

IGBT Module-Dual

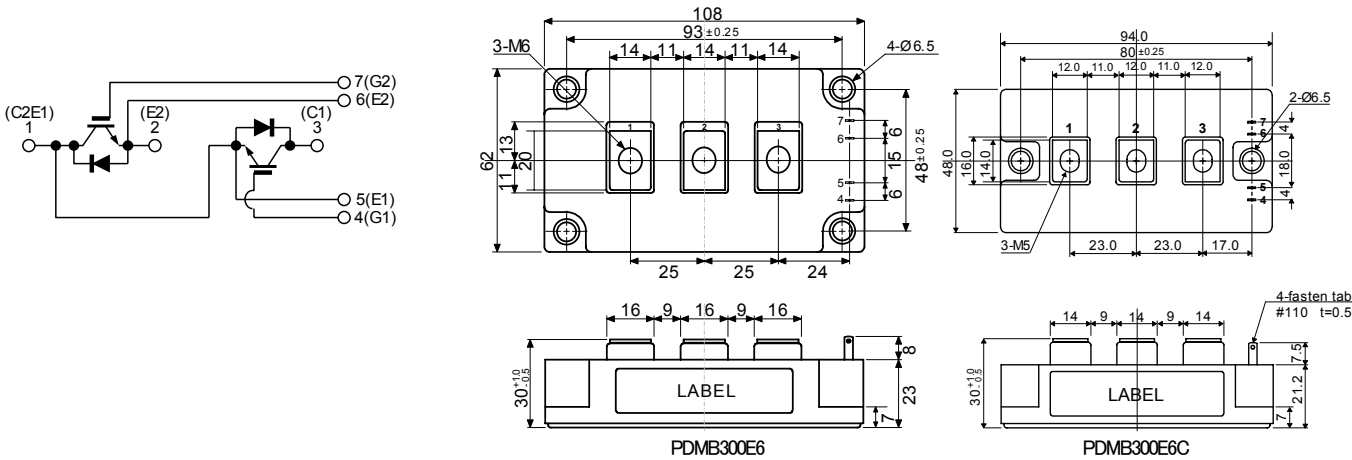
300A, 600V

PDMB300E6

PDMB300E6C

回路図 : CIRCUIT

外形寸法図 : OUTLINE DRAWING



Dimension: [mm]

最大定格 : MAXIMUM RATINGS (T_c = 25°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-Emitt e r V o l t a g e		V _{CES}	6 0 0			V	
ゲート・エミッタ間電圧 Gate-Emitt e r V o l t a g e		V _{GES}	± 2 0			V	
コレクタ電流 Collector C u r r e n t	DC	I _C	3 0 0			A	
	1 m s	I _{CP}	6 0 0				
コレクタ損失 Collector P o w e r D i s s i p a t i o n		P _C	1, 0 4 0			W	
接合温度 Junction T e m p e r a t u r e R a n g e		T _j	－ 4 0 ～ ＋ 1 5 0			℃	
保存温度 Storage T e m p e r a t u r e R a n g e		T _{s t g}	－ 4 0 ～ ＋ 1 2 5			℃	
絶縁耐圧(Terminal to Base AC, 1minute) I s o l a t i o n V o l t a g e		V _{I S O}	2, 5 0 0			V _(RMS)	
締め付けトルク Mounting T o r q u e	Module Base to Heatsink	F _{t o r}	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°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} = ±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 = 300A, 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 = 300mA	4.0	—	8.0	V
入力容量 Input Capacitance		C _{ies}	V _{CE} = 10V, V _{GE} = 0V, f = 1MHz	—	15,000	—	pF
スイッチング時間 Switching Time	上昇時間 Rise Time	t _r	V _{CC} = 300V R _L = 1.0Ω R _G = 3.6Ω V _{GE} = ±15V	—	0.15	0.40	μs
	ターンオン時間 Turn-on Time	t _{on}		—	0.30	0.75	
	下降時間 Fall Time	t _f		—	0.10	0.35	
	ターンオフ時間 Turn-off Time	t _{off}		—	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°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
順電壓 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/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	R _{th(j-c)}	Junction to Case (T _c 測定点チップ直下)	—	—	0.12	°C/W
	Diode			—	—	0.24	

