

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR   SILICON PLANAR TYPE

SM1G43,SM1J43

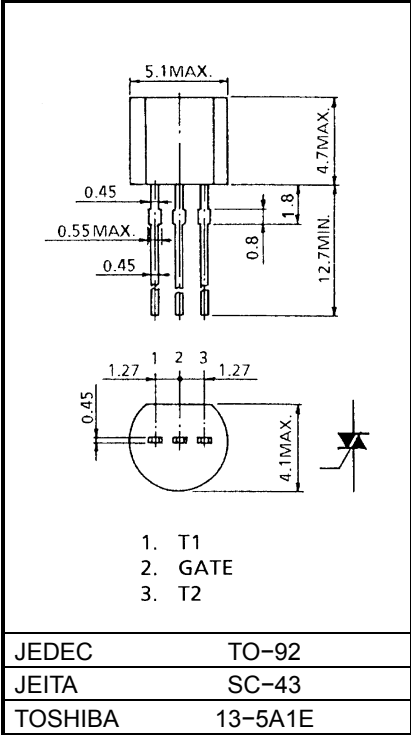
AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage    :  $V_{DRM} = 400, 600V$
- R.M.S On-State Current                :  $I_T (RMS) = 1A$
- Higt Commutating ( $dv / dt$ )

MAXIMUM RATINGS

| CHARACTERISTIC                                                      |        | SYMBOL      | RATING     | UNIT        |
|---------------------------------------------------------------------|--------|-------------|------------|-------------|
| Repetitive Peak Off-State Voltage                                   | SM1G43 | $V_{DRM}$   | 400        | V           |
|                                                                     | SM1J43 |             | 600        |             |
| R.M.S On-State Current<br>(Full Sine Waveform $T_c = 74^{\circ}C$ ) |        | $I_T (RMS)$ | 1.0        | A           |
| Peak One Cycle Surge On-State Current<br>(Non-Repetitive)           |        | $I_{TSM}$   | 8 (50Hz)   | A           |
|                                                                     |        |             | 8.8 (60Hz) |             |
| $I^2_t$ Limit Value                                                 |        | $I^2_t$     | 0.32       | $A^2s$      |
| Peak Gate Power Dissipation                                         |        | $P_{GM}$    | 1          | W           |
| Average Gate Power Dissipation                                      |        | $P_G (AV)$  | 0.1        | W           |
| Peak Gate Voltage                                                   |        | $V_{GM}$    | 6          | V           |
| Peak Gate Current                                                   |        | $I_{GM}$    | 0.5        | A           |
| Junction Temperature                                                |        | $T_j$       | -40~125    | $^{\circ}C$ |
| Storage Temperature Range                                           |        | $T_{stg}$   | -40~125    | $^{\circ}C$ |

