

IGBT Module-Dual

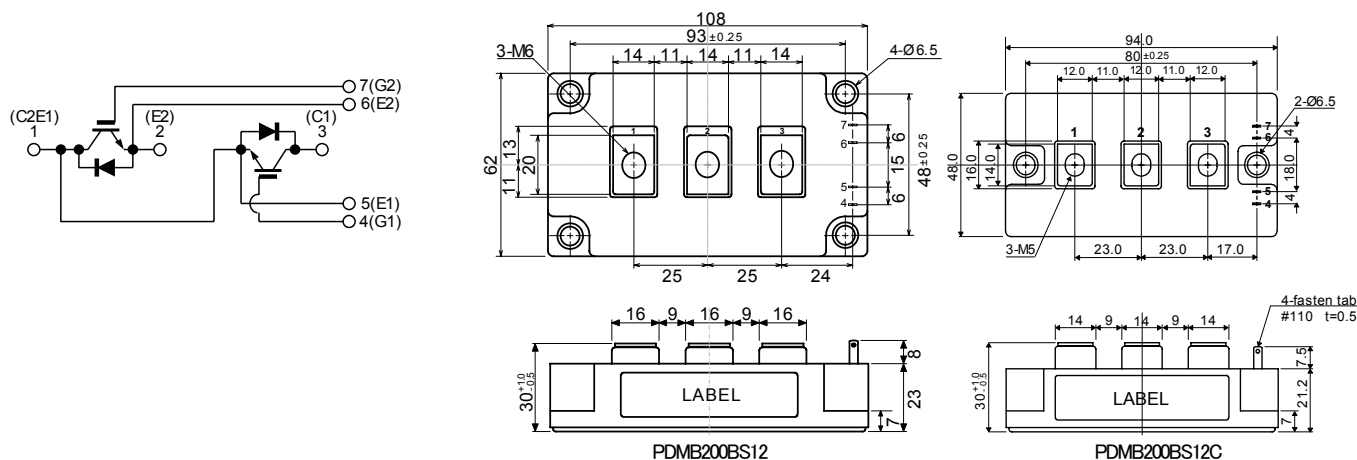
200 A, 1200V

PDMB200BS12

PDMB200BS12C

□ 回路図 : CIRCUIT

□ 外形寸法図 : OUTLINE DRAWING



Dimension: [mm]

□ 最大定格 : MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$)

Item	Symbol	Rated Value		Unit
コレクタ・エミッタ間電圧 Collector-Emitter Voltage	V_{CES}	1,200		V
ゲート・エミッタ間電圧 Gate-Emitter Voltage	V_{GES}	± 20		V
コレクタ電流 Collector Current	DC	I_C	200	A
	1ms	I_{CP}	400	
コレクタ損失 Collector Power Dissipation	P_C	1,200		W
接合温度 Junction Temperature Range	T_j	$-40 \sim +150$		$^\circ\text{C}$
保存温度 Storage Temperature Range	T_{stg}	$-40 \sim +125$		$^\circ\text{C}$
絶縁耐圧(Terminal to Base AC, 1 minute) Isolation Voltage	V_{ISO}	2,500		V (RMS)
締め付けトルク Mounting Torque	Module Base to Heatsink	PDMB200BS12	3 (30.6)	N·m (kgf·cm)
	Busbar to Main Terminal		3 (30.6)	
		PDMB200BS12C	3 (30.6)	
			2 (20.4)	

□ 電気的特性 : ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
コレクタ遮断電流 Collector-Emitter Cut-Off Current	I_{CES}	$V_{CE} = 1200\text{V}, V_{GE} = 0\text{V}$	—	—	2.0	mA
ゲート漏れ電流 Gate-Emitter Leakage Current	I_{GES}	$V_{GE} = \pm 20\text{V}, V_{CE} = 0\text{V}$	—	—	1.0	μA
コレクタ・エミッタ間飽和電圧 Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 200\text{A}, V_{GE} = 15\text{V}$	—	2.3	2.7	V
ゲートしきい値電圧 Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$V_{CE} = 5\text{V}, I_C = 200\text{mA}$	4.0	—	8.0	V
入力容量 Input Capacitance	C_{ies}	$V_{CE} = 10\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$	—	12,600	—	pF
スイッチング時間 Switching Time	上昇時間 Rise Time	$V_{CC} = 600\text{V}$ $R_L = 3.0\Omega$ $R_G = 7.5\Omega$ $V_{GE} = \pm 15\text{V}$	—	0.25	0.45	μs
	ターンオン時間 Turn-on Time		—	0.40	0.70	
	下降時間 Fall Time		—	0.25	0.35	
	ターンオフ時間 Turn-off Time		—	0.80	1.10	

