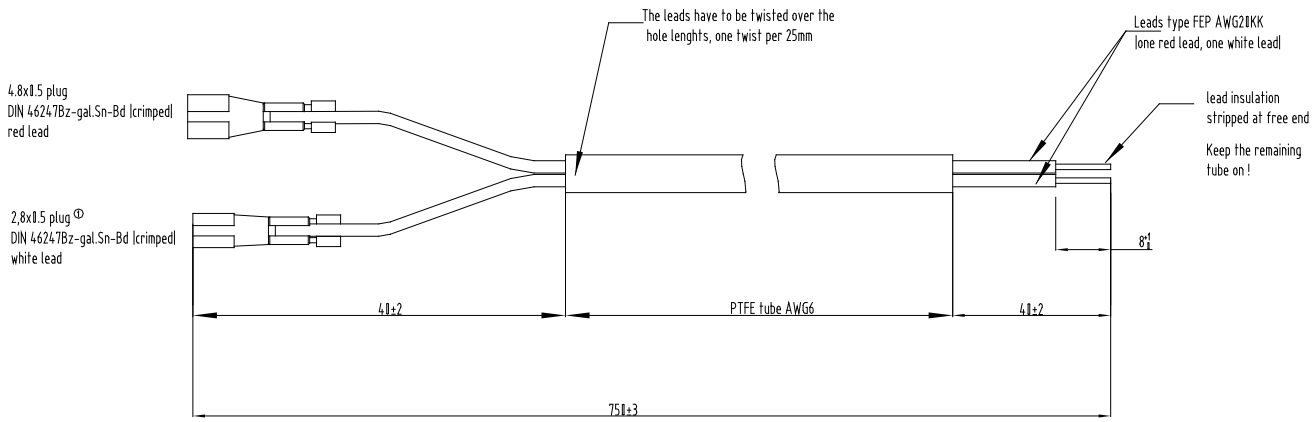
Standard Gate Leads for Disc Type Devices

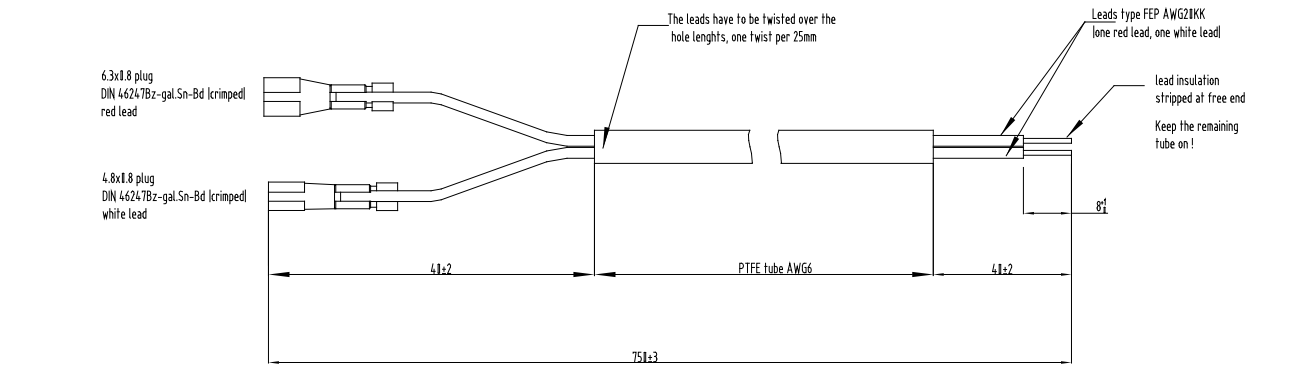
Leads and gate leads must be ordered separately

Disc outline/page	Type	Color	Connector [mm]	Length [mm]	Ordering Code
T42.14K0/8.8	GATELEAD L=750/0.5 MP	red/white	4.8x0.5/2.8x0.5	750	SP000983448
T48.14K0/8.8					
T58.14K0/8.8					
T58.26K0/8.8					
T75.26K0/8.9					
T100.26K0/8.9					
T111.26K0/8.9					
T120.26K/8.9	GATELEAD L=750/0.8 HP	red/white	6.3x0.8/4.8x0.8	750	SP000983442
T120.35K/8.10					
T150.26K/8.10					
T150.35K/8.10					
T172.26K/8.10					

Gatelead L=750/0,5 MP



Gatelead L=750/0,8 HP

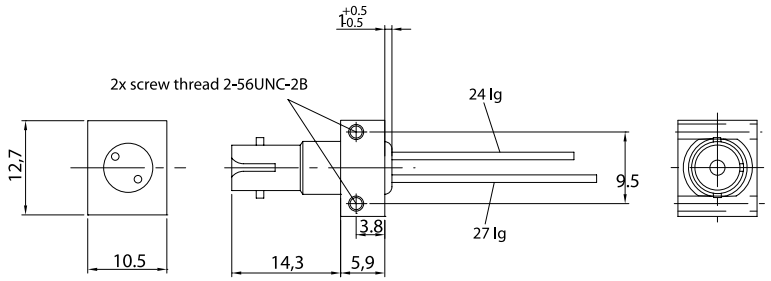


Laser Diode and Light Fiber for light triggered Thyristors (LTT)

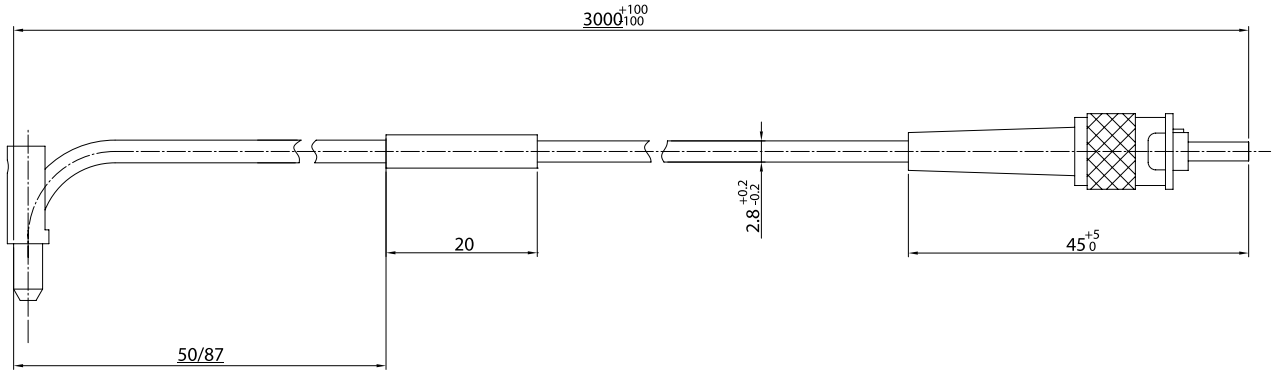
laser diodes and light fibers must be ordered separately

device		laser diode		light fiber		
for type	Outline/page	Salesname	Ordering Code	Salesname	length [mm]	Ordering Code
T533N	T76.35L/8.10	LASERDI SPL-PL90 A	SP000091118	LWL R10LR50L3000 A	3000	SP000091119
T1503N(H)	T150.40L/8.11	LASERDI SPL-PL90 A	SP000091118	LWL R10 LR87-L3000	3000	SP000091117
T2563N(H)	T172.40L/8.11	LASERDI SPL-PL90 A	SP000091118	LWL R10 LR87-L3000	3000	SP000091117
T4003N(H)	T172.40L/8.11	LASERDI SPL-PL90 A	SP000091118	LWL R10 LR87-L3000	3000	SP000091117

Laser Diode



Light Fiber



Presspacks

Overview Rectifier in Disc Housings

V_{RRM}									
10000 V									
9000 V				D471N				D2601N D2601NH	
6800 V				D711N	D1481N		D3040N	D3041N D3001N	
5000 V									D6001N D5201N
4800 V				D740N	D1800N				
4200 V								D3501N	
3800 V				D850N					
3600 V				D270N					
2800 V			D820N				D4810N		
2600 V				D1030N					
2400 V					D2200N D2650N				
2200 V		D950N			D2520N			D4201N	
2000 V	D770N								
1800 V			D1230N	D1050N					
1400 V									
600 V	D650N D970N			D2450N	D5810N	D8320N			
Contact Ø	23mm		30 mm	34/36 mm	50 mm	65 mm	75 mm	86 mm	100 mm
Case Ø	42 mm		48mm	58 mm	75 mm	100 mm	111 mm	120 mm	150 mm

Rectifier Diodes

up to 800 V

Type	V_{RRM} [V] $V_{DSM}=V_{DRM}$ $V_{RSM}=V_{RRM}+50$ V	also available V_{DRM}, V_{RRM}	I_{FSM} [kA] @10 ms, $T_{vj\,max}$	$\int i^2dt$ [$A^2s \cdot 10^3$] @ 10 ms $T_{vj\,max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	$V_{(TO)}$ [V] @$T_{vj\,max}$	r_T [mΩ] @$T_{vj\,max}$	R_{thJC} [K/kW] @ 180° el sin	$T_{vj\,max}$ [°C]	Recommended Clamping force range [kN]	Outline / page
D 255 N 06 B	600	200, 400	4.6	106	255/110	0.65	0.85	230.0	180	n.a.	DSW27/8.21
D 255 K 06 B	600	400	4.6	106	255/75	0.65	0.85	345.0	180	n.a.	DSW27/8.21
D 650 N 08 T	800	200, 400, 600	5.1	130	651/100	0.70	0.51	81.0	180	n.a.	D42.14K0/8.22
D 970 N 08 T	800	200, 400, 600	8.8	387	972/100	0.70	0.31	57.0	180	3.8…7.6	D42.14K0/8.22
D 2450 N 06 T	600	200, 400	28.5	4061	2452/100	0.70	0.10	25.3	180	12.0…24.0	D58.14K0/8.22
D 5810 N 06 T VF	600	200, 400	70.0	24500	5800/58	0.70	0.04	17.0	180	30.0…60.0	D75.26K0/8.22
D 8320 N 06 T VF	600		95.0	45000	8320/56	0.70	0.02	12.5	180	40.0…80.0	D100.26K0/8.23

