

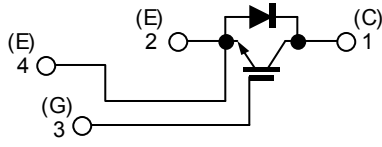
IGBT Module-Single

600 A, 1200V

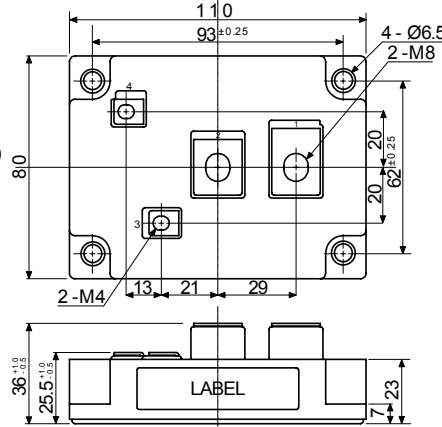
PHMB600BS12

PHMB600BS12C

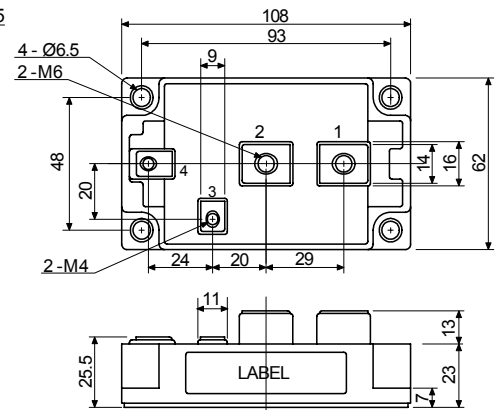
□ 回路図 : CIRCUIT



□ 外形寸法図 : OUTLINE DRAWING



PHMB600BS12



PHMB600BS12C

Dimension: [mm]

□ 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-Emittor Voltage	V <sub>CEs</sub>	1,200	V		
ゲート・エミッタ間電圧 Gate-Emittor 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>	3,600	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	Module Base to Heatsink Busbar to Terminals	F <sub>tor</sub>	PHMB600BS12	3 (30.6)	N·m (kgf·cm)
			PHMB600BS12C	3 (30.6)	
			M4	1.4 (14.3)	
			M8	10.5 (107)	
			M6	3 (30.6)	

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

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
コレクタ遮断電流 Collector-Emittor Cut-Off Current	I <sub>CEs</sub>	V <sub>CE</sub> = 1200V, V <sub>GE</sub> = 0V	-	-	6.0	mA
ゲート漏れ電流 Gate-Emittor 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-Emittor Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> = 600A, V <sub>GE</sub> = 15V	-	2.3	2.7	V
ゲートしきい値電圧 Gate-Emittor Threshold Voltage	V <sub>GE(th)</sub>	V <sub>CE</sub> = 5V, I <sub>c</sub> = 600mA	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	-	37,800	-	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> = 1.0Ω R <sub>G</sub> = 2.7Ω 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	

