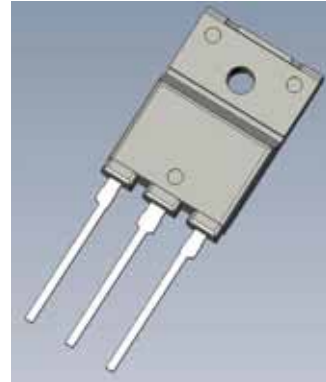


**Features**

- Low Saturation Voltage  $V_{CE(sat)}=1.65V$  typ. ( $I_C=25A$ )
- High Speed SW  $t_f=120ns$  typ. ( $I_C=25A$ )

**Package**

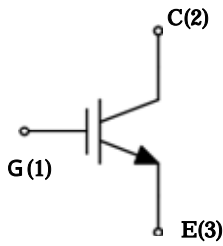
TO-3PF



**Applications**

- Current Resonance Inverter Switching

**Equivalent circuit**



**Absolute maximum ratings**

( $T_a=25^{\circ}C$ )

Characteristic	Symbol	Rating	Unit
Collector to Emitter Voltage	$V_{CES}$	600	V
Gate to Emitter Voltage	$V_{GES}$	$\pm 30$	V
Continuous Collector Current	$I_C$	25	A
Pulsed Collector Current	$I_C(\text{pulse})$ <sup>1)</sup>	75	A
Maximum Collector-emitter $dv/dt$	$dv/dt$ <sup>2)</sup>	5	V/ns
Maximum Power Dissipation	PC	60 ( $T_c=25^{\circ}C$ )	W
Thermal Resistance IGBT	$\theta_{j-c}$	2.08	$^{\circ}C/W$
Junction Temperature	$T_j$	150	$^{\circ}C$
Storage Temperature	$T_{stg}$	- 55~150	$^{\circ}C$

1) PW 10ms., Duty cycle 1%

2)  $T_c$  125 $^{\circ}C$ , See Fig.1

**Electrical characteristics**

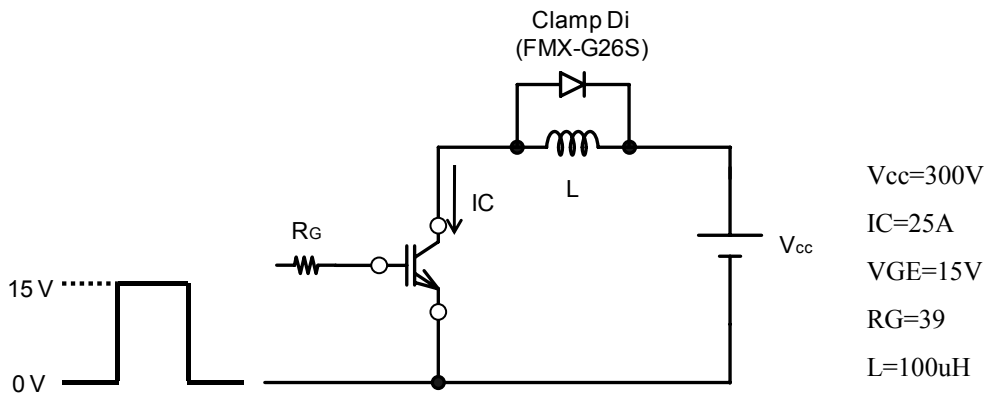
●IGBT

(Ta=25°C)

