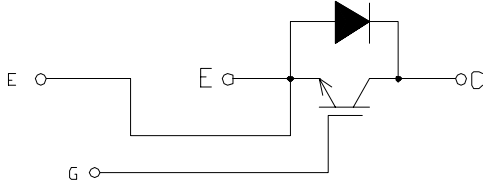


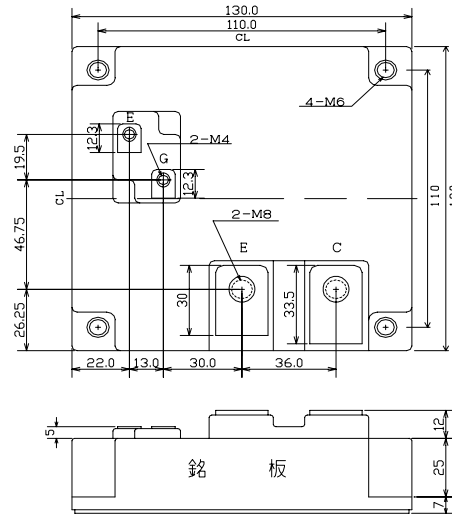
IGBT MODULE Single 1200A 1200V

PHMB1200B12

CIRCUIT



OUTLINE DRAWING



4 - fasten- tab No 110

Dimension(mm)

Approximate Weight : 1,200g

MAXMUM RATINGS (Tc=25°C)

Item		Symbol	PHMB1200B12		Unit
Collector-Emitter Voltage		V _{CEs}	1200		V
Gate - Emitter Voltage		V _{GEs}	+/- 20		V
Collector Current	DC	I _C	1200		A
	1 ms	I _{CP}	2400		
Collector Power Dissipation		P _C	5600		W
Junction Temperature Range		T _j	-40 to +150		°C
Storage Temperature Range		T _{stg}	-40 to +125		°C
Isolation Voltage Terminal to Base AC, 1 min.)		V _{ISO}	2500		V
Mounting Torque	Module Base to Heat sink	F _{TOR}	3		N•m
	Bus Bar to Main Terminals		M4	1.4	
			M8	10.5	

ELECTRICAL CHARACTERISTICS (Tc=25°C)

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Emitter Cut-Off Current		I _{CEs}	V _{CE} =1200V, V _{GE} =0V	-	-	24	mA
Gate-Emitter Leakage Current		I _{GEs}	V _{GE} =+/- 20V, V _{CE} =0V	-	-	1.0	μA
Collector-Emitter Saturation Voltage		V _{CE(sat)}	I _C =1200A, V _{GE} =15V	-	1.9	2.4	V
Gate-Emitter Threshold Voltage		V _{GE(th)}	V _{CE} =5V, I _C =400mA	4.0	-	8.0	V
Input Capacitance		C _{ies}	V _{CE} =10V, V _{GE} =0V, f=1MHz	-	100000	-	pF
Switching Time	Rise Time	t _r	V _{CC} = 600V R _L = 0.5 ohm R _C = 0.33 ohm V _{GE} = +/- 15V	-	0.25	0.45	μs
	Turn-on Time	t _{on}		-	0.40	0.70	
	Fall Time	t _f		-	0.25	0.35	
	Turn-off Time	t _{off}		-	1.00	1.50	

FREE WHEELING DIODES RATINGS & CHARACTERISTICS (Tc=25°C)

Item		Symbol	Rated Value	Unit
Forward Current	DC	I _F	1200	A
	1 ms	I _{FM}	2400	

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Peak Forward Voltage	V _F	I _F =1200A, V _{GE} =0V	-	1.9	2.4	V
Reverse Recovery Time	t _{rr}	I _F =1200A, V _{GE} =-10V, di/dt=2400A/μs	-	0.4	0.5	μs

THERMAL CHARACTERISTICS

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Thermal Impedance	IGBT	R _{th(j-c)}	Junction to Case	-	-	0.022	°C/W
	DIODE			-	-	0.043	

PHMB1200B12

Fig.1- Output Characteristics (Typical)

