

TOSHIBA THYRISTOR SILICON DIFFUSED TYPE

SF3GZ47, SF3JZ47

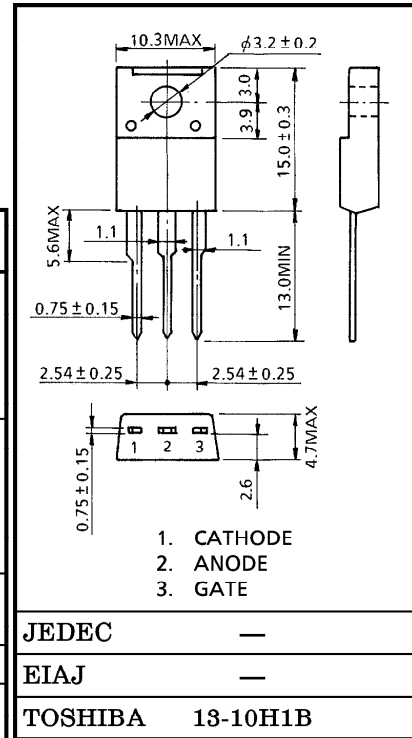
MEDIUM POWER CONTROL APPLICATIONS

Unit in mm

- Repetitive Peak Off-State Voltage : V_{DRM}
 - Repetitive Peak Reverse Voltage : V_{RRM}
 - Average On-State Current : $I_T(AV) = 3A$
 - Isolation Voltage : $V_{ISOL} = 1500V AC$
- } = 400, 600V

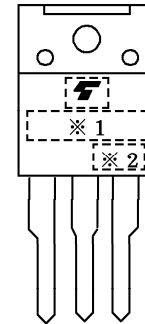
MAXIMUM RATINGS

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|---|---------|------------------------|-----------|-------------|
| Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage | SF3GZ47 | V_{DRM} V_{RRM} | 400 | V |
| | SF3JZ47 | | 600 | |
| Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, $T_j = 0 \sim 125^\circ C$) | SF3GZ47 | V_{RSM} | 500 | V |
| | SF3JZ47 | | 720 | |
| Average On-State Current (Half Sine Waveform $T_c = 98^\circ C$) | | $I_T(AV)$ | 3 | A |
| R.M.S On-State Current | | $I_T(RMS)$ | 4.7 | A |
| Peak One Cycle Surge On-State Current (Non-Repetitive) | | I_{TSM} | 50 (50Hz) | A |
| | | | 55 (60Hz) | |
| I^2t Limit Value ($t = 1 \sim 10ms$) | | I^2t | 18 | A^2s |
| Critical Rate of Rise of On-State Current (Note 1) | | di / dt | 100 | $A / \mu s$ |
| Peak Gate Power Dissipation | | P_{GM} | 5 | W |
| Average Gate Power Dissipation | | $P_G(AV)$ | 0.5 | W |
| Peak Forward Gate Voltage | | V_{FGM} | 10 | V |
| Peak Reverse Gate Voltage | | V_{RGM} | -5 | V |
| Peak Forward Gate Current | | I_{GM} | 2 | A |
| Junction Temperature | | T_j | -40~125 | $^\circ C$ |
| Storage Temperature Range | | T_{stg} | -40~150 | $^\circ C$ |
| Isolation Voltage (AC, $t = 1min.$) | | V_{ISOL} | 1500 | V |



Weight : 1.7g

MARK



Note 1 : di / dt Test Condition

$V_{DRM} = 0.5 \times \text{Rated}$

$I_{TM} \leq 12A$

$t_{gw} \geq 10\mu s$

$t_{gr} \leq 250ns$

$i_{gp} = I_{GT} \times 2.0$

| | | | | |
|----|---|--|---------|---------|
| ※1 | MARK | F3GZ47 | TYPE | SF3GZ47 |
| | | F3JZ47 | NAME | SF3JZ47 |
| ※2 | Lot Number | | Example | |
| | <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="margin-left: 10px;"> <p>Month (Starting from Alphabet A)</p> <p>Year (Last Number of the Christian Era)</p> </div> </div> | <p>9A : January 1989</p> <p>9B : February 1989</p> <p>9L : December 1989</p> | | |