□ フリーホイーリングダイオードの特性 : FREE WHEELING DIODE RATINGS & CHARACTERISTICS ($T_c = 25^\circ\text{C}$)

I t e m		S y m b o l	R a t e d V a l u e		U n i t	
順電流 Forward Current	DC	I_F	200		A	
	1ms	I_{FM}	400			

C h a r a c t e r i s t i c		S y m b o l	T e s t C o n d i t i o n	M i n .	T y p .	M a x .	U n i t
順電圧 Peak Forward Voltage		V_F	$I_F = 200A, V_{GE} = 0V$	—	2.2	2.6	V
逆回復時間 Reverse Recovery Time		t_{rr}	$I_F = 200A, V_{GE} = -10V$ $di/dt = 400A/\mu s$	—	0.2	0.3	μs

□ 熱的特性 : THERMAL CHARACTERISTICS

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
熱抵抗 Thermal Impedance	IGBT	Junction to Case (T_c 測定点チップ直下)	—	—	0.104	$^\circ\text{C}/\text{W}$
	Diode		—	—	0.214	

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Fig.1- Output Characteristics (Typical)

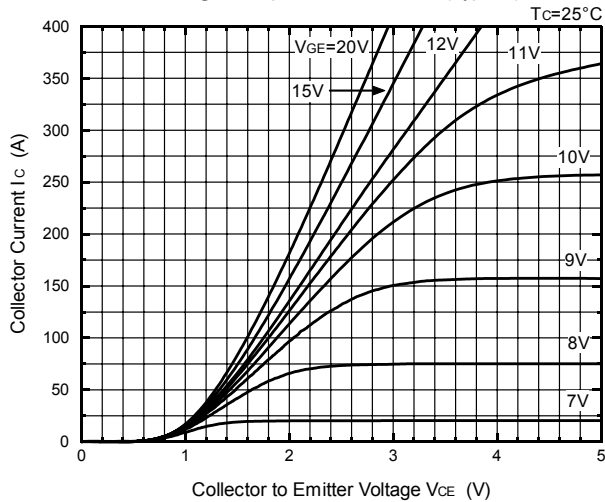


Fig.2- Output Characteristics (Typical)

