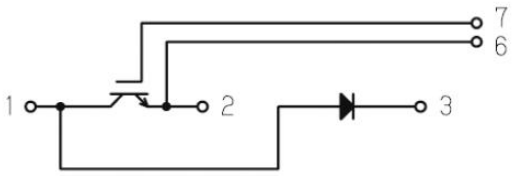
KYOCERA

IGBT Module
300 A／1200V

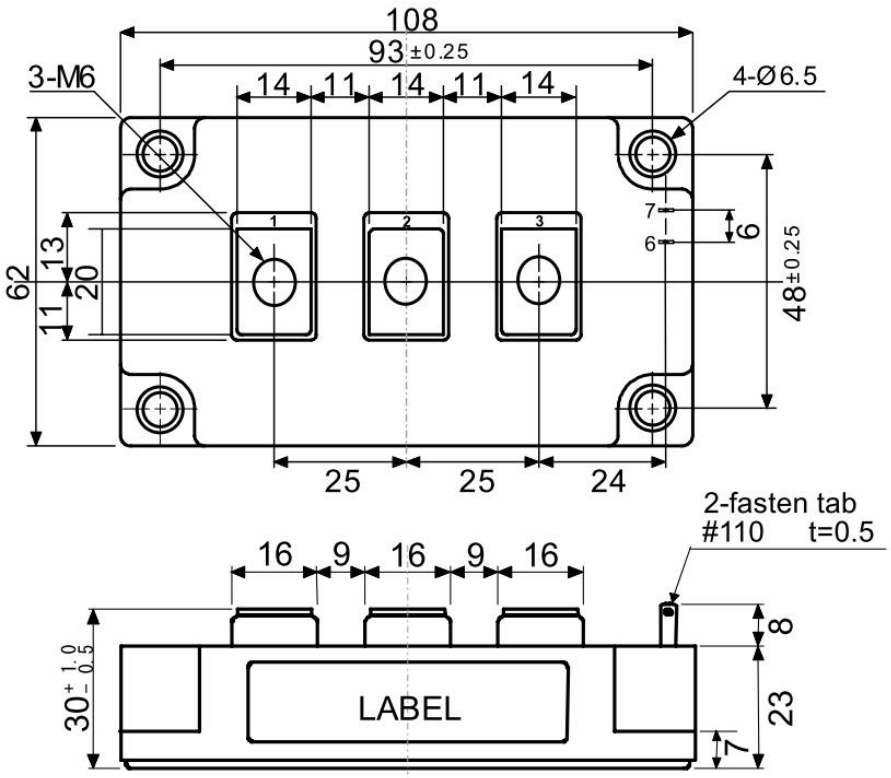
PRHMB300W12

□ 回路図 ： *CIRCUIT*



□ 概略図 ： *SCHEMATIC DIAGRAM*

Dimension: [mm]



□ 最大定格 ： *MAXIMUM RATINGS* (at Tc=25℃ unless otherwise specified)

	Item		Symbol	Condition	Rated Value	Unit
IGBT	コレクタ・エミッタ間電圧 Collector-Emitter Voltage		V_{CES}	G-E Short	1200	V
	ゲート・エミッタ間電圧 Gate-Emitter Voltage		V_{GES}	C-E Short	±20	V
	コレクタ電流 Collector Current		I_C	DC Tc=85℃	300	A
			I_{CP}	Pulse ≦ 1ms	600	
	コレクタ損失 Collector Power Dissipation		P_C	Tj=175℃	1578	W
				Tj=150℃	1315	
Diode	繰り返しピーク逆電圧 Repetitive peak reverse voltage		V_{RRM}		1200	V
	順電流 Forward Current		I_F		300	A
			I_{FM}	Pulse ≦ 1ms	600	
最大接合温度 Maximum Junction Temperature			T_{jMAX}	瞬時動作(過負荷) Instantaneous Overload	175	℃
接合温度 Junction Temperature Range			T_j		−40～+150	℃
保存温度 Storage Temperature Range			Tstg		−40～+125	℃
絶縁耐圧 Isolation Voltage			V_{ISO}	Terminal to Base AC, 1minute	2,500	V (RMS)
締め付けトルク Mounting Torque		Module Base to Heatsink	Ftor	M6	3	N・m
		Busbar to Main Terminal		M6	3	

□ 電気的特性 : *ELECTRICAL CHARACTERISTICS* (at T_j=25℃ unless otherwise specified)