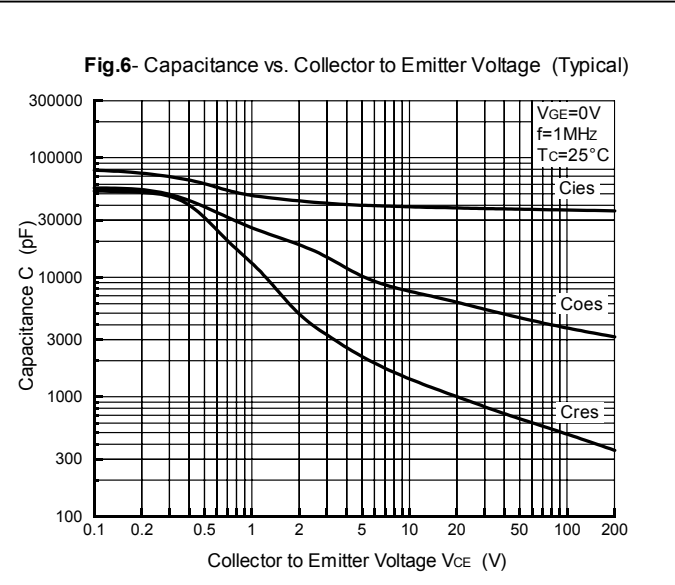
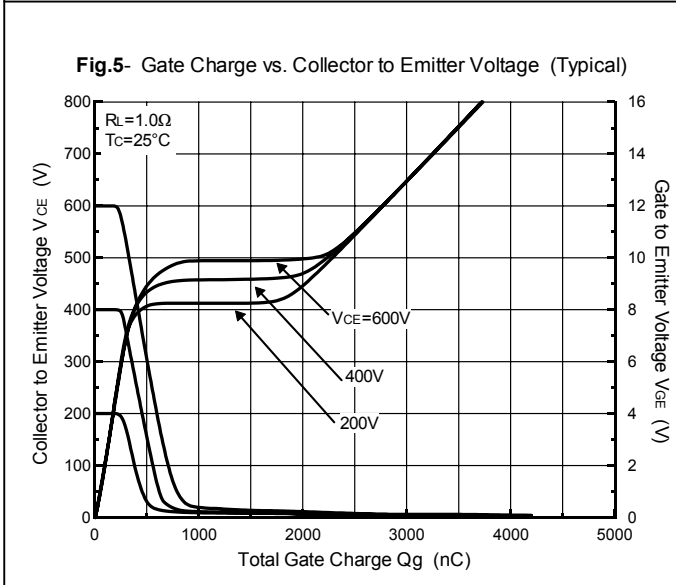
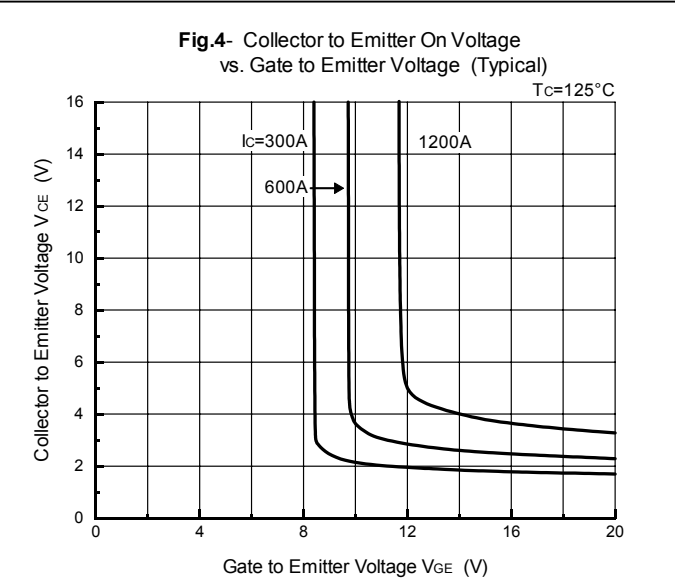
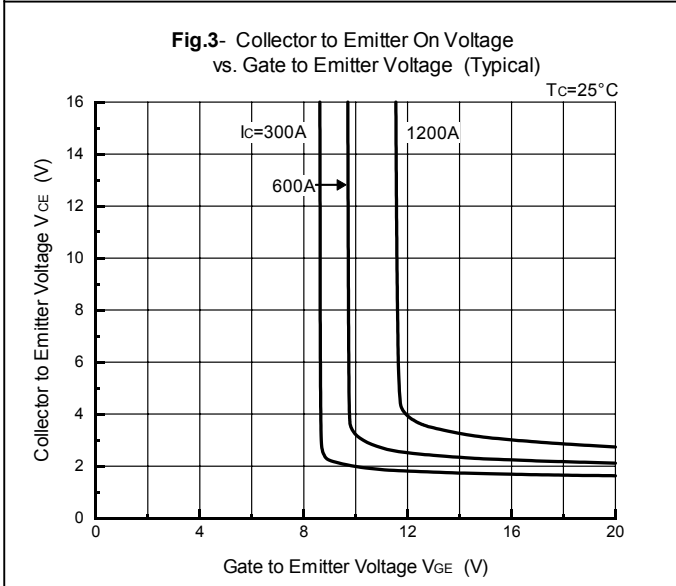
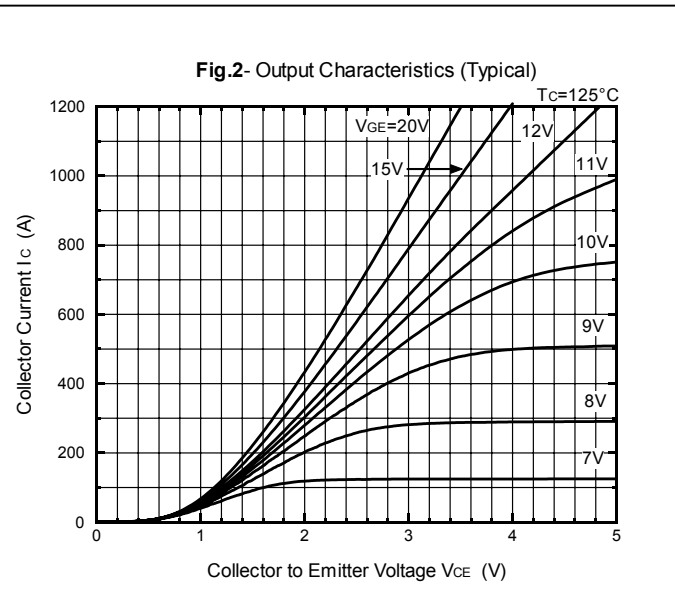
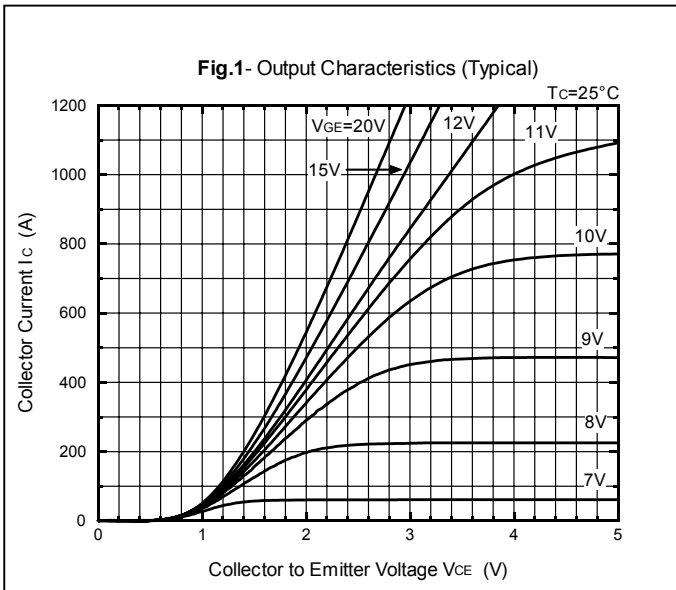
Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
順電圧 Peak Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 600A, V <sub>GE</sub> = 0V	-	2.2	2.6	V
逆回復時間 Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 600A, V <sub>GE</sub> = -10V di/dt = 1200A/μs	-	0.2	0.3	μs

