

IGBT Module-Dual

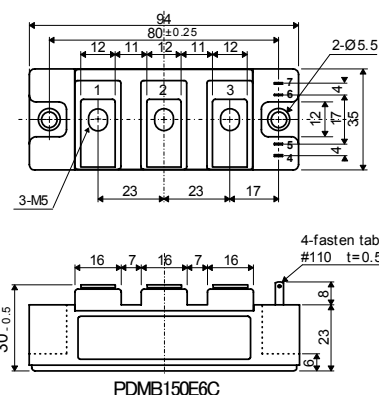
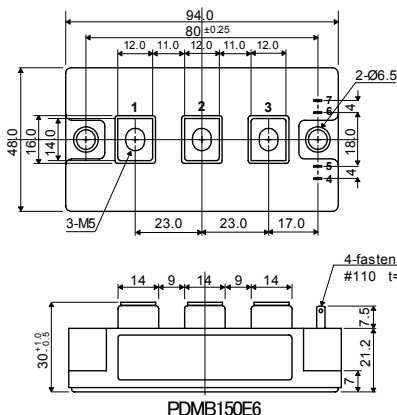
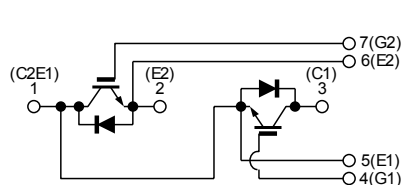
150 A, 600V

PDMB150E6

PDMB150E6C

□ 回路図 : CIRCUIT

□ 外形寸法図 : OUTLINE DRAWING



Dimension: [mm]

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

I t e m		S y m b o l	R a t e d V a l u e			U n i t	
コレクタ・エミッタ間電圧 Collector-Emitter Voltage		V_{CES}	6 0 0			V	
ゲート・エミッタ間電圧 Gate-Emitter Voltage		V_{GES}	$\pm 2 0$			V	
コレクタ電流 Collector Current	DC	I_C	1 5 0			A	
	1 m s	I_{CP}	3 0 0				
コレクタ損失 Collector Power Dissipation		P_C	5 6 0			W	
接合温度 Junction Temperature Range		T_j	− 4 0 ∼ + 1 5 0			℃	
保存温度 Storage Temperature Range		T_{stg}	− 4 0 ∼ + 1 2 5			℃	
絶縁耐圧(Terminal to Base AC, 1 minute) Isolation Voltage		V_{ISO}	2, 5 0 0			$V_{(RMS)}$	
締め付けトルク Mounting Torque	Module Base to Heatsink	F_{tor}	PDMB150E6	3 (30.6)	PDMB150E6C	2 (20.4)	$N \cdot m$ (kgf・cm)
	Busbar to Main Terminal			2 (20.4)		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}	$V_{CE} = 600V, V_{GE} = 0V$	—	—	1.0	mA
ゲート漏れ電流 Gate-Emitter Leakage Current	I_{GES}	$V_{GE} = \pm 20V, V_{CE} = 0V$	—	—	1.0	μA
コレクタ・エミッタ間飽和電圧 Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 150A, V_{GE} = 15V$	—	2.1	2.6	V
ゲートしきい値電圧 Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$V_{CE} = 5V, I_C = 150mA$	4.0	—	8.0	V
入力容量 Input Capacitance	C_{ies}	$V_{CE} = 10V, V_{GE} = 0V, f = 1MHz$	—	7,500	—	pF
スイッチング時間 Switching Time	上昇時間 Rise Time	$V_{CC} = 300V$ $R_L = 2.0\Omega$ $R_G = 5.1\Omega$ $V_{GE} = \pm 15V$	—	0.15	0.30	μs
	ターンオン時間 Turn-on Time		—	0.25	0.40	
	下降時間 Fall Time		—	0.10	0.35	
	ターンオフ時間 Turn-off Time		—	0.35	0.70	

□ 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 _r	150		A	
	1ms	I _{FM}	300			

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 = 150A, V _{GE} = 0V	—	1.9	2.4	V
逆回復時間 Reverse Recovery Time		t _{rr}	I _F = 150A, V _{GE} = -10V di/dt = 300A/μs	—	0.15	0.25	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)	—	—	0.22	$^\circ\text{C}/\text{W}$
	Diode		—	—	0.45	

