



SEMICONDUCTOR

TECHNICAL DATA

TOSHIBA G-TR MODULE

MG15G1AL3

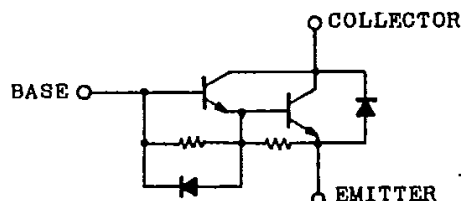
SILICON NPN TRIPLE DIFFUSED TYPE

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

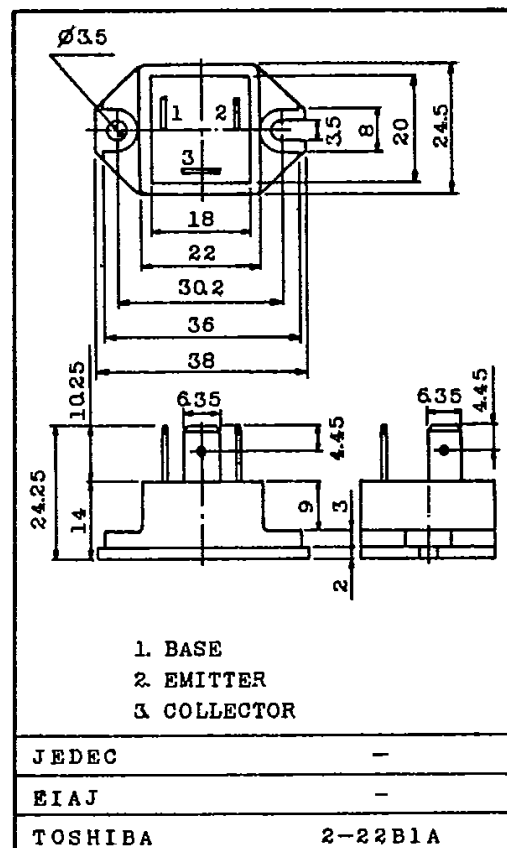
FEATURES:

- The Collector is Isolated from Case.
- With Built-in Free Wheeling Diode.
- High DC Current Gain : $h_{FE}=100(\text{Min.})$ ($I_C=15\text{A}$)
- Low Saturation Voltage : $V_{CE}(\text{sat})=2\text{V}(\text{Max.})$ ($I_C=15\text{A}$)
- High Speed : $t_f=2\mu\text{s}(\text{Max.})$ ($I_C=15\text{A}$)

EQUIVALENT CIRCUIT



Unit in mm



Weight : 28g

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|--|-----------------------|--------------------|------------------|
| Collector-Base Voltage | V_{CBO} | 600 | V |
| Collector-Emitter Voltage | V_{CEO} | 600 | V |
| Collector-Emitter Sustaining Voltage | $V_{CEO}(\text{SUS})$ | 450 | V |
| Emitter-Base Voltage | V_{EBO} | 6 | V |
| Collector Current | DC | I_C | 15 |
| | 1ms | I_C | 30 |
| | DC | $-I_C$ | 15 |
| Base Current | I_B | 1 | A |
| Collector Power Dissipation ($T_c=25^\circ\text{C}$) | P_C | 120 | W |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -40 ~ 125 | $^\circ\text{C}$ |
| Isolation Voltage | V_{isol} | 2500 (AC 1 Minute) | V |
| Screw Torque | | 10 | kg·cm |

