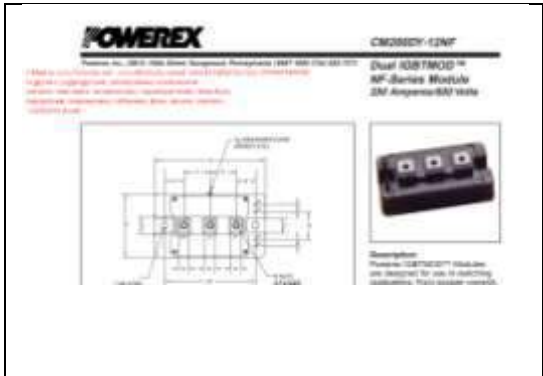



CM200DY-12NF igbt модуль, Минск т.80447584780

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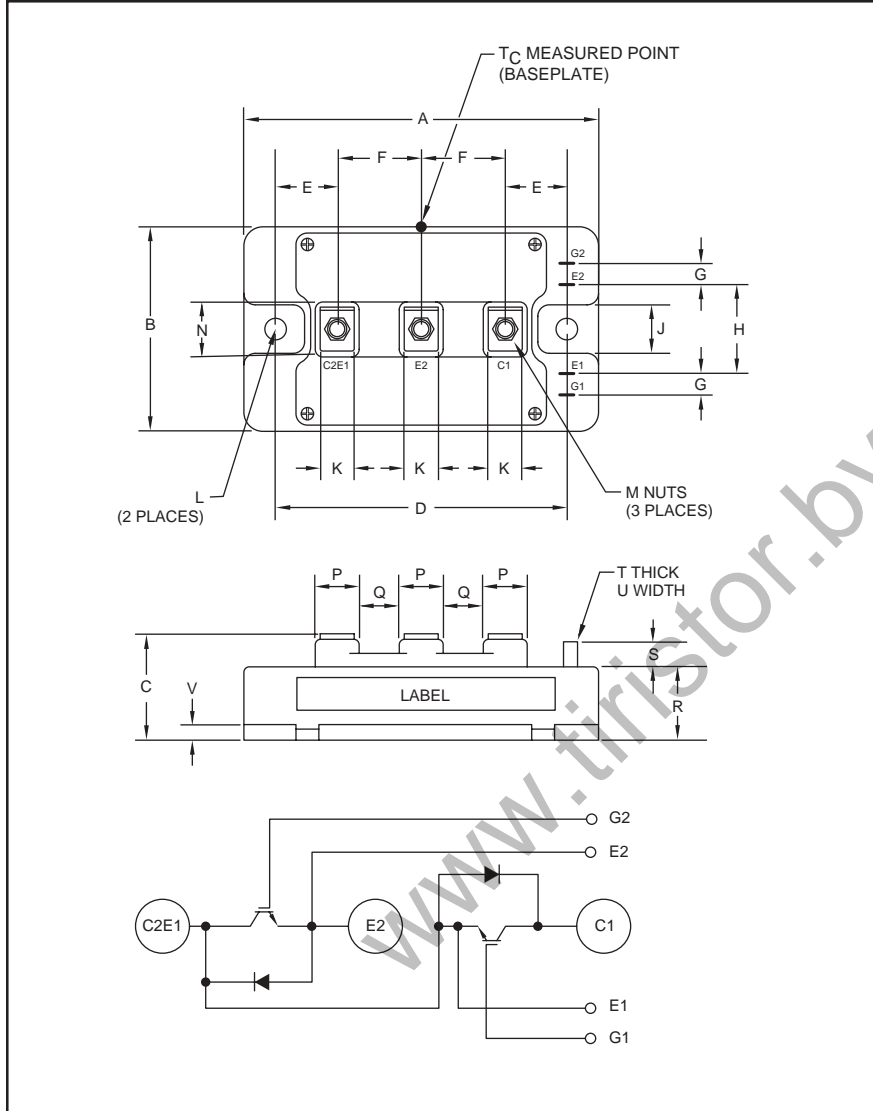
email minsk17@tut.by tel.+375 29 758 47 80 МТС

Powerex, IGBT, 200A, 600V, CM200DY-12NF, mitsubishi, каталог, описание, технические, характеристики, datasheet, параметры, маркировка, габариты, фото, даташит,

