

T720 (Outline Drawing)

Ordering Information:

Select the complete eight digit part number you desire from the table, i.e. T7202455 is a 2400 Volt, 550 Ampere Phase Control SCR.

| Type | Voltage | | Current | |
|------|------------------|-----------------------|--------------------|------|
| | V _{DRM} | V _{RRM} Code | I _{T(av)} | Code |
| T720 | 200 | 02 | 450 | 45 |
| | 600 | 06 | 550 | 55 |
| | 800 | 08 | | |
| | 1000 | 10 | | |
| | 1200 | 12 | | |
| | 1400 | 14 | | |
| | 1600 | 16 | | |
| | 1800 | 18 | | |
| | 2000 | 20 | | |
| | 2200 | 22 | | |
| 2400 | 24 | | | |



T720 Phase Control SCR
 450-550 Amperes, 2400 Volts

Description:

Powerex Silicon Controlled Rectifiers (SCR) are designed for phase control applications. These are all-diffused, Press-Pak (Pow-R-Disc) devices employing the field-proven amplifying (di/namic) gate.

Features:

- Low On-State Voltage
- High di/dt
- High dv/dt
- Hermetic Packaging
- Excellent Surge and I²t Ratings

Applications:

- Power Supplies
- Battery Chargers
- Motor Control
- VAR Generators



Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

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Absolute Maximum Ratings

| | Symbol | T720 _ _ 45 | T720 _ _ 55 | Units |
|---|--------------------|--------------|--------------|--------------------|
| Maximum Blocking Voltage | V_{DRM}, V_{RRM} | 2400 | 2400 | Volts |
| RMS On-State Current | $I_{T(RMS)}$ | 700 | 850 | Amperes |
| Average On-State Current | $I_{T(av)}$ | 450 | 550 | Amperes |
| Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz) | I_{TSM} | 8400 | 10,000 | Amperes |
| Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz) | I_{TSM} | 7650 | 9125 | Amperes |
| Critical Rate-of-Rise of On-State Current (Non-Repetitive) | di/dt | 600 | 600 | Amperes/ μ s |
| Critical Rate-of-Rise of On-State Current (Repetitive) | di/dt | 150 | 150 | Amperes/ μ s |
| I^2t (for Fusing), 8.3 milliseconds | I^2t | 295,000 | 416,000 | A ² sec |
| Peak Gate Power Dissipation | P_{GM} | 16 | 16 | Watts |
| Average Gate Power Dissipation | $P_{G(av)}$ | 3 | 3 | Watts |
| Storage Temperature | T_{STG} | -40 to 150 | -40 to 150 | °C |
| Operating Temperature | T_J | -40 to 125 | -40 to 125 | °C |
| Mounting Force | | 2000 to 2400 | 2000 to 2400 | lb. |
| Mounting Force | | 900 to 1090 | 900 to 1090 | kg |

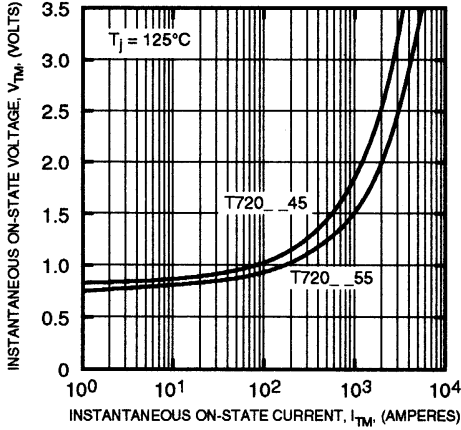
Electrical and Thermal Characteristics

| | Symbol | Test Conditions | T720 _ _ 45 | T720 _ _ 55 | Units |
|---|-----------------|---|-------------|-------------|-------------------|
| Current—Conducting State Maximums | | | | | |
| Peak On-State Voltage | V_{TM} | $I_{TM} = 625A, T_J = 25^\circ C$ | 1.60 | 1.40 | Volts |
| T720 | | | | | |
| Voltage—Blocking State Maximums | | | | | |
| Forward Leakage, Peak | I_{DRM} | $T_J = 125^\circ C, V_{DRM} = \text{rated}$ | 30 | | mA |
| Reverse Leakage, Peak | I_{RRM} | $T_J = 125^\circ C, V_{RRM} = \text{rated}$ | 30 | | mA |
| Switching | | | | | |
| Typical Turn-Off Time | t_q | $I_T = 250A, T_J = 125^\circ C,$ $di_r/dt = 25A/\mu\text{sec},$ reapplied $dv/dt = 20V/\mu\text{sec}$ linear to $0.8V_{DRM}$ | 150 | | μsec |
| Typical Turn-On Time | t_{on} | $I_T = 100A, V_D = 100V$ | 7 | | μsec |
| Min. Critical dv/dt exponential to V_{DRM} | dv/dt | $T_J = 125^\circ C$ | 300 | | $V/\mu\text{sec}$ |
| Thermal | | | | | |
| Maximum Thermal Resistance, double sided cooling | | | | | |
| Junction to Case | $R_{\theta JC}$ | | 0.06 | | °C/Watt |
| Case to Sink, Lubricated | $R_{\theta CS}$ | | 0.02 | | °C/Watt |
| Gate—Maximum Parameters | | | | | |
| Gate Current to Trigger | I_{GT} | $T_J = 25^\circ C, V_D = 12V$ | 150 | | mA |
| Gate Voltage to Trigger | V_{GT} | $T_J = 25^\circ C, V_D = 12V$ | 3 | | Volts |
| Non-Triggering Gate Voltage | V_{GDM} | $T_J = 125^\circ C, \text{rated } V_{DRM}$ | 0.15 | | Volts |
| Peak Forward Gate Current | I_{GTM} | | 4 | | Amperes |
| Peak Reverse Gate Voltage | V_{GRM} | | 5 | | Volts |

