

### ■Features

- Low Saturation Voltage  $V_{CE(sat)}=1.8V$  typ.
- High Speed  $t_f=120ns$  typ.
- Low  $V_F$  FRD Included  $V_F=1.2V$  typ.

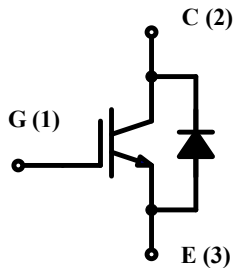
### ■Applications

- Current Resonance Inverter Switching
- Induction Heating Cooking

### ■Package----TO-3P



### ■Equivalent circuit



### Absolute maximum ratings

(Ta=25°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	$I_C$	50	A
Pulsed Collector Current	$I_C(\text{pulse})$ <sup>1)</sup>	100	A
Diode Continuous Forward Current	$I_F$	30	A
Diode pulsed Forward Current	$I_F(\text{pulse})$ <sup>1)</sup>	60	A
Maximum Power Dissipation	$P_C$	150 (Tc=25°C)	W
Thermal Resistance IGBT	$\theta_{j-c}$ IGBT	0.833	°C/W
Thermal Resistance Di	$\theta_{j-c}$ Di	1.67	°C/W
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-55 to 150	°C

1)  $PW \leq 1ms$ , Duty cycle  $\leq 1\%$

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**Electrical characteristics**