PDMB150E6

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Fig.1- Output Characteristics (Typical)

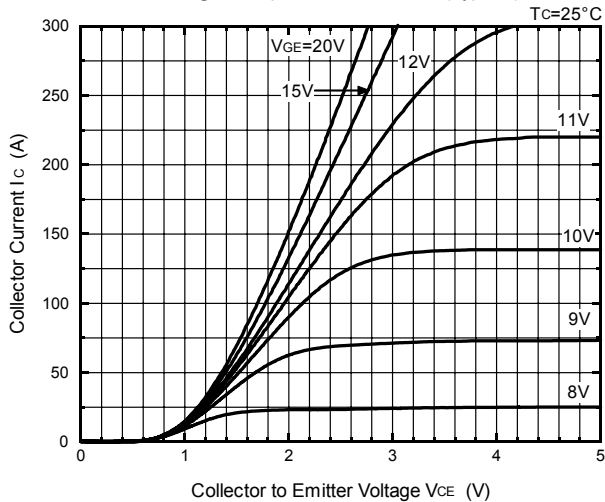


Fig.2- Output Characteristics (Typical)

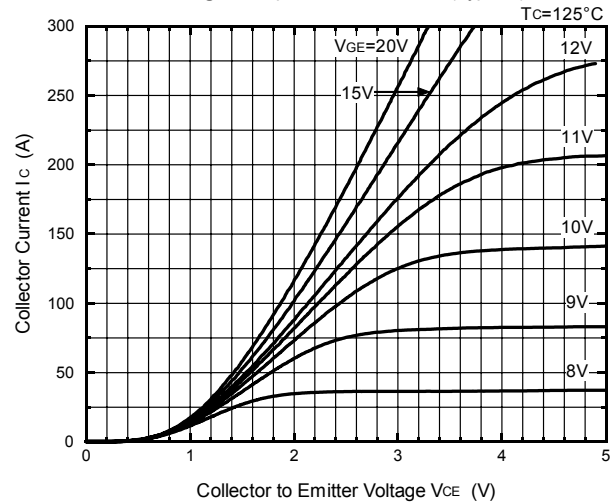


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

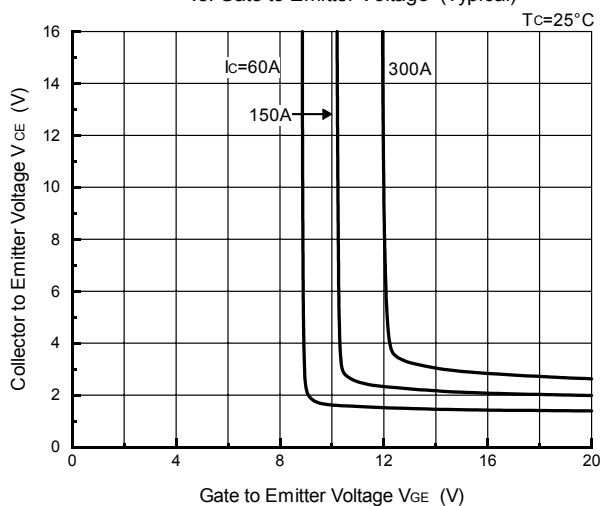


Fig.4- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

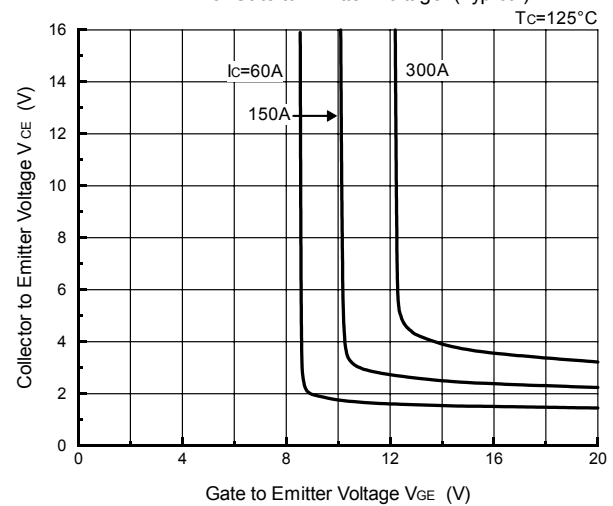


Fig.5- Gate Charge vs. Collector to Emitter Voltage (Typical)

