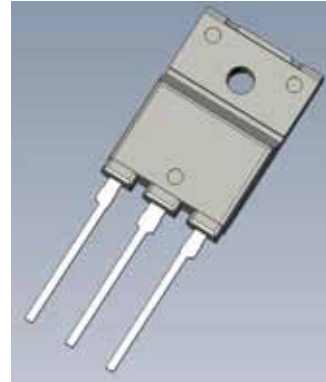


Features

- Low Saturation Voltage $V_{CE(sat)}=1.5V$ typ. ($I_C=30A$)
- High Speed SW $t_f=120ns$ typ. ($I_C=30A$)

Package

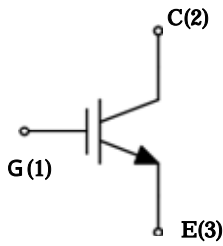
TO-3PF



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} | ± 30 | V |
| Continuous Collector Current | I_C | 30 | A |
| Pulsed Collector Current | $I_C(\text{pulse})$ ¹⁾ | 100 | A |
| Maximum Collector-emitter dv/dt | dv/dt ²⁾ | 5 | V/ns |
| Maximum Power Dissipation | PC | 60 ($T_c=25^{\circ}C$) | W |
| Thermal Resistance IGBT | j-c | 2.08 | /W |
| Junction Temperature | T_j | 150 | $^{\circ}C$ |
| Storage Temperature | T_{stg} | - 55~150 | $^{\circ}C$ |

1) PW 100usec. , Duty cycle 1%

2) T_c 125 , See Fig.1

Electrical characteristics

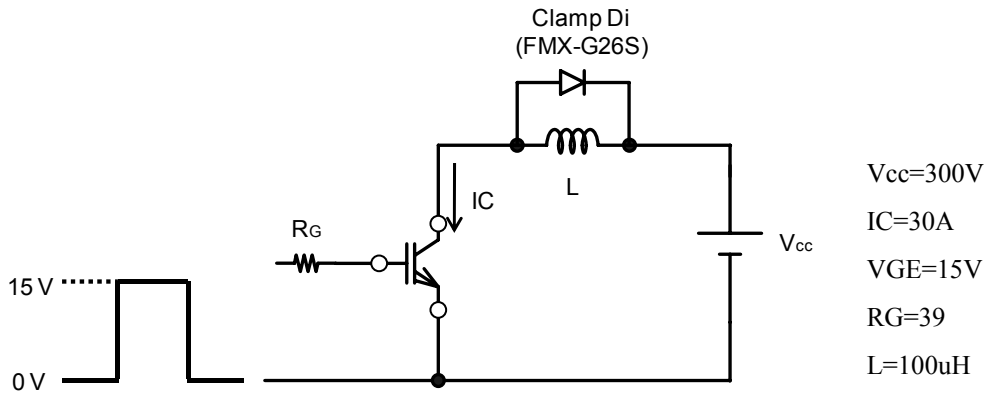
●IGBT

(Ta=25°C)