up to 1800 V

Type	V_{RRM} [V] $V_{DSM}=V_{DRM}$ $V_{RSM}=V_{RRM}+50$ V	also available V_{DRM}, V_{RRM}	I_{FSM} [kA] @10 ms. $T_{vj\,max}$	$\int i^2dt$ [$A^2s \cdot 10^3$] @ 10 ms $T_{vj\,max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	$V_{(TO)}$ [V] @$T_{vj\,max}$	r_T [mΩ] @$T_{vj\,max}$	R_{thJC} [K/kW] @ 180° el sin	$T_{vj\,max}$ [°C]	Recommended Clamping force range [kN]	Outline / page
D 452 N 18 E	1800	1200, 1400, 1600	10.8	583	450/130	0.77	0.48	85.5	180	n.a.	DFL54/8.21
D 1230 N 18 T	1800	1200, 1400, 1600	11.8	696	1234/100	0.81	0.28	39.0	180	6.0…15.0	D48.14K0/8.22
D 1050 N 18 T	1800	1200, 1400, 1600	18.5	1710	1050/130	0.81	0.17	38.0	180	10.0…24.0	D58.26K0/8.22

up to 3000 V

Type	V_{RRM} [V] $V_{DSM}=V_{DRM}$ $V_{RSM}=V_{RRM}+50$ V	also available V_{DRM}, V_{RRM}	I_{FSM} [kA] @10 ms, $T_{vj\,max}$	$\int i^2dt$ [$A^2s \cdot 10^3$] @ 10 ms $T_{vj\,max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	$V_{(TO)}$ [V] @$T_{vj\,max}$	r_T [mΩ] @$T_{vj\,max}$	R_{thJC} [K/kW] @ 180° el sin	$T_{vj\,max}$ [°C]	Recomm. Clamping force range [kN]	Outline / page
D 121 N 20 B	2000	1200, 1600, 1800	2.6	33.8	120/130	0.72	1.90	324.0	180	n.a.	DSW27/8.21
D 121 K 20 B	2000	1800	2.4	28.8	120/113	0.72	1.90	434.0	180	n.a.	DSW27/8.21
D 251 N 20 B	2000	1200, 1400, 1600, 1800	5.3	140.5	250/130	0.80	0.85	151.0	180	n.a.	DSW27/8.21
D 251 K 20 B	2000	1200, 1400, 1800	4.7	110.5	250/102	0.80	0.85	236.0	180	n.a.	DSW27/8.21
D 400 N 22 B	2200	1200, 1600, 1800, 2000	9.8	480.2	400/130	0.70	0.62	95.0	180	n.a.	DSW41/8.21
D 400 K 16 B	1600		9.8	480.2	400/130	0.70	0.62	95.0	180	n.a.	DSW41/8.21
D 770 N 20 T	2000	1200, 1400, 1600, 1800	6.0	180.0	767/100	0.81	0.54	57.0	180	3.2…7.6	D42.14K0/8.22
D 820 N 28 T	2800	2000, 2200, 2400, 2600	9.0	405.0	818/100	0.83	0.52	39.0	160	6.0…15.0	D48.14K0/8.22
D 950 N 22 T	2200	1800	10.3	525.0	950/100	0.70	0.50	45.0	180	6.0…12.0	D42.14K0/8.22
D 1030 N 26 T	2600	2200, 2400	14.5	1051.0	1030/100	0.82	0.28	38.0	160	10.0…24.0	D58.26K0/8.22
D 2200 N 24 T VF	2400	2000, 2200	35.0	6125.0	2200/100	0.83	0.15	17.0	160	24.0…60.0	D75.26K0/8.22
D 2520 N 22 T VF	2200		35.0	6125.0	2520/100	0.73	0.10	22.0	175	15.0…24.0	D75.26K0/8.22
D 2650 N24 T VF	2400		33.5	5611.0	2650/100	0.82	0.15	16.9	180	24.0…60.0	D75.26K0/8.22
D 4201 N 22 T	2200	2000	73.5	27000.0	4830/100	0.67	0.08	9.2	160	36.0…52.0	D120.35K/8.23
D 4810 N 28 T VF	2800	2000, 2200, 2400	60.0	18000.0	4710/100	0.83	0.06	8.0	160	42.0…95.0	D111.26K0/8.23

...VF -> VF-class printed on housing

Rectifier Diodes

up to 5000 V

Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 50$ V	also available V_{DRM}, V_{RRM}	I_{FSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2dt$ [$A^2s \cdot 10^3$] @ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	$V_{(TO)}$ [V] @$T_{vj\ max}$	r_T [mΩ] @$T_{vj\ max}$	R_{thJC} [K/kW] @ 180° el sin	$T_{vj\ max}$ [°C]	Recomm. Clamping force range [kN]	Outline / page
D 270 N 36 T	3600		4.0	80	270/100	0.86	1.54	98.0	150	3.2…7.6	D58.26K0/8.22
D 475 N 36 B	3600		10.9	594	475/100	0.77	0.61	85.0	160	n.a.	DSW41.1/8.21
D 740 N 48 T	4800	3600, 4000, 4200, 4400, 4600	11.0	605	750/100	0.85	0.65	39.0	160	10.0…24.0	D58.26K0/8.22
D 850 N 40 T	4000	2800, 3000, 3200, 3400, 3600	12.8	819	850/100	0.84	0.49	38.0	160	10.0…24.0	D58.26K0/8.22
D 1800 N 48T VF	4800	3600, 4000, 4200, 4300, 4400, 4600	27.5	3781	1800/100	0.85	0.25	16.9	160	24.0…60.0	D75.26K0/8.22
D 3501 N 42 T	4200	3200, 3400, 3600, 4000	56.0	15700	3690/100	0.73	0.13	9.2	160	36.0…52.0	D120.35K/8.23
D 5201 N 50 T	5000		110.0	60500	5170/100	0.63	0.09	5.8	160	63.0…91.0	D150.35K/8.24
D 6001 N 50 T	5000		110.0	60500	6070/100	0.80	0.09	4.6	160	63.0…91.0	D150.26K/8.24

up to 10000 V

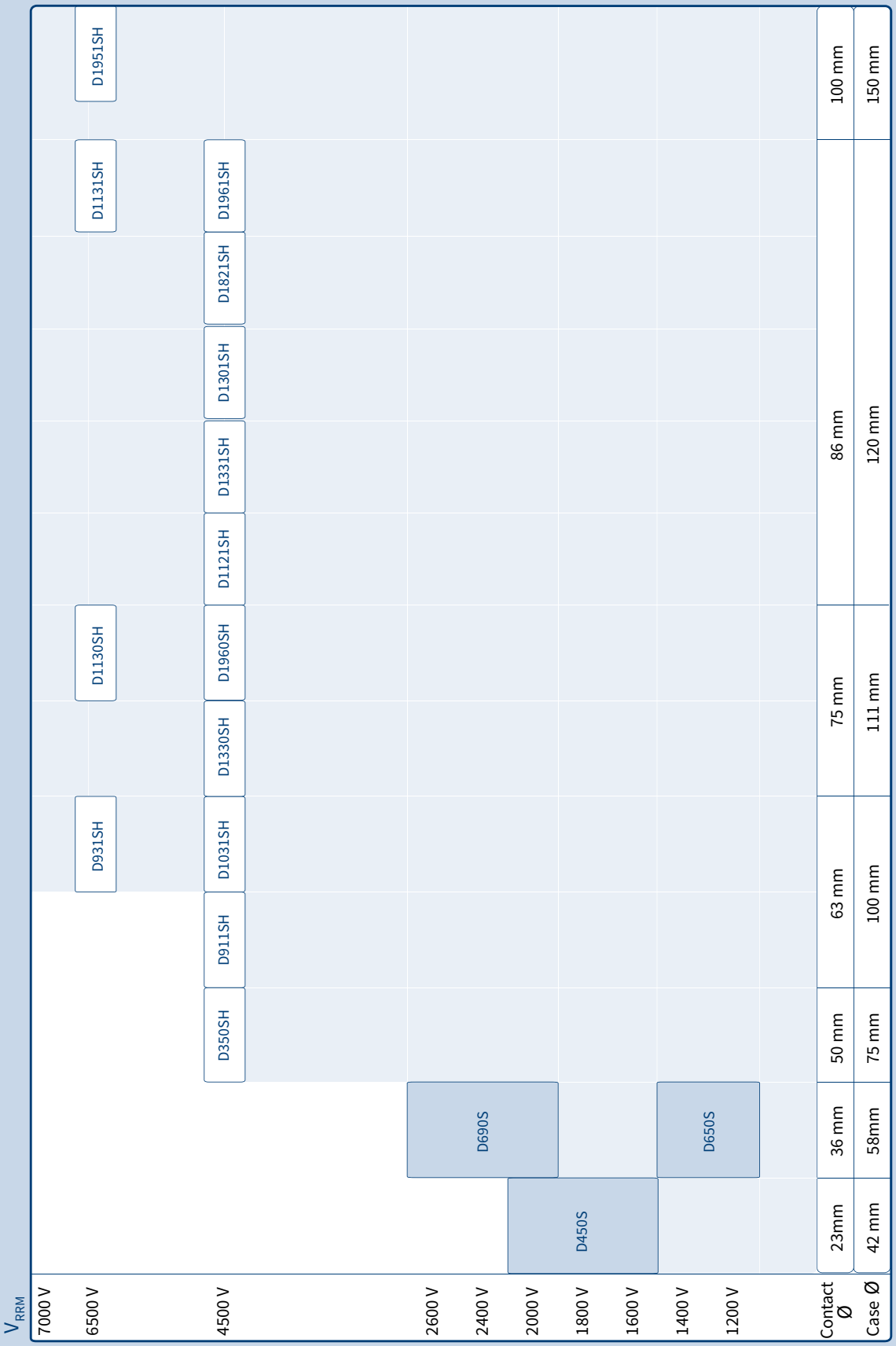
Type	v [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 50$ V	also available V_{DRM}, V_{RRM}	I_{FSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2dt$ [$A^2s \cdot 10^3$] @ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	$V_{(TO)}$ [V] @$T_{vj\ max}$	r_T [mΩ] @$T_{vj\ max}$	R_{thJC} [K/kW] @ 180° el sin	$T_{vj\ max}$ [°C]	Recomm. Clamping force range [kN]	Outline / page
D 711 N 68 T	6800	6000, 6500	10.5	550	790/100	0.84	0.87	31.5	160	10.0…16.0	D58.26K/8.22
D 1481 N 68 T	6800	5800, 6000, 6200, 6500	24.5	3000	1650/100	0.75	0.42	15.8	160	15.0…36.0	D76.26K/8.23
D 3001 N 68 T	6800	5800, 6000, 6500	53.0	14040	2900/100	0.84	0.22	9.2	160	36.0…52.0	D120.35K/8.23
D 3040 N 68 T	6800	6500	53.0	14040	3040/100	0.84	0.22	7.3	160	42.0…95.0	D111.26K0/8.23
D 3041 N 68 T	6800	5800, 6000, 6500	53.0	14040	3040/100	0.84	0.22	8.55	160	36.0…52.0	D120.35K/8.23
D 471 N 90 T	9000	8000, 8500	10.0	500	565/100	1.04	1.78	31.5	160	10.0…16.0	D58.26K/8.22
D 2601 N 90 T	9000	8500	50.0	12500	2240/100	0.94	0.41	8.55	160	36.0…52.0	D120.26K/8.23