	Characteristic		Symbol	Test Condition		Min.	Typ.	Max.	Unit
IGBT	コレクタ遮断電流 Collector-Emitter Cut-Off Current		ICES	VCE= 1200V,VGE= 0V		—	—	1.0	mA
	ゲート漏れ電流 Gate-Emitter Leakage Current		IGES	VGE= ±20V,VCE= 0V		—	—	1.0	μA
	コレクタ・エミッタ間飽和電圧 Collector-Emitter Saturation Voltage		VCE(sat.)	IC= 300A,VGE= 15V (chip level)	Tj=25℃	—	1.50	2.00	V
					Tj=125℃	—	1.70	—	
					Tj=150℃	—	1.80	—	
	ゲートしきい値電圧 Gate-Emitter Threshold Voltage		VGE(th.)	VCE= 10V,IC= 10mA		4.8	—	7.0	V
	入力容量 Input Capacitance		Cies	VCE= 25V,VGE= 0V,f= 1MHz		—	30.0	—	nF
	出力容量 Output Capacitance		Coes			—	0.86	—	
	帰還容量 Reverse Transfer Capacitance		Cres			—	0.70	—	
	ゲート電荷量 Gate Charge		Qg	Vcc=600V, Ic=300A, VGE=-15～+15V		—	3300	—	nC
	スイッチング時間 Switching Time	上昇時間 Rise Time	tr	Vcc= 600V Inductive Load IC= 300A RG= 2.4Ω VGE= ±15V Tj= 150℃		—	90	—	ns
		ターンオン遅延時間 Turn-on Delay Time	td(on)			—	220	—	
		下降時間 Fall Time	tf			—	290	—	
		ターンオフ遅延時間 Turn-off Delay Time	td(off)			—	800	—	
Diode	順電圧 Peak Forward Voltage		VF	IF= 300A,VGE=0V (chip level)	Tj=25℃	—	2.00	2.60	V
					Tj=125℃	—	1.98	—	
					Tj=150℃	—	1.95	—	
	逆回復時間 Reverse Recovery Time		trr	Vcc= 600V Inductive Load IF= 300A RG= 2.4Ω VGE= ±15V Tj= 150℃		—	250	—	ns

□ 熱的特性 : *THERMAL CHARACTERISTICS*

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
熱抵抗 Thermal Resistance	IGBT	Rth(j-c)	Junction to Case Per 1 Arm (Tc測定点:チップ直下)	—	—	0.095	℃／W
	Diode			—	—	0.15	

□ 特性図 ：*CHARACTERISTICS CURVES*

Fig.1- Output Characteristics (Typical)

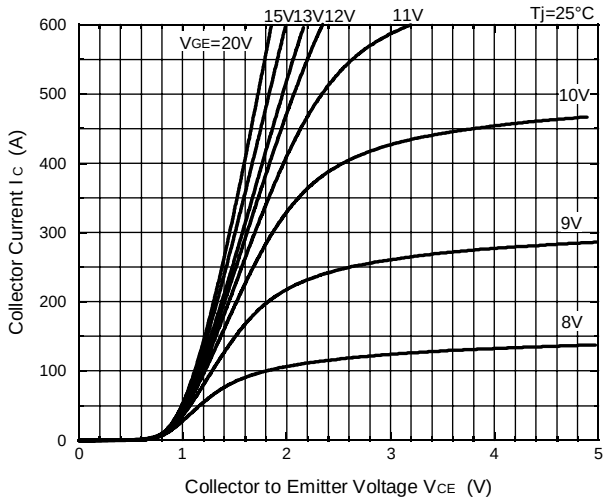


Fig.2- Saturation Voltage Characteristics (Typical)

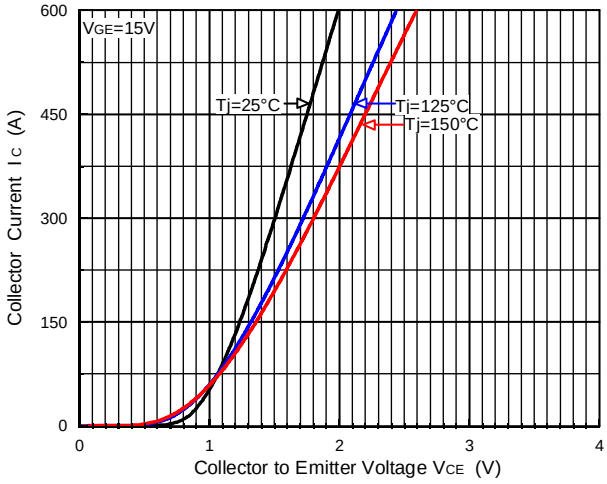


Fig.3- Transfer Characteristics (Typical)

