUO 22-12N  
FUO 22-16N  
FUO 50-16N



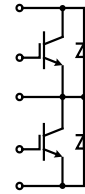
### Brake (Boost)

FID 35-06C  
FID 36-06D  
FID 60-06D



### Converter (3x phaseleg)

FII 30-06D  
FII 40-06D  
FII 30-12E  
FII 50-12E

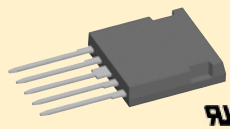


\* PT IGBT LV alvailable too  
(*inquire factory*)

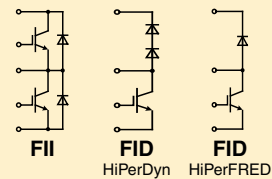
## Building blocks for your ideal converter

### ISOPLUS i4-PAC™

Package



X024a  
Package style  
Outline drawings on  
pages O-1...O-4



Type	Configu- ration	Technology	$V_{RRM} / V_{CES}$ V	$I_{C25}$ @ 25°C A	$I_{D(AV)M} / I_{C80}$ @ 90°C A	$V_{CE(sat)}$ typ. $T_C = 25°C$ V
FBO 16-12N FBO 40-12N	1~	Rectifier Bridge	1200		22 40	
FUO 22-12N FUO 22-16N FUO 50-16N	3~	Rectifier Bridge	1200 1600 1600		27 27 50	
FID 35-06C FID 36-06D FID 60-06D	<i>boost</i>	NPT IGBT & HiPerDynFRED NPT IGBT & HiPerFRED NPT IGBT & HiPerFRED	600	38 38 65	24 24 40	1.9 1.9 1.6
FII 30-06D FII 40-06D FII 30-12E FII 50-12E	<i>phaseleg</i>	NPT IGBT NPT IGBT NPT <sup>3</sup> IGBT NPT <sup>3</sup> IGBT	600	30 40 32 50	18 25 20 32	1.9 1.8 2.4 2.0

# Thyristor / Diode Modules

One of the essential advantages of power semiconductor modules compared to discrete designs is the electrical isolation between the baseplate of the module and the parts subject to voltage (3.6 kV<sub>RMS</sub> tested). This makes possible the mount-down of any number of the same or different modules on a common heatsink. It is feasible to use standard housings with appropriate accessories for designing compact power converter operating from AC mains up to 690 V.

## Plastic Housing with DCB Substrate

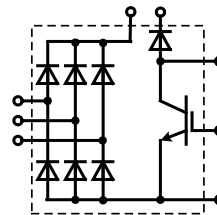
IXYS has succeeded in simplifying the conventional multilayer module construction by the DCB (Direct Copper Bonding) technique.

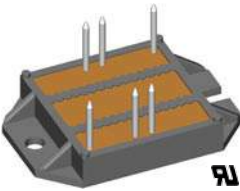
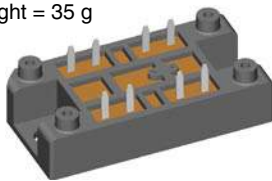
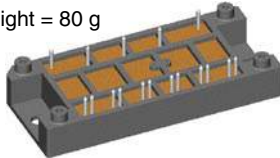
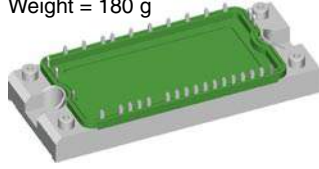
Other features are:

- top-side electrical terminals with captured nuts;
- series-connected diode/diode, thyristor/diode and thyristor/thyristor modules;
- easy assembly.

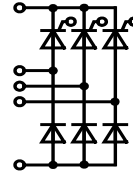
All thyristor modules with DCB ceramic base contacts are available in volume with two standardized twin plugs (2.8 mm x 0.8 mm) for gate and auxiliary cathode control terminals (version 1). Modules in TO-240 housing of the version 8 are delivered with gate plugs only (without auxiliary cathode terminal; mounting screws available on request). The module housing is designed for adequate clearance and creepage distance resulting in recognition by Underwriters Laboratories, Inc., USA for all types.

## 3~ Rectifier Bridges with IGBT and Diode for Brake Unit

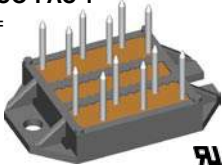
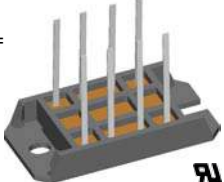
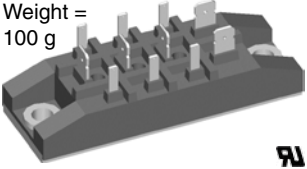



Type	Rectifier			IGBT		fast Diode			Fig. No.	Package style	
	V <sub>RRM</sub> V	I <sub>dAV</sub> @ T <sub>C</sub> A	°C	V <sub>CES</sub> V	I <sub>C80</sub> A	V <sub>RRM</sub> V	I <sub>F(AV)</sub> A	t <sub>rr</sub> ns			
VUB 50-12PO1 VUB 50-16PO1	1200 1600	56	100	1200	14	1200	10	110	X102	<b>X102 ECO-PAC 2</b> Weight = 24 g See data sheet for pin arrangement 	
VUB 72-12NO1 VUB 72-16NO1	1200 1600	110	80	1200	35	1200	15	130	X103		
VUB 116-16NO1	1600	116	100	1200	67	1200	27	40	X112		
VUB 120-12NO2 VUB 120-16NO2	1200 1600	188	80	1200	100	1200	32	40	X104		
VUB 135-16NO1	2200	135	100	1700	50	1800	50	40	X112		
VUB 145-16NO1	1600	145	100	1200	100	1200	27	40			
VUB 160-12NO2 VUB 160-16NO2	1200 1600	188	80	1200	125	1200	34	40	X104		<b>X103 V1-Package</b> Weight = 35 g 
<h3>3~ Half Controlled Rectifier Bridges with IGBT and Diode for Brake Unit</h3>											<b>X104 V2-Package</b> Weight = 80 g 
VVZB 120-12io1 VVZB 120-16io1	1200 1600	120	80	1200	100	1200	27	40	X104		<b>X112 V2-Package</b> Weight = 180 g 
VVZB 135-16NO1	1600	135	85		67				X112		
VVZB 170-16NO1		170			100						

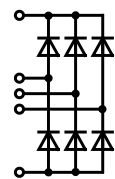
### 3~ Rectifier Bridges

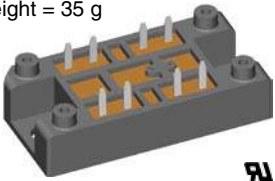
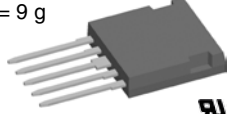


#### 3~ Half Controlled Rectifier Bridges, B6HK

Type	$V_{RRM}$	$V_{VRMS}$	$I_{dAV}$	$I_{FSM}$	$V_{T0}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thJH}$	Fig. No.	Package style
	V	V	A	A	V	mΩ	°C	K/W	K/W		
VVZ 12-12io1 VVZ 12-14io1 VVZ 12-16io1	1200 1400 1600	400 440 500	15	110	1.1	30	125	2.5	3.1	X106a	<b>X101 ECO-PAC 1</b> Weight = 19 g 
VVZ 24-12io1 VVZ 24-14io1 VVZ 24-16io1	1200 1400 1600	400 440 500	21	300	1	16	125	2.1	2.7		
VVZ 39-08ho7 VVZ 39-12ho7	800 1200	250 400	39 $T_C = 85^\circ C$	200	0.85	27	125	1.3	1.8		
VVZ 40-12io1 VVZ 40-14io1 VVZ 40-16io1	1200 1400 1600	400 440 500	34	320	0.85	15	125	1.0	1.6	X106a	<b>X106a</b> Weight = 28 g 
VVZ 70-08io7 VVZ 70-12io7 VVZ 70-14io7 VVZ 70-16io7	800 1200 1400 1600	250 400 440 500	70 $T_C = 85^\circ C$	550	0.85	11	125	0.9	1.1	X118c	<b>X118c</b> Weight = 100 g 
VVZ 110-12io7 VVZ 110-14io7	1200 1400	400 440	110 $T_C = 85^\circ C$	1150	0.85	6	125	0.65	0.8	X123b	<b>X123b</b> Weight = 300 g 
VVZ 175-12io7 VVZ 175-14io7 VVZ 175-16io7	1200 1400 1600	400 440 500	167 $T_C = 85^\circ C$	1500	0.85	3.5	125	0.46	0.55		

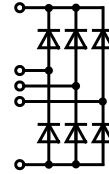
### 3~ Rectifier Bridges, B6U

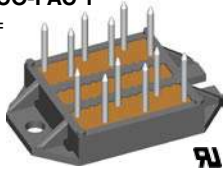
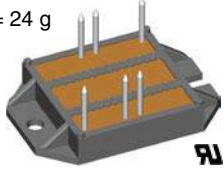
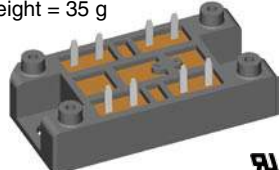
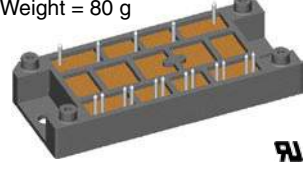
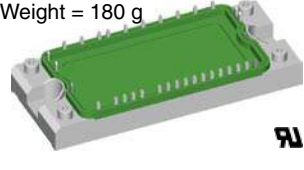


Type	$V_{RRM}$	$V_{VRMS}$	$I_{dAV}$	$T_C$	$I_{FSM}$	$V_{T0}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thJH}$	Fig. No.	Package style
	V	V	A	°C	A	V	mΩ	°C	K/W	K/W		
VUO 16-08NO1 VUO 16-12NO1 VUO 16-14NO1 VUO 16-16NO1 VUO 16-18NO1	800 1200 1400 1600 1800	250 400 440 500 575	15	$T_H = 90^\circ C$	100	0.8	50	130	-	4.5	X103	<b>X103 V1-Package</b> Weight = 35 g 
FUO 22-12N FUO 22-16N	1200 1600	400 500	27	90	100	0.83	28	150	4	5	X024a	<b>X024a V1-Package</b> <b>ISOPLUS i4-PAC™</b> Weight = 9 g 
VUO 22-08NO1 VUO 22-12NO1 VUO 22-14NO1 VUO 22-16NO1 VUO 22-18NO1	800 1200 1400 1600 1800	250 400 440 500 575	22	$T_H = 90^\circ C$	100	0.8	40	130	-	3.1	X103	
VUO 34-08NO1 VUO 34-14NO1 VUO 34-16NO1 VUO 34-18NO1	800 1400 1600 1800	250 440 500 575	36		300	0.8	15	130	-	2.5	X103	
FUO 50-16N	1600	500	50	90	200 <sub>25°C</sub>	tbd	tbd	150	2.1	3.2	X024a	



# 3~ Rectifier Bridges, B6U



Type	V <sub>RRM</sub>	V <sub>VRMS</sub>	I <sub>dAV</sub>	T <sub>C</sub>	I <sub>FSM</sub> 45°C 10 ms	V <sub>TO</sub>	r <sub>T</sub>	T <sub>VJM</sub>	R <sub>thJC</sub> per Chip	R <sub>thJH</sub> per Chip	Fig. No.	Package style
	V	V	A	°C	A	V	mΩ	°C	K/W	K/W		Outline drawings on pages O-1...O-4
VUO 52-08NO1 VUO 52-12NO1 VUO 52-14NO1 VUO 52-16NO1 VUO 52-18NO1 VUO 52-20NO1	800 1200 1400 1600 1600 1800	250 400 440 500 500 575	54 T <sub>H</sub> = 90°C		350	0.8	12.5	130	-	1.5	X103	<b>X101 ECO-PAC 1</b> Weight = 19 g 
VUO 68-08NO7 VUO 68-12NO7 VUO 68-14NO7 VUO 68-16NO7	800 1200 1400 1600	250 400 440 500	68	100	300	0.8	13	150	1.1	1.6	X101	See data sheet for pin arrangement <b>X102 ECO-PAC 2</b> Weight = 24 g 
VUO 80-08NO1 VUO 80-12NO1 VUO 80-14NO1 VUO 80-16NO1 VUO 80-18NO1	800 1200 1400 1600 1800	250 400 440 500 575	82 T <sub>H</sub> = 90°C		600	0.8	7.5	150	-	1.42	X103	See data sheet for pin arrangement <b>X103 V1-Package</b> Weight = 35 g 
VUO 86-08NO7 VUO 86-12NO7 VUO 86-14NO7 VUO 86-16NO7	600 1200 1400 1600	125 400 440 500	86	90	530	0.8	7.5	150	1.2	1.5	X101	<b>X104 V2-Package</b> Weight = 80 g 
VUO 98-08NO7 VUO 98-12NO7 VUO 98-14NO7 VUO 98-16NO7	800 1200 1400 1600	250 400 440 500	95	85	750	0.8	6	150	1.2	1.5	X102	<b>X118d</b> Weight = 80 g 
VUO 100-08NO7 VUO 100-12NO7 VUO 100-14NO7 VUO 100-16NO7	800 1200 1400 1600	250 400 440 500	100	100	1000	0.8	5	150	1.12	1.5	X118d	<b>X112</b> Weight = 180 g 
VUO 120-12NO1 VUO 120-16NO1	1200 1600	1200 1600	121	75	650	0.8	6.1	150	1	1.3	X104	<b>X123a/c</b> Weight = 80 g 
VUO 121-16NO1	1600	575	118	100	650	0.8	5	150	0.8	0.9	X112	
VUO 122-08NO7 VUO 122-12NO7 VUO 122-14NO7 VUO 122-16NO7 VUO 122-18NO7	800 1200 1400 1600 1800	250 400 440 500 575	117	100	900	0.8	4	150	0.85	1.15	X102	
VUO 155-12NO1 VUO 155-16NO1	1200 1600	1200 1600	157	75	850	0.75	4.6	150	0.8	1.1	X104	
VUO 160-08NO7 VUO 160-12NO7 VUO 160-14NO7 VUO 160-16NO7 VUO 160-18NO7	800 1200 1400 1600 1800	250 400 440 500 575	175	90	1800	0.8	3	150	0.65	0.83	X123a	
VUO 190-08NO7 VUO 190-12NO7 VUO 190-14NO7 VUO 190-16NO7 VUO 190-18NO7	800 1200 1400 1600 1800	250 400 440 500 575	248	110	2800	0.8	2.2	150	0.45	0.6	X123c	

