

IGBT Module-Dual

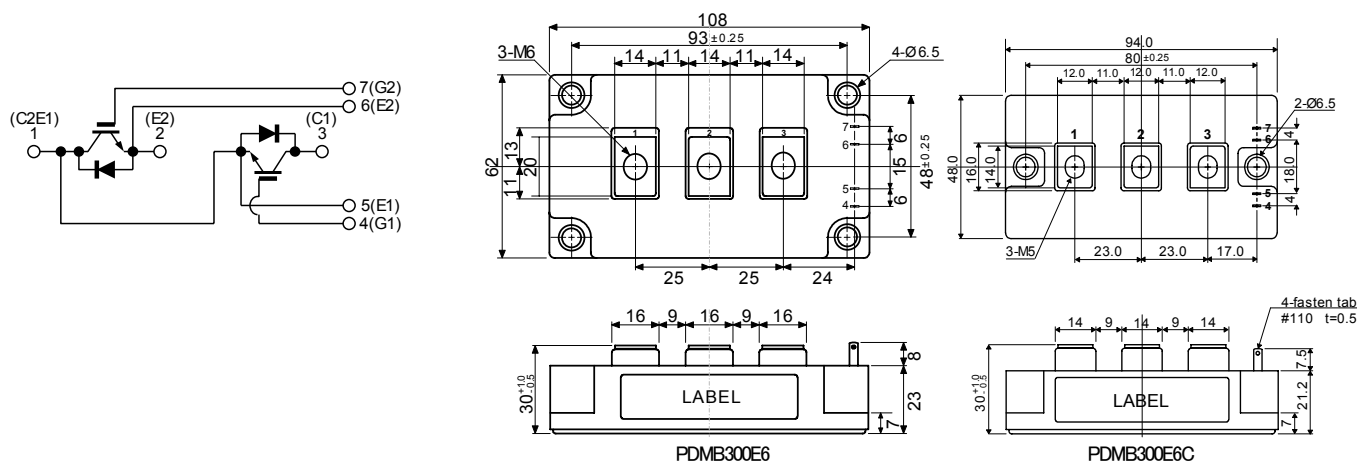
300A, 600V

PDMB300E6

PDMB300E6C

□ 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}	± 2 0			V	
コレクタ電流 Collector Current	DC	I _C	3 0 0			A	
	1 m s	I _{CP}	6 0 0				
コレクタ損失 Collector Power Dissipation		P _C	1, 0 4 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}	PDMB3006	3 (30.6)	PDMB300E6C	3 (30.6)	N・m (kgf・cm)
	Busbar to Main Terminal			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}	$V_{CE} = 600\text{V}, V_{GE} = 0\text{V}$	—	—	1.0	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	$V_{CE(sat)}$	$I_C = 300\text{A}, V_{GE} = 15\text{V}$	—	2.1	2.6	V
ゲートしきい値電圧 Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$V_{CE} = 5\text{V}, I_C = 300\text{mA}$	4.0	—	8.0	V
入力容量 Input Capacitance	C_{ies}	$V_{CE} = 10\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$	—	15,000	—	pF
スイッチング時間 Switching Time	上昇時間 Rise Time	$V_{CC} = 300\text{V}$ $R_L = 1.0\Omega$ $R_G = 3.6\Omega$ $V_{GE} = \pm 15\text{V}$	—	0.15	0.40	μs
	ターンオン時間 Turn-on Time		—	0.30	0.75	
	下降時間 Fall Time		—	0.10	0.35	
	ターンオフ時間 Turn-off Time		—	0.40	0.80	

□ 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	300			A
	1 m s	I_{FM}	600			

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	$I_F = 300A, V_{GE} = 0V$	—	1.9	2.4	V
逆回復時間 Reverse Recovery Time		t_{rr}	$I_F = 300A, V_{GE} = -10V$ $di/dt = 600A/\mu s$	—	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)	—	—	0.12	$^\circ\text{C}/\text{W}$
	Diode		—	—	0.24	

PDMB300E6

PDMB300E6C

Fig.1- Output Characteristics (Typical)

