

# Pulse Thyristor

## Type Y500CNC250

### Absolute Maximum Ratings

|           | VOLTAGE RATINGS                                 | MAXIMUM LIMITS | UNITS |
|-----------|-------------------------------------------------|----------------|-------|
| $V_{DRM}$ | Repetitive peak off-state voltage, (note 1)     | 2500           | V     |
| $V_{DSM}$ | Non-repetitive peak off-state voltage, (note 1) | 2500           | V     |
| $V_{RRM}$ | Repetitive peak reverse voltage, (note 1)       | 2000           | V     |
| $V_{RSM}$ | Non-repetitive peak reverse voltage, (note 1)   | 2100           | V     |
| $V_{DC}$  | Permanent dc voltage                            | 1500           | V     |

|                | OTHER RATINGS                                                        | MAXIMUM LIMITS      | UNITS            |
|----------------|----------------------------------------------------------------------|---------------------|------------------|
| $I_{TM}$       | Maximum pulse current, (note 2)                                      | 50                  | kA               |
| $I^2t$         | Load limit integral, (note 2)                                        | $312.5 \times 10^3$ | A <sup>2</sup> s |
| $I_{T(AV)M}$   | Maximum average on-state current. $T_{sink}=85^{\circ}C$ , (note 3)  | 480                 | A                |
| $(di/dt)_{cr}$ | Critical rate of rise of on-state current (non-repetitive), (Note 4) | 11                  | kA/ $\mu$ s      |
| $V_{RGM}$      | Peak reverse gate voltage                                            | 18                  | V                |
| $T_{j op}$     | Operating temperature range                                          | -40 to +125         | $^{\circ}C$      |
| $T_{stg}$      | Storage temperature range                                            | -40 to +150         | $^{\circ}C$      |

### Notes:-

- 1)  $V_{GK}=-2V$
- 2)  $T_j=125^{\circ}C$ , half-sinewave,  $t_{p(max)}=250\mu s$
- 3) Double side cooled, single phase; 50Hz, 180 $^{\circ}$  half-sinewave.

