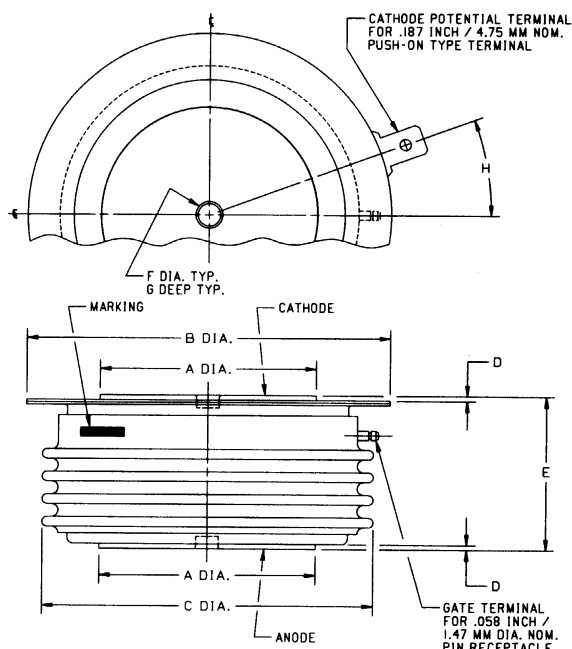


Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272  
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### Phase Control SCR 450-550 Amperes 2400 Volts



CASE NUMBER T72  
NOMINAL DIMENSIONS  
STRIKE DISTANCE : .58 INCH / 14.7 MM MIN.  
CREEPAGE DISTANCE : 1.00 INCH / 25.4 MM MIN.

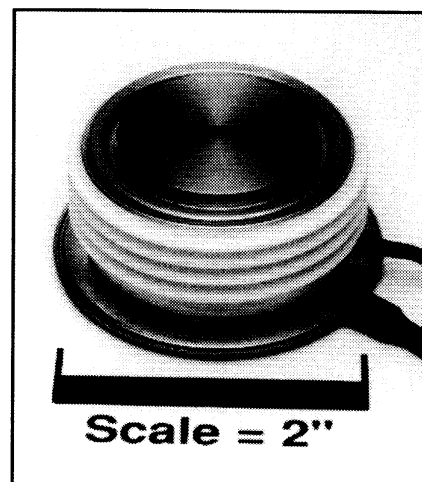
| SYM.   | A    | B    | C    | D    | E           | F    | G    | H   |
|--------|------|------|------|------|-------------|------|------|-----|
| INCHES | 1.34 | 2.28 | 2.05 | .030 | 1.020/1.060 | .140 | .078 | 20* |
| MM     | 34.0 | 57.9 | 52.1 | 0.76 | 25.91/26.92 | 3.56 | 1.98 | 20* |

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 <sub>DRM</sub><br>V <sub>RRM</sub> | Code | I <sub>T(av)</sub> | 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 I<sup>2</sup>t Ratings

#### Applications:

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



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**T720**  
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### Absolute Maximum Ratings

