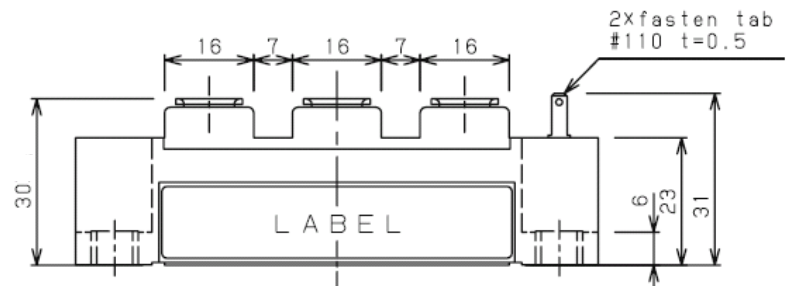
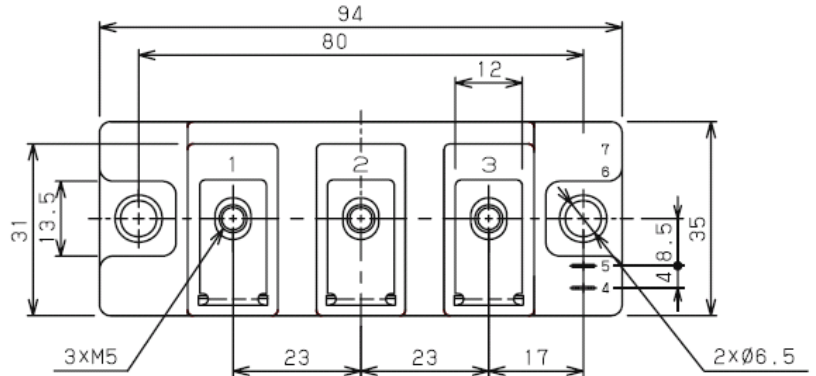
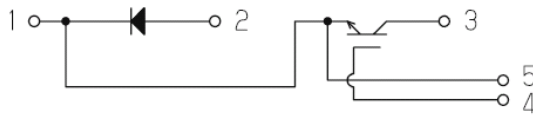


□ 回路図 : *CIRCUIT*

□ 概略図 : *SCHEMATIC DIAGRAM*

Dimension: [mm]


□ 最大定格 : *MAXIMUM RATINGS* (at $T_c=25^{\circ}\text{C}$ 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	650	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 $T_c=85^{\circ}\text{C}$	150	A
		I_{CP}	Pulse $\leq 1\text{ms}$	300	
FWD	繰り返しピーク逆電圧 Repetitive peak reverse voltage	V_{RRM}		650	V
		I_F		150	A
	順電流 Forward Current	I_{FM}	Pulse $\leq 1\text{ms}$	300	
最大接合温度 Maximum Junction Temperature		T_{JMAX}	瞬時動作(過負荷) Instantaneous Overload	175	$^{\circ}\text{C}$
接合温度範囲 Junction Temperature Range		T_J		$-40 \sim +150$	$^{\circ}\text{C}$
保存温度範囲 Storage Temperature Range		T_{stg}		$-40 \sim +125$	$^{\circ}\text{C}$
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	F_{tor}	M6	3	N · m
	Busbar to Main Terminal		M5	2	

