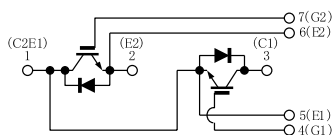


IGBT

400 A 1200 V

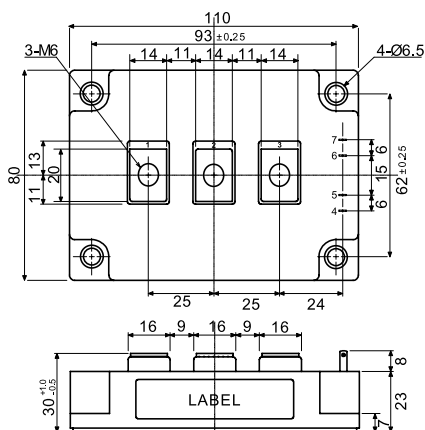
PDMB400B12  
PDMB400B12C

■回路図 CIRCUIT



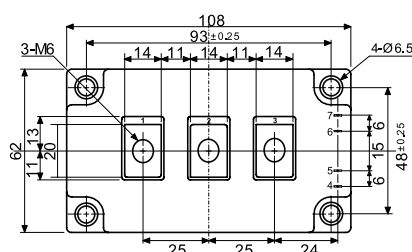
■外形寸法図 OUTLINE DRAWING

(単位 Dimension : mm)



質量：約650g

PDMB400B12



質量：約500g

PDMB400B12C

■最大定格 Maximum Ratings (Tc=25°C)

項目 Item	記号 Symbol	定格値 Rated Value	単位 Unit
コレクタ・エミッタ間電圧 Collector-Emitter Voltage	V <sub>CES</sub>	1200	V
ゲート・エミッタ間電圧 Gate-Emitter Voltage	V <sub>GES</sub>	± 20	V
コレクタ電流 Collector Current	DC	I <sub>C</sub>	A
	1ms	I <sub>CP</sub>	
コレクタ損失 Collector Power Dissipation	P <sub>C</sub>	1900	W
接合温度 Junction Temperature Range	T <sub>j</sub>	- 40 ~ + 150	°C
保存温度 Storage Temperature Range	T <sub>stg</sub>	- 40 ~ + 125	°C
絶縁耐圧(端子-ベース間, AC 1分間) Isolation Voltage(Terminal to Base, AC 1 min.)	V <sub>iso</sub>	2500	V <sub>(RMS)</sub>
締付トルク Mounting Torque	ベース取付部 Module Base to Heatsink	F <sub>tor</sub>	N·m (kgf·cm)
	端子部 Busbar to Terminal		
		3 (30.6)	

■電気的特性 Electrical Characteristics (Tc=25°C)

項目 Characteristic	記号 Symbol	条件 Test Conditions	最小 Min.	標準 Typ.	最大 Max.	単位 Unit
コレクタ遮断電流 Collector-Emitter Cut-Off Current	I <sub>CES</sub>	V <sub>CE</sub> = 1200V, V <sub>GE</sub> = 0V	—	—	4.0	mA
ゲート漏れ電流 Gate-Emitter Leakage Current	I <sub>GES</sub>	V <sub>GE</sub> = ± 20V, V <sub>CE</sub> = 0V	—	—	1.0	μA
コレクタ・エミッタ間飽和電圧 Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 400A, V <sub>GE</sub> = 15V	—	1.9	2.4	V
ゲートしきい値電圧 Gate-Emitter Threshold Voltage	V <sub>GE(th)</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 400mA	4.0	—	8.0	V
入力容量 Input Capacitance	C <sub>ies</sub>	V <sub>CE</sub> = 10V, V <sub>GE</sub> = 0V, f = 1MHz	—	33000	—	pF
スイッチング時間 Switching Time	上昇時間 Rise Time	V <sub>CC</sub> = 600V R <sub>L</sub> = 1.5Ω R <sub>G</sub> = 1Ω V <sub>GE</sub> = ± 15V	—	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	

■フリーホイールダイオードの特性 Free Wheeling Diode Ratings & Characteristics (T<sub>C</sub>=25°C)

項目 Item	記号 Symbol	定格値 Rated Value	単位 Unit
順電流 Forward Current	DC	400	A
	1ms	800	

項目 Characteristic	記号 Symbol	条件 Test Conditions	最小 Min.	標準 Typ.	最大 Max.	単位 Unit
順電圧 Peak Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 400A, V <sub>GE</sub> = 0V	—	1.9	2.4	V
逆回復時間 Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 400A, V <sub>GE</sub> = -10V di/dt = 800A/μs	—	0.2	0.3	μs