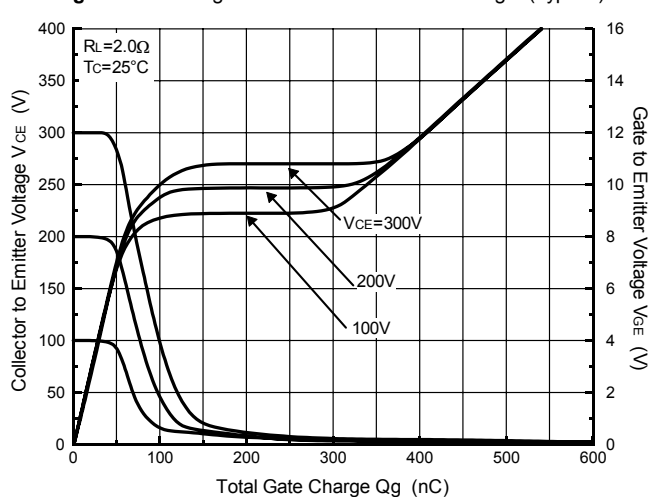
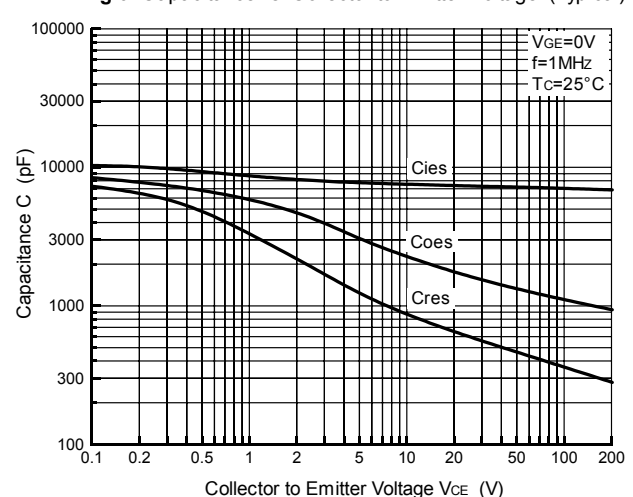


Fig.6- Capacitance vs. Collector to Emitter Voltage (Typical)



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

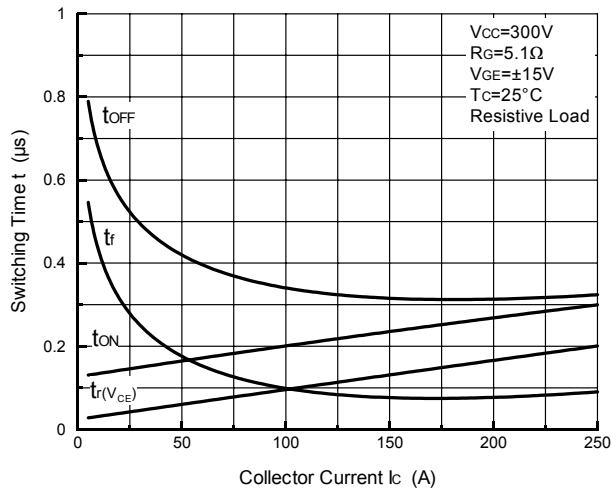


Fig.8- Series Gate Impedance vs. Switching Time (Typical)