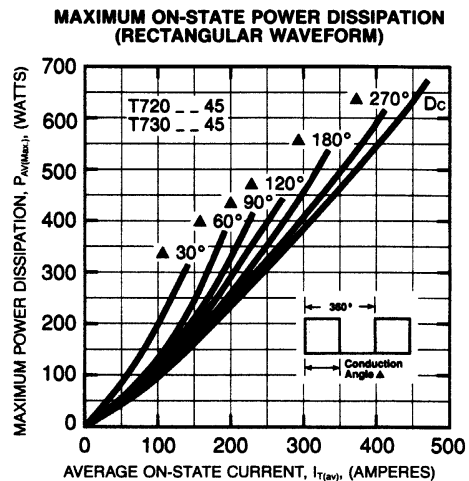
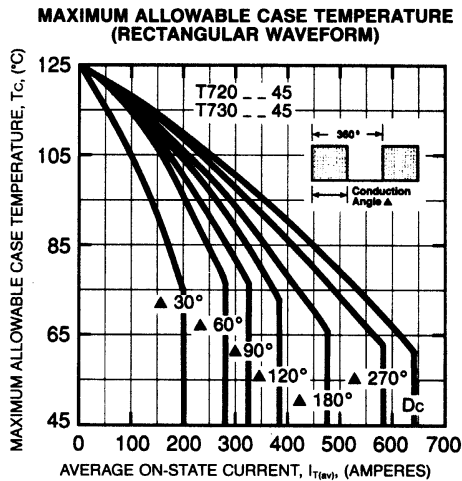
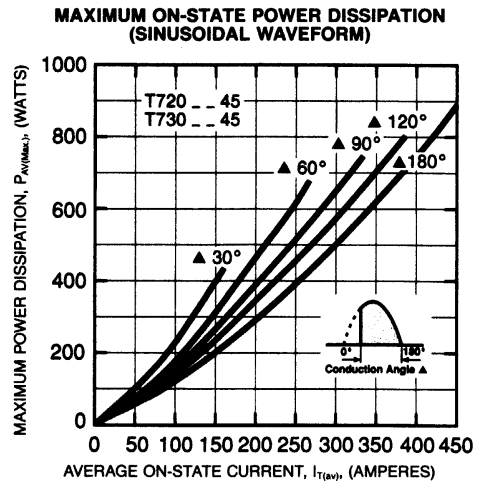
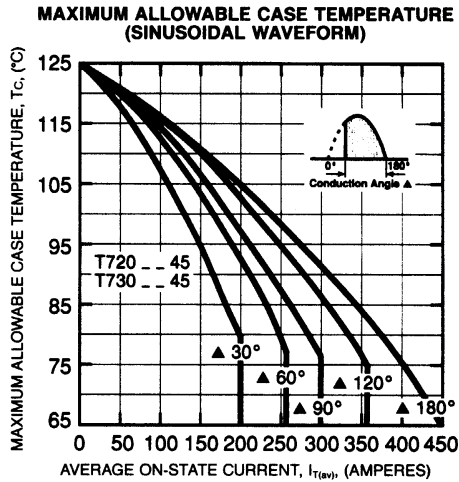
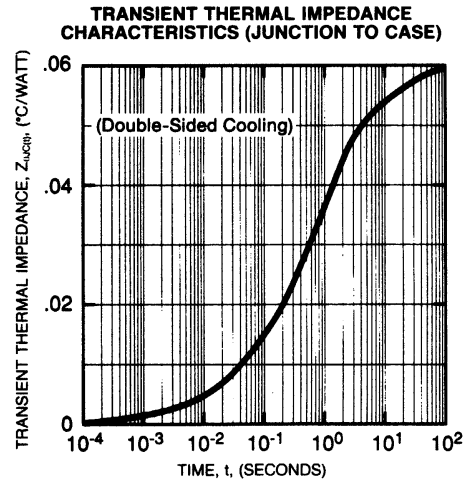
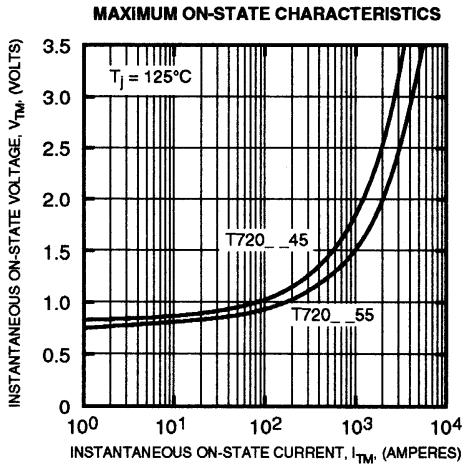
|                                                               | Symbol             | T720 _ _ 45  | T720 _ _ 55  | Units            |
|---------------------------------------------------------------|--------------------|--------------|--------------|------------------|
| Maximum Blocking Voltage                                      | $V_{DRM}, V_{RRM}$ | 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/ $\mu$ s |
| Critical Rate-of-Rise of On-State Current (Repetitive)        | $di/dt$            | 150          | 150          | Amperes/ $\mu$ s |
| $I^2t$ (for Fusing), 8.3 milliseconds                         | $I^2t$             | 295,000      | 416,000      | $A^2sec$         |
| 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   | $^{\circ}C$      |
| Operating Temperature                                         | $T_J$              | -40 to 125   | -40 to 125   | $^{\circ}C$      |
| 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                   |
|-------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------------------|
| <b>Current—Conducting State Maximums</b>                                |                 |                                                                                                                                      |             |             |                         |
| Peak On-State Voltage                                                   | $V_{TM}$        | $I_{TM} = 625A, T_J = 25^{\circ}C$                                                                                                   | 1.60        | 1.40        | Volts                   |
| <b>Voltage—Blocking State Maximums</b>                                  |                 |                                                                                                                                      |             |             |                         |
| 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                      |
| <b>Switching</b>                                                        |                 |                                                                                                                                      |             |             |                         |
| Typical Turn-Off Time                                                   | $t_q$           | $I_T = 250A, T_J = 125^{\circ}C,$<br>$di/dt = 25A/\mu\text{sec},$<br>reapplied $dv/dt = 20V/\mu\text{sec}$<br>linear to $0.8V_{DRM}$ | 150         |             | $\mu\text{sec}$         |
| Typical Turn-On Time                                                    | $t_{on}$        | $I_T = 100A, V_D = 100V$                                                                                                             | 7           |             | $\mu\text{sec}$         |
| Min. Critical $dv/dt$ exponential to $V_{DRM}$                          | $dv/dt$         | $T_J = 125^{\circ}C$                                                                                                                 | 300         |             | $V/\mu\text{sec}$       |
| <b>Thermal</b>                                                          |                 |                                                                                                                                      |             |             |                         |
| Maximum Thermal Resistance,<br>double sided cooling<br>Junction to Case | $R_{\theta JC}$ |                                                                                                                                      | 0.06        |             | $^{\circ}C/\text{Watt}$ |
| Case to Sink, Lubricated                                                | $R_{\theta CS}$ |                                                                                                                                      | 0.02        |             | $^{\circ}C/\text{Watt}$ |
| <b>Gate—Maximum Parameters</b>                                          |                 |                                                                                                                                      |             |             |                         |
| 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                   |