 <p>The image shows a technical datasheet for the CM200DY-12NF IGBT module. It features the Powerex logo at the top left. The main title is 'CM200DY-12NF Dual IGBT/MOSFET NF-Series Module 2M Ampere/600 Volt'. Below the title, there is a schematic diagram of the module's internal structure and a photograph of the physical component. The schematic shows the internal layout of the IGBT and MOSFET chips, with various electrical connections and components labeled. The photograph shows the module's physical appearance, which is a rectangular component with several pins and a cooling tab.</p>	<p>QR код</p>  <p>A QR code is located in the right-hand section of the image, labeled 'QR код'. The QR code is a standard black and white matrix code used for quick access to digital content.</p>
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Dual IGBTMOD™ NF-Series Module 200 Amperes/600 Volts



Outline Drawing and Circuit Diagram

Dimensions	Inches	Millimeters
A	3.70	94.0
B	1.89	48.0
C	1.14+0.04/-0.02	29.0+1.0/-0.5
D	3.15±0.01	80.0±0.25
E	0.67	17.0
F	0.91	23.0
G	0.16	4.0
H	0.71	18.0
J	0.51	13.0
K	0.47	12.0

Dimensions	Inches	Millimeters
L	0.26 Dia.	Dia. 6.5
M	M5 Metric	M5
N	0.79	20.0
P	0.63	16.0
Q	0.28	7.0
R	0.83	21.2
S	0.30	7.5
T	0.02	0.5
U	0.110	2.8
V	0.16	4.0



Description:

Powerex IGBTMOD™ Modules are designed for use in switching applications. Each module consists of two IGBT Transistors in a half-bridge configuration with each transistor having a reverse-connected super-fast recovery free-wheel diode. All components and interconnects are isolated from the heat sinking baseplate, offering simplified system assembly and thermal management.

Features:

- Low Drive Power
- Low $V_{CE(sat)}$
- Discrete Super-Fast Recovery Free-Wheel Diode
- Isolated Baseplate for Easy Heat Sinking

Applications:

- AC Motor Control
- UPS
- Battery Powered Supplies

Ordering Information:

Example: Select the complete part module number you desire from the table below -i.e. CM200DY-12NF is a 600V (V_{CES}), 200 Ampere Dual IGBTMOD™ Power Module.

Type	Current Rating Amperes	V_{CES} Volts (x 50)
CM	200	12

CM200DY-12NF
Dual IGBTMOD™ NF-Series Module
 200 Amperes/600 Volts

Absolute Maximum Ratings, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Ratings	Symbol	CM200DY-12NF	Units
Junction Temperature	T_j	-40 to 150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 to 125	$^\circ\text{C}$
Collector-Emitter Voltage (G-E Short)	V_{CES}	600	Volts
Gate-Emitter Voltage (C-E Short)	V_{GES}	± 20	Volts
Collector Current*** (DC, $T_C = 93^\circ\text{C}$)	I_C	200	Amperes
Peak Collector Current	I_{CM}	400*	Amperes
Emitter Current** ($T_C = 25^\circ\text{C}$)	I_E	200	Amperes
Peak Emitter Current**	I_{EM}	400*	Amperes
Maximum Collector Dissipation ($T_C = 25^\circ\text{C}$, $T_j \leq 150^\circ\text{C}$)	P_C	650	Watts
Mounting Torque, M5 Main Terminal	—	30	in-lb
Mounting Torque, M6 Mounting	—	40	in-lb
Weight	—	310	Grams
Isolation Voltage (Main Terminal to Baseplate, AC 1 min.)	V_{ISO}	2500	Volts

*Pulse width and repetition rate should be such that device junction temperature (T_j) does not exceed $T_{j\text{MAX}}$ rating.