Unit: mm

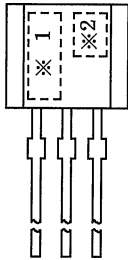


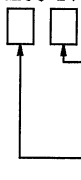
Weight: 0.2g

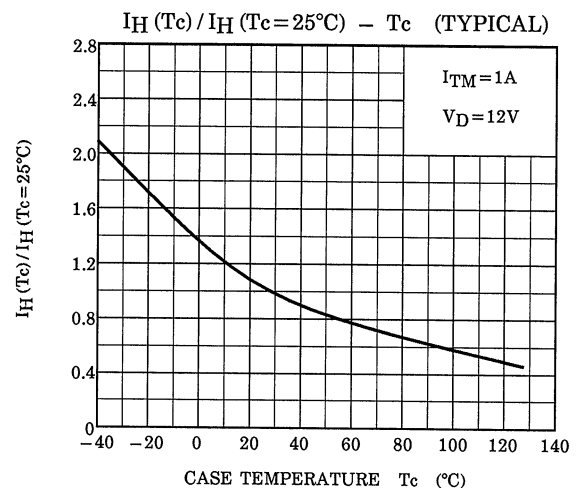
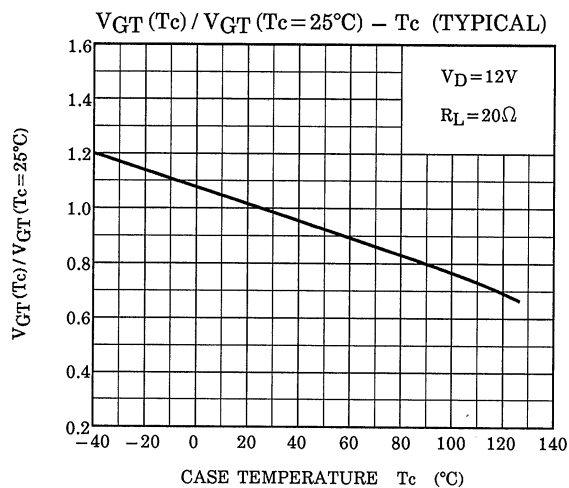
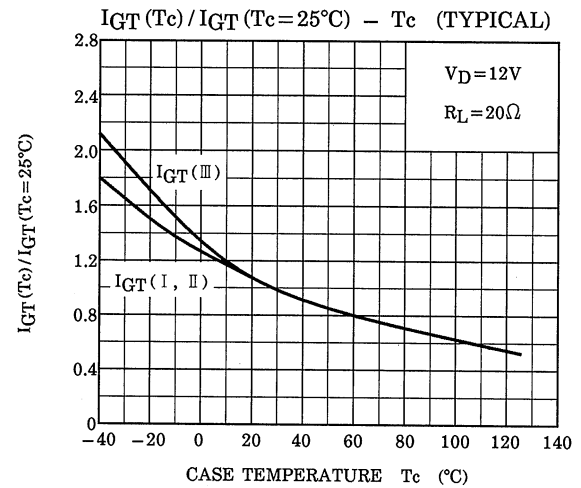
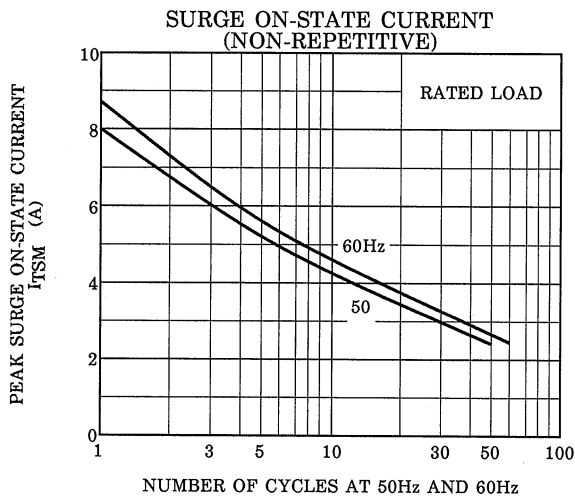
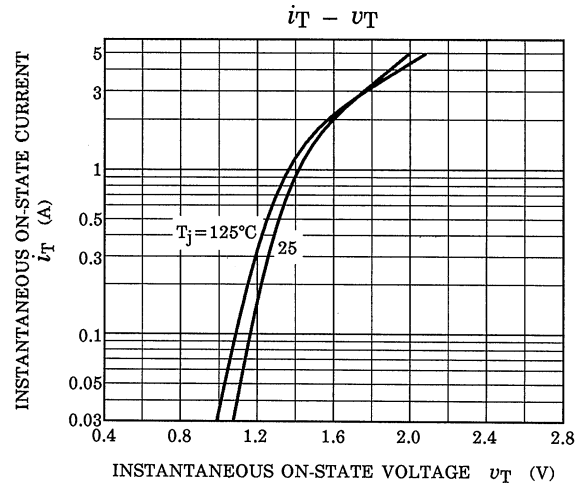
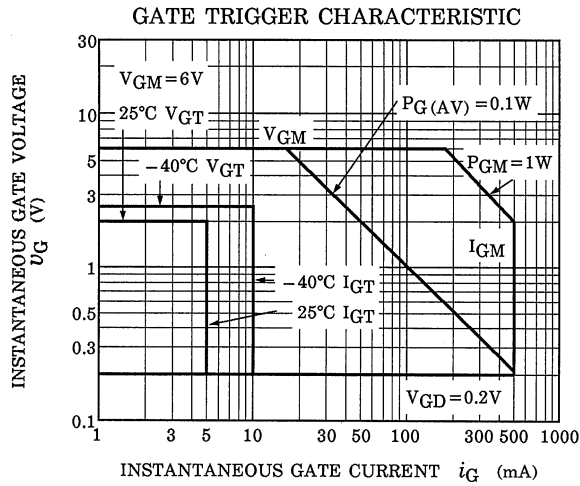
## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