Welding Diodes

up to 600 V

Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 50$ V	also available V_{DRM}, V_{RRM}	I_{FSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2dt$ [$A^2s \cdot 10^3$] @ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	$V_{(TO)}$ [V] @$T_{vj\ max}$	r_T [mΩ] @$T_{vj\ max}$	R_{thJC} [K/kW] @ 180° el sin	$T_{vj\ max}$ [°C]	Recomm. Clamping force range [kN]	Outline / page
25 DN 06	600		12.8	813	1145/155	0.70	0.19	17.40	180	4.0…8.0	25DN06/8.24
38 DN 06	600		32.3	5200	3885/120	0.66	0.06	12.40	180	20.0…30.0	38DN06/8.24
46 DN 06	600		52.0	13500	5100/118	0.70	0.05	9.35	180	30.0…45.0	46DN06/8.24
56 DN 06 B01	600		70.0	24500	8400/110	0.66	0.04	5.8	180	40.0…60.0	56DN06B01/8.24
65 DN 06	600		95.0	45000	8470/98	0.70	0.03	4.70	180	55.0…80.0	65DN06/8.24

Overview IGCT/IGBT-Freewheeling Diodes & Fast Rectifier Diodes



Presspacks

IGCT – Freewheeling Diodes

Type	V_{RRM} [V]	also available V_{DRM}, V_{RRM} V_{DRM}, V_{RRM}	V_R(D) [kV]* T_c = 25	$I_{(FSM)}$ [kA] sin, 10 ms $T_{vj\,max}$	$\int i^2dt$ [$A^2s \cdot 10^3$] sin, 10 ms $T_{vj\,max}$	V_F [V] @I_F=2,5 kA $T_{vj\,max}$	I_{RM} [A]** @di/dt = 1000 A/µs, I_{FM} = 2,5 kA, $T_{vj\,max}$	Q_{rr} [mAs]** @di/dt = 1000 A/µs, I_{FM} = 2,5 kA, $T_{vj\,max}$	R_{thJC} [K/kW] @DC	$T_{vj\,max}$ [°C]	Recomm. Clamping force range [kN]	Outline / page
◆ D 350 SH45 T	4500	3200, 3400, 3600, 4000, 4200	2.8	13	845	4.5	tbd	tdb	41.3	140	15.0…24.0	D75.26K/8.23
D 911 SH45 T	4500		2.8	17	1445	6.0	1200	2.8	10.0	140	27.0…45.0	D100.26K/8.23
D 1031 SH45 T	4500		2.8	23	2645	4.2	1500	3.5	10.0	140	27.0…45.0	D100.26K/8.23
D 1121 SH45 T	4500		2.8	17.5	1530	5.6	1200	3.5	7.5	140	36.0…52.0	D120.26K/8.23
D 1330 SH45 T	4500		2.8	28	3920	4.2	1500	3.5	7.3	140	42.0…95.0	D111.26K0/8.23
D 1331 SH45 T	4500		2.8	28	3920	4.2	1500	3.5	7.5	140	36.0…52.0	D120.26K/8.23
D 1960 SH45 T	4500		2.8	40	8000	2.5	2250	12.0	7.3	140	42.0…95.0	D111.26K0/8.23
D 1961 SH45 T	4500		2.8	40	8000	2.5	2250	12.0	7.5	140	36.0…52.0	D120.26K/8.23
D 931 SH65 T	6500		3.2	16	1280	5.6	1300	3.5	10.0	140	27.0…45.0	D100.26K/8.23
D 1130 SH65 T	6500		3.2	22	2400	5.6	1300	3.5	7.3	140	42.0…95.0	D111.26K0/8.23
D 1131 SH65 T	6500		3.2	22	2400	5.6	1300	3.5	7.5	140	36.0…52.0	D120.26K/8.23
D 1951 SH65 T	6500		3.2	44	9680	4.0	1800	5.0	4.5	140	55.0…91.0	D150.26K/8.24

*) Estimated failure rate l ~ 100 fit **) Clamp circuit L = 0,25 µH

◆ New type

IGBT – Freewheeling Diodes

Type	V_{RRM} [V]	also available V_{DRM}, V_{RRM} V_{DRM}, V_{RRM}	V_R(D) [kV]* T_c=25	$I_{(FSM)}$ [kA] sin. 10 ms $T_{vj\,max}$	$\int i^2dt$ [$A^2s \cdot 10^3$] sin. 10 ms $T_{vj\,max}$	V_F [V] @I_F=2.5 kA $T_{vj\,max}$	I_{RM} [A]** @di/dt = 5000 A/µs. I_{FM}=2.5 kA, $T_{vj\,max}$	Q_{rr} [mAs]** @di/dt = 5000 A/µs, I_{FM}=2.5 kA, $T_{vj\,max}$	R_{thJC} [K/kW] @DC	$T_{vj\,max}$ [°C]	Recomm. Clamping force range [kN]	Outline / page
◆ D 1301 SH45T	4500		2.8	28	3920	4.3	3600	6000	7.5	140	36.0…52.0	D120.26K/8.23
◆ D 1821 SH45T	4500		2.8	40	8000	3.6	3600	7000	6.4	140	45.0…65.0	D120.26K/8.23

*) Estimated failure rate l ~ 100 fit **) Clamp circuit L = 0.25 µH

◆ New type

Fast Rectifier Diodes

up to 1800 V

Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 50$ V	also available V_{DRM}, V_{RRM} V_{DRM}, V_{RRM}	I_{FSM} [kA] @10 ms, $T_{vj\,max}$	$\int i^2dt$ [$A^2s \cdot 10^3$] @ 10 ms $T_{vj\,max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	V_{TO} [V] @$T_{vj\,max}$	r_T [mΩ] @$T_{vj\,max}$	I_{RM} [A] @$i_F = I_{FAVM}$, di/dt = 50 A/µs	R_{thJC} [K/kW] @180 ° el sin	$T_{vj\,max}$ [°C]	Recomm. Clamping force range [kN]	Outline / page
D 650 S14T	1400	800, 1200	10.1	510	650/96	1.0	0.45	122	48	150	6.0…14.5	D58.26K0/8.22

up to 2600 V

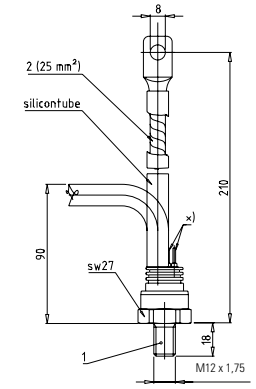
Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 50$ V	also available V_{DRM}, V_{RRM} V_{DRM}, V_{RRM}	I_{FSM} [kA] @10 ms, $T_{vj\,max}$	$\int i^2dt$ [$A^2s \cdot 10^3$] @ 10 ms $T_{vj\,max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	V_{TO} [V] @$T_{vj\,max}$	r_T [mΩ] @$T_{vj\,max}$	I_{RM} [A] @$i_F = I_{FAVM}$, di/dt = 50 A/µs	R_{thJC} [K/kW] @180 ° el sin	$T_{vj\,max}$ [°C]	Recommended Clamping force range [kN]	Outline / page
D 450 S20T	2000	1600	4.6	106	443/100	1.0	0.9	160	57	150	3.2…7.6	D42.14K0/8.22
D 690 S26T	2600	2000, 2200, 2400	11.5	661	690/100	1.0	0.5	230	39	150	10.0…24.0	D58.26K0/8.22

up to 6000 V

Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 50$ V	also available V_{DRM}, V_{RRM} V_{DRM}, V_{RRM}	I_{FSM} [kA] @10 ms, $T_{vj\,max}$	$\int i^2dt$ [$A^2s \cdot 10^3$] @ 10 ms $T_{vj\,max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	V_{TO} [V] @$T_{vj\,max}$	r_T [mΩ] @$T_{vj\,max}$	I_{RM} [A] @iF=150A, di/dt = 200 A/µs	R_{thJC} [K/kW] @180 ° el sin	$T_{vj\,max}$ [°C]	Recommended Clamping force range [kN]	Outline / page
D 56 S45C	4500		1.35	9.1	56/85	1.64	8	230	260	125	n.a.	DSW27.2/8.21
D 56 U45C	4500	4000	1.2	7.2	56/73	1.64	8	230	340	125	n.a.	DSW27.2/8.21

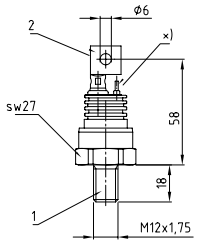
Outlines

DSW27



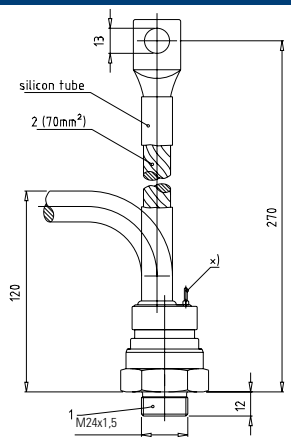
type	symbol	cathode	anode	prot. flex. tubing
N, S		rope (2)	case (1)	red
K, U		case (1)	rope (2)	blue

DSW27.2



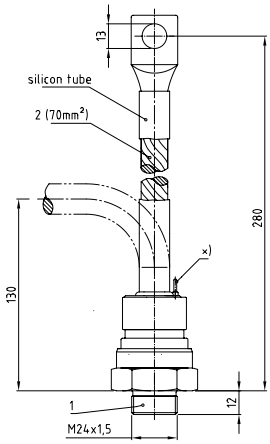
type	symbol	cathode	anode
N, S, A		conection pin (2)	case (1)
K, U, B		case (1)	conection pin (2)

DSW41



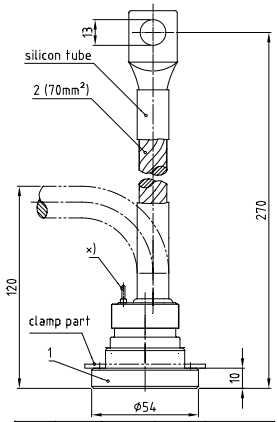
type	symbol	cathode	anode	prot. flex. tubing
N, S		rope (2)	case (1)	red
K, U		case (1)	rope (2)	blue