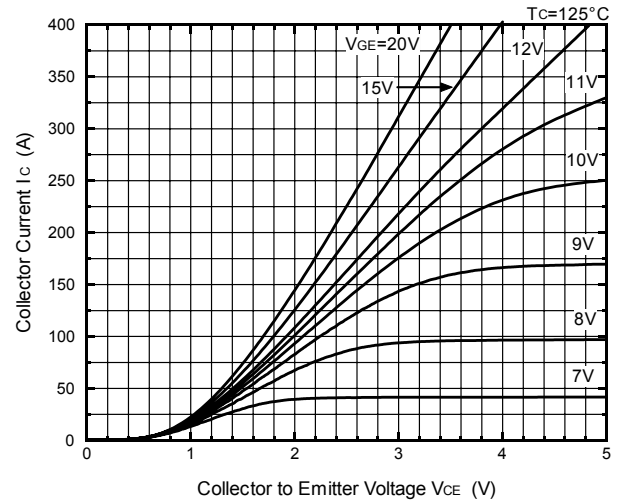


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

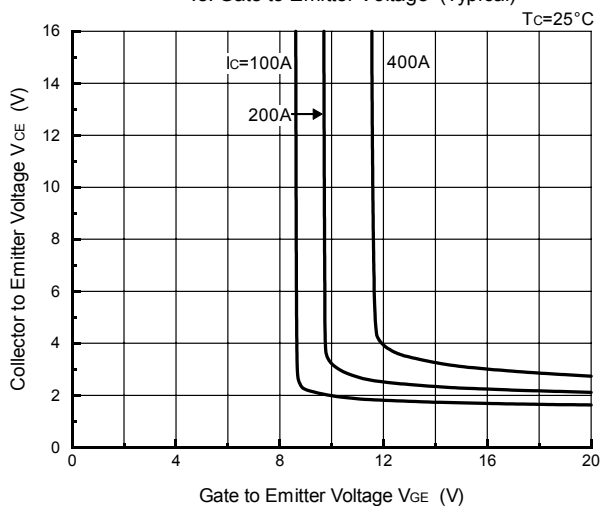


Fig.4- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

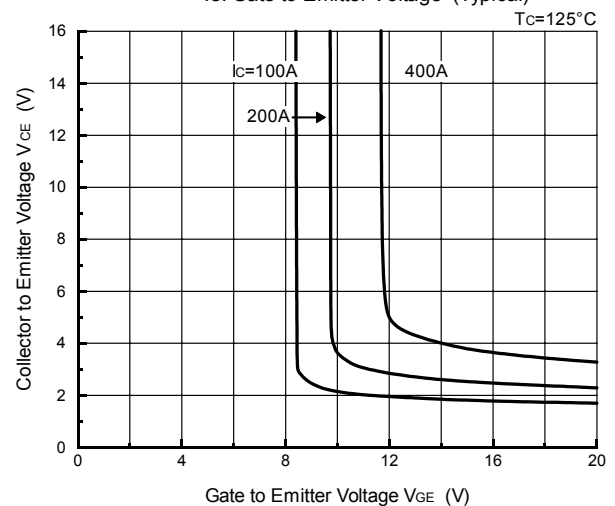


Fig.5- Gate Charge vs. Collector to Emitter Voltage (Typical)

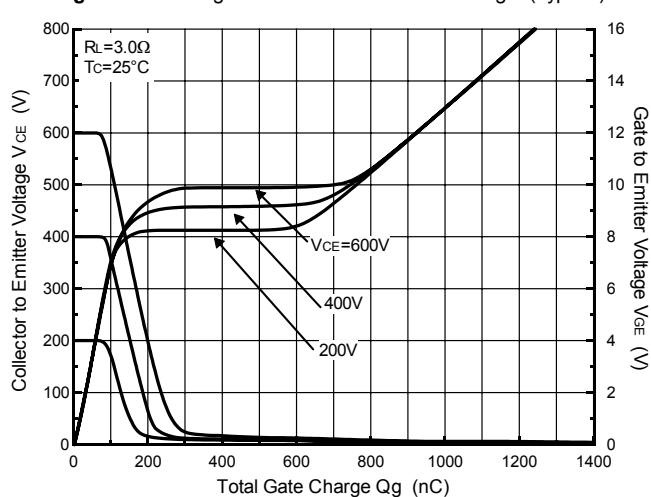
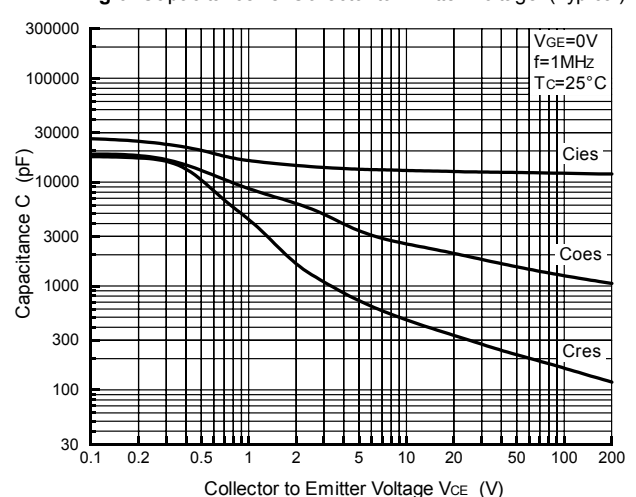


Fig.6- Capacitance vs. Collector to Emitter Voltage (Typical)



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Fig.7- Collector Current vs. Switching Time (Typical)

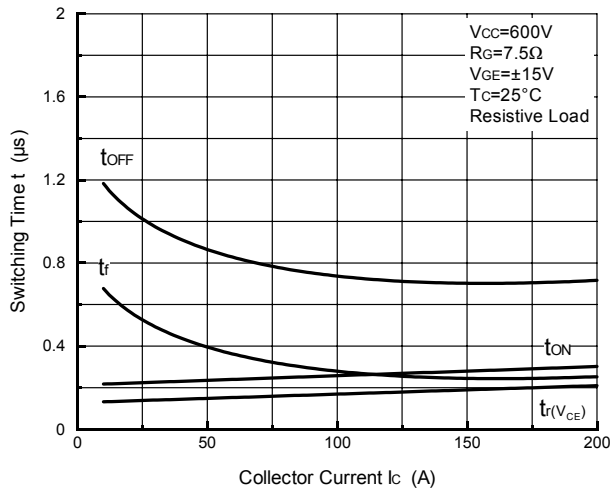


Fig.8- Series Gate Impedance vs. Switching Time (Typical)