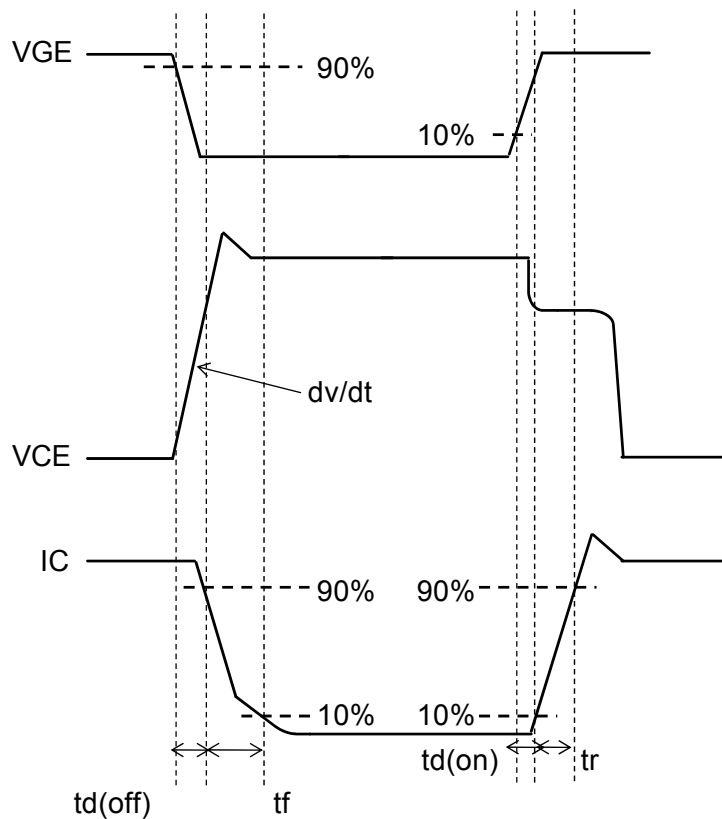
Characteristic	Symbol	Test Conditions	Limits			Unit
			MIN.	TYP.	MAX.	
Collector to Emitter Breakdown Voltage	V(BR)CES	IC=100μA, VGE=0V	600			V
Gate to Emitter Leakage Current	IGES	VGE=±30V			±500	nA
Collector to Emitter Leakage Current	ICES	VCE=600V, VGE=0V			100	μA
Gate Threshold Voltage	VGE(th)	VCE=10V, IC=1mA	4		7	V
Collector to Emitter Saturation Voltage	VCE(sat)	VGE=15V, IC=25A		1.65	1.9	V
Collector to Emitter Saturation Voltage	VCE(sat)	VGE=15V, IC=40A		2.0		V
Input Capacitance	Cies	VCE=20V VGE=0V f=1MHz		1300		pF
Output Capacitance	Coes			80		
Reverse Transfer Capacitance	Cres			40		
Gate charge	Qgate	VCE=300V IC=25A VGE=15V		40		nC
Gate to Collector Charge	Qgc			10		
Gate to Emitter Charge	Qge			10		
Turn-On Delay Time	td(on)	VCE=300V, IC=25A VGE=15V, RG=39Ω L=100uH, Tc=25°C See Fig.1		50		ns
Rise Time	tr			60		
Turn-Off Delay Time	td(off)			200		
Fall Time	tf			120		
Turn-On Delay Time	td(on)	VCE=300V, IC=25A VGE=15V, RG=39Ω L=100uH, Tc=125°C See Fig.1		50		ns
Rise Time	tr			60		
Turn-Off Delay Time	td(off)			200		
Fall Time	tf			200		

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Fig.1 Switching Time Test Method