PDMB300E6
PDMB300E6C

Fig.1- Output Characteristics (Typical)

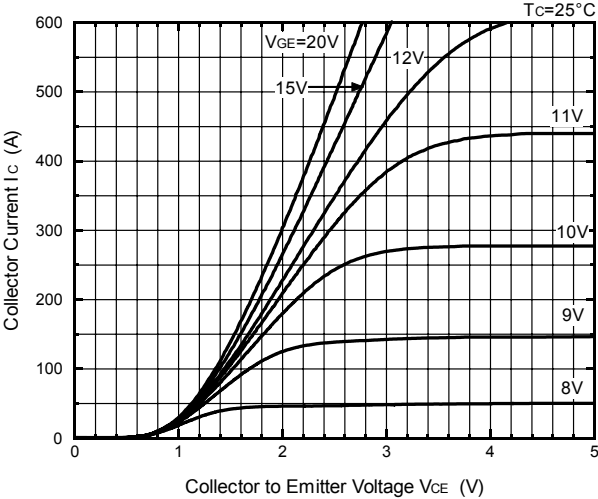


Fig.2- Output Characteristics (Typical)

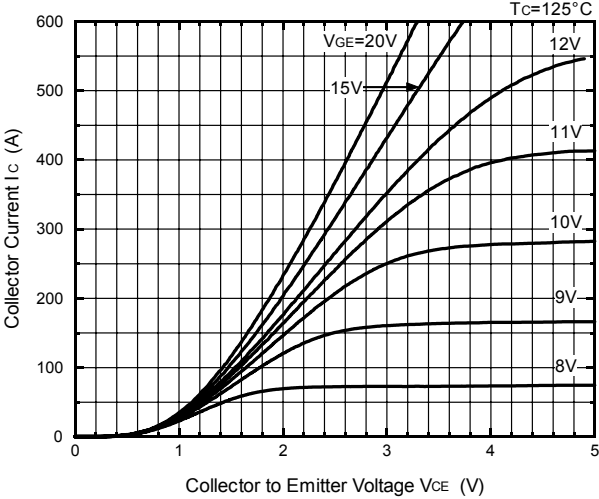


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

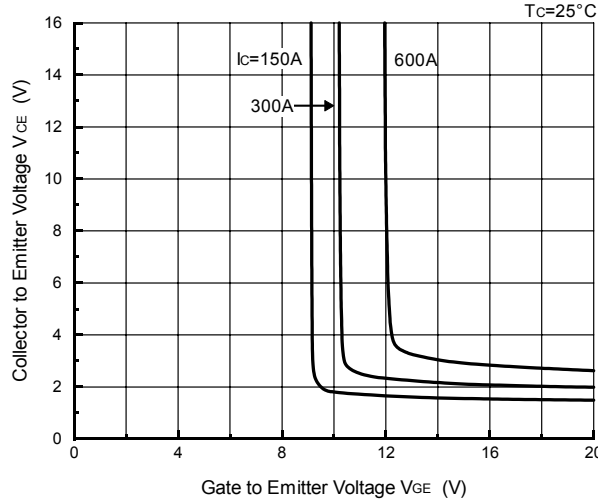


Fig.4- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

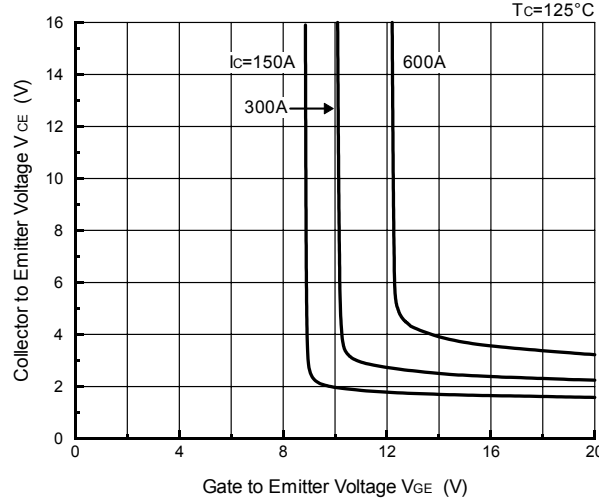


Fig.5- Gate Charge vs. Collector to Emitter Voltage (Typical)