## Product Overview

Press-Pack IGBTs (T Types) 1.7kV, 2.5kV, and 4.5kV 160A to 2500A

		TX116TA17E	2500A
			2400A
T2400GA45E		TX115TA16A	1900A
T1800GA45A			1800A
T1500EA45E	T1500TA25E		1500A
	T1200TA25A		1200A
T0900EA45A			900A
T0800TA45A		TX167NA17E	800A
T0600TA45A		TX168NA17A	600A
	T0500NA25E		500A
	T0360NA25A		360A
T0240NA45E			240A
T0160NA45A			160A
<b>4.5kV</b>	<b>2.5kV</b>	<b>1.7kV</b>	



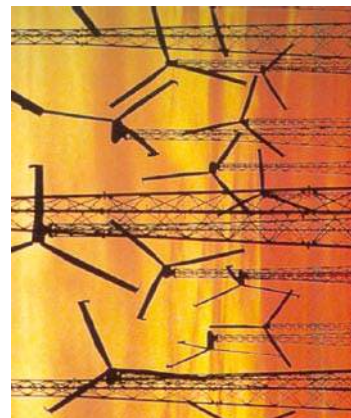
HSR-350X - Korean Rail



E10 Shunting Locomotive - Polish Rail



Induction Heating



Wind Power



## Press-Pack IGBTs - 1.7kV, 2.5kV and 4.5kV

As a pioneer of Press-Pack IGBT technology, we are able to offer a range of class leading devices with voltage ratings of 2.5kV (1.25kV DC link), 4.5kV (2.8kV DC link) and 1.7kV.

The construction of these devices is totally free from wire and solder bonds which all but eliminates the problems of mechanical fatigue associated with conventional modules. Internal stray inductance in both the gate connections and emitter connections is vastly reduced when compared to conventional modules leading to improved ruggedness and short circuit behaviour, which is further enhanced by direct cooling of the emitter side of the chip. Double sided cooling allows full use of the nominal rated collector current without derating of voltage or frequency.

Devices are available with or without integral anti-parallel diode – a range of complementary HP Sonic-FRDs™ optimised for use with these IGBTs are outlined below.

The press pack construction offers several advantages over conventional IGBT modules:

- exceptional power cycling performance – typically an order of magnitude better than modules – making them highly suited to applications such as transportation and induction heating where there are repeated cyclic power demands.
- high rupture ratings making them a good choice in critical applications such as transportation applications, mining, and the petro-chemical industry.
- stable short circuit failure mode which, as well as safety benefits, makes them an ideal choice for medium and high voltage applications where series connection is required. Press-pack construction is the obvious choice where series connection is needed and the short circuit failure mode allows for the design in of n+1 redundancy. Typical examples include medium voltage drives, HVDC, and active VAR controllers.



- largely backwardly compatible with standard 2.5kV and 4.5kV Gate Turn-Off thyristors (including GCTs) in many applications such as transportation and AC drives. This makes these parts a simple and economical path to upgrade or refurbish equipment that previously used Gate Turn-Off thyristors, such as locomotives or medium voltage drives.
- suitable for all cooling options including direct liquid immersion.

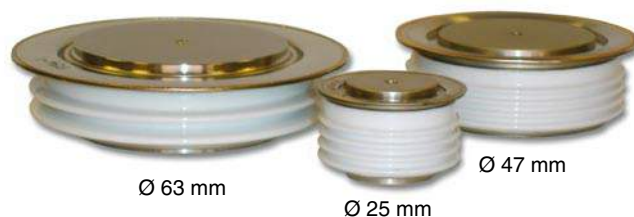
Complementary gate drives (shown on Page 15), mounting clamps and passive components are available by contacting the UK Factory.

## HP Sonic-FRDs

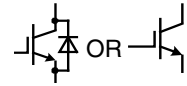
### Anti-parallel Diodes for IGBTs and IGCTs - 1.7kV to 4.5kV

New world-leading class of ultra fast and ultra soft recovery diode available from 1.7kV to 4.5kV in current ratings from 300 to 2500A.

These high power super fast, soft recovery diodes incorporate a unique manufacturing process and novel lifetime control to offer a class leading trade-off between conduction and switching losses. Their exceptionally wide safe operating area (SOA) makes them the number one choice for freewheeling diodes for snubberless IGBT and IGCT applications. In fact, most applications which require a fast, low loss diode can benefit from this new technology - for example, traction, medium voltage drives, induction heating and pulsed power applications.



## Press-Pack IGBTs



Type Part No.	V <sub>CES</sub> V	I <sub>C</sub> A	I <sub>CM</sub> A	V <sub>CE(sat)</sub> I <sub>F</sub> = I <sub>C</sub> V	IGBT Switching Typical		V <sub>F</sub> I <sub>F</sub> = I <sub>C</sub> V	Diode Recovery Typical			T <sub>jmax</sub> °C	R <sub>thJK</sub>		Fig. No.
					E <sub>ON</sub> J	E <sub>OFF</sub> J		I <sub>rm</sub> A	t <sub>rr</sub> µs	Q <sub>r</sub> µC		IGBT K/W	Diode K/W	
➤ New	V	A	A	V	J	J	V	A	µs	µC	°C	K/W	K/W	
T0160NA45A	4500	160	310	4.6	0.50	0.42	3.8	400	0.96	340	125	0.058	0.095	W40
T0240NA45E	4500	240	400	4.7	0.73	0.88	N/A	N/A	N/A	N/A	125	0.042	N/A	W40
T0360NA25A	2500	360	720	3.6	0.75	0.34	2.1	250	0.93	285	125	0.054	0.087	W40
T0500NA25E	2500	500	1000	3.6	0.80	0.50	N/A	N/A	N/A	N/A	125	0.039	N/A	W40
T0600TA45A	4500	600	1000	4.7	1.75	1.50	3.6	1400	0.92	650	125	0.016	0.039	W41
T0800TA45E	4500	800	1500	4.6	2.20	1.92	N/A	N/A	N/A	N/A	125	0.012	N/A	W41
T0900EA45A	4500	900	1500	4.6	2.80	2.60	3.6	1800	0.85	800	125	0.014	0.026	W44
T1200TA25A	2500	1200	2400	3.6	2.50	1.40	2.5	670	1.50	830	125	0.017	0.029	W41
T1200EA45E	4500	1200	2100	4.6	3.20	3.80	N/A	N/A	N/A	N/A	125	0.010	N/A	W44
T1500TA25E	2500	1500	3000	3.6	3.30	1.70	N/A	N/A	N/A	N/A	125	0.013	N/A	W41
➤ T1800GA45A	4500	1800	3000	4.7	5.60	6.40	3.6	2150	2.20	3500	125	0.008	0.014	W45
➤ T2400GA45E	4500	2400	4200	4.7	7.20	7.80	N/A	N/A	N/A	N/A	125	0.005	N/A	W45
• TX168NA17A	1700	600	900	4.0	• Products Under Development							0.054	0.073	W40
• TX167NA17E	1700	840	1260	4.0								0.039	N/A	W40
• TX115TA17A	1700	1900	2850	4.0								0.017	0.029	W41
• TX116TA17E	1700	2500	3750	4.0								0.013	N/A	W41

Press-Pack IGBT Outlines on page O - 5

## HP Sonic-FRDs™



Type Part No.	Old Part No.	V <sub>RRM</sub> V	I <sub>FAV</sub> T <sub>K</sub> = 55°C A	I <sub>FSM</sub> 10 ms ½ sine V <sub>R</sub> ≤ 60% V <sub>RRM</sub> A	I²t A²s	Typ. Reverse Recovery Parameters					V <sub>T0</sub> V	r <sub>T</sub> mΩ	T <sub>jmax</sub> °C	R <sub>thJK</sub> 180° Sine K/W	Fig. No.
						I <sub>rm</sub> A	t <sub>rr</sub> µs	Q <sub>r</sub> µC	@I <sub>FM</sub> A	@-di <sub>F</sub> /dt A/µs					
➤ New		V	A	A	A²s	A	µs	µC	A	A/µs	V	mΩ	°C	K/W	
E0300YH400	N/A	4000	277	2630	34.58x10³	605	0.75	245	300	2000	2.170	3.800	150	0.073	W3
E0300YH450	N/A	4500	277	2630	34.58x10³	605	0.75	245	300	2000	2.170	3.800	150	0.073	W3
E0400YH200	N/A	2000	348	3542	62.7x10³	572	0.74	175	400	1500	1.770	2.290	150	0.073	W3
E0400YH250	N/A	2500	348	3542	62.7x10³	572	0.74	175	400	1500	1.770	2.290	150	0.073	W3
E0900NC400	N/A	4000	969	15270	1.17x10⁶	1340	2.20	1440	900	2000	2.140	1.150	150	0.020	W5
E0900NC450	N/A	4500	969	15270	1.17x10⁶	1340	2.20	1440	900	2000	2.140	1.150	150	0.020	W5
E1500NC200	N/A	2000	1557	15180	1.15x10⁶	1450	2.30	1550	1500	2000	1.670	0.360	150	0.020	W5
E1500NC250	N/A	2500	1557	15180	1.15x10⁶	1450	2.30	1550	1500	2000	1.670	0.360	150	0.020	W5
E1500VF400	N/A	4000	1995	23600	2.78x10⁶	1730	3.00	2700	1500	2000	2.350	0.270	150	0.013	W43
E1500VF450	N/A	4500	1995	23600	2.78x10⁶	1730	3.00	2700	1500	2000	2.350	0.270	150	0.013	W43
E2000NC140	N/A	1400	1568	16500	1.13x10⁶	1880	1.00	950	2000	4000	1.770	0.350	150	0.020	W5
E2000NC170	N/A	1700	1568	16500	1.13x10⁶	1880	1.00	950	2000	4000	1.770	0.350	150	0.020	W5
E2500VF200	N/A	2000	2516	28600	4.10x10⁶	1750	1.40	1350	2500	3000	1.630	0.210	150	0.013	W43
E2500VF250	N/A	2500	2516	28600	4.10x10⁶	1750	1.40	1350	2500	3000	1.630	0.210	150	0.013	W43
➤ E2400TC400	N/A	4000	2227	25600	3.29x10⁶	2400	1.12	1330	2400	4000	2.039	0.598	150	0.008	W28
➤ E2400TC450	N/A	4500	2227	25600	3.29x10⁶	2400	1.12	1330	2400	4000	2.039	0.598	150	0.008	W28

HP Sonic-FRD Outlines on page O - 6

## High Voltage IGBT Gate Drive Units – C0030BG400

The C0030BG400 is a single channel 30A peak rated gate drive unit (GDU), suitable for low and high side applications with DC link voltages of up to 3.5kV (5kV available on request) and with dv/dt immunity of over 100kV/ $\mu$ s.

This GDU performs all of the necessary supervisory functions including under voltage lockout and SCSOA protection with user configurable response and feedback. The unit requires a simple 15V DC power supply and features fibre optic command and feedback signals.

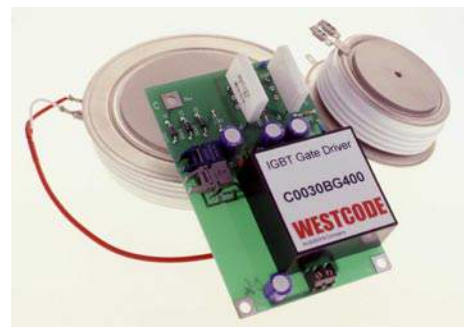
This GDU is capable of driving virtually all IGBTs including our range of press-pack devices at frequencies from DC up to 20kHz with no duty cycle limitations.