Static Electrical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector-Cutoff Current	I_{CES}	$V_{\text{CE}} = V_{\text{CES}}$, $V_{\text{GE}} = 0\text{V}$	—	—	1.0	mA
Gate Leakage Current	I_{GES}	$V_{\text{GE}} = V_{\text{GES}}$, $V_{\text{CE}} = 0\text{V}$	—	—	0.5	μA
Gate-Emitter Threshold Voltage	$V_{\text{GE(th)}}$	$I_C = 20\text{mA}$, $V_{\text{CE}} = 10\text{V}$	5.0	6.0	7.5	Volts
Collector-Emitter Saturation Voltage	$V_{\text{CE(sat)}}$	$I_C = 200\text{A}$, $V_{\text{GE}} = 15\text{V}$, $T_j = 25^\circ\text{C}$	—	1.7	2.2	Volts
		$I_C = 200\text{A}$, $V_{\text{GE}} = 15\text{V}$, $T_j = 125^\circ\text{C}$	—	1.7	—	Volts
Total Gate Charge	Q_G	$V_{\text{CC}} = 300\text{V}$, $I_C = 200\text{A}$, $V_{\text{GE}} = 15\text{V}$	—	800	—	nC
Emitter-Collector Voltage**	V_{EC}	$I_E = 200\text{A}$, $V_{\text{GE}} = 0\text{V}$	—	—	2.6	Volts

Dynamic Electrical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Capacitance	C_{ies}		—	—	30	nf
Output Capacitance	C_{oes}	$V_{\text{CE}} = 10\text{V}$, $V_{\text{GE}} = 0\text{V}$	—	—	3.7	nf
Reverse Transfer Capacitance	C_{res}		—	—	1.2	nf
Inductive Load	Turn-on Delay Time	$V_{\text{CC}} = 300\text{V}$, $I_C = 200\text{A}$,	—	—	120	ns
	Rise Time					
Switch Time	Turn-off Delay Time	$V_{\text{GE1}} = V_{\text{GE2}} = 15\text{V}$, $R_G = 3.1\Omega$,	—	—	300	ns
	Fall Time					
Diode Reverse Recovery Time**	t_{rr}	Inductive Load	—	—	300	ns
Diode Reverse Recovery Charge**	Q_{rr}	Switching Operation, $I_E = 200\text{A}$	—	3.5	—	μC

*Pulse width and repetition rate should be such that device junction temperature (T_j) does not exceed $T_{j(\text{max})}$ rating.

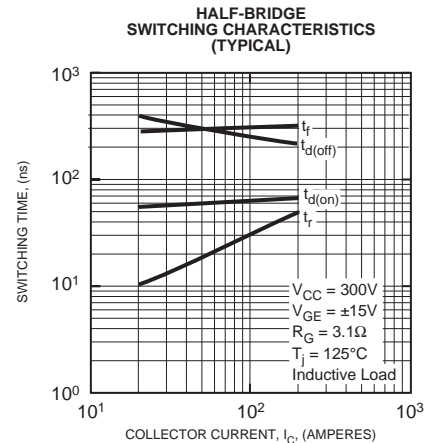
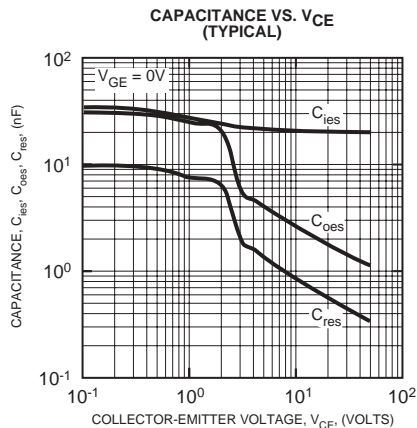
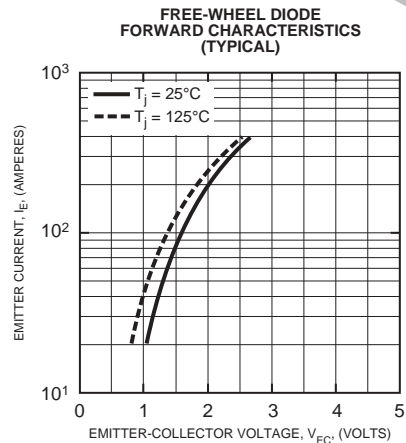
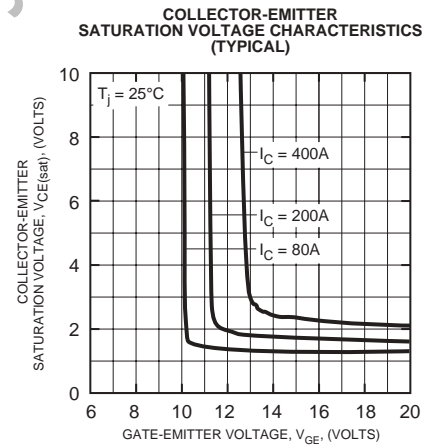
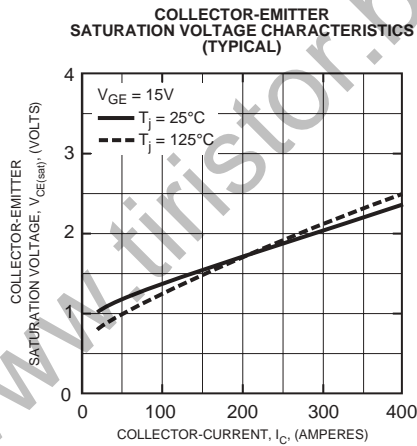
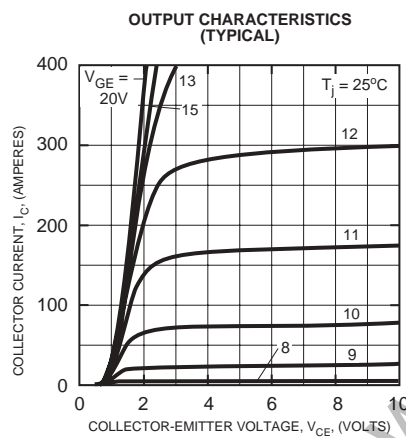
**Represents characteristics of the anti-parallel, emitter-to-collector free-wheel diode (FWDi)

