

## Thyristor Modules

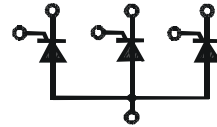
**PSVT 160**  
**PSXT 160**

$I_{TRMS}$   
 $V_{RRM}$

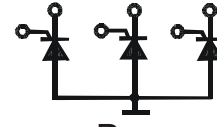
**= 180 A**  
**= 800 - 1600 V**

### Preliminary Data Sheet

| $V_{RSM}$<br>$V_{DSM}$ | $V_{RRM}$<br>$V_{DRM}$ | Type        | Type        |
|------------------------|------------------------|-------------|-------------|
| 900                    | 800                    | PSVT 160/08 | PSXT 160/08 |
| 1300                   | 1200                   | PSVT 160/12 | PSXT 160/12 |
| 1500                   | 1400                   | PSVT 160/14 | PSXT 160/14 |
| 1700                   | 1600                   | PSVT 160/16 | PSXT 160/16 |



**PSVT**



**Base**

**PSXT**

| Symbol         | Test Conditions                                    |                                  | Maximum Ratings |                  |
|----------------|----------------------------------------------------|----------------------------------|-----------------|------------------|
| $I_{TRMS}$     |                                                    |                                  | 180             | A                |
| $I_{TAVM}$     | $T_C = 63^{\circ}\text{C}$                         | 180° sine,                       | 115             | A                |
| $I_{TAVM}$     | $T_C = 85^{\circ}\text{C}$                         | 180° sine,                       | 85              | A                |
| $I_{TSM}$      | $T_{VJ} = 45^{\circ}\text{C}$                      | t = 10 ms (50Hz), sine           | 1700            | A                |
|                | $V_R = 0$                                          | t = 8.3 ms (60Hz), sine          | 1800            | A                |
|                | $T_{VJ} = T_{VJM}$                                 | t = 10 ms (50Hz), sine           | 1540            | A                |
|                | $V_R = 0$                                          | t = 8.3 ms (60Hz), sine          | 1640            | A                |
| $\int i^2 dt$  | $T_{VJ} = 45^{\circ}\text{C}$                      | t = 10 ms (50Hz), sine           | 14450           | A <sup>2</sup> s |
|                | $V_R = 0$                                          | t = 8.3 ms (60Hz), sine          | 13500           | A <sup>2</sup> s |
|                | $T_{VJ} = T_{VJM}$                                 | t = 10 ms (50Hz), sine           | 11850           | A <sup>2</sup> s |
|                | $V_R = 0$                                          | t = 8.3 ms (60Hz), sine          | 11300           | A <sup>2</sup> s |
| $(di/dt)_{cr}$ | $T_{VJ} = T_{VJM}$                                 | repetitive, $I_T = 250\text{ A}$ | 150             | A/ $\mu\text{s}$ |
|                | $f = 50\text{Hz}$ , $t_p = 200\mu\text{s}$         |                                  |                 |                  |
|                | $V_D = 2/3 V_{DRM}$                                |                                  |                 |                  |
|                | $I_G = 0.45\text{ A}$                              | non repetitive; $I_T = I_{TAVM}$ | 500             | A/ $\mu\text{s}$ |
|                | $di_G / dt = 0.45\text{ A}/\mu\text{s}$            |                                  |                 |                  |
| $(dv/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ ;                               | $V_{DR} = 2/3 V_{DRM}$           | 1000            | V/ $\mu\text{s}$ |
|                | $R_{GK} = \infty$ ; method 1 (linear voltage rise) |                                  |                 |                  |
| $P_{GM}$       | $T_{VJ} = T_{VJM}$                                 | $t_p = 30\mu\text{s}$            | 10              | W                |
|                | $I_T = I_{TAVM}$                                   | $t_p = 300\mu\text{s}$           | 5               | W                |
| $P_{GAVM}$     |                                                    |                                  | 0.5             | W                |
| $V_{RGM}$      |                                                    |                                  | 10              | V                |
| $T_{VJ}$       |                                                    |                                  | -40...+125      | °C               |
| $T_{VJM}$      |                                                    |                                  | 125             | °C               |
| $T_{stg}$      |                                                    |                                  | -40...+125      | °C               |
| $V_{ISOL}$     | 50/60 HZ, RMS                                      | t = 1 min                        | 2500            | V~               |
|                | $I_{ISOL} \leq 1\text{ mA}$                        | t = 1 s                          | 3000            | V~               |
| $M_d$          | Mounting torque                                    | (M6)                             | 5               | Nm               |
|                | Terminal connection torque                         | (M6)                             | 5               | Nm               |
| Weight         | typ.                                               |                                  | 270             | g                |



