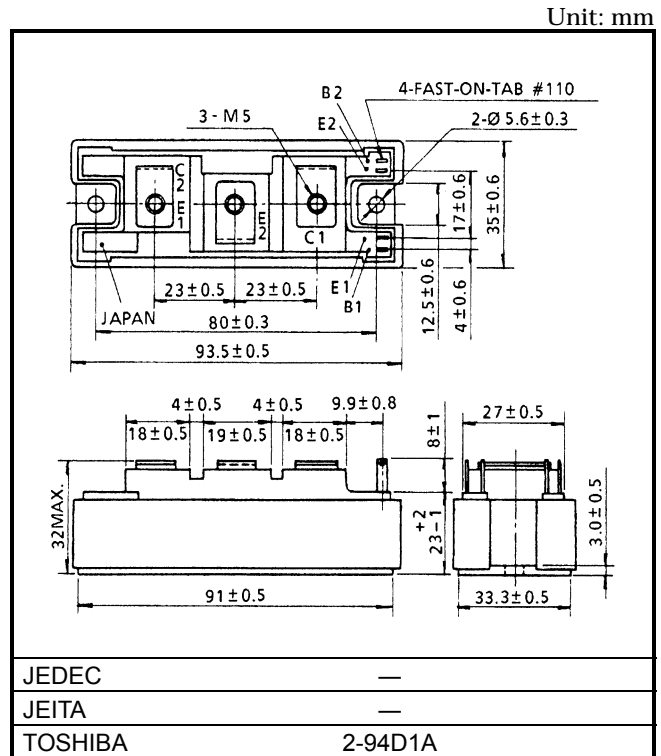
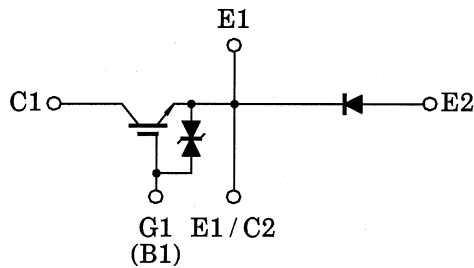


# MG75Q1JS40

High Power Switching Applications  
Chopper Applications

- High input impedance
- High speed:  $t_f = 0.5\mu s$  (Max)  
 $t_{rr} = 0.5\mu s$  (Max)
- Low saturation voltage  
:  $V_{CE(sat)} = 4.0V$  (Max)
- Enhancement-mode
- The electrodes are isolated from case.

