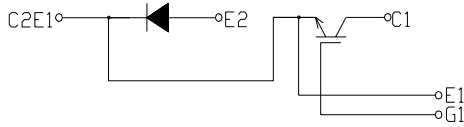


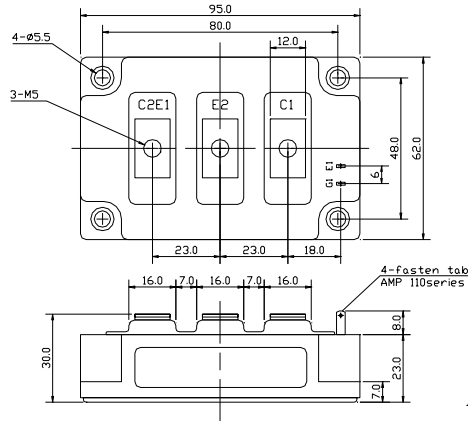
# IGBT MODULE Chopper 300A 600V

# PCHMB300A6

## CIRCUIT



## OUTLINE DRAWING



2- fasten- tab No 110

Dimension(mm)

Approximate Weight : 430g

## MAXMUM RATINGS (Tc=25°C)

Item	Symbol	PCHMB300A6	Unit
Collector-Emitter Voltage	$V_{CES}$	600	V
Gate - Emitter Voltage	$V_{GES}$	+/- 20	V
Collector Current	DC	$I_c$	300
	1 ms	$I_c$	600
Collector Power Dissipation	$P_c$	1040	W
Junction Temperature Range	$T_j$	-40 to +150	°C
Storage Temperature Range	$T_{sig}$	-40 to +125	°C
Isolation Voltage (Terminal to Base AC, 1 min.)	$V_{ISO}$	2500	V
Mounting Torque	Module Base to Heat sink	$F_{TOR}$	3.06
	Bus Bar to Main Terminals		
			Nom

## ELECTRICAL CHARACTERISTICS (Tc=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Emitter Cut-Off Current	$I_{CES}$	$V_{CE}=600V, V_{GE}=0V$	-	-	3.0	mA
Gate-Emitter Leakage Current	$I_{GES}$	$V_{GE}=\pm 20V, V_{CE}=0V$	-	-	1.0	μA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_c=300A, V_{GE}=15V$	-	2.1	2.6	V
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$V_{CE}=5V, I_c=300mA$	4.0	-	8.0	V
Input Capacitance	$C_{ies}$	$V_{CE}=10V, V_{GE}=0V, f=1MHz$	-	30000	-	pF
Switching Time	Rise Time	$V_{CC}=300V$	-	0.2	0.4	μs
	Turn-on Time	$R_L=1\text{ohm}$	-	0.4	0.75	
	Fall Time	$R_G=2.0\text{ohm}$	-	0.2	0.35	
	Turn-off Time	$V_{GE}=\pm 15V$	-	0.6	0.8	

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

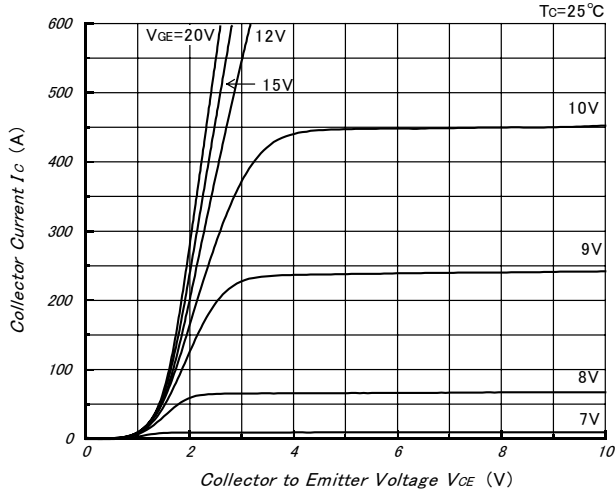
Item	Symbol	Rated Value	Unit
Forward Current	DC	$I_F$	300
	1 ms	$I_{FM}$	600
			A

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Peak Forward Voltage	$V_F$	$I_F=300A, V_{GE}=0V$	-	1.9	2.4	V
Reverse Recovery Time	$t_r$	$I_F=300A, V_{GE}=-10V, di/dt=300A/\mu s$	-	0.15	0.25	μs

