

TOSHIBA THYRISTOR SILICON PLANAR TYPE

# SF8G48, SF8J48, USF8G48, USF8J48

MEDIUM POWER CONTROL APPLICATIONS

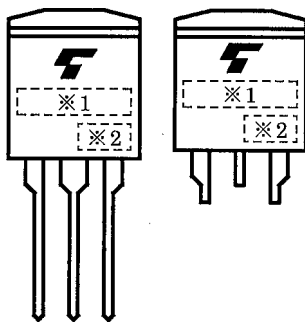
- Repetitive Peak Off-State Voltage :  $V_{DRM}=400,600V$   
 Repetitive Peak Reverse Voltage :  $V_{RRM}=400,600V$
- Average On-State Current :  $I_T(AV) = 8A$
- Gate Trigger Current :  $I_{GT}=10mA$  Max.

Unit in mm

| SF8G48 · SF8J48  | USF8G48 · USF8J48 |
|------------------|-------------------|
|                  |                   |
| JEDEC —          | JEDEC —           |
| JEITA —          | JEITA —           |
| TOSHIBA 13-10J1B | TOSHIBA 13-10J2B  |

Weight : 1.7g

## MARKING



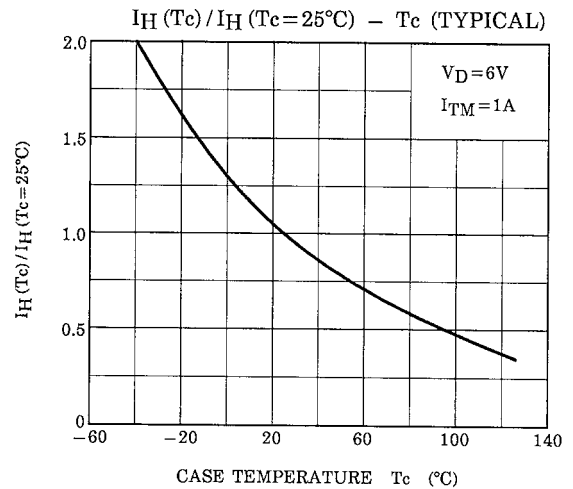
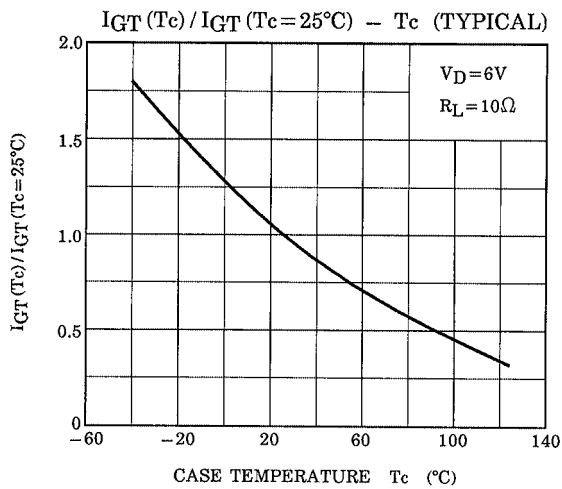
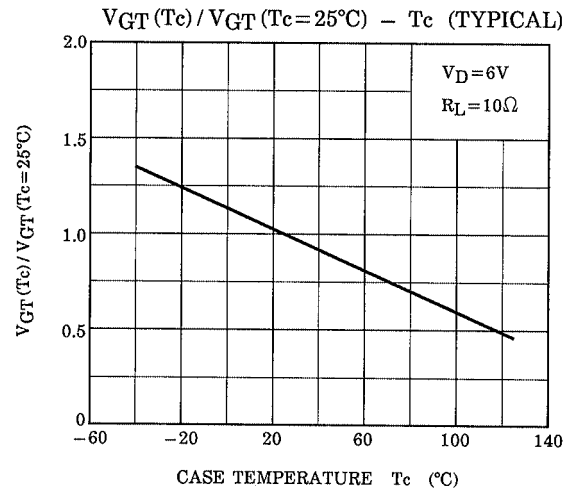
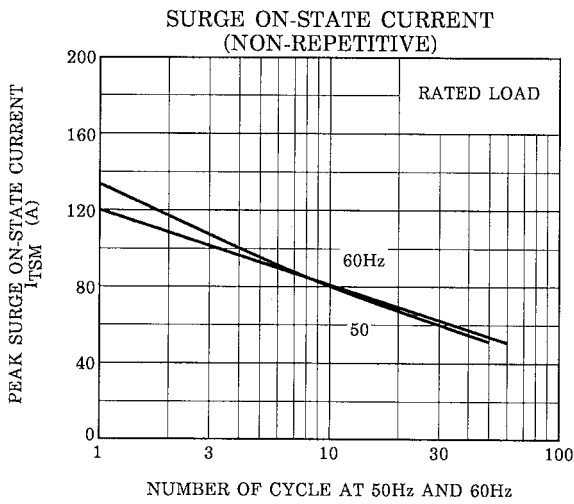
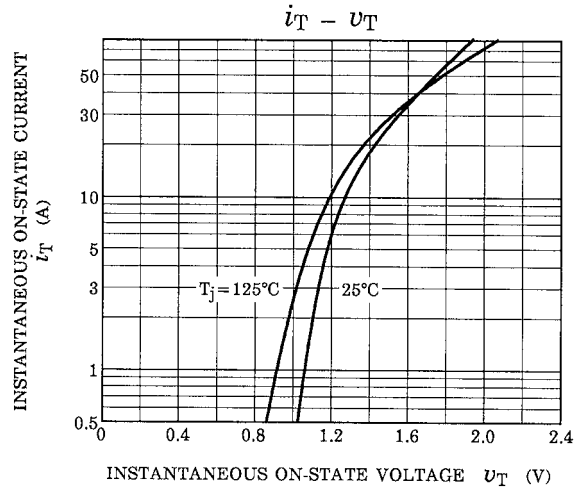
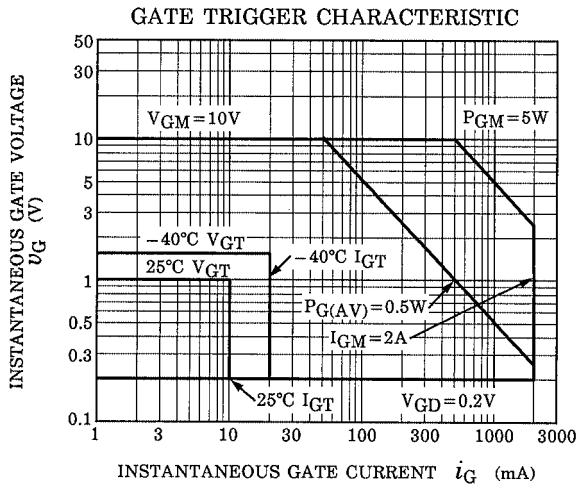
|    |                |       |           |                 |
|----|----------------|-------|-----------|-----------------|
| *1 | MARK           | F8G48 | TYPE NAME | SF8G48, USF8G48 |
|    |                | F8J48 |           | SF8J48, USF8J48 |
| *2 | Lot Number<br> |       |           |                 |