## Equivalent Circuit

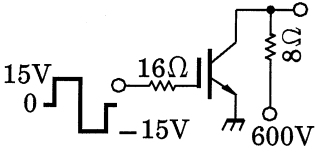


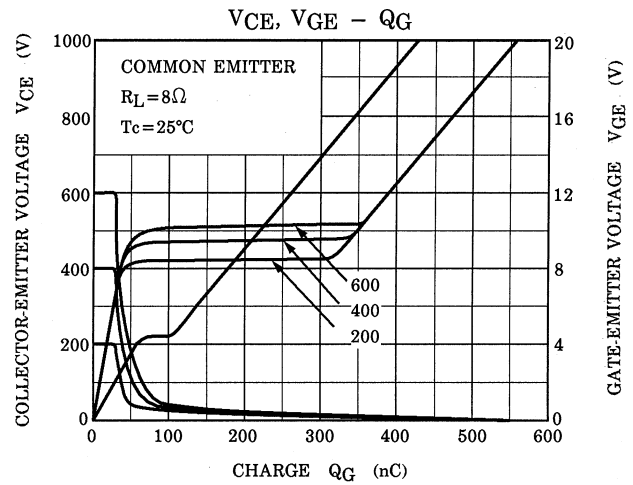
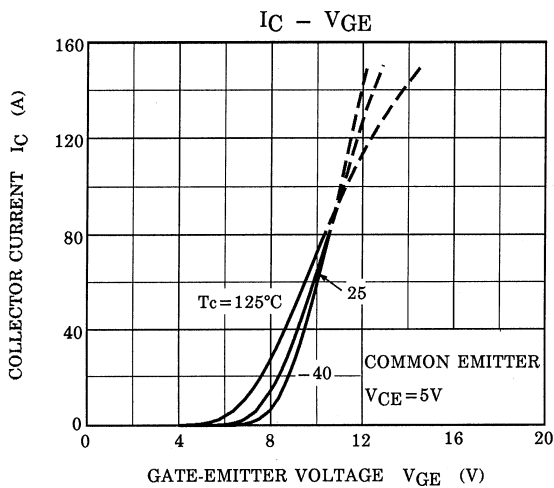
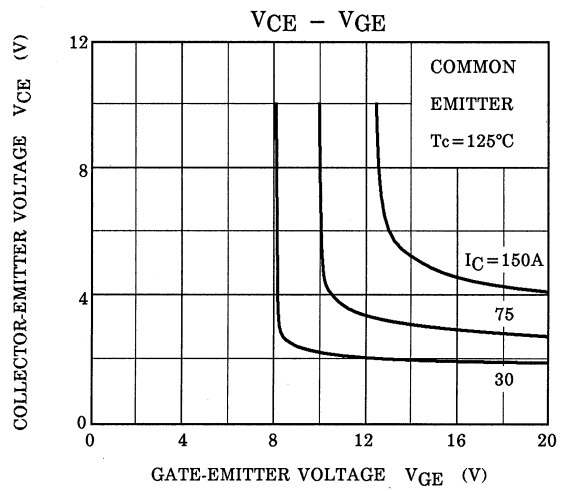
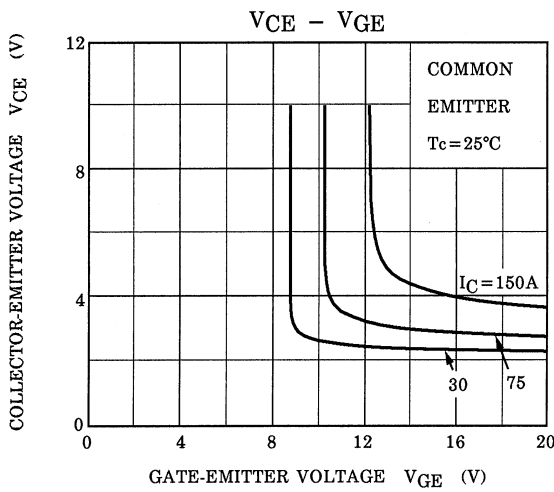
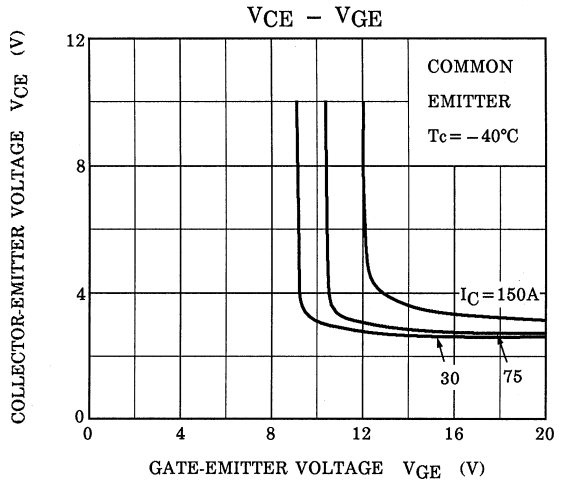
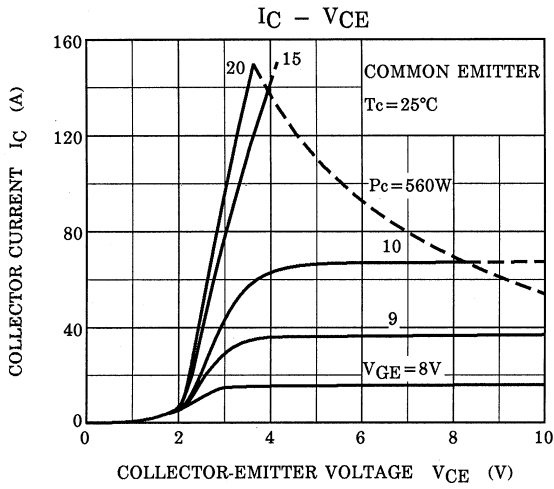
Weight: 200g

