

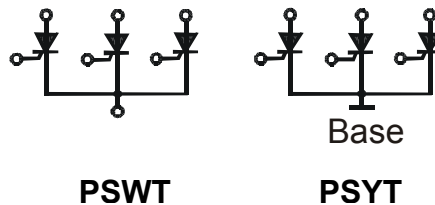
Thyristor Modules

PSWT 160
PSYT 160

$I_{TRMS} = 180 \text{ A}$
 $V_{RRM} = 800 - 1600 \text{ V}$

Preliminary Data Sheet

| V_{RSM} V_{DSM} | V_{RRM} V_{DRM} | Type | Type |
|------------------------|------------------------|-------------|-------------|
| 900 | 800 | PSWT 160/08 | PSYT 160/08 |
| 1300 | 1200 | PSWT 160/12 | PSYT 160/12 |
| 1500 | 1400 | PSWT 160/14 | PSYT 160/14 |
| 1700 | 1600 | PSWT 160/16 | PSYT 160/16 |



| 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} | $T_{VJ} = 45^\circ\text{C}$ | $t = 10 \text{ ms}$ (50Hz), sine 1700 A |
| | $V_R = 0$ | $t = 8.3 \text{ ms}$ (60Hz), sine 1800 A |
| | $T_{VJ} = T_{VJM}$ | $t = 10 \text{ ms}$ (50Hz), sine 1540 A |
| | $V_R = 0$ | $t = 8.3 \text{ ms}$ (60Hz), sine 1640 A |
| $\int i^2 dt$ | $T_{VJ} = 45^\circ\text{C}$ | $t = 10 \text{ ms}$ (50Hz), sine 14450 A ² s |
| | $V_R = 0$ | $t = 8.3 \text{ ms}$ (60Hz), sine 13500 A ² s |
| | $T_{VJ} = T_{VJM}$ | $t = 10 \text{ ms}$ (50Hz), sine 11850 A ² s |
| | $V_R = 0$ | $t = 8.3 \text{ ms}$ (60Hz), sine 11300 A ² s |
| $(di/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ | repetitive, $I_T = 250 \text{ A}$ 150 A/ μs |
| | $f = 50\text{Hz}$, $t_p = 200\mu\text{s}$ | |
| | $V_D = 2/3 V_{DRM}$ | |
| | $I_G = 0.45 \text{ A}$ | non repetitive; $I_T = I_{TAVM}$ 500 A/ μs |
| | $di_G / dt = 0.45 \text{ A}/\mu\text{s}$ | |
| $(dv/dt)_{cr}$ | $T_{VJ} = T_{VJM}$; | $V_{DR} = 2/3 V_{DRM}$ 1000 V/ μs |
| | $R_{GK} = \infty$; 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 | $t = 1 \text{ min}$ 2500 V~ |
| | $I_{ISOL} \leq 1 \text{ mA}$ | $t = 1 \text{ s}$ 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_D, I_R | $T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$ | ≤ 5 mA | |
| V_T | $I_T = 300A; T_{VJ} = 25^\circ C$ | ≤ 1.74 V | |
| V_{TO} | For power-loss calculations only ($T_{VJ}=T_{VJmax}$) | 0.85 V | |
| r_T | | 3.2 m Ω | |
| V_{GT} | $V_D = 6V$ | $T_{VJ} = 25^\circ C$ | ≤ 2.5 V |
| | | $T_{VJ} = -40^\circ C$ | ≤ 2.6 V |
| I_{GT} | $V_D = 6V$ | $T_{VJ} = 25^\circ C$ | ≤ 150 mA |
| | | $T_{VJ} = -40^\circ C$ | ≤ 200 mA |
| V_{GD} | $T_{VJ} = T_{VJM}$ | $V_D = 2/3 V_{DRM}$ | ≤ 0.2 V |
| I_{GD} | | | ≤ 10 mA |
| I_L | $T_{VJ} = 25^\circ C; t_p = 10\mu s$ | ≤ 450 mA | |
| | $I_G = 0.45A; di_G/dt = 0.45 A/\mu s$ | | |
| I_H | $T_{VJ} = 25^\circ C; V_D = 6V; R_{GK} = \infty$ | ≤ 200 mA | |
| t_{gd} | $T_{VJ} = 25^\circ C; V_D = 1/2 V_{DRM}$ | ≤ 2 μs | |
| | $I_G = 0.45A; di_G/dt = 0.45A/\mu s$ | | |
| t_q | $T_{VJ} = T_{VJM}; I_T = 150A; t_p = 200\mu s; -di/dt=10A/\mu s$ | 185 μs | |
| | $V_R = 100V; dv/dt = 20 V/\mu s; V_D = 2/3 V_{DRM}$ | | |
| R_{thJC} | per thyristor; sine 180°el | 0.3 K/W | |
| | per bridge | 0.1 K/W | |
| R_{thJK} | per thyristor; sine 180°el | 0.5 K/W | |
| | per bridge | 0.167 K/W | |
| d_s | Creeping distance on surface | 10 mm | |
| d_A | Creeping distance in air | 9.4 mm | |
| a | max. allowable acceleration | 50 m/s ² | |

Package, style and outline

Dimensions in mm (1 mm=0.0394")