□ 熱的特性 : THERMAL CHARACTERISTICS

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
熱抵抗 Thermal Impedance	IGBT	R <sub>th(j-c)</sub> Junction to Case	-	-	0.035	°C/W
	Diode		-	-	0.071	

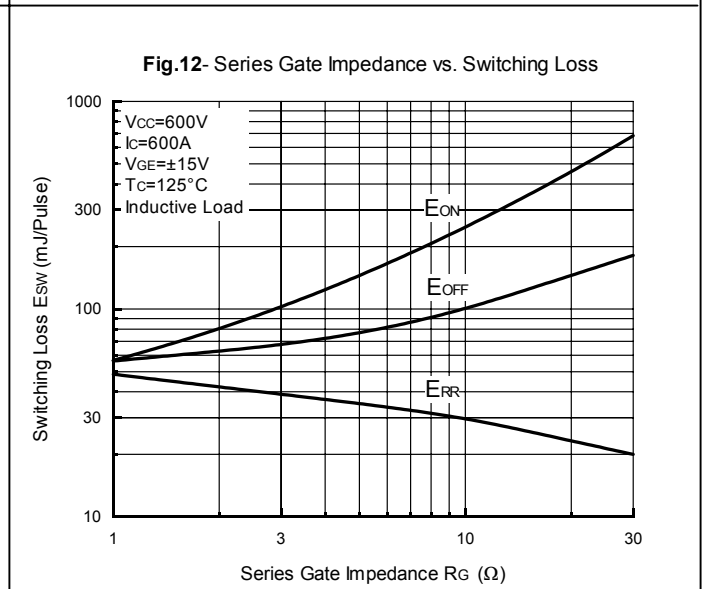