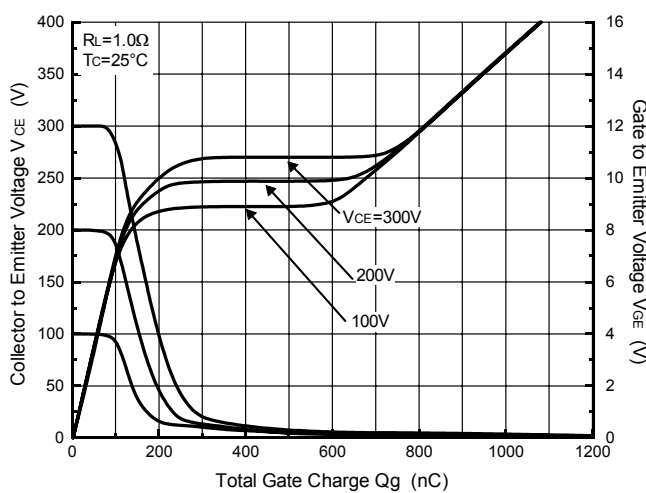
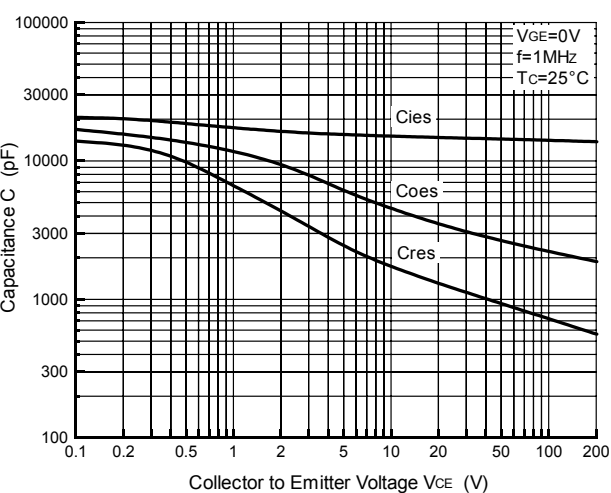


Fig.6- Capacitance vs. Collector to Emitter Voltage (Typical)



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

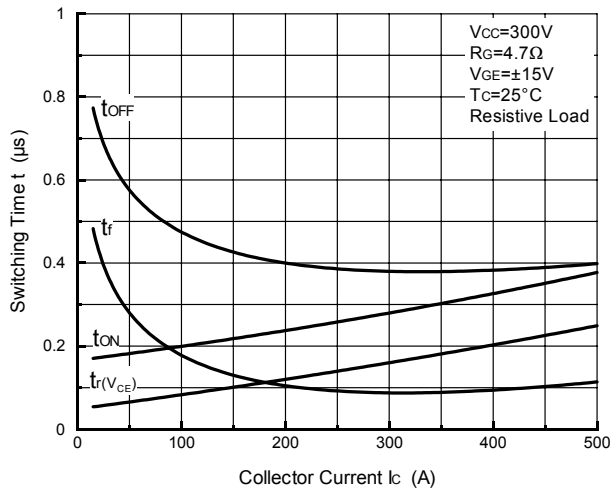


Fig.8- Series Gate Impedance vs. Switching Time (Typical)