*** T_c measured point is just under chips. If this value is used, $R_{\text{th(f-a)}}$ should be measured just under chips

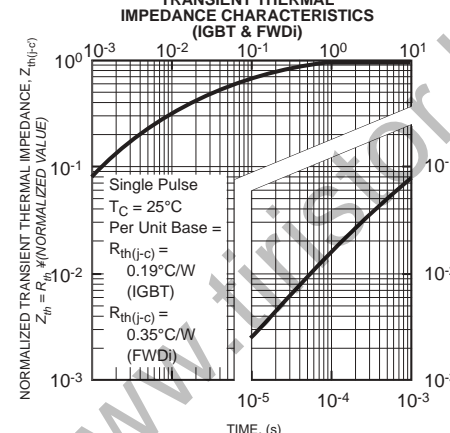
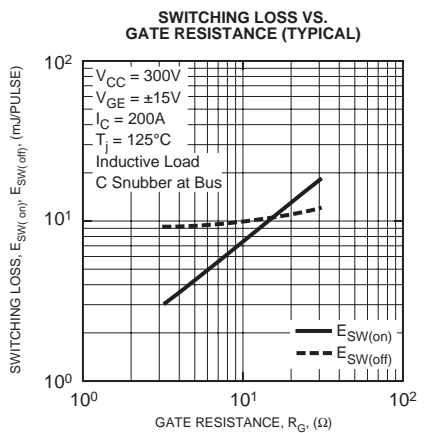
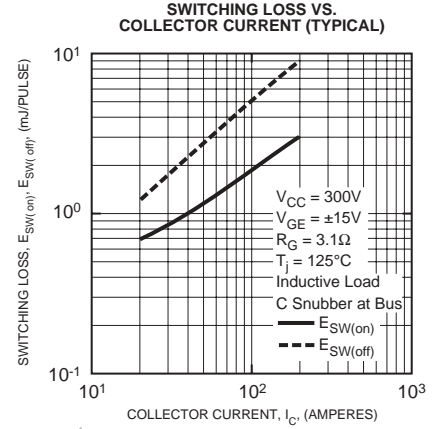
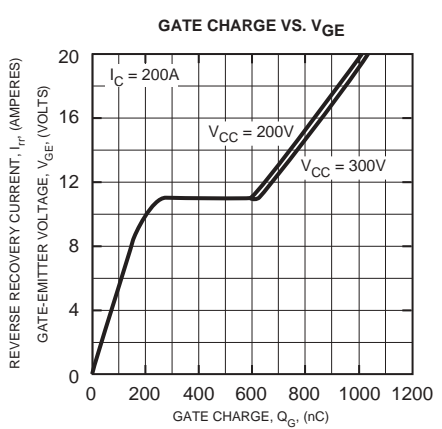
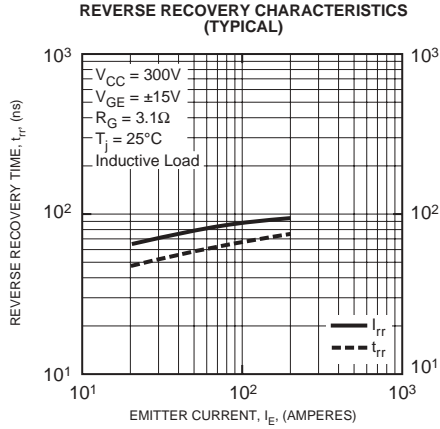
CM200DY-12NF
Dual IGBTMOD™ NF-Series Module
 200 Amperes/600 Volts