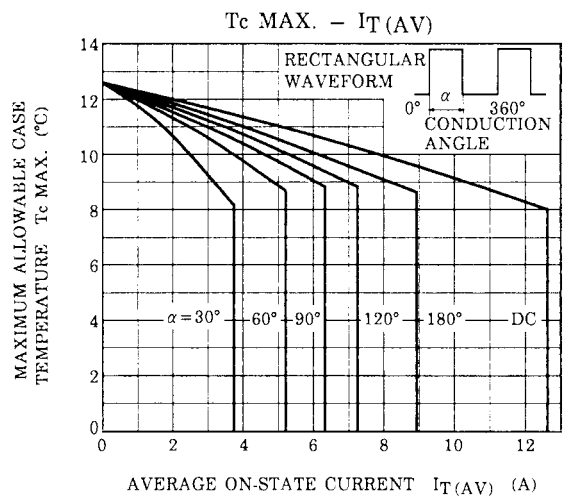
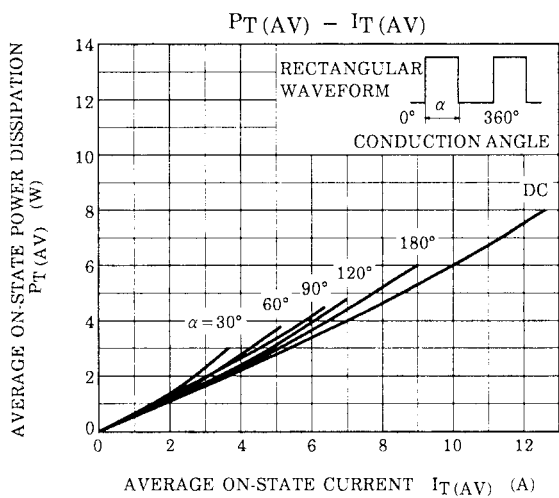
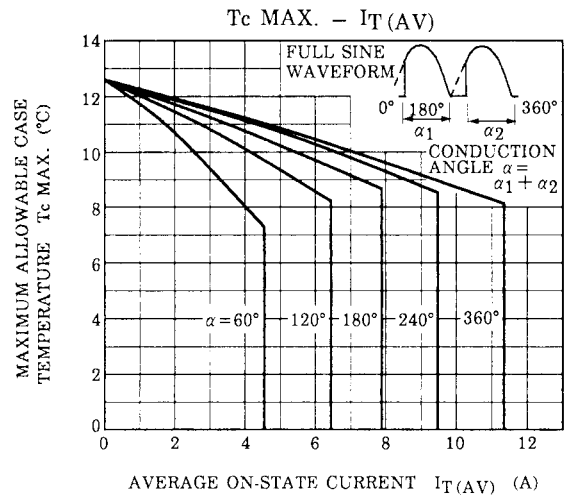
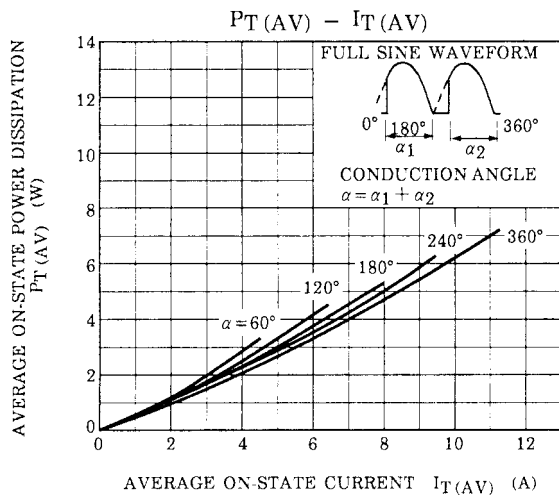
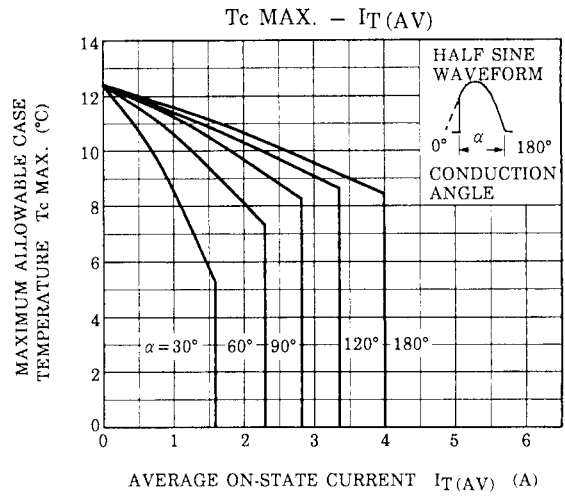
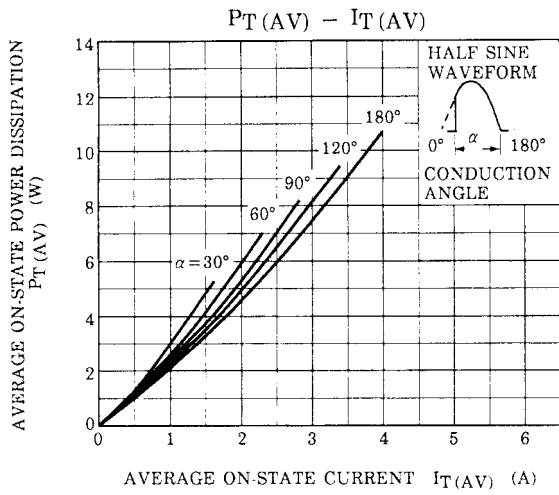
## MAXIMUM RATINGS (Ta=25°C)