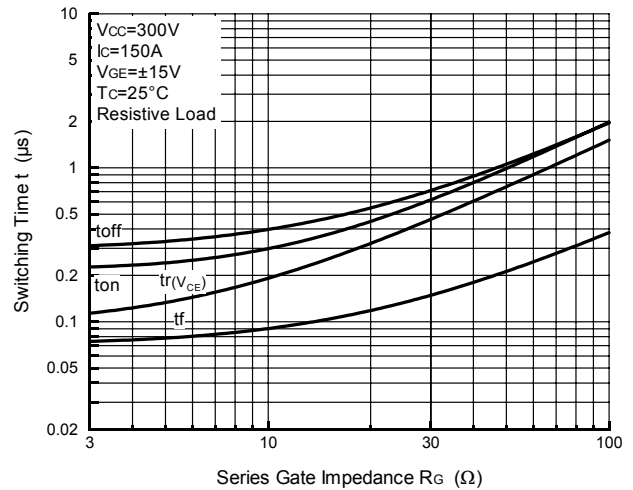


Fig.9- Collector Current vs. Switching Time

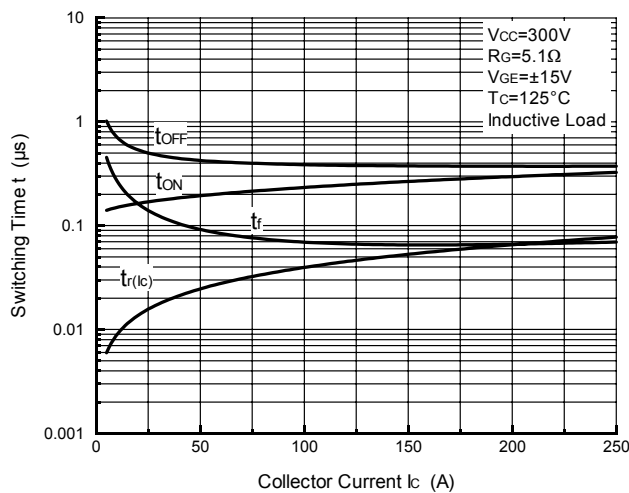


Fig.10- Series Gate Impedance vs. Switching Time

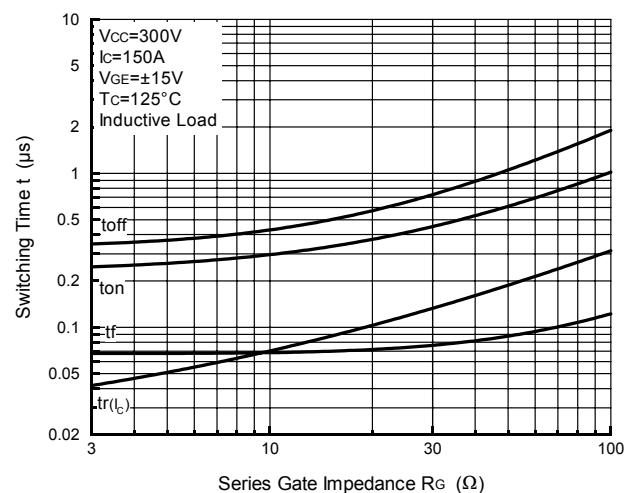


Fig.11- Collector Current vs. Switching Loss

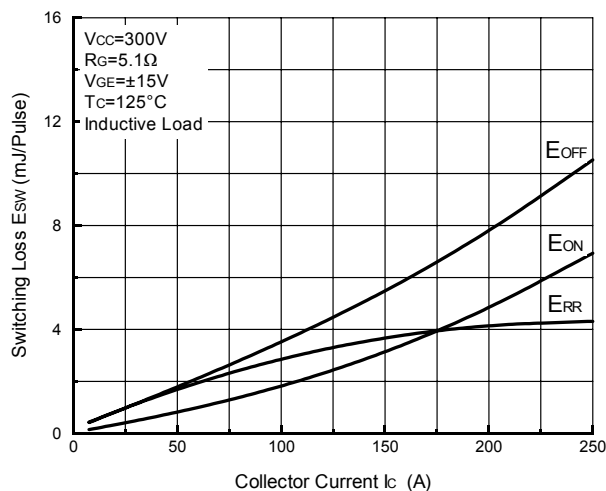
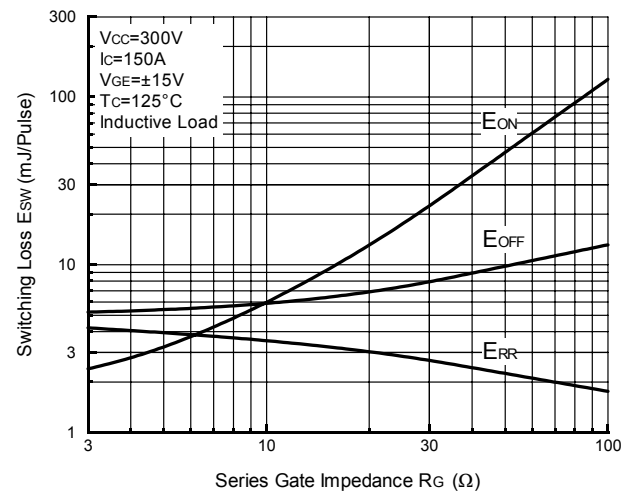