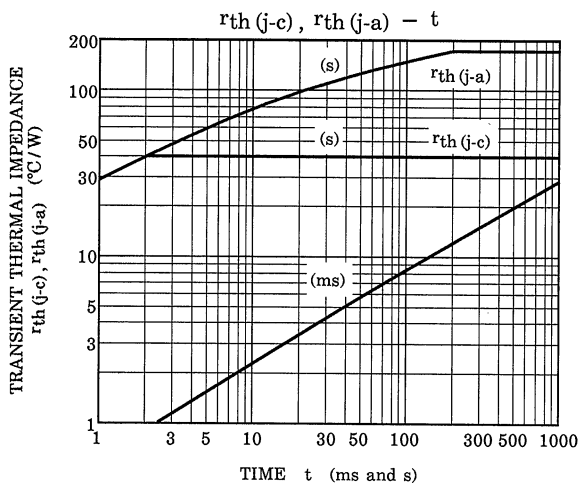
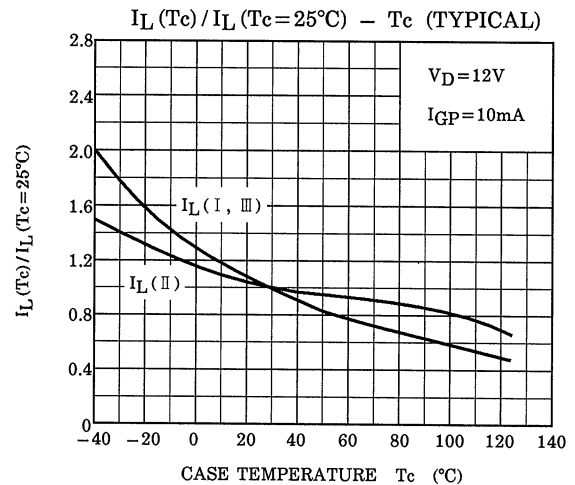
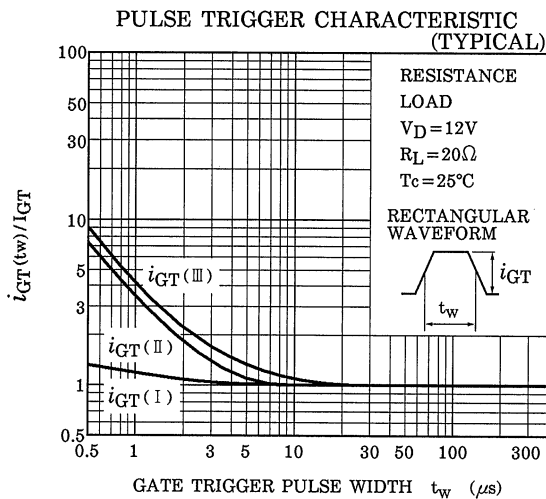
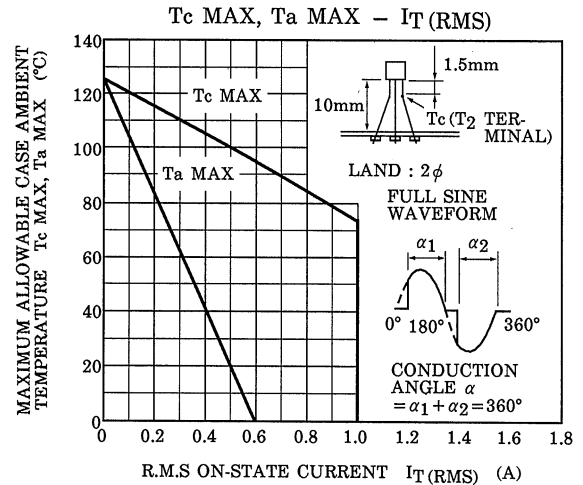
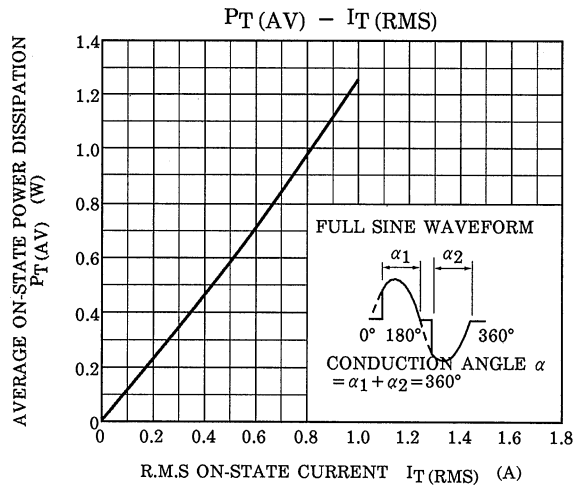
| CHARACTERISTIC                    |     | SYMBOL        | TEST CONDITION                                |                  | MIN | TYP. | MAX | UNIT                        |
|-----------------------------------|-----|---------------|-----------------------------------------------|------------------|-----|------|-----|-----------------------------|
| Repetitive Peak Off-State Current |     | $I_{DRM}$     | $V_{DRM} = \text{Rated}$                      |                  | —   | —    | 10  | $\mu\text{A}$               |
| Gate Trigger Voltage              | I   | $V_{GT}$      | $V_D = 12\text{V}, R_L = 20\Omega$            | T2 (+), Gate (+) | —   | —    | 2   | V                           |
|                                   | II  |               |                                               | T2 (+), Gate (-) | —   | —    | 2   |                             |
|                                   | III |               |                                               | T2 (-), Gate (-) | —   | —    | 2   |                             |
|                                   | IV  |               |                                               | T2 (-), Gate (+) | —   | 2    | —   |                             |
| Gate Trigger Current              | I   | $I_{GT}$      | $V_D = 12\text{V}, R_L = 20\Omega$            | T2 (+), Gate (+) | —   | —    | 5   | mA                          |
|                                   | II  |               |                                               | T2 (+), Gate (-) | —   | —    | 5   |                             |
|                                   | III |               |                                               | T2 (-), Gate (-) | —   | —    | 5   |                             |
|                                   | IV  |               |                                               | T2 (-), Gate (+) | —   | 10   | —   |                             |