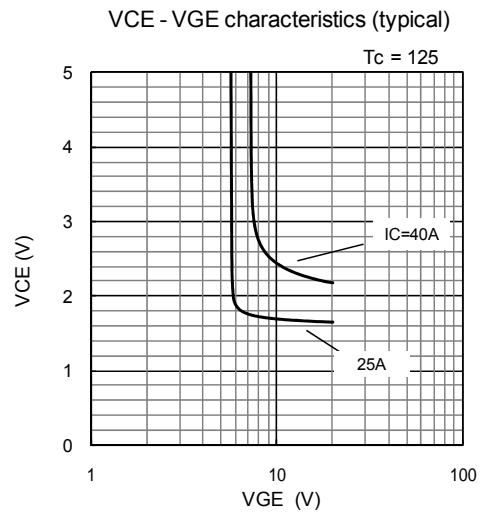
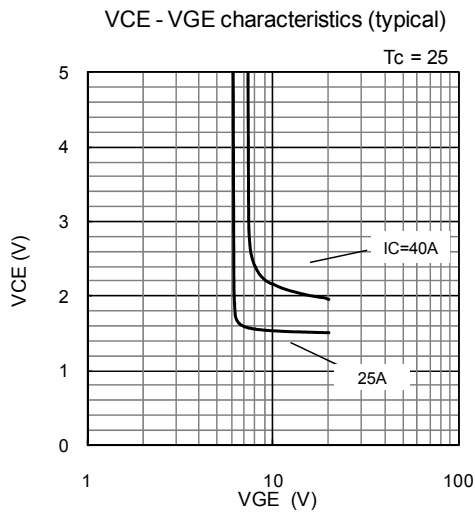
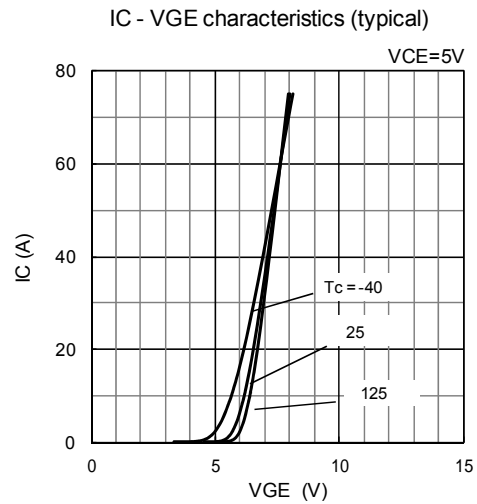
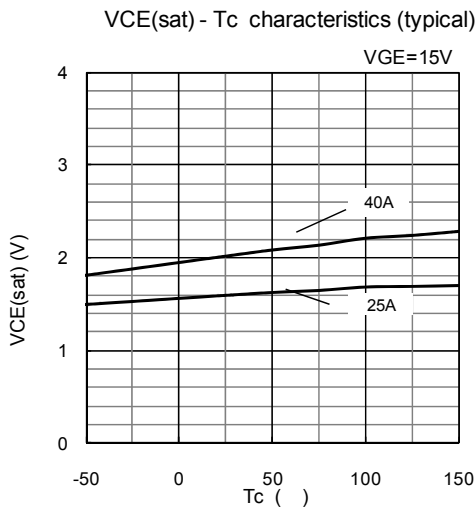
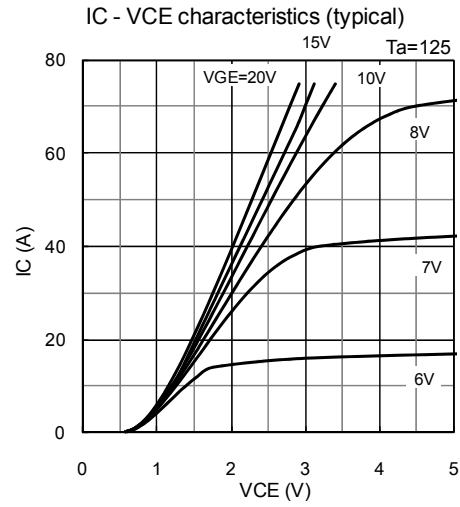
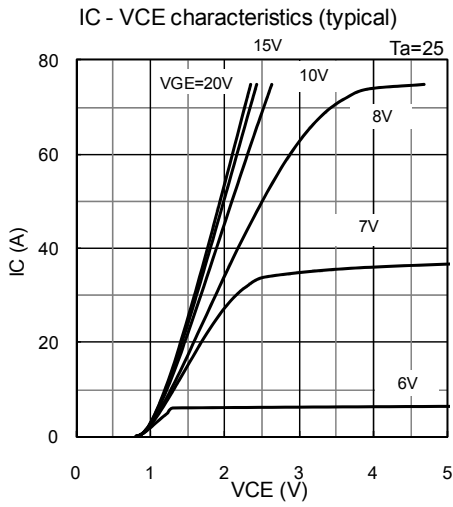
(a) Test Circuit



(b) Waveforms

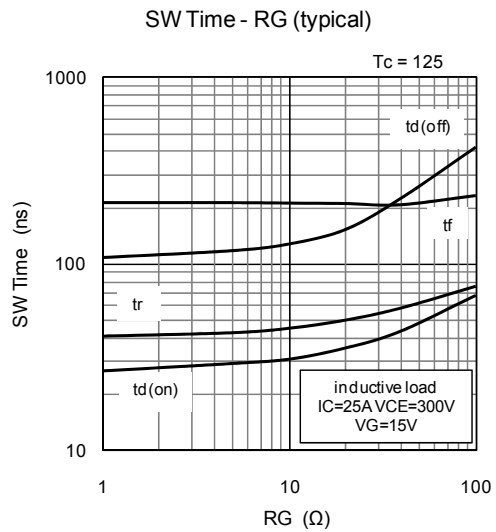
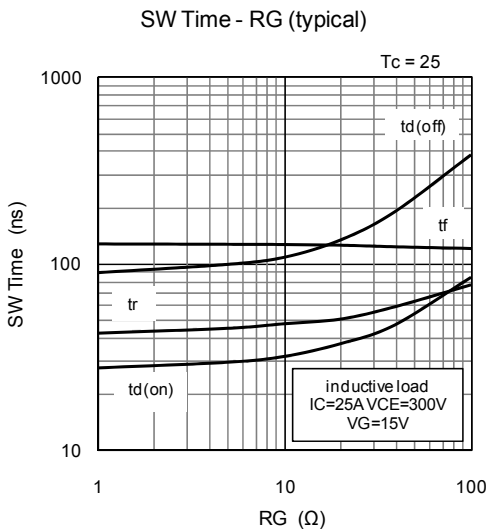
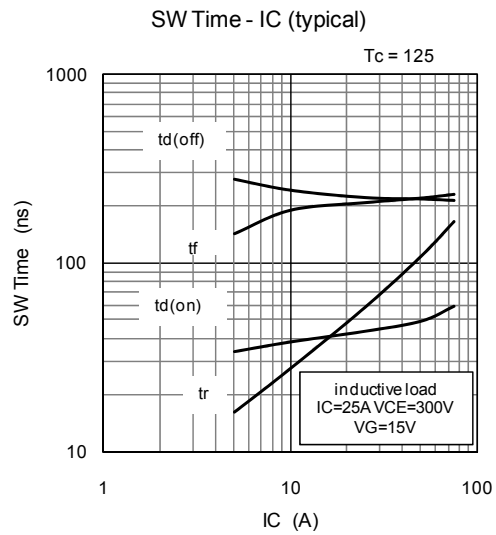
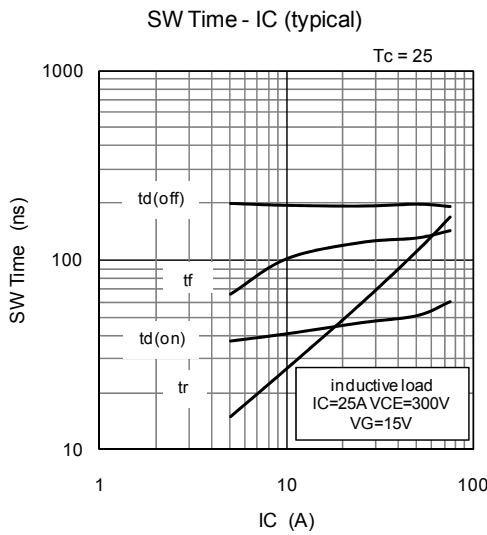
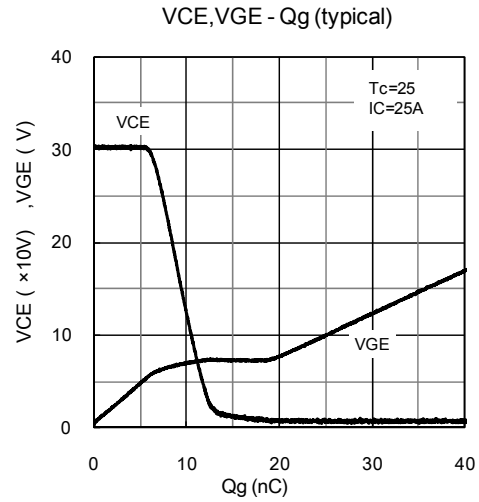
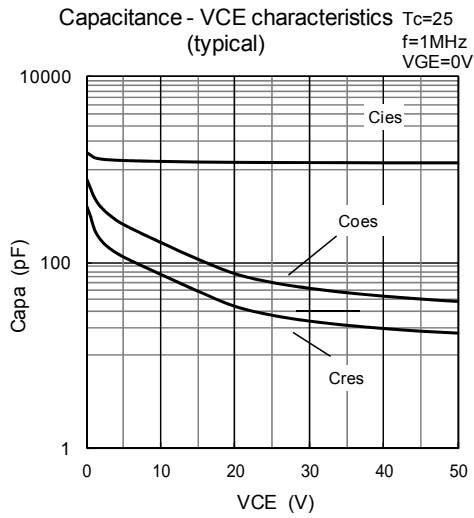
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**Characteristic Curves**