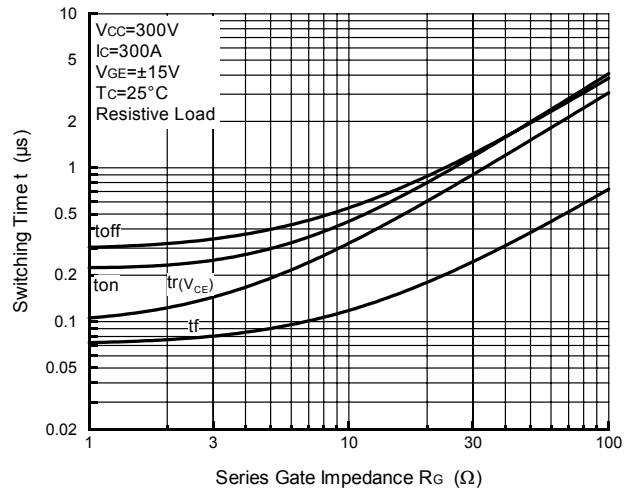


Fig.9- Collector Current vs. Switching Time

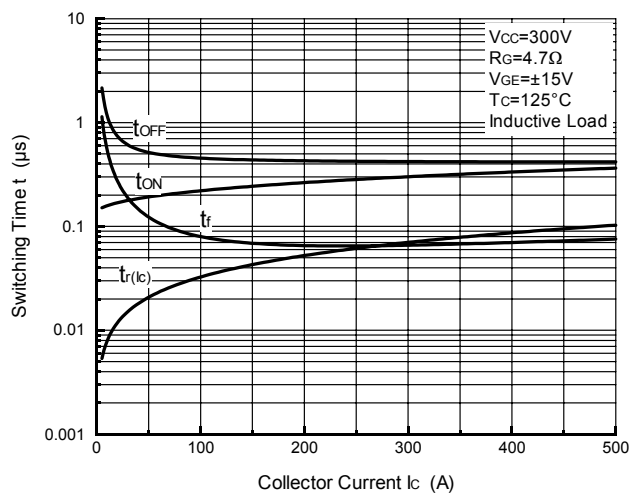


Fig.10- Series Gate Impedance vs. Switching Time

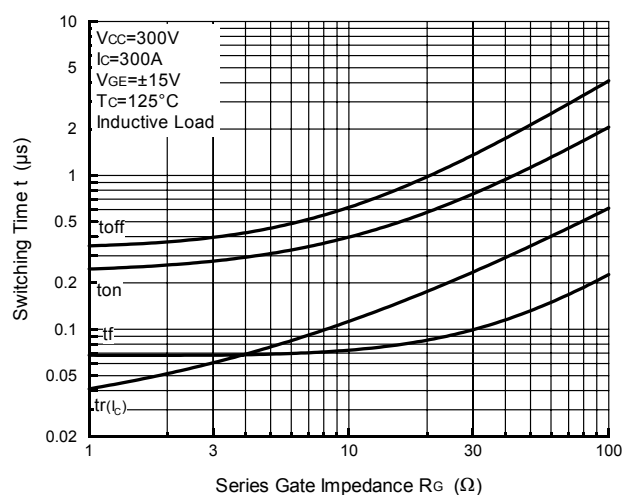


Fig.11- Collector Current vs. Switching Loss

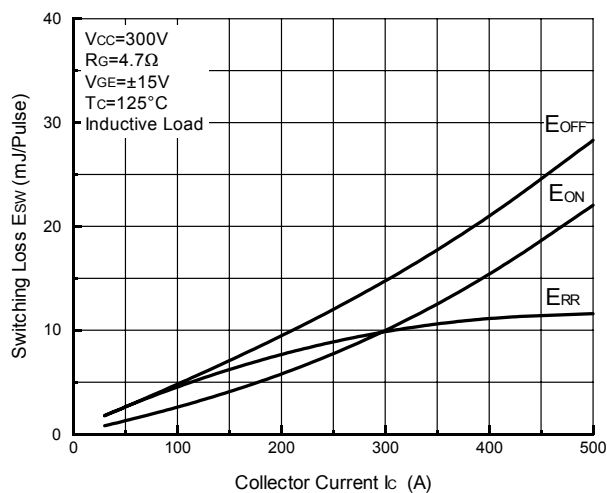
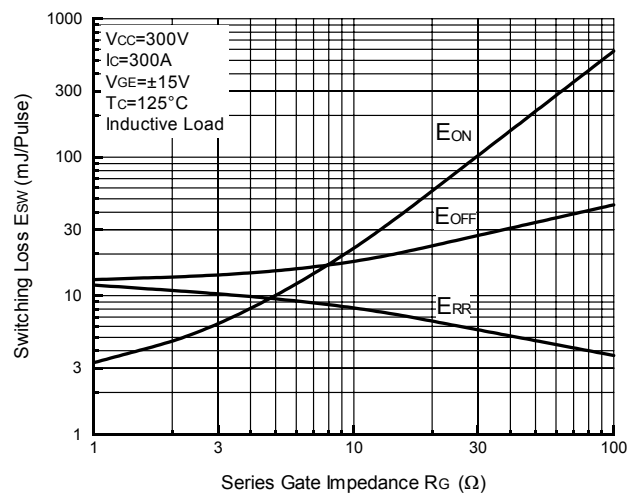