Thermal and Mechanical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{th(j-c)Q}$	Per IGBT 1/2 Module, T_C Reference Point per Outline Drawing	—	—	0.19	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{th(j-c)D}$	Per FWDi 1/2 Module, T_C Reference Point per Outline Drawing	—	—	0.35	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{th(j-c)Q}$	Per IGBT 1/2 Module, T_C Reference Point Under Chips	—	—	0.13	$^\circ\text{C/W}$
Contact Thermal Resistance	$R_{th(c-f)}$	Per 1/2 Module, Thermal Grease Applied	—	0.07	—	$^\circ\text{C/W}$
External Gate Resistance	R_G		3.1	—	31	Ω



CM200DY-12NF
Dual IGBTMOD™ NF-Series Module
 200 Amperes/600 Volts



MITSUBISHI IGBT MODULES
CM200DY-12NF

HIGH POWER SWITCHING USE

CM200DY-12NF



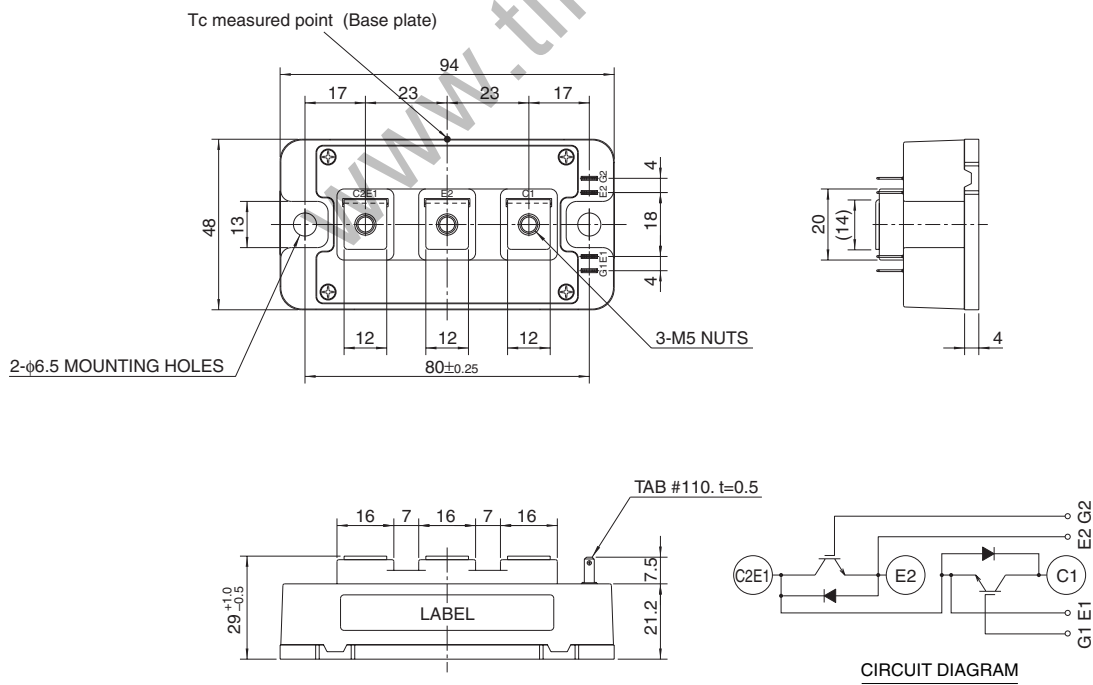
- IC 200A
- VCES 600V
- Insulated Type
- 2-elements in a pack

