

# KP2500A-C

## PHASE CONTROL THYRISTOR



### Features

Center amplifying gate  
Metal case with ceramic insulator  
Low on-state and switching losses

### Application

Large power converter  
DC and AC switches  
Active & Passive inverter

|                   |                        |
|-------------------|------------------------|
| $I_{T(AV)}$       | 2500 A                 |
| $V_{DRM}/V_{RRM}$ | 400~1000 V             |
| $I_{TSM}$         | 31KA                   |
| $I^2T$            | 4805 KA <sup>2</sup> S |

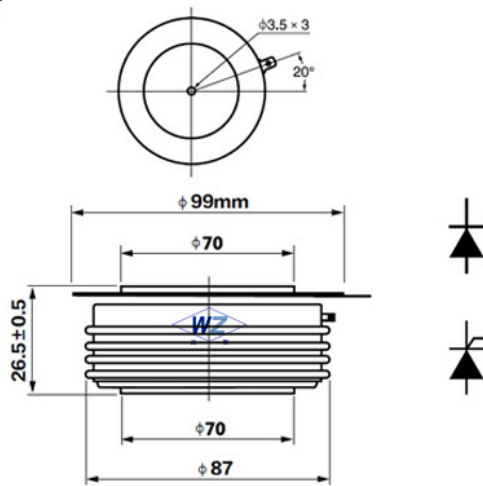
| Symb.              |                        | parameter  | Test Conditions  | $T_{J(C)}$ | Value    | Unit              |
|--------------------|------------------------|--|--|------------|----------|-------------------|
| Current Ratings    | $I_{T(AV)}$            | Average on-state current   | 180° half sine wave 50Hz Double side cooled $T_{hs}=60^{\circ}C$                   | 125        | 2500     | A                 |
|                    | $I_{T(AV)}$            | Average on-state current   | 180° half sine wave 50Hz Double side cooled $T_{hs}=55^{\circ}C$                   | 125        | 2754     | A                 |
|                    | $I_{TSM}$              | Surge on-state current   | 10ms half sine wave $V_R=0.6V_{RRM}$   | 125        | 31       | KA                |
|                    | $I^2t$                 | $I^2T$ for fusing coordination                                       |  | 125        | 4805     | KA <sup>2</sup> S |
| Characteristics    | $V_{DRM}$<br>$V_{RRM}$ | Repetitive peak off-state voltage<br>Repetitive peak reverse voltage | $V_{DRM}$ & $V_{RRM}$ $t_p=10ms$<br>$V_{DSM}$ & $V_{RSM}=V_{DRM}$ & $V_{RRM}+100V$ | 125        | 400-1000 | V                 |
|                    | $I_{DRM}$<br>$I_{RRM}$ | Repetitive peak current  | $V_{DM}=V_{DRM}$<br>$V_{RM}=V_{RRM}$   | 125        | Max.120  | mA                |
|                    | $V_{TO}$               | Threshold voltage  |  | 125        | Max.0.75 | V                 |
|                    | $V_{TM}$               | Threshold voltage  | $I_{TM}=5000A, F=32KN$   | 25         | Max.1.80 | V                 |
|                    | $r_T$                  | On-state slop resistance   |  | 125        | Max.0.11 | mΩ                |
|                    | $I_H$                  | Holding current  | $V_A=12V, I_A=1A$  | 25         | 20-300   | mA                |
| Dynamic Parameters | dv/dt                  | Critical rate of rise of off-state voltage                           | $V_{DM}=67\%V_{DRM}$   | 125        | Max.300  | V/μs              |
|                    | di/dt                  | Critical rate of rise of on-state current                            | $V_{DM}=67\%V_{DRM}$ to 600A, Gate pulse $t_r \leq 0.5\mu s$ $I_{GM}=1.5A$         | 125        | Max.250  | A/μs              |
|                    | $t_{rr}$               | Reverse recovery time  | $I_{TM}=500A, t_p=1000\mu s, V_R=50V$<br>$di/dt=-20A/\mu s$                        | 125        |          | μs                |
|                    | $Q_{rr}$               | Reverse Recovery charge  |  | 125        |          | μc                |
| Gate Parameters    | $I_{GT}$               | Gate trigger current   | $V_A=12V, I_A=1A$  | 25         | 40-300   | mA                |
|                    | $V_{GT}$               | Gate trigger voltage   |  | 25         | 0.8-3.0  | V                 |
|                    | $V_{GD}$               | Non-trigger gate voltage   | $V_{DM}=67\%V_{DRM}$   | 125        | Min.0.3  | V                 |