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ELECTRICAL CHARACTERISTICS (Ta=25°C)

| CHARACTERISTIC | | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---------------------------------------|--------------|----------------|--|--|------|------|---------------|
| Collector Cut-off Current | | I_{CBO} | $V_{CB}=600V, I_E=0$ | - | - | 1.0 | mA |
| Emitter Cut-off Current | | I_{EBO} | $V_{EB}=6V, I_C=0$ | - | - | 100 | mA |
| Collector-Emitter Sustaining Voltage | | $V_{CEO(SUS)}$ | $I_C=0.5A, L=40mH$ | 450 | - | - | V |
| DC Current Gain | | h_{FE} | $V_{CE}=5V, I_C=15A$ | 100 | - | - | |
| Collector-Emitter Saturation Voltage | | $V_{CE(sat)}$ | $I_C=15A, I_B=0.4A$ | - | - | 2.0 | V |
| Base-Emitter Saturation Voltage | | $V_{BE(sat)}$ | | - | - | 2.5 | V |
| Emitter-Collector Voltage | | V_{ECO} | $I_E=15A, I_B=0$ | - | - | 1.5 | V |
| Reverse Recovery Time | | t_{rr} | $-I_C=15A, V_{EB}=3V$ $V_{CE}=300V$ | - | - | 2.0 | μs |
| Collector Output Capacitance | | C_{ob} | $V_{CB}=50V, I_E=0, f=1MHz$ | - | 190 | - | pF |
| Switching Time | Turn-on Time | t_{on} | | - | - | 1.0 | μs |
| | Storage Time | t_{stg} | | - | - | 12 | |
| | Fall Time | t_f | | $I_{B1}=-I_{B2}=0.4A$ DUTY CYCLE=0.5% | - | - | |
| Thermal Resistance (Junction to Case) | | $R_{th(j-c)}$ | Transistor | - | - | 1.0 | $^{\circ}C/W$ |
| | | | Diode | - | - | 3.5 | |

