

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

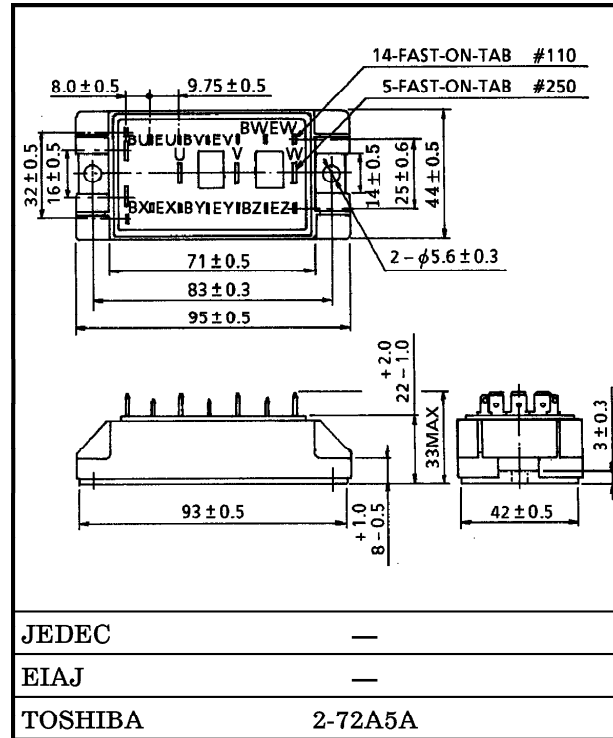
MG30J6ES50

HIGH POWER SWITCHING APPLICATIONS

Unit in mm

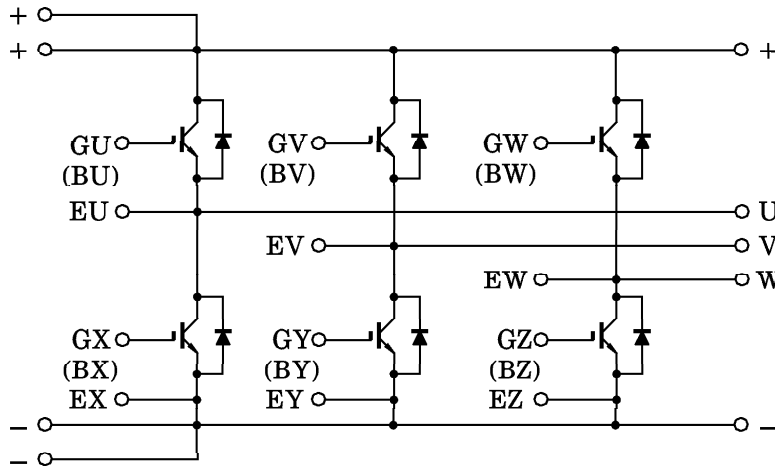
MOTOR CONTROL APPLICATIONS

- The Electrodes are Isolated from Case.
- High Input Impedance.
- 6 IGBTs Built Into 1 Package.
- Enhancement-Mode.
- High Speed : $t_f=0.36\mu s$ (Max.) ($I_C=30A$)
 $t_{rr}=0.15\mu s$ (Max.) ($I_F=30A$)
- Low Saturation Voltage
: $V_{CE(sat)}=2.70V$ (Max.) ($I_C=30A$)



Weight : 225g

EQUIVALENT CIRCUIT



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MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|---|-----|-------------------|---------------------|------|
| Collector-Emitter Voltage | | V _{CES} | 600 | V |
| Gate-Emitter Voltage | | V _{GES} | ±20 | V |
| Collector Current | DC | I _C | 30 | A |
| | 1ms | I _{CP} | 60 | A |
| Forward Current | DC | I _F | 30 | A |
| | 1ms | I _{FM} | 60 | A |
| Collector Power Dissipation (Tc = 25°C) | | P _C | 100 | W |
| Junction Temperature | | T _j | 150 | °C |
| Storage Temperature Range | | T _{stg} | -40~125 | °C |
| Isolation Voltage | | V _{Isol} | 2500 (AC 1 min.) | V |
| Screw Torque | | — | 3 | 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} = 600V, V _{GE} = 0 | — | — | 1.0 | mA |
| Gate-Emitter Cut-Off Voltage | | V _{GE (off)} | I _C = 3mA, V _{CE} = 5V | 5.0 | — | 8.0 | V |
| Collector-Emitter Saturation Voltage | | V _{CE (sat)} | I _C = 30A, V _{GE} = 15V | — | 2.10 | 2.70 | V |
| Input Capacitance | | C _{ies} | V _{CE} = 10V, V _{GE} = 0, f = 1MHz | — | 2500 | — | pF |
| Switching Time | Turn-On Delay Time | t _{d (on)} | Inductive Load V _{CC} = 300V I _C = 30A V _{GE} = ±15V R _G = 100Ω (Note 1) | — | 0.17 | — | μs |
| | Rise Time | t _r | | — | 0.11 | — | |
| | Turn-On Time | t _{on} | | — | 0.50 | — | |
| | Turn-Off Delay Time | t _{d (off)} | | — | 0.25 | — | |
| | Fall Time | t _f | | — | 0.18 | 0.36 | |
| | Turn-Off Time | t _{off} | | — | 0.55 | 0.80 | |
| Forward Voltage | | V _F | I _F = 30A, V _{GE} = 0 | — | 1.5 | 2.5 | V |
| Reverse Recovery Time | | t _{rr} | I _F = 30A, V _{GE} = -10V di / dt = 100A / μs | — | 0.07 | 0.15 | μs |
| Thermal Resistance | R _{th (j-c)} | Transistor | | — | — | 1.25 | °C / W |
| | | Diode | | — | — | 1.56 | |

(Note 1) Switching Time Test Circuit & Timing Chart

