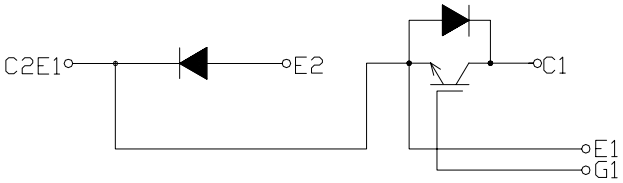
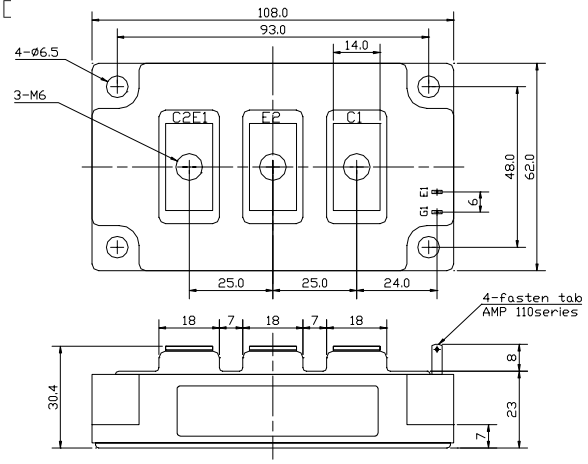
日本インター株式会社

IGBT Module-Chopper　400 A, 600V　PCHMB400A6A

□ 回路図 : *CIRCUIT*





Dimension: [mm]

□ 最大定格 : *MAXIMUM RATINGS* (T_C=25℃)　　重量：500g

Item		Symbol	Rated Value	Unit
コレクタ・エミッタ間電圧 Collector-Emitter Voltage		V_{CES}	600	V
ゲート・エミッタ間電圧 Gate-Emitter Voltage		V_{GES}	±20	V
コレクタ電流 Collector Current	DC	I_C	400	A
	1ms	I_{CP}	800	
コレクタ損失 Collector Power Dissipation		P_C	1,470	W
接合温度 Junction Temperature Range		T_j	−40〜+150	℃
保存温度 Storage Temperature Range		T_{stg}	−40〜+125	℃
絶縁耐圧(Terminal to Base AC,1minute) Isolation Voltage		V_{iso}	2,500	$V_{(RMS)}$
締め付けトルク Mounting Torque	Module Base to Heatsink	F_{tor}	3（30.6）	N・m (kgf・cm)
	Busbar to Main Terminal			

□ 電気的特性 : *ELECTRICAL CHARACTERISTICS* (T_C=25℃)

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
コレクタ遮断電流 Collector-Emitter Cut-Off Current		I_{CES}	V_{CE} = 600V, V_{GE} = 0V	−	−	4.0	mA
ゲート漏れ電流 Gate-Emitter Leakage Current		I_{GES}	V_{GE} = ±20V, V_{CE} = 0V	−	−	1.0	μA
コレクタ・エミッタ間飽和電圧 Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C = 400A, V_{GE} = 15V	−	2.1	2.6	V
ゲートしきい値電圧 Gate-Emitter Threshold Voltage		$V_{GE(th)}$	V_{CE} = 5V, I_C = 400mA	4.0	−	8.0	V
入力容量 Input Capacitance		C_{ies}	V_{CES} = 10V, V_{GE} = 0V, f = 1MHz	−	40,000	−	pF
スイッチング時間 Switching Time	上昇時間 Rise Time	t_r	V_{CC} = 300V R_L = 0.75Ω R_G = 1.6Ω V_{GE} = ±15V	−	0.25	0.45	μs
	ターンオン時間 Turn-on Time	t_{on}		−	0.45	0.85	
	下降時間 Fall Time	t_f		−	0.20	0.35	
	ターンオフ時間 Turn-off Time	t_{off}		−	0.60	0.80	

