

IGBT Module-Single

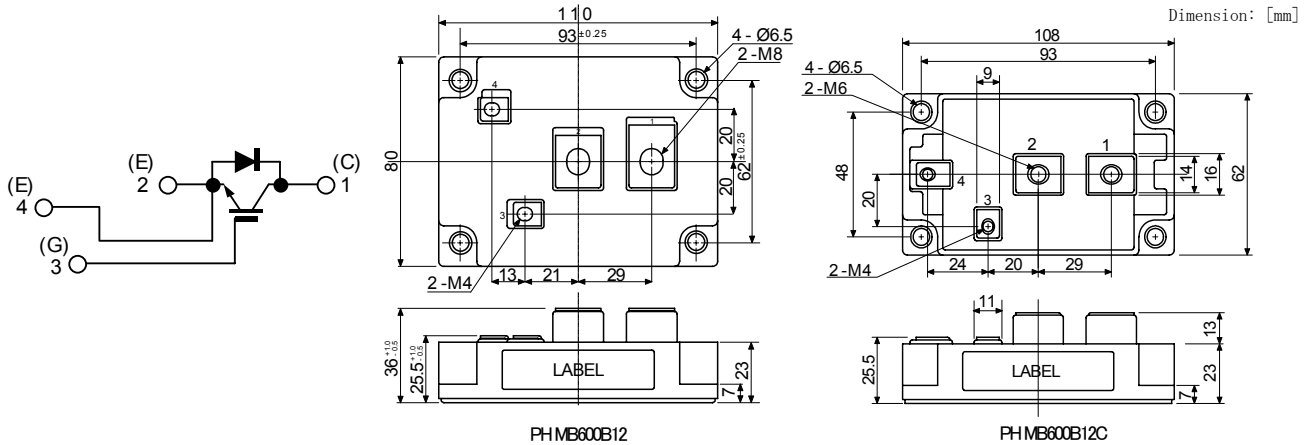
600 A, 1200V

PHMB600B12

PHMB600B12C

□ 回路図 : CIRCUIT

□ 外形寸法図 : OUTLINE DRAWING



□ 最大定格 : MAXIMUM RATINGS (T<sub>c</sub> = 25°C)

Item	Symbol	Rated Value	Unit	
コレクタ・エミッタ間電圧 Collector-Emmitter Voltage	V <sub>CEs</sub>	1,200	V	
ゲート・エミッタ間電圧 Gate-Emmitter Voltage	V <sub>GES</sub>	±20	V	
コレクタ電流 Collector Current	DC	600	A	
	1ms	1,200		
コレクタ損失 Collector Power Dissipation	P <sub>c</sub>	2,800	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(Terminal to Base AC, 1minute) Isolation Voltage	V <sub>iso</sub>	2,500	V <sub>(RMS)</sub>	
締め付けトルク Mounting Torque	F <sub>tor</sub>	Module Base to Heatsink	3 (30.6)	
		Busbar to Main Terminal	M4	1.4 (14.3)
			M6	3 (30.6)
			M8	10.5 (107)

□ 電気的特性 : ELECTRICAL CHARACTERISTICS (T<sub>c</sub> = 25°C)

Characteristic	Symbol	Test Condition	Min.	Tvp.	Max.	Unit
コレクタ遮断電流 Collector-Emmitter Cut-Off Current	I <sub>CEs</sub>	V <sub>CE</sub> = 1200V, V <sub>GE</sub> = 0V	-	-	12	mA
ゲート漏れ電流 Gate-Emmitter 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-Emmitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> = 600A, V <sub>GE</sub> = 15V	-	1.9	2.4	V
ゲートしきい値電圧 Gate-Emmitter Threshold Voltage	V <sub>GE(th)</sub>	V <sub>CE</sub> = 5V, I <sub>c</sub> = 600mA	4	-	8	V
入力容量 Input Capacitance	C <sub>ies</sub>	V <sub>CE</sub> = 10V, V <sub>GE</sub> = 0V, f = 1MHz	-	50,000	-	pF
スイッチング時間 Switching Time	上昇時間 Rise Time	V <sub>CC</sub> = 600V R <sub>i</sub> = 1Ω R <sub>o</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	

