

# SF2500EX21

THYRISTOR  
SILICON DIFFUSED TYPE

HIGH POWER CONTROL APPLICATIONS.

FEATURES:

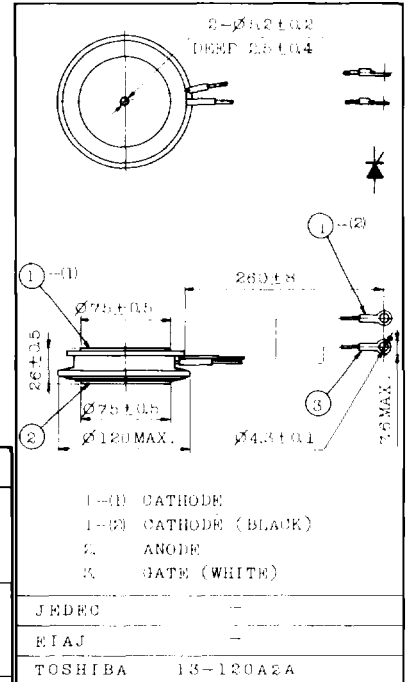
- . Repetitive Peak Off-State Voltage :  $V_{DRM}$  } = 4000V
- . Repetitive Peak Reverse Voltage :  $V_{RRM}$  }
- . Average On-State Current :  $I_T(AV)$  = 1500A
- . Turn-Off Time :  $t_q$  = 400 $\mu$ s(Max.)
- . Critical Rate of Rise of On-State Current :  $di/dt$  = 250A/ $\mu$ s
- . Critical Rate of Rise of Off-State Voltage :  $dv/dt$  = 1500V/ $\mu$ s
- . Flat Package

MAXIMUM RATINGS

| CHARACTERISTIC  | SYMBOL      | RATING             | UNIT             |
|---|-------------|--------------------|------------------|
| Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage                       | $V_{DRM}$   | 4000               | V                |
|   | $V_{RRM}$   |                    |                  |
| Non-Repetitive Peak Reverse Voltage (Non-Repetitive · 5ms, $T_j=0 \sim 125^\circ\text{C}$ ) | $V_{RSM}$   | 4400               | V                |
| R.M.S On-State Current  | $I_T(RMS)$  | 2355               | A                |
| Average On-State Current  | $I_T(AV)$   | 1500               | A                |
| Peak One Cycle Surge On-State Current (Non-Repetitive)                                      | $I_{TSM}$   | 30000(50Hz)        | A                |
|   |             | 33000(60Hz)        |                  |
| $I^2t$ Limit Value  | $I^2t$      | $4500 \times 10^3$ | $A^2s$           |
| Critical Rate of Rise of On-State Current (Note)  | $di/dt$     | 250                | A/ $\mu$ s       |
| Peak Gate Power Dissipation   | $P_{GM}$    | 30                 | W                |
| Average Gate Power Dissipation  | $P_{G(AV)}$ | 4                  | W                |
| Peak Forward Gate Current   | $I_{GM}$    | 6                  | A                |
| Peak Forward Gate Voltage   | $V_{FGM}$   | 30                 | V                |
| Peak Reverse Gate Voltage   | $V_{RCM}$   | 5                  | V                |
| Junction Temperature  | $T_j$       | -40 ~ 125          | $^\circ\text{C}$ |
| Storage Temperature Range   | $T_{stg}$   | -40 ~ 125          | $^\circ\text{C}$ |
| Mounting Force  | -           | 4000               | kg               |

Note :  $V_D=1/2$  Rated,  $T_c=120^\circ\text{C}$ , Gate Supply ( $V_G=15\text{V}$ ,  $R_G=8\Omega$ ,  $t_r < 1\mu\text{s}$ )

Unit in mm



Weight : 1350g

ELECTRICAL CHARACTERISTICS

| CHARACTERISTIC  | SYMBOL                 | TEST CONDITION   | MIN.                    | MAX.  | UNIT                      |    |
|---|------------------------|--|-------------------------|-------|---------------------------|----|
| Repetitive Peak Off-State Current and Repetitive Peak Reverse Current | $I_{DRM}$<br>$I_{RRM}$ | $V_{DRM}=V_{RRM}=\text{Rated}$ , $T_j=125^\circ\text{C}$   | -                       | 120   | mA                        |    |
| Peak On-State Voltage   | $V_{TM}$               | $I_{TM}=8000\text{A}$ , $T_c=25^\circ\text{C}$   | -                       | 1.82  | V                         |    |
| Gate Trigger Voltage  | $V_{GT}$               | $V_D=12\text{V}$ , $R_L=6\Omega$   | $T_c=-40^\circ\text{C}$ | -     | 4.0                       | V  |
|   |                        |  | $T_c=25^\circ\text{C}$  | -     | 2.5                       |    |
| Gate Trigger Current  | $I_{GT}$               | $V_D=12\text{V}$ , $R_L=6\Omega$   | $T_c=-40^\circ\text{C}$ | -     | 400                       | mA |
|   |                        |  | $T_c=25^\circ\text{C}$  | -     | 250                       |    |
| Gate Non-Trigger Voltage  | $V_{GD}$               | $V_D=1/2 \text{ Rated}$ , $T_c=125^\circ\text{C}$  | 0.2                     | -     | V                         |    |
| Gate Non-Trigger Current  | $I_{GD}$               |  | 5                       | -     | mA                        |    |
| Delay Time  | $t_d$                  | $V_D=0.5 \text{ Rated}$ , $T_c=25^\circ\text{C}$<br>Gate Supply ( $V_G=15\text{V}$ , $R_G=8\Omega$ ,<br>$t_r \leq 1\mu\text{s}$ )      | -                       | 5     | $\mu\text{s}$             |    |
| Gate Turn-On Time   | $t_{gt}$               |  | -                       | 10    | $\mu\text{s}$             |    |
| Turn-Off Time   | $t_q$                  | $I_T=1200\text{A}$ , $V_R \geq 200\text{V}$<br>$dv/dt=25\text{V}/\mu\text{s}$ , $T_c=115^\circ\text{C}$<br>$V_{DRM}=1/2 \text{ Rated}$ | -                       | 400   | $\mu\text{s}$             |    |
| Holding Current   | $I_H$                  | $T_c=25^\circ\text{C}$ , $R_L=6\Omega$   | -                       | 300   | mA                        |    |
| Critical Rate of Rise of Off-State Voltage                            | $dv/dt$                | $V_{DRM}=1/2 \text{ Rated}$ , $T_j=125^\circ\text{C}$<br>Gate Open Exponential Rise  | 1500                    | -     | $\text{V}/\mu\text{s}$    |    |
| Thermal Resistance  | $R_{th(j-f)}$          | Junction to Fin  | -                       | 0.015 | $^\circ\text{C}/\text{W}$ |    |