DSW41.1



type	symbol	cathode	anode	prot. flex. tubing
N, S		rope (2)	case (1)	red
K, U		case (1)	rope (2)	blue

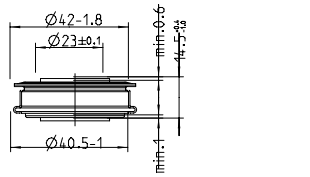
DFL54

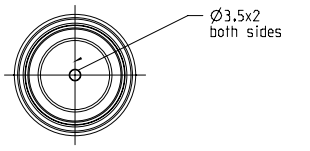


type	symbol	cathode	anode	prot. flex. tubing
N, S		rope (2)	case (1)	red
K, U		case (1)	rope (2)	blue

x) = evacuation pipe

D42.14K0

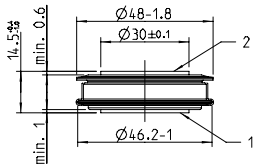


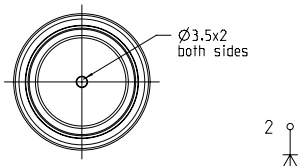


strike distance: 9mm
creepage distance: 10mm

overall height based on contact pressure

D48.14K0

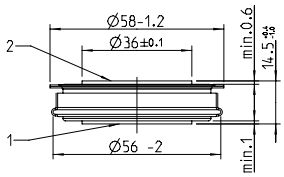


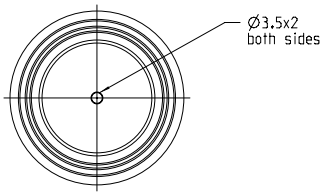


strike distance: 9mm
creepage distance: 10mm

overall height based on contact pressure

D58.14K0

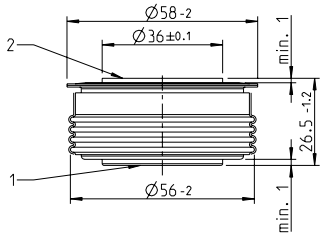


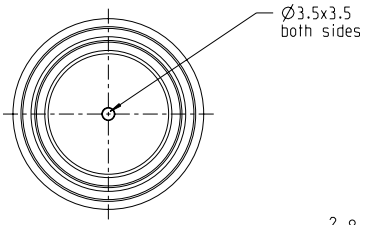


strike distance: 8.0mm
creepage distance: 9.0mm

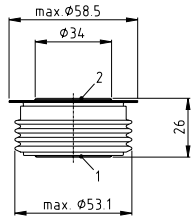
overall height based on contact pressure

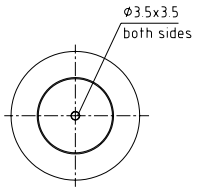
D58.26K0



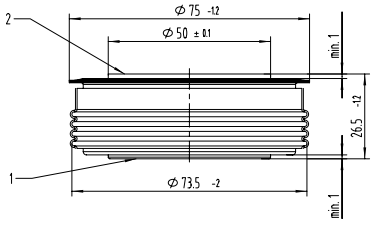


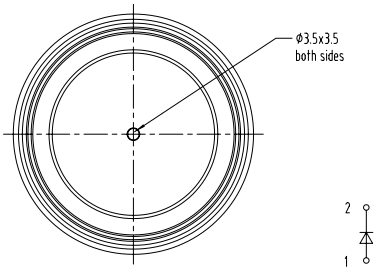
D58.26K





D75.26K0

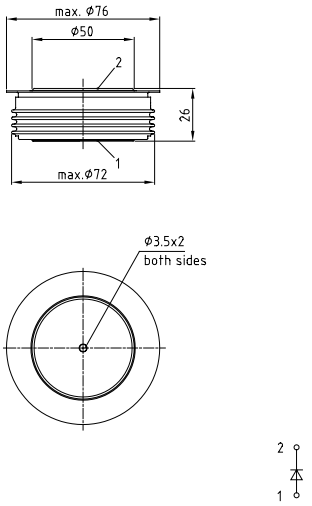




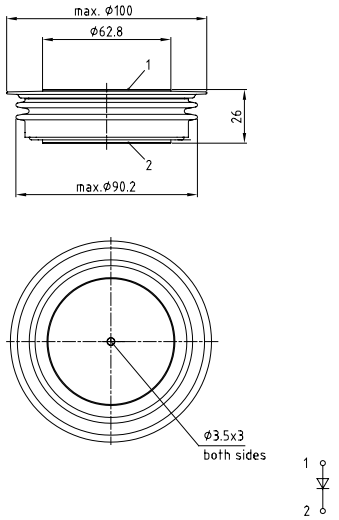
x) = evacuation pipe

Presspacks

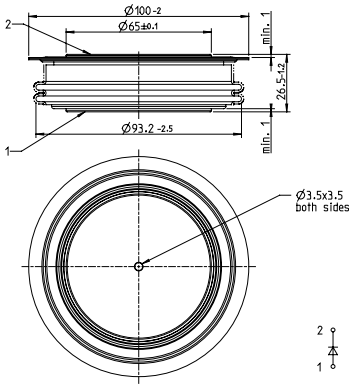
D76.26K



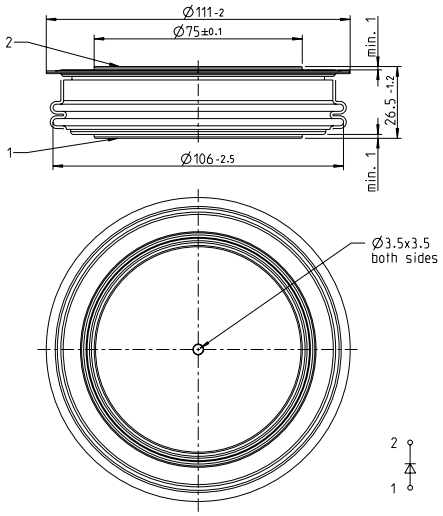
D100.26K



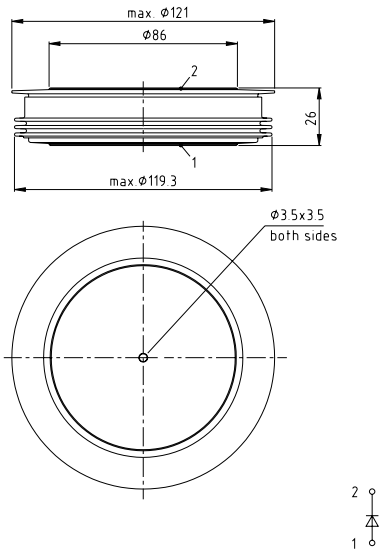
D100.26K0



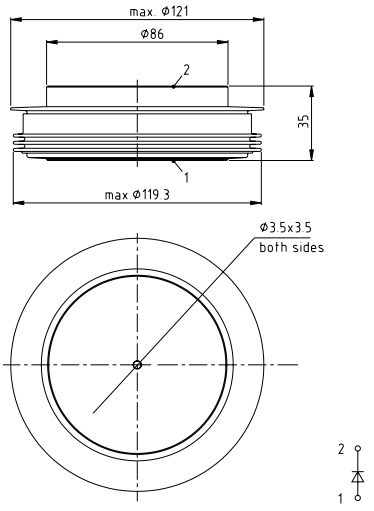
D111.26K0



D120.26K

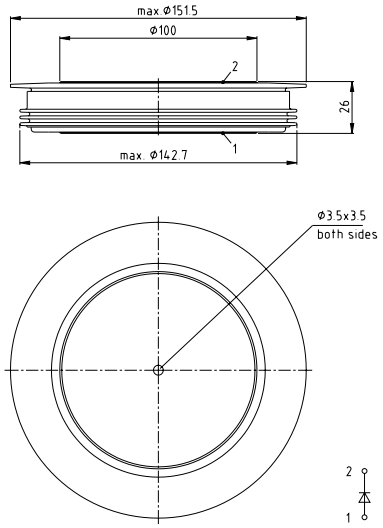


D120.35K

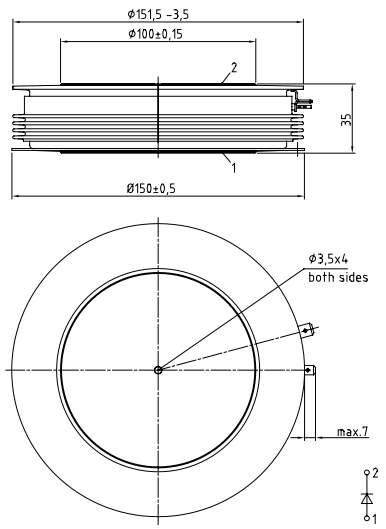


Presspacks

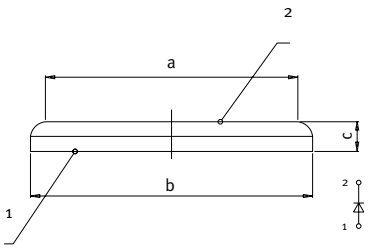
D150.26K



D150.35K



welding diodes



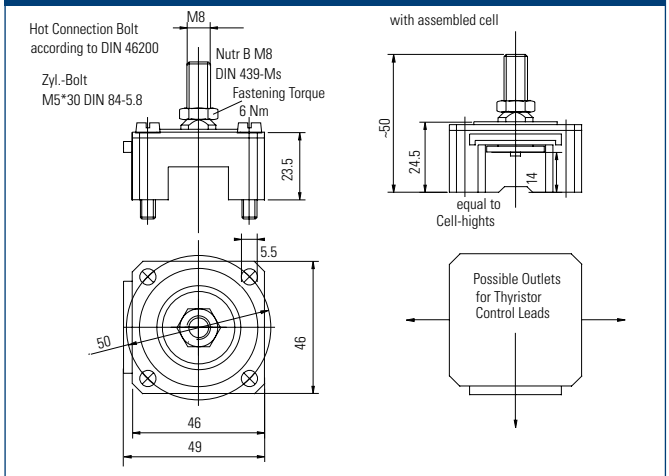
Designation	a [mm]	b [mm]	c [mm]
25DN06	Ø 22	Ø 25	3,6
38DN06	Ø 34	Ø 38	4,0
46DN06	Ø 43	Ø 46	4,0
56DN06B01	Ø 50	Ø 56	5,0
65DN06	Ø 58	Ø 65	5,0

Package Units for Diode Discs

Outline	Packing units
D42.14K0	18
D48.14K0	12
D58.14K0	9
D58.26K0	6
D75.26K0	4
D76.26K	4
D100.26K0	2
D111.26K0	2
D120.26K	2
D120.35K	2
D150.26K	1
D150.35K	1