Options include standard variants set up for use with each of Westcode's range of IGBTs (see table) and the core module for integration into end user PCBs. Additionally our application engineers can develop semi-custom solutions based around the standard core module.

### Features

- 30A peak drive current (500ns rise time)
- 10kV AC rms isolation test
- Partial discharge free up to 4kV AC rms
- 100kV/ $\mu$ s dv/dt immunity
- Temperature range  $-40^{\circ}\text{C}$  up to  $+70^{\circ}\text{C}$  ( $-55^{\circ}\text{C}$  up to  $+80^{\circ}\text{C}$  available)
- $\pm 15\text{V}$  gate drive voltage
- Standard HP Versatile Link™ Fibre optic links
- Status feedback signal
- User configurable SCSOA protection

IGBT Part Number	$R_{g(\text{on})}$ (W)	$R_{g(\text{off})}$ (W)	$C_g$ (nF)	GDU Part Number
T0160NA45A	15	8.2	100	C0030BG400SAK
T0240NA45E	10	5.6	100	C0030BG400SAL
T0360NA25A	33	18	100	C0030BG400SAA
T0500NA25E	22	15	100	C0030BG400SAB
T0600TA45A	5.6	3.3	100	C0030BG400SAM
T0800TA45E	4.7	3.3	100	C0030BG400SAN
T0900EA45A	4.7	2.7	100	C0030BG400SAP
T1200EA45E	3.3	2.2	100	C0030BG400SAR
T1200TA25A	4.7	6.8	100	C0030BG400SAC
T1500TA25E	3.3	6.8	100	C0030BG400SAD
T1800GA45A	3.3	2.2	100	C0030BG400SAS
T2400GA45E	2.2	1.5	100	C0030BG400SAT



The launch of this complementary product demonstrates our continued commitment to provide our customers with complete solutions for power electronics and further strengthens our assemblies' capability.

This GDU also provides our customers with a rapid route to prototype with our range of high voltage press-pack IGBTs without having to solve the additional problems associated with high isolation voltage gate drives.



Dimensions in mm and inches (1 mm = 0.0394")

### X104 V2-Pack

Technical drawing of X104 V2-Pack. It includes a top view showing a package with pins X, Z, and Y. Dimensions include a total length of 93 mm and a width of 17 mm. A side view shows a height of 31 mm and a base width of 35 mm. Detailed views show pin diameters of 0.6 mm and 0.2 mm, and a pin length of 1.5 mm. A note indicates 'Aufdruck der Typenbezeichnung (Klebeetikett)' on the top surface.

See data sheet for pin arrangement

### X105 V1-B-Pack

a: pin length = 31 mm  
b: pin length = 15 mm

Technical drawing of X105 V1-B-Pack. It shows a side view with a height of 31 mm and a base width of 35 mm. The top view shows a cooling area of 38.6 mm by 26 mm. Dimensions include a total length of 63 mm and a pin length of 15 mm. A note indicates 'ca. 0.25' for a specific dimension.

See data sheet for pin arrangement

### X106 Kamm-Modul

a: with gate pin G2  
b: without gate pin G2

Technical drawing of X106 Kamm-Modul. It shows a side view with a height of 40 mm and a base width of 35 mm. The top view shows a total length of 50 mm and a width of 20.8 mm. Dimensions include a pin length of 31 mm and a gate pin G2. A note indicates 'max. 0.03' for a specific dimension.

See data sheet for pin arrangement

### X110 Mini-Pack 2

Technical drawing of X110 Mini-Pack 2. It shows a side view with a height of 8.15 mm and a base width of 17 mm. The top view shows a total length of 55.9 mm and a width of 40.6 mm. Dimensions include a pin diameter of 0.4 mm and a pin length of 1.5 mm.

See data sheet for pin arrangement

### X111 E1-Pack

Technical drawing of X111 E1-Pack. It shows a side view with a height of 17.1 mm and a base width of 10 mm. The top view shows a total length of 82 mm and a width of 30.8 mm. Dimensions include a pin length of 71 mm and a pin diameter of 0.2 mm. A note indicates 'relevant cross section for PCB hole 0.8x0.7 mm (rectangular shape)'.

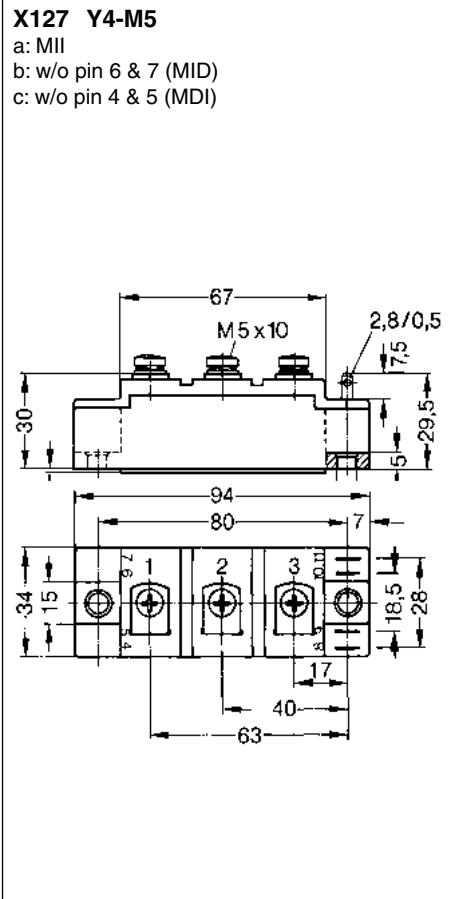
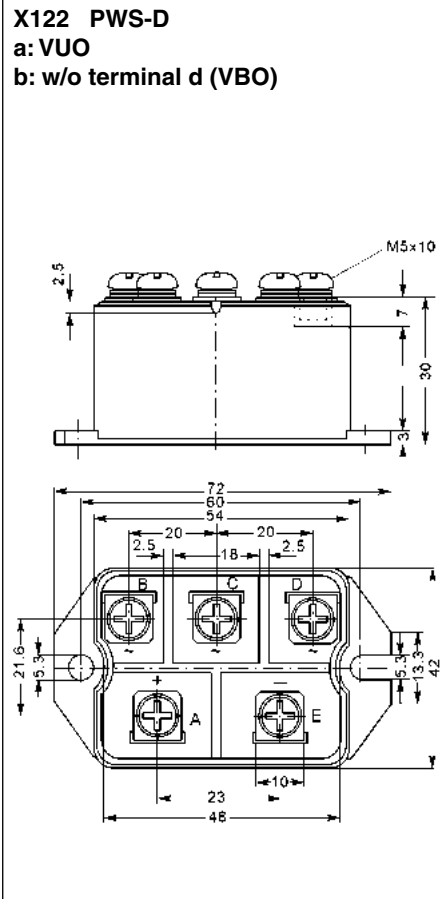
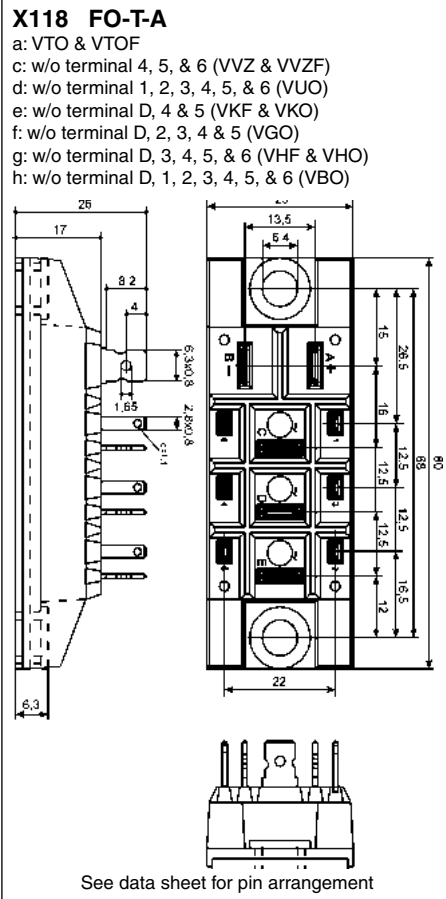
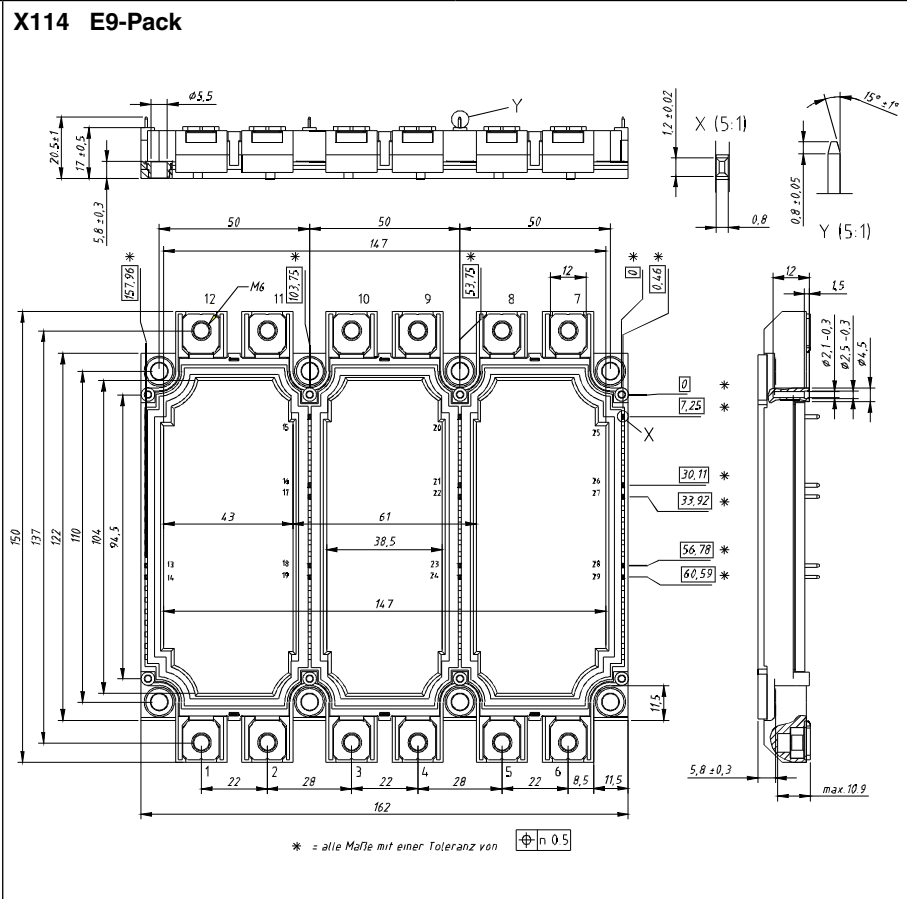
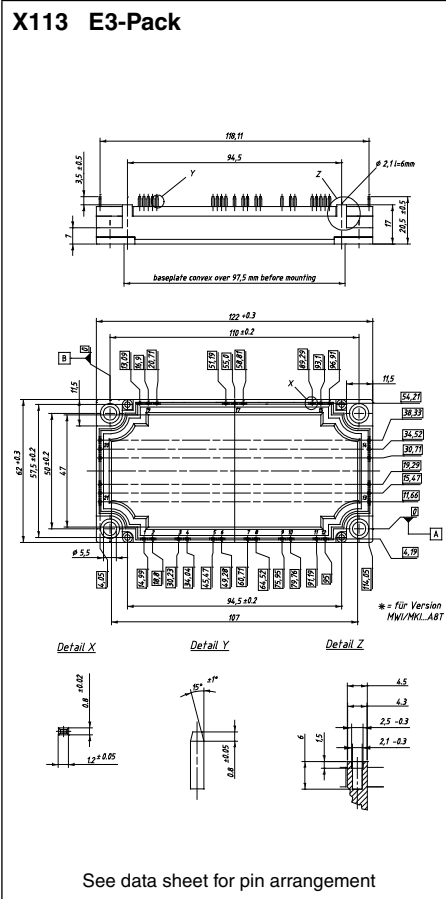
See data sheet for pin arrangement

### X112 E2-Pack

Technical drawing of X112 E2-Pack. It shows a side view with a height of 7.45 mm and a base width of 26.5 mm. The top view shows a total length of 107.5 mm and a width of 82.3 mm. Dimensions include a pin length of 26.5 mm and a pin diameter of 0.25 mm. A note indicates 'baseplate typ. 100 um convex over 75 mm before mounting'.