**Thermal & Mechanical Data**

| Symb.                | parameter                                | Test Conditions   | T <sub>J(°C)</sub> | Value     | Unit |
|----------------------|--|---|--------------------|-----------|------|
| R <sub>th(j-h)</sub> | Thermal resistance Junction to heat sink | At 180 <sup>0</sup> sine wave, double side cooled Clamping force 32KN |                    | Max.0.017 | °C/W |
| F <sub>m</sub>       | Mounting force                           |   |                    | 27-34     | KN   |
| T <sub>stg</sub>     | Stored temperature                       |   |                    | -40-140   | °C   |
| W <sub>t</sub>       | Weight                                   |   |                    | 650       | g    |

**Dimensions:**

C24



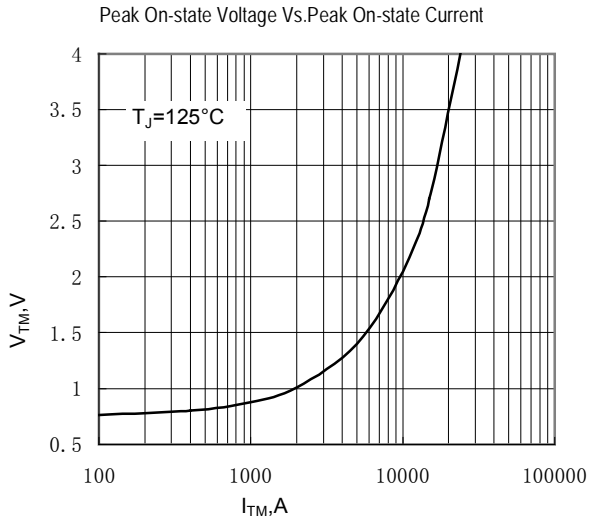


Fig.1

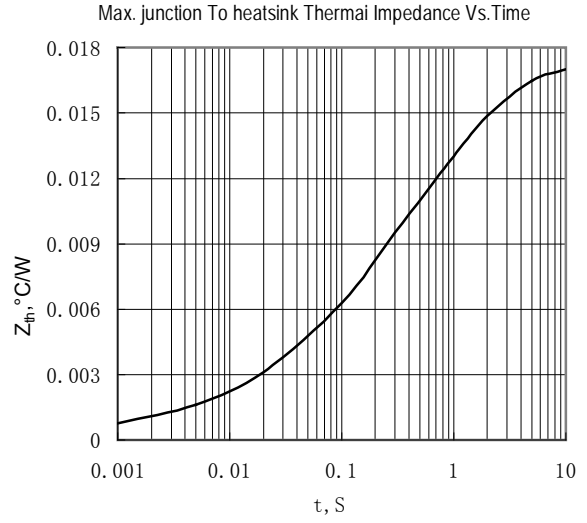


Fig.2