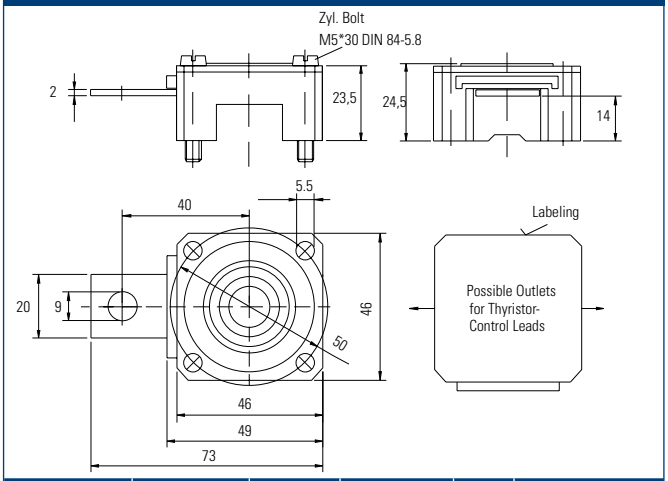
Outlines

V50..M



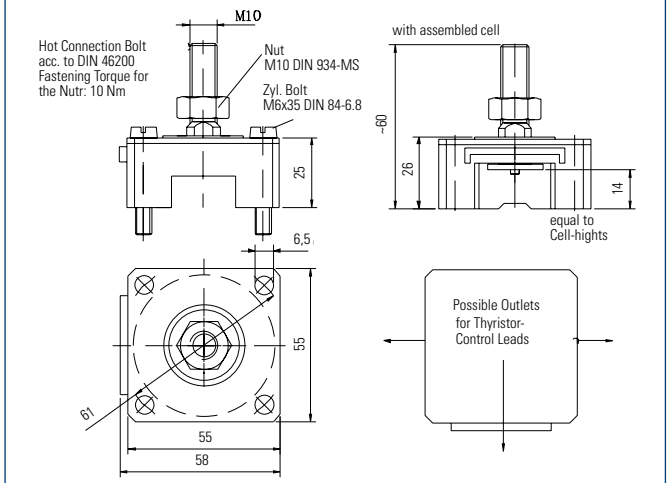
type designation	ordering code	clamping force [kN]	suitable for Ø [mm] housings	height [mm]	minimum creepage [mm] distance
V50-14.45M	SP000096563	4.5	42	14	11
V50-14.60M	SP000096564	6.0	42	14	11

V50..N



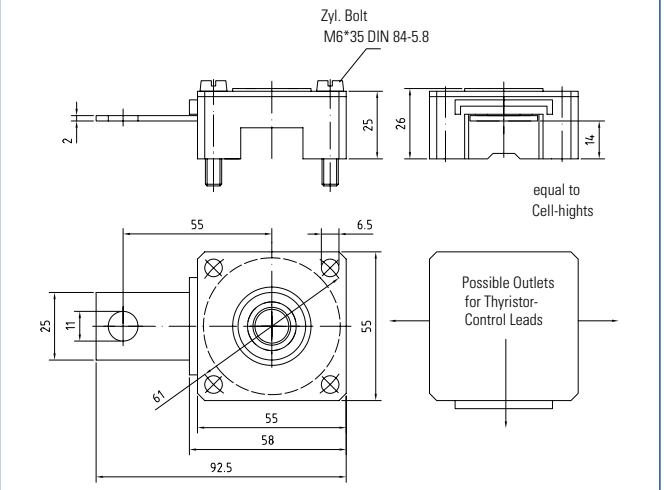
type designation	ordering code	clamping force [kN]	suitable for Ø [mm] housings	height [mm]	minimum creepage [mm] distance
V50-14.45N	SP000090625	4.5	42	14	11
V50-14.60N	SP000090626	6.0	42	14	11

V61..M



type designation	ordering code	clamping force [kN]	suitable for Ø [mm] housings	height [mm]	minimum creepage [mm] distance
V61-14.80M	SP000096565	8.0	48	14	11

V61..N

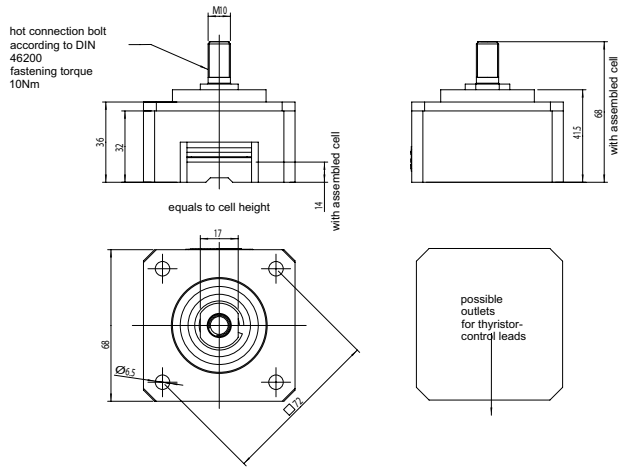


type designation	ordering code	clamping force [kN]	suitable for Ø [mm] housings	height [mm]	minimum creepage [mm] distance
V61-14.80N	SP000090627	8.0	48	14	11

Clamping Units for Disc Type Devices

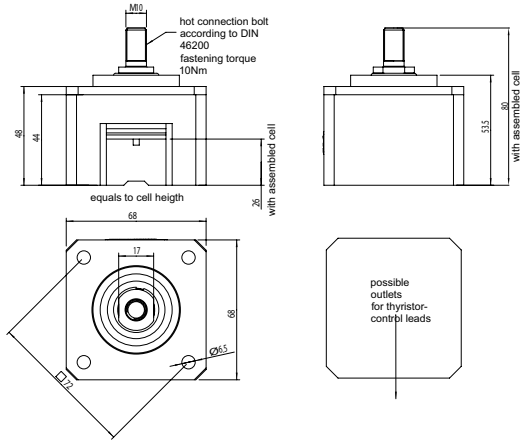
Salesname	Packing Units	Clamping force [kN]	Disc diameter [mm]	height [mm]	min. creeping distance [mm]	Ordering Code	Outline/page
V50-14.45M	21	4.5	42	14	11	SP000096563	V50…M/8.26
V50-14.45N	14	4.5	42	14	11	SP000090625	V50…N/8.26
V50-14.60M	21	6.0	42	14	11	SP000096564	V50…M/8.26
V50-14.60N	14	6.0	42	14	11	SP000090626	V50…N/8.26
V61-14.80M	12	8.0	48	14	11	SP000096565	V61…M/8.26
V61-14.80N	12	8.0	48	14	11	SP000090627	V61…N/8.26

V72-14..M



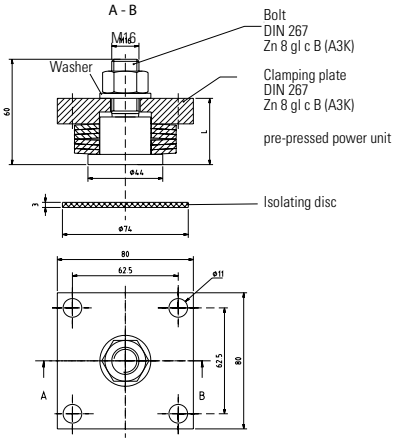
type designation	ordering code	clamping force [kN]	suitable for Ø [mm] housings	height [mm]	minimum creepage [mm] distance
V72-14.150M	SP000096566	15.0	58	14	11

V72-26..M



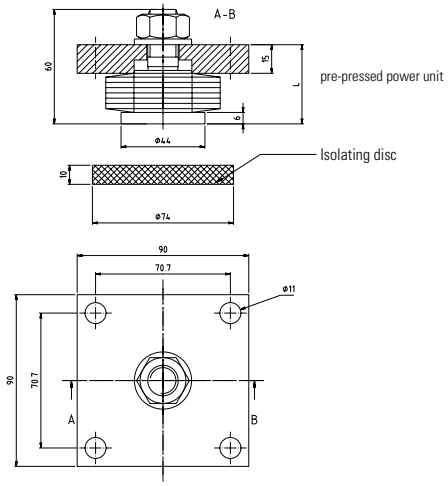
type designation	ordering code	clamping force [kN]	suitable for Ø [mm] housings	height [mm]	minimum creepage [mm] distance
V72-26.80M	SP000096569	8.0	58	26	23
V72-26.120M	SP000096567	12.0	58	26	23
V72-26.150M	SP000096568	15.0	58	26	23

V 89



type designation	ordering code	clamping force [kN]	suitable for housings Ø [mm]	suitable for housings height [mm]
V89-26.170N	SP000358597	17	75	26
V89-26.300N	SP000090624	30	75	26
V89-26.400N	SP000090662	40	75	26

V 100



type designation	ordering code	clamping force [kN]	suitable for housings Ø [mm]	suitable for housings height [mm]
V100-35.200N	SP000090635	20	75	26

Clamping Units for Disc Type Devices

Salesname	Packing Units	Clamping force [kN]	Disc diameter [mm]	height [mm]	min. creeping distance [mm]	Ordering Code	Outline/page
V72-14.150M	10	15.0	58	14	11	SP000096566	V72…M/8.27
V72-26.80M	10	8.0	58	26	23	SP000096569	V72…M/8.27
V72-26.120M	10	12.0	58	26	23	SP000096567	V72…M/8.27
V72-26.150M	10	15.0	58	26	23	SP000096568	V72…M/8.27
V89-26.170N	4	17.0	75	26	26	SP000358597	V89…N/8.27
V89-26.300N	4	30.0	75	26	26	SP000090624	V89…N/8.27
V89-26.400N	4	40.0	75	26	26	SP000090662	V89…N/8.27
V100-35.200N	3	20.0	75	26	26	SP000090635	V100…N/8.27

Links

Application Notes, Product Briefs, Flyers and Brochures	Type	Redirects
Technical Information for Bipolar Semiconductors (english)	Application Note	www.infineon.com/technical-information-appnote
Technical Information for Bipolar Semiconductors (german)	Application Note	www.infineon.com/technical-information-appnote-german
IFBIP Company Brochure	Broschure	www.infineon.com/ifbip-company-brochure
ifbip shop	Webpage	www.ifbip-shop.com
4.5kV/6.5kV Soft recovery FWDs for IGCTs and PP IGBTs	Product Brief	www.infineon.com/sr-fwd-product-brief
6.5 kV SCR series for Medium Voltage Soft starters	Product Brief	www.infineon.com/6500v-scr-product-brief
540A/8 kV 2" Light triggered Thyristor	Product Brief	www.infineon.com/8000v-ltt-scr-product-brief
9.5 kV SCR for Medium Voltage Soft starters	Product Brief	www.infineon.com/9500v-scr-product-brief
Clamping Forces for disc type devices	Product Information	www.infineon.com/clamping-forces-product-information
Standard gate leads for disc type devices	Product Information	www.infineon.com/gate-leads-for-discs-product-information

Silicon Carbide (SiC)

Silicon Carbide (SiC) is a new semiconductor material with special advantages for power semiconductors. Due to the wide band gap (3eV compared to 1eV for silicon) it offers a high critical electrical field and thus, it is possible to design highly effective and fast unipolar devices like Schottky barrier diodes or field effect transistors (MOSFETs, JFETs) also for blocking voltages above 1kV – a range where silicon based components are usually based on slower bipolar structure like IGBTs or pin diodes.