See data sheet for pin arrangement

Dimensions in mm and inches (1 mm = 0.0394")





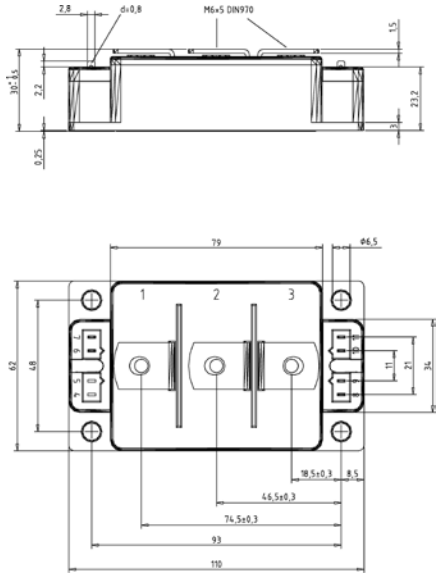
# Outline drawings



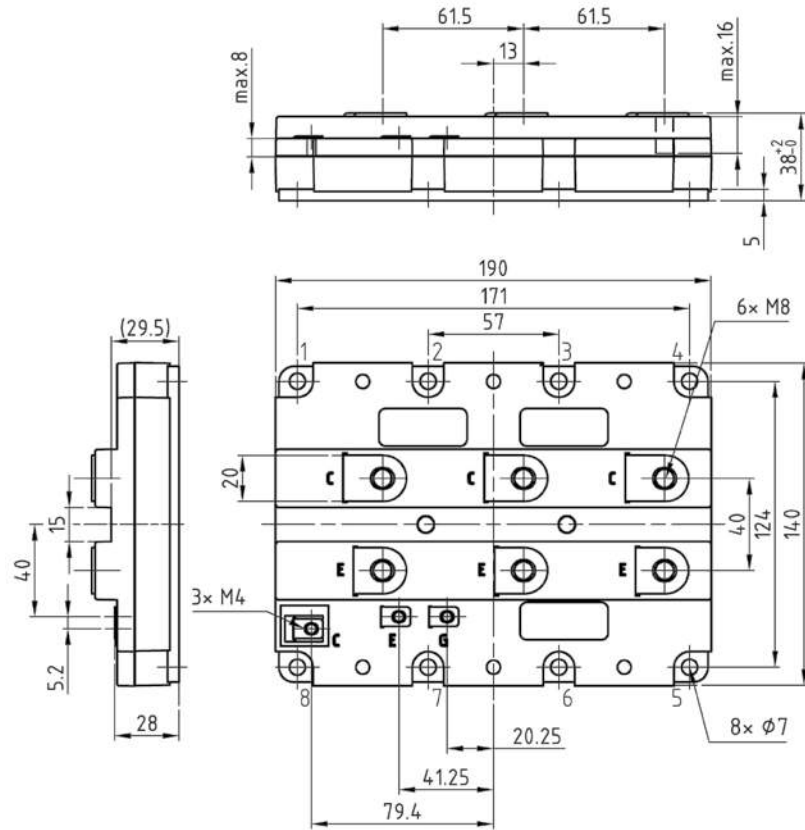
Dimensions in mm and inches (1 mm = 0.0394")

### X130 Y3-Li

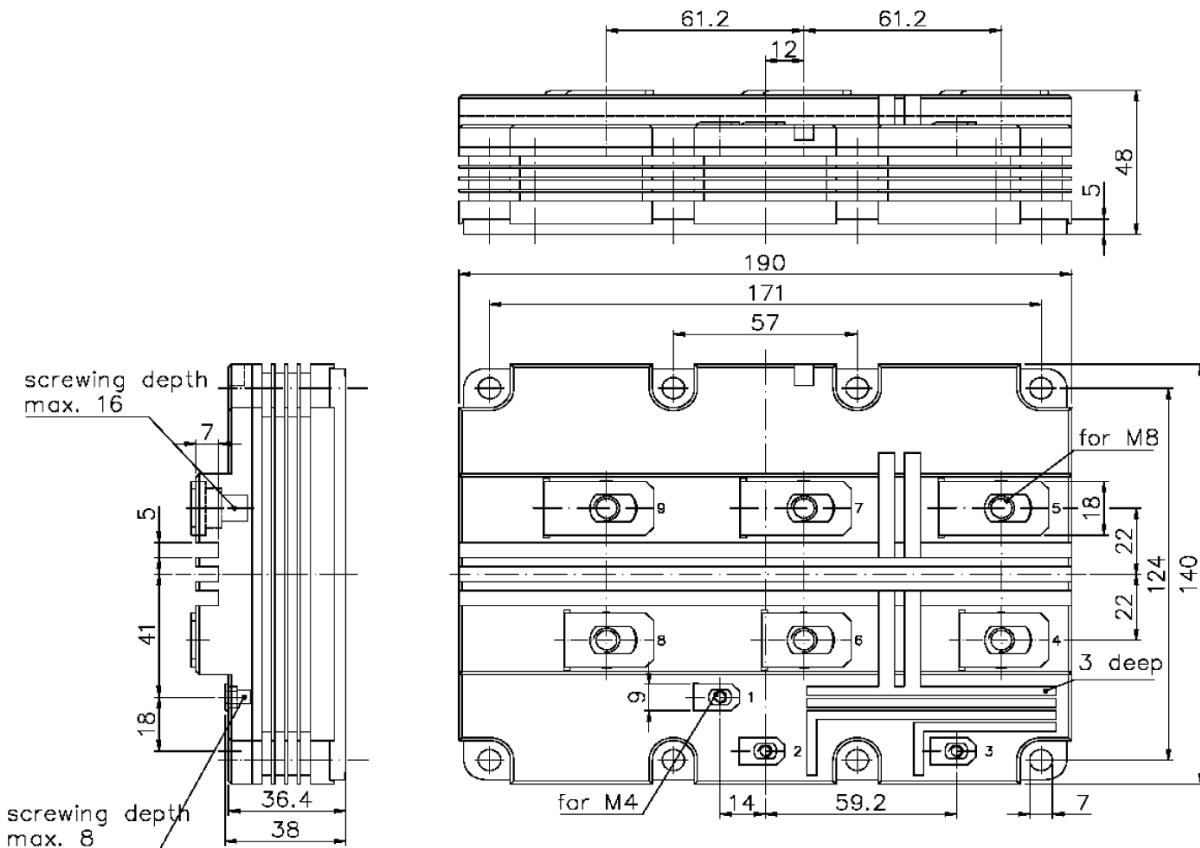
- a: low inductance (VMM, MII)
- b: w/o pin 8 & 9, low inductance (MID)
- c: w/o pin 10 & 11, low inductance (MDI)
- d: w/o terminal 1, low inductance (VMO)



### X134 E10-Pack



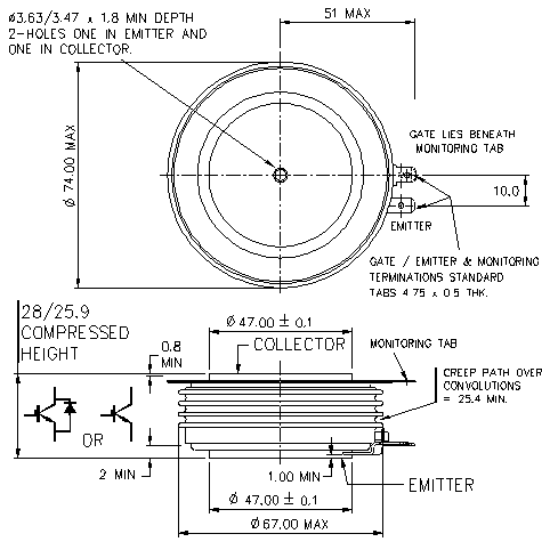
### X135 E11-Pack



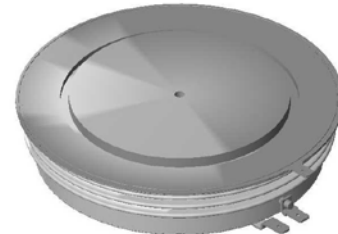
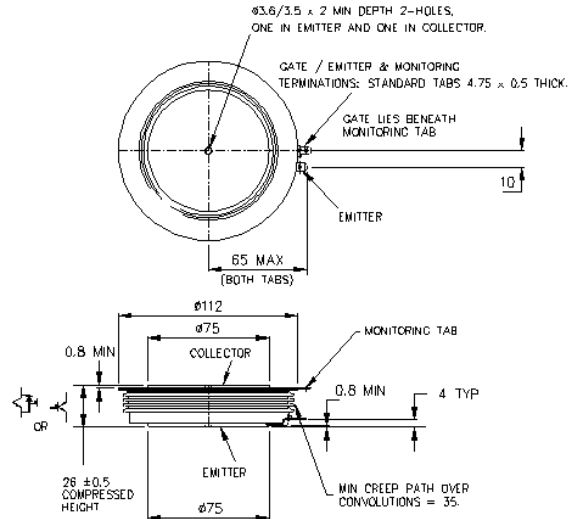
# Press-Pack IGBTs - Outlines

# WESTCODE

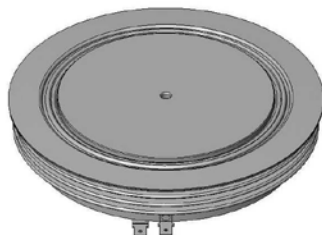
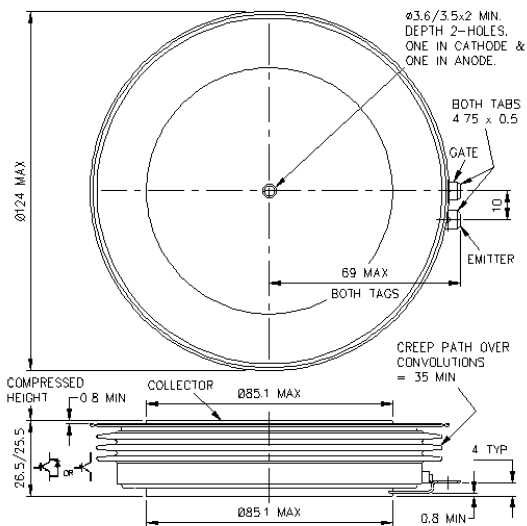
W40 - 171A107 - 47mm - Weight 430g



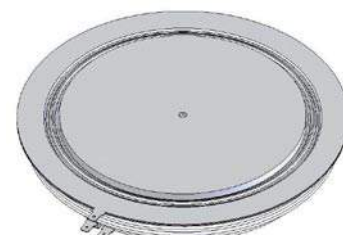
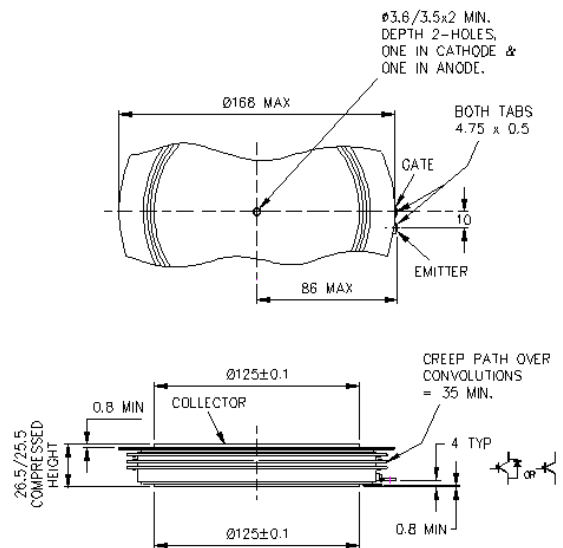
W41 - 171A108 - 75mm - Weight 1100g