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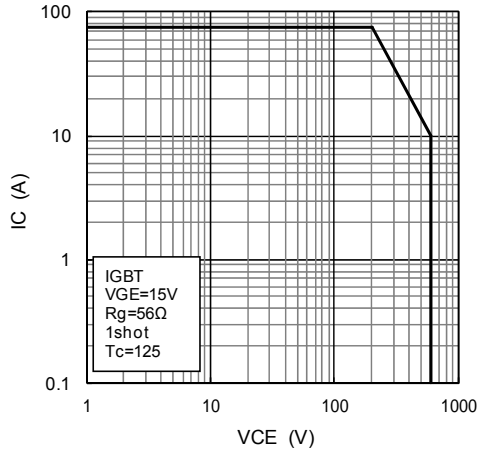
**Characteristic Curves**



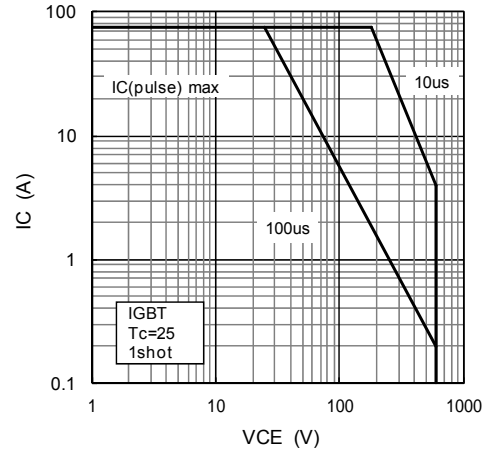
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**Characteristic Curves**