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## ●IGBT

(Ta=25°C)

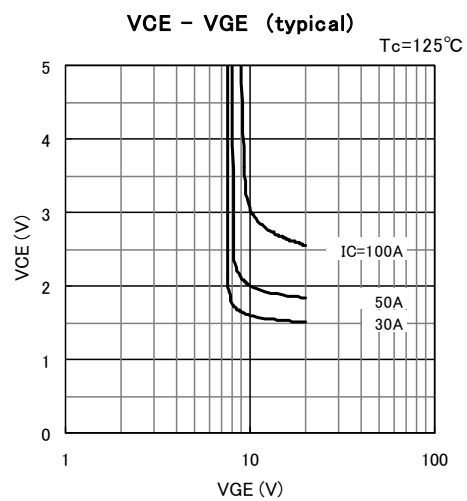
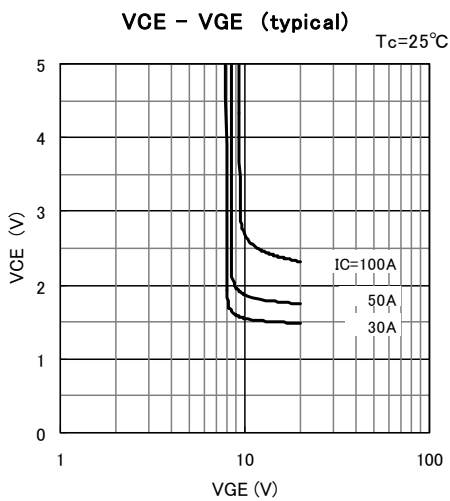
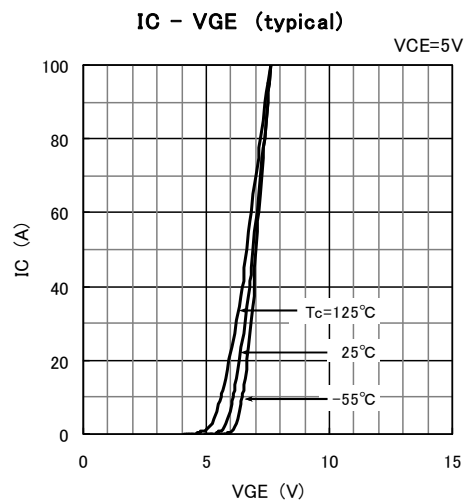
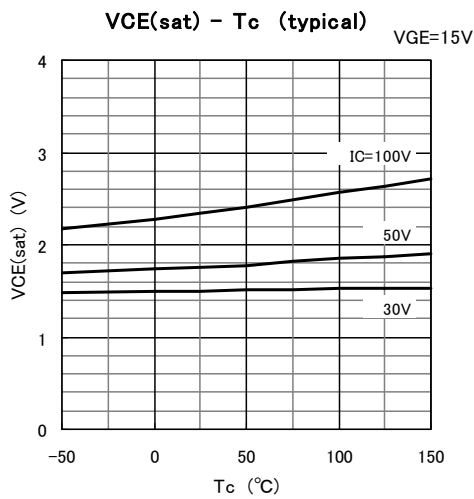
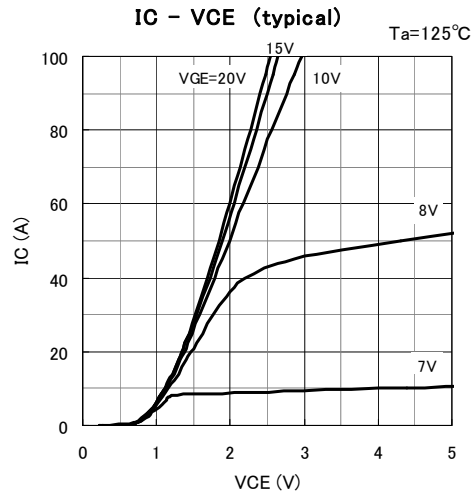
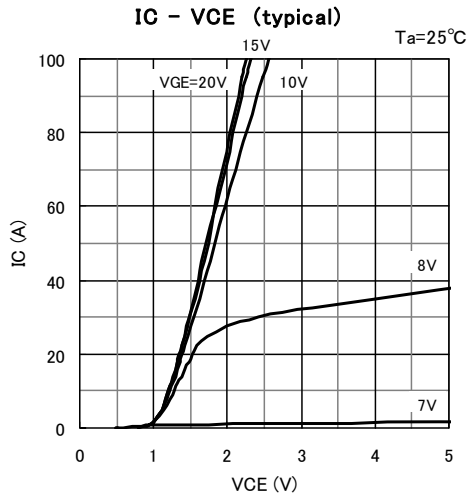
Characteristic	Symbol	Test Conditions	Limits			Unit
			MIN.	TYP.	MAX.	
Collector to Emitter Breakdown Voltage	V(BR)CES	IC=100μA, VGE=0V	600			V
Gate to Emitter Leakage Current	IGES	VGE=±30V			±500	nA
Collector to Emitter Leakage Current	ICES	VCE=600V, VGE=0V			100	μA
Gate Threshold Voltage	VGE(th)	VCE=10V, IC=1mA	3		6	V
Collector to Emitter Saturation Voltage	VCE(sat)	VGE=15V, IC=50A		1.8	2.4	V
Input Capacitance	Cies	VDS=20V VGS=0V f=1MHz		2500		pF
Output Capacitance	Coes			150		
Reverse Transfer Capacitance	Cres			80		
Turn-On Delay Time	td(on)	Inductive Load IC=50A VCC=300V VGS=15V, Rg=39Ω See Fig.1		75		ns
Rise Time	tr			100		
Turn-Off Delay Time	td(off)			300		
Fall Time	tf			120		