Characteristic picture

### Features

- Package with screw terminals
- Isolation voltage 3000V~
- Planar glasspassivated chips
- UL registered, E 148688

### Applications

- Heat and temperature control for industrial furnaces and chemical processes
- Lighting control
- Motor control
- Power converter

### Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling capability
- High power density

| Symbol                          | Test Conditions                                                                                            | Characteristic Values                 |       |                  |    |
|---------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------|-------|------------------|----|
| I <sub>D</sub> , I <sub>R</sub> | T <sub>VJ</sub> = T <sub>VJM</sub> ; V <sub>R</sub> = V <sub>RRM</sub> ; V <sub>D</sub> = V <sub>DRM</sub> | ≤                                     | 5     | mA               |    |
| V <sub>T</sub>                  | I <sub>T</sub> = 300A; T <sub>VJ</sub> = 25°C                                                              | ≤                                     | 1.74  | V                |    |
| V <sub>TO</sub>                 | For power-loss calculations only (T <sub>VJ</sub> =T <sub>VJmax</sub> )                                    |                                       | 0.85  | V                |    |
| r <sub>T</sub>                  |                                                                                                            |                                       | 3.2   | mΩ               |    |
| V <sub>GT</sub>                 | V <sub>D</sub> = 6V                                                                                        | T <sub>VJ</sub> = 25°C                | ≤     | 2.5              | V  |
|                                 |                                                                                                            | T <sub>VJ</sub> = -40°C               | ≤     | 2.6              | V  |
| I <sub>GT</sub>                 | V <sub>D</sub> = 6V                                                                                        | T <sub>VJ</sub> = 25°C                | ≤     | 150              | mA |
|                                 |                                                                                                            | T <sub>VJ</sub> = -40°C               | ≤     | 200              | mA |
| V <sub>GD</sub>                 | T <sub>VJ</sub> = T <sub>VJM</sub>                                                                         | V <sub>D</sub> = 2/3 V <sub>DRM</sub> | ≤     | 0.2              | V  |
| I <sub>GD</sub>                 |                                                                                                            |                                       | ≤     | 10               | mA |
| I <sub>L</sub>                  | T <sub>VJ</sub> = 25°C; t <sub>P</sub> = 10μs                                                              | ≤                                     | 450   | mA               |    |
|                                 | I <sub>G</sub> = 0.45A; di <sub>G</sub> /dt = 0.45 A/μs                                                    |                                       |       |                  |    |
| I <sub>H</sub>                  | T <sub>VJ</sub> = 25°C; V <sub>D</sub> = 6V; R <sub>GK</sub> = ∞                                           | ≤                                     | 200   | mA               |    |
| t <sub>gd</sub>                 | T <sub>VJ</sub> = 25°C; V <sub>D</sub> = ½ V <sub>DRM</sub>                                                | ≤                                     | 2     | μs               |    |
|                                 | I <sub>G</sub> = 0.45A; di <sub>G</sub> /dt = 0.45A/μs                                                     |                                       |       |                  |    |
| t <sub>q</sub>                  | T <sub>VJ</sub> = T <sub>VJM</sub> ; I <sub>T</sub> = 150A, t <sub>P</sub> = 200μs; -di/dt=10A/μs          |                                       | 185   | μs               |    |
|                                 | V <sub>R</sub> = 100V; dv/dt = 20 V/μs; V <sub>D</sub> = 2/3 V <sub>DRM</sub>                              |                                       |       |                  |    |
| R <sub>thJC</sub>               | per thyristor; sine 180°el                                                                                 |                                       | 0.3   | K/W              |    |
|                                 | per bridge                                                                                                 |                                       | 0.1   | K/W              |    |
| R <sub>thJK</sub>               | per thyristor; sine 180°el                                                                                 |                                       | 0.5   | K/W              |    |
|                                 | per bridge                                                                                                 |                                       | 0.167 | K/W              |    |
| d <sub>s</sub>                  | Creeping distance on surface                                                                               |                                       | 10    | mm               |    |
| d <sub>A</sub>                  | Creeping distance in air                                                                                   |                                       | 9.4   | mm               |    |
| a                               | max. allowable acceleration                                                                                |                                       | 50    | m/s <sup>2</sup> |    |

## Package, style and outline

Dimensions in mm (1 mm=0.0394")

