TOSHIBA ALLOY-FREE LIGHT TRIGGER THYRISTOR

## **SL1500GX24**

## HIGH POWER CONTROL APPLICATIONS

Repetitive Peak Off-State Voltage: VDRM) =4000V

Repetitive Peak Reverse Voltage: VRRM

 $: I_{T(AV)} = 1500A$ Average On-State Current

Light Trigger Power : PLT: 10mW (Max.)

:  $t_q = 400 \mu s$  (Max.) Turn-Off Time

Critical Rate of Rise of On-State Current

:  $di/dt = 250A/\mu s$ 

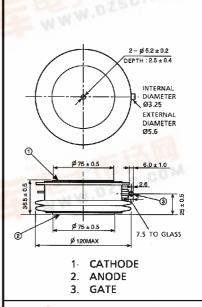
Critical Rate of Rise of Off-State Voltage

:  $dv/dt = 1500V/\mu s$ 

## MAXIMUM RATINGS

| • Flat Package  MAXIMUM RATINGS   |                                      |                              |         |  |  |  |  |  |  |
|---|--------------------------------------|------------------------------|---------|--|--|--|--|--|--|
| MAXIMUM RATINGS   |                                      |                              |         |  |  |  |  |  |  |
| CHARACTERISTIC  | SYMBOL                               | RATING                       | UNIT    |  |  |  |  |  |  |
| Repetitive Peak Off-State Voltage<br>and Repetitive Peak Reverse<br>Voltage             | V <sub>DRM</sub><br>V <sub>RRM</sub> | 4000                         | V       |  |  |  |  |  |  |
| Non-Repetitive Peak Reverse<br>Voltage<br>(Non-Repetitive≤5ms, T <sub>j</sub> =0~125°C) | VRSM                                 | 4400                         | V       |  |  |  |  |  |  |
| R.M.S On-State Current  | IT (RMS)                             | 2355                         | Α       |  |  |  |  |  |  |
| Average On-State Current  | I <sub>T</sub> (AV)                  | 1500                         | Α       |  |  |  |  |  |  |
| Peak One Cycle Surge On-State<br>Current (Non-Repetitive)                               | I <sub>TSM</sub>                     | 30000 (50Hz)<br>33000 (60Hz) | A       |  |  |  |  |  |  |
| I <sup>2</sup> t Limit Value  | ${f I}^2{f t}$                       | $4500 \times 10^{3}$         | $A^2$ s |  |  |  |  |  |  |
| Critical Rate of Rise of On-State<br>Current (Note)                                     | di/dt                                | 250                          | A/μs    |  |  |  |  |  |  |
| Junction Temperature  | $T_j$                                | -40~125                      | °C      |  |  |  |  |  |  |
| Storage Temperature Range   | $T_{ m stg}$                         | -40~125                      | °C      |  |  |  |  |  |  |
| Mounting Force  |                                      | 39.2±3.9                     | kN      |  |  |  |  |  |  |

Unit in mm



**JEDEC** EIAJ **TOSHIBA** 13-120L1A

Weight: 1700g

Note:  $V_D = 2000V$ , f = 50Hz,  $T_i = 120$ °C

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## **ELECTRICAL CHARACTERISTICS**

| CHARACTERISTIC  | SYMBOL                               | TEST CONDITION   |                | MIN. | MAX. | UNIT |
|---|--------------------------------------|--|----------------|------|------|------|
| Repetitive Peak Off-State<br>Current and Repetitive Peak<br>Reverse Current | I <sub>DRM</sub><br>I <sub>RRM</sub> | $V_{\mathrm{DRM}} = V_{\mathrm{RRM}} = 4000 \mathrm{V}$ $T_{\mathrm{j}} = 125^{\circ}\mathrm{C}$ |                | _    | 120  | mA   |
| Peak On-State Voltage   | $V_{TM}$                             | $I_{TM} = 5000A, T_j = 25^{\circ}C$  |                | _    | 2.3  | V    |
| Light Trigger Power   | $P_{LT}$                             | $V_D=12V, R_L=6\Omega$   | $T_j = -40$ °C | _    | _    | mW   |
|   |                                      |  | $T_j = 25$ °C  | _    | 10   |      |
| Delay Time  | $^{ m t_d}$                          | $V_D = 2000V, T_j = 25^{\circ}C$   |                |      | 4    | μs   |
| Gate Turn-On Time   | $t_{gt}$                             | $P_L = 20 \text{mW}$   |                | _    | 6    | μs   |
| Turn-Off Time   | $\mathbf{t_q}$                       | $I_{T}$ =1200A, $V_{R}$ \ge 200V<br>dv/dt=25V/\mu s, $T_{j}$ =115°C<br>$V_{DRM}$ =2000V          |                | _    | 400  | μs   |
| Holding Current   | ${ m I_H}$                           | $T_j=25$ °C, $R_L=6\Omega$   |                | _    | 300  | mA   |
| Critical Rate of Rise of<br>Off-State Voltage                               | dv/dt                                | V <sub>DRM</sub> =2000V, T <sub>j</sub> =125°C<br>Gate Open, Exponential Rise                    |                | 1500 | _    | V/μs |
| Thermal Resistance<br>(Junction to Case)                                    | R <sub>th (j-f)</sub>                | DC   |                | _    | 0.02 | °C/W |

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