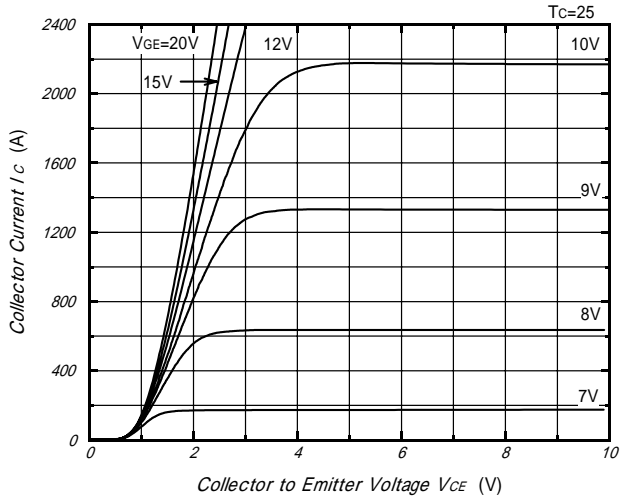


Fig.2- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

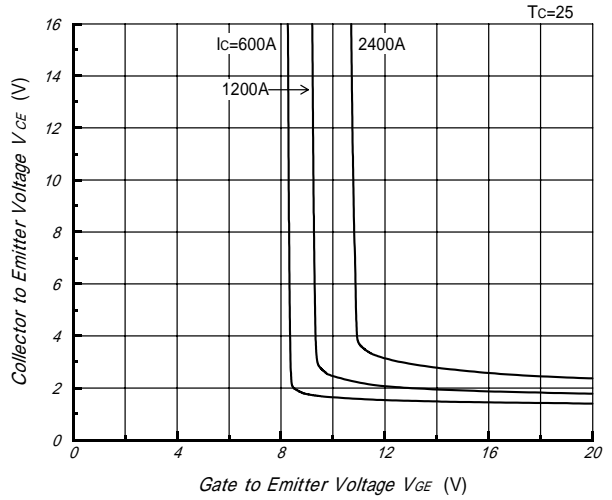


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

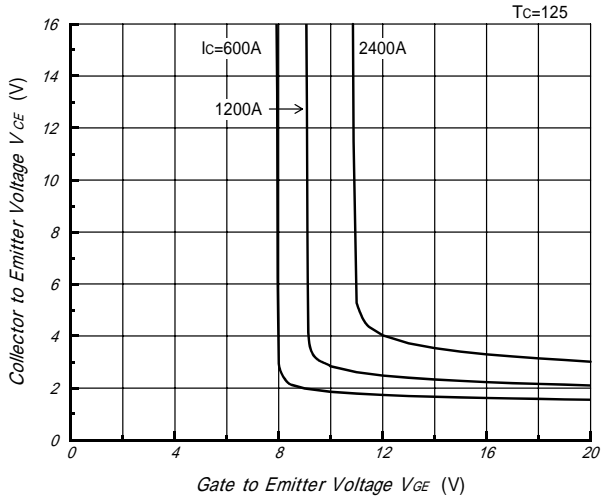


Fig.4- Gate Charge vs. Collector to Emitter Voltage (Typical)

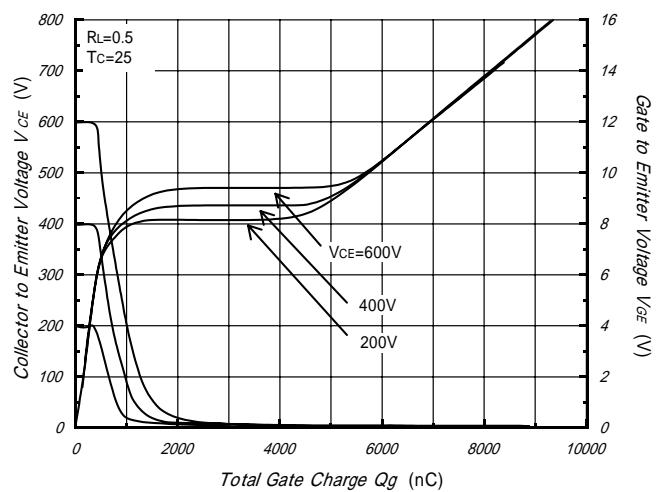


Fig.5- Capacitance vs. Collector to Emitter Voltage (Typical)

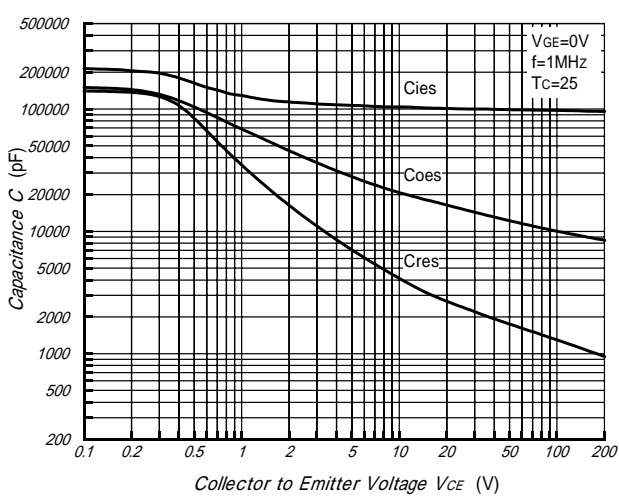
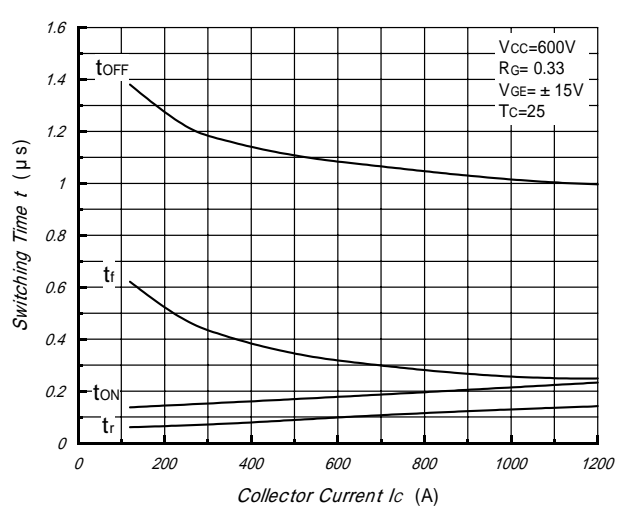