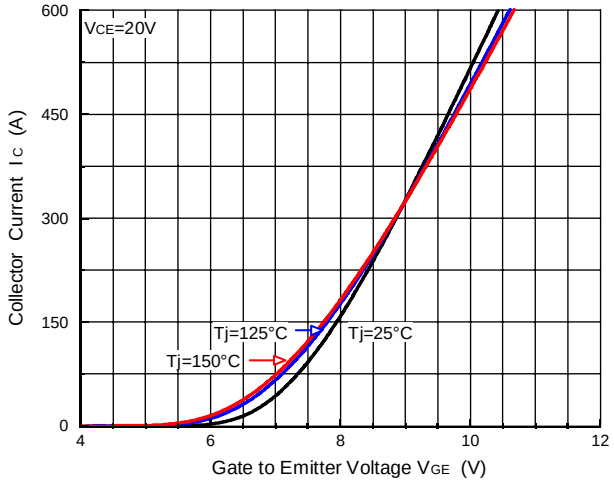


Fig.4- Gate Charge vs. Collector to Emitter Voltage (Typical)

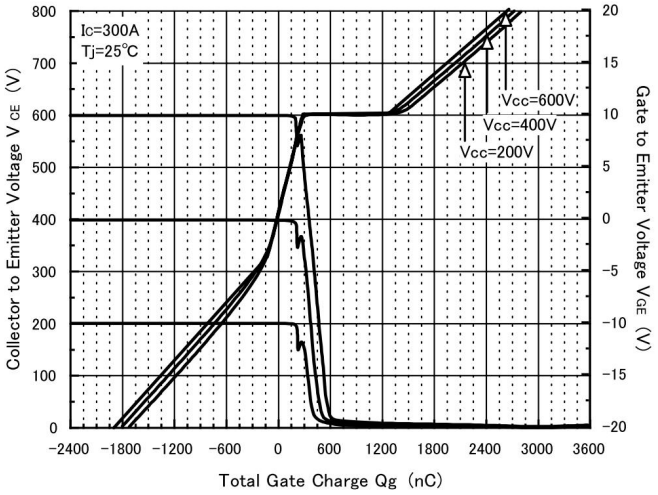


Fig.5- Collector Current vs. Switching Time

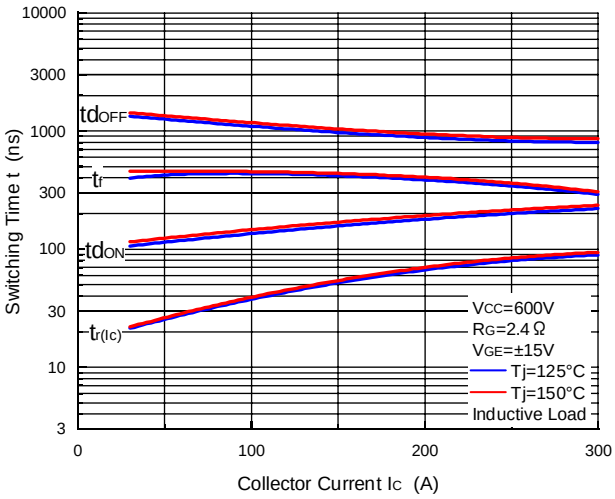
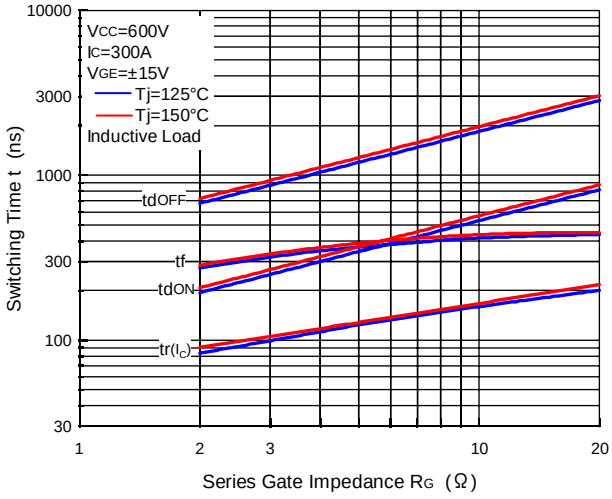