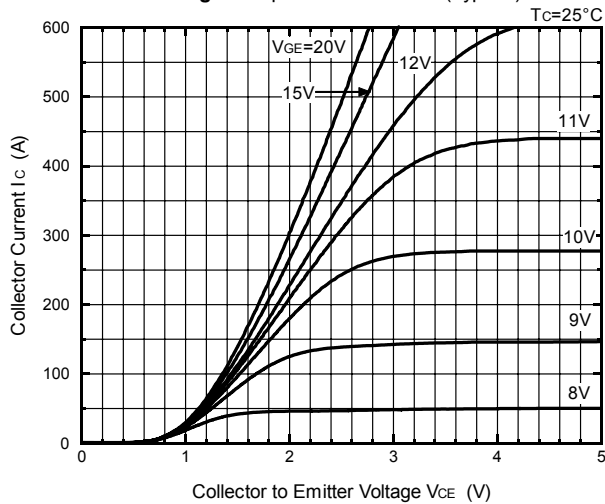


Fig.2- Output Characteristics (Typical)

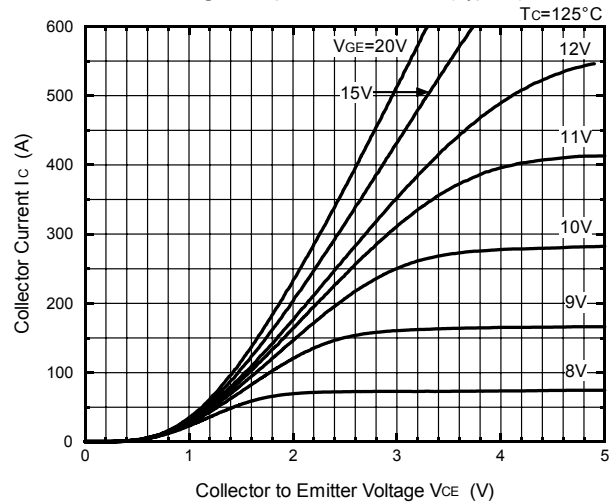


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

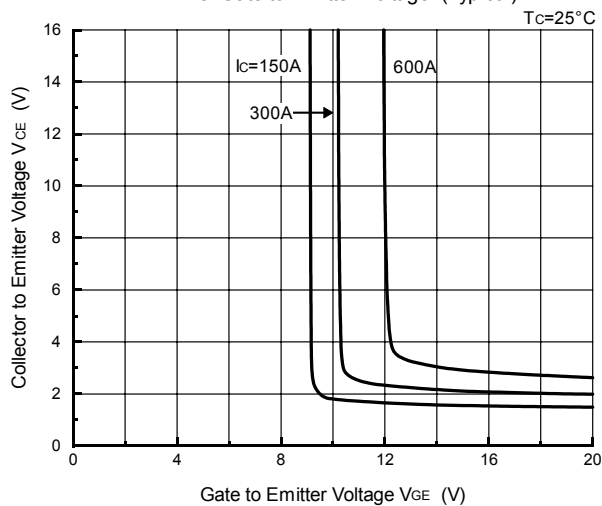


Fig.4- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

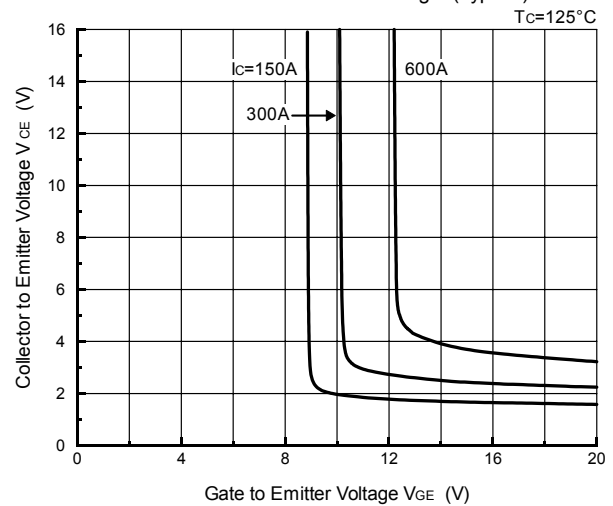


Fig.5- Gate Charge vs. Collector to Emitter Voltage (Typical)

