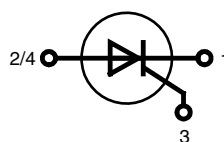
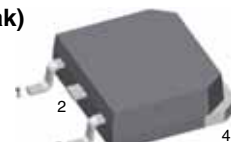


# High Voltage Phase Control Thyristor

$$V_{\text{DRM}} = 2500 \text{ V}$$

$$I_{\text{TSM}} = 200 \text{ A}$$


TO-268 AA (D<sup>3</sup>Pak)


4 = Backside = Anode

| Thyristor                     |                                                                                                                                                                                                                                                                                             |                       |                  |                                |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------|--------------------------------|
| Symbol                        | Conditions                                                                                                                                                                                                                                                                                  | Maximum Ratings       |                  |                                |
| $V_{\text{DRM}}$              |                                                                                                                                                                                                                                                                                             | 2500                  | V                |                                |
| $V_{\text{DSM}}$              |                                                                                                                                                                                                                                                                                             | 2500                  | V                |                                |
| $V_{\text{RRM}} / \text{RSM}$ |                                                                                                                                                                                                                                                                                             | 1650                  | V                |                                |
| $I_{\text{TSM}}$              | sine 180°; $t = 10 \text{ ms}$ ; $V_{\text{R}} = 0 \text{ V}$ ; $T_{\text{VJ}} = 25^\circ\text{C}$                                                                                                                                                                                          | 200                   | A                |                                |
| $(di/dt)_{\text{cr}}$         | $f = 50 \text{ Hz}$ ; $t_p = 200 \mu\text{s}$ ; $V_{\text{D}} = 2000 \text{ V}$<br>$di_{\text{G}}/dt = 0.45 \text{ A}/\mu\text{s}$ ; $I_{\text{G}} = 0.45 \text{ A}$<br>non repetitive; $I_{\text{T}} = 45 \text{ A}$                                                                       | 150                   | A/ $\mu\text{s}$ |                                |
| $(dv/dt)_{\text{cr}}$         | $V_{\text{D}} = 2200 \text{ V}$<br>$R_{\text{GK}} = \infty$ ; method 1 (linear voltage rise)                                                                                                                                                                                                | 5000                  | V/ $\mu\text{s}$ |                                |
| Symbol                        | Conditions                                                                                                                                                                                                                                                                                  | Characteristic Values |                  |                                |
|                               |                                                                                                                                                                                                                                                                                             | min.                  | max.             |                                |
| $V_{\text{T}}$                | $I_{\text{T}} = 45 \text{ A}$ <span style="margin-left: 20px;"><math>T_{\text{VJ}} = 25^\circ\text{C}</math></span>                                                                                                                                                                         |                       | 3.0              | V                              |
| $V_{\text{GT}}$               | $V_{\text{D}} = 6 \text{ V}$ <span style="margin-left: 20px;"><math>T_{\text{VJ}} = 25^\circ\text{C}</math></span>                                                                                                                                                                          |                       | 2.5              | V                              |
| $I_{\text{GT}}$               |                                                                                                                                                                                                                                                                                             |                       | 250              | mA                             |
| $V_{\text{GD}}$               | $V_{\text{D}} = \frac{2}{3} V_{\text{DRM}}$ <span style="margin-left: 20px;"><math>T_{\text{VJ}} = 25^\circ\text{C}</math></span>                                                                                                                                                           |                       | 0.2              | V                              |
| $I_{\text{GD}}$               |                                                                                                                                                                                                                                                                                             |                       | 5                | mA                             |
| $I_{\text{L}}$                | $t_p = 10 \mu\text{s}$ ; $V_{\text{D}} = 6 \text{ V}$<br>$I_{\text{G}} = 0.45 \text{ A}$ ; $di_{\text{G}}/dt = 0.45 \text{ A}/\mu\text{s}$ <span style="margin-left: 20px;"><math>T_{\text{VJ}} = 0^\circ\text{C}</math></span>                                                             |                       | 700              | mA                             |
| $I_{\text{H}}$                | $V_{\text{D}} = 6 \text{ V}$ ; $R_{\text{GK}} = \infty$ <span style="margin-left: 20px;"><math>T_{\text{VJ}} = 0^\circ\text{C}</math></span><br><span style="margin-left: 20px;"><math>T_{\text{VJ}} = 70^\circ\text{C}</math></span>                                                       | 55                    | 300              | mA<br>mA                       |
| $t_{\text{q}}$                | $I_{\text{T}} = 20 \text{ A}$ ; $t_p = 300 \mu\text{s}$ ; $di/dt = -20 \text{ A}/\mu\text{s}$<br>$V_{\text{R}} = 10 \text{ V}$ ; $dv/dt = 20 \text{ V}/\mu\text{s}$<br>$V_{\text{D}} = 800 \text{ V}$ <span style="margin-left: 20px;"><math>T_{\text{VJ}} = 70^\circ\text{C}</math></span> |                       | 100              | $\mu\text{s}$                  |
| $I_{\text{RRM}} / \text{DRM}$ | $V_{\text{R}} = V_{\text{RRM}}$ ; $V_{\text{D}} = V_{\text{DRM}}$ <span style="margin-left: 20px;"><math>T_{\text{VJ}} = 25^\circ\text{C}</math></span><br><span style="margin-left: 20px;"><math>T_{\text{VJ}} = 70^\circ\text{C}</math></span>                                            |                       | 50<br>200        | $\mu\text{A}$<br>$\mu\text{A}$ |
| $I_{\text{DSM}} / \text{RSM}$ | $V_{\text{R}} = V_{\text{RSM}}$ ; $V_{\text{D}} = V_{\text{DSM}}$ <span style="margin-left: 20px;"><math>T_{\text{VJ}} = 70^\circ\text{C}</math></span>                                                                                                                                     |                       | 2                | mA                             |
| $R_{\text{thJC}}$             |                                                                                                                                                                                                                                                                                             |                       | 0.80             | K/W                            |