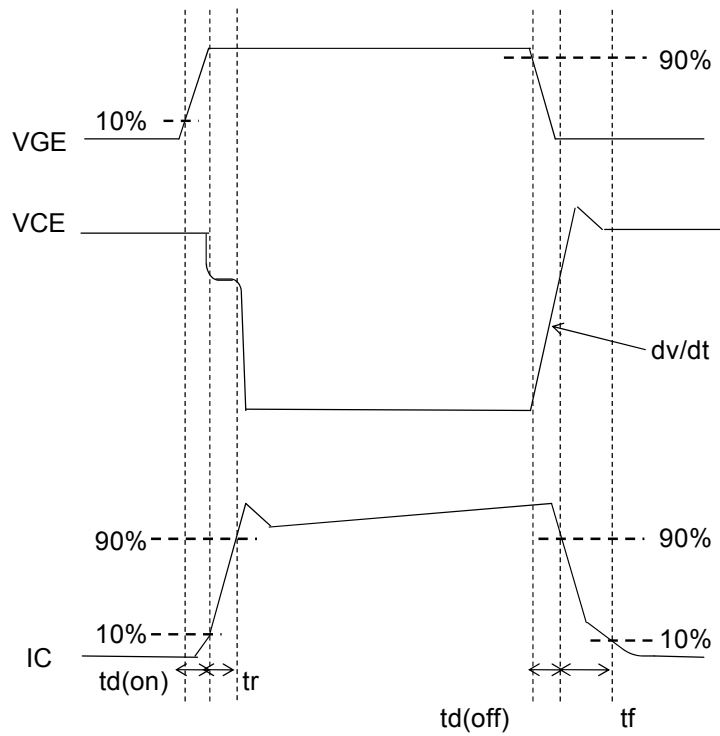
| Characteristic | Symbol | Test Conditions | Limits | | | Unit |
|---|----------|--|--------|------|------|------|
| | | | MIN. | TYP. | MAX. | |
| Collector to Emitter Breakdown Voltage | V(BR)CES | IC=100μA, VGE=0V | 600 | | | V |
| Gate to Emitter Leakage Current | IGES | VGE=±30V | | | ±500 | nA |
| Collector to Emitter Leakage Current | ICES | VCE=600V, VGE=0V | | | 100 | μA |
| Gate Threshold Voltage | VGE(th) | VCE=10V, IC=1mA | 3 | | 6 | V |
| Collector to Emitter Saturation Voltage | VCE(sat) | VGE=15V, IC=30A | | 1.5 | 1.7 | V |
| Collector to Emitter Saturation Voltage | VCE(sat) | VGE=15V, IC=50A | | 1.8 | | V |
| Input Capacitance | Cies | VCE=20V VGE=0V f=1MHz | | 2500 | | pF |
| Output Capacitance | Coes | | | 150 | | |
| Reverse Transfer Capacitance | Cres | | | 80 | | |
| Gate charge | Qgate | VCE=300V IC=30A VGE=15V | | 65 | | nC |
| Gate to Collector Charge | Qgc | | | 20 | | |
| Gate to Emitter Charge | Qge | | | 20 | | |
| Turn-On Delay Time | td(on) | VCE=300V, IC=30A VGE=15V, RG=39 L=100μH, Tc=25 See Fig.1 | | 100 | | ns |
| Rise Time | tr | | | 80 | | |
| Turn-Off Delay Time | td(off) | | | 300 | | |
| Fall Time | tf | | | 120 | | |
| Turn-On Delay Time | td(on) | VCE=300V, IC=30A VGE=15V, RG=39 L=100μH, Tc=125 See Fig.1 | | 100 | | ns |
| Rise Time | tr | | | 100 | | |
| Turn-Off Delay Time | td(off) | | | 300 | | |
| Fall Time | tf | | | 200 | | |

The information included herein is believed to be accurate and reliable. However, SANKEN ELECTRIC CO., LTD assumes no responsibility for its use ; nor for any infringements of patents or other rights of third parties that may result from its use.

