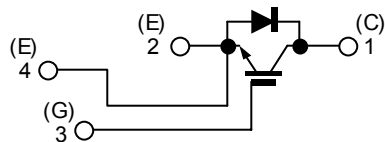
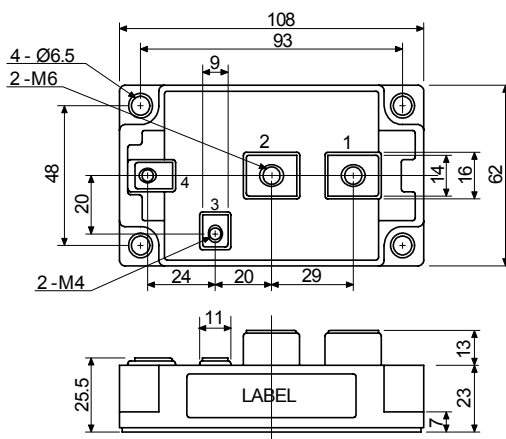


I G B T Module-Single

3 0 0 A, 1 2 0 0 V

P H M B 3 0 0 B 1 2

□ 回路図 : *CIRCUIT*□ 外形寸法図 : *OUTLINE DRAWING*

Dimension: [mm]

□ 最大定格 : *MAXIMUM RATINGS* ($T_c = 25^\circ\text{C}$)

I t e m		S y m b o l	R a t e d V a l u e		U n i t
コレクタ・エミッタ間電圧 Collector-Emitter Voltage		V _{CES}	1, 200		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	300		A
	1 m s	I _{CP}	600		
コレクタ損失 Collector Power Dissipation		P _C	1, 460		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, 1 minute) Isolation Voltage		V _{ISO}	2, 500		V _(RMS)
締め付けトルク Mounting Torque	Module Base to Heatsink		3 (30.6)		N・m (kgf・cm)
	Busbar to Main Terminal		M4	1.4 (14.3)	
			M6	3 (30.6)	

□ 電気的特性 : *ELECTRICAL CHARACTERISTICS* ($T_c = 25^\circ\text{C}$)

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
コレクタ遮断電流 Collector-Emitter Cut-Off Current		I_{CES}	$V_{CE} = 1200V, V_{GE} = 0V$	—	—	6.0	mA
ゲート漏れ電流 Gate-Emitter Leakage Current		I_{GES}	$V_{GE} = \pm 20V, V_{CE} = 0V$	—	—	1.0	μA
コレクタ・エミッタ間飽和電圧 Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 300A, V_{GE} = 15V$	—	1.9	2.4	V
ゲートしきい値電圧 Gate-Emitter Threshold Voltage		$V_{GE(th)}$	$V_{CE} = 5V, I_C = 300mA$	4.0	—	8.0	V
入力容量 Input Capacitance		C_{ies}	$V_{CE} = 10V, V_{GE} = 0V, f = 1MHz$	—	25,000	—	pF
スイッチング時間 Switching Time	上昇時間 Rise Time	t_r	$V_{CC} = 600V$ $R_g = 2\Omega$ $R_g = 1.3\Omega$ $V_{GE} = \pm 15V$	—	0.25	0.45	μs
	ターンオン時間 Turn-on Time	t_{on}		—	0.40	0.70	
	下降時間 Fall Time	t_f		—	0.25	0.35	
	ターンオフ時間 Turn-off Time	t_{off}		—	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* ($T_c = 25^\circ\text{C}$)

I t e m		S y m b o l	R a t e d V a l u e	U n i t
順電流 Forward Current	DC	I_F	300	A
	1 m s	I_{FM}	600	

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
順電圧 Peak Forward Voltage		V_F	$I_F = 300A, V_{GE} = 0V$	—	1.9	2.4	V
逆回復時間 Reverse Recovery Time		t_{rr}	$I_F = 300A, V_{GE} = -10V$ $di/dt = 600A/\mu\text{s}$	—	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	$R_{th(j-c)}$	Junction to Case	—	—	0.086	$^\circ\text{C}/\text{W}$
	Diode			—	—	0.16	

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Fig.1- Output Characteristics (Typical)