## ●Di

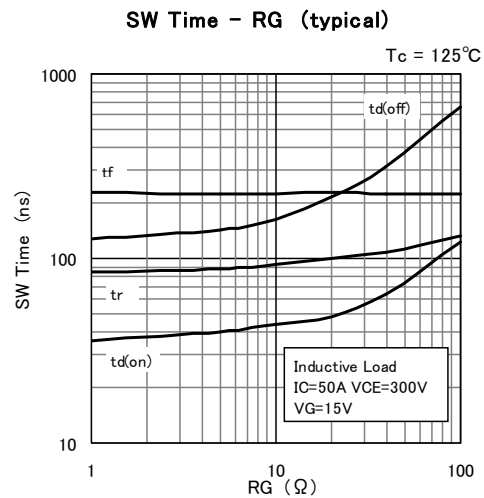
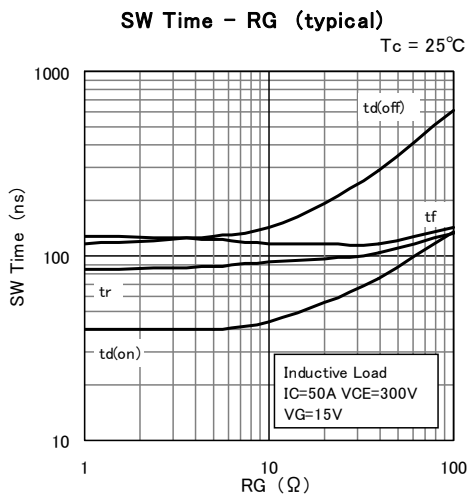
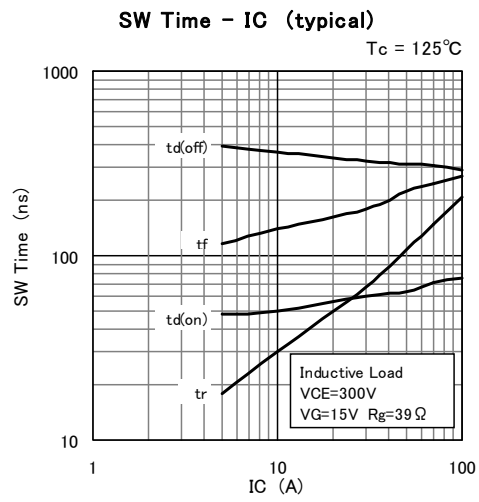
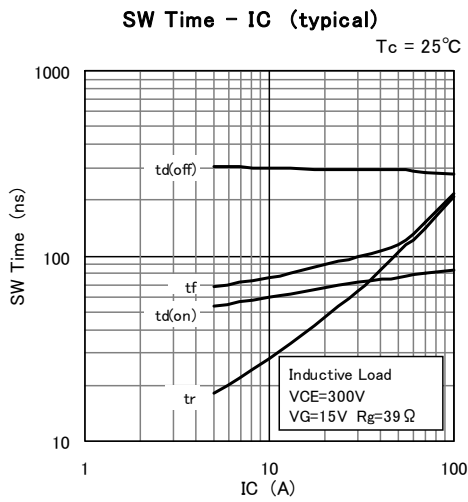
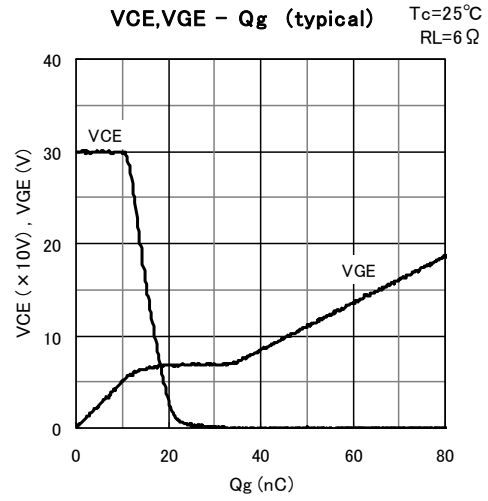
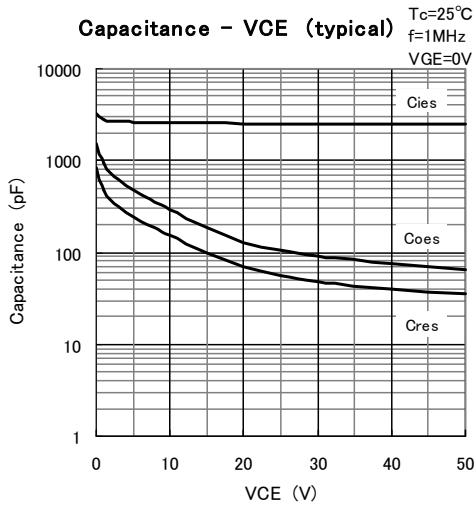
(Ta=25°C)

Characteristic	Symbol	Test Conditions	Limits			Unit
			MIN.	TYP.	MAX.	
Forward Voltage	VF	IF=30A		1.2	1.6	V
Reverse Recovery Time	trr	IF=30A di/dt=100A/μs		0.3		μs