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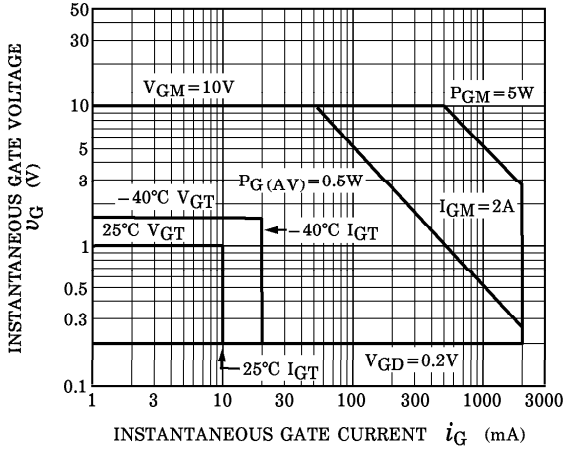
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|------------------------|---|------|------|------|---------------------------|
| Repetitive Peak Off-State Current and Repetitive Peak Reverse Current | I_{DRM} I_{RRM} | $V_{DRM} = V_{RRM} = \text{Rated}$ | — | — | 10 | μA |
| Peak On-State Voltage | V_{TM} | $I_{TM} = 12\text{A}$ | — | — | 1.5 | V |
| Gate Trigger Voltage | V_{GT} | $V_D = 6\text{V}, R_L = 10\Omega$ | — | — | 1.0 | V |
| Gate Trigger Current | I_{GT} | | — | — | 10 | mA |
| Gate Non-Trigger Voltage | V_{GD} | $V_D = \text{Rated} \times 2/3, T_c = 125^\circ\text{C}$ | 0.2 | — | — | V |
| Critical Rate of Rise of Off-State Voltage | dv/dt | $V_{DRM} = \text{Rated} \times 2/3, T_c = 125^\circ\text{C}$ Exponential Rise | — | 50 | — | $\text{V}/\mu\text{s}$ |
| Holding Current | I_H | $V_D = 6\text{V}, I_{TM} = 1\text{A}$ | — | — | 40 | mA |
| Latching Current | I_L | $V_D = 6\text{V}, f = 50\text{Hz}, t_{gw} = 50\mu\text{s}$ $i_G = 30\text{mA}$ | — | — | 50 | mA |
| Thermal Resistance | $R_{th(j-c)}$ | Junction to Case | — | — | 4.5 | $^\circ\text{C}/\text{W}$ |

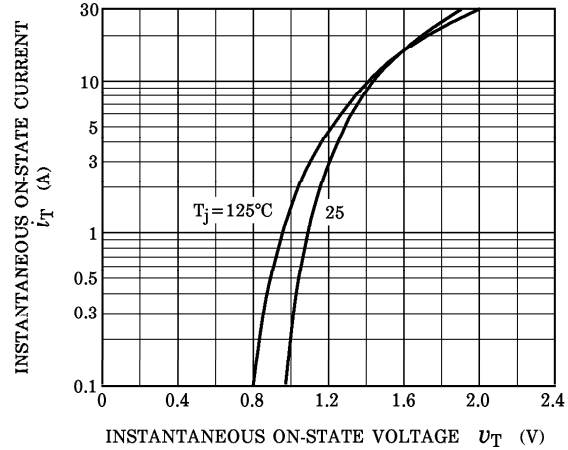
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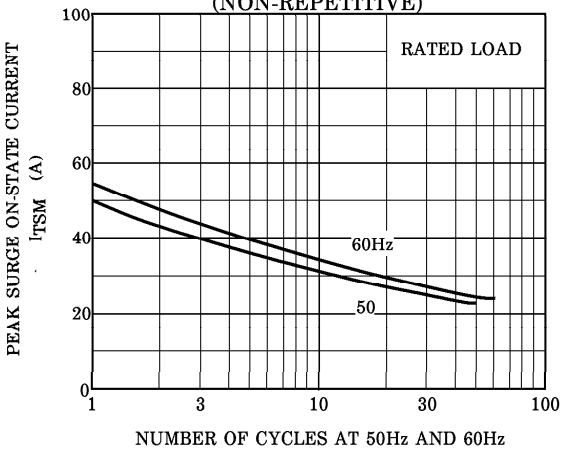
GATE TRIGGER CHARACTERISTIC



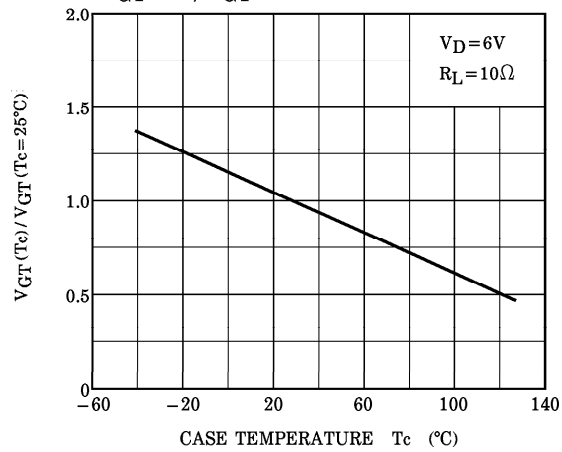
$i_T - v_T$



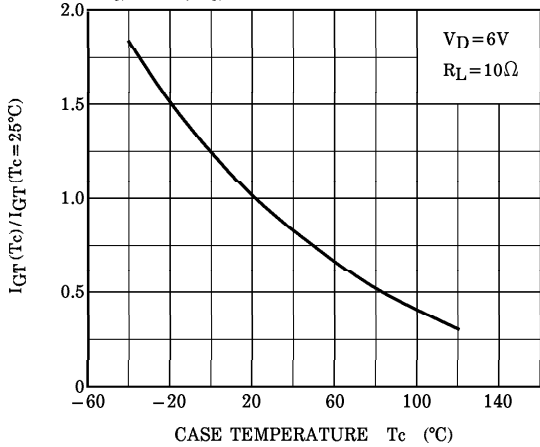
SURGE ON-STATE CURRENT (NON-REPETITIVE)



$V_{GT}(T_c) / V_{GT}(T_c = 25^\circ C) - T_c$ (TYPICAL)



$I_{GT}(T_c) / I_{GT}(T_c = 25^\circ C) - T_c$ (TYPICAL)



$I_H(T_c) / I_H(T_c = 25^\circ C) - T_c$ (TYPICAL)