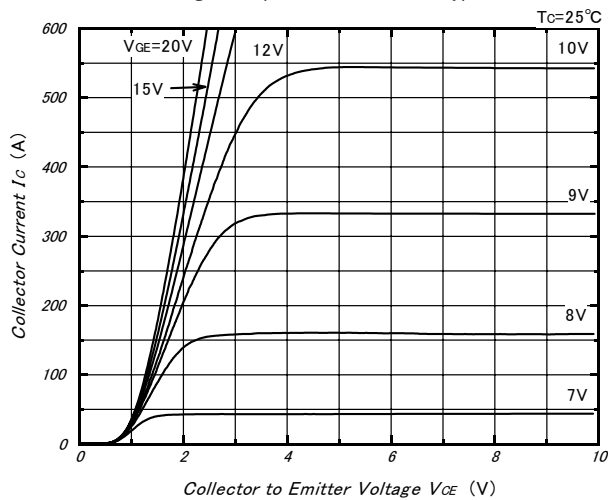


Fig.2- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

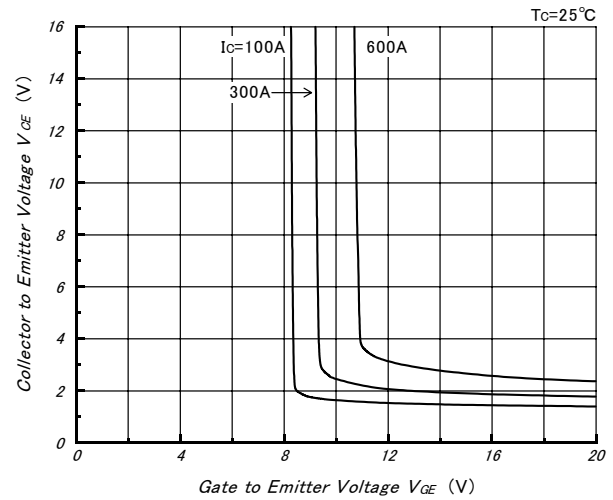


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

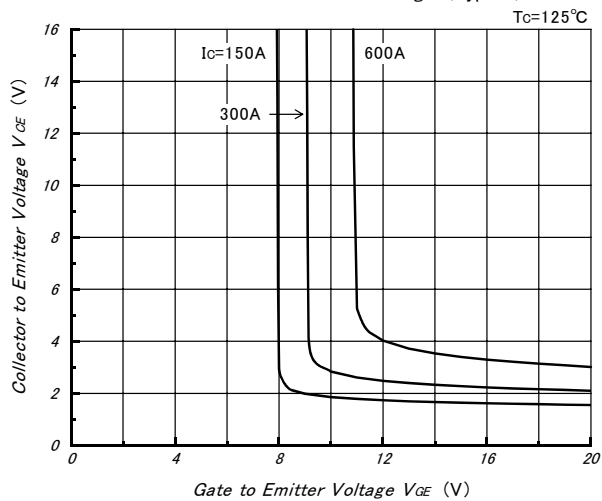


Fig.4- Gate Charge vs. Collector to Emitter Voltage (Typical)

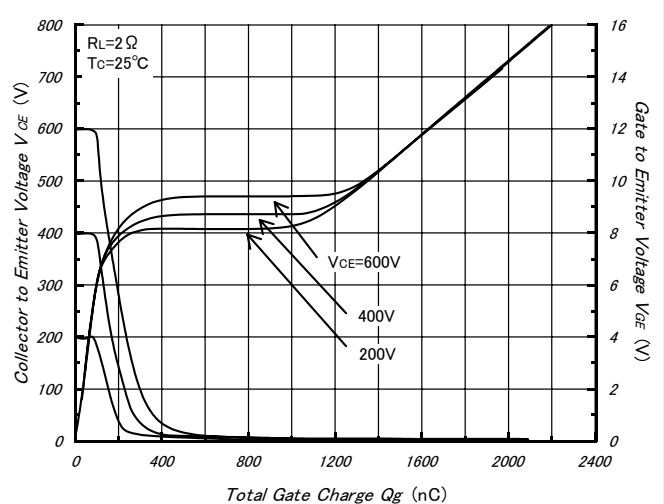


Fig.5- Capacitance vs. Collector to Emitter Voltage (Typical)

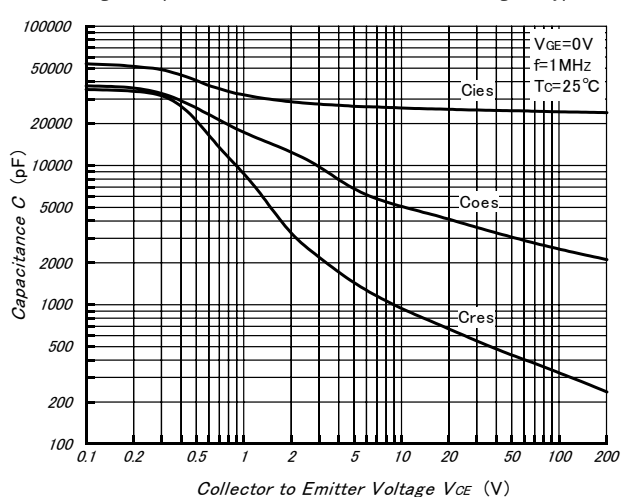
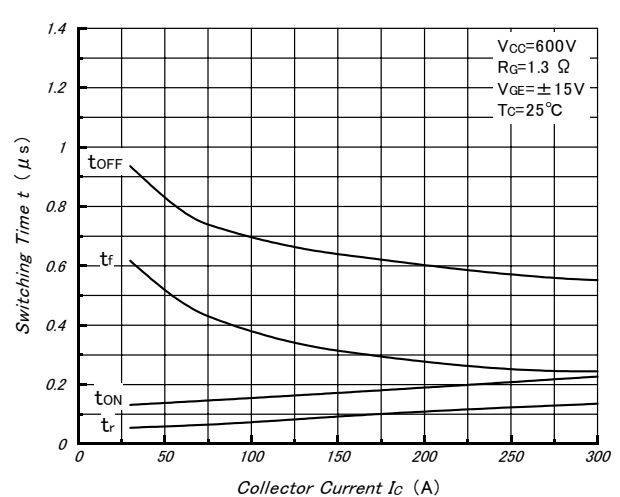


