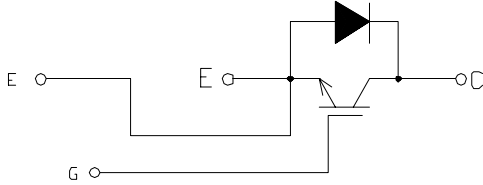


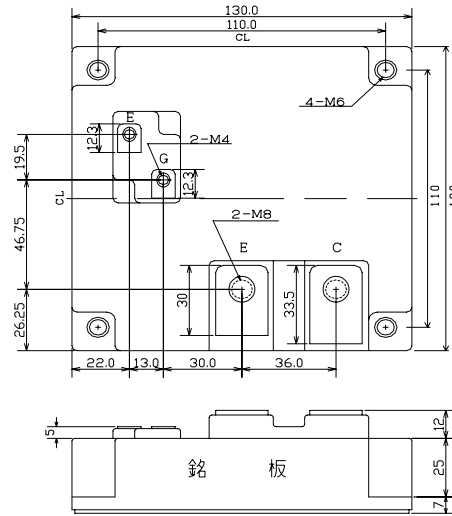
IGBT MODULE Single 1200A 1200V

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	
	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 Bus Bar to Main Terminals	F _{TOR}	3	
			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	V _{CC} = 600V R _L = 0.5 ohm R _C = 0.33 ohm V _{GE} = +/- 15V	-	0.25	0.45	μs
	Turn-on Time		-	0.40	0.70	
	Fall Time		-	0.25	0.35	
	Turn-off Time		-	1.00	1.50	

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

Item	Symbol	Rated Value	Unit
Forward Current	DC	I _F	1200
	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	Junction to Case	-	-	0.022	°C/W
	DIODE		-	-	0.043	

PHMB1200B12

Fig.1- Output Characteristics (Typical)

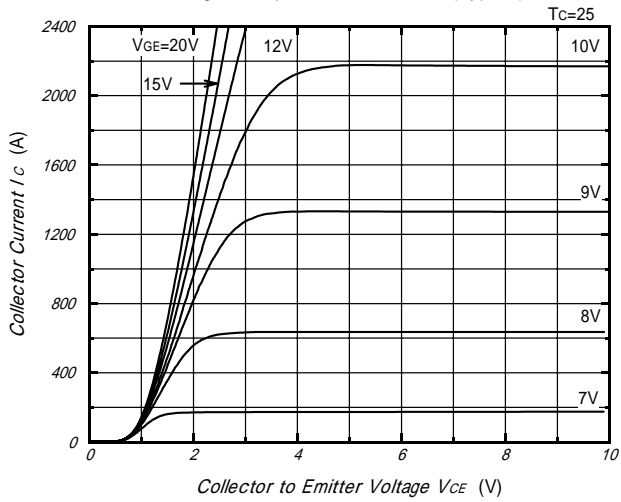


Fig.2- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

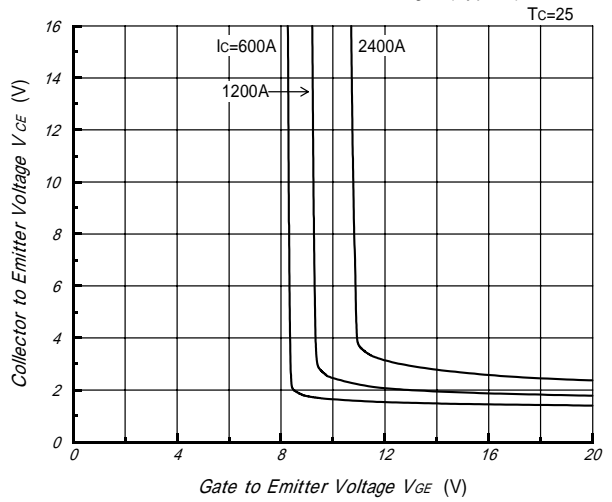


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

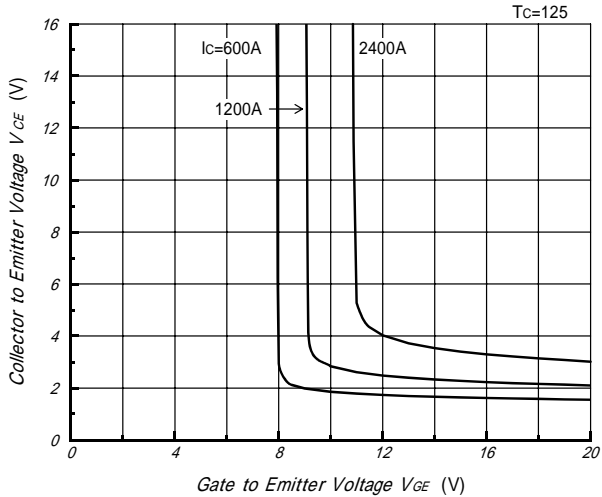


Fig.4- Gate Charge vs. Collector to Emitter Voltage (Typical)

