



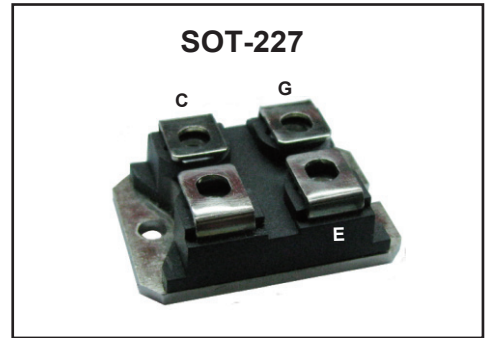
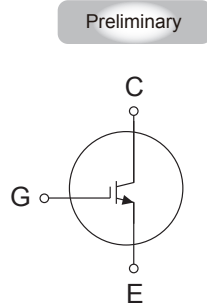
IGBT Module 100A

Features

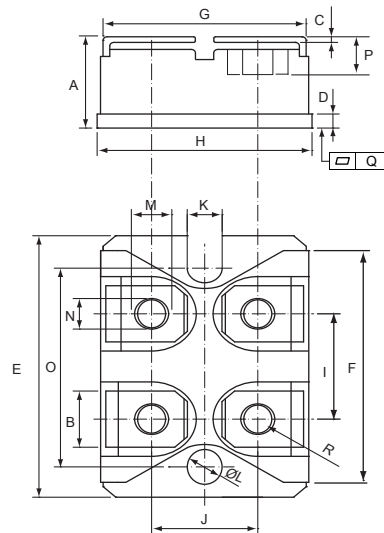
- ◆ IGBT NPT trench technology
- ◆ High short circuit capability

Applications

- ◆ Welder / Power Supply
- ◆ UPS / Inverter
- ◆ Industrial Motor Drive



Dimensions in inches and (millimeters)



Maximum Ratings (T_C= 25°C)

| Item | Symbol | Rated Value | Unit |
|--|------------------|-----------------|------|
| Collector-Emitter Voltage | V _{CES} | 600 | V |
| Gate-Emitter Voltage | V _{GES} | ±20 | V |
| Collector Current | DC | I _C | A |
| | 1ms | I _{CP} | |
| Collector Power Dissipation | P _C | 400 | W |
| Isolation Voltage (e Terminal to Base, AC 1 min.) | V _{iso} | 2500 | V |
| Junction Temperature Range | T _J | -55~+150 | °C |
| Storage Temperature Range | T _{stg} | -55~+150 | °C |
| Mounting torque (M4 Screw) | M _d | 1.3 | N.m |

| DIM | DIMENSIONS | | | |
|-----|------------|-------|-------|-------|
| | INCHES | | MM | |
| | MIN | MXA | MIN | MXA |
| A | .460 | .484 | 11.68 | 12.28 |
| B | .307 | .322 | 7.80 | 8.20 |
| C | .029 | .033 | .75 | .84 |
| D | .073 | .082 | 1.85 | 2.10 |
| E | 1.487 | 1.502 | 37.80 | 38.20 |
| F | 1.250 | 1.258 | 31.75 | 32.00 |
| G | .931 | .956 | 23.65 | 24.30 |
| H | .996 | 1.007 | 25.30 | 25.60 |
| I | .586 | .594 | 14.90 | 15.10 |
| J | .492 | .516 | 12.50 | 13.10 |
| K | .161 | .169 | 4.10 | 4.30 |
| L | .161 | .169 | 4.10 | 4.30 |
| M | .181 | .191 | 4.60 | 4.95 |
| N | .165 | .177 | 4.20 | 4.50 |
| O | 1.184 | 1.192 | 30.10 | 30.30 |
| P | .217 | .244 | 5.50 | 6.20 |
| Q | -0.002 | 0.004 | -0.05 | 0.10 |
| R | M4*8 | | | |



■ **Electrical Characteristics** ($T_C = 25^\circ\text{C}$)

| Characteristic | | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|--------------------------------------|---------------|---------------|---|------|------|------|---------------|
| Collector-Emitter Cut-Off Current | | I_{CES} | $V_{CE} = 600\text{V}$ $V_{GE} = 0\text{V}$ | - | - | 1 | mA |
| Gate-Emitter Leakage Current | | I_{GES} | $V_{GE} = \pm 20\text{V}$ $V_{CE} = 0\text{V}$ | - | - | 500 | nA |
| Collector-Emitter Saturation Voltage | | $V_{CE(sat)}$ | $I_C = 100\text{A}$, $V_{GE} = 15\text{V}$ | - | 2.1 | 2.6 | V |
| Gate-Emitter Threshold Voltage | | $V_{GE(th)}$ | $V_{CE} = 5\text{V}$, $I_C = 100\text{mA}$ | 4 | - | 8 | V |
| Input Capacitance | | C_{ies} | $V_{CE} = 10\text{V}$, $V_{GE} = 0\text{V}$, $f = 1\text{MHz}$ | - | 8000 | - | pF |
| Switching Time | Rise Time | t_r | $V_{CC} = 300\text{V}$ $R_L = 3\Omega$ $R_G = 7.5\Omega$ $V_{GE} = \pm 15\text{V}$ | - | 0.15 | 0.3 | μs |
| | Turn-On Time | t_{on} | | - | 0.25 | 0.4 | |
| | Fall Time | t_f | | - | 0.2 | 0.35 | |
| | Turn-Off Time | t_{off} | | - | 0.45 | 0.7 | |