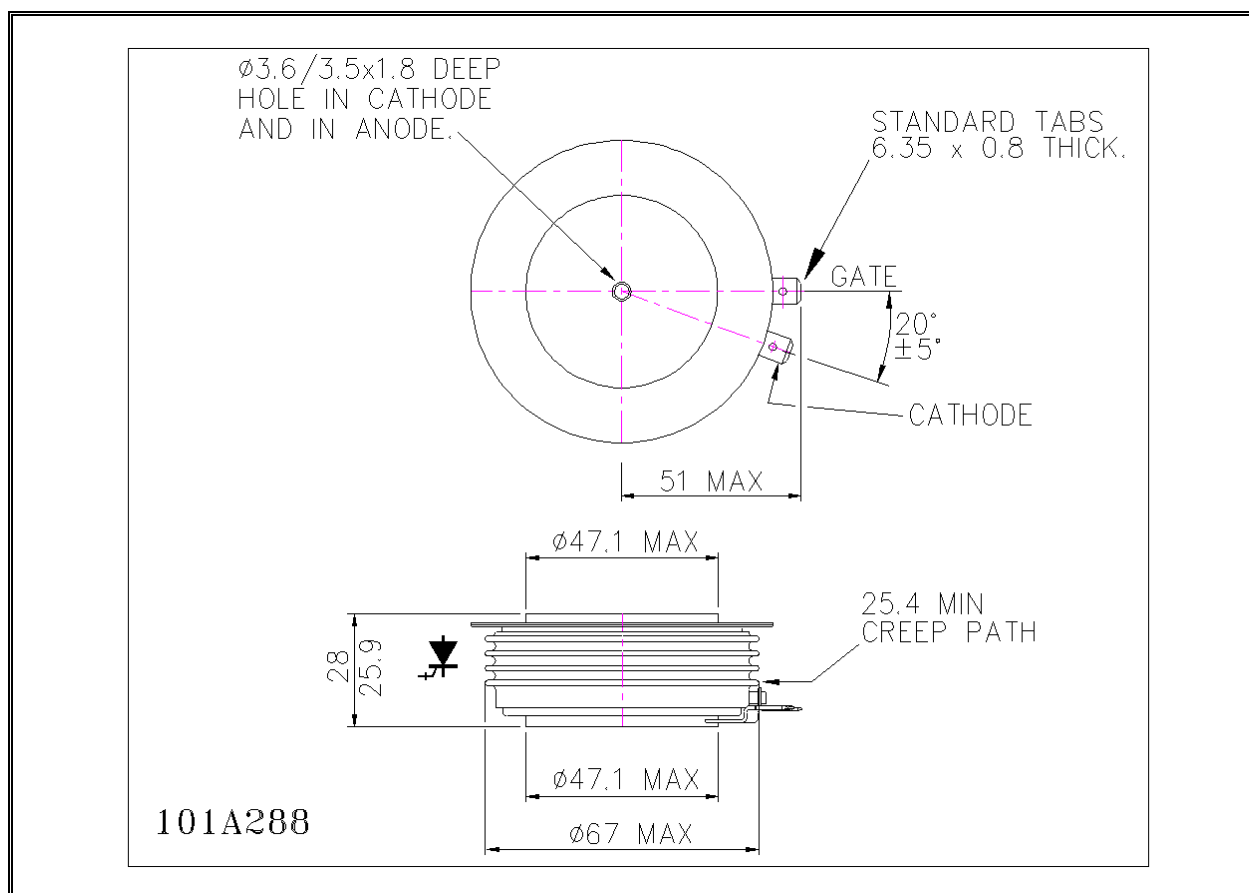
## Characteristics

|                | PARAMETER                                  | MIN. | TYP. | MAX.  | TEST CONDITIONS (Note 1)                                                                                     | UNITS      |
|----------------|--------------------------------------------|------|------|-------|--------------------------------------------------------------------------------------------------------------|------------|
| $V_{TM}$       | Maximum peak on-state voltage              | -    | -    | 10    | $I_G=4A$ , $I_{TM}=10000A$                                                                                   | V          |
| $V_{T0}$       | Threshold voltage                          | -    | -    | 1.755 |                                                                                                              | V          |
| $r_T$          | Slope resistance                           | -    | -    | 1.122 |                                                                                                              | m $\Omega$ |
| $(dv/dt)_{cr}$ | Critical rate of rise of off-state voltage | 1000 | -    | -     | $V_D=67\% V_{DRM}$ , Linear ramp, $V_{GK}=-2V$                                                               | V/ $\mu s$ |
| $I_{DRM}$      | Peak off-state current                     | -    | -    | 100   | Rated $V_{DRM}$                                                                                              | mA         |
| $I_{RRM}$      | Peak reverse current                       | -    | -    | 100   | Rated $V_{RRM}$                                                                                              | mA         |
| $I_L$          | Latching current                           | -    | 10   | -     | $T_j=25^\circ C$                                                                                             | A          |
| $I_H$          | Holding current                            | -    | 10   | -     |                                                                                                              | A          |
| $I_{GT}$       | Nominal gate trigger current               | -    | -    | 50    | $di_G/dt=100A/\mu s$ , $T_j=25^\circ C$                                                                      | A          |
| $t_{gd}$       | Gate controlled turn-on delay time         | -    | 0.9  | -     | $V_D=1500V$ , $I_{TM}=25kA$ , $di/dt=5500A/\mu s$ , $I_{FG}=50A$ , $di_G/dt=100A/\mu s$ , $T_j=25^\circ C$ . | $\mu s$    |
| $t_{gt}$       | Turn-on time                               | -    | 1.0  | -     |                                                                                                              |            |
| $R_{thJK}$     | Thermal resistance, junction to heatsink   | -    | -    | 0.027 | Double side cooled                                                                                           | K/W        |
|                |                                            | -    | -    | 0.045 | Anode side cooled                                                                                            | K/W        |
|                |                                            | -    | -    | 0.07  | Cathode side cooled                                                                                          | K/W        |
| F              | Mounting force                             | 15   | -    | 25    |                                                                                                              | kN         |
| $W_t$          | Weight                                     | -    | 480  | -     |                                                                                                              | g          |

Notes:-

1) Unless otherwise indicated  $T_j=125^\circ C$ .

## Outline Drawing & Ordering Information



### ORDERING INFORMATION

(Please quote 10 digit code as below)

| Y500C              | NC                    | ♦♦                                        | 0          |
|--------------------|-----------------------|-------------------------------------------|------------|
| Fixed<br>Type Code | Fixed<br>Outline Code | Fixed Voltage Code<br>$V_{DRM}/100$<br>25 | Fixed code |

Typical order code: Y500CNC250 – 2500V  $V_{DRM}$ , 28mm clamp height capsule.

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