□フリーホイーリングダイオードの特性: *FREE WHEELING DIODE RATINGS & CHARACTERISTICS* (T_C=25℃)

Item		Symbol	Rated Value	Unit
順電流 Forward Current	DC	I_F	400	A
	1ms	I_{FM}	800	

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
順電圧 Peak Forward Voltage	V_F	I_F = 400A, V_{GE} = 0V	−	1.9	2.4	V
逆回復時間 Reverse Recovery Time	t_{rr}	I_F = 400A, V_{GE} = -10V di/dt = 400A/μs	−	0.15	0.25	μs

□ 熱的特性 : *THERMAL CHARACTERISTICS*

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
熱抵抗 Thermal Impedance	IGBT	$R_{th(j-c)}$	Junction to Case	−	−	0.085	℃／W
	Diode			−	−	0.20	

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Fig.1- Output Characteristics (Typical)

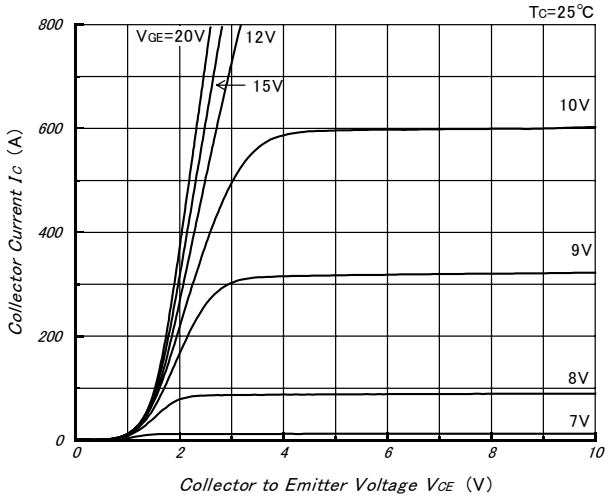

Fig.2- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

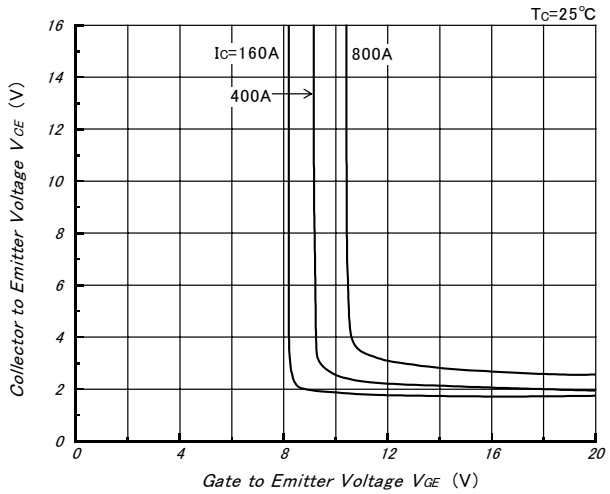

Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

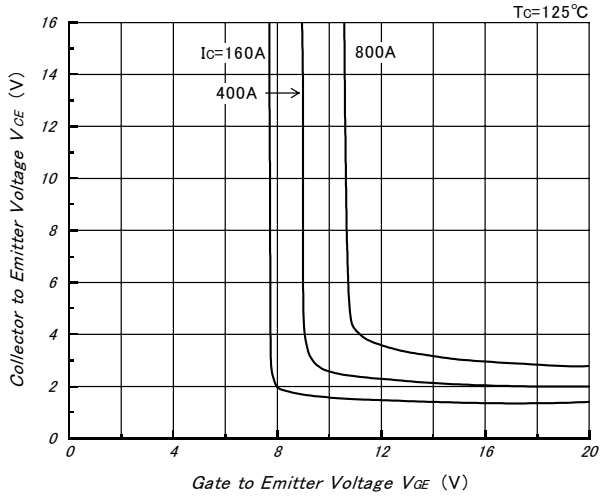

Fig.4- Gate Charge vs. Collector to Emitter Voltage (Typical)