SiC Schottky barrier diodes from Infineon are available from 650V up to 1700V blocking voltage. Their outstanding feature is the lack of storage charge effects (characterized in datasheets by parameters like Q_{rr}, I_{rr} and corresponding recovery losses E_{rec}). If used as freewheeling diode with IGBT also the turn on losses of the transistor can be reduced significantly. Thus, Infineon's IGBTs are actually empowered by SiC diodes, the same component can offer the user an extended range of use with respect to frequency and power handling capability since dynamic losses can be reduced for a given use condition significantly compared to standard silicon based parts.

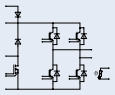
Infineon is a pioneer in the commercial use of this technology. As the first company worldwide SiC based diodes were introduced in the market in 2001 already, followed by the worldwide first commercial power modules containing SiC components in 2006. Meanwhile the 5th generation of such parts is available as discrete devices. In power modules Infineon offers solutions based or empowered by SiC mainly for solar applications (Easy module family with booster and inverter solutions) and selected motor drive applications (1200 V and 1700 V, EconoPACK™ 3 and Primepack™ 2). The product design was strongly oriented on a careful cost performance evaluation in order to use the new technology in systems and circuits where a tangible system advantage could be identified.

Recently Infineon complemented the portfolio by unipolar transistors for 1200 V based on a JFET structure. This device offers fastest switching and a threshold free linear output characteristic for lowest static losses. It is available as a single discrete component in TO-247 package as well as in a half-bridge configuration in our well established EASY1B package.

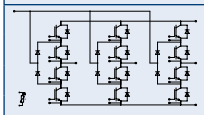
IGBT Low Power Modules

EASY Solar/UPS-High Efficiency Line

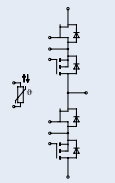
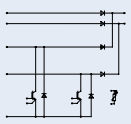
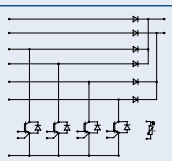
650 V_{CES}

Type		IGBT Inverter V_{CE} V	I_C* A T_C= 80°C	I_C A T_C= 25°C	V_{CEsat} V T_{vj}= 25°C	Eon+ Eoff, mJ T_{vj}= 125°C	Outline/ page
 fourpack with booster and NTC	IGBT HighSpeed 3						
	F4-50R07W2H3_B51	650	50	65	1.35	1.60	L_B2i/2.28
	F4-75R07W2H3_B51	650	75	75	1.35	2.50	L_B2i/2.28

650 V_{CES}

Type		IGBT Inverter V_{CE} V	I_C* A T_C= 80°C	I_C A TC= 25°C	V_{CEsat} V T_{vj}= 25°C	Eon+ E_{off} mj T_{vj}= 125°C	IGBT 3-Level V_{CE} V	I_C* A T_C= 80°C	I_C A TC= 25°C	V_{CEsat} V T_{vj}= 25°C	E_{on}+ E_{off} mj T_{vj}= 125°C	Outline/ page
 3ph 3-Level NPC1 with NTC	IGBT HighSpeed 3											
	FS3L30R07W2H3F_B11	650	30	45	1.50	1.94	650	30	50	1.55	1.04	L_B2k/2.28
	FS3L50R07W2H3F_B11	650	50	75	1.45	2.80	650	30	50	1.55	1.08	L_B2k/2.28

1200 V_{CES}

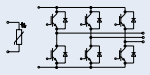
Type		IGBT Inverter V_{CE} V	I_C* A T_C= 80°C	I_C A T_C= 25°C	V_{CEsat} V T_{vj}= 25°C	E_{on}+ E_{off} mj T_{vj}= 125°C	Outline/ page
 dual with NTC	SiC JFET						
	FF45R12W1J1_B11	1200	45	55	51	0.84	L_B1o/2.24
 Booster with NTC	IGBT HighSpeed 2						
	DF75R12W1H4F_B11	1200	25	50	2.10	2.35	L_B2l/2.24
	IGBT HighSpeed 3						
	DF80R12W2H3F_B11	1200	20	50	1.55	1.52	L_B2g/2.27
 Booster with NTC	IGBT HighSpeed 3						
	DF160R12W2H3F_B11	1200	20	50	1.55	1.52	L_B2h/2.27

SiC

IGBT Low Power Modules

EconoPACK™

1700 V_{CES}

Type		V_{CES} V	I_C A	V_{CEsat} V T_{vj}= 25°C typ.	P_{tot} W	Outline/ page
 sixpack with NTC	IGBT2 fast					
	FS100R17KS4F	1700	100	4.15	960	M_E3p/2.37

IGBT High Power Modules

PrimePACK™

1200 V_{CES} [1)]

Type		V_{CES} V	I_C A	V_{CEsat} V T_{vj}= 25°C typ.	E_{on}/E_{off} mWs T_{vj}=125°C typ.	Outline/ page
 halfbridge with NTC	IGBT4					
	FF600R12IS4F	1200	600	3.20	20/40	H_PP2/4.12

SiC

Silicon Carbide Diodes

Generation 5 650V

I_F [A]	TO-220 R2L	TO-247 Dual Die	TO-247	DPAK DML	D2PAK R2L	ThinPAK 8x8
2	IDH02G65C5				IDK02G65C5	IDL02G65C5
3	IDH03G65C5				IDK03G65C5	
4	IDH03G65C5				IDK04G65C5	IDL04G65C5
5	IDH03G65C5				IDK05G65C5	
6	IDH03G65C5				IDK06G65C5	IDL06G65C5
8	IDH08G65C5				IDK08G65C5	IDL08G65C5
9	IDH09G65C5				IDK09G65C5	
10	IDH10G65C5		IDW10G65C5		IDK10G65C5	IDL10G65C5
12	IDH12G65C5		IDW12G65C5		IDK12G65C5	IDL12G65C5
16	IDH16G65C5		IDW16G65C5			
20	IDH20G65C5	IDW20G65C5B*	IDW20G65C5			
24		IDW24G65C5B*				
30		IDW30G65C5B*	IDW30G65C5			
40		IDW40G65CB*	IDW40G65C5			

Generation 3 600V

I_F [A]	TO-220 R2L	TO-247 Dual Die	TO-247	DPAK DML	D2PAK	ThinPAK 8x8
3	IDH03SG60C			IDD03SG60C		
4	IDH04SG60C			IDD04SG60C		
5	IDH05SG60C			IDD05SG60C		
6	IDH06SG60C			IDD06SG60C		
8	IDH08SG60C			IDD08SG60C		
9	IDH09SG60C			IDD09SG60C		
10	IDH10SG60C			IDD10SG60C		
12	IDH12SG60C			IDD10SG60C		

Generation 2 600V

I_F [A]	TO-220 R2L	TO-247 Dual Die	TO-247	DPAK DML	D2PAK DML	ThinPAK 8x8
4	IDH04S60C**					
5	IDH05S60C**					
6	IDH06S60C**				IDB06S60C**	
8	IDH08S60C**					
10	IDH10S60C**				IDB10S60C**	
12	IDH12S60C**					
16	IDH16S60C**					

* to be released in 2015 ** not for new designs

SiC

Silicon Carbide Diodes

Generation 5 1200V

I_F [A]	TO-220 R2L	TO-247 Dual Die	TO-247	DPAK R2L	D2PAK DML	ThinPAK 8x8
2	IDH02G120C5*			IDM02G120C5*		
5	IDH05G120C5*			IDM05G120C5*		
8	IDH08G120C5*			IDM08G120C5*		
10	IDH10G120C5*	IDW10G120C5B				
15	IDH15G120C5*	IDW15G120C5B				
20		IDW20G120C5B				
30		IDW30G120C5B				
40		IDW40G120C5B				

Generation 2 1200V

I_F [A]	TO-220 R2L	TO-247 Dual Die	TO-247	DPAK R2L	D2PAK DML	ThinPAK 8x8
2	IDH02SG120					
5	IDH05S120					
8	IDH08S120					
10	IDH10S120		IDW10S120**			
15	IDH15S120		IDW15S120**			
20		IDW20S120**				
30		IDW30S120**				

* to be released in 2015 ** not for new designs

Business Excellence through Quality Management

In quality and reliability of our innovative products and services for power electronics we are a worldwide leading company. We have developed and introduced a quality management which continuously directs the stability and the performance of our production and business progress. Our quality management is permanently brought in line with the requests and expectations of our customers, partners and employees. Our most progressive quality tools are based on the standard ISO/TS 16949, which includes Automotive industry requirements. In addition we use the EFQM-Model for Business Excellence and the SIX SIGMA methodology to force the continuous improvement of our company. Our competent and qualified employees are motivated to fulfill the requests and wishes of our customers to their highest satisfaction at all times.

ZERTIFIKAT • CERTIFICATE • CERTIFICADO • СЕРТИФИКАТ • CERTIFICAT

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH
certifies that

Infineon Technologies AG
Am Campeon 1-12
85579 Neubiberg
Germany

has established and applies
a Quality Management System for

Development, Production, Testing, Lab.,
Sales and Marketing of Semiconductor Components

including the sites and scope of application
see enclosure.

