

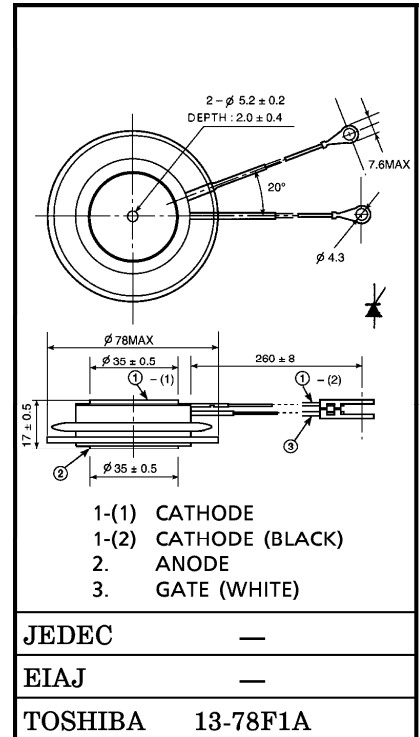
TOSHIBA ALLOY-FREE HIGHT SPEED THYRISTOR

SH400EX33C

HIGH POWER CONTROL APPLICATIONS

Unit in mm

- Repetitive Peak Off-State Voltage : V_{DRM} } = 2500V
- Repetitive Peak Reverse Voltage : V_{RRM} }
- Average On-State Current : $I_T(AV) = 400A$
- Turn-Off Time : $t_q = 40\mu s$ (Max.)
- Critical Rate of Rise of On-State Current : $di/dt = 200A/\mu s$
- Critical Rate of Rise of Off-State Voltage : $dv/dt = 500V/\mu s$
- Weight : 260g
- Flat Package



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MAXIMUM RATINGS

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---|--------------------------------------|---------------------|------------------|
| Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage | V _{DRM} V _{RPM} | 2500 | V |
| Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, T _j = 0~115°C) | V _{RSM} | 2550 | V |
| R.M.S On-State Current | I _T (RMS) | 628 | A |
| Average On-State Current | I _T (AV) | 400 | A |
| Peak One Cycle Surge On-State Current (Non-Repetitive) | I _{TSM} | 8000 (50Hz) | A |
| | | 8800 (60Hz) | |
| I ² t Limit Value | I ² t | 3.2×10 ⁵ | A ² s |
| Critical Rate of Rise of On-State Current (Note) | di / dt | 200 | A / μs |
| Peak Gate Power Dissipation | P _{GM} | 20 | W |
| Average Gate Power Dissipation | P _G (AV) | 4 | W |
| Peak Forward Gate Current | I _{GM} | 4 | A |
| Peak Forward Gate Voltage | V _{FGM} | 20 | V |
| Peak Reverse Gate Voltage | V _{RGM} | 5 | V |
| Junction Temperature | T _j | -40~115 | °C |
| Storage Temperature Range | T _{stg} | -40~115 | °C |
| Mounting Force | — | 14.7±1.5 | kN |

Note : V_D=1250V, f=50Hz, T_j=110°C, Gate Supply (V_G=15V, R_G=8Ω, t_r≤1μs)

ELECTRICAL CHARACTERISTICS

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | MAX. | UNIT |
|---|------------------------|---|---------------------|------|--------------|
| Repetitive Peak Off-State Current and Repetitive Peak Reverse Current | I_{DRM} I_{RRM} | $V_{DRM} = V_{RRM} = 2500V$ $T_j = 115^\circ C$ | — | 50 | mA |
| Peak On-State Voltage | V_{TM} | $I_{TM} = 1250A, T_j = 25^\circ C$ | — | 2.7 | V |
| Gate Trigger Voltage | V_{GT} | $V_D = 6V, R_L = 6\Omega$ | $T_j = -40^\circ C$ | — | 3.5 |
| | | | $T_j = 25^\circ C$ | — | 2.5 |
| Gate Trigger Current | I_{GT} | $V_D = 6V, R_L = 6\Omega$ | $T_j = -40^\circ C$ | — | 350 |
| | | | $T_j = 25^\circ C$ | — | 250 |
| Gate Non-Trigger Voltage | V_{GD} | $V_D = 1250V, T_j = 115^\circ C$ | 0.3 | — | V |
| Gate Non-Trigger Current | I_{GD} | | 10 | — | mA |
| Delay Time | t_d | $V_D = 1250V, T_j = 25^\circ C$ Gate Supply | — | 4 | μs |
| Gate Turn-On Time | t_{gt} | $(V_G = 15V, R_G = 8\Omega, t_r \leq 1\mu s)$ | — | 6 | μs |
| Turn-Off Time | t_q | $I_{TM} = 800A, V_R \geq 50V,$ $dv/dt = 20V/\mu s, T_j = 110^\circ C$ $V_{DRM} = 1250V$ | — | 40 | μs |
| Holding Current | I_H | $T_j = 25^\circ C, R_L = 6\Omega$ | — | 300 | mA |
| Critical Rate of Rise of Off-State Voltage | dv/dt | $V_{DRM} = 1670V, T_j = 115^\circ C$ Gate Open, Exponential Rise | 500 | — | $V/\mu s$ |
| Thermal Resistance (Junction to Case) | $R_{th(j-f)}$ | DC | — | 0.04 | $^\circ C/W$ |