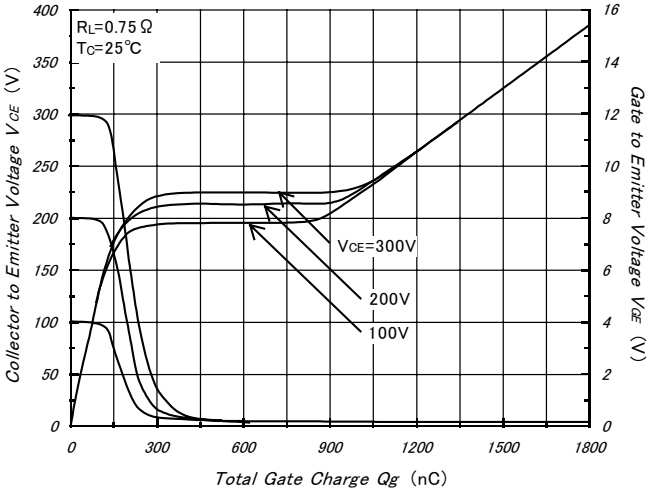

Fig.5- Capacitance vs. Collector to Emitter Voltage (Typical)

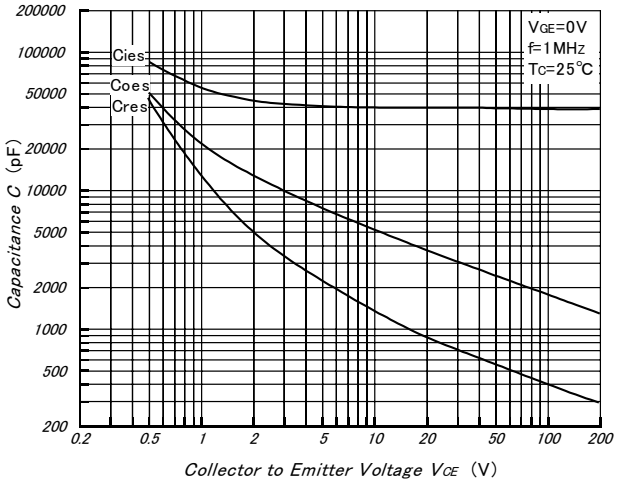

Fig.6- Collector Current vs. Switching Time (Typical)

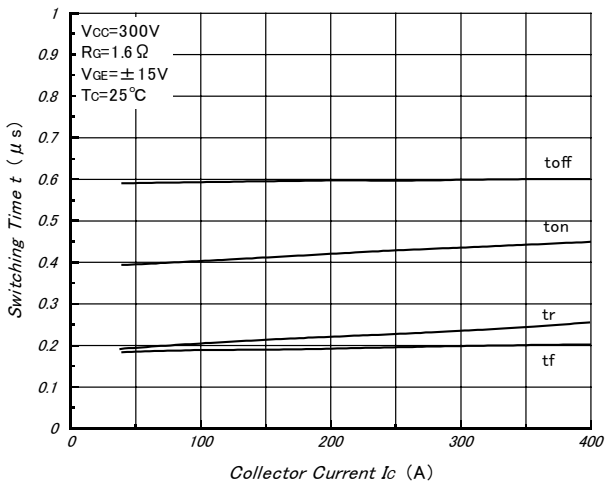

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Fig.7- Series Gate Impedance vs. Switching Time (Typical)

