

TOSHIBA THYRISTOR SILICON PLANAR TYPE

SF10G48, SF10J48, USF10G48, USF10J48

MEDIUM POWER CONTROL APPLICATIONS

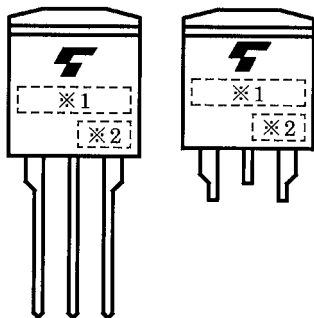
- Repetitive Peak Off-State Voltage : $V_{DRM} = 400,600V$
- Repetitive Peak Reverse Voltage : $V_{RRM} = 400,600V$
- Average On-State Current : $I_T (AV) = 10A$
- Gate Trigger Current : $I_{GT} = 10mA \text{ MAX.}$

Unit: mm

| SF10G48-SF10J48 | USF10G48-USF10J48 |
|--|--|
| <p>1. CATHODE 2. ANODE 3. GATE</p> | <p>1. CATHODE 2. ANODE (BACK SIDE) 3. GATE</p> |
| JEDEC — | JEDEC — |
| JEITA — | JEITA — |
| TOSHIBA 13-10J1B | TOSHIBA 13-10J2B |

Weight: 1.7g

MARKING



| | | | | |
|----|----------------|--------|-----------|--------------------|
| *1 | MARK | F10G48 | TYPE NAME | SF10G48, USF10G48 |
| | | F10J48 | | ASF10J48, USF10J48 |
| *2 | Lot Number | | | |