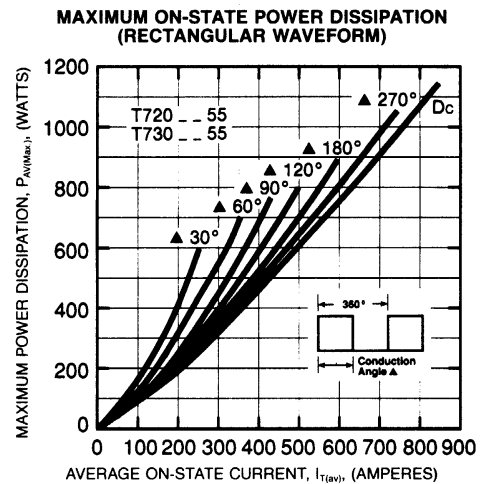
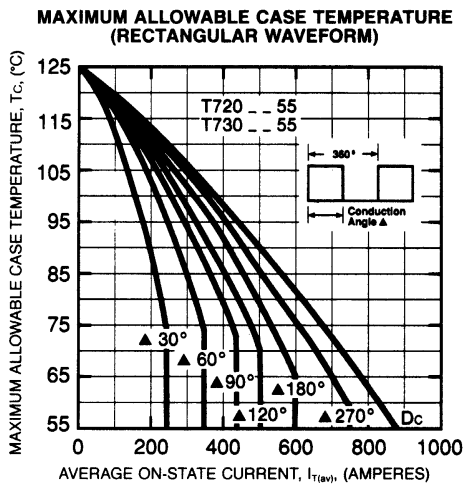