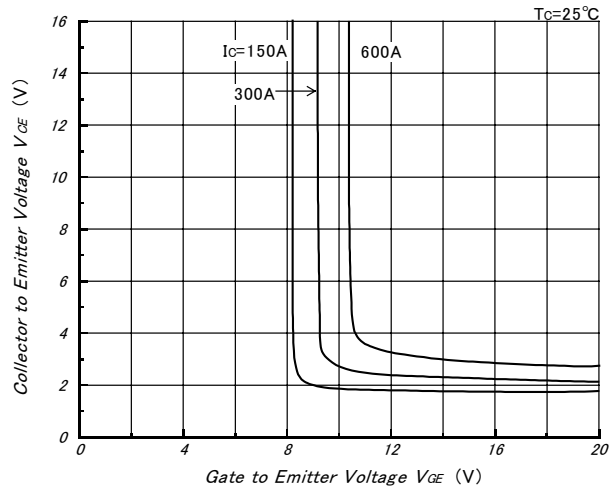
## THERMAL CHARACTERISTICS

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Thermal Impedance	IGBT	$R_{th(j-c)}$ Junction to Case	-	-	0.12	°C/W
	DIODE		-	-	0.24	

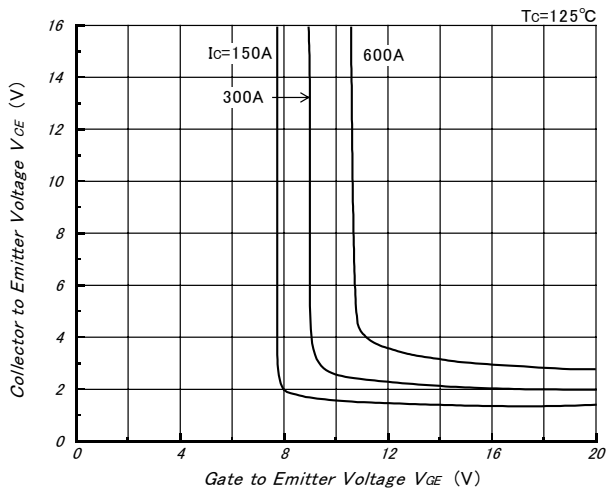
*Fig.1- Output Characteristics (Typical)*



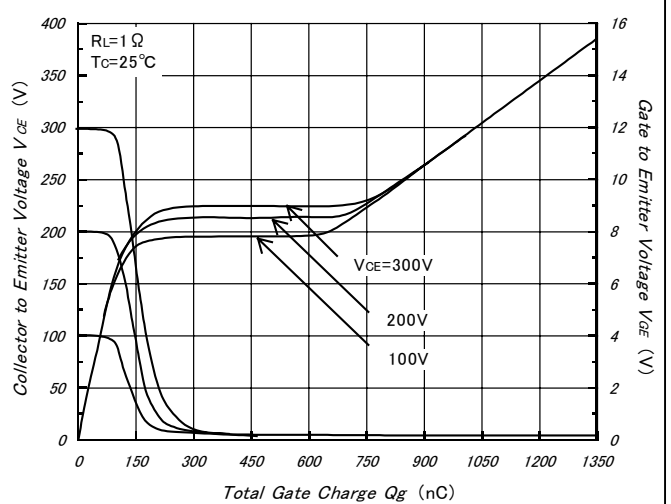
*Fig.2- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)*



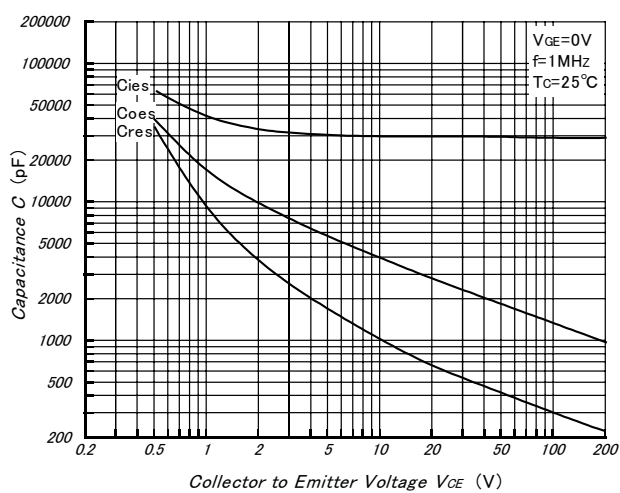
*Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)*



*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)*

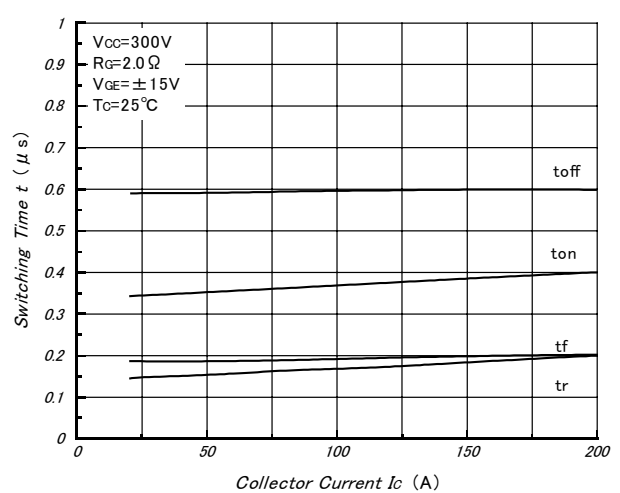


Fig.7- Series Gate Impedance vs. Switching Time (Typical)