APPLICATION

General purpose inverters & Servo controls, etc

OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



CM200DY-12NF

HIGH POWER SWITCHING USE

MAXIMUM RATINGS (Tj = 25°C, unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
VCES	Collector-emitter voltage	G-E Short	600	V
VGES	Gate-emitter voltage	C-E Short	±20	V
IC	Collector current	DC, Tc' = 93°C ^{*3}	200	A
ICM		Pulse (Note 2)	400	A
IE (Note 1)	Emitter current		200	A
IEM (Note 1)		Pulse (Note 2)	400	A
PC (Note 3)	Maximum collector dissipation	Tc = 25°C	650	W
Tj	Junction temperature		-40 ~ +150	°C
Tstg	Storage temperature		-40 ~ +125	°C
Viso	Isolation voltage	Terminals to base plate, f = 60Hz, AC 1 minute	2500	Vrms
—	Torque strength	Main terminals M5 screw	2.5 ~ 3.5	N • m
—		Mounting M6 screw	3.5 ~ 4.5	N • m
—	Weight	Typical value	310	g

ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
ICES	Collector cutoff current	VCE = VCES, VGE = 0V	—	—	1	mA
VGE(th)	Gate-emitter threshold voltage	IC = 20mA, VCE = 10V	5	6	7.5	V
IGES	Gate leakage current	±VGE = VGES, VCE = 0V	—	—	0.5	µA
VCE(sat)	Collector-emitter saturation voltage	IC = 200A, VGE = 15V	Tj = 25°C		2.2	V
			Tj = 125°C		—	
Cies	Input capacitance	VCE = 10V VGE = 0V	—	—	30	nF
Coes	Output capacitance		—	—	3.7	nF
Cres	Reverse transfer capacitance		—	—	1.2	nF
QG	Total gate charge	VCC = 300V, IC = 200A, VGE = 15V	—	800	—	nC
td(on)	Turn-on delay time	VCC = 300V, IC = 200A VGE = ±15V RG = 3.1Ω, Inductive load IE = 200A	—	—	120	ns
tr	Turn-on rise time		—	—	120	ns
td(off)	Turn-off delay time		—	—	300	ns
tf	Turn-off fall time		—	—	300	ns
trr (Note 1)	Reverse recovery time		—	—	150	ns
Qrr (Note 1)	Reverse recovery charge		—	3.5	—	µC
VEC(Note 1)	Emitter-collector voltage	IE = 200A, VGE = 0V	—	—	2.6	V
Rth(j-c)Q	Thermal resistance ^{*1}	IGBT part (1/2 module)	—	—	0.19	K/W
Rth(j-c)R		FWDi part (1/2 module)	—	—	0.35	K/W
Rth(c-f)	Contact thermal resistance	Case to heat sink, Thermal compound Applied ^{*2} (1/2 module)	—	0.07	—	K/W
Rth(j-c')Q	Thermal resistance	Case temperature measured point is just under the chips	—	—	0.13 ^{*3}	K/W
RG	External gate resistance		3.1	—	31	Ω

*1 : Case temperature (Tc) measured point is shown in page OUTLINE DRAWING.

*2 : Typical value is measured by using thermally conductive grease of λ = 0.9[W/(m • K)].

*3 : Case temperature (Tc) measured point is just under the chips.

If you use this value, Rth(f-a) should be measured just under the chips.

Note 1. IE, VEC, trr & Qrr represent characteristics of the anti-parallel, emitter-collector free-wheel diode (FWDi).

2. Pulse width and repetition rate should be such that the device junction temperature (Tj) does not exceed Tjmax rating.

