

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

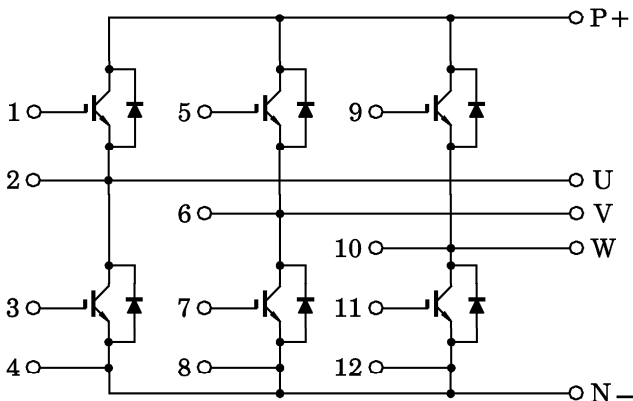
MG15Q6ES50

HIGH POWER SWITCHING APPLICATIONS

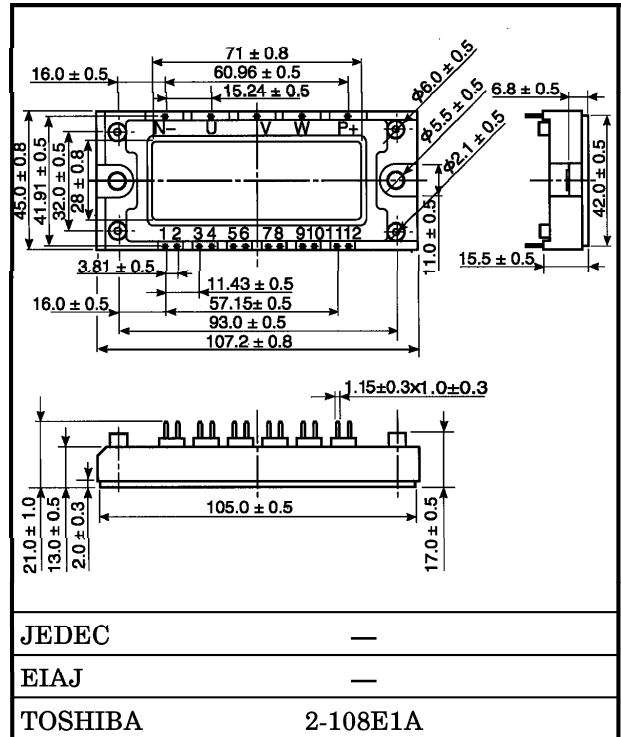
MOTOR CONTROL APPLICATIONS

- The Electrodes are Isolated from Case.
- High Input Impedance.
- 6 IGBTs Built Into 1 Package.

EQUIVALENT CIRCUIT



Unit in mm



Weight : 185g

961001EAA1

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MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|--|-----|----------------------------------|-----------------------|------|
| Collector-Emitter Voltage | | V _{CES} | 1200 | V |
| Gate-Emitter Voltage | | V _{GES} | ±20 | V |
| Collector Current | DC | I _C (25°C / 80°C) | 25 / 15 | A |
| | 1ms | I _{CP} (25°C / 80°C) | 50 / 30 | A |
| Forward Current | DC | I _F | 15 | A |
| | 1ms | I _{FM} | 30 | A |
| Collector Power Dissipation (T _c = 25°C) | | P _C | 145 | W |
| Junction Temperature | | T _j | 150 | °C |
| Storage Temperature Range | | T _{stg} | -40~125 | °C |
| Isolation Voltage | | V _{Isol} | 2500 (AC 1 minute) | V |
| Screw Torque | | — | 6 | N·m |

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|--------------------------------------|---------------|-----------------------|--|------------------------|------|------|--------|---|
| Gate Leakage Current | | I _{GES} | V _{GE} = ±20V, V _{CE} = 0 | — | — | ±500 | nA | |
| Collector Cut-Off Current | | I _{CES} | V _{CE} = 1200V, V _{GE} = 0 | — | — | 0.5 | mA | |
| Gate-Emitter Cut-Off Voltage | | V _{GE (off)} | I _C = 15mA, V _{CE} = 5V | 3.0 | — | 6.0 | V | |
| Collector-Emitter Saturation Voltage | | V _{CE (sat)} | I _C = 15A, V _{GE} = 15V | T _j = 25°C | — | 2.8 | 3.2 | V |
| | | | | T _j = 125°C | — | 3.1 | 3.7 | |
| Input Capacitance | | C _{ies} | V _{CE} = 10V, V _{GE} = 0, f = 1MHz | — | 1850 | — | pF | |
| Switching Time | Rise Time | t _r | V _{CC} = 600V I _C = 15A, V _{GE} = ±15V R _G = 82Ω, T _j = 125°C (Note 1) | — | 0.07 | 0.15 | μs | |
| | Turn-On Time | t _{on} | | — | 0.15 | 0.30 | | |
| | Fall Time | t _f | | — | 0.07 | 0.10 | | |
| | Turn-Off Time | t _{off} | | — | 0.60 | 0.90 | | |
| Forward Voltage | | V _F | I _F = 15A, V _{GE} = 0 | — | 2.0 | 2.8 | V | |
| Reverse Recovery Time | | t _{rr} | I _F = 15A, V _{GE} = -10V di / dt = 200A / μs | — | 0.10 | 0.25 | μs | |
| Thermal Resistance | | R _{th (j-c)} | Transistor Stage | — | — | 0.86 | °C / W | |
| | | | Diode Stage | — | — | 1.5 | | |

(Note 1) Switching Time Test Circuit & Timing Chart