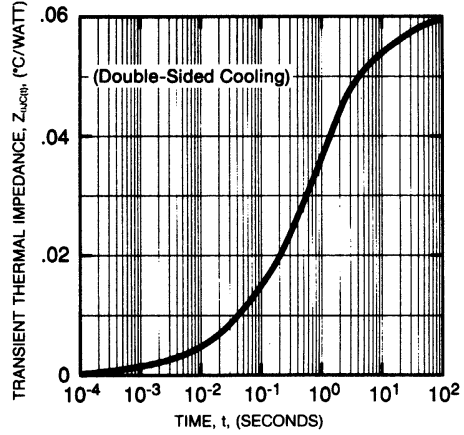
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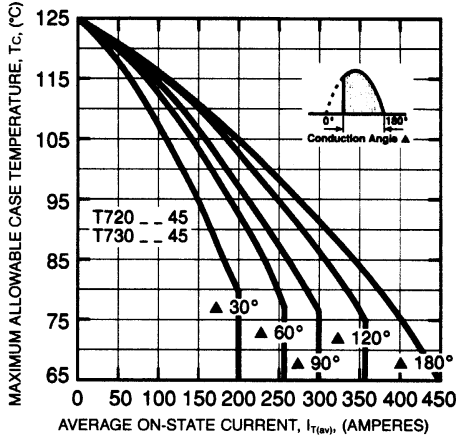
MAXIMUM ON-STATE CHARACTERISTICS



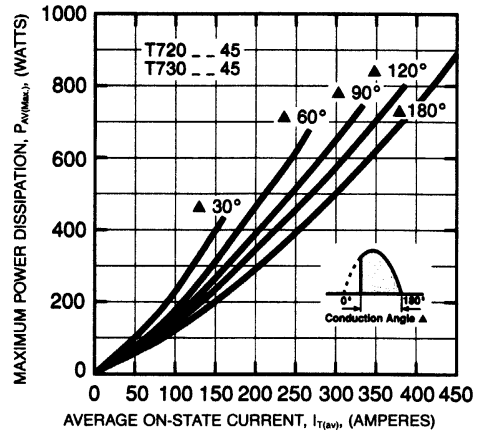
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



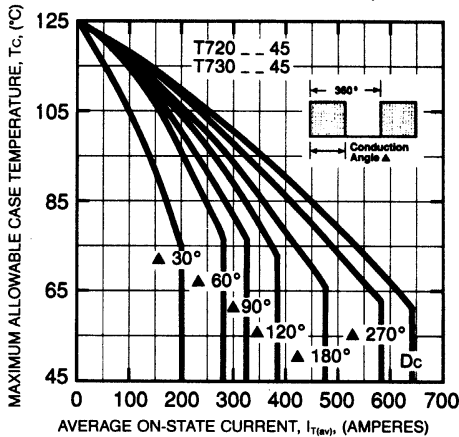
MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)



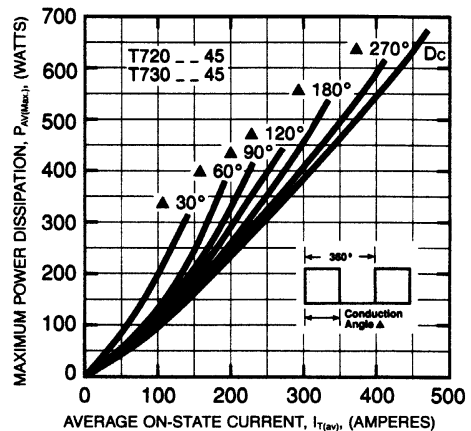
MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)



MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



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