An audit was performed, Report No. 70795625
Proof has been furnished that the requirements
according to

ISO 9001:2008

are fulfilled. The certificate is valid from 2014-07-23 until 2016-01-15.
Certificate Registration No. 12 100 44492 TMS

Product Compliance Management
Munich, 2014-07-24

Page 1 of 4

More information and certificate can be found at:
www.infineon.com/certificates

Environmental and safety management

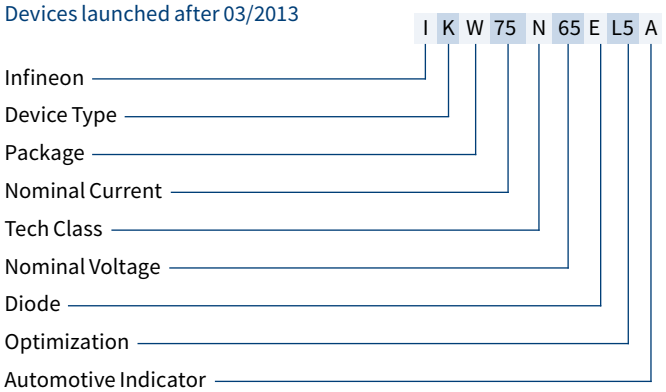
Consumption of electrical energy can be significantly reduced through usage of our products. During manufacturing process we put focus on environmental protection and efficient use of natural resources. Our means aiming at environmentally friendly organisation cover all production flows and the whole product range. Our efforts regarding environmental protection are accompanied by our activities concerning accident control and health protection of our employees. By anticipatory protection and training courses we meet the high responsibilty standards for our employees. We consider the consistent implementation of environmental protection, health protection and operational safety as a key for our company's continued success. Furtheremore, a regular monitoring in these areas evaluate the results and set a new focus points and targets. Our environmental management is certified as per DIN EN ISO 14001, our safety management as per OSHAS 18001.

Legend – Product name decipher

Type Designation for Discrete IGBT “new” Devices launched after 03/2013

I	K	W	75	N	65	E	L5	A	example for a Discrete IGBT
I									Infineon
	G								Single IGBT
	H								Reverse Conducting
	K								Duo Pack
		A							TO220-3 FP
		B							TO263-3 (D^2-Pack)
		D							TO252-3 (D-Pack)
		P							TO220-3
		Q							TO247PLUS-3
		U							TO251-3 (I-Pack)
		W							TO247-3
		Z							TO247-4
			75						[A] @ 100°C
				N					n-channel
				P					p-channel
					65				[V] /10
						Diode			for DuoPack only
						B			Emitter Controlled half rated
						C			Emitter Controlled full rated
						blank			Rapid1 half rated
						E			Rapid1 full rated
						M			Rapid2 half rated
						N			Rapid2 full rated
						R			SiC 5th Gen half rated
						S			SiC 5th Gen full rated
						W			Full rated hard switching turn off diode
							F5		Fast 5
							H5		HighSpeed 5
							L5		Low V_{CEsat} 5th Gen
							R5		RC 5th Gen
								A	Automotive Indicator

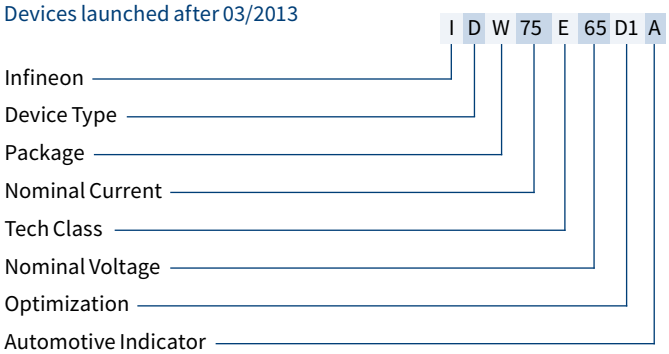
Type Designation for Discrete IGBT “new” Devices launched after 03/2013



Type Designation for Diode “new” Devices launched after 03/2013

I	D	W	75	E	65	D1	A	example for a Diode
I								Infineon
	D							Diode
		A						TO220-3 FP
		P						TO220-3
		W						TO247-3
		Z						TO247-4
			75					[A] @ 100°C
				E				Std. configuration
				C				Common Cathode
				D				Dual Anode
					65			[V] /10
						D1		Rapid 1
						D2		Rapid 2
							A	Automotive Indicator

Type Designation for Diode “new” Devices launched after 03/2013



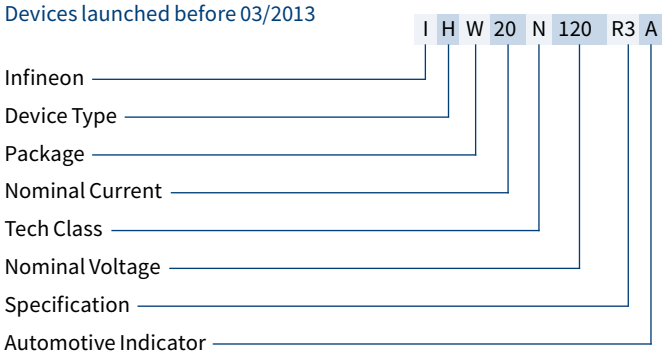
Explanations

Legend – Product name decipher

Type Designation for IGBT/Diodes Devices launched before 03/2013

I	H	W	20	N	120	R3	A	example for a Diode
S								Siemens
I								Infineon
	D							Diode
	G							single IGBT
	H							soft-switching IGBT with integrated free wheeling diode
	K							hard-switching IGBT with external free wheeling diode
		A						TO220FP
		B						TO263 (D^2-Pack)
		D						TO252 (D-Pack)
		P						TO220
		U						TO251 (I-Pack)
		W						TO247
			20					[A] @ 100°C
				N				n-channel
				T				TRENCHSTOP™ (1200 V only)
					120			[V] /10
						-		Nothing stated: Fast IGBT (<20 kHz/IGBT2)
						HS		HighSpeed 600 V (>20 kHz/IGBT2)
						H2		HighSpeed2 1200 V (>20 kHz/IGBT2)
						H3		HighSpeed3 1200 V (>20 kHz/IGBT4)
						T		TRENCHSTOP™ (<20 kHz/IGBT3)
						T2		TRENCHSTOP™ 2nd Gen (<20 kHz/IGBT4)
						R/RF		Reverse Conducting (<30 kHz/IGBT3)
						R2		Reverse Conducting 2nd Gen (<60 kHz/IGBT3)
						R3		Reverse Conducting 3rd Gen (<60 kHz/IGBT3)

Type Designation for IGBT/Diodes
Devices launched before 03/2013



IGBT Modules

FF	400	R33	K	F	x	example for an IGBT module
FZ						single switch with one IGBT and FWD
FF						half bridge (two IGBTs an FWDs)
FP						Power Integrated Module
FM						Matrix Module
FD/DF						chopper module
FB						Integrated modules in B2 configuration with IGBT & NTC
DD						dual diode module
FR						Switched Reluctance Modul
F3L						3-level configuration
FS3L						3-level 3 phase bridge
FT						tripack
F4						fourpack
F5						fivepack
FS						sixpack
	400					max. DC-collector current [A]
		R				reverse conducting
		S				fast Diode
		33				collector-emitter-voltage in 100 V
			K/H/I/M/N/O/P			mechanical construction:
			W/V/X/Y			module
				F		fast switching type
				H		high speed IGBT
				J		SiC JFET
				L		type with low V_{CEsat}
				M		MOSFET Chip
				S		fast short tail IGBT Chip
				E		low sat and fast trench IGBT
				T		fast trench IGBT
				P		soft switching trench IGBT
					1 … n	internal reference numbers
					C	Emitter Controlled
					D	higher Diode current
					F	very fast Diode
					G	module in big housing
					I	integrated cooling
					P	with pre applied TIM
					R	reduced number of pins
					T	low temperature type
					-K	design with common cathode
					B1 … n	Construction variation
					S1 … n	Electrical selection

Legend – Product name decipher

MIPAQ

IFF	150	B	12	N3	T	4			
I									MIPAQ™ family
FF									dual switch
FZ									single switch
FT									tripack
FS									3 phase full bridge
FP									power integrated module
	150								max. DC-collector current in A
									integration level:
		B							with current sensors
		P							with smart protection
		S							with full digital current measurement
		V							with gate driver and temperature measurement
			12						collector-emitter-voltage in 100 V
									mechanical construction: module
				N1..3					EconoPACK™ 1..3
				P					EconoPACK™ 4
				L					MIPAQ™ Pro with liquid cooling
				A					MIPAQ™ Pro with air cooling
					S				fast short tail IGBT chip
					E				low sat and fast IGBT chip
					T				fast trench IGBT
					P				soft switching trench IGBT
						1..n			IGBT Generation
							B11		Pressfit
							B1..n		construction variation
							S1..n		electrical selection
								P	with pre applied TIM

IGBT Modules

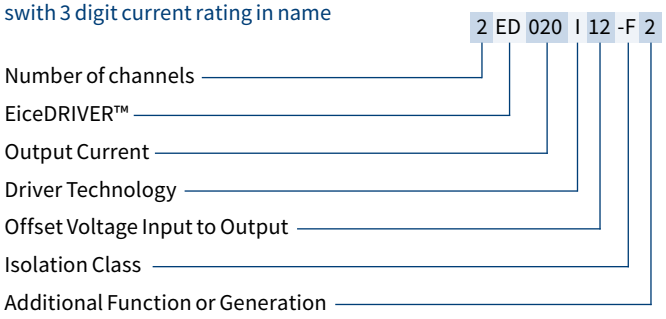
BSM	100	GB	120	DL	x	example for an IGBT module with an old designation
BSM						switch with IGBT and FWD
BYM						diode module
	100					max. DC-collector current [A]
		GA				single switch with one IGBT and FWD
		GB				half bridge (two IGBTs and FWDs)
		GD				3 phase full bridge (6-pack)
		GT				3 single switches with FWDs (tripack)
		GP				Power Intergrated Module
		GAL				chopper module (diode on collector side)
		GAR				chopper module (diode on emitter side)
		A				single diode
			120			collector-emitter-voltage in 10 V
				DL		Typ with low V_{CEsat}
				DN2		fast switching type
				DLC		low loss type with Emitter Controlled Diode
				S		with collector sense
				G		Design Variation
				Exxx		special type

Legend – Product name decipher

EiceDRIVER™ products with 3 digit current rating in name

2ED	020	I	12	-F	2	EiceDRIVER™ Example
1ED						single channel EiceDRIVER™
2ED						dual channel/half bridge EiceDRIVER™
6ED						6 channel EiceDRIVER™
	020					[A]*0.1 Output current
		I				isolated Coreless Transformer Driver
		L				Level Shift Driver
			06			[V]*100 I/O Offset Voltage
				B		Basic Isolation Class
				F		Functional Isolation Class
					2	2nd generation
					I	integrated Function

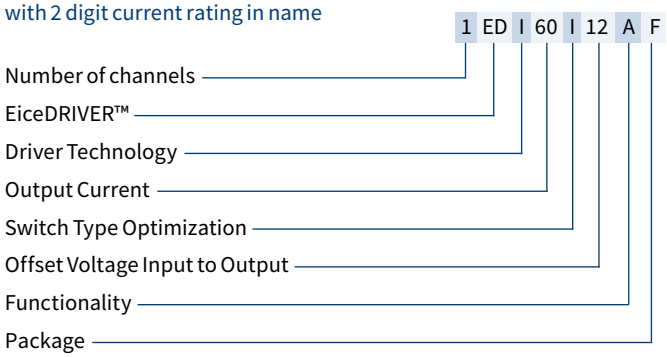
Type Designation for EiceDRIVER™ products with 3 digit current rating in name