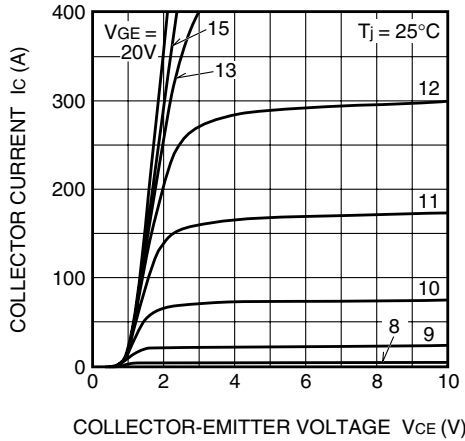
3. Junction temperature (Tj) should not increase beyond 150°C.

CM200DY-12NF

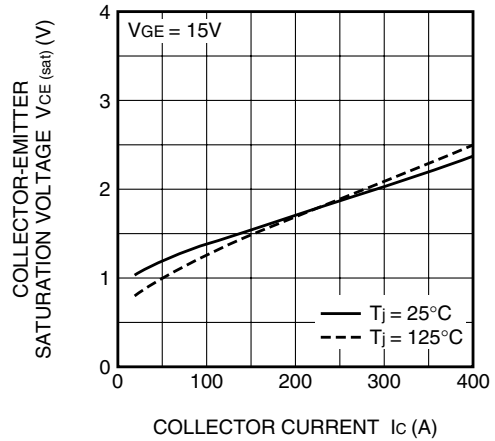
HIGH POWER SWITCHING USE

PERFORMANCE CURVES

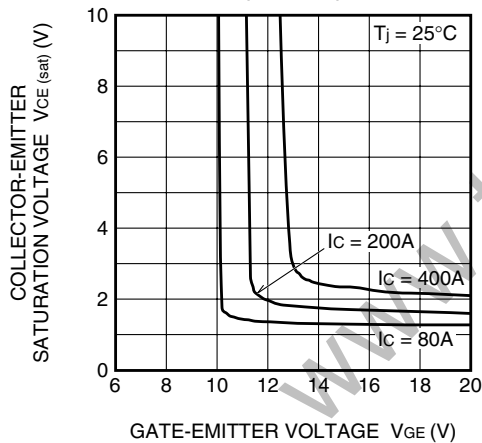
OUTPUT CHARACTERISTICS (TYPICAL)



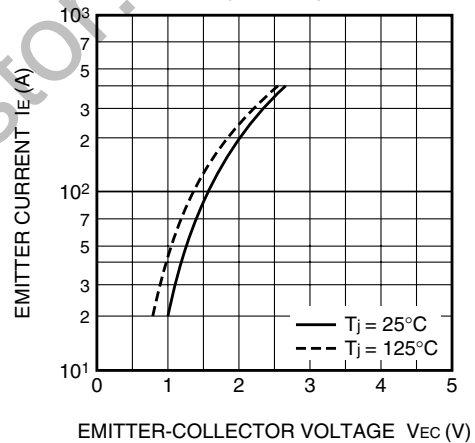
COLLECTOR-EMITTER SATURATION VOLTAGE CHARACTERISTICS (TYPICAL)



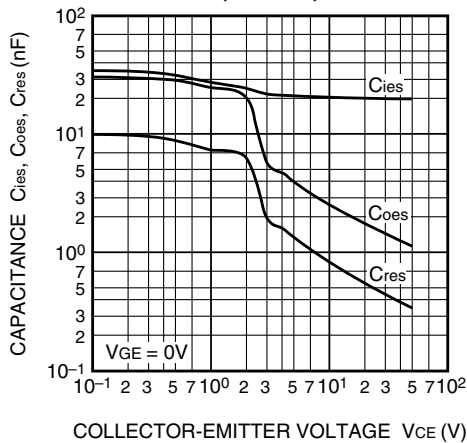
COLLECTOR-EMITTER SATURATION VOLTAGE CHARACTERISTICS (TYPICAL)