□ 電 気 的 特 性 : **ELECTRICAL CHARACTERISTICS** (at $T_J=25^\circ\text{C}$ 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	$V_{CE}=650\text{V}, V_{GE}=0\text{V}$	—	—	1.0	mA
	ゲート漏れ電流 Gate-Emitter Leakage Current	IGES	$V_{GE}=\pm 20\text{V}, V_{CE}=0\text{V}$	—	—	1.0	μA
	コレクタ・エミッタ間飽和電圧 Collector-Emitter Saturation Voltage	VCE(sat.)	$I_C=150\text{A}, V_{GE}=15\text{V}$ (chip level)	$T_J=25^\circ\text{C}$	—	1.45	V
				$T_J=125^\circ\text{C}$	—	1.65	
				$T_J=150^\circ\text{C}$	—	1.70	
	ゲートしきい値電圧 Gate-Emitter Threshold Voltage	VGE(th.)	$V_{CE}=10\text{V}, I_C=3\text{mA}$	4.8	—	7.0	V
	入力容量 Input Capacitance	Cies	$V_{CE}=25\text{V}, V_{GE}=0\text{V}, f=1\text{MHz}$	—	12.5	—	nF
	出力容量 Output Capacitance	Coes		—	0.5	—	
	帰還容量 Reverse Transfer Capacitance	Cres		—	0.4	—	
	ゲート電荷量 Gate Charge	Qg	$V_{CC}=300\text{V}, I_C=150\text{A}, V_{GE}=-15\sim+15\text{V}$	—	1275	—	nC
IGBT	スイッチング時間 Switching Time	上昇時間 Rise Time	$V_{CC}=300\text{V}, I_C=150\text{A}, R_G=5.1\Omega, V_{GE}=\pm 15\text{V}, T_J=150^\circ\text{C}$ $L_S=38\text{nH}$ Inductive Load	—	71	—	ns
		ターンオン遅延時間 Turn-on Delay Time		—	119	—	
		下降時間 Fall Time		—	70	—	
		ターンオフ遅延時間 Turn-off Delay Time		—	300	—	
FWD	順電圧 Peak Forward Voltage	VF	$I_F=150\text{A}, V_{GE}=0\text{V}$ (chip level)	$T_J=25^\circ\text{C}$	—	1.70	V
				$T_J=125^\circ\text{C}$	—	1.60	
				$T_J=150^\circ\text{C}$	—	1.55	
FWD	逆回復時間 Reverse Recovery Time	trr	$V_{CC}=300\text{V}, I_C=150\text{A}, R_G=5.1\Omega, V_{GE}=\pm 15\text{V}, T_J=150^\circ\text{C}$ $L_S=38\text{nH}$ Inductive Load	—	140	—	ns
内部配線抵抗 Internal Lead Resistance		RCC+EE'	主端子—チップ間 / 1素子 Main Terminal - Chip / Per 1 Arm	—	—	1	m Ω
内部インダクタンス Stray Inductance		LSCE	メイン端子3—2間 Main Terminal 3 - Main Terminal 2	—	30	—	nH

□ 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)	—	—	0.28	$^\circ\text{C}/\text{W}$
	FWD		—	—	0.67	
接触熱抵抗 Thermal Resistance	IGBT	Rth(c-f) Case to heatsink Per 1 Arm (Paste=1W/(m 2 · $^\circ\text{C}$))	—	0.10	—	
	FWD		—	0.17	—	

特性 : CHARACTERISTICS CURVES

Fig.1- Output Characteristics (Typical)

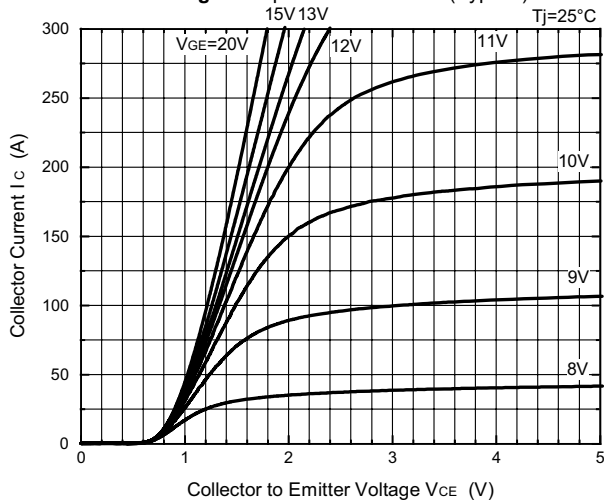


Fig.2- Saturation Voltage Characteristics (Typical)