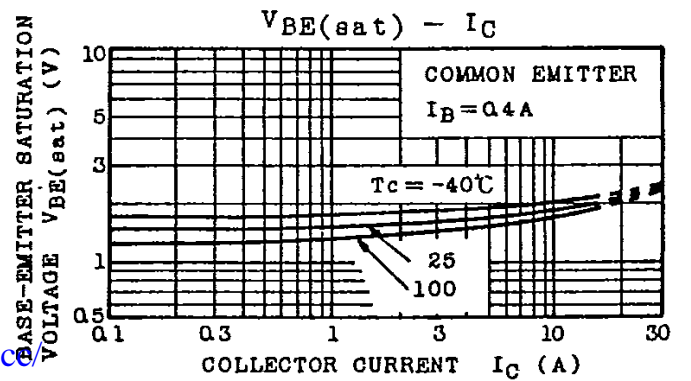
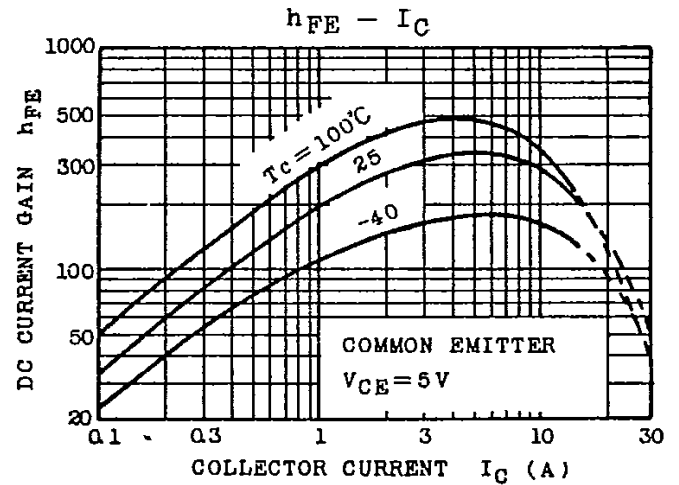
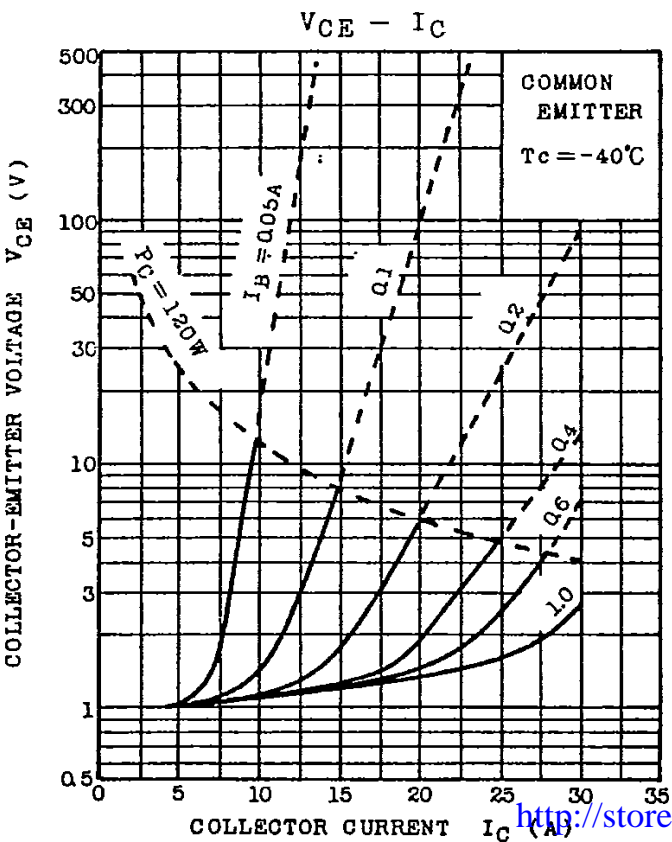