## Features

- high voltage thyristor
  - for line frequency
  - chip technology for long term stability
  - planar glass passivated
- International standard package  
JEDEC TO-268
- Epoxy meets UL 94V-0

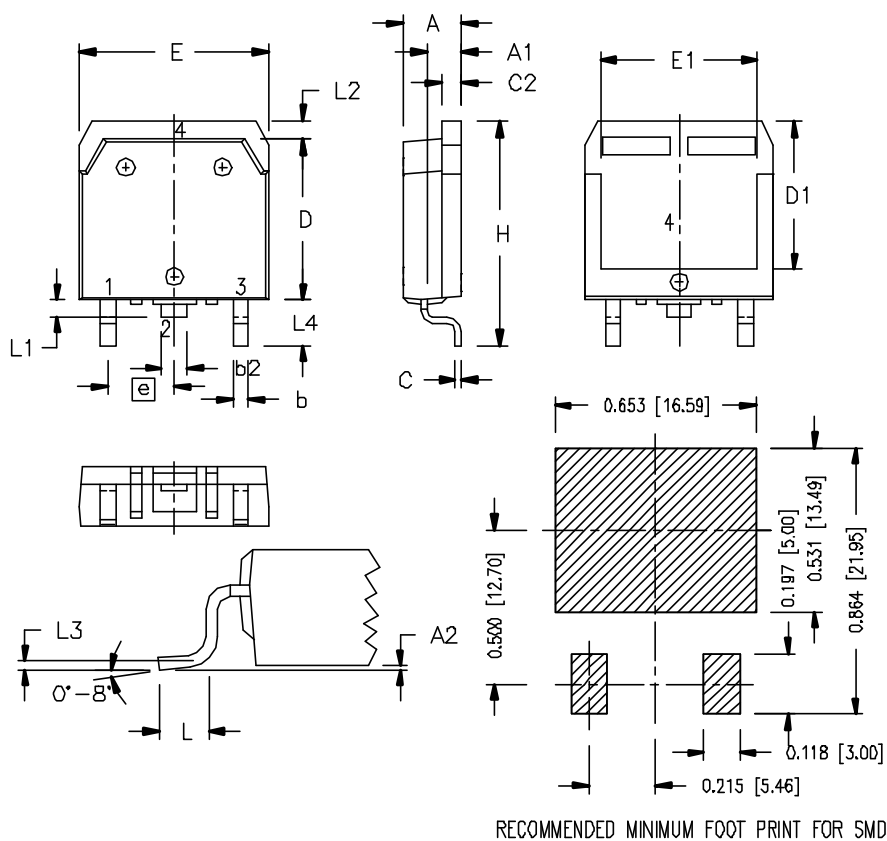
## Applications

- controlled rectifiers
  - power supplies
  - drives
- AC switches
- capacitor discharge control
  - flash tubes
  - X-ray and laser generators

| Component |                          |                 |    |  |
|-----------|--------------------------|-----------------|----|--|
| Symbol    | Conditions               | Maximum Ratings |    |  |
| $T_{VJ}$  |                          | -10 ... +70     | °C |  |
| $T_{stg}$ |                          | -40 ... +70     | °C |  |
| $F_c$     | Mounting force with clip | 20...120        | N  |  |

| Symbol     | Conditions             | Characteristic Values |      |      |     |
|------------|------------------------|-----------------------|------|------|-----|
|            |                        | min.                  | typ. | max. |     |
| $R_{thCH}$ | with heatsink compound |                       | 0.15 |      | K/W |
| Weight     |                        |                       | 5    |      | g   |



| Dim. | Millimeter |       | Inches    |       |
|------|------------|-------|-----------|-------|
|      | min        | max   | min       | max   |
| A    | 4.90       | 5.10  | 0.193     | 0.201 |
| A1   | 2.70       | 2.90  | 0.106     | 0.114 |
| A2   | 0.02       | 0.25  | 0.001     | 0.100 |
| b    | 1.15       | 1.45  | 0.045     | 0.057 |
| b2   | 1.90       | 2.10  | 0.075     | 0.083 |
| C    | 0.40       | 0.65  | 0.016     | 0.026 |
| C2   | 1.45       | 1.60  | 0.057     | 0.063 |
| D    | 13.80      | 14.00 | 0.543     | 0.551 |
| D1   | 12.40      | 12.70 | 0.488     | 0.500 |
| E    | 15.85      | 16.05 | 0.624     | 0.632 |
| E1   | 13.30      | 13.60 | 0.524     | 0.535 |
| e    | 5.45 BSC   |       | 0.215 BSC |       |
| H    | 18.70      | 19.10 | 0.736     | 0.752 |
| L    | 2.40       | 2.70  | 0.094     | 0.106 |
| L1   | 1.20       | 1.40  | 0.047     | 0.055 |
| L2   | 1.00       | 1.15  | 0.039     | 0.045 |
| L3   | 0.25 BSC   |       | 0.100 BSC |       |
| L4   | 3.80       | 4.10  | 0.150     | 0.161 |