■熱的特性 Thermal Characteristics

項目 Characteristic	記号 Symbol	条件 Test Conditions	最小 Min.	標準 Typ.	最大 Max.	単位 Unit
熱抵抗 Thermal Impedance	IGBT	接合部-ケース間 Junction to Case	—	—	0.065	°C/W
	Diode		—	—	0.12	

■定格・特性曲線

Fig. 1 Output Characteristics (Typical)

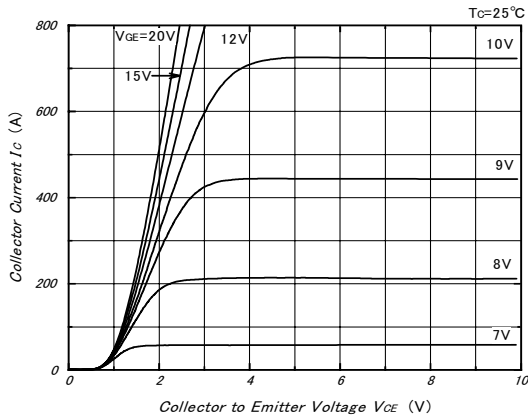


Fig. 3 Collector to Emitter on Voltage vs. Gate to Emitter Voltage (Typical)

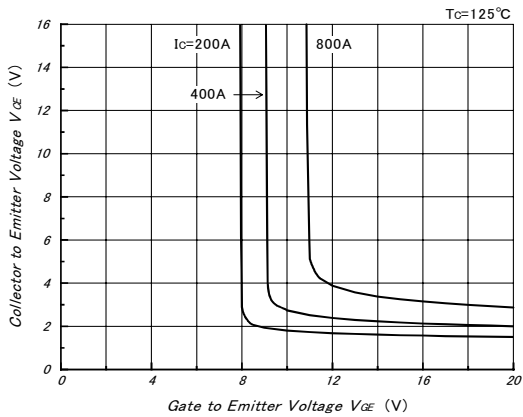


Fig. 5 Capacitance vs. Collector to Emitter Voltage (Typical)

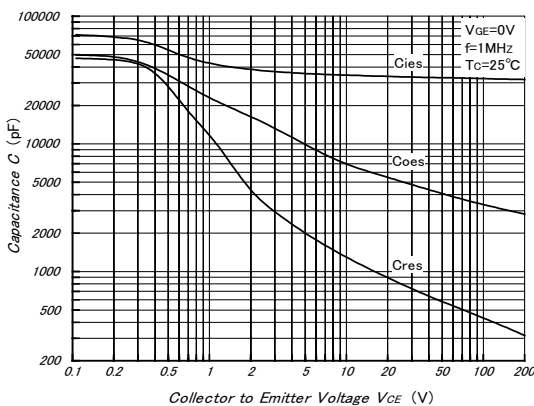


Fig. 2 Collector to Emitter on Voltage vs. Gate to Emitter Voltage (Typical)

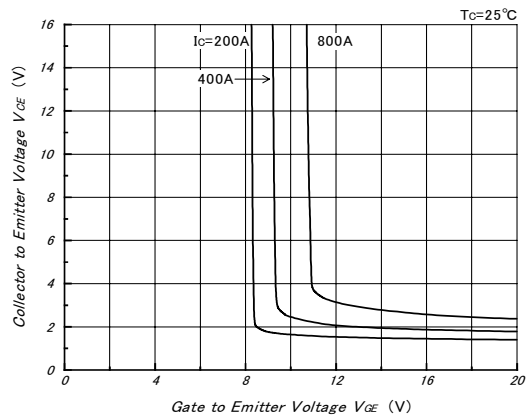


Fig. 4 Gate Charge vs. Collector to Emitter Voltage (Typical)