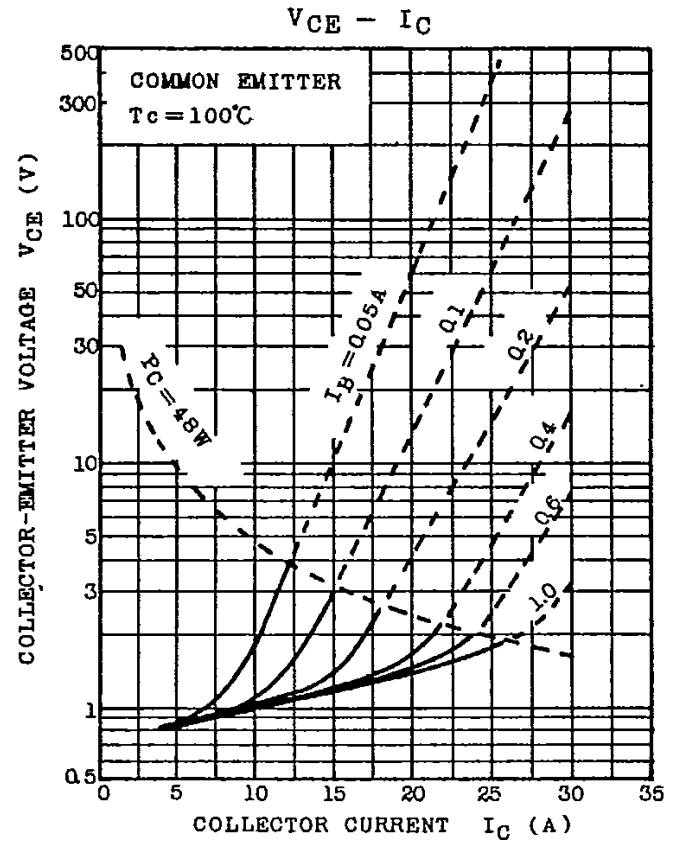
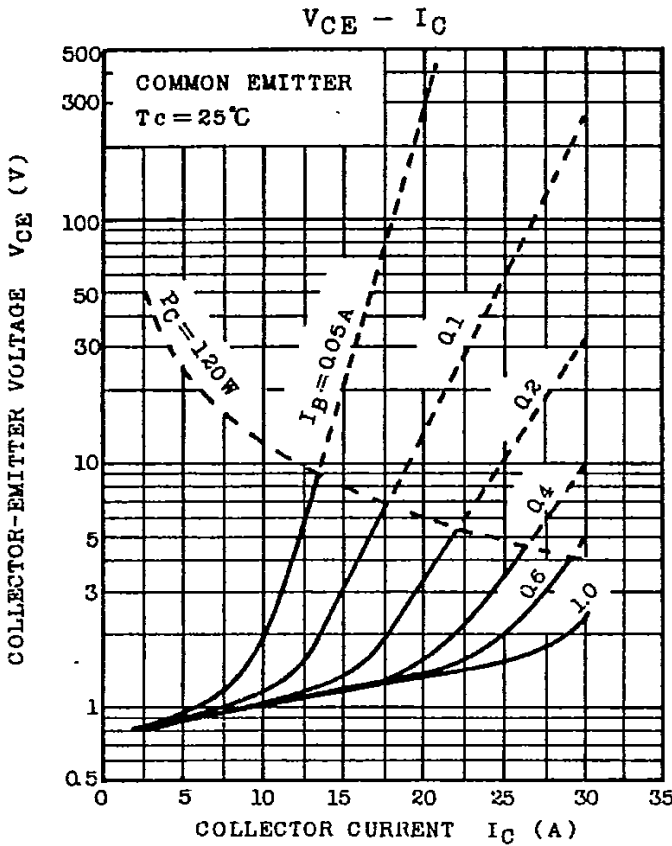
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MG15G1A13