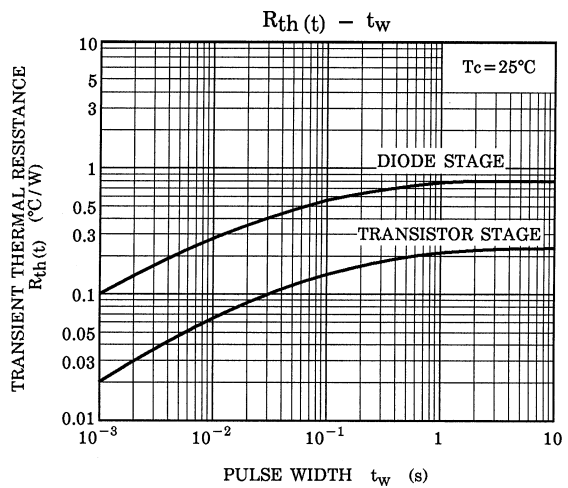
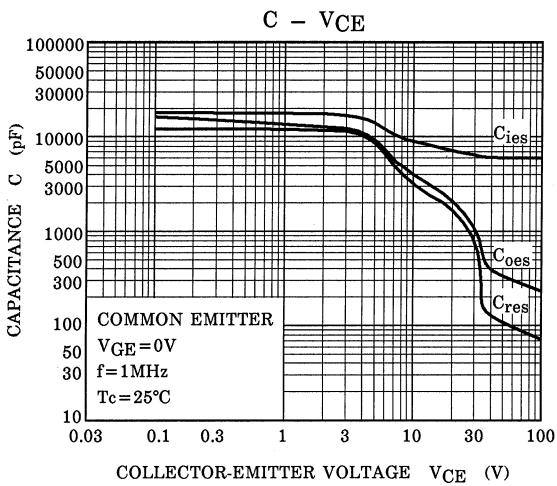
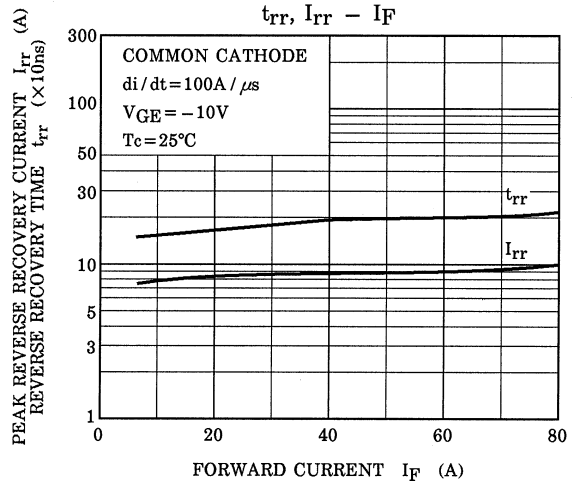
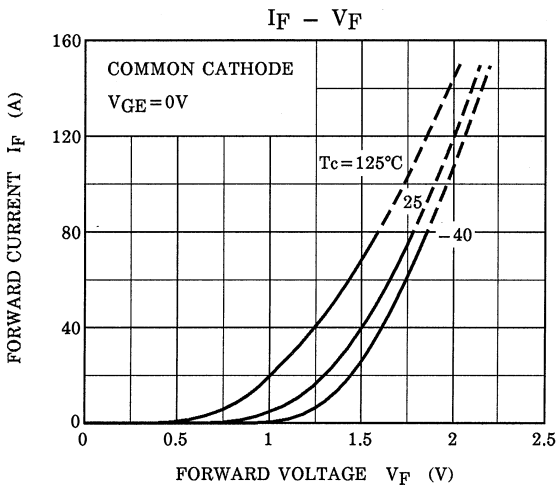
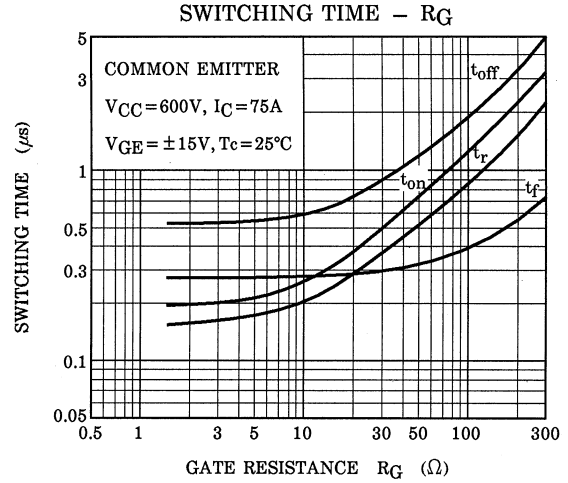
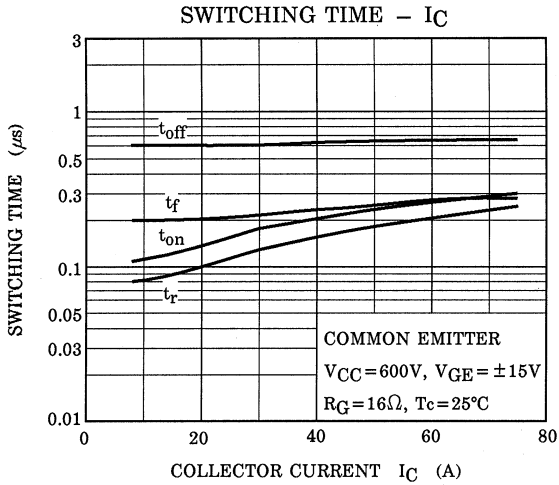
## Maximum Ratings (Ta = 25°C)