Fig.1 Switching Time Test Method



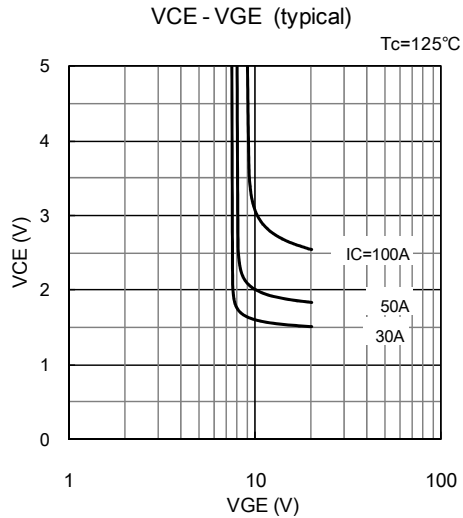
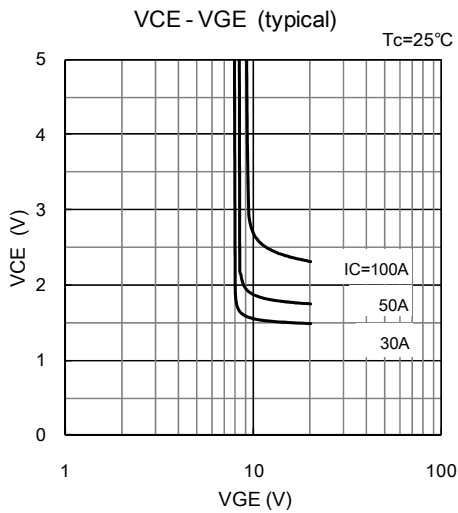
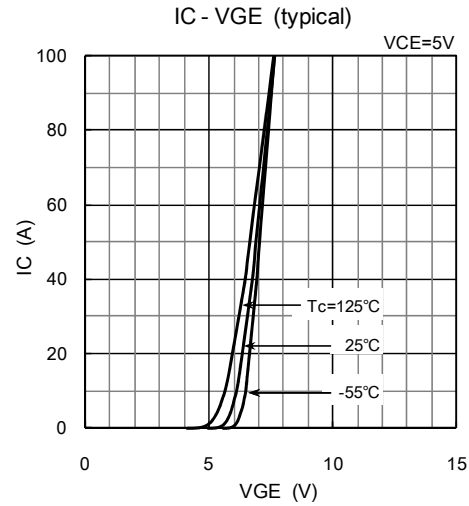
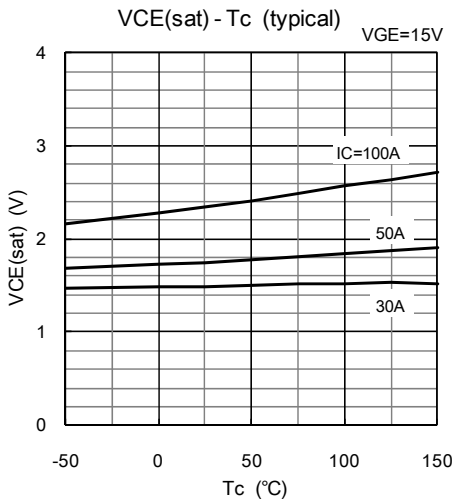
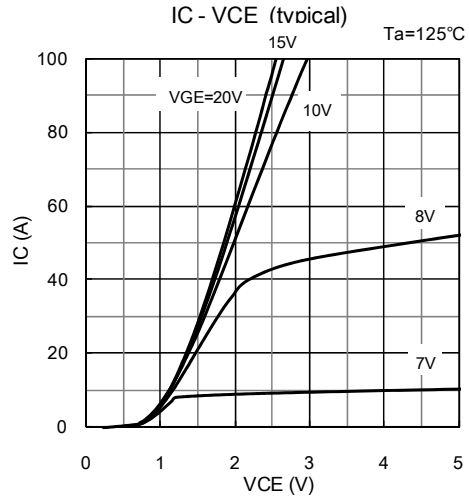
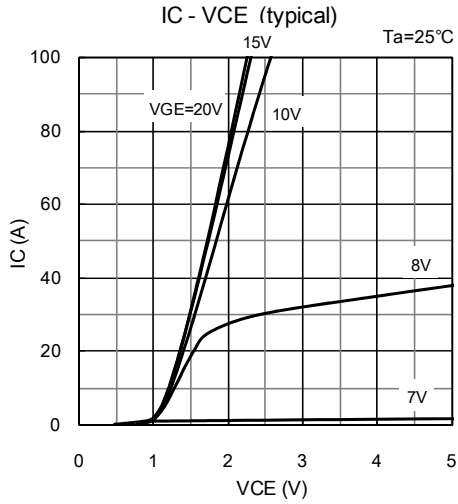
(a) Test Circuit