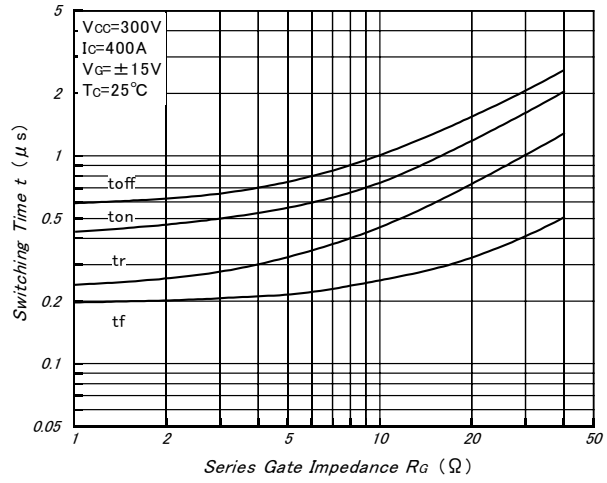

Fig.8- Forward Characteristics of Free Wheeling Diode (Typical)

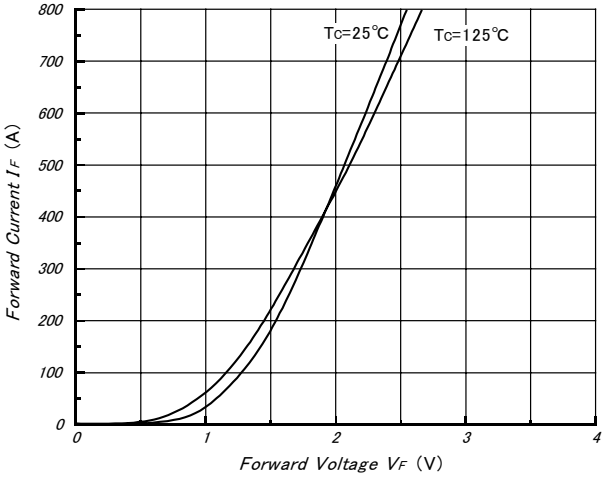

Fig.9- Reverse Recovery Characteristics (Typical)

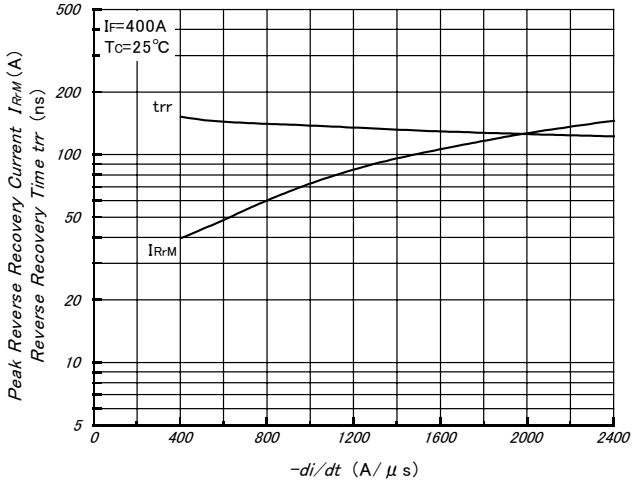

Fig.10- Reverse Bias Safe Operating Area (Typical)

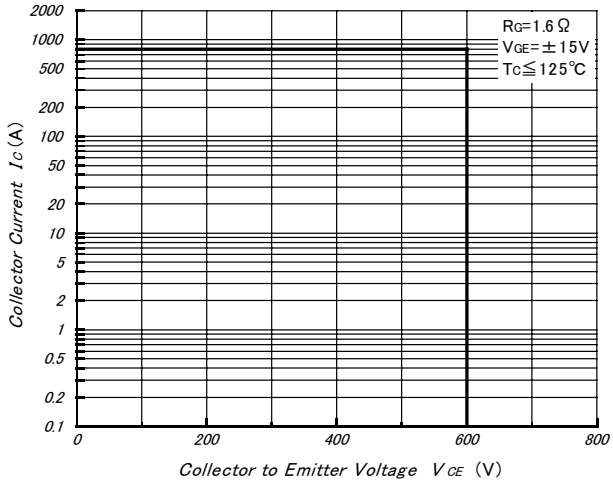

Fig.11- Transient Thermal Impedance