

TOSHIBA SEMICONDUCTOR
TECHNICAL DATA

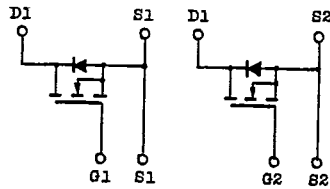
TOSHIBA GTR MODULE
 MG50G2DM1
 SILICON N CHANNEL MOS TYPE

HIGH POWER SWITCHING APPLICATIONS.
 MOTOR CONTROL APPLICATIONS.

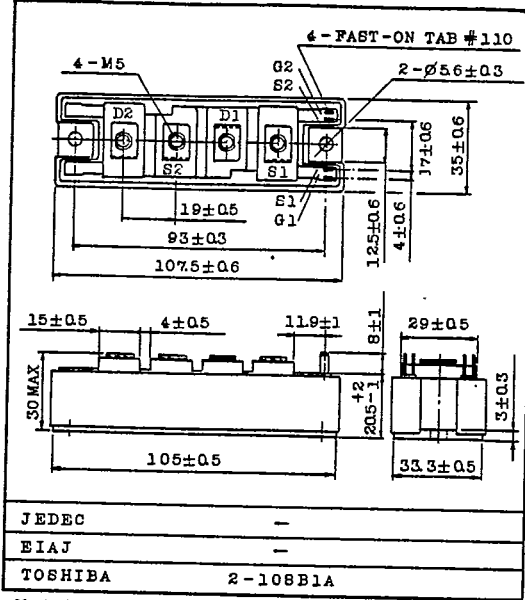
FEATURES:

- . The Drain is Isolated from Case.
- . 2 MOS FETs are Built-in to 1 Package.
- . With Built-in Free Wheeling Diode.
- . Low Drain-Source ON Resistance
 : $R_{DS(ON)} = 0.14\Omega(\text{Max.}) (I_D = 50A)$
- . Enhancement-Mode.

EQUIVALENT CIRCUIT



Unit in mm



Weight : 245g

MAXIMUM RATINGS (Ta=25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------------------|------------|---------------------|-------|
| Drain-Source Voltage | V_{DSS} | 450 | V |
| Gate-Source Voltage | V_{GSS} | ±20 | V |
| Drain Current | I_D | ±50 | A |
| | | ±100 | |
| Drain Power Dissipation (Tc=25°C) | P_D | 400 | W |
| Channel Temperature | T_{ch} | 150 | °C |
| Storage Temperature Range | T_{stg} | -40~125 | °C |
| Isolation Voltage | V_{isol} | 2500 (AC, 1 Minute) | V |
| Screw Torque (Terminal/Mounting) | - | 30/30 | kg·cm |

MG50G2DM1-1.
TOSHIBA CORPORATION

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ELECTRICAL CHARACTERISTICS (Ta=25°C)