■ **Thermal Characteristics** ($T_C = 25^\circ\text{C}$)

| Characteristic | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|-------------------|---------------|------------------|------|------|------|--------------------|
| Thermal Impedance | $R_{th(j-c)}$ | Junction to Case | - | - | 0.31 | $^\circ\text{C/W}$ |



Typical Characteristics

Fig. 1 Output Characteristics (Typical)

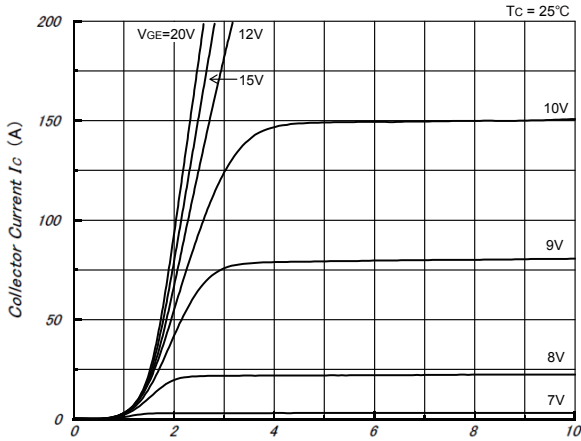


Fig. 2 Collector to Emitter on Voltage vs. Gate to Emitter Voltage (Typical)

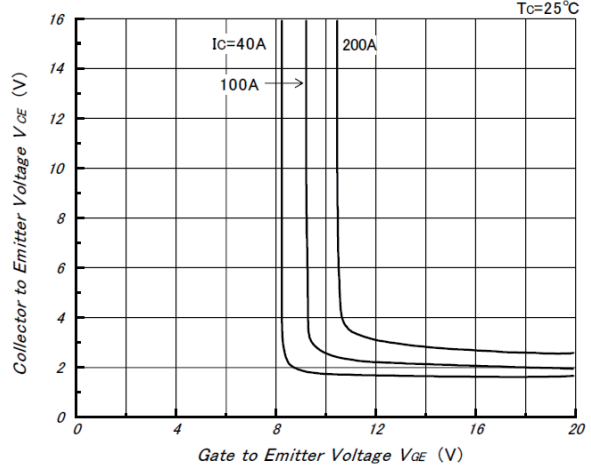


Fig. 3 Collector to Emitter on Voltage vs. Gate to Emitter Voltage (Typical)

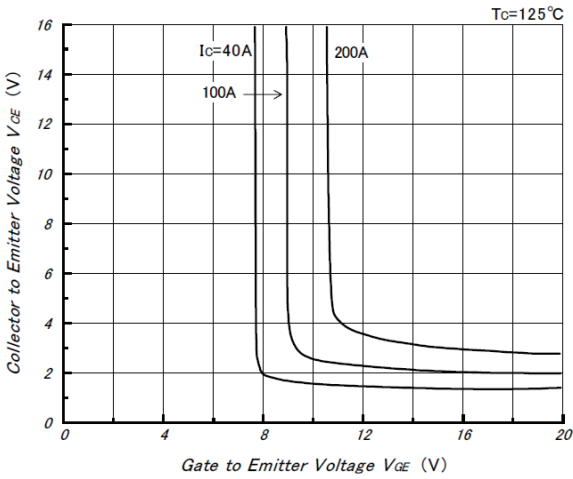


Fig. 4 Gate Charge vs. Collector to Emitter Voltage (Typical)