EiceDRIVER™ products with 2 digit current rating in name

1ED	I	60	I	12	A	F	EiceDRIVER™ Example
1ED							single channel EiceDRIVER™
2ED							dual channel/half bridge EiceDRIVER™
6ED							6 channel EiceDRIVER™
	I						isolated Coreless Transformer Driver
	L						Level Shift Driver
	S						reinforced (safe) isolated CT Driver
		60					[A]*0.1 Output Current
			H				HS-IGBT optimized
			I				IGBT optimized
			J				CoolSiC™ JFET optimized
			N				n-channel MOSFET optimized
				12			[V]*100 I/O Offset Voltage
					A		alternate source/sink output
					B		bootstrap diode
					C		cascoded Direct Drive
					M		active Miller Clamp
					N		negative (active low) input logic
					P		positive (active high) input logic
					S		Slew Rate Control
						F	SO8-150mil
						H	SO8-300mil
						J	SO14-150mil
						P	SO20-300mil
						R	TSSOP28-140mil
						T	SO28-300mil
						V	SO36-300mil

Type Designation for EiceDRIVER™ products with 2 digit current rating in name



Legend – Product name decipher

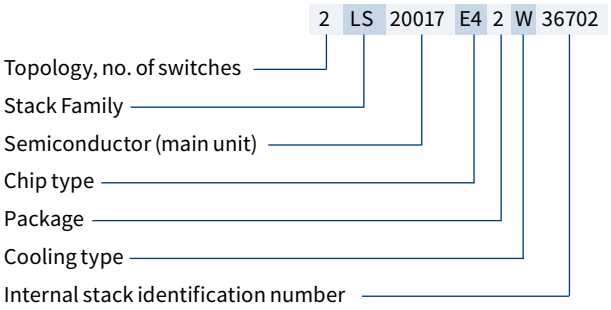
Bridge Rectifiers and AC-Switches

TD	B6	H	K	135	N	16	L	OF	
DD									diode module
TT									thyristor module
TD									thyristor/diode
	B6								three phase bridge
	W3								three phase AC-switch
		C							fully controlled
		H							half controlled
		U							uncontrolled
			K						common cathode of thyristors
				135					output current (A)
									(W3C: RMS-current)
					N				phase control thyristor/diode
						16			repetitive peak off-state
									voltage in 100 V
							L		eupec™ IsoPACK™
							P		EconoBridge™ 4
							R		EconoBRIDGE™ without integr.
									brake chopper IGBT
							RR		EconoBRIDGE™ with integr.
									brake chopper IGBT
								O	no guaranteed turn-off time
								F	critical rate of rise of
									off-state voltage

Type designation and topologies for IGBT Stacks

2	LS	20017	E4	2	W	36702	example for an IGBT Stacks
2							1/2 B2I
6							B6I
	MS						ModSTACK™ 3 or ModSTACK™ HD
	PS						PrimeSTACK™
	LS						ModSTACK™ C (Light STACK)
		300					Rated Chip Current at T_{Cmax}
							devided by 10
		17					V_{CES} maximum Collector-Voltage
							devided by 100
			E3				Fast switching IGBT3
			E4				Fast switching IGBT4
			P4				Soft switching IGBT4
				1			Frame size 1 at ModSTACK™ HD
				2			Frame size C2 ModSTACK™ C
				3			Frame size 3 at ModSTACK™3 and ModSTACK HD or frame size C3 at PrimeSTACK™
				4			Frame size C4 at PrimeSTACK™
				F			3 x frame size C4 at PrimeSTACK™
					G		Forced air cooling by cabinet fan
					W		Liquid cooled
						36702	Internal stack identification number

Type Designation for IGBT Stacks



Legend – Product name decipher

Presspacks

T	1190	N	18	T	O	F	VT	
T								thyristor
D								diode
	1190							maximum average on-state current [A]
	0							medium power ceramic disc
	1							high power ceramic disc
	3							light triggered thyristor disc
		N						phase control device
		K						phase control diode with cathode on case
		S						fast diode
		U						fast diode with cathode on case
		A						avalanche diode with anode on case
		B						avalanche diode with cathode on case
		SH						diode: soft recovery switch-off behavior
			18					maximum repetitive peak off-state and reverse voltage x 100 in V
				B				metric thread with cable
				C				metric thread with solder pin
				E				flat base
				T				disc
					O			no guaranteed turn-off time
								critical rate of off-state voltage
						C		500 V/µs
						F		1000 V/µs
						G		1500 V/µs
						H		2000 V/µs
							VT	on-state voltage class (thyristor) printed on housing
							VF	on-state voltage class (diode) printed on housing
					S01…n			electric selection
					B01…n			constructive variation

PowerBLOCK Modules

TT	162	N	16	K	O	F	-K	
TT								thyristor half bridge
DD								diode half bridge
ND								single diode
DZ								single diode
TZ								single thyristor
TD								thyristor/diode in half bridge housing
DT								diode/thyristor in half bridge housing
	162							maximum average on-state current [A]
		N						phase control device
		S						fast diode
			16					maximum repetitive off-state and reverse voltage x 100 in V
				K				module in pressure contact technology
				S				module in solder bond technology
					O			no guaranteed turn off time
								critical rate of of rise of off-state voltage (see disc devices)
						C		500 V/µs
						F		1000 V/µs
						G		1500 V/µs
						H		2000 V/µs
							-K	with common cathode terminal
							-A	with common anode terminal
					B01…n			constructive variation
					S01…n			electrical selection

Glossary

B	DC current gain
FBSOA	forward biased safe operating area
f	frequency
f_o	repetition frequency
F	clamping force
G	weight
I_C	maximum permissible DC collector current
I_{CAVM}	maximum permiss. average collector current
I_{CES}	collector-emitter cut-off current
I_{GES}	gate-leakage current
I_{CRM}	permissible repetitive peak collector current
i_D	forward off-state current
i_G	gate current
I_{GD}	gate non trigger current
i_{GM}	peak gate current
I_{GT}	gate trigger current
I_H	holding current
I_L	latching current
i_R	reverse current
I_{RMS}	RMS current
I_{RM}	peak reverse recovery current
i_T/i_F	on-state current
I_{TAV}/I_{FAV}	on-state current (average value)
I_{TAVM}/I_{FAVM}	maximum average on-state current
I_{TINT}/I_{FINT}	on-state current at intermittent duty
I_{TM}/I_{FM}	on-state current (peak value)
$I_{T(OV)}/I_{F(OV)}$	on-state current at shorttime duty
$I_{T(OV)M}/I_{F(OV)M}$	maximum overload on-state current
$I_{T(RC)M}$	repetitive turn-on current (from snubber)
I_{TRMSM}/I_{FRMSM}	maximum RMS on-state current
I_{TSM}/I_{FSM}	surge non repetitive on-state current
I_F	DC forward current
I_{FRM}	repetitve peak forward current
$\int i^2 dt$	I^2t value
di_G/dt	rate of rise of gate current
$di_T/dt/di_F/dt$	rate of rise of on-state current
$(di/dt)_{cr}$	critical rate of rise of on-state current
L	inductance
M	mounting torque
P_{ON}	turn-on dissipation
P_{OFF}	turn-off dissipation
P	power dissipation
P_D	forward off-state dissipation
P_G	gate dissipation
P_R	reverse power dissipation
P_{RQ}	turn-off dissipation
$P_{TT} + P_{RQ}$	switching dissipation
P_T/P_F	on-state power dissipation
P_{TAV}/P_{FAV}	on-state power dissipation (average value)
P_{TT}	turn-on dissipation
P_{tot}	total power dissipation
Q_r	recovered charge
Q_s	lag charge
R	resistance
r_T	slope resistance
R_{thCA}	thermal resistance, case to coolant
R_{thCK}	thermal resistance, case to heatsink
R_{thJA}	thermal resistance, junction to coolant
R_{thJC}	thermal resistance, junction to case
RBSOA	reverse biased safe operating area
t	time
T	period
T_A	coolant temperature
T_C	case temperature
T_{op}	operating temperature
t_g	trigger pulse duration
t_{gd}	gate controlled delay time
T_h	heatsink temperature
t_p	current pulse duration (sinusoidal)
t_q	circuit commutated turn-off time
t_{rr}	reverse recovery time
T_{vj}	junction temperature
$T_{vj\,max}$	maximum permissible junction temperature
t_w	current pulse duration (trapezoidal)
t_f	fall time
t_{off}	turn-off time
t_{on}	turn-on time
t_s	storage time
$T_{vj\,op}$	junction operating temperature
T_{stg}	storage temperature
v_D	forward off-state voltage
v_{DM}	forward off-state voltage (peak value)
V_{DRM}	repetitive peak forward off-state voltage
V_{DSM}	non-repetitive peak forward off-state voltage
v_G	gate voltage
V_{GD}	gate non trigger voltage
$V_{GE\,(th)}$	gate threshold voltage
V_{GT}	gate trigger voltage
V_{ISOL}	insulation test voltage
v_L	no-load voltage of trigger pulse generator
v_R	reverse voltage
V_R	direct reverse voltage
$V_{R(D)}$	continuous diode reverse voltage
V_{RG}	reverse gate voltage
V_{RGM}	peak reverse gatevoltage
v_{RM}	reverse voltage (peak value)
V_{RMS} V_{DC}	RMS or DC voltage value
V_{RRM}	repetitive reverse voltage
$V_{RRM(C)}$	repetitive peak reverse voltage after commutation
V_{RSM}	non-repetitive peak reverse voltage
v_T/v_F	on-state voltage
$V_{(TO)}$	threshold voltage
V_M	repetitive peak voltage
$V_{CE\,sat}$	collector-emitter saturation voltage
V_{CES}, V_{CE}	maximum permissible collector-emitter voltage
dv_D/dt	rate of rise of forward off-state voltage
dv_R/dt	rate of rise of reverse voltage
$(dv/dt)_{cr}$	critical rate of rise of off-state voltage
V_L	air quantity
V_W	water quantity
W	energy
W_{tot}	total energy
Z_{thCA}	transient thermal impedance, case to coolant
Z_{thJA}	transient thermal impedance, junction to coolant
Z_{thJC}	transient thermal impedance, junction to case
Q	current conduct. angle