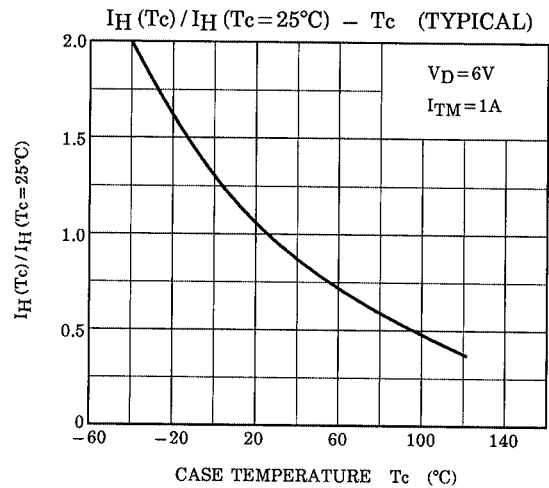
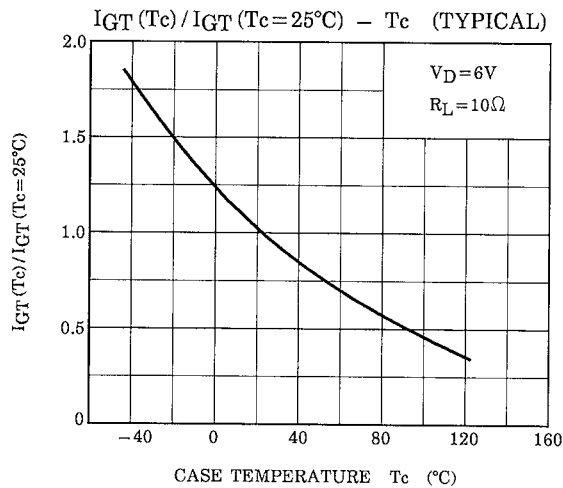
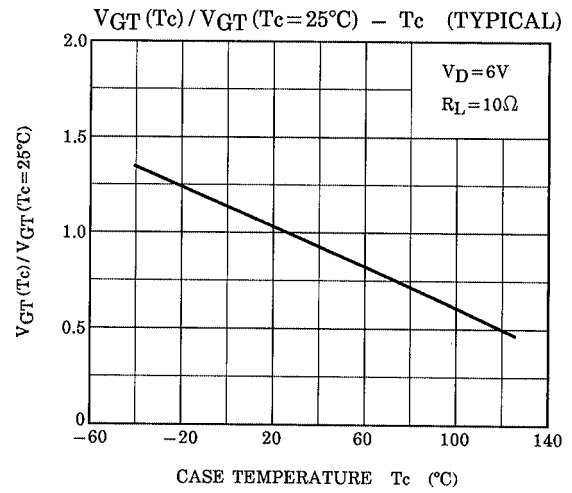
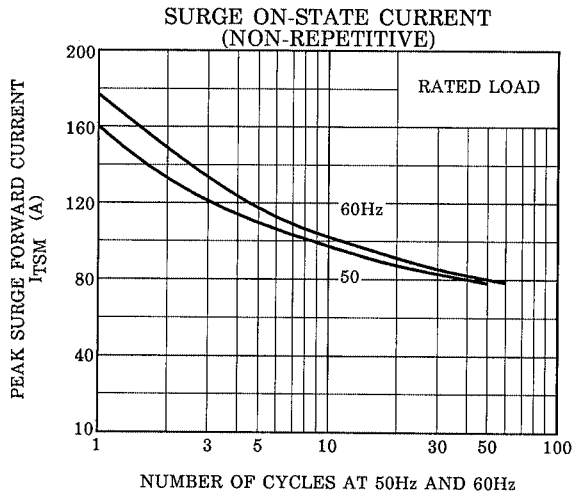
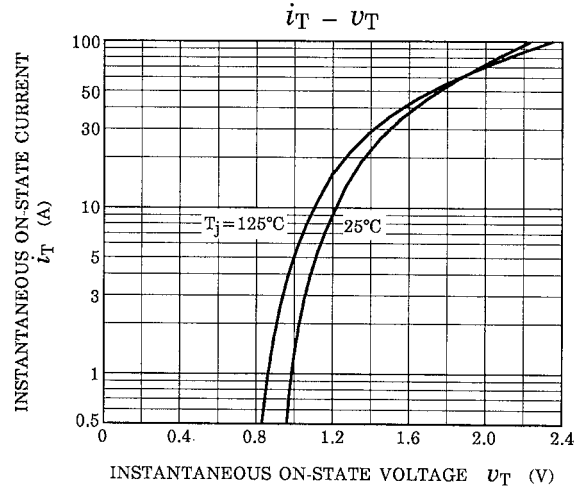
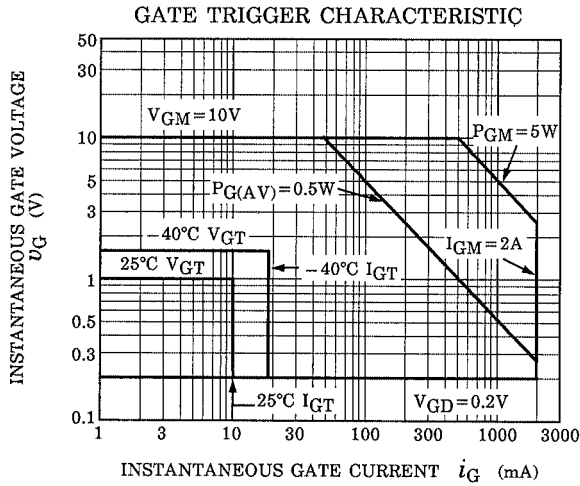
MAXIMUM RATINGS