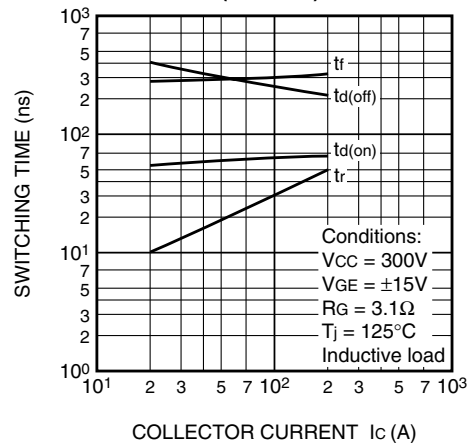
FREE-WHEEL DIODE FORWARD CHARACTERISTICS (TYPICAL)



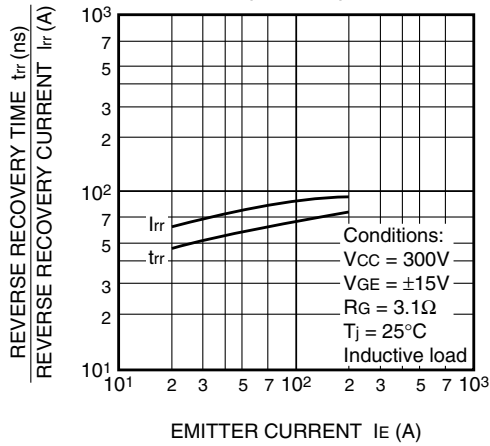
CAPACITANCE-VCE CHARACTERISTICS (TYPICAL)



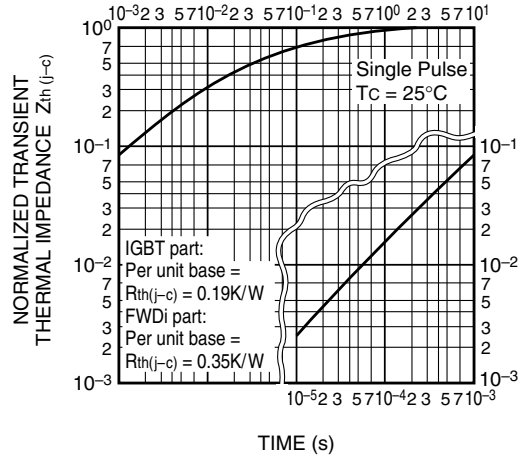
HALF-BRIDGE SWITCHING CHARACTERISTICS (TYPICAL)



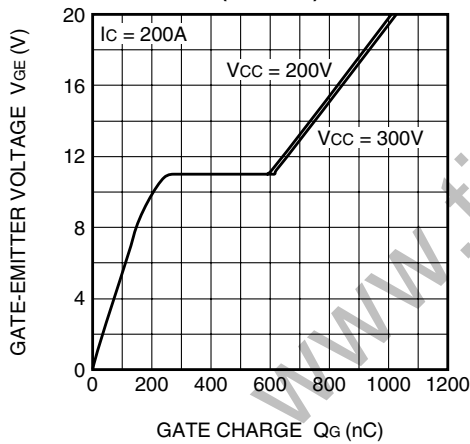
REVERSE RECOVERY CHARACTERISTICS OF FREE-WHEEL DIODE (TYPICAL)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (IGBT part & FWDi part)



GATE CHARGE CHARACTERISTICS (TYPICAL)

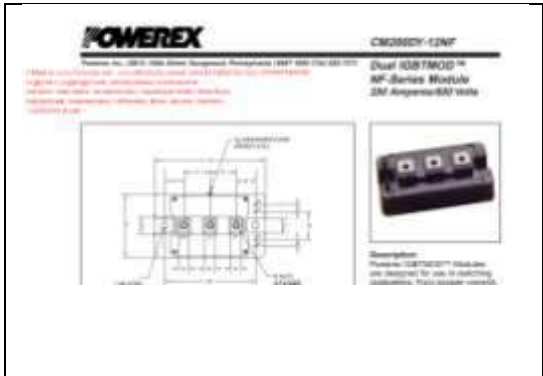



CM200DY-12NF igbt модуль, Минск т.80447584780

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email minsk17@tut.by tel.+375 29 758 47 80 МТС

Powerex, IGBT, 200A, 600V, CM200DY-12NF, mitsubishi, каталог, описание, технические, характеристики, datasheet, параметры, маркировка, габариты, фото, даташит,

	<p>QR код</p> 
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