| Peak On-State Voltage             |     | $V_{TM}$      | $I_{TM} = 1.5\text{A}$                        |                  | —   | —    | 1.5 | V                           |
| Gate Non-Trigger Voltage          |     | $V_{GD}$      | $V_D = \text{Rated}, T_c = 125^\circ\text{C}$ |                  | 0.2 | —    | —   | V                           |
| Holding Current                   |     | $I_H$         | $V_D = 12\text{V}, I_{TM} = 1\text{A}$        |                  | —   | —    | 10  | mA                          |
| Thermal Resistance                |     | $R_{th(j-c)}$ | Junction to Case, AC                          |                  | —   | —    | 40  | $^\circ\text{C} / \text{W}$ |
| Thermal Resistance                |     | $R_{th(j-a)}$ | Junction to Ambient, AC                       |                  | —   | —    | 180 | $^\circ\text{C} / \text{W}$ |

## MARKING



| NUMBER | SYMBOL                                                                                                                                                                              |        | MARK                                                                     |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------|
| *1     | TYPE                                                                                                                                                                                | SM1G43 | M1G43                                                                    |
|        |                                                                                                                                                                                     | SM1J43 | M1J43                                                                    |
| *2     | Lot Number<br> Month (Starting from Alphabet A)<br>Year (Last Decimal Digit of the Current Year) |        | Example<br>8A : January 1998<br>8B : February 1998<br>8L : December 1998 |





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