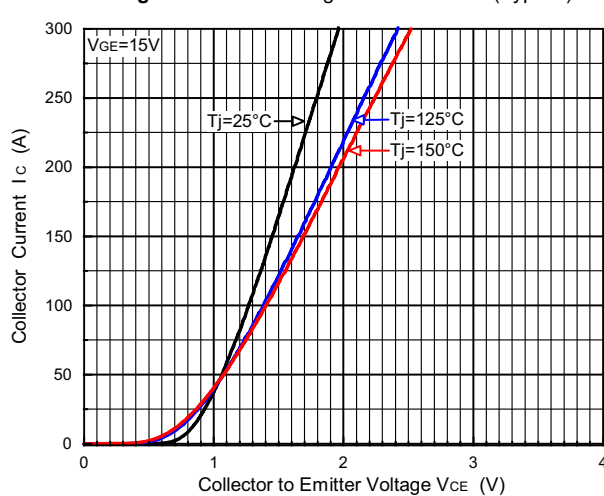


Fig.3- Transfer Characteristics (Typical)

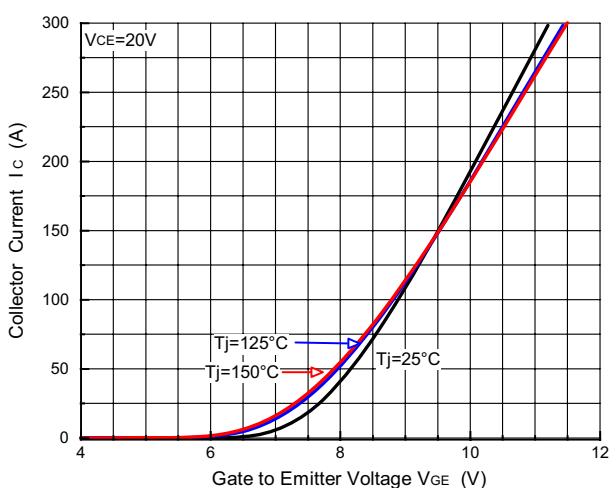


Fig.4- Gate Charge vs. Collector to Emitter Voltage (Typical)

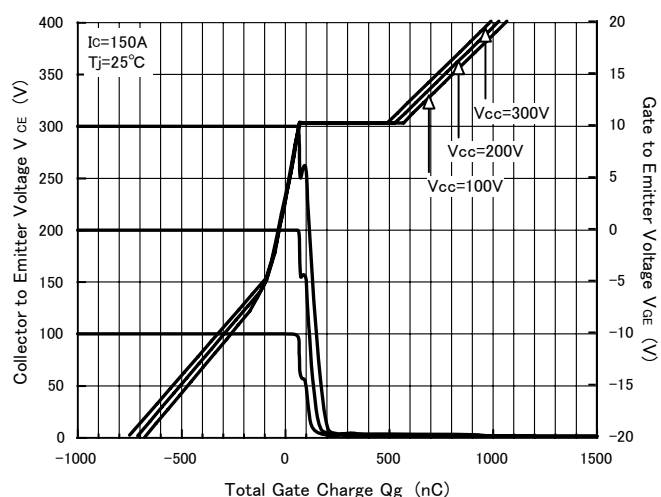


Fig.5- Collector Current vs. Switching Time (Typical)