Fig.6- Collector Current vs. Switching Time (Typical)



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

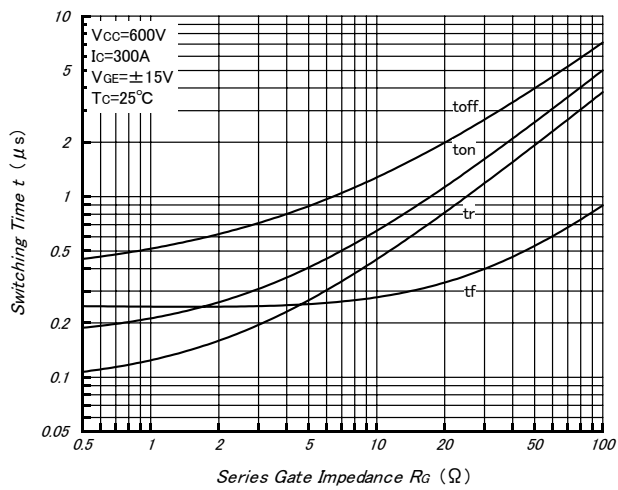


Fig.8- Forward Characteristics of Free Wheeling Diode (Typical)

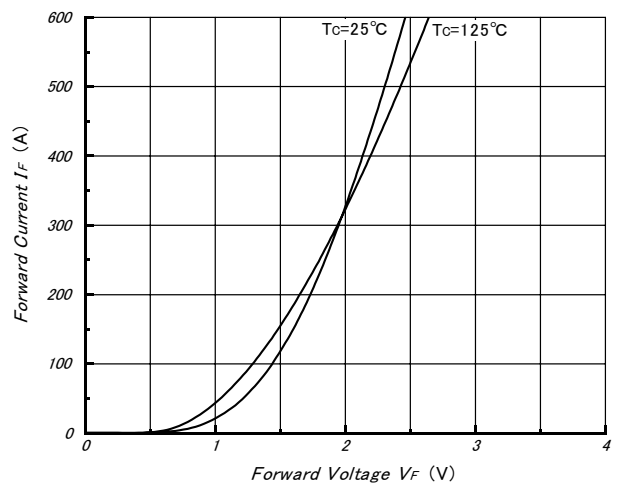


Fig.9- Reverse Recovery Characteristics (Typical)

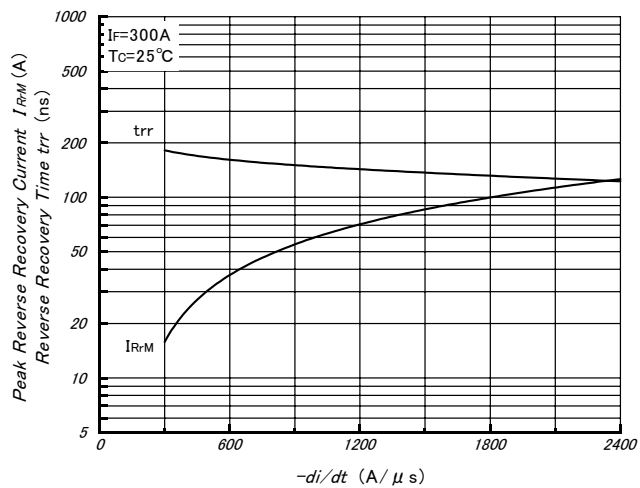


Fig.10- Reverse Bias Safe Operating Area

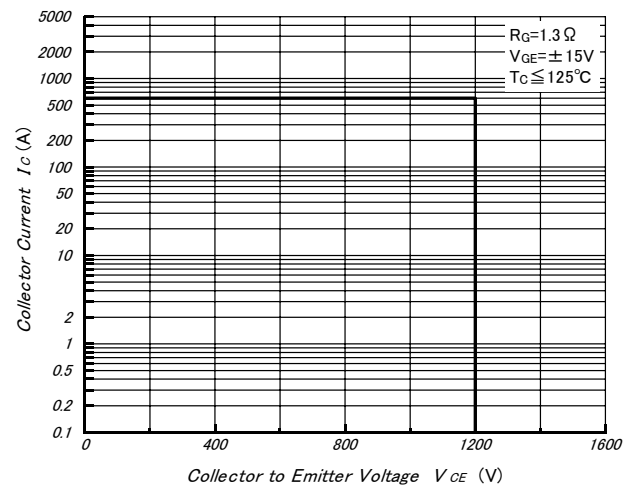


Fig.11- Transient Thermal Impedance

