

□ 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	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= 150A,VGE= 15V (chip level)	TJ=25°C	—	1.50	2.00	V
					TJ=125°C	—	1.70	—	
					TJ=150°C	—	1.80	—	
	ゲートしきい値電圧 Gate-Emitter Threshold Voltage		VGE(th.)	VCE= 10V,IC= 5.0mA		4.8	—	7.0	V
	入力容量 Input Capacitance		Cies	VCE= 25V,VGE= 0V,f= 1MHz		—	15.0	—	nF
	出力容量 Output Capacitance		Coes			—	0.43	—	
	帰還容量 Reverse Transfer Capacitance		Cres			—	0.35	—	
	ゲート電荷量 Gate Charge		Qg	VCC=600V, IC=150A, VGE=-15~+15V		—	1650	—	nC
スイッチング時間 Switching Time	上昇時間 Rise Time	tr	VCC= 600V LS=38nH IC= 150A Inductive Load RG= 5.1Ω VGE= ±15V TJ= 150°C		—	60	—	ns	
	ターンオン遅延時間 Turn-on Delay Time	td(on)			—	110	—		
	下降時間 Fall Time	tf			—	200	—		
	ターンオフ遅延時間 Turn-off Delay Time	td(off)			—	500	—		
Diode	順電圧 Peak Forward Voltage		VF	IF= 150A,VGE=0V (chip level)	TJ=25°C	—	2.00	2.60	V
					TJ=125°C	—	1.98	—	
					TJ=150°C	—	1.95	—	
逆回復時間 Reverse Recovery Time		trr	VCC= 600V LS=38nH IC= 150A Inductive Load RG= 5.1Ω VGE= ±15V TJ= 150°C		—	190	—	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	mΩ
内部インダクタンス Stray Inductance			LSCE	メイン端子3—2間 Main Terminal3 - Main Terminal2		—	30	—	nH

□ 熱 的 特 性 : **THERMAL CHARACTERISTICS**

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
熱抵抗 Thermal Resistance	IGBT	$R_{th(j-c)}$	Junction to Case Per 1 Arm (Tc測定点:チップ直下)	—	—	0.19	$^\circ\text{C}/\text{W}$
	Diode			—	—	0.30	
接触熱抵抗 Thermal Resistance	IGBT	$R_{th(c-f)}$	Case to heatsink Per 1 Arm Paste=1W/(m 2 · $^\circ\text{C}$)	—	0.05	—	
	Diode			—	0.10	—	

特性図 : CHARACTERISTICS CURVES

Fig.1- Output Characteristics (Typical)

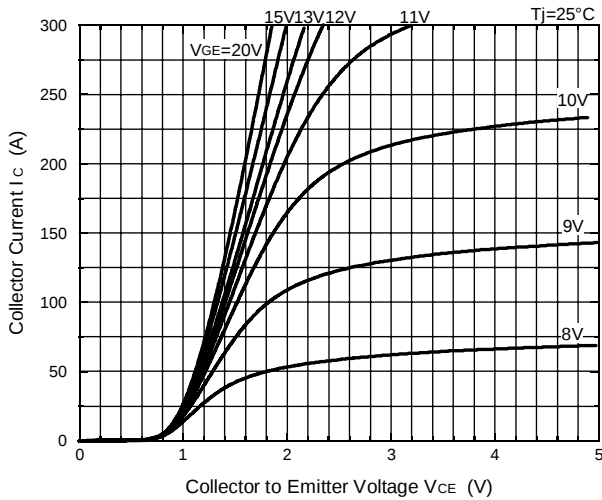


Fig.2- Saturation Voltage Characteristics (Typical)

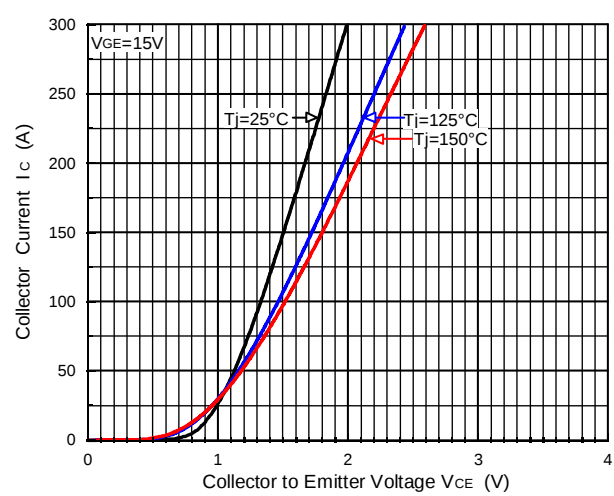


Fig.3- Transfer Characteristics (Typical)

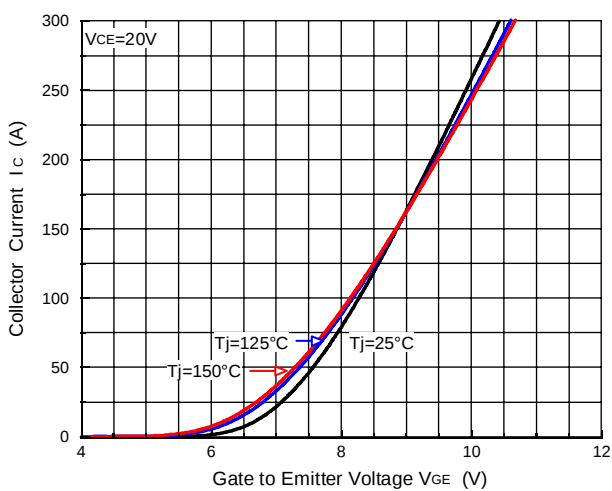


Fig.4- Gate Charge vs. Collector to Emitter Voltage (Typical)

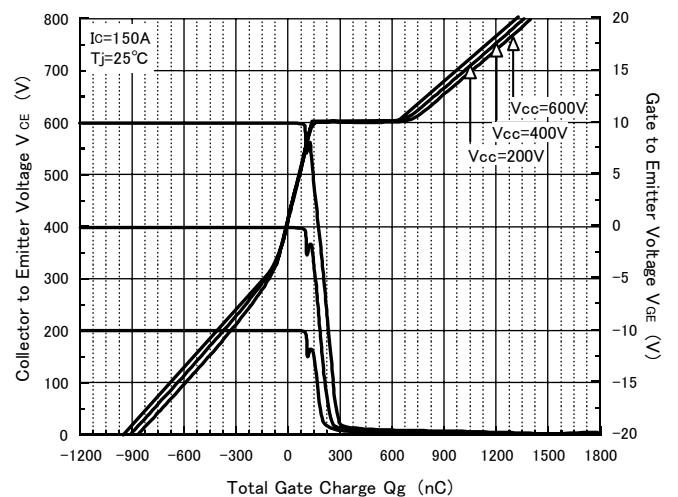


Fig.5- Collector Current vs. Switching Time

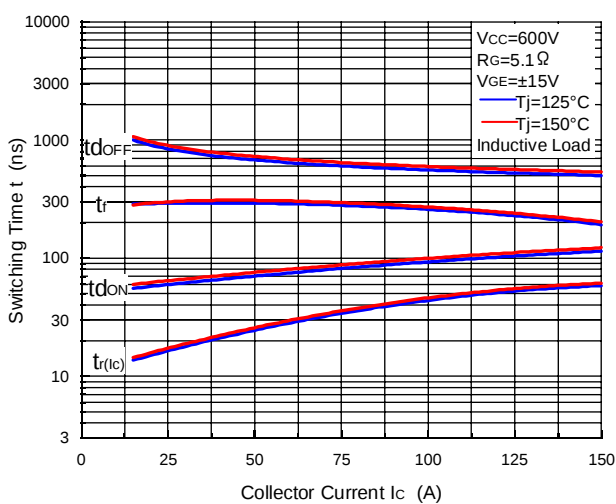
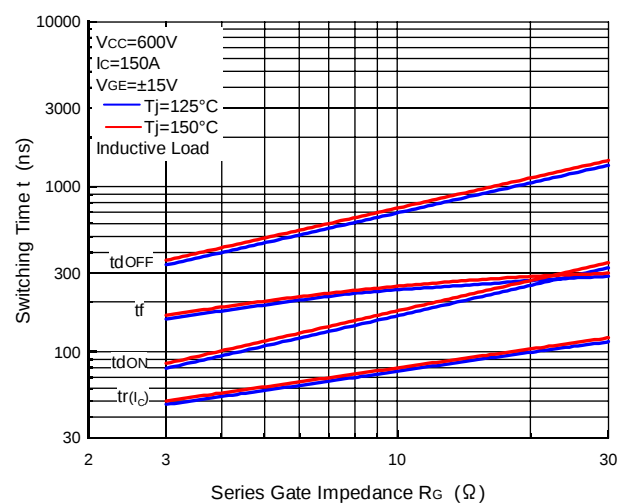


Fig.6- Series Gate Impedance vs. Switching Time



特性図 : CHARACTERISTICS CURVES

Fig.7- Collector Current vs. Switching Loss

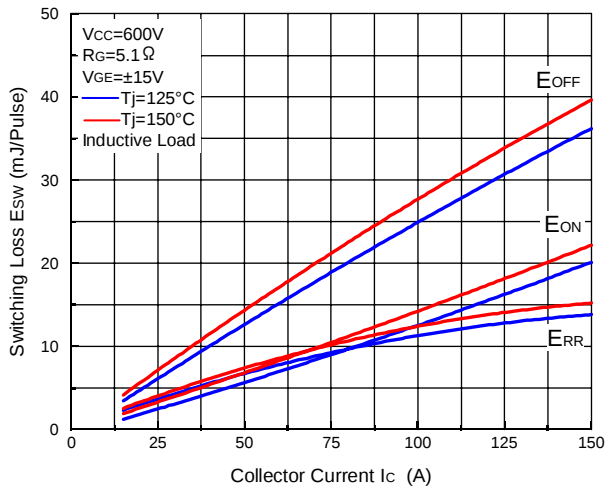


Fig.8- Series Gate Impedance vs. Switching Loss

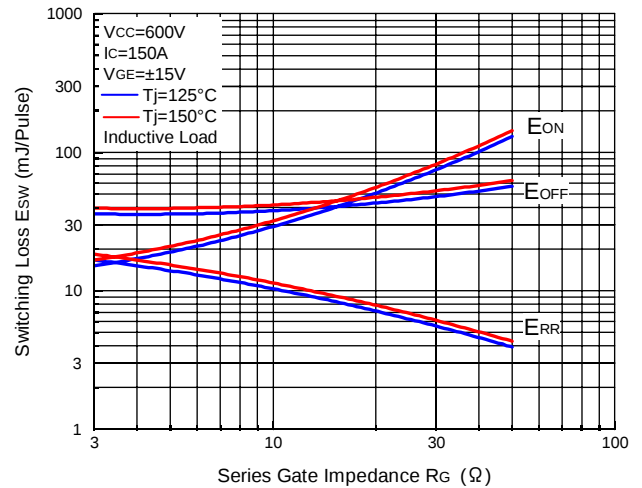


Fig.9- Forward Characteristics of FWD (Typical)

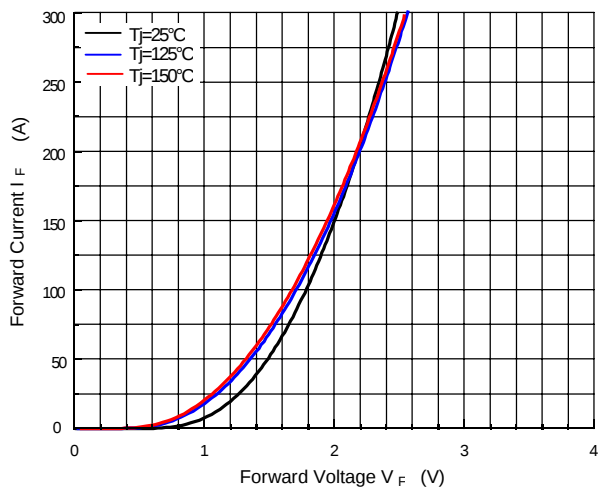


Fig.10- FWD Reverse Recovery Characteristics (Typical)

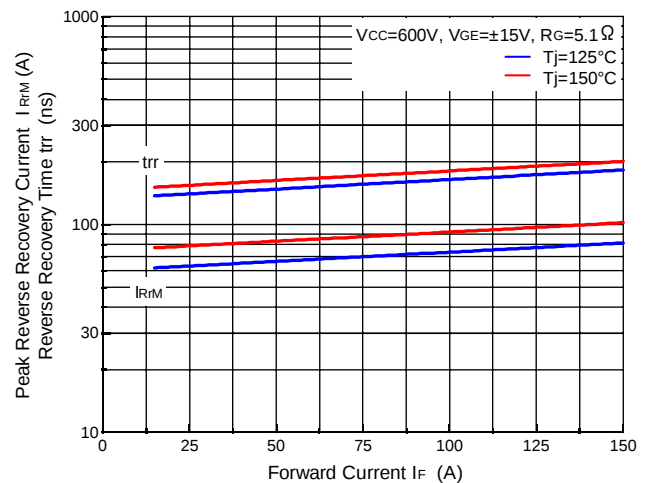


Fig.11- Reverse Bias Safe Operating Area

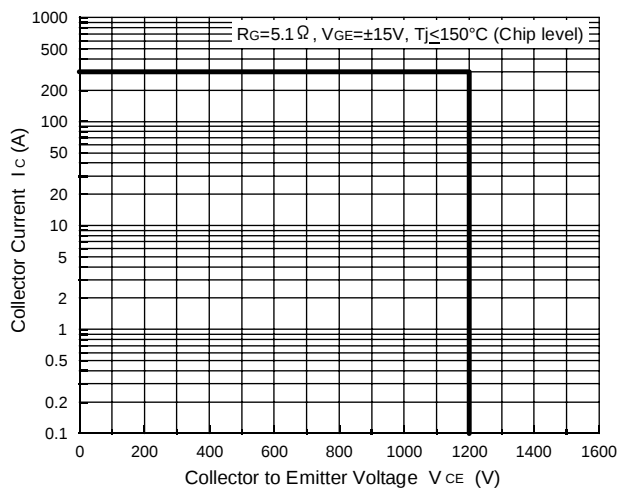


Fig.12- Transient Thermal Impedance