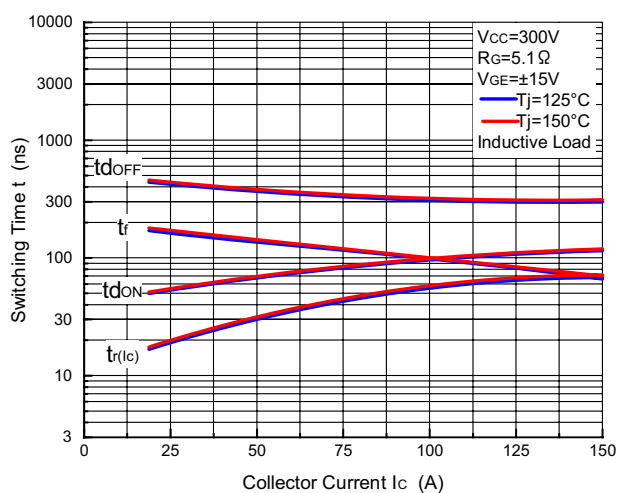
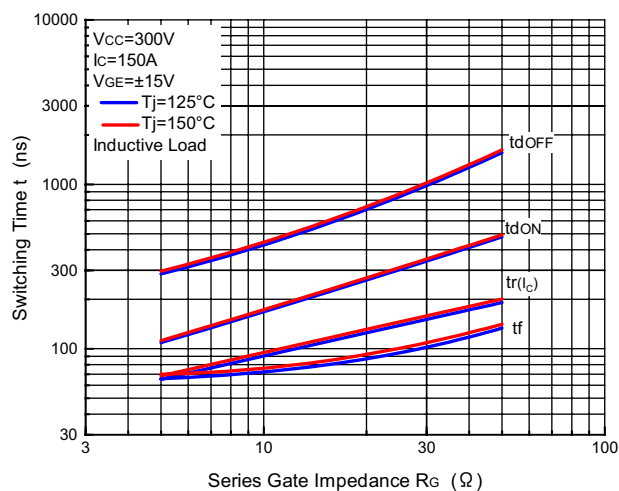


Fig.6- Series Gate Impedance vs. Switching Time (Typical)



特性图 : CHARACTERISTICS CURVES

Fig.7- Collector Current vs. Switching Loss (Typical)

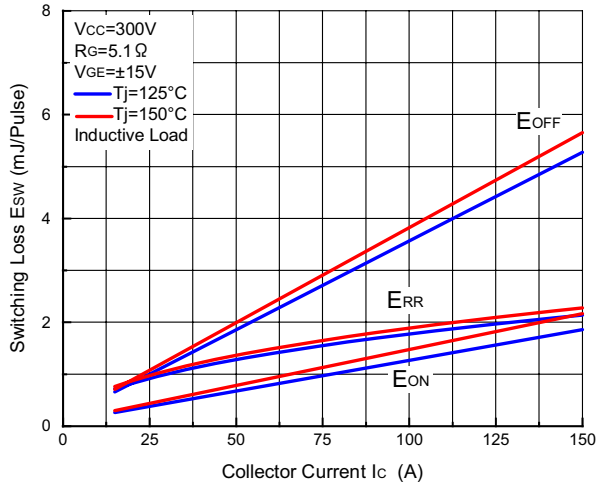


Fig.8- Series Gate Impedance vs. Switching Loss (Typical)

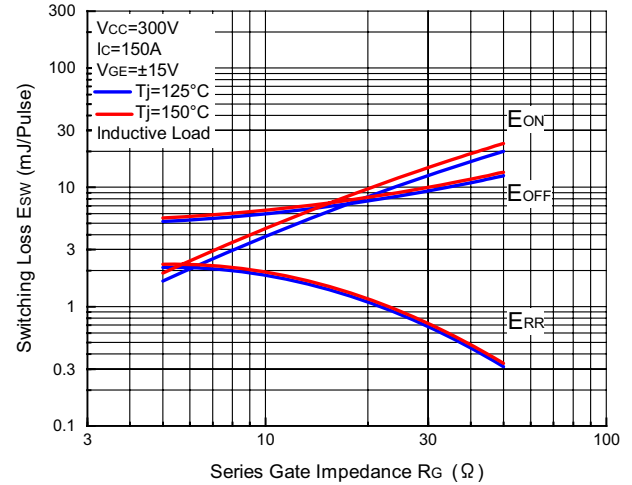


Fig.9- Forward Characteristics of Free Wheeling Diode (Typical)