(b) Waveforms

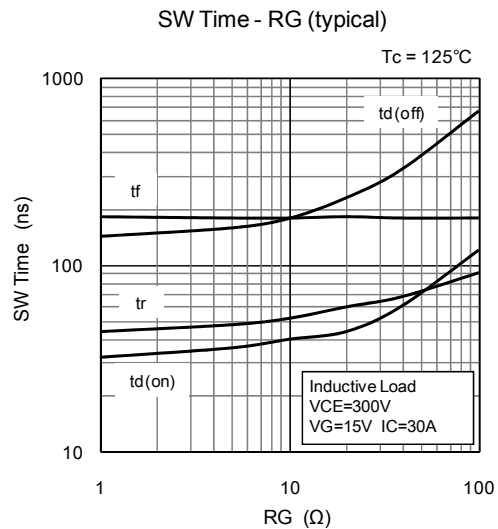
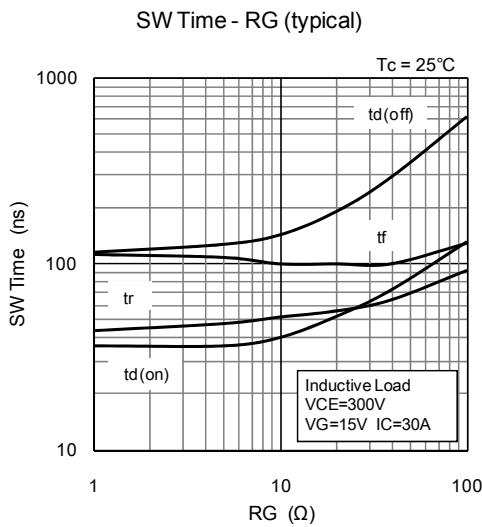
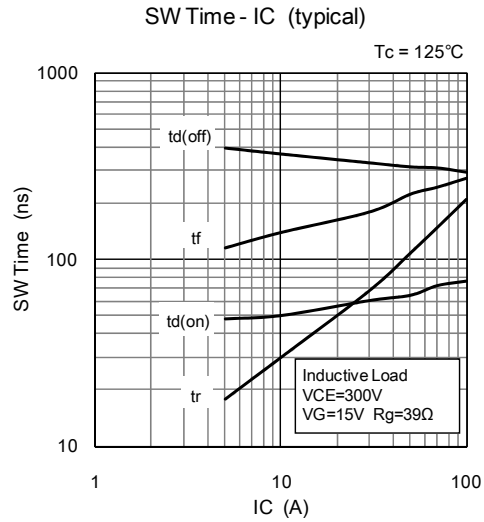
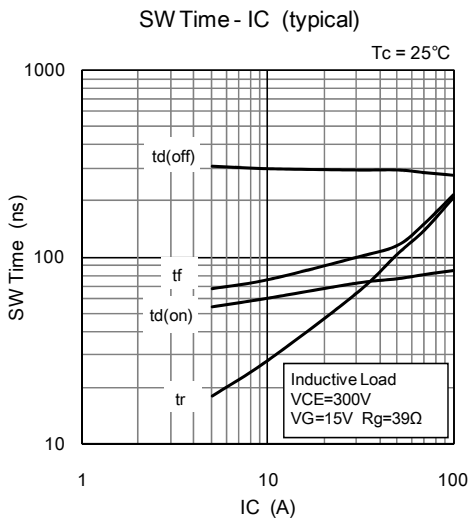
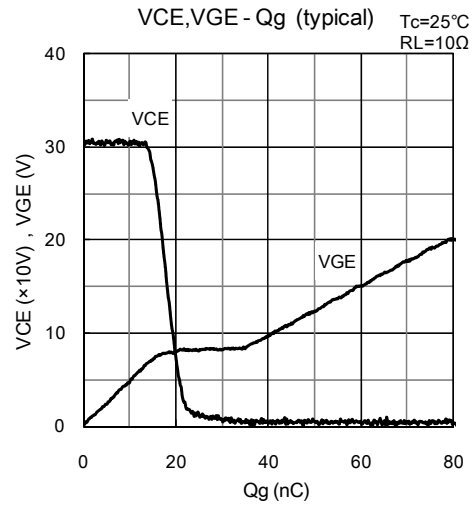
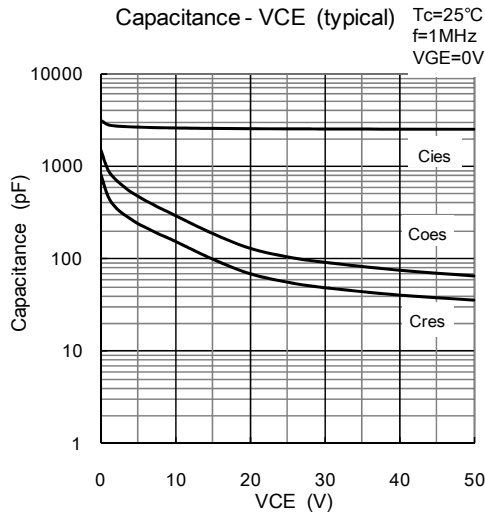
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Characteristic Curves