W44 - 101A340 - 85mm - Weight 1200g



W45 - 101A359 - 125mm - Weight 2000g

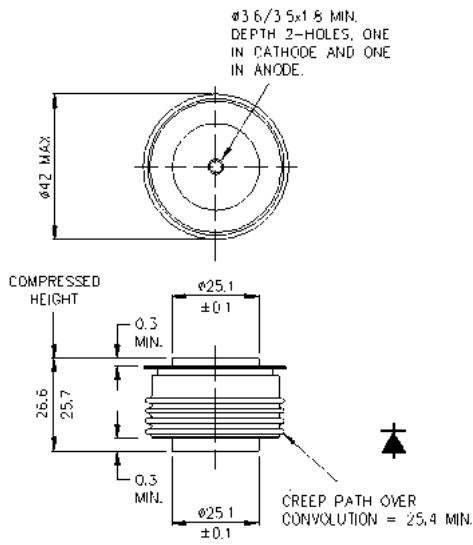




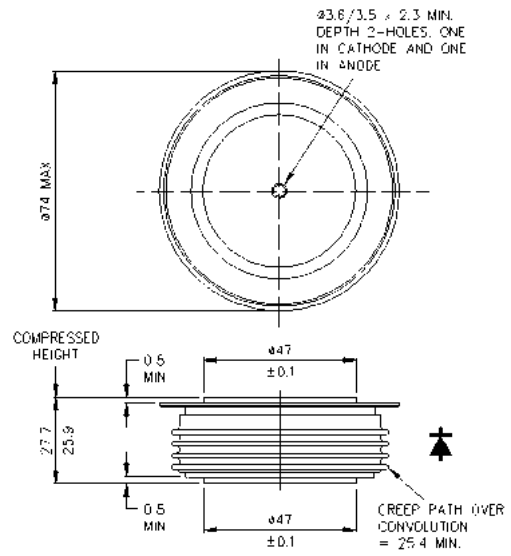
# HP Sonic-FRD - Outlines

# WESTCODE

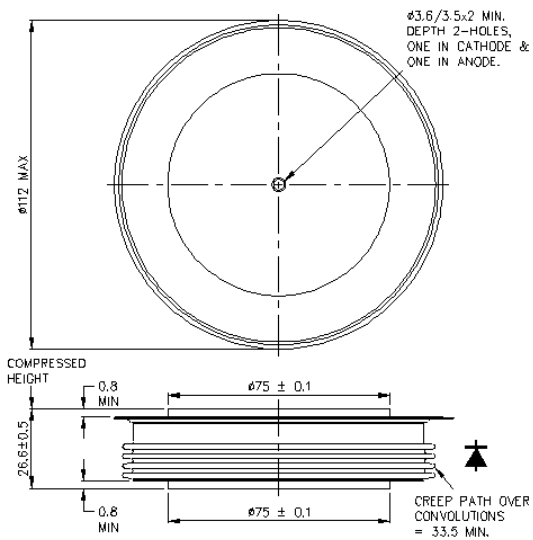
W3 - 100A317 - 25mm - Weight 140g



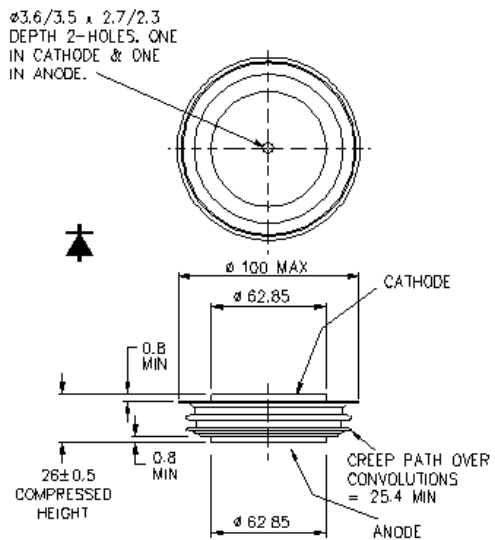
W5 - 100A249 - 47mm - Weight 510g

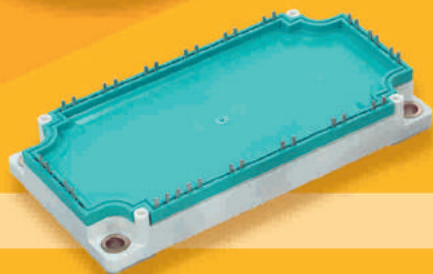
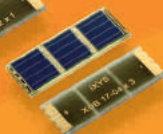
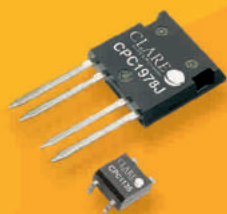


W28 - 100A330 - 73mm - Weight 1240g



W43 - 100A320 - 63mm - Weight 1000g







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e-mail: wsi.sales@westcode.com

701819-19AW	D391CH22	DS9-08F	DSDI60-18A	DSEI120-12A
701819-200AW	DG10-0115BS	DS9-12F	DSEA16-06AC	DSEI12-06A
701819-43AW	DGS10-015A	DSA1-12D	DSEA29-06AC	DSEI12-10A
701819-47AC	DGS10-015AS	DSA1-16D	DSEA59-06BC	DSEI12-12A
CS19-08HO1	DGS10-018A	DSA1-18D	DSEC16-02A	DSEI190-06AS
CS19-08HO1C	DGS10-022A	DSA17-12A	DSEC16-06A	DSEI1X31-06C
CS19-08HO1S	DGS10-025A	DSA17-16A	DSEC16-06AC	DSEI2X101-06A
CS19-12HO1	DGS20-015A	DSA17-18A	DSEC16-12A	DSEI2X101-12A
CS19-12HO1C	DGS20-018A	DSA2-12A	DSEC240-04A	DSEI2X31-06C
CS19-12HO1S	DGS20-022A	DSA2-16A	DSEC240-06A	DSEI2X31-10B
CS20-12IO1	DGS20-025A	DSA2-18A	DSEC29-02A	DSEI2X31-12B
CS20-14IO1	DGSK10-05CC	DSA35-12A	DSEC29-02AS	DSEI2X61-06C
CS20-16IO1	DGSK20-015A	DSA35-16A	DSEC29-06AC	DSEI2X61-10B
CS20-22MOF1	DGSK20-018A	DSA35-18A	DSEC30-02A	DSEI2X61-12B
CS23-08IO2	DGSK20-022A	DSA75-12B	DSEC30-03A	DSEI20-12A
CS23-12IO2	DGSK20-025A	DSA75-16B	DSEC30-06A	DSEI2X060-06P
CS23-16IO2	DGSK40-015A	DSA75-18B	DSEC30-12A	DSEI2X101-05A
CS29-08IO1C	DGSK40-018A	DSA9-12F	DSEC59-06BC	DSEI2X101-06A
CS29-12IO1C	DGSK40-022A	DSA9-16F	DSEC60-03A	DSEI2X101-06P
CS30-12IO1	DGSK40-025A	DSA9-18F	DSEC60-03AR	DSEI2X101-12A
CS30-14IO1	DGSS20-05CC	DSAI17-12A	DSEC60-04A	DSEI2X101-12P
CS30-16IO1	DS1-12D	DSAI17-16A	DSEC60-06A	DSEI2X121-02A
CS35-08IO4	DS17-08A	DSAI17-18A	DSEC60-06B	DSEI2X121-02P
CS35-12IO4	DS17-12A	DSAI35-12A	DSEC60-12A	DSEI2X161-12P
CS35-14IO4	DS20-01AC	DSAI35-16A	DSEE15-06CC	DSEI2X30-04C
CS45-08IO1	DS2-08A	DSAI35-18A	DSEE15-12CC	DSEI2X30-06C
CS45-12IO1	DS2-12A	DSAI75-12B	DSEE29-06CC	DSEI2X30-06P
CS45-16IO1	DS35-08A	DSAI75-16B	DSEE29-12CC	DSEI2X30-10B
CS45-16IO1R	DS35-12A	DSAI75-18B	DSEE55-24N1F	DSEI2X30-10P
CS8-08IO2	DS75-08B	DSDI60-14A	DSEE8-06CC	DSEI2X30-12B
CS8-12IO2	DS75-12B	DSDI60-16A	DSEI120-06A	DSEI2X30-12P

DSEI2X31-04C	DSEI8-06AS	DSEP30-12A	DSI75-08B	DSS2X200-0008D
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DSEI36-06AS	DSEP2X91-03A	DSI30-16AS	DSS17-06CR	DSSK40-0008B
DSEI60-02A	DSEP2X91-06A	DSI35-08A	DSS20-0015B	DSSK40-0015B
DSEI60-06A	DSEP30-03A	DSI35-12A	DSS25-0025B	DSSK40-006B
DSEI60-10A	DSEP30-04A	DSI45-08A	DSS25-0045A	DSSK48-0025B
DSEI60-12A	DSEP30-06A	DSI45-12A	DSS2X121-0045B	DSSK50-0025B
DSEI6-06AS	DSEP30-06B	DSI45-16AR	DSS2X160-0045A	DSSK50-01A
DSEI8-06A	DSEP30-06BR	DSI7-12A	DSS2X160-01A	DSSK60-0045A

DSSK60-0045B	HTZ180D22K	IXBH10N170	IXBOD1-28RD	IXCP20M45A
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DSSK60-015A	HTZ180D30K	IXBH15N160	IXBOD1-32RD	IXCP30M35A
DSSK60-015AR	HTZ180D35K	IXBH16N170	IXBOD1-34R	IXCP30M45
DSSK70-0015B	HTZ240F10K	IXBH16N170A	IXBOD1-36R	IXCP30M45A
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DSSK80-0045B	HTZ240F16K	IXBH42N170	IXBOD1-42R	IXCP35M45A
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HTZ110A19K	HVL900-14IO1	IXBH9N160G	IXBT16N170A	IXCP50M35A
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HTZ120A32K	I8XFM21N50	IXBOD1-08	IXBT6N170	IXCP60M45
HTZ120A38K	I8XSR40N60CD	IXBOD1-09	IXCK35N120BD1	IXCY01N90E
HTZ120A44K	IRFP250	IXBOD1-10	IXCP01N90E	IXCY02M35
HTZ120A51K	IRFP254	IXBOD1-12RD	IXCP02M35	IXCY02M35A
HTZ130B24K	IRFP260	IXBOD1-13RD	IXCP02M35A	IXCY02M45
HTZ130B28K	IRFP264	IXBOD1-14RD	IXCP02M45	IXCY02M45A
HTZ130B33K	IRFP360	IXBOD1-15RD	IXCP02M45A	IXCY100M35
HTZ130B38K	IRFP450	IXBOD1-16RD	IXCP100M35	IXCY100M45
HTZ150C6K	IRFP460	IXBOD1-17RD	IXCP100M45	IXCY10M35
HTZ150C7K	IRFP470	IXBOD1-18RD	IXCP10M35	IXCY10M35A
HTZ150C8K	IXBD4410PI	IXBOD1-19RD	IXCP10M35A	IXCY10M35S
HTZ150C9K	IXBD4410SI	IXBOD1-20RD	IXCP10M35S	IXCY10M45
HTZ160C12K	IXBD4411PI	IXBOD1-21RD	IXCP10M45	IXCY10M45A
HTZ160C17K	IXBD4411SI	IXBOD1-22RD	IXCP10M45A	IXCY10M45S
HTZ160C19K	IXBF40N140	IXBOD1-23RD	IXCP10M45S	IXCY20M35
HTZ170C2.4K	IXBF40N160	IXBOD1-24RD	IXCP20M35	IXCY20M35A
HTZ170C2K	IXBF9N140G	IXBOD1-25RD	IXCP20M35A	IXCY20M45
HTZ170C3K	IXBF9N160G	IXBOD1-26RD	IXCP20M45	IXCY20M45A



IXCY30M35	IXDF404SI-16	IXDR30N120	IXFF24N100	IXFH26N50Q
IXCY30M35A	IXDH20N120	IXDR30N120D1	IXFH10N100	IXFH26N60Q
IXCY30M45	IXDH20N20D1	IXDT30N120	IXFH10N90	IXFH280N085
IXCY30M45A	IXDH30N120	IXDT30N120D1	IXFH11N80	IXFH28N50F
IXCY35M35	IXDH30N120D1	IXDY20N120AS	IXFH12N100	IXFH30N40Q
IXCY35M35A	IXDH35N60B	IXEH40N120	IXFH12N100F	IXFH30N50Q
IXCY35M45A	IXDH35N60BD1	IXEH40N120D1	IXFH12N100Q	IXFH32N50
IXCY40M45	IXDI402PI	IXEN32N60	IXFH12N50F	IXFH32N50Q
IXCY50M35	IXDI402SI	IXER35N120D1	IXFH12N90	IXFH40N30
IXCY50M35A	IXDI404PI	IXER60N120	IXFH12N90Q	IXFH40N30Q
IXCY50M45	IXDI404SI	IXFA3N80	IXFH13N100	IXFH4N100Q
IXCY50M45A	IXDI404SI-16	IXFA4N100Q	IXFH13N50	IXFH50N20
IXCY60M35	IXDI409CI	IXFC13N50Q	IXFH13N80	IXFH52N30Q
IXCY60M45	IXDI409CM	IXFC24N50	IXFH13N80Q	IXFH58N20
IXDD404PI	IXDN409PI	IXFC26N50	IXFH13N90	IXFH58N20Q
IXDD404SI	IXDN409SI	IXFC40N30Q	IXFH14N100	IXFH60N20
IXDD404SI-16	IXDN409YI	IXFC60N20	IXFH14N80	IXFH60N20F
IXDD408CI	IXDN409YM	IXFC80N08	IXFH15N100	IXFH60N25Q
IXDD408CM	IXDN414CI	IXFC80N10	IXFH15N100Q	IXFH6N100
IXDD408PI	IXDN414CM	IXFC80N85	IXFH15N80	IXFH6N100F
IXDD408SI	IXDN414PI	IXFE180N10	IXFH15N80Q	IXFH6N100Q
IXDD408YI	IXDN414YI	IXFE24N100	IXFH16N90Q	IXFH6N90
IXDD408YM	IXDN414YM	IXFE36N100	IXFH20N60	IXFH70N15
IXDD414CI	IXDN55N120D1	IXFE39N90	IXFH20N60Q	IXFH74N20
IXDD414CM	IXDN75N120	IXFE44N60	IXFH20N80Q	IXFH75N10
IXDD414YI	IXDP20N60B	IXFE48N50Q	IXFH21N50F	IXFH75N10Q
IXDD414YM	IXDP20N60BD1	IXFE48N50QD2	IXFH21N50Q	IXFH76N07-11
IXDD415SI	IXDP35N60B	IXFE48N50QD3	IXFH22N55	IXFH76N07-12
IXDD4714PI	IXDP610PI	IXFE55N50	IXFH24N50	IXFH7N80
IXDF402PI	IXDP630PI	IXFE73N30Q	IXFH24N50Q	IXFH7N90Q
IXDF404SI	IXDP631PI	IXFE80N50	IXFH26N50	IXFH80N08