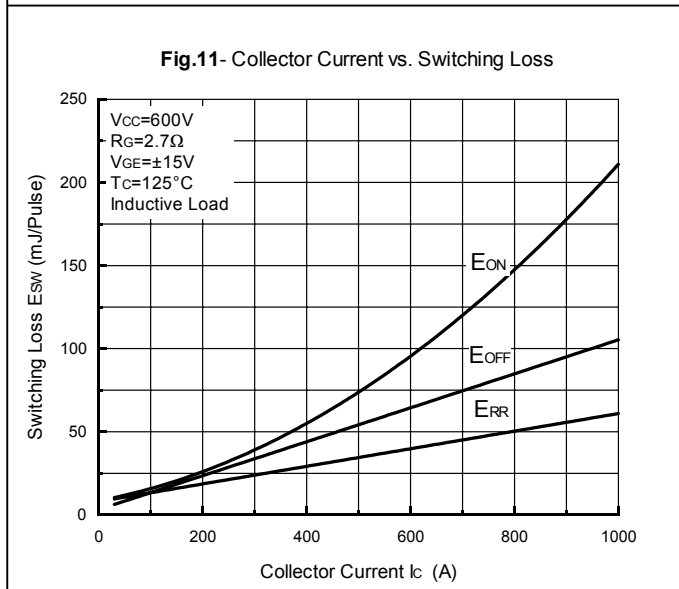
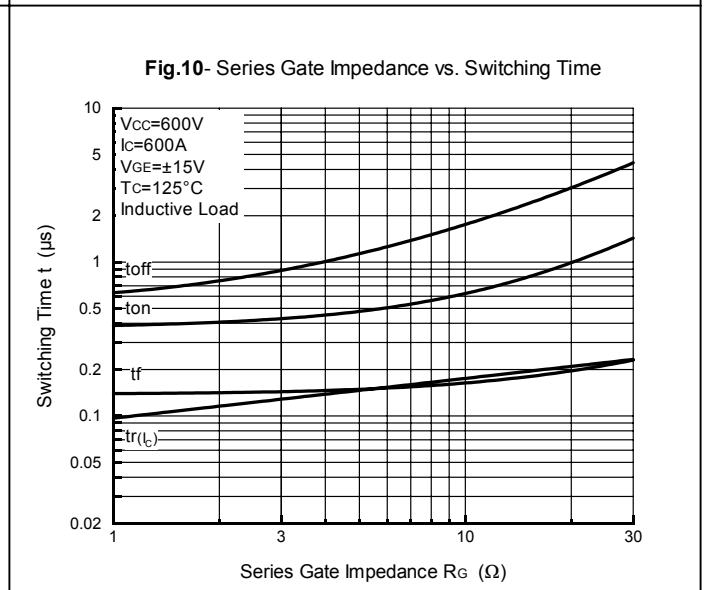
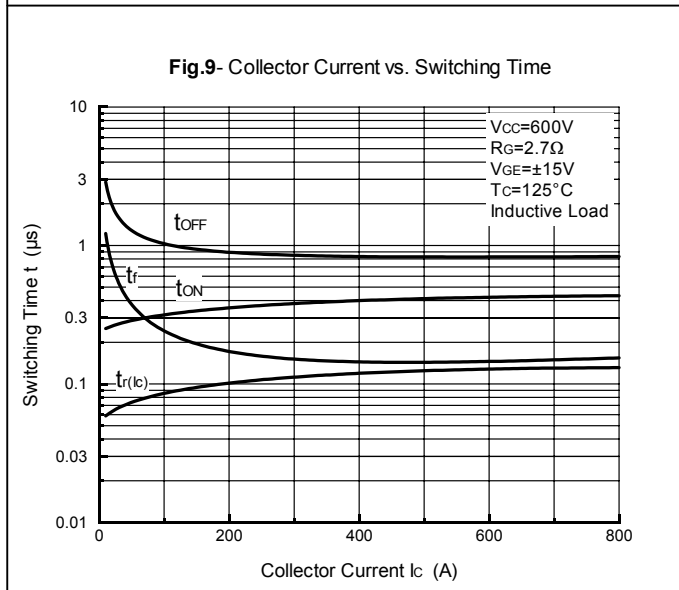
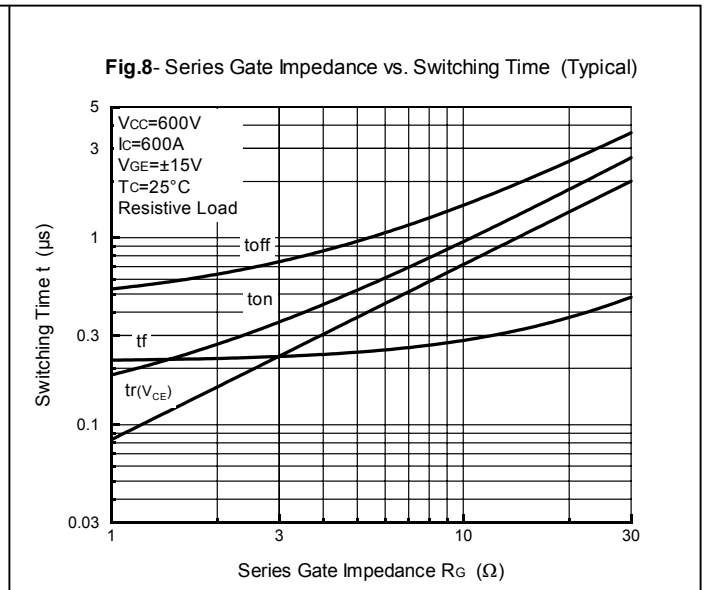
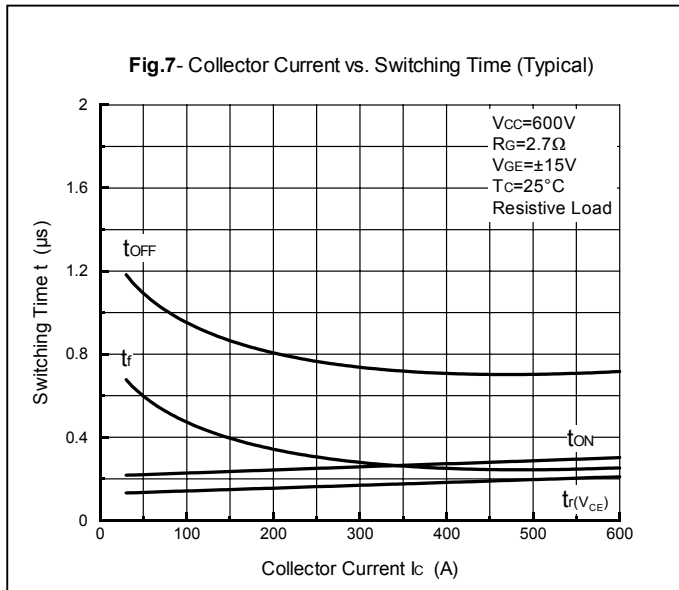
PHMB600BS12