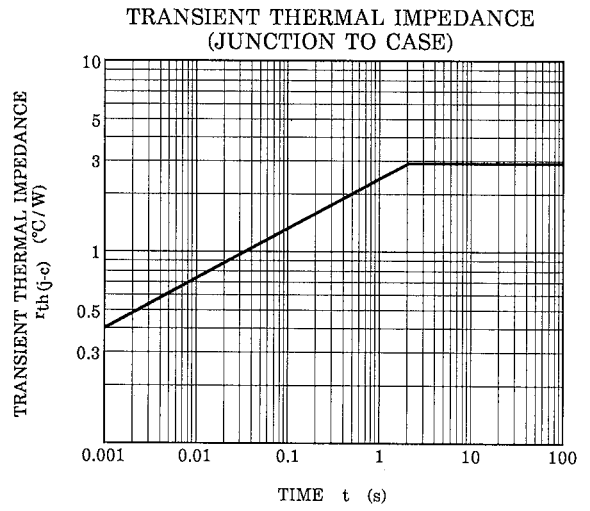
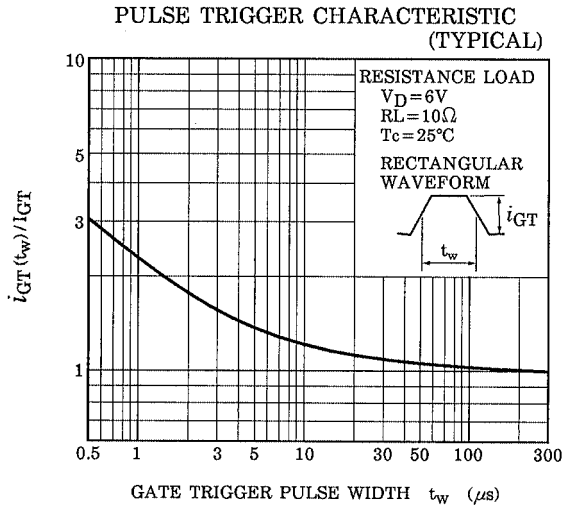
| CHARACTERISTIC   |         | SYMBOL                 | RATING     | UNIT              |
|--|---------|------------------------|------------|-------------------|
| Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage                      | SF8G48  | $V_{DRM}$<br>$V_{RRM}$ | 400        | V                 |
|  | USF8G48 |                        |            |                   |
|  | SF8J48  |                        | 600        |                   |
|  | USF8J48 |                        |            |                   |
| Non-Repetitive Peak Reverse Voltage (Non-Repetitive<5ms<br>$T_j=0\sim 125^\circ\text{C}$ ) | SF8G48  | $V_{RSM}$              | 500        | V                 |
|  | USF8G48 |                        |            |                   |
|  | SF8J48  |                        | 720        |                   |
|  | USF8J48 |                        |            |                   |
| Average On-State Current   |         | $I_T (AV)$             | 8          | A                 |
| R.M.S On-State Current   |         | $I_T (RMS)$            | 12.6       | A                 |
| Peak One Cycle Surge On-State Current (Non-Repetitive)                                     |         | $I_{TSM}$              | 120 (50Hz) | A                 |
|  |         |                        | 132 (60Hz) |                   |
| I <sup>2</sup> t Limit Value   |         | $I^2t$                 | 72         | A <sup>2</sup> s  |
| Critical Rate of Rise of On-State Curren (Note 1)  |         | di /dt                 | 100        | A / $\mu\text{s}$ |
| Peak Gate Power Dissipation  |         | $P_{GM}$               | 5          | W                 |
| Average Gate Power Dissition   |         | $P_G (AV)$             | 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    | °C                |
| Strage Temperature Range   |         | $T_{stg}$              | -40~125    | °C                |

