

IGBT MODULE

GCA300BA60



UL;E76102 (M)

SanRex IGBT Module **GCA300BA60** is designed for high speed, high current switching applications. This Module is electrically isolated and contains two IGBTs connected in series with a fast switching, soft recovery diode ($t_{rr}=0.1 \mu s$) reverse connected across each IGBT.

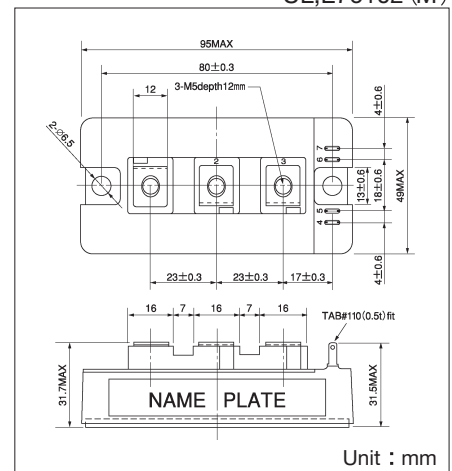
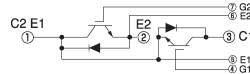
- $I_C=300A$ $V_{CES}=600V$
- $V_{CES(sat)} = 2.4V$ Typ
- $t_f=0.10 \mu s$ Typ
- Soft recovery diode

(Applications)

Inverter for motor control (VVVF)

UPS, AC servo

DC power supply, Welder



Unit : mm

Maximum Ratings

(Unless otherwise $T_j=25^\circ C$)

| Symbol | Item | Conditions | Ratings | | Unit |
|-----------|----------------------------|---------------------------------------|-----------------------------------|--|-----------------|
| | | | GCA300BA60 | | |
| V_{CES} | Collector-Emitter Voltage | with gate terminal shorted to emitter | 600 | | V |
| V_{GES} | Gate-Emitter Voltage | with collector shorted to emitter | ± 20 | | V |
| I_C | Collector Current | DC | 300 | | A |
| I_{CP} | | Pulse (1 ms) | 600 | | |
| $-I_C$ | Reverse Collector Current | | 300 | | A |
| P_T | Total Power Dissipation | $T_c=25^\circ C$ | 1100 | | W |
| T_j | Junction Temperature | | 150 | | $^\circ C$ |
| T_{stg} | Storage Temperature | | $-40 \sim +125$ | | $^\circ C$ |
| V_{ISO} | Isolation Voltage (R.M.S.) | A.C. 1 minute | 2500 | | V |
| | Mounting Torque | Mounting (M6) | Recommended Value 2.5~3.9 (25~40) | | N·m (kgf·cm) |
| | | Terminal (M5) | Recommended Value 1.5~2.5 (15~25) | | |
| | Mass | Typical Value | 225 | | g |

Electrical Characteristics

(Unless otherwise $T_j=25^\circ C$)

| Symbol | Item | Conditions | Ratings | | | Unit | |
|---------------|--------------------------------------|--|--|------|-----------|--------------|------|
| | | | Min. | Typ. | Max. | | |
| I_{GES} | Gate Leakage Current | $V_{GE}=\pm 20V, V_{CE}=0V$ | | | ± 500 | nA | |
| I_{CES} | Collector Cut-Off Current | $V_{CE}=600V, V_{GE}=0V$ | | | 1.0 | mA | |
| $V_{(BR)CES}$ | Collector-Emitter Breakdown Voltage | $V_{GE}=0V, I_C=1 \text{ mA}$ | 600 | | | V | |
| $V_{GE(th)}$ | Gate Threshold Voltage | $V_{CE}=10V, I_C=30mA$ | 3.0 | | 7.0 | V | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=300A, V_{GE}=15V$ | | 2.4 | 2.8 | V | |
| C_{ies} | Input Capacitance | $V_{CE}=10V, V_{GE}=0V, f=1MHz$ | | 20 | 30 | nF | |
| t_r | Switching Time | Rise Time | | 0.10 | 0.20 | μs | |
| $t_{d(on)}$ | | Turn-on Delay Time | $I_C=300A, V_{GE}=+15V/-5V$ $V_{CC}=300V, R_G=2 \Omega$ | | 0.20 | | 0.40 |
| t_f | | Fall Time | | | 0.10 | | 0.20 |
| $t_{d(off)}$ | | Turn-off Delay Time | | | 0.40 | | 0.80 |
| V_{ECS} | Emitter-Collector Voltage | $-I_C=300A, V_{GE}=0V$ | | | 2.30 | 2.80 | V |
| t_{rr} | Reverse Recovery Time | $-I_C=300A, V_{GE}=-10V, di/dt=600A/\mu s$ | | 0.1 | 0.15 | μs | |
| $R_{th(j-c)}$ | Thermal Resistance | IGBT-Case | | | 0.11 | $^\circ C/W$ | |
| | | Diode-Case | | | 0.40 | | |