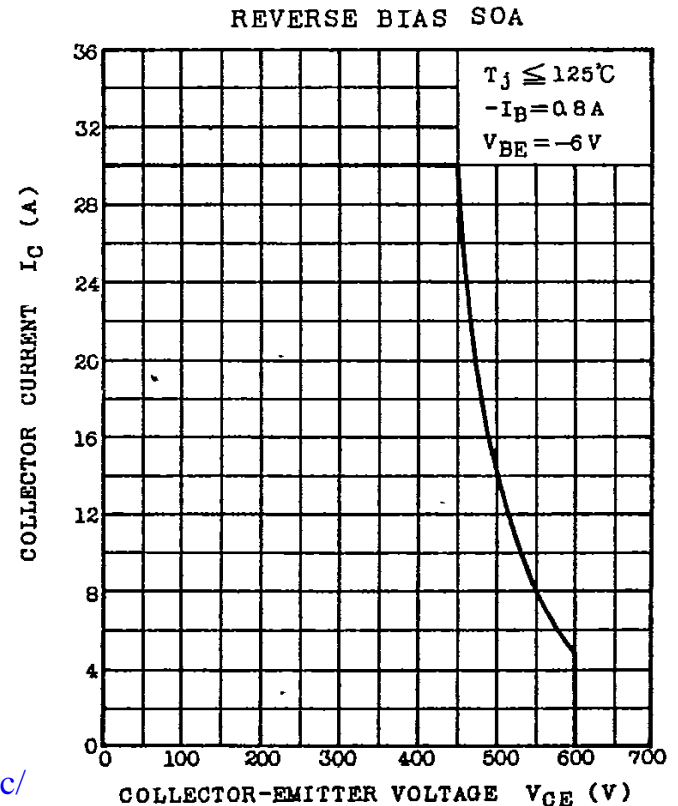
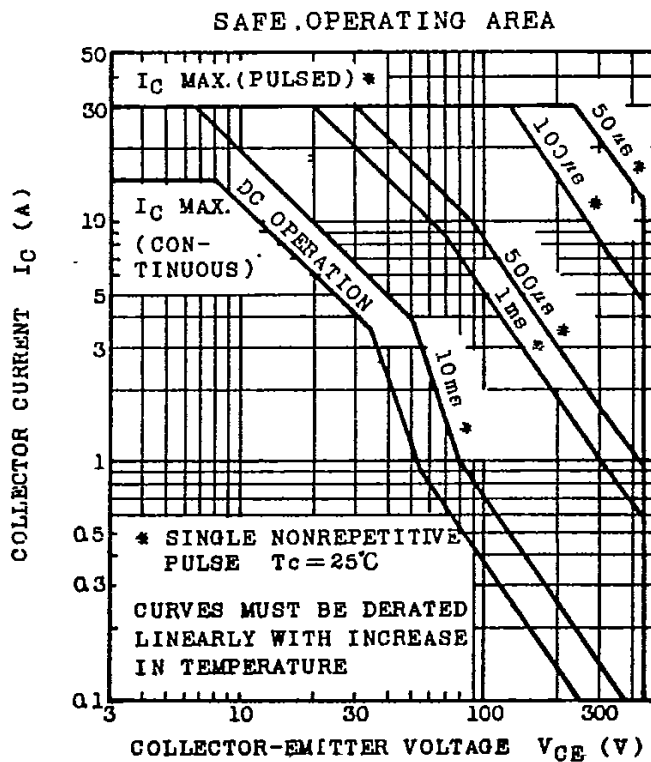
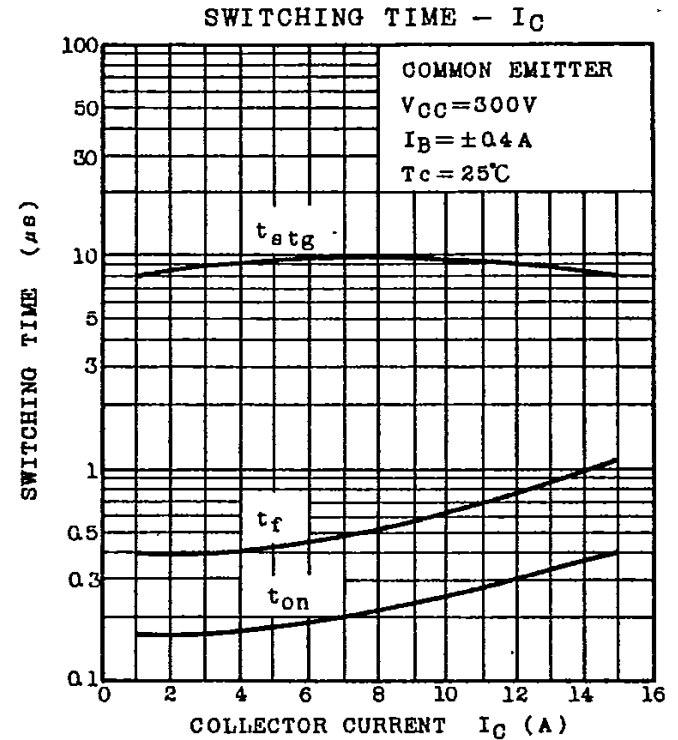
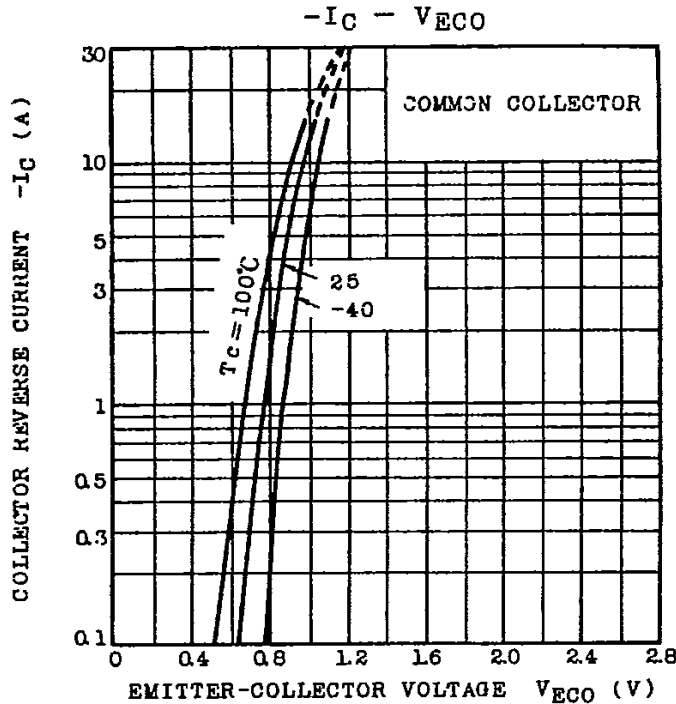
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