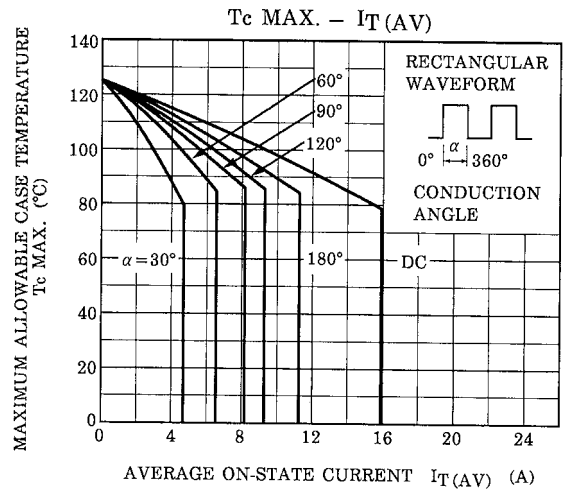
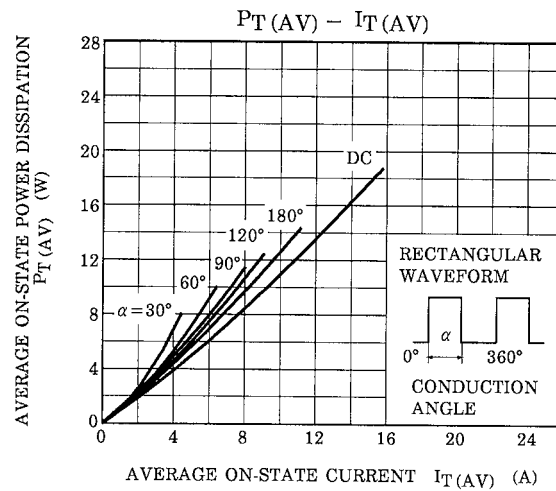
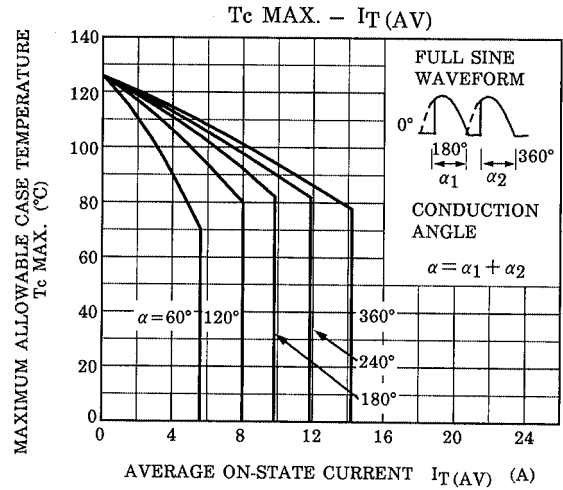
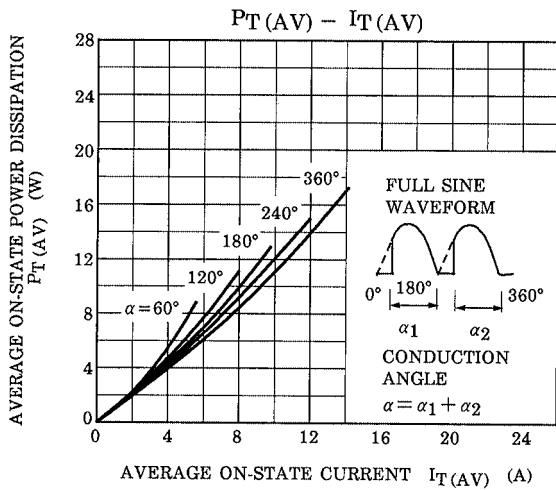
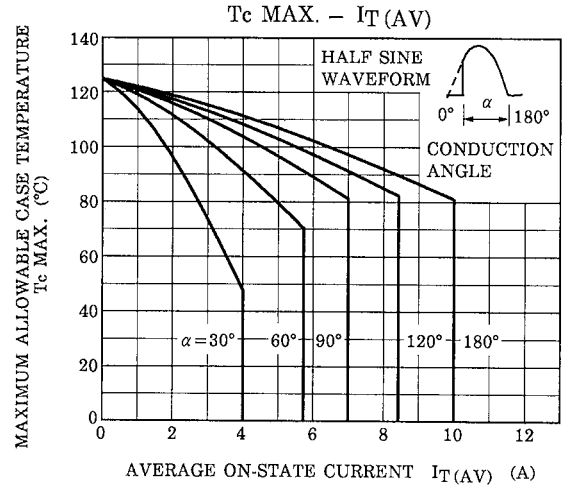
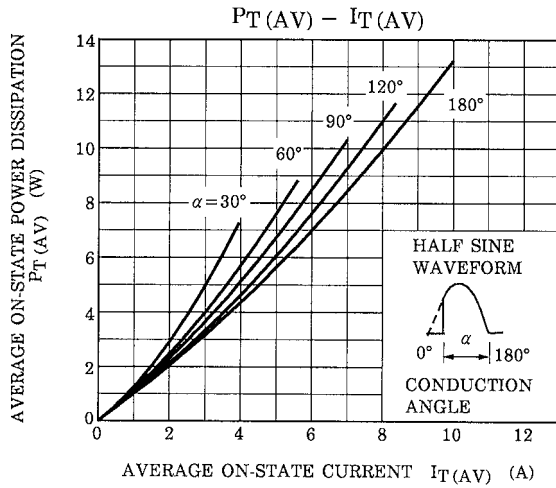
| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---|-----------------------------|------------|------------------|
| Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage | SF10G48 USF10G48 | 400 | V |
| | SF10J48 USF10J48 | 600 | |
| Non-Repetitive Peak Reverse Voltage (Non-Repetitive <5ms, T _j = 0~125°C) | SF10G48 USF10G48 | 500 | V |
| | SF10J48 USF10J48 | 720 | |
| Average On-State Current | I _{T (AV)} | 10 | A |
| R.M.S On-State Current | I _{T (RMS)} | 16 | A |
| Peak One Cycle Surge On-State Current (Non-Repetitive) | I _{TSM} | 160 (50Hz) | A |
| | | 176 (60Hz) | |
| I ² _t Limit Value | I ² _t | 125 | A ² s |
| Critical Rate of Rise of On-State Current (Note 1) | di / dt | 100 | A / μs |
| 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 | °C |
| Storage Temperature Range | T _{stg} | -40~125 | °C |