Fig.6- Series Gate Impedance vs. Switching Time



□ 特性図 ：*CHARACTERISTICS CURVES*

Fig.7- Collector Current vs. Switching Loss

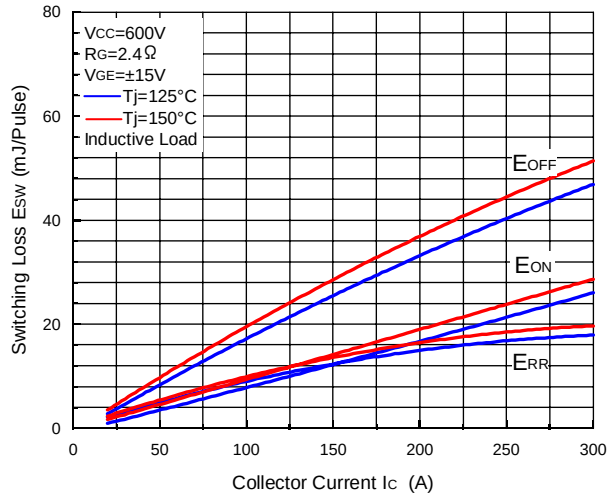


Fig.8- Series Gate Impedance vs. Switching Loss

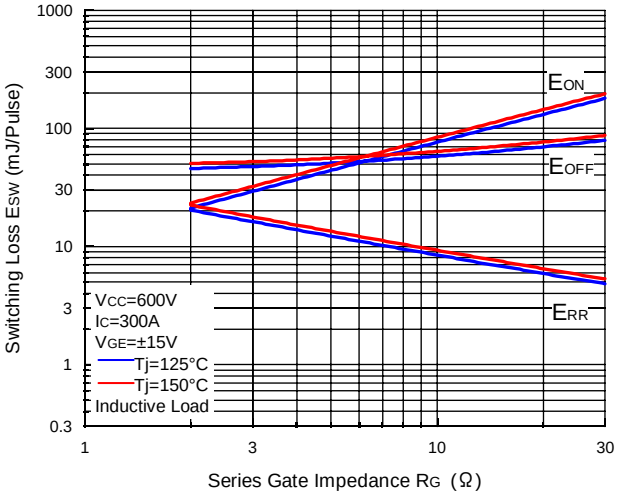


Fig.9- Forward Characteristics of FWD (Typical)

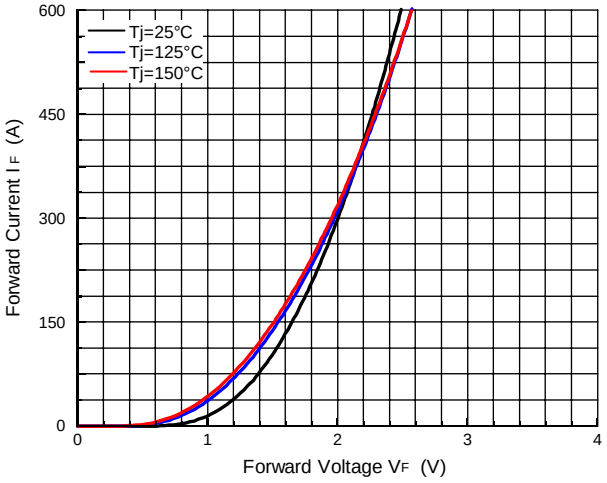


Fig.10- FWD Reverse Recovery Characteristics (Typical)

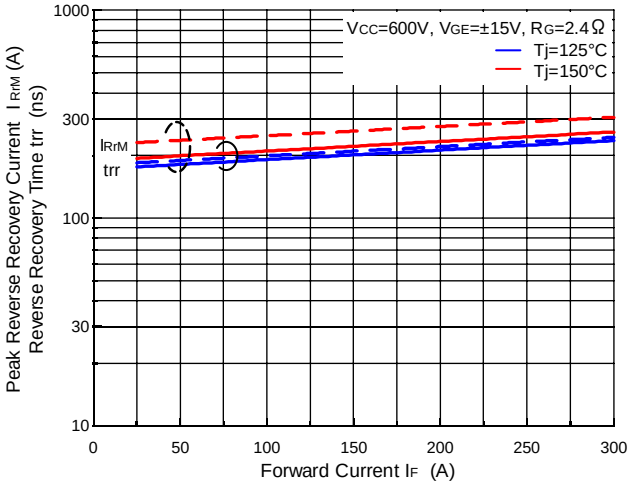


Fig.11- Reverse Bias Safe Operating Area

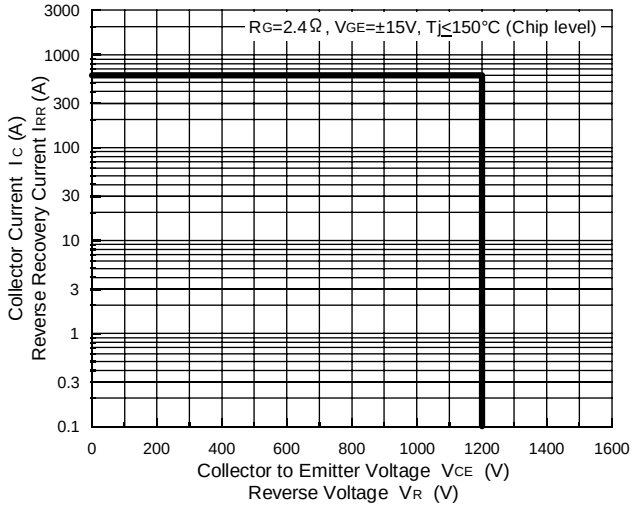


Fig.12- Transient Thermal Impedance