□ フリーホイーリングダイオードの特性 : FREE WHEELING DIODE RATINGS & CHARACTERISTICS (T<sub>c</sub> = 25°C)

Item	Symbol	Rated Value	Unit
順電流 Forward Current	DC	600	A
	1ms	1,200	

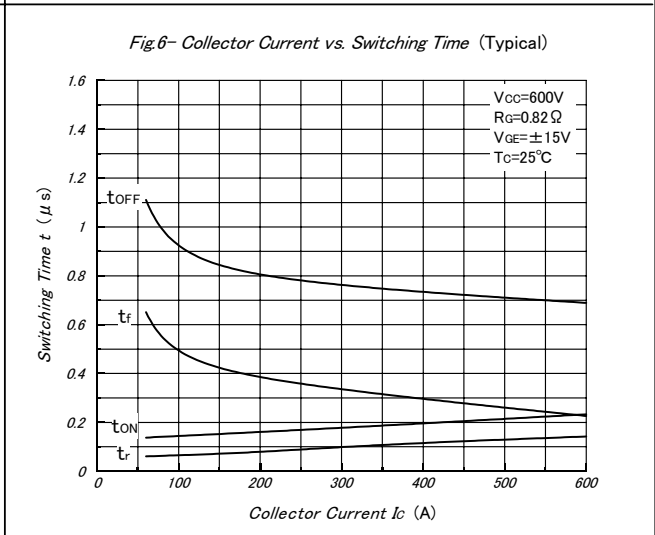
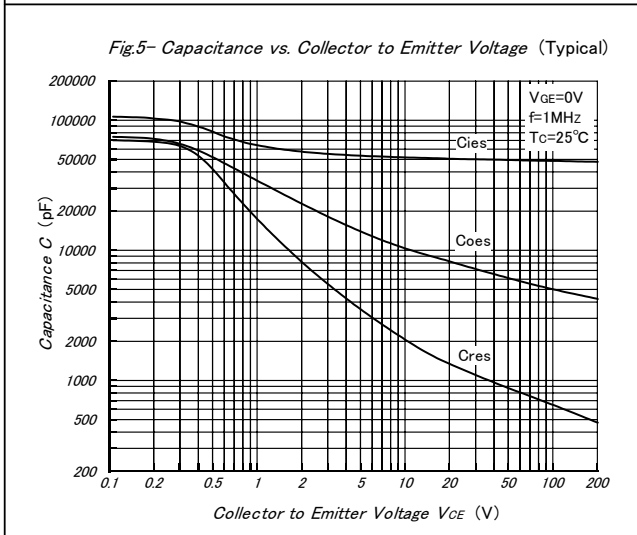
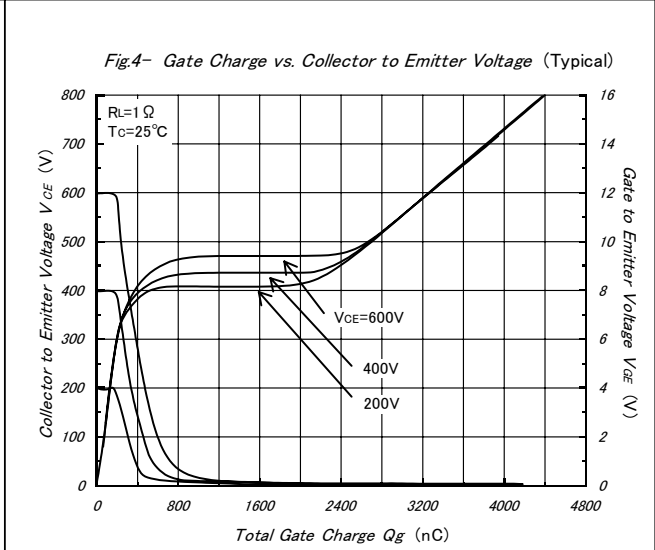
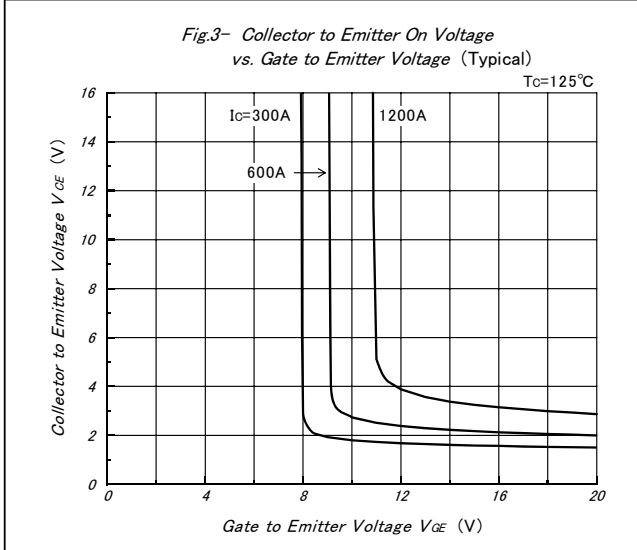
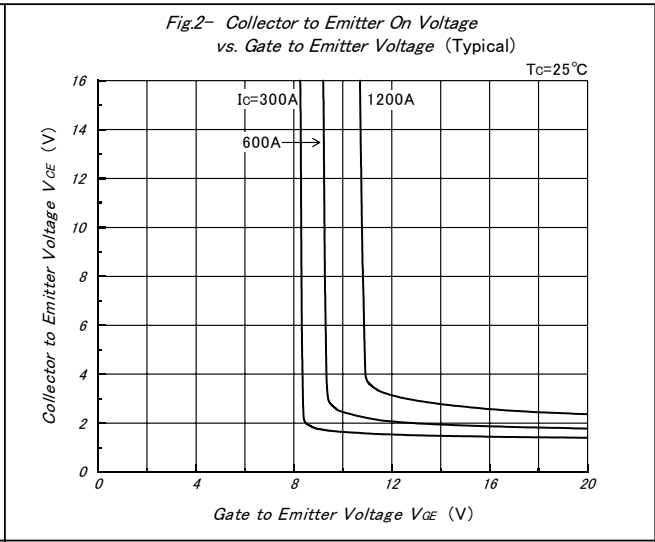
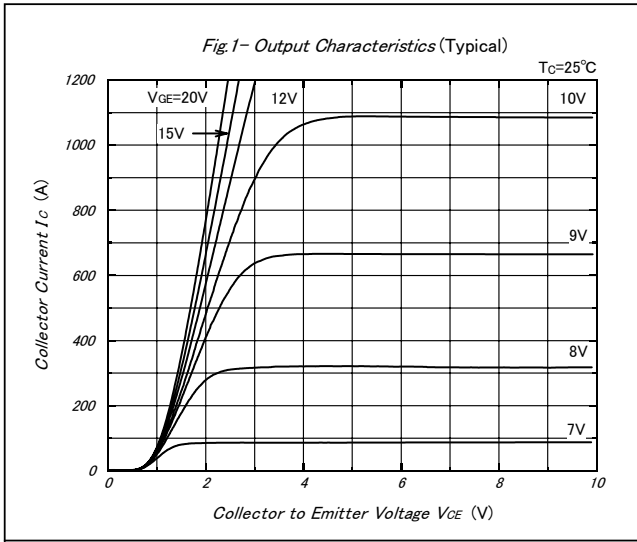
Characteristic	Symbol	Test Condition	Min.	Tvp.	Max.	Unit
順電圧 Peak Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 600A, V <sub>GE</sub> = 0V	-	1.9	2.4	V
逆回復時間 Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 600A, V <sub>GE</sub> = -10V di/dt = 1200A/μs	-	0.25	0.35	μs

□ 熱的特性 : THERMAL CHARACTERISTICS

Characteristic	Symbol	Test Condition	Min.	Tvp.	Max.	Unit
熱抵抗 Thermal Impedance	IGBT	Rth(j-c) Junction to Case	-	-	0.044	°C/W
	Diode		-	-	0.085	