IXFH80N085	IXFK32N50Q	IXFM13N50	IXFN24N90Q	IXFN73N30
IXFH80N10	IXFK32N60	IXFM13N80	IXFN25N90	IXFN73N30Q
IXFH80N10Q	IXFK33N50	IXFM20N60	IXFN26N90	IXFN75N50
IXFH80N15Q	IXFK34N80	IXFM30N40Q	IXFN27N80	IXFN80N50
IXFH80N20Q	IXFK35N50	IXFM40N30	IXFN27N80Q	IXFN90N30
IXFH8N80	IXFK36N60	IXFM50N20	IXFN280N07	IXFP3N80
IXFH9N80	IXFK44N50	IXFM6N100	IXFN340N06	IXFP4N100Q
IXFH9N80Q	IXFK44N50F	IXFM6N90	IXFN340N07	IXFR100N25
IXFJ13N50	IXFK44N50Q	IXFM75N10	IXFN34N100	IXFR10N100Q
IXFJ32N50Q	IXFK44N60	IXFM7N80	IXFN34N80	IXFR120N20
IXFJ40N30	IXFK48N50	IXFN100N10S2	IXFN36N100	IXFR12N100Q
IXFK100N25	IXFK48N50Q	IXFN100N10S3	IXFN36N60	IXFR150N15
IXFK120N20	IXFK48N55	IXFN100N20	IXFN39N90	IXFR15N80Q
IXFK150N15	IXFK50N50	IXFN100N25	IXFN44N50	IXFR180N06
IXFK15N100Q	IXFK52N30Q	IXFN106N20	IXFN44N50Q	IXFR180N07
IXFK16N90Q	IXFK55N50	IXFN120N20	IXFN44N50U2	IXFR180N085
IXFK180N07	IXFK55N50F	IXFN130N30	IXFN44N50U3	IXFR180N10
IXFK180N085	IXFK60N25Q	IXFN150N10	IXFN44N60	IXFR21N100Q
IXFK180N10	IXFK73N30	IXFN150N15	IXFN44N80	IXFR24N100
IXFK20N80Q	IXFK73N30Q	IXFN15N100	IXFN48N45	IXFR24N50
IXFK21N100F	IXFK80N15Q	IXFN1704	IXFN48N50	IXFR24N50Q
IXFK21N100Q	IXFK80N20	IXFN180N07	IXFN48N50Q	IXFR26N50
IXFK24N100	IXFK80N20Q	IXFN180N10	IXFN48N50U2	IXFR26N50Q
IXFK24N100F	IXFK90N20Q	IXFN180N20	IXFN48N50U3	IXFR26N60Q
IXFK24N90Q	IXFK90N30	IXFN200N06	IXFN48N55	IXFR27N80Q
IXFK25N90	IXFM100N10S1	IXFN200N07	IXFN50N50	IXFR30N50Q
IXFK26N60Q	IXFM10N100	IXFN21N100Q	IXFN55N50	IXFR32N50Q
IXFK26N90	IXFM10N90	IXFN230N10	IXFN55N50F	IXFR34N80
IXFK27N80	IXFM11N80	IXFN23N100	IXFN60N50	IXFR44N50Q
IXFK27N80Q	IXFM12N100	IXFN24N100	IXFN60N60	IXFR44N60
IXFK30N50Q	IXFM12N90	IXFN24N100F	IXFN61N50	IXFR48N50Q



IXFR4N100Q	IXFT30N40Q	IXFX180N10	IXGA15N120B	IXGH17N100U1
IXFR50N50	IXFT30N50	IXFX21N100F	IXGA15N120C	IXGH20N100
IXFR55N50	IXFT30N50Q	IXFX21N100Q	IXGA20N100	IXGH20N120
IXFR58N20Q	IXFT32N50	IXFX24N100	IXGA20N120	IXGH20N60B
IXFR70N15	IXFT32N50Q	IXFX24N100F	IXGA20N60B	IXGH20N60BD1
IXFR80N10Q	IXFT40N30Q	IXFX24N90Q	IXGA4N100	IXGH24N60B
IXFR80N15Q	IXFT4N100Q	IXFX25N90	IXGA7N60B	IXGH24N60C
IXFR80N20Q	IXFT52N30Q	IXFX26N90	IXGA7N60C	IXGH24N60CD1
IXFR90N20	IXFT58N20	IXFX27N80Q	IXGA7N60CD1	IXGH25N100
IXFR90N30	IXFT58N20Q	IXFX30N50Q	IXGA8N100	IXGH25N100A
IXFT10N100	IXFT60N20	IXFX32N50Q	IXGB75N60BD1	IXGH25N100AU1
IXFT12N100	IXFT60N20F	IXFX34N80	IXGC12N60C	IXGH25N100U1
IXFT12N100F	IXFT60N25Q	IXFX44N50F	IXGC12N60CD1	IXGH25N120
IXFT12N100Q	IXFT6N100F	IXFX44N50Q	IXGC24N60C	IXGH25N120A
IXFT12N50F	IXFT6N100Q	IXFX44N60	IXGH10N170A	IXGH25N120AU1
IXFT13N100	IXFT70N15	IXFX48N50Q	IXGH12N100	IXGH28N60B
IXFT13N80Q	IXFT74N20	IXFX48N55	IXGH12N100A	IXGH28N60BD1
IXFT14N100	IXFT7N90Q	IXFX50N50	IXGH12N100AU1	IXGH28N90B
IXFT15N100	IXFT80N08	IXFX55N50	IXGH12N100U1	IXGH30N60B
IXFT15N100Q	IXFT80N085	IXFX55N50F	IXGH12N60B	IXGH30N60BD1
IXFT15N80Q	IXFT80N10	IXFX73N30Q	IXGH12N60BD1	IXGH30N60BU1
IXFT16N90Q	IXFT80N10Q	IXFX90N20Q	IXGH12N60C	IXGH31N60
IXFT20N60Q	IXFT80N15Q	IXFX90N30	IXGH12N60CD1	IXGH31N60D1
IXFT20N80Q	IXFT80N20Q	IXGA12N100	IXGH12N90C	IXGH32N170A
IXFT21N50F	IXFX100N25	IXGA12N100A	IXGH15N120B	IXGH32N60B
IXFT21N50Q	IXFX120N20	IXGA12N100AU1	IXGH15N120BD1	IXGH32N60BD1
IXFT24N50Q	IXFX14N100	IXGA12N100U1	IXGH15N120C	IXGH32N60BU1
IXFT26N50	IXFX150N15	IXGA12N60B	IXGH15N120CD1	IXGH32N60C
IXFT26N50Q	IXFX15N100	IXGA12N60C	IXGH16N170A	IXGH32N60CD1
IXFT26N60Q	IXFX180N07	IXGA12N60CD1	IXGH17N100A	IXGH35N120B
IXFT28N50F	IXFX180N085	IXGA15N100C	IXGH17N100AU1	IXGH35N120C

IXGH39N60B	IXGP12N60C	IXGR50N60B	IXGT40N60C	IXSH25N120AU1
IXGH39N60BD1	IXGP12N60CD1	IXGR50N60BD1	IXGT45N120	IXSH30N60B
IXGH40N60B	IXGP15N100C	IXGR60N60U1	IXGT50N60B	IXSH30N60BD1
IXGH40N60C	IXGP15N120B	IXGR80N60B	IXGT60N60	IXSH30N60C
IXGH41N60	IXGP15N120C	IXGT10N170A	IXGT6N170A	IXSH30N60CD1
IXGH45N120	IXGP20N100	IXGT15N120B	IXGX120N60B	IXSH30N60U1
IXGH50N60B	IXGP20N120	IXGT15N120BD1	IXGX40N60BD1	IXSH35N100A
IXGH60N60	IXGP20N60B	IXGT15N120C	IXGX50N60BD1	IXSH35N120A
IXGH6N170A	IXGP2N100	IXGT15N120CD1	IXJH36N20	IXSH35N120B
IXGK120N60B	IXGP2N100A	IXGT16N170A	IXKC13N80C	IXSH35N140A
IXGK35N120CD1	IXGP4N100	IXGT20N100	IXKC20N60C	IXSH40N60B
IXGK50N60B	IXGP7N60B	IXGT20N120	IXKC25N80C	IXSH45N100
IXGK50N60BD1	IXGP7N60C	IXGT20N60B	IXKC40N60C	IXSH45N120
IXGK60N60	IXGP7N60CD1	IXGT20N60BD1	IXKN40N60C	IXSH45N120B
IXGK75N60B	IXGP8N100	IXGT24N60B	IXKN45N80C	IXSH50N60B
IXGM17N100A	IXGR120N60B	IXGT24N60C	IXKN75N60C	IXSI35N120BD1
IXGM25N100	IXGR12N60C	IXGT24N60CD1	IXKR40N60C	IXSK30N60BD1
IXGM25N100A	IXGR24N60B	IXGT28N60B	IXLF19N220A	IXSK30N60CD1
IXGN200N60	IXGR24N60C	IXGT28N60BD1	IXLF19N250A	IXSK35N120AU1
IXGN200N60B	IXGR24N60CD1	IXGT28N90B	IXMS150PSI	IXSK35N120BD1
IXGN40N60CD1	IXGR32N60C	IXGT30N60B	IXRH50N100	IXSK40N60BD1
IXGN50N60B	IXGR32N60CD1	IXGT31N60	IXRH50N120	IXSK40N60CD1
IXGN50N60BD2	IXGR35N120B	IXGT31N60D1	IXRH50N60	IXSK50N60AU1
IXGN50N60BD3	IXGR35N120C	IXGT32N170A	IXRH50N80	IXSK50N60BD1
IXGN60N60	IXGR39N60B	IXGT32N60BD1	IXSH150120BD1	IXSK80N60B
IXGN75N60B	IXGR39N60BD1	IXGT32N60C	IXSH15N120B	IXSN35N100U1
IXGP12N100	IXGR40N60B	IXGT32N60CD1	IXSH24N60	IXSN35N120AU1
IXGP12N100A	IXGR40N60BD1	IXGT35N120B	IXSH24N60AU1	IXSN40N60AU1
IXGP12N100AU1	IXGR40N60C	IXGT35N120C	IXSH24N60B	IXSN40N60AV1
IXGP12N100U1	IXGR40N60CD1	IXGT39N60B	IXSH24N60BD1	IXSN50N60BD2
IXGP12N60B	IXGR45N120	IXGT40N60B	IXSH25N120A	IXSN50N60BD3

IXSN50N60U1	IXTA2N100	IXTH67N10	IXTP01N100D	MCC132-12IO1
IXSN52N60AU1	IXTA2N80	IXTH6N80A	IXTP02N50D	MCC132-12IO1B
IXSN55N120A	IXTA3N110	IXTH6N90	IXTP05N100	MCC132-12IO1
IXSN55N12AU1	IXTA3N120	IXTH6N90A	IXTP1N100	MCC132-14IO1
IXSN62N60U1	IXTC13N50	IXTH75N10	IXTP1N80	MCC132-16IO1B
IXSN80N60A	IXTC75N10	IXTH7P50	IXTP2N100	MCC132-16IO1
IXSN80N60BD1	IXTH10P50	IXTH8P50	IXTP2N80	MCC132-18IO1
IXSR35N120B0	IXTH10P60	IXTK120N25	IXTP3N110	MCC161-20IO1
IXSR35N120BD1	IXTH11P50	IXTK180N15	IXTP3N120	MCC161-22IO1
IXSR40N60BD1	IXTH12N100	IXTK21N100	IXTR30N25	MCC162/12IO1B
IXSR40N60CD1	IXTH12N100Q	IXTK33N50	IXTT1N100	MCC162-08IO1
IXSR40N690BD	IXTH12N90	IXTK62N25	IXTT48N15	MCC162-12IO1
IXST15N120B	IXTH13N110	IXTK90N15	IXTT60N10	MCC162-12IO1B
IXST15N120BD1	IXTH13N80	IXTM12N100	IXTU01N100	MCC162-12IO1
IXST24N60B	IXTH14N100	IXTM12N90	IXTU01N80	MCC162-14IO1
IXST30N60B	IXTH14N80	IXTM13N80	IXTY01N100	MCC162-16IO1B
IXST30N60BD1	IXTH16P20	IXTM20N60	IXTY01N80	MCC162-16IO7 B
IXST30N60C	IXTH1N100	IXTM21N50	IXUC100N055	MCC162-16IO1
IXST30N60CD1	IXTH20N60	IXTM24N50	IXUC120N10	MCC162-18
IXST35N120B	IXTH21N50	IXTM40N30	IXUC160N075	MCC162-18IO1
IXST40N60B	IXTH24N50	IXTM50N20	IXUC200N055	MCC170/12IO1B
IXST45N120B	IXTH24P20	IXTM5N100A	IXUC60N10	MCC170-12IO1
IXSX35N120AU1	IXTH30N25	IXTM67N10	MC1450-22IO1	MCC170-14IO1
IXSX40N60BD1	IXTH30N50	IXTM6N80A	MCC122-08IO1	MCC170-16IO1
IXSX40N60CD1	IXTH36P10	IXTM6N90	MCC122-12IO1	MCC170-18IO1
IXSX50N60BD1	IXTH40N30	IXTM6N90A	MCC122-14IO1	MCC18-06IO8
IXSX50N60BU1	IXTH48N15	IXTM75N10	MCC122-16IO1	MCC18-12IO8
IXSX80N60B	IXTH50N100A	IXTN15N100	MCC122-18IO1	MCC19-08IO1B
IXTA05N100	IXTH50N20	IXTN21N100	MCC132/12IO1B	MCC19-12IO8B
IXTA1N100	IXTH50P10	IXTN36N50	MCC132-08IO1	MCC19-14IO8B
IXTA1N80	IXTH60N10	IXTN79N20	MCC132-08IO1	MCC19-16IO1 B