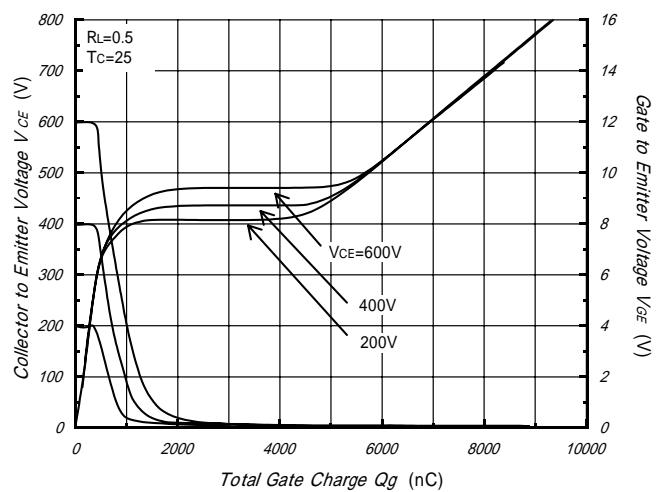


Fig.5- Capacitance vs. Collector to Emitter Voltage (Typical)

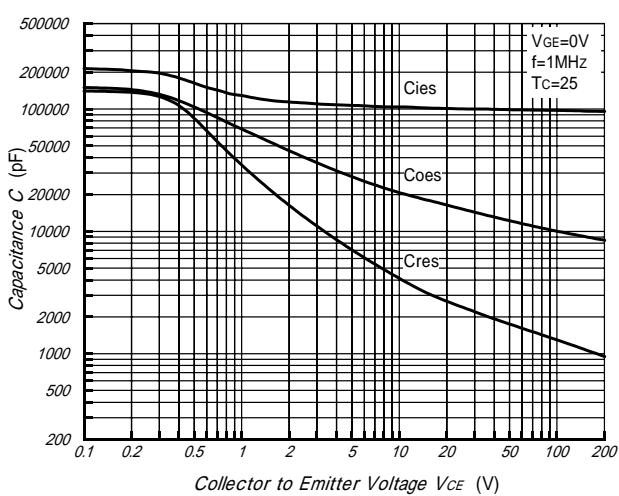
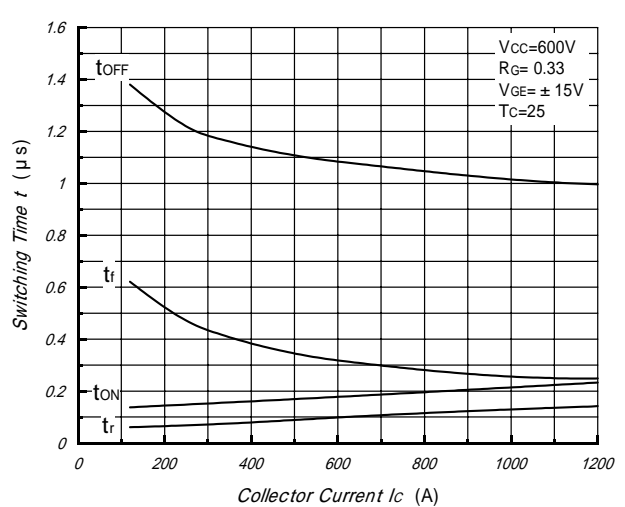


Fig.6- Collector Current vs. Switching Time (Typical)



PHMB1200B12

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

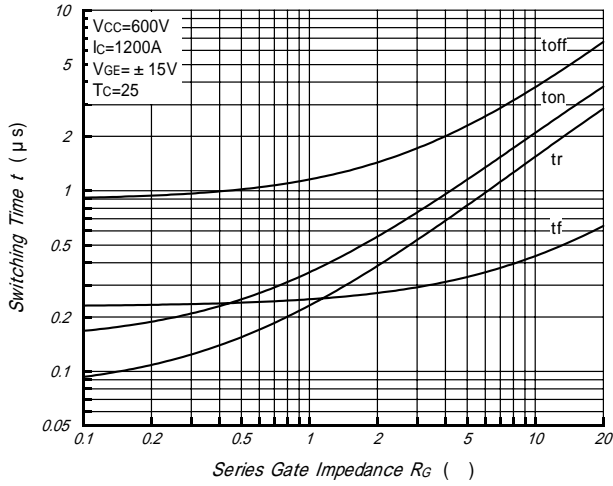


Fig.8- Forward Characteristics of Free Wheeling Diode (Typical)

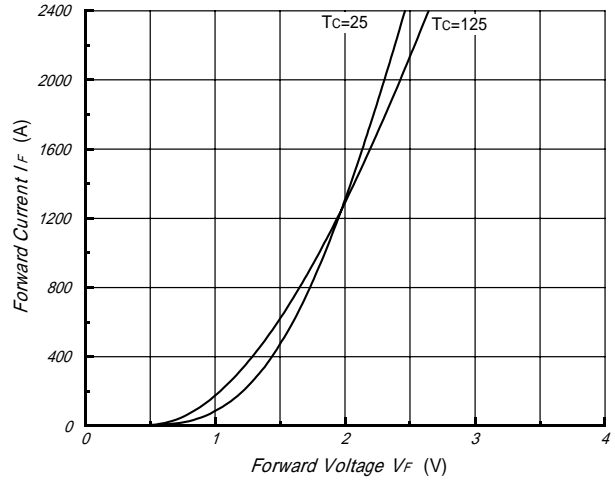


Fig.9- Reverse Recovery Characteristics (Typical)

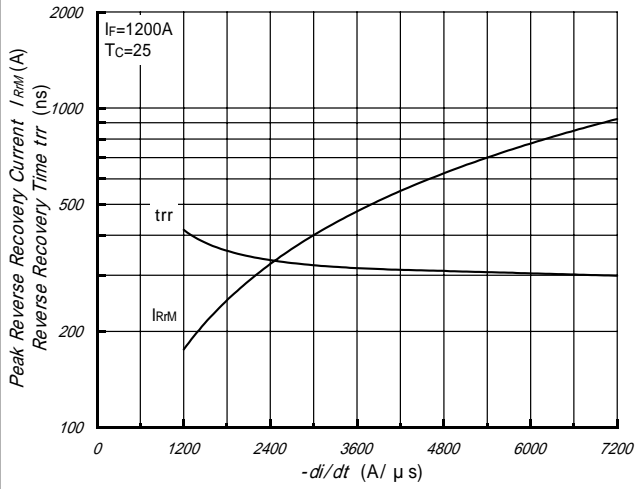


Fig.10- Reverse Bias Safe Operating Area (Typical)

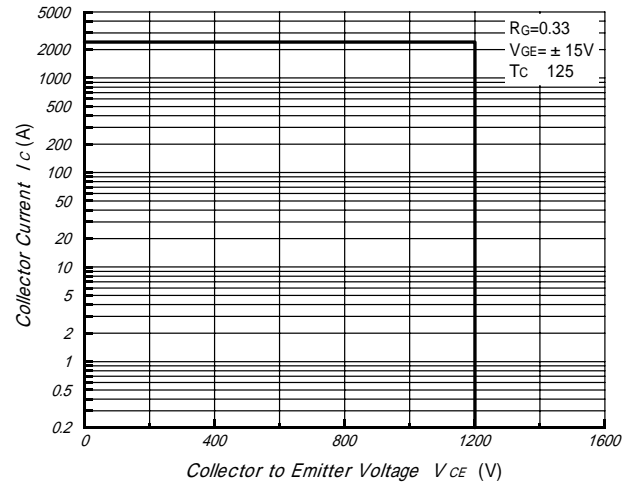
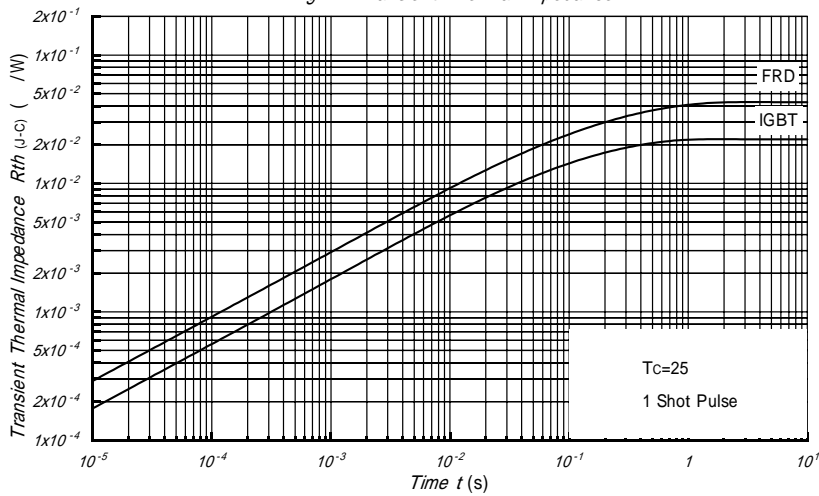


Fig.11- Transient Thermal Impedance



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