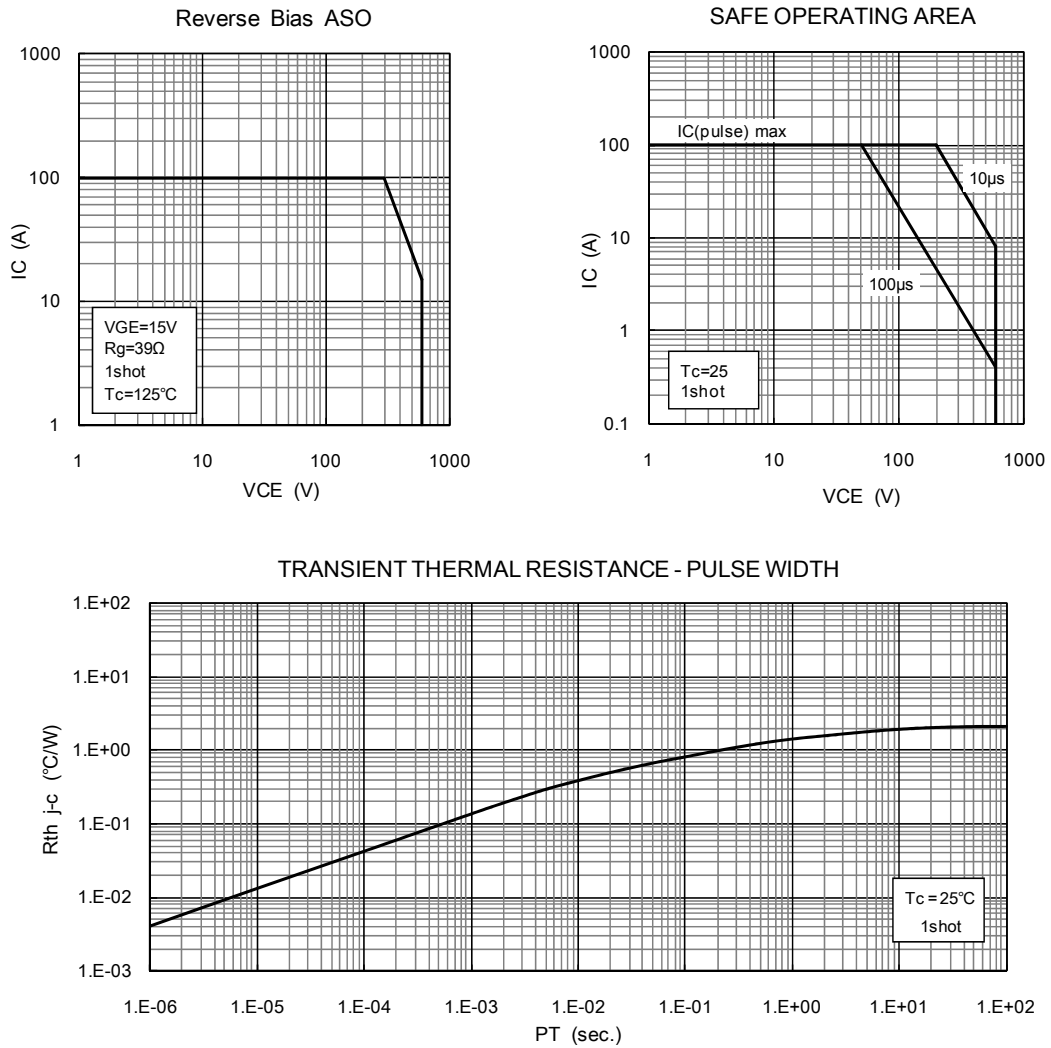
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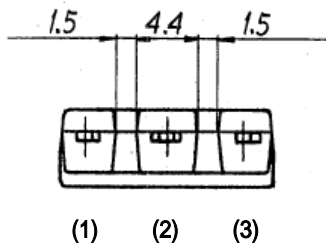
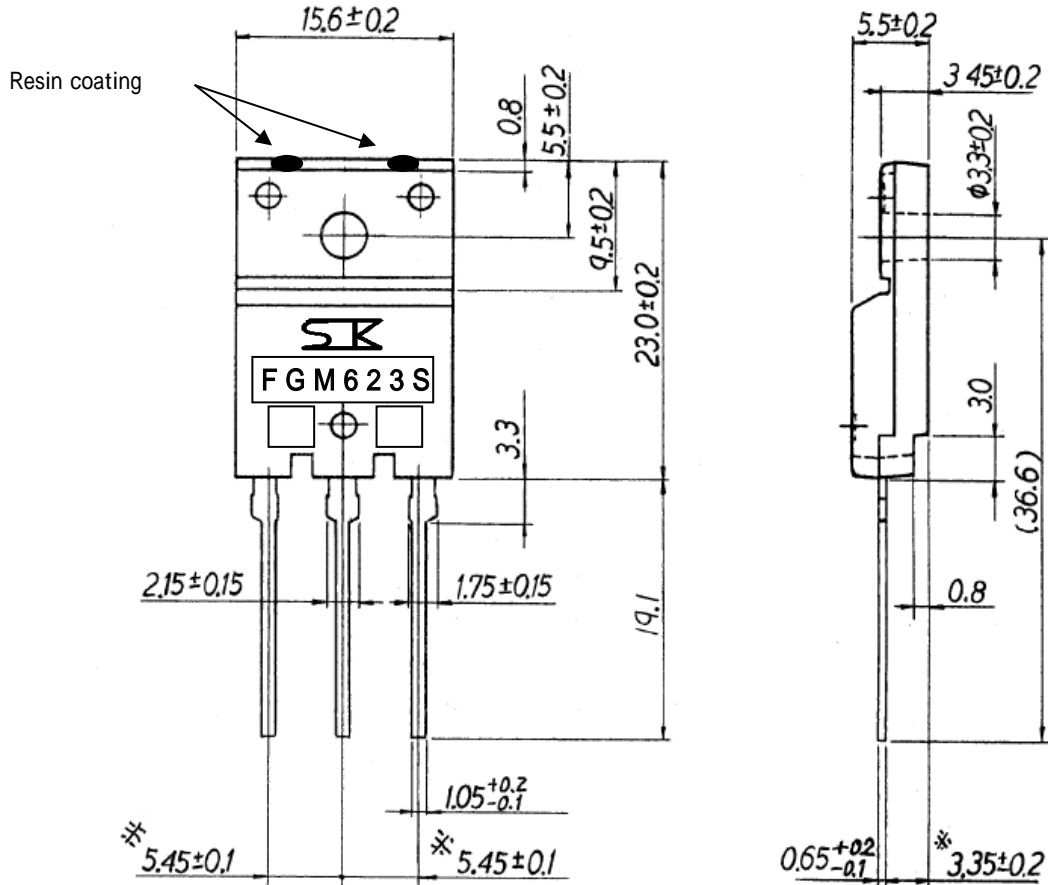
Characteristic Curves



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Outline

TO-3PF



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

Wight Approx : 6.5g

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