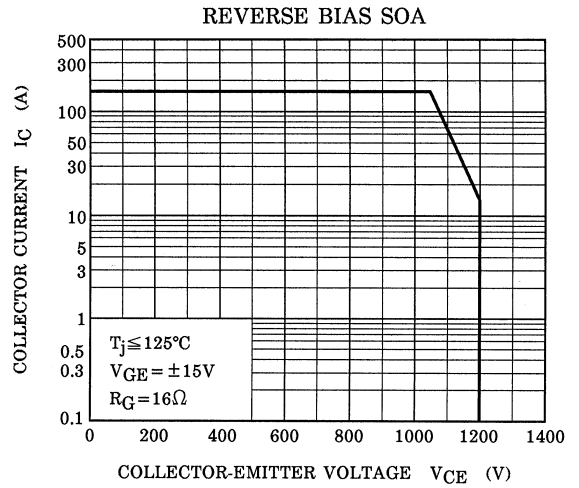
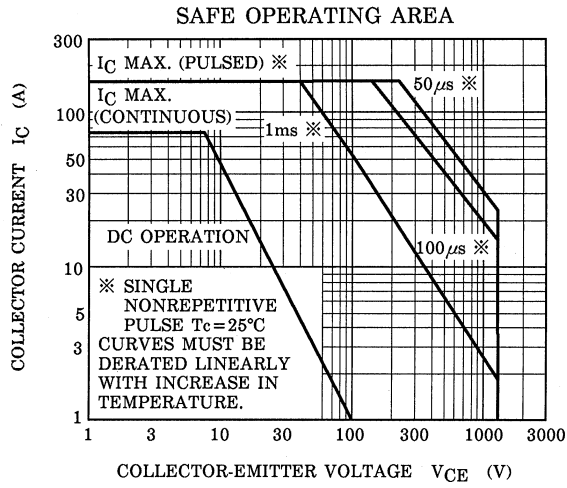
| Characteristic                          | Symbol     | Rating             | Unit |
|---|------------|--------------------|------|
| Collector-emitter voltage               | $V_{CES}$  | 1200               | V    |
| Gate-emitter voltage                    | $V_{GES}$  | ±20                | V    |
| Collector current                       | DC         | $I_C$              | A    |
|   | 1ms        | $I_{CP}$           |      |
| Forward current                         | DC         | $I_F$              | A    |
|   | 1ms        | $I_{FM}$           |      |
| Collector power dissipation (Tc = 25°C) | $P_C$      | 560                | W    |
| Junction temperature                    | $T_j$      | 150                | °C   |
| Storage temperature range               | $T_{stg}$  | -40 ~ 125          | °C   |
| Isolation voltage                       | $V_{isol}$ | 2500<br>(AC 1 min) | V    |
| Screw torque (Terminal / mounting)      | —          | 3 / 3              | N·m  |

## Electrical Characteristics (Ta = 25°C)

| Characteristic                       |               | Symbol         | Test Condition   | Min | Typ. | Max      | Unit            |
|--------------------------------------|---------------|----------------|--|-----|------|----------|-----------------|
| Gate leakage current                 |               | $I_{GES}$      | $V_{GE} = \pm 20V, V_{CE} = 0$   | —   | —    | $\pm 10$ | $\mu A$         |
| Collector cut-off current            |               | $I_{CES}$      | $V_{CE} = 1200V, V_{GE} = 0$   | —   | —    | 1.0      | mA              |
| Gate-emitter cut-off voltage         |               | $V_{GE (off)}$ | $I_C = 75mA, V_{CE} = 5V$  | 3.0 | —    | 6.0      | V               |
| Collector-emitter saturation voltage |               | $V_{CE (sat)}$ | $I_C = 75A, V_{GE} = 15V$  | —   | 3.0  | 4.0      | V               |
| Input capacitance                    |               | $C_{ies}$      | $V_{CE} = 10V, V_{GE} = 0, f = 1MHz$   | —   | 9000 | —        | pF              |
| Switching time                       | Rise time     | $t_r$          |  | —   | 0.3  | 0.6      | $\mu s$         |
|                                      | Turn-on time  | $t_{on}$       |  | —   | 0.4  | 0.8      |                 |
|                                      | Fall time     | $t_f$          |  | —   | 0.2  | 0.5      |                 |
|                                      | Turn-off time | $t_{off}$      |  | —   | 0.8  | 1.5      |                 |
| Forward voltage                      |               | $V_F$          | $I_F = 75A, V_{GE} = 0$  | —   | 2.0  | 3.0      | V               |
| Reverse recovery time                |               | $t_{rr}$       | $I_F = 75A, V_{GE} = -10V$<br>$di / dt = 100A / \mu s$                             | —   | 0.25 | 0.5      | $\mu s$         |
| Thermal resistance                   | Transistor    | $R_{th (j-c)}$ | —  | —   | —    | 0.22     | $^{\circ}C / W$ |
|                                      | Diode         |                |  | —   | —    | 0.8      |                 |







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