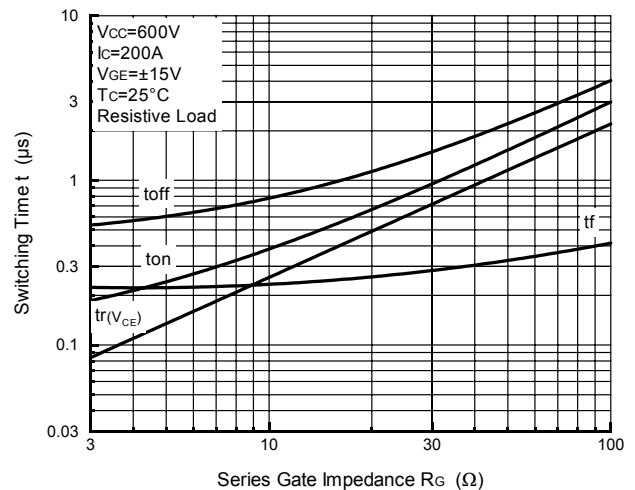


Fig.9- Collector Current vs. Switching Time

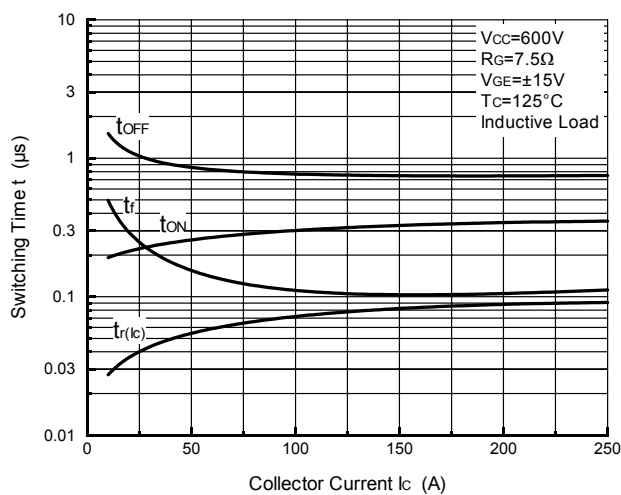


Fig.10- Series Gate Impedance vs. Switching Time

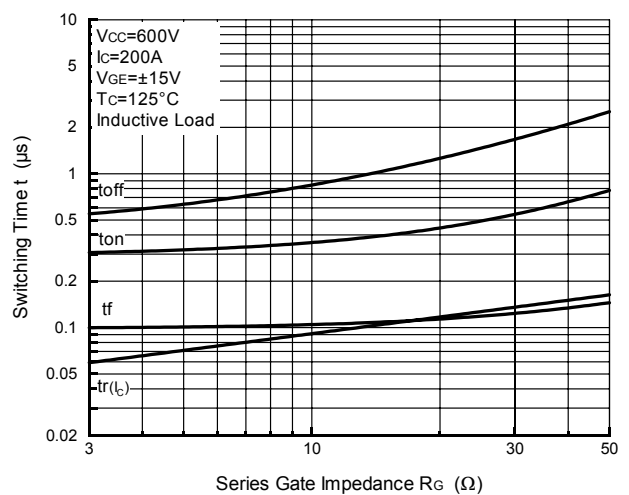


Fig.11- Collector Current vs. Switching Loss

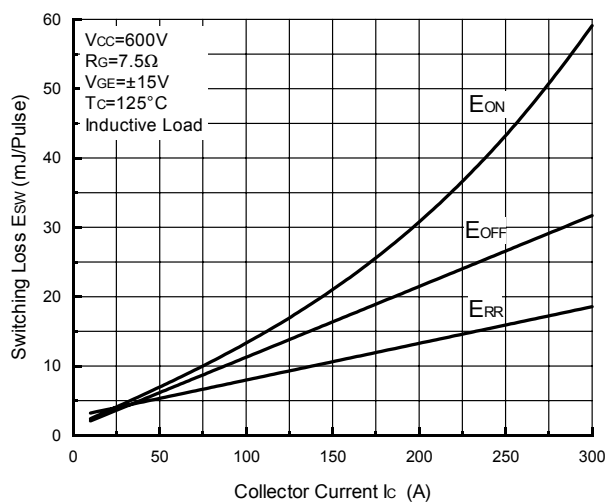
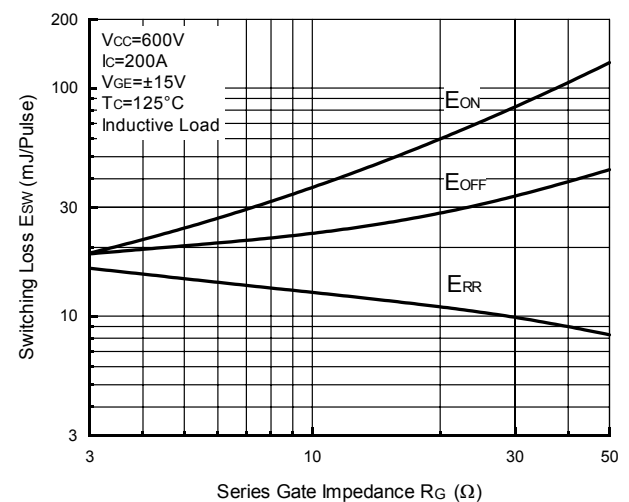
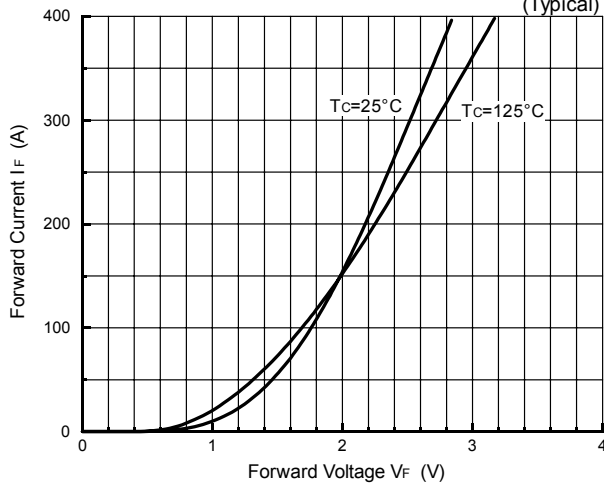