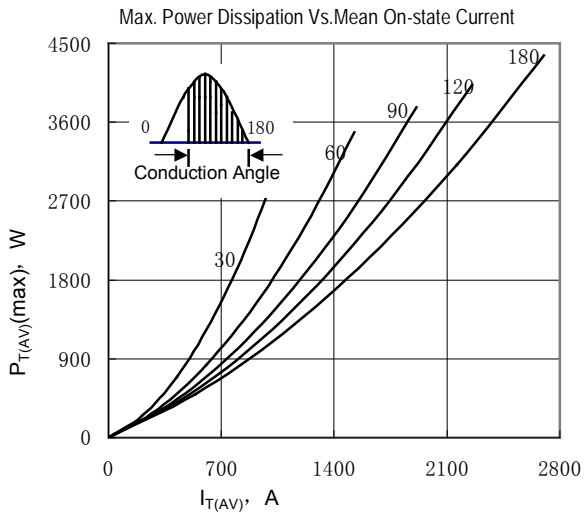


Fig.3

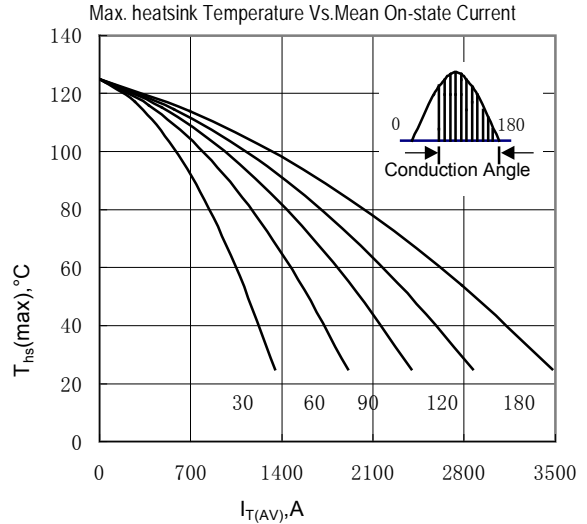


Fig.4

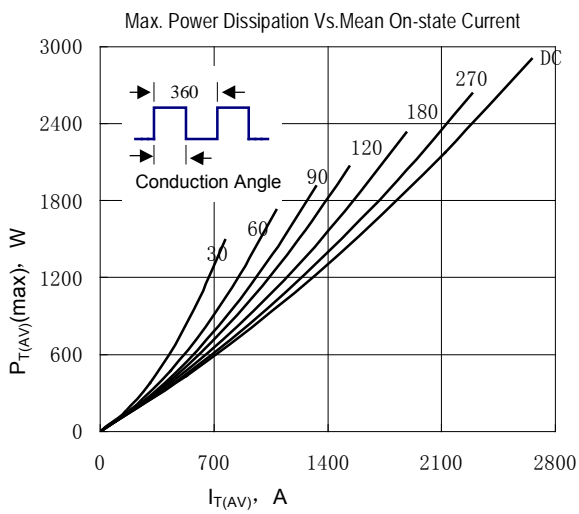


Fig.5

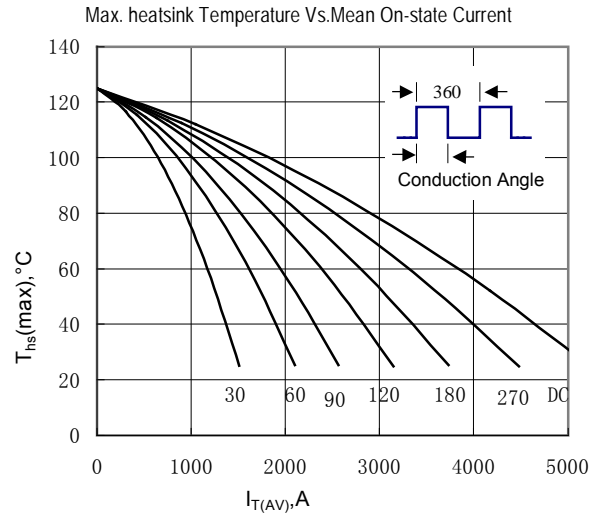


Fig.6

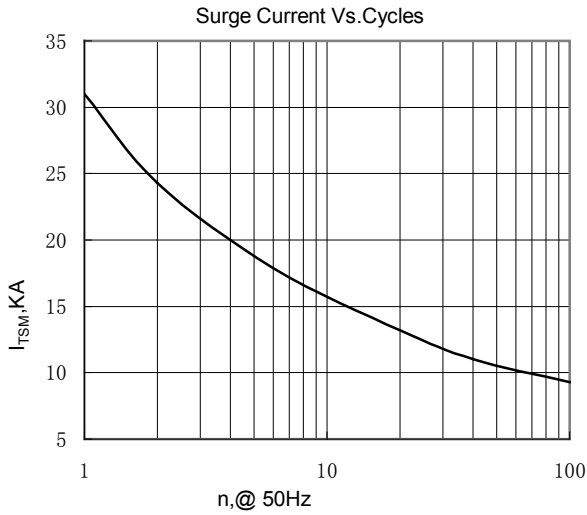


Fig.7

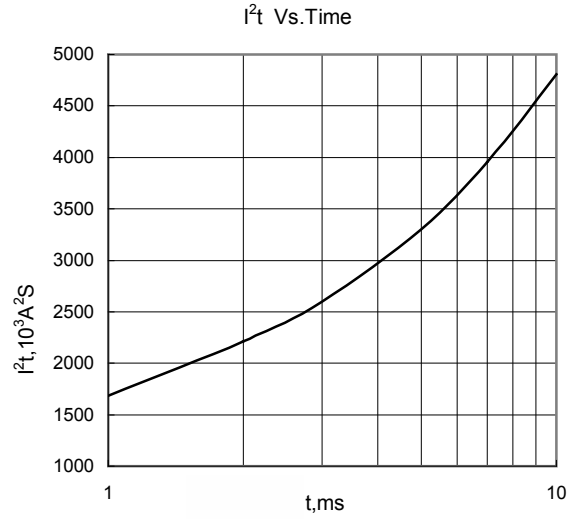


Fig.8

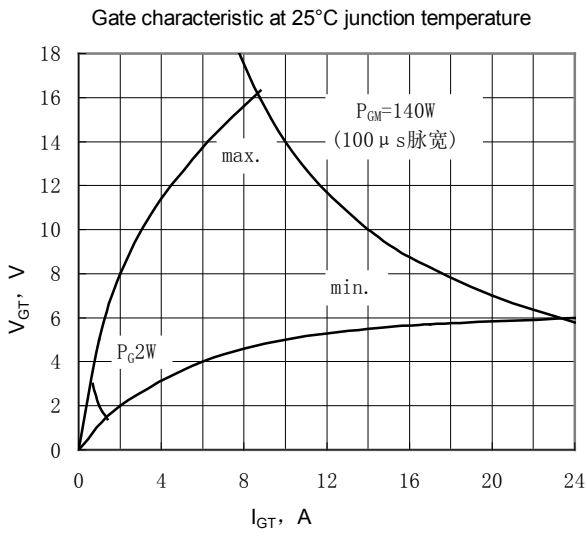


Fig.9

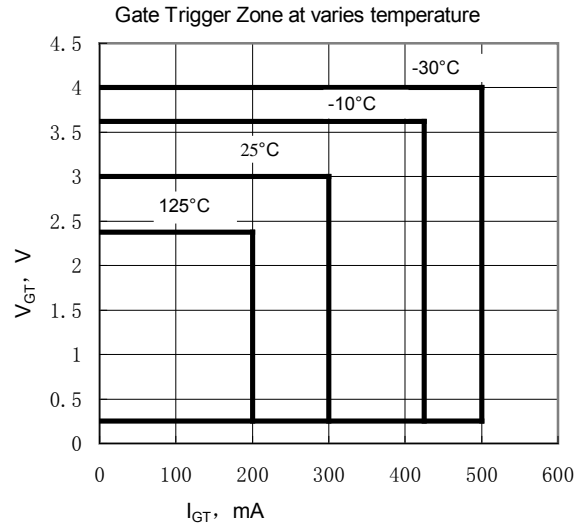


Fig.10

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