MCC19-16IO1B	MCC255-14IO1	MCC40-08IO8	MCC56-16IO1B	MCC95-12IO8 B
MCC21-14IO8B	MCC255-16IO1	MCC40-12IO8	MCC56-16IO8B	MCC95-14IO8B
MCC21-16IO8B	MCC255-18IO1	MCC40-16IO8	MCC56-18IO1B	MCC95-16
MCC220/12IO1B	MCC26/12IO1B	MCC44/12IO1B	MCC56-18IO8B	MCC95-16IO1 B
MCC220/16IO1B	MCC26/16IO1B	MCC44/16IO1B	MCC60-16IO1B	MCC95-16IO1B
MCC220-08IO1	MCC26-08IO8 B	MCC44-08	MCC72/12IO1B	MCD132/12IO1B
MCC220-12IO1B	MCC26-08IO1B	MCC44-08IO1 B	MCC72/16IO1B	MCD132/16IO1B
MCC220-12IO1	MCC26-08IO8B	MCC44-08IO1B	MCC72-08IO1B	MCD132-08
MCC220-14IO1	MCC26-12IO1 B	MCC44-12IO1 B	MCC72-08IO8B	MCD132-08IO1
MCC220-16IO1B	MCC26-12IO1 B	MCC44-12IO1B	MCC72-12IO1 B	MCD132-12IO1
MCC220-16IO1	MCC26-12IO1B	MCC44-12IO8B	MCC72-12IO1B	MCD132-14IO1
MCC224-20IO1	MCC26-12IO1B	MCC44-14IO1 B	MCC72-12IO1B	MCD132-16IO1
MCC224-22IO1	MCC26-14IO1 B	MCC44-16IO1B	MCC72-12IO8B	MCD132-18IO1
MCC225-12IO1	MCC26-14IO8B	MCC44-16IO8B	MCC72-14IO1B	MCD161-20IO1
MCC225-14IO1	MCC26-16IO1B	MCC44-18IO1B	MCC72-14IO8B	MCD162/12IO1B
MCC225-16IO1	MCC26-16IO3 B	MCC55-06IO8	MCC72-16IO1B	MCD162/16IO1B
MCC225-18IO1	MCC26-16IO1B	MCC55-08IO1	MCC72-16IO8B	MCD162-16IO1
MCC250/12IO1B	MCC26-16IO8B	MCC55-12	MCC72-18IO1B	MCD220/12IO1B
MCC250-08IO1	MCC26-44IO1B	MCC55-12IO8	MCC72-18IO8B	MCD220/16IO1B
MCC250-12IO1B	MCC310-08IO1	MCC56/12IO1B	MCC90-06IO8	MCD220-08IO1
MCC250-12IO1	MCC310-12IO1B	MCC56/16IO1B	MCC90-08IO1	MCD220-12IO1
MCC250-14IO1	MCC310-12IO1	MCC56-08IO1 B	MCC90-12IO1	MCD220-14IO1
MCC250-16IO1	MCC310-16IO1B	MCC56-12	MCC90-12IO8	MCD220-16IO1
MCC250-16IO1B	MCC310-16IO1	MCC56-12IO1 B	MCC94-20IO1B	MCD224-20IO1
MCC250-16IO1	MCC310-18IO1	MCC56-12IO1B	MCC94-22IO1B	MCD224-22IO1
MCC250-18IO1	MCC312/12IO1B	MCC56-12IO8 B	MCC95/12IO1B	MCD225-08IO1
MCC25-06IO8	MCC312/16IO1B	MCC56-12IO8B	MCC95/16IO1B	MCD225-12IO1
MCC25-08IO1	MCC312-12IO1	MCC56-14IO1 B	MCC95-08IO1 B	MCD225-14IO1
MCC25-10IO8	MCC312-14IO1	MCC56-14IO8 B	MCC95-12	MCD225-16IO1
MCC25-12IO8	MCC312-16IO1	MCC56-14IO1B	MCC95-12IO1 B	MCD225-18IO1
MCC255-12IO1	MCC312-18IO1	MCC56-14IO8B	MCC95-12IO1B	MCD250/12IO1B

MCD250/16IO1B	MCD44/16IO1B	MCD72-12IOB	MCO500-16IO1	MDD220-14N1
MCD250-14IO1	MCD44-08IO8B	MCD72-14IO8B	MCO500-18IO1	MDD220-16N1
MCD250-16IO1	MCD44-12IO8B	MCD72-16IO1B	MCO600-12	MDD220-16N1B
MCD25-12IO8	MCD44-12IOB	MCD72-16IO8B	MCO600-16	MDD250-08N1
MCD255-12IO1	MCD44-14IO8B	MCD72-16IOB	MCO600-20IO1	MDD250-12N1
MCD255-14IO1	MCD44-16IO8 B	MCD72-18IO8B	MDA72-08N1B	MDD250-12N1B
MCD255-16IO1	MCD44-16IO8B	MCD90-08IO8	MDA72-14N1B	MDD250-14N1
MCD255-18IO1	MCD44-16IOB	MCD94-20IO1B	MDA72-16N1B	MDD250-16N1
MCD26/12IO1B	MCD44-18IO8B	MCD94-22IO1B	MDC56-06	MDD250-16N1B
MCD26/16IO1B	MCD56/12IO1B	MCD95/12IO1B	MDC56-06IO1 B	MDD25-12M
MCD26-06IO1B	MCD56/16IO1B	MCD95/16IO1B	MDC56-16IO1 B	MDD25-16N1
MCD26-08IO8 B	MCD56-08IO1B	MCD95-08IO8B	MDC90-16IO8	MDD255-12N1
MCD26-12IO8B	MCD56-12IO8 B	MCD95-12IO8	MDD142-08N1	MDD255-14N1
MCD26-12IOB	MCD56-12IO1B	MCD95-12IO1B	MDD142-12N1	MDD255-16N1
MCD26-14IO8B	MCD56-12IO8B	MCD95-12IO8B	MDD142-12N1B	MDD255-18N1
MCD26-16IO8B	MCD56-12IOB	MCD95-12IOB	MDD142-14N1	MDD255-20N1
MCD26-16IOB	MCD56-14IO1	MCD95-14IO1	MDD142-16N1	MDD255-22N1
MCD310-08IO1	MCD56-14IO8B	MCD95-14IO8B	MDD142-16N1B	MDD26-08N1B
MCD310-12IO1	MCD56-16IO1 B	MCD95-16IO1 B	MDD142-18N1	MDD26-12N1
MCD310-14IO1	MCD56-16IO8B	MCD95-16IO8 B	MDD172-08N1	MDD26-12N1B
MCD310-16IO1	MCD56-16IO1	MCD95-16IO1	MDD172-12N01	MDD26-14N18
MCD310-18IO1	MCD56-16IO1B	MCD95-16IO1B	MDD172-12N1	MDD310-08N1
MCD312/12IO1B	MCD56-16IO8B	MCD95-16IO8B	MDD172-12N1B	MDD310-12N1
MCD312/16IO1B	MCD56-16IOB	MCD95-16IOB	MDD172-13N1	MDD310-12N1B
MCD312-12IO1	MCD56-18IO8B	MCD95-18IO8B	MDD172-14N1	MDD310-14N1
MCD312-14IO1	MCD72/12IO1B	MCO450-20	MDD172-16N1	MDD310-16N1
MCD312-16IO1	MCD72/16IO1B	MCO450-20IO1	MDD172-16N1B	MDD310-16N1B
MCD312-18IO1	MCD72-08IO8 B	MCO500-12	MDD172-18N1	MDD310-18N1
MCD40-12IO6	MCD72-08IO8B	MCO500-12IO1	MDD220-08N1	MDD310-20N1
MCD40-16IO6	MCD72-12IO1B	MCO500-14IO1	MDD220-12N1	MDD310-22N1
MCD44/12IO1B	MCD72-12IO8B	MCO500-16	MDD220-12N1B	MDD312-12N1

MDD312-14N1	MDD95-14N1B	MEO500-06DA	MLO36-16IO1	MUBW10(15)-12A6
MDD312-16N1	MDD95-16N1	MEO550-02DA	MLO75-12IO1	MUBW100-06A8
MDD312-18N1	MDD95-18N1B	MEO550-06DA	MLO75-16IO1	MUBW10-06A6
MDD312-20N1	MDD95-20N1B	MEO550-12DA	MMO074-17	MUBW10-06A7
MDD312-22N1	MDD95-22N1B	MID100-12A3	MMO110-08IO7	MUBW10-12A6
MDD42-06N1	MDI100-12A3	MID145-12A3	MMO110-12IO7	MUBW10-12A7
MDD42-08N1	MDI150-12A4	MID150-12A4	MMO110-14IO7	MUBW15-06A7
MDD44-06N1	MDI200-12A4	MID200-12A4	MMO140-08IO7	MUBW15-12A6
MDD44-06N1 B	MDI300-12A4	MID300-12A4	MMO140-12IO7	MUBW15-12A6K
MDD44-08N1 B	MDI550-12A4	MID550-12A4	MMO140-16IO7	MUBW15-12A7
MDD44-12	MDI75-12A3	MID75-12A3	MMO175-08IO7	MUBW20-06A6
MDD44-12N1	MDO500-12N1	MII145-12A3	MMO175-12IO7	MUBW20-06A7
MDD44-12N1B	MDO500-14N1	MII150-12A4	MMO175-16IO7	MUBW30-06A7
MDD44-14N1B	MDO500-16N1	MII400-12E4	MMO230-08IO7	MUBW30-12A6
MDD44-16N1 B	MDO500-18N1	MII75-12A3	MMO230-12IO7	MUBW30-12A6K
MDD44-18N1B	MDO500-20N1	MKI100-12E8	MMO230-14IO7	MUBW35-06A6
MDD56-08N1B	MDO500-22N1	MKI50-06A7	MMO230-16IO7	MUBW35-12A7
MDD56-12N1B	MEA250-12DA	MKI75-06A7	MMO230-18IO7	MUBW35-12A8
MDD56-16	MEA300-06DA	MLO110-08IO7	MMO36-12IO1	MUBW35-12E7
MDD56-16N1	MEA75-12DA	MLO110-12IO7	MMO36-16IO1	MUBW50-06A7
MDD56-16N1B	MEA95-06DA	MLO110-14IO7	MMO62-12IO6	MUBW50-06A8
MDD56-18N1B	MEE250-12DA	MLO140-08IO7	MMO62-16IO6	MUBW50-12A8
MDD72-08N1B	MEE300-06DA	MLO140-12IO7	MMO72-16IO6	MUBW50-12E8
MDD72-14N1B	MEE75-12DA	MLO140-16IO7	MMO74-12IO6	MUBW6-06A6
MDD72-16N1 B	MEE95-06DA	MLO175-08IO7	MMO74-16IO6	MUBW75-06A8
MDD72-16N1B	MEK250-12DA	MLO230-08IO7	MMO75-12IO1	MWI100-06A8
MDD72-18N1B	MEK300-06DA	MLO230-12IO7	MMO75-16IO1	MWI100-12A8
MDD80-04N1	MEK350-02DA	MLO230-14IO7	MMO90-12IO6	MWI100-12E8
MDD95-08N1	MEK75-12DA	MLO230-16IO7	MMO90-16IO6	MWI150-06A8
MDD95-08N1B	MEK95-06DA	MLO230-18IO7	MTC-19884	MWI15-12A7
MDD95-12N1B	MEO450-12DA	MLO36-12IO1	MTC200-12	MWI200-06A8