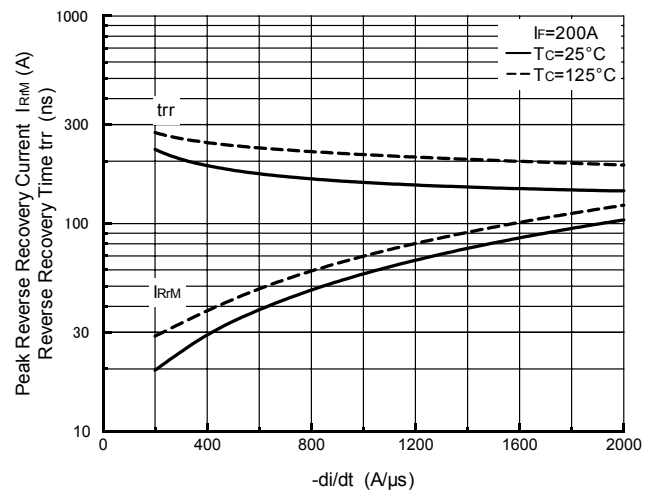
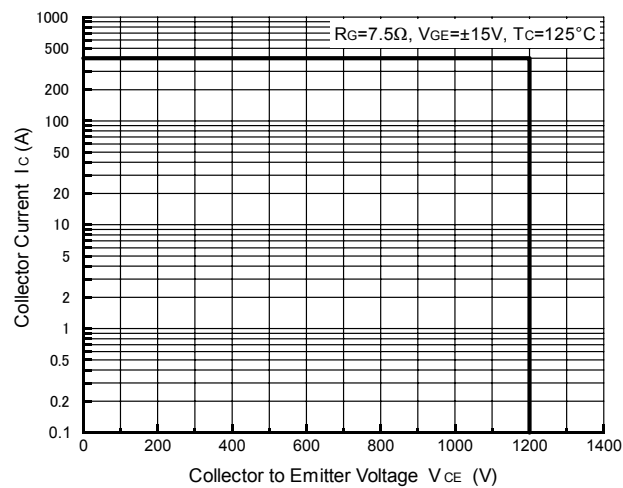


Fig.12- Series Gate Impedance vs. Switching Loss



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Fig.13- Forward Characteristics of Free Wheeling Diode (Typical)**Fig.14- Reverse Recovery Characteristics (Typical)****Fig.15- Reverse Bias Safe Operating Area****Fig.16- Transient Thermal Impedance**