## ELECTRICAL CHARACTERISTICS (Ta=25°C)

| CHARACTERISTIC  | SYMBOL                 | TEST CONDITION  | MIN. | TYP. | MAX. | UNIT              |
|---|------------------------|---|------|------|------|-------------------|
| Repetitive Peak Off-State Current and Repetitive Peak Reverse | $I_{DRM}$<br>$I_{RRM}$ | $V_{DRM}=V_{RRM}=\text{Rated}$  | —    | —    | 10   | $\mu\text{A}$     |
| Peak On-State Voltage   | $V_{TM}$               | $I_{TM}=25\text{A}$   | —    | —    | 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                | $V_{DRM}=\text{Rated}, T_c=125^\circ\text{C}$<br>Exponential Rise         | —    | 50   | —    | V / $\mu\text{s}$ |
| Holding Current   | $I_H$                  | $V_D=6\text{V}, I_{TM}=1\text{A}$   | —    | —    | 40   | mA                |
| Latching Current  | $I_L$                  | $V_D=6\text{V}, f=50\text{Hz}$<br>$t_{gw}=50\mu\text{s}, i_G=30\text{mA}$ | —    | —    | 50   | mA                |
| Thermal Resistance  | $R_{th (j-c)}$         | Junction to Case, DC  | —    | —    | 2.8  | °C / W            |







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