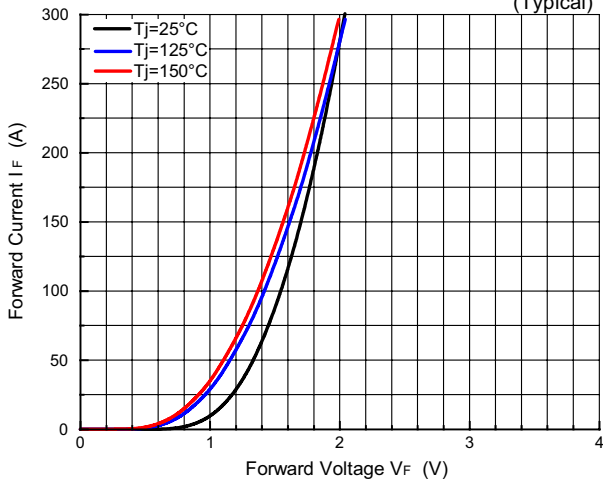


Fig.10- FWD Reverse Recovery Characteristics (Typical)

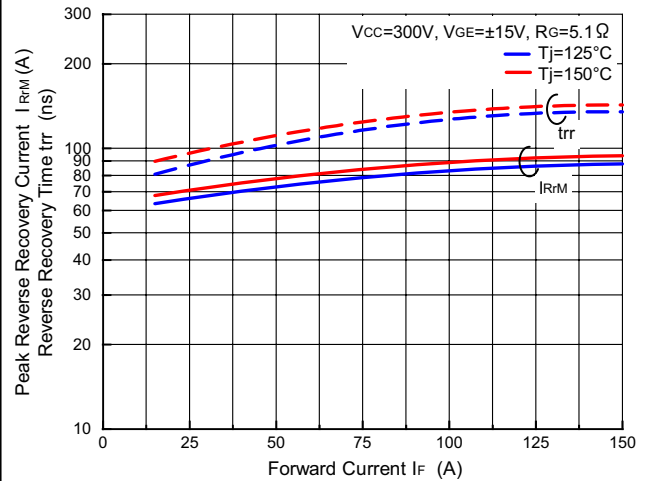


Fig.11- Reverse Bias Safe Operating Area

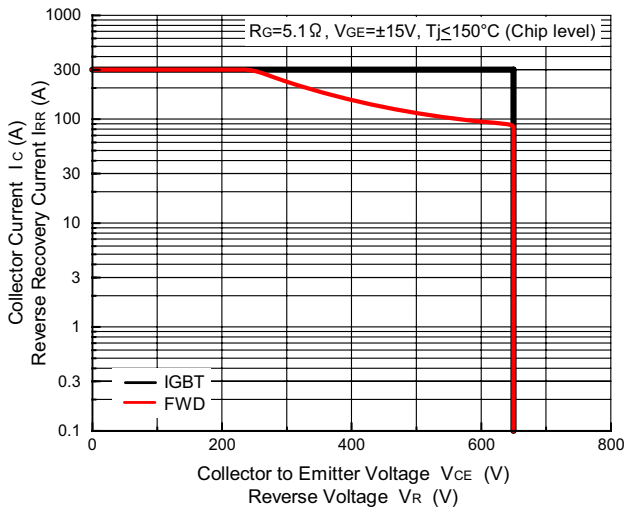
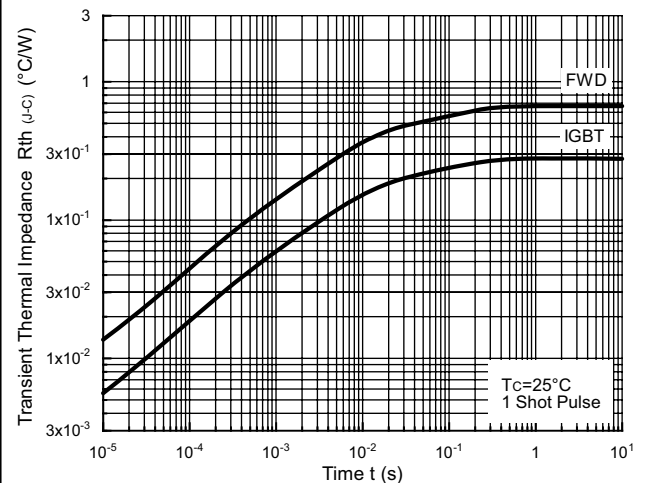


Fig.12- Transient Thermal Impedance



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