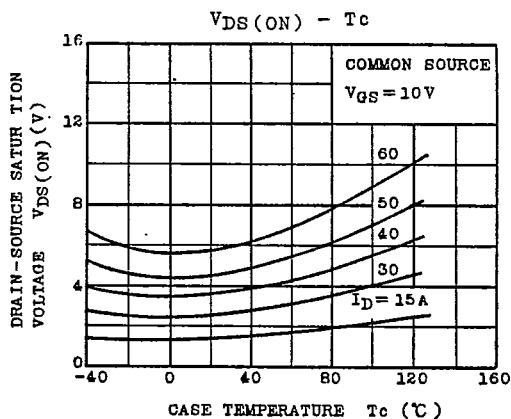
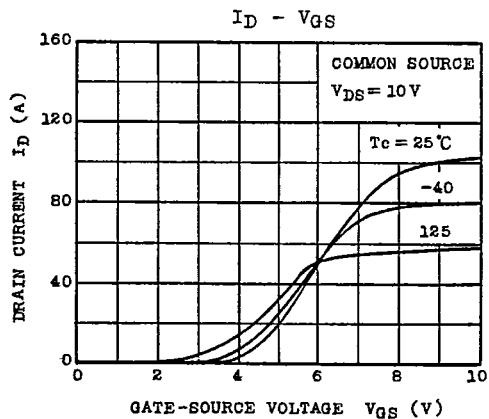
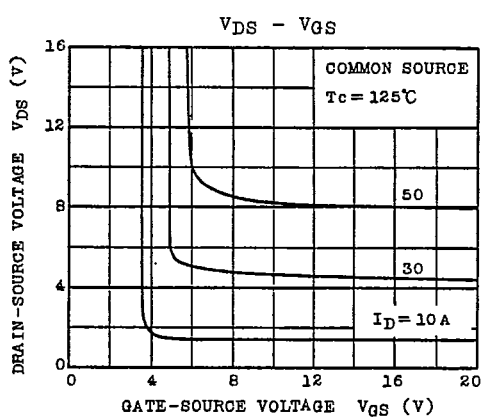
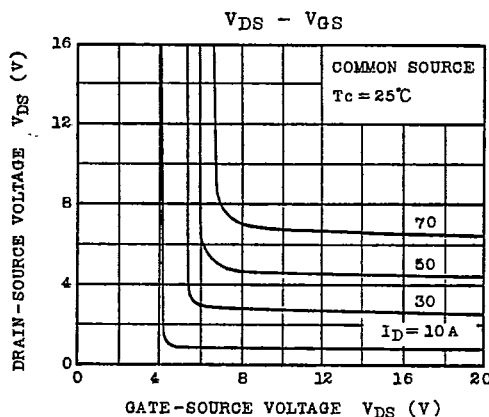
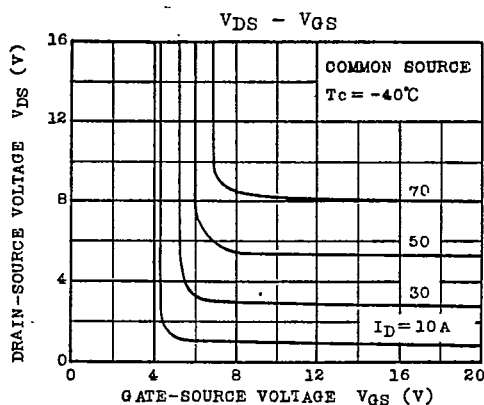
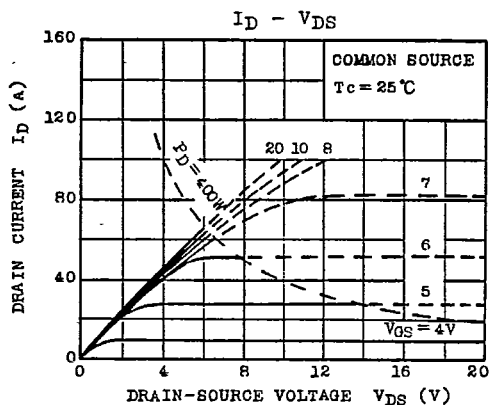
| CHARACTERISTIC | | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--------------------------------|---------------|-----------|---|------|-------|------|------|
| Gate Leakage Current | | IGSS | VGS=±20V, VDS=0 | - | - | ±150 | nA |
| Drain Cut-Off Current | | IDSS | VDS=450V, VGS=0 | - | - | 3.0 | mA |
| Drain-Source Breakdown Voltage | | V(BR)DSS | ID=10mA, VGS=0 | 450 | - | - | V |
| Gate-Source Cut-off Voltage | | VGS(OFF) | VDS=10V, ID=50mA | 1.8 | 2.8 | 4.0 | V |
| Forward Transfer Admittance | | Yfs | VDS=10V, ID=50A | 12.0 | 21.0 | - | S |
| Drain-Source ON Resistance | | RDS(ON) | ID=50A, VGS=10V | - | 0.09 | 0.14 | Ω |
| Input Capacitance | | Ciss | VDS=10V, VGS=0, f=1MHz | - | 13000 | - | pF |
| Switching Time | Rise Time | tr | | - | 350 | 700 | ns |
| | Turn-on Time | ton | | - | 400 | 800 | |
| | Fall Time | tf | | - | 100 | 200 | |
| | Turn-off Time | toff | | - | 650 | 1300 | |
| Source Drain Forward Voltage | | VDSF | ID=-50A, VGS=0 | - | 1.15 | 1.95 | V |
| Reverse Recovery Time | | trr | ID=-50A, RG=5Ω VGS=-10V, di/dt=150A/µs | - | 250 | 500 | ns |
| Thermal Resistance | | Rth(ch-c) | | - | - | 0.31 | °C/W |