MWI25-12A7	SW04-15HHR470	VBO130-12NO7	VBO25-08NO2	VBO52-16NO7
MWI25-12A7T	SW04-15PHN300	VBO130-14NO7	VBO25-12AO2	VBO52-18NO7
MWI25-12E7	SW04-15PHN400	VBO130-16NO7	VBO25-12NO2	VBO54-08NO7
MWI30-06A7	SW04-15PHN470	VBO130-18NO7	VBO25-16AO2	VBO54-12NO7
MWI30-06A7T	SW04-15PHR300	VBO13-08NO2	VBO25-16NO2	VBO54-14NO7
MWI35-12A7	SW04-15PHR400	VBO13-12AO2	VBO30-08NO7	VBO54-16NO7
MWI35-12A7T	SW04-15PHR470	VBO13-12NO2	VBO30-12NO7	VBO55-08NO7
MWI35-12E7	SW0422CK805	VBO13-16AO2	VBO30-14NO7	VBO55-12NO7
MWI50-06A7	SW24OHN320	VBO13-16NO2	VBO30-16NO7	VBO55-14NO7
MWI50-06A7T	UXEN60N120	VBO160-08NO7	VBO30-18NO7	VBO55-16NO7
MWI50-12A7T	VBE100-06NO7	VBO160-12NO7	VBO36-08NO8	VBO55-18NO7
MWI50-12E7	VBE100-12NO7	VBO160-14NO7	VBO36-12NO8	VBO65-08NO7
MWI75-06A7	VBE17-06NO7	VBO160-16NO7	VBO36-14NO8	VBO65-12NO7
MWI75-06A7T	VBE17-12NO7	VBO160-18NO7	VBO36-16NO8	VBO65-14NO7
MWI75-12A8	VBE20-20NO1	VBO19-06NO7	VBO36-18NO8	VBO65-16NO7
MWI75-12E8	VBE26-06NO7	VBO19-08NO7	VBO40-08NO6	VBO65-18NO7
N1600CH08	VBE26-12NO7	VBO19-12NO7	VBO40-12NO6	VBO68-08NO7
N630CH30	VBE55-06NO7	VBO20-06NO7	VBO40-16NO6	VBO68-12NO7
NO86CH12	VBE55-12NO7	VBO20-08NO2	VBO45-08NO7	VBO68-14NO7
NO86PH12	VBH40-05A	VBO20-12AO2	VBO45-12NO7	VBO68-16NO7
OXFT142N90Q	VBO105-08NO7	VBO20-12NO2	VBO45-14NO7	VBO72-08NO7
P0349LC65	VBO105-12NO7	VBO20-16AO2	VBO45-16NO7	VBO72-12NO7
P214PH06	VBO105-14NO7	VBO20-16NO2	VBO45-18NO7	VBO72-14NO7
P280CH04	VBO105-16NO7	VBO21-06NO7	VBO50-08NO7	VBO72-16NO7
R200CH16	VBO105-18NO7	VBO21-08NO7	VBO50-12NO7	VBO72-18NO7
R210CH10	VBO125-08NO7	VBO21-12NO7	VBO50-14NO7	VBSD50-015NO1
R325CH10	VBO125-12NO7	VBO22-08NO8	VBO50-16NO7	VCA105-06IO7
R400CH08	VBO125-14NO7	VBO22-12NO8	VBO50-18NO7	VCA105-12IO7
R800CH16-18	VBO125-16NO7	VBO22-14NO8	VBO52-08NO7	VCA105-14IO7
SW04-15HHR300	VBO125-18NO7	VBO22-16NO8	VBO52-12NO7	VCA105-16IO7
SW04-15HHR400	VBO130-08NO7	VBO22-18NO8	VBO52-14NO7	VCA105-18IO7



VCA1058-08IO7	VDI125-12P1	VHF28-08IO5	VID160-12P1	VKM40-06P1
VCC105-06IO7	VDI130-06P1	VHF28-12IO5	VID25-06P1	VKM60-01P1
VCC105-08IO7	VDI160-12P1	VHF28-14IO5	VID25-12P1	VKO15-12IO5
VCC105-12IO7	VDI25-06P1	VHF28-16IO5	VID50-06P1	VKO55-08IO7
VCC105-14IO7	VDI25-12P1	VHF36-08IO5	VID50-12P1	VKO55-12IO7
VCC105-16IO7	VDI50-06P1	VHF36-12IO5	VID75-06P1	VKO55-14IO7
VCC105-18IO7	VDI50-12P1	VHF36-14IO5	VID75-12P1	VKO55-16IO7
VCC2X105-06IO7	VDI75-06P1	VHF36-16IO5	VII100-06P1	VMK165-007T
VCC2X105-08IO7	VDI75-12P1	VHF55-08IO7	VII130-06P1	VMK90-02T1
VCC2X105-12IO7	VGB0124AY7A	VHF55-12IO7	VII25-06P1	VMM15-045XX1
VCC2X105-14IO7	VGf0136AB	VHF55-14IO7	VII25-12P1	VMM300-03F
VCC2X105-16IO7	VGf0136AH	VHF55-16IO7	VII420-03S	VMM45-02F
VCC2X105-18IO7	VGO36-08IO7	VHF85-12IO7	VII50-06P1	VMM650-01F
VCD105-06IO7	VGO36-12IO7	VHF85-14IO7	VII50-12P1	VMM85-02F
VCD105-08IO7	VGO36-14IO7	VHFD16-08IO1	VII75-06P1	VMM90-09F
VCD105-12IO7	VGO36-16IO7	VHFD16-12IO1	VII75-12P1	VMO150-01P1
VCD105-14IO7	VGO55-08IO7	VHFD16-16IO1	VIO1000-03G	VMO40-05P1
VCD105-16IO7	VGO55-12IO7	VHFD29-08IO1	VIO100-06P1	VMO580-02F
VCD105-18IO7	VGO55-14IO7	VHFD29-12IO1	VIO125-12P1	VMO60-05F
VCK105-06IO7	VGO55-16IO7	VHFD29-14IO1	VIO130-06P1	VMO650-01F
VCK105-08IO7	VHDF16-14IO1	VHFD29-16IO1	VIO160-12P1	VMO80-05P1
VCK105-12IO7	VHF125-12IO7	VHFD37-08IO1	VIO25-06P1	VNO550-01F
VCK105-147IO	VHF125-14IO7	VHFD37-12IO1	VIO25-12P1	VTO110-12IO7
VCK105-16IO7	VHF125-16IO7	VHFD37-14IO1	VIO50-06P1	VTO110-14IO7
VCK105-18IO7	VHF15-08IO5	VHFD37-16IO1	VIO50-12P1	VTO175-12IO7
VCO180-08IO7	VHF15-12IO5	VHM25-05P1	VIO75-06P1	VTO175-14IO7
VCO180-12IO7	VHF15-14IO5	VHO55-08IO7	VIO75-12P1	VTO175-16IO7
VCO180-14IO7	VHF15-16IO5	VHO55-12IO7	VKF55-08IO7	VTO39-06HO7
VCO180-16IO7	VHF25-06IO7	VHO55-14IO7	VKI50-06P1	VTO39-08HO7
VCO180-18IO7	VHF25-08IO7	VHO55-16IO7	VKI50-12P1	VTO39-12HO7
VDI100-06P1	VHF25-12IO7	VID100-06P1	VKI75-06P1	VTO70-08IO7



VTO70-12IO7	VUC36-16GO2	VUO120-16NO1	VUO22-18NO1	VUO35-16NO7
VTO70-14IO7	VUE22-06NO7	VUO125-12NO7	VUO25-06NO7	VUO35-18NO7
VTO70-16IO7	VUE22-12NO7	VUO125-12NO7	VUO25-06NO8	VUO36-06NO8
VTOF70-08IO7	VUE30-20NO1	VUO125-14NO7	VUO25-12NO8	VUO36-14NO8
VTOF70-12IO7	VUE35-06NO7	VUO125-16NO7	VUO25-14NO8	VUO36-16
VTOF70-14IO7	VUE35-12NO7	VUO125-18NO7	VUO25-16BO8	VUO36-16NO3
VTOF70-16IO7	VUE50-12NO1	VUO155-12NO1	VUO25-16NO8	VUO36-16NO8
VUB120-12N	VUE75-06NO7	VUO155-16NO1	VUO25-18NO8	VUO36-18NO8
VUB120-12NO1	VUE75-12NO7	VUO160-08NO7	VUO27-06NO7	VUO50-08BO3
VUB145-16	VUI30-12N1	VUO160-12NO7	VUO27-08NO7	VUO50-12NO3
VUB160-12NO1	VUI9-06N7	VUO160-14NO7	VUO27-12NO7	VUO50-12NO1
VUB160-16NO1	VUM24-05N	VUO160-16NO7	VUO28-06NO7	VUO50-12NO3
VUB33-06P1	VUM25-05E	VUO160-18NO7	VUO28-08NO7	VUO50-14NO3
VUB50-12PO1	VUM33-05N	VUO16-08NO1	VUO28-12NO7	VUO50-16N
VUB51-12NO1	VUM35-05P1	VUO16-12NO1	VUO30-08NO5	VUO50-16NO3
VUB51-16NO1	VUM85-05A	VUO16-14NO1	VUO30-08NO3	VUO50-16NO8
VUB60-12	VUO100-08NO7	VUO16-16NO1	VUO30-12NO3	VUO50-16NO3
VUB60-12NO1	VUO100-12NO7	VUO16-18NO1	VUO30-14NO3	VUO50-18NO3
VUB60-16NO1	VUO100-14NO7	VUO18-12DT8	VUO30-16NO3	VUO52-08NO1
VUB70-12/16	VUO100-16NO7	VUO18-14DT8	VUO30-18NO3	VUO52-12NO1
VUB71-12/16	VUO105-12MO7	VUO18-16DT8	VUO34-08NO1	VUO52-14NO1
VUB71-16NO1	VUO105-12NO7	VUO190-08NO7	VUO34-12NO1	VUO52-16NO1
VUB72-12NO1	VUO105-14NO7	VUO190-12NO7	VUO34-14NO1	VUO52-18NO1
VUB72-16NO1	VUO105-16NO7	VUO190-14NO7	VUO34-16NO1	VUO55-12NO7
VUBM33-05P1	VUO105-18NO7	VUO190-16NO7	VUO34-18NO1	VUO55-12NO7
VUC25-12G02	VUO110-08MO7	VUO190-18NO7	VUO35-06NO7	VUO55-14NO7
VUC25-14	VUO110-12NO7	VUO200-16NO7	VUO35-12	VUO55-16NO7
VUC25-14G02	VUO110-14NO7	VUO22-08NO1	VUO35-12NO7	VUO55-18NO7
VUC25-16G02	VUO110-16NO7	VUO22-12NO1	VUO35-12NO7	VUO60-08NO3
VUC36-12G02	VUO110-18NO7	VUO22-14NO1	VUO35-14NO7	VUO60-12NO3
VUC36-14G02	VUO120-12NO1	VUO22-16NO1	VUO35-14NO7	VUO60-14NO3

VUO60-16N03	VUO86-08N07	VVZF70-16IO7	VWO40-16IO7
VUO60-18MO3	VUO86-12N07	VW2X30-08IO1	VWO50-08IO7
VUO62-06N07	VUO86-16N07	VW2X30-12IO1	VWO50-12IO7
VUO62-08N07	VVY40-16	VW2X30-14IO1	VWO50-14IO7
VUO62-12N07	VVY40-16IO1	VW2X45-08IO1	VWO50-16IO7
VUO62-12N07	VVZ110-12	VW2X45-12IO1	VWO60-08IO7
VUO62-14N07	VVZ110-12107	VW2X45-14IO1	VWO60-12IO7
VUO62-16N07	VVZ110-12IO7	VW2X45-16IO1	VWO60-14IO7
VUO62-18N07	VVZ110-14IO7	VW2X60-08IO1	VWO60-16IO7
VUO68-08N07	VVZ12-08G01	VW2X60-12IO1	VWO80-08IO7
VUO68-12N07	VVZ12-12IO1	VW2X60-14IO1	VWO80-12IO7
VUO68-16N07	VVZ12-14IO1	VW2X60-16IO1	VWO80-14IO7
VUO70-08N07	VVZ12-16IO1	VW115-12P1	VWO85-08IO1
VUO70-12N07	VVZ175-12IO7	VW135-06P1	VWO85-12IO1
VUO70-14N07	VVZ175-14IO7	VW13X20-06P1	VWO85-14IO1
VUO70-16N07	VVZ175-16IO7	VW16-12P1	VWO85-16IO1
VUO80-08N01	VVZ24-12IO1	VWM350-0075P	VWO95-08IO7
VUO80-12N01	VVZ24-14IO1	VWO140-08IO1	VWO95-12IO7
VUO80-14N01	VVZ24-16IO1	VWO140-12IO1	VWO95-14IO7
VUO80-16N01	VVZ40-12IO1	VWO140-14IO1	VYK70-08IO7
VUO80-18N01	VVZ40-14IO1	VWO140-16IO1	VYK70-12IO7
VUO82-06N07	VVZ40-16IO1	VWO35-06HO7	VYK70-14IO7
VUO82-08N07	VVZ70-08IO7	VWO35-08HO7	VYK70-16IO7
VUO82-12N07	VVZ70-12IO7	VWO35-12HO7	WG30025SN
VUO82-14N07	VVZ70-14IO7	VWO36-08IO7	WG6018RX
VUO82-16N07	VVZ70-16IO7	VWO36-12IO7	
VUO82-18N07	VVZB120-12IO1	VWO36-14IO7	
VUO85-08N07	VVZB120-16IO1	VWO36-16IO7	
VUO85-12N07	VVZF70-08IO7	VWO40-08IO7	
VUO85-14N07	VVZF70-12IO7	VWO40-12IO7	
VUO85-16N07	VVZF70-14IO7	VWO40-14IO7	

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