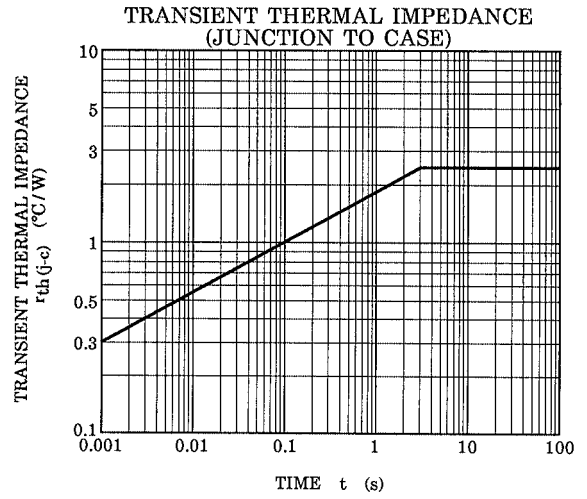
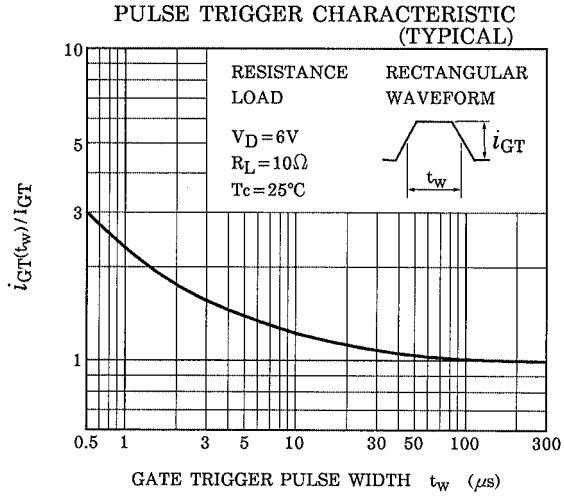
Note 1: V_{DRM} = 0.5 × Rated, I_{TM} ≤ 30A, t_{gw} ≥ 10μs, t_{gr} ≤ 250ns, i_{gp} = I_{GT} × 2.0

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 _{RPM} | V _{DRM} = V _{RPM} = Rated | — | — | 10 | μA |
| Peak On-State Voltage | V _{TM} | I _{TM} = 30A | — | — | 1.5 | V |
| Gate Trigger Voltage | V _{GT} | V _D = 6V, R _L = 10Ω | — | — | 1.0 | V |
| Gate Trigger Current | I _{GT} | | — | — | 10 | mA |
| Gate Non-Trigger Voltage | V _{GD} | V _D = Rated × 2 / 3, T _c = 125°C | 0.2 | — | — | V |
| Critical Rate of Rise of Off-State Voltage | dv / dt | V _{DRM} = Rated, T _c = 125°C Exponential Rise | — | 50 | — | V / μs |
| Holding Current | I _H | V _D = 6V, I _{TM} = 1A | — | — | 40 | mA |
| Latching Current | I _L | V _D = 6V, f = 50Hz t _{gw} = 50μs, i _G = 30mA | — | — | 50 | mA |
| Thermal Resistance | R _{th (j-c)} | Junction to Case, DC | — | — | 2.5 | °C / W |







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