Fig.6- Collector Current vs. Switching Time (Typical)



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

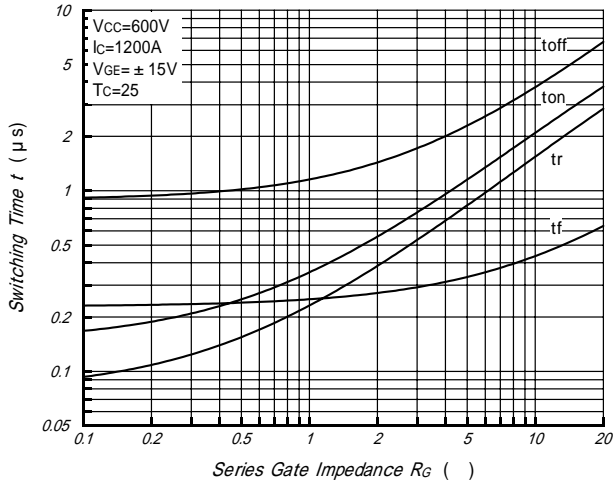


Fig.8- Forward Characteristics of Free Wheeling Diode (Typical)

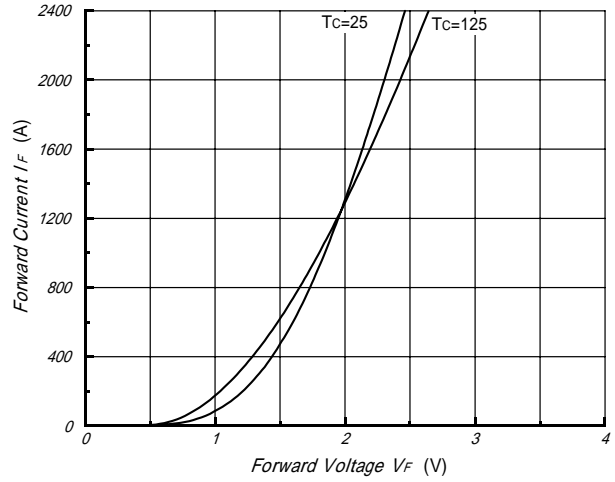


Fig.9- Reverse Recovery Characteristics (Typical)

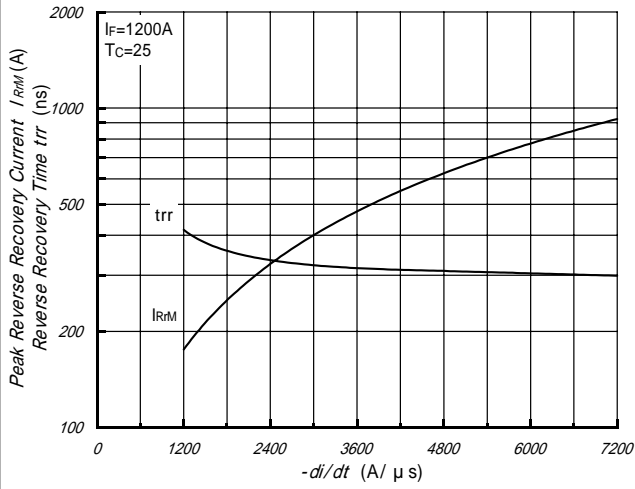


Fig.10- Reverse Bias Safe Operating Area (Typical)

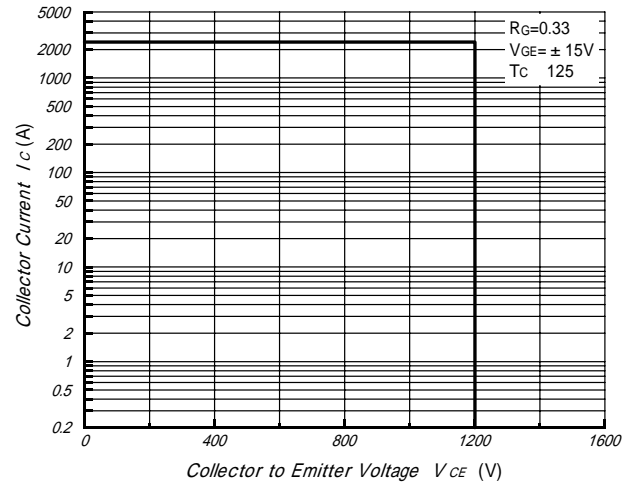


Fig.11- Transient Thermal Impedance