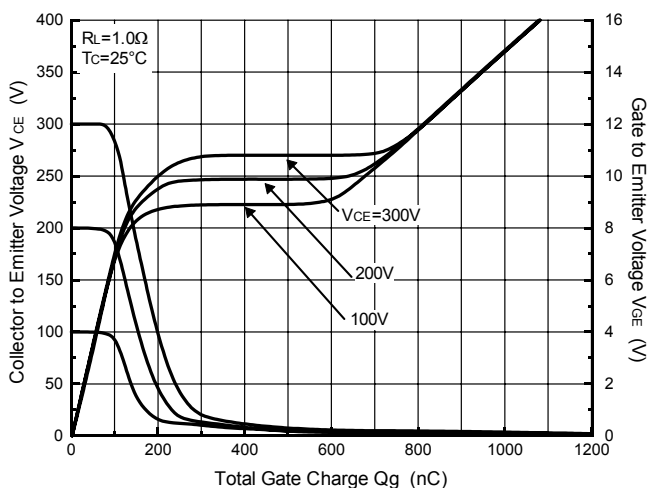
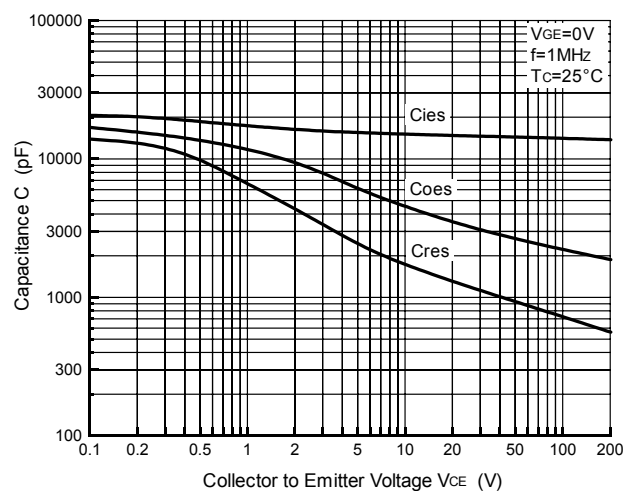


Fig.6- Capacitance vs. Collector to Emitter Voltage (Typical)



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

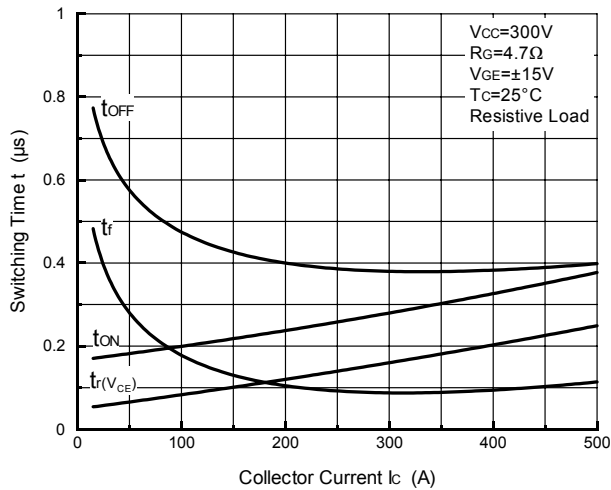


Fig.8- Series Gate Impedance vs. Switching Time (Typical)

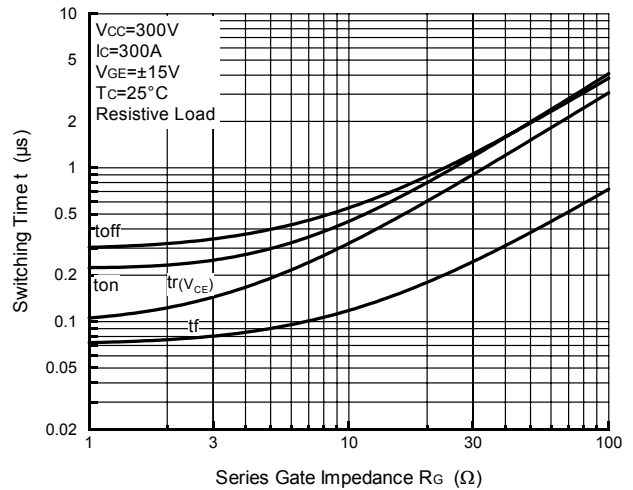


Fig.9- Collector Current vs. Switching Time

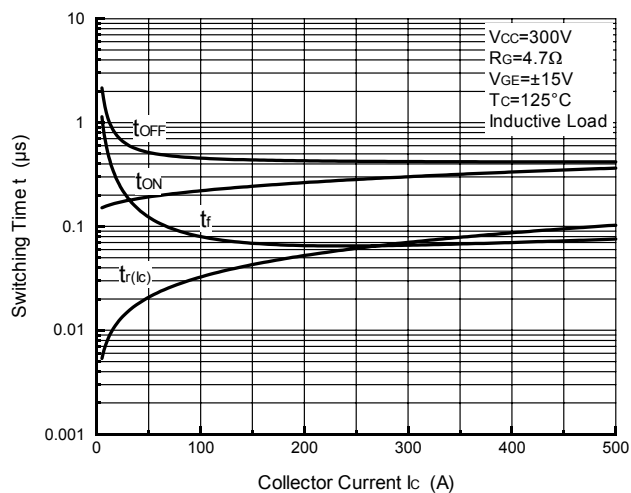


Fig.10- Series Gate Impedance vs. Switching Time

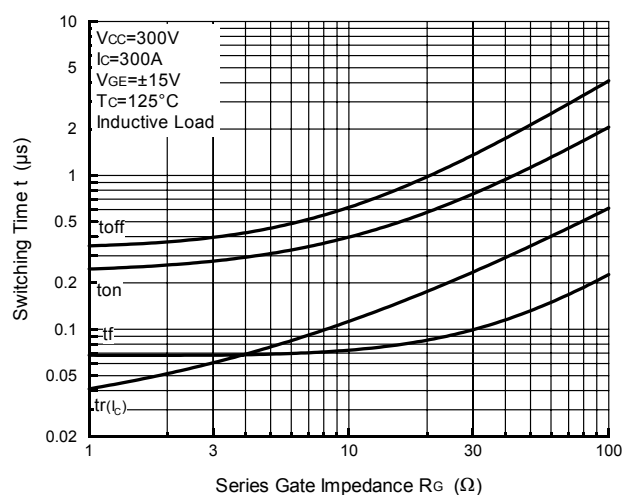


Fig.11- Collector Current vs. Switching Loss

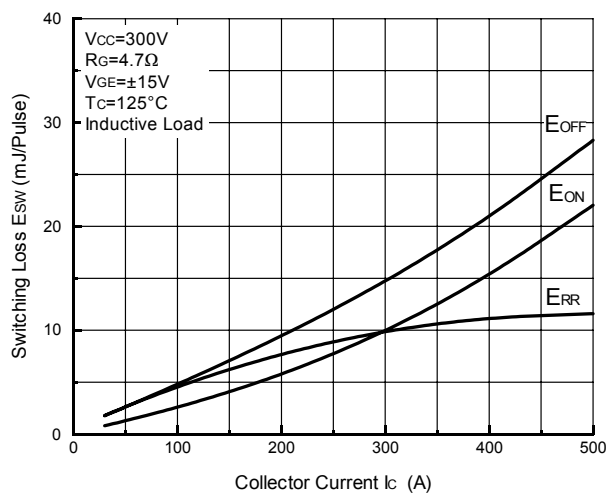
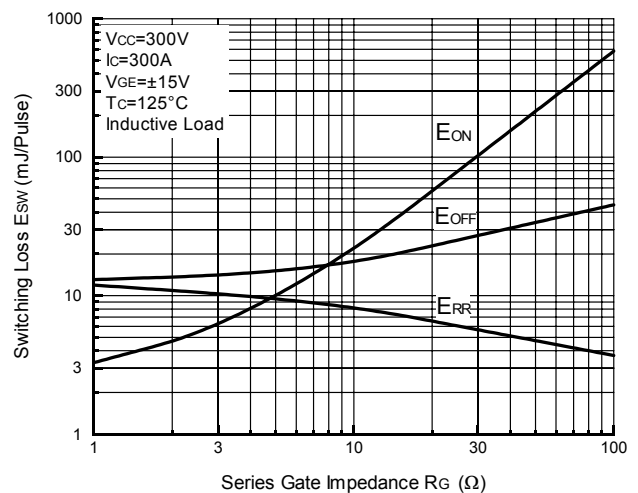


Fig.12- Series Gate Impedance vs. Switching Loss



PDMB300E6
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Fig.13- Forward Characteristics of Free Wheeling Diode
(Typical)

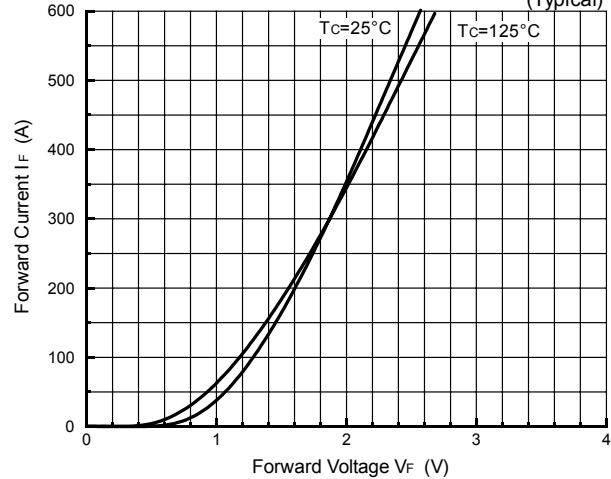


Fig.14- Reverse Recovery Characteristics (Typical)

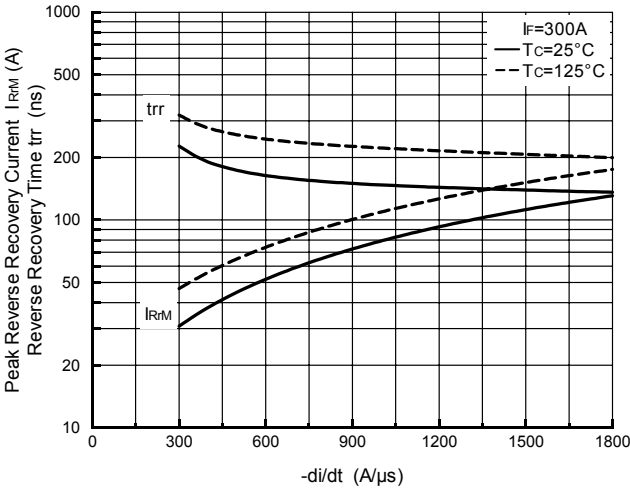


Fig.15- Reverse Bias Safe Operating Area

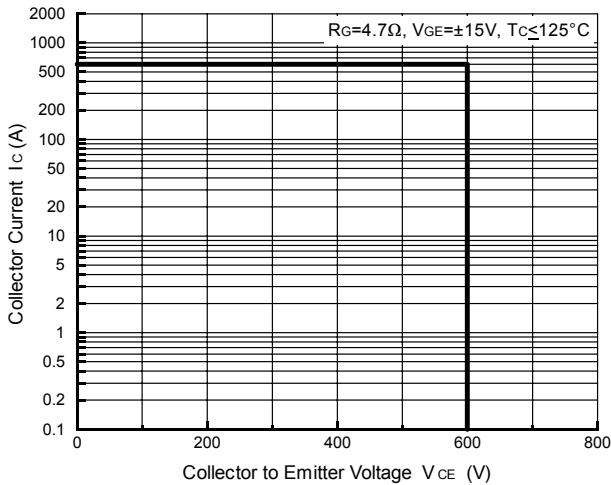


Fig.16- Transient Thermal Impedance