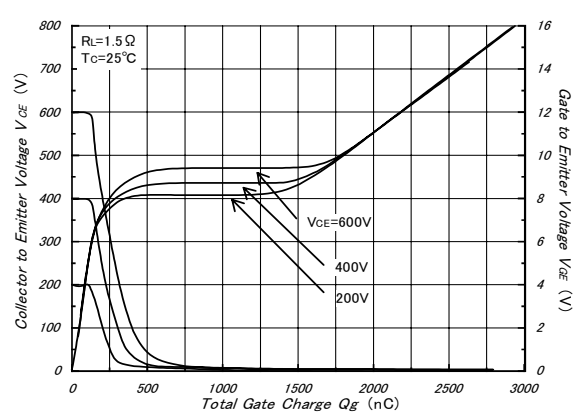
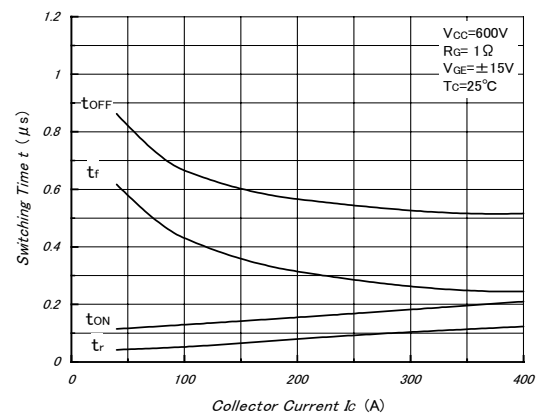


Fig. 6 Collector Current vs. Switching Time (Typical)



IGBTモジュール

Fig. 7 Series Gate Impedance vs. Switching Time (Typical)

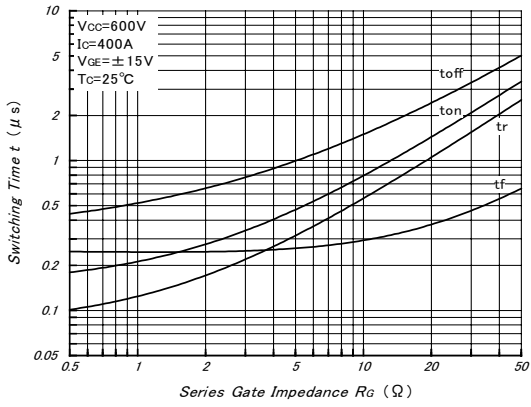


Fig. 8 Forward Characteristics of Free Wheeling Diode (Typical)

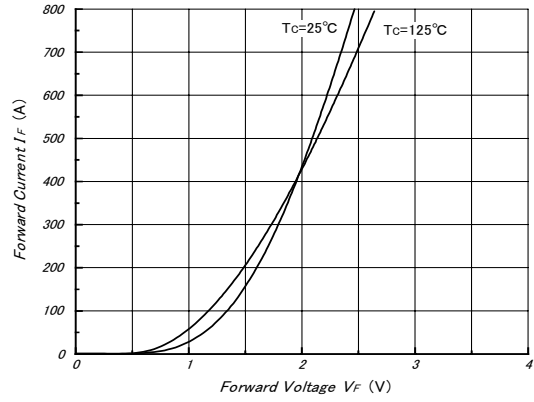


Fig. 9 Reverse Recovery Capacitance (Typical)

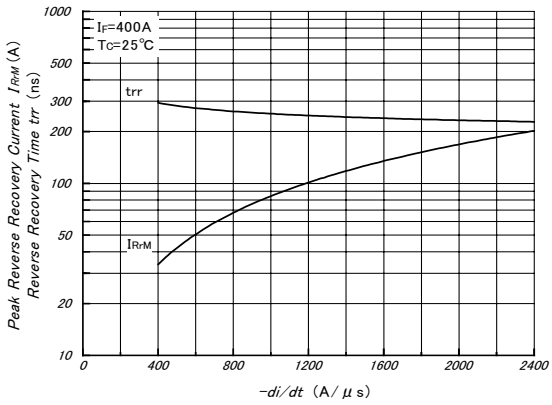


Fig. 10 Reverse Bias Safe Operating Area (Typical)

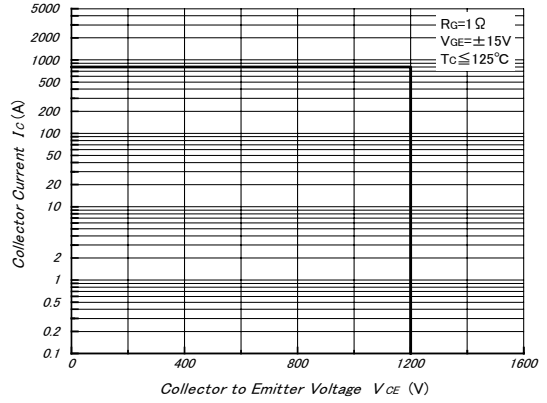


Fig. 11 Transient Thermal Impedance