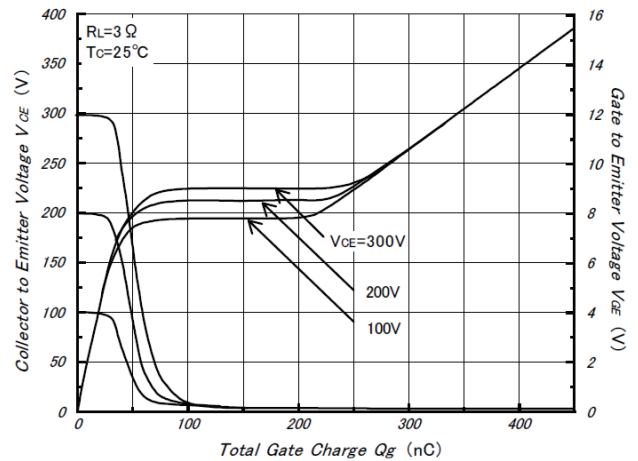


Fig. 5 Capacitance vs. Collector to Emitter Voltage (Typical)

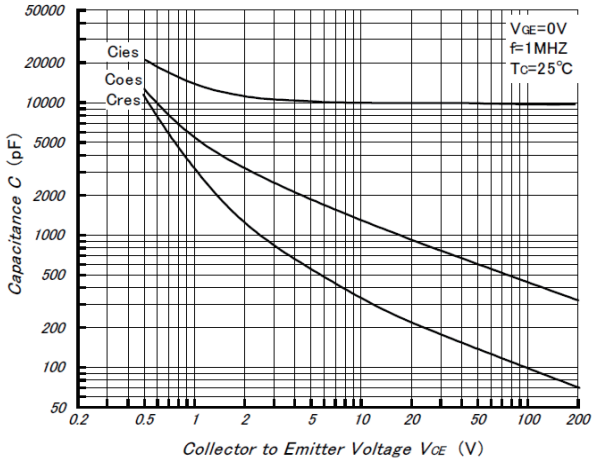
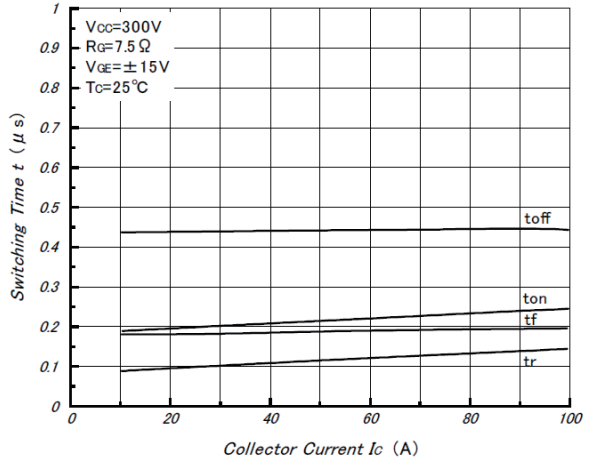


Fig. 6 Collector Current vs. Switching Time (Typical)





Typical Characteristics

Fig. 7 Series Gate Impedance vs. Switching Time (Typical)

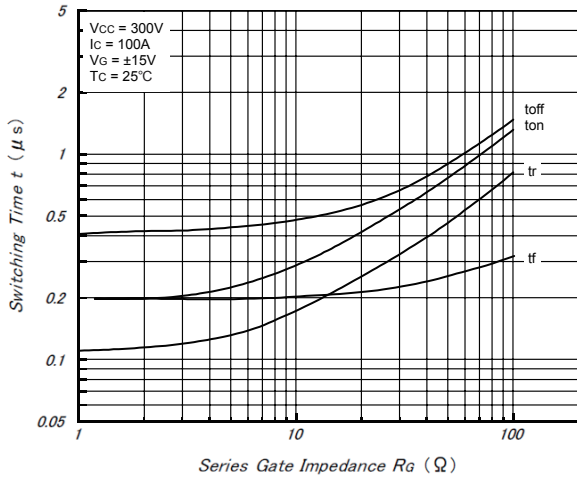


Fig. 8 Reverse Bias Safe Operating Area

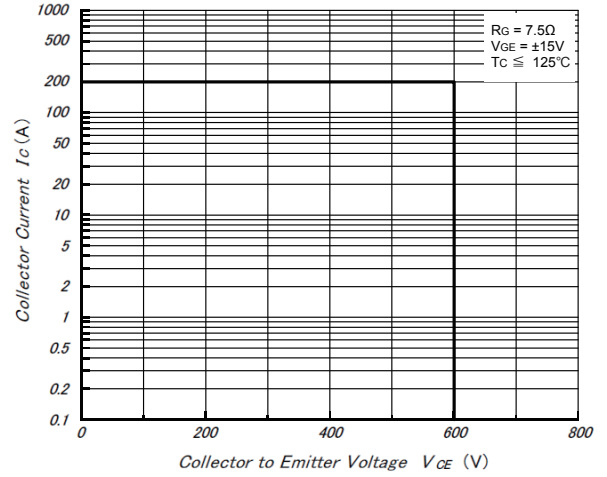


Fig. 9 Transient Thermal Impedance