PHMB600BS12C



PHMB600BS12

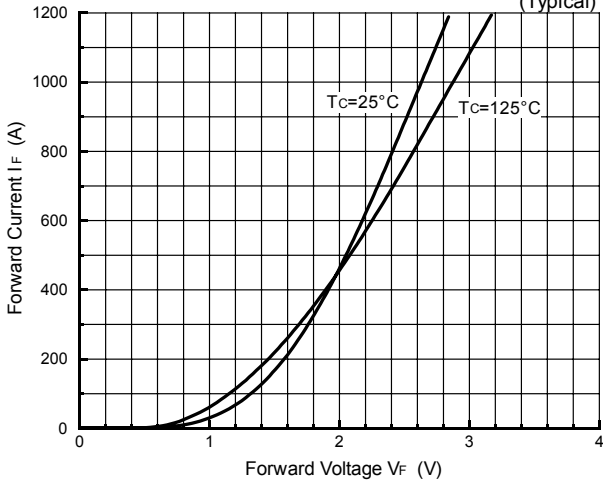
PHMB600BS12C



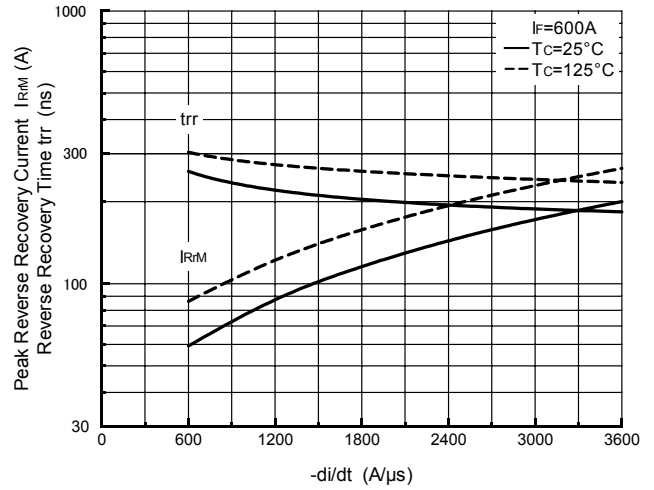
PHMB600BS12

PHMB600BS12C

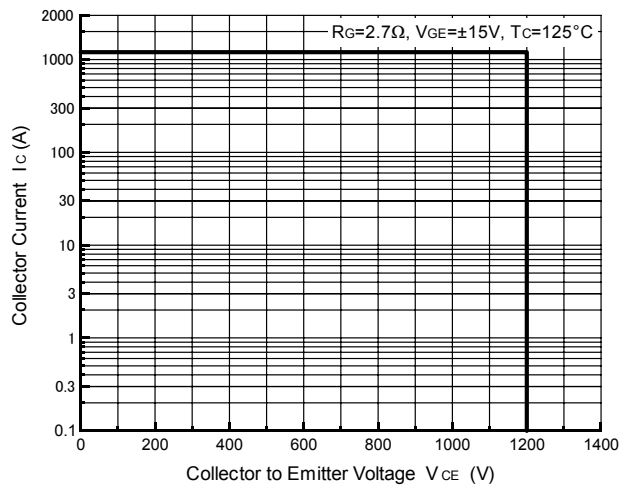
**Fig.13- Forward Characteristics of Free Wheeling Diode (Typical)**



**Fig.14- Reverse Recovery Characteristics (Typical)**



**Fig.15- Reverse Bias Safe Operating Area**



**Fig.16- Transient Thermal Impedance**