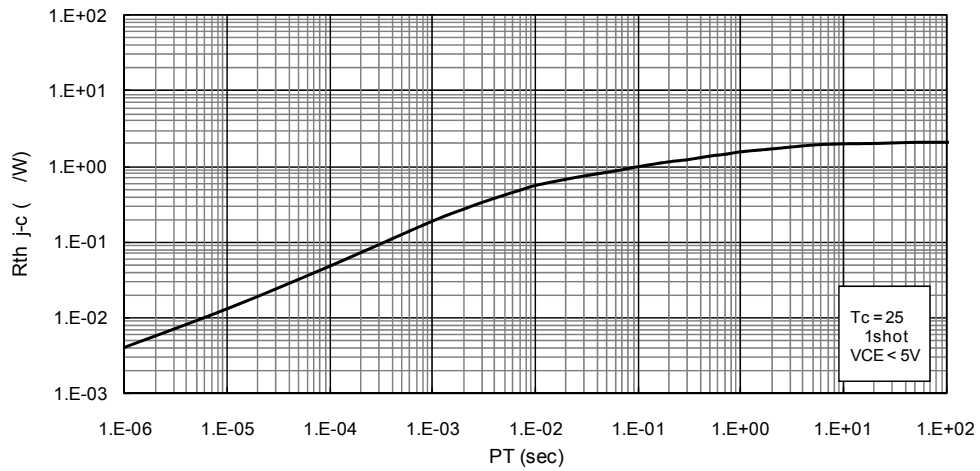
Reverse Bias ASO



SAFE OPERATING AREA



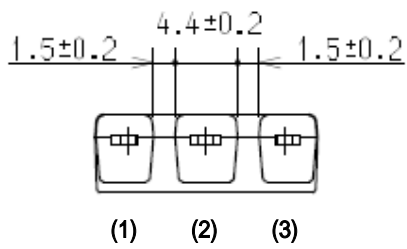
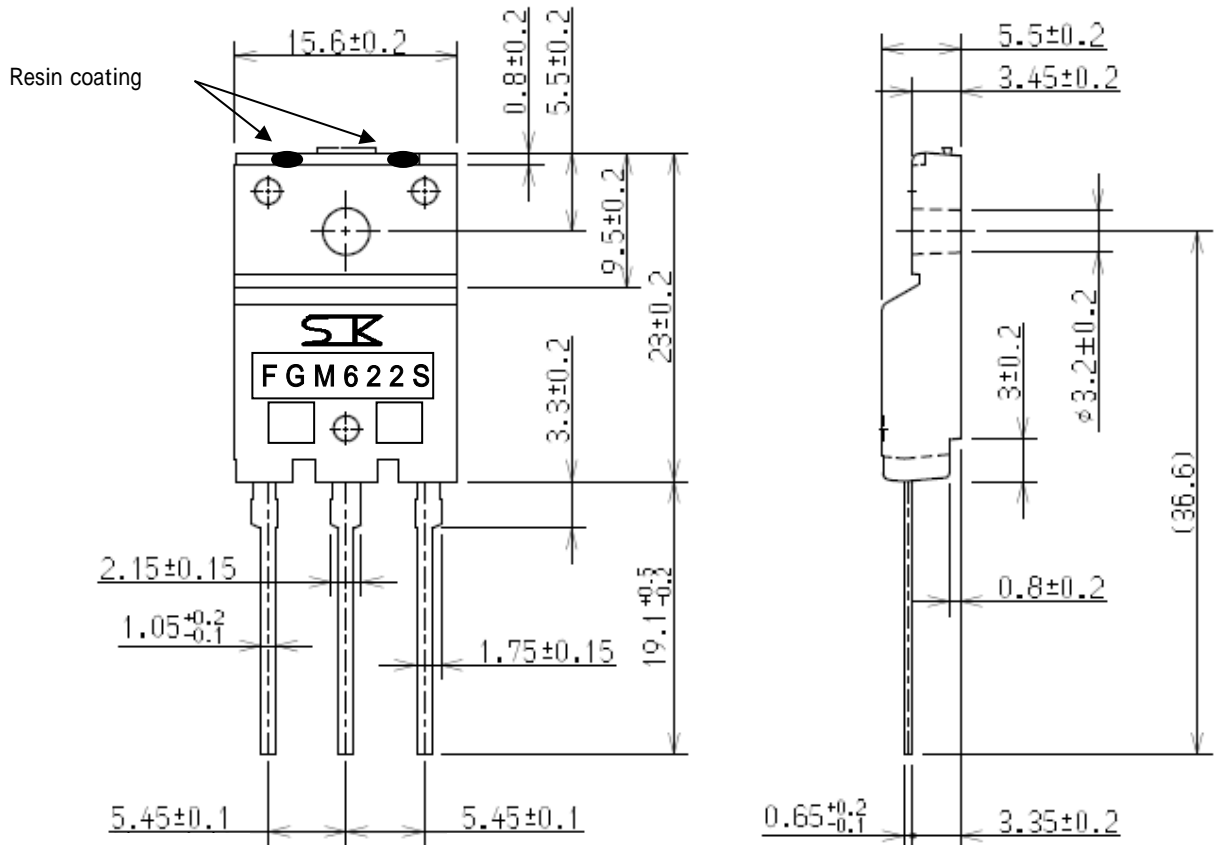
TRANSIENT THERMAL RESISTANCE - PULSE WIDTH



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**Outline**

TO-3PF



- (1) Gate
- (2) Collector
- (3) Emitter

Wight Approx : 6.5g

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