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

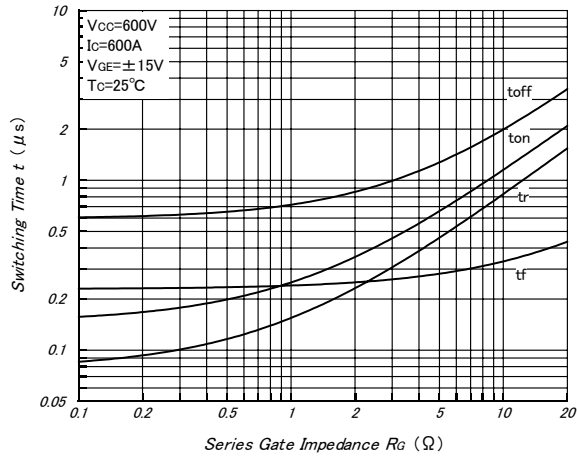


Fig.8- Forward Characteristics of Free Wheeling Diode (Typical)

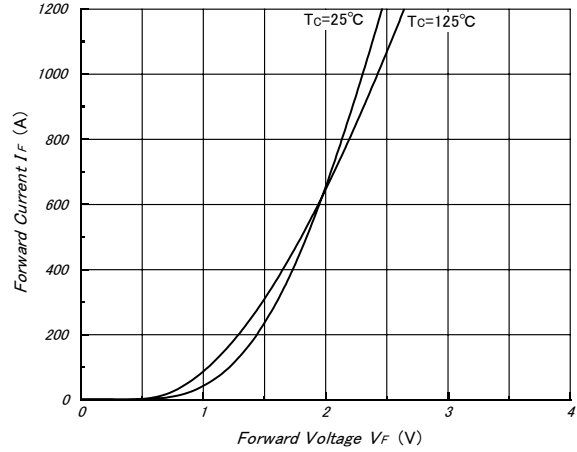


Fig.9- Reverse Recovery Characteristics (Typical)

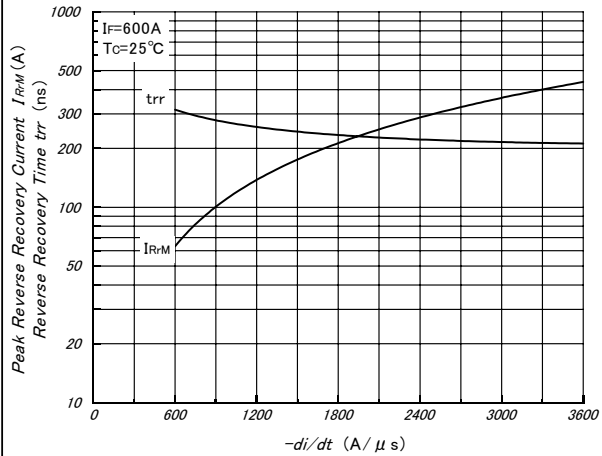


Fig.10- Reverse Bias Safe Operating Area

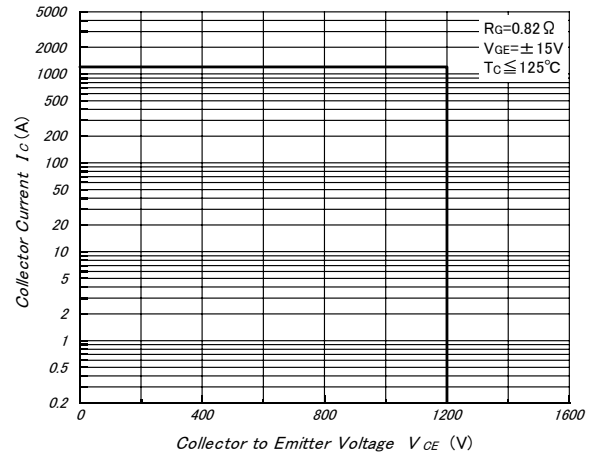


fig11- Tansient Thermal Impedance