MG50G2DM1-2

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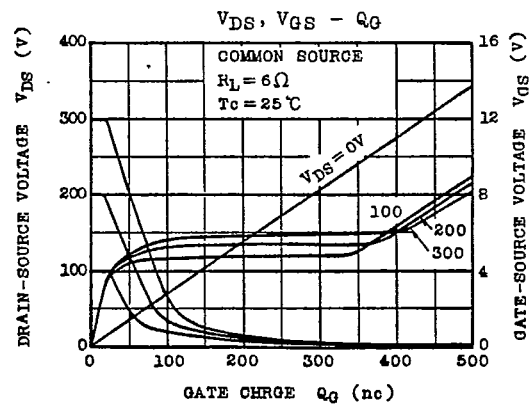
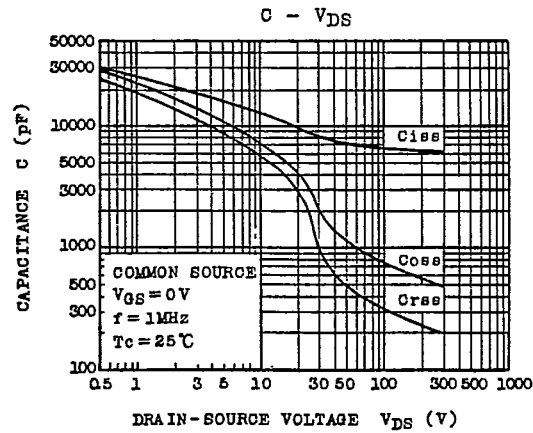
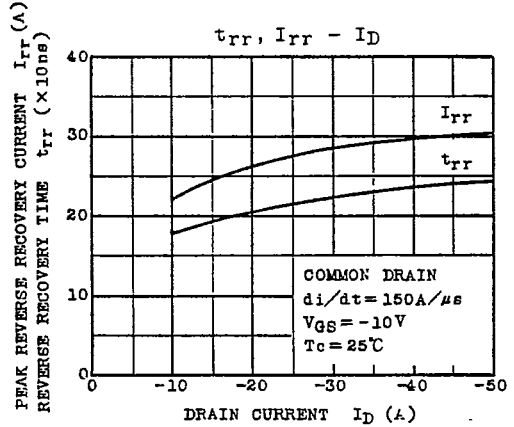
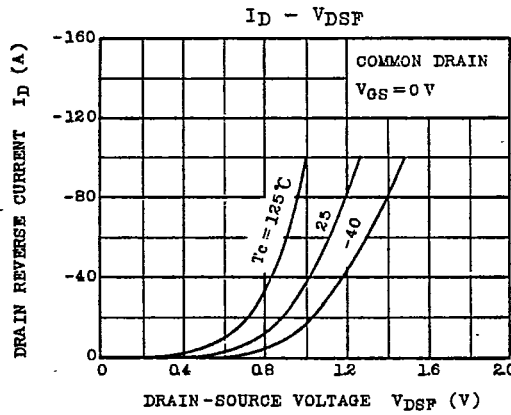
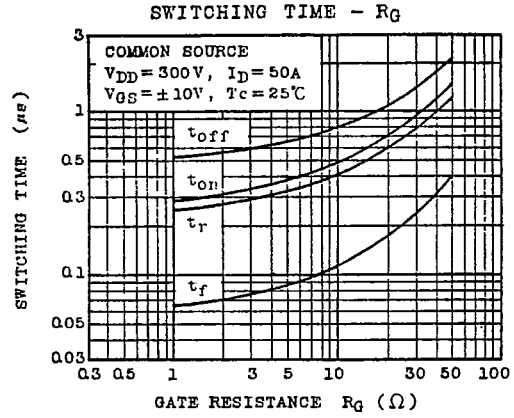
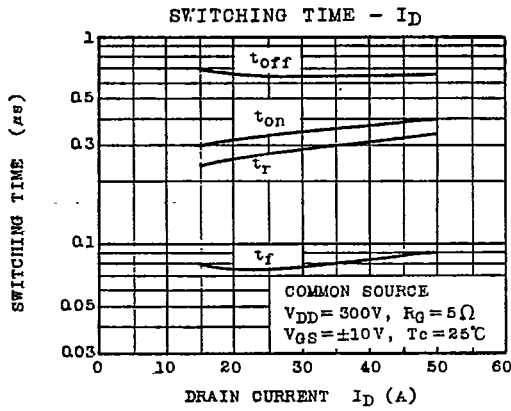
TOSHIBA SEMICONDUCTOR
TECHNICAL DATA

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MG50G2DM1-4
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MG50G2DM1