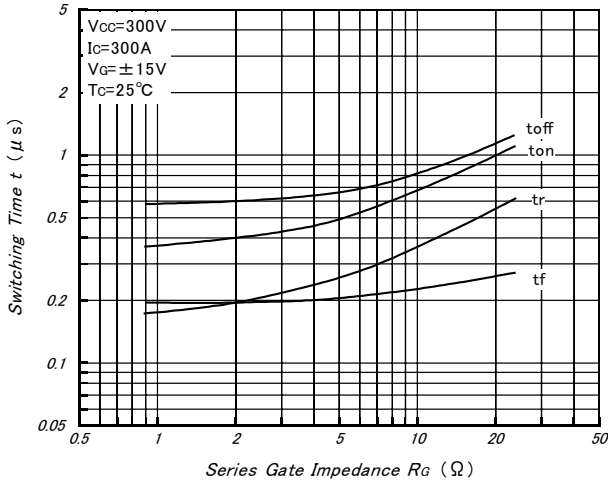


Fig.8- Forward Characteristics of Free Wheeling Diode (Typical)

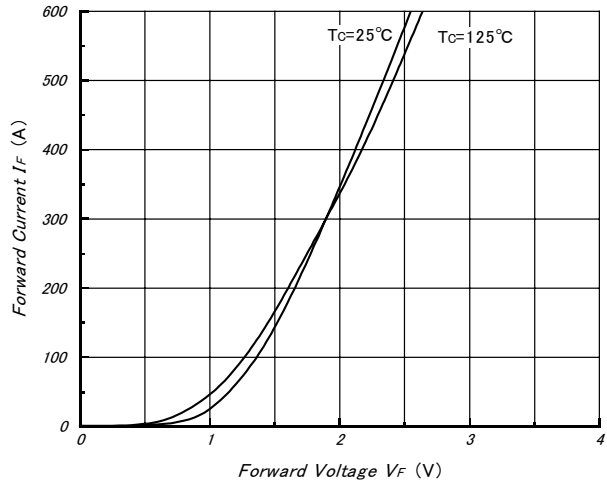


Fig.9- Reverse Recovery Characteristics (Typical)

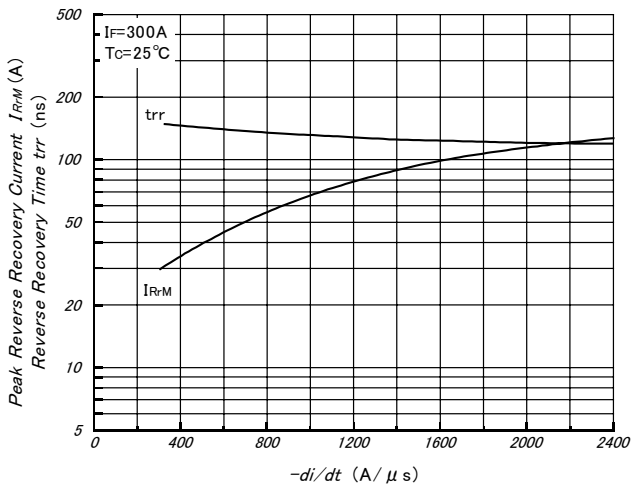


Fig.10- Reverse Bias Safe Operating Area (Typical)

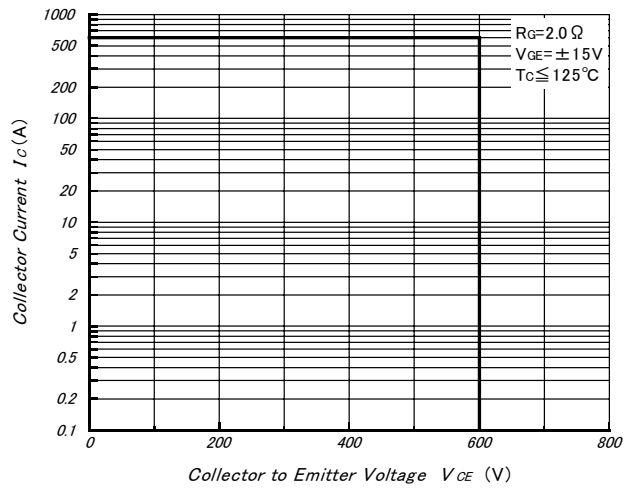


Fig.11- Transient Thermal Impedance