## Characteristic Curves

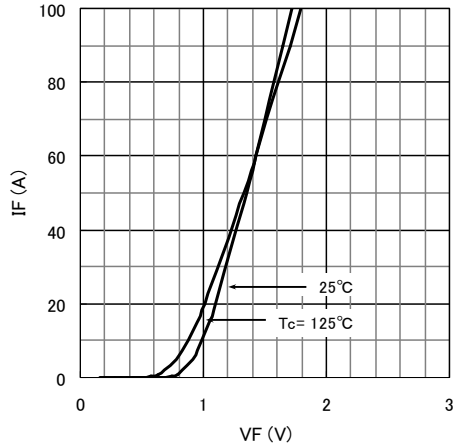


## Characteristic Curves

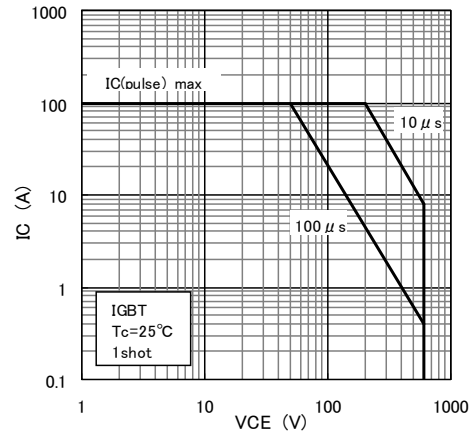


## Characteristic Curves

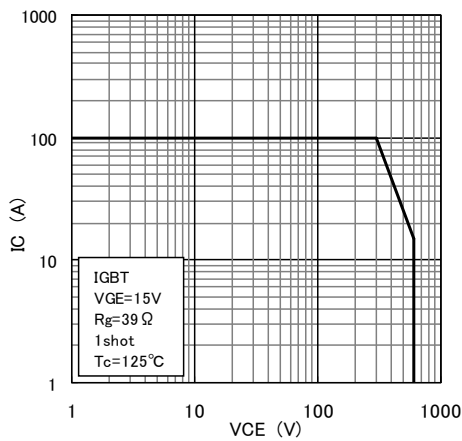
IF - VF (typical)



SAFE OPERATING AREA



Reverse Bias ASO



TRANSIENT THERMAL RESISTANCE - PULSE WIDTH

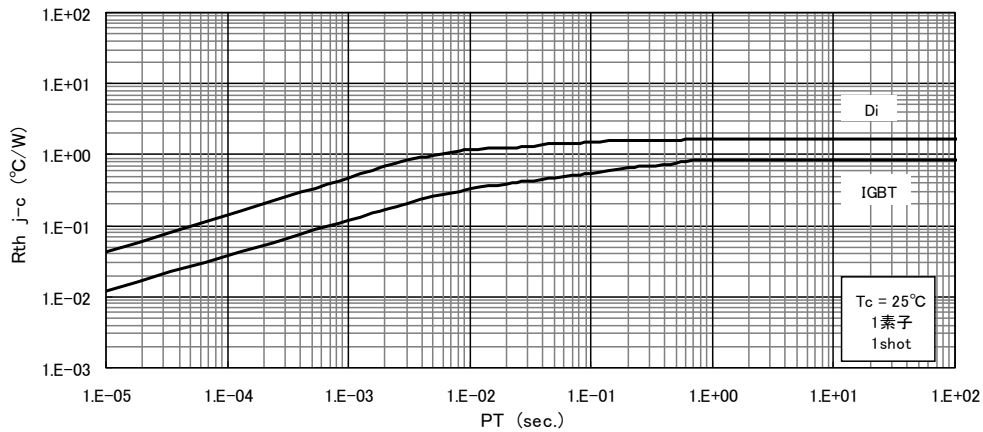
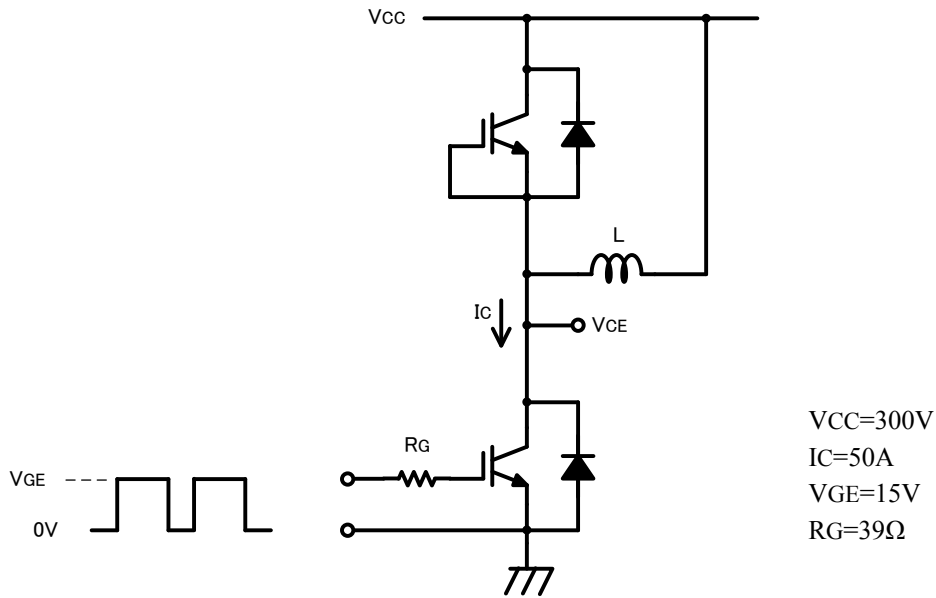
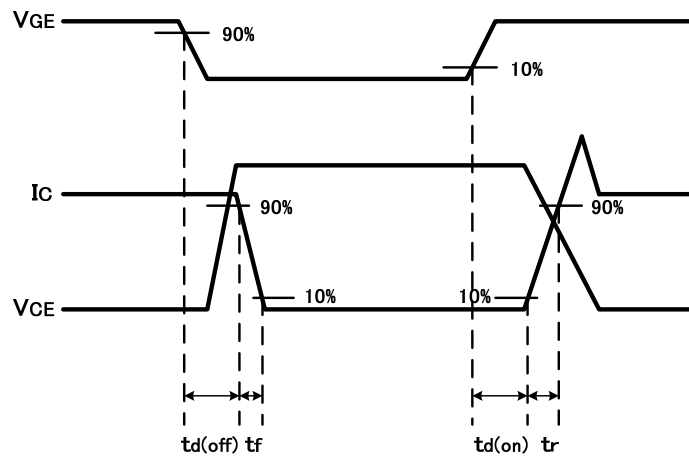