Fig.12- Series Gate Impedance vs. Switching Loss



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Fig.13- Forward Characteristics of Free Wheeling Diode (Typical)

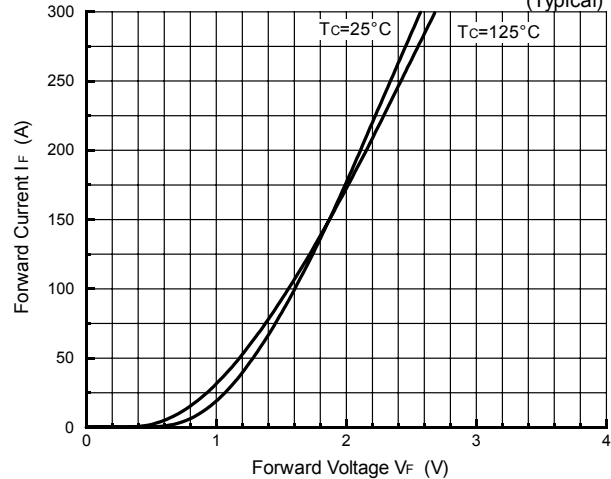


Fig.14- Reverse Recovery Characteristics (Typical)

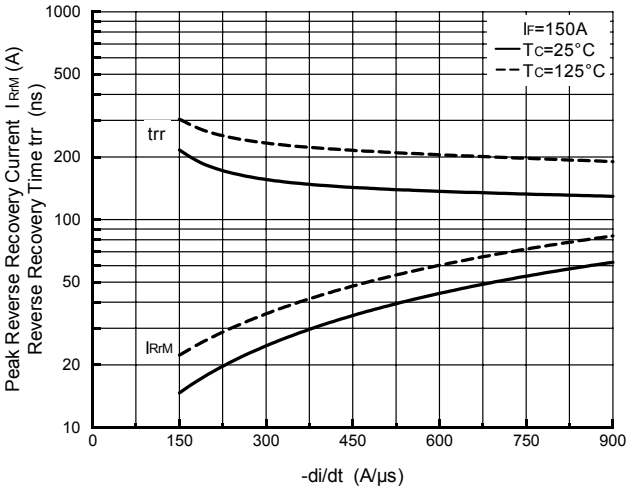


Fig.15- Reverse Bias Safe Operating Area

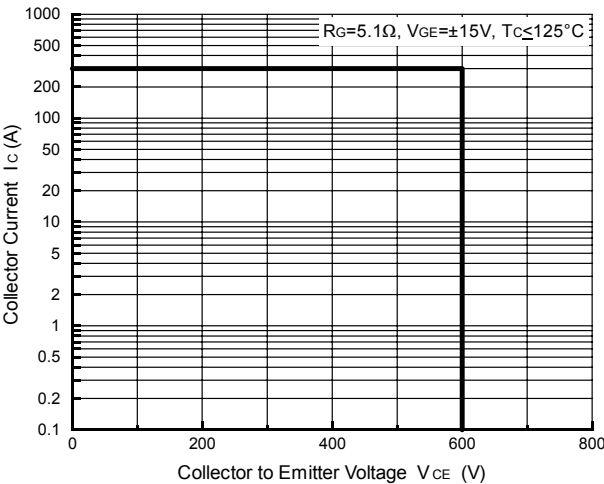


Fig.16- Transient Thermal Impedance