Fig.12- Series Gate Impedance vs. Switching Loss



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

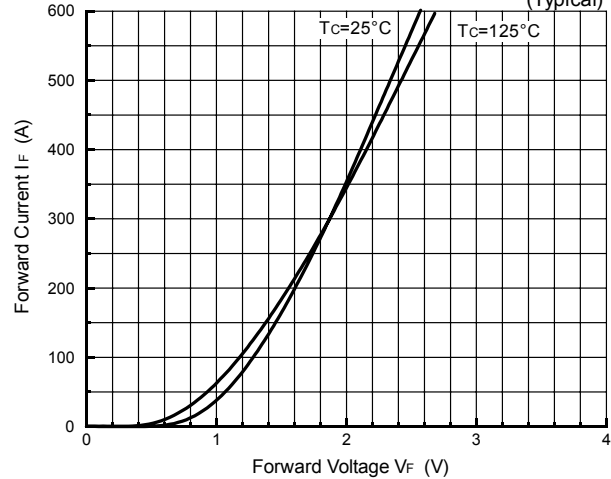


Fig.14- Reverse Recovery Characteristics (Typical)

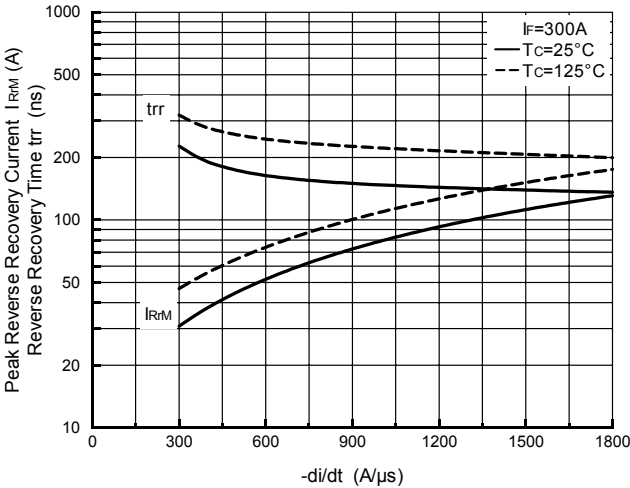


Fig.15- Reverse Bias Safe Operating Area

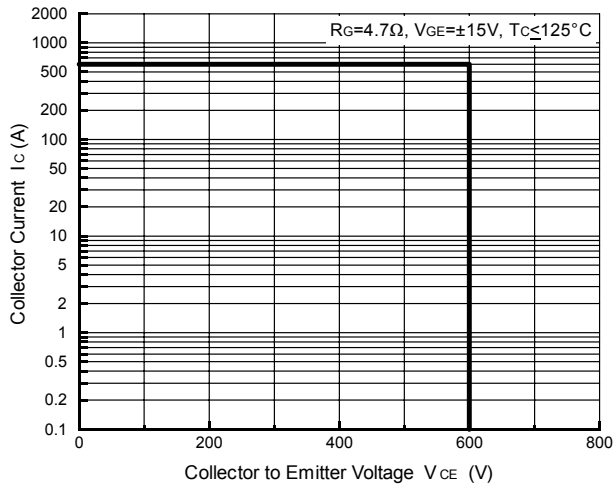


Fig.16- Transient Thermal Impedance