Fig.1 Switching Time Test Method



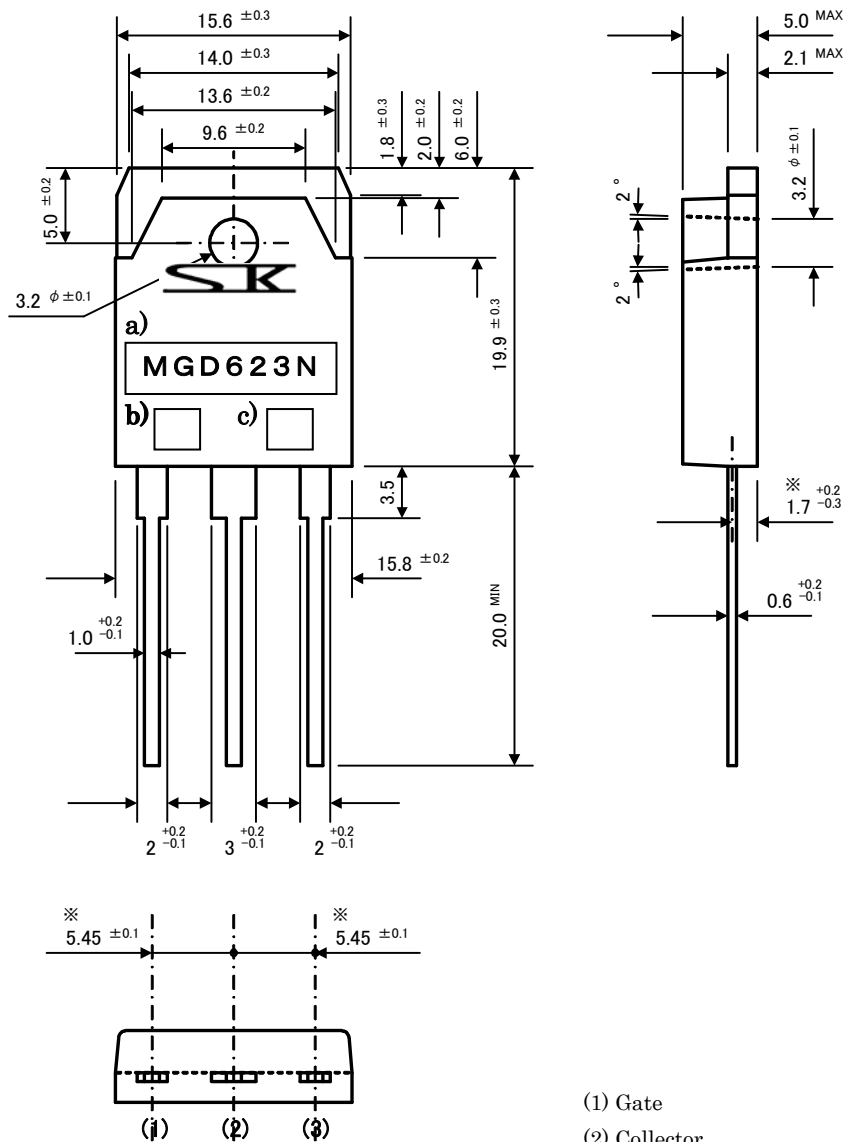
(a) Test Circuit



(b) Waveforms

## Outline

TO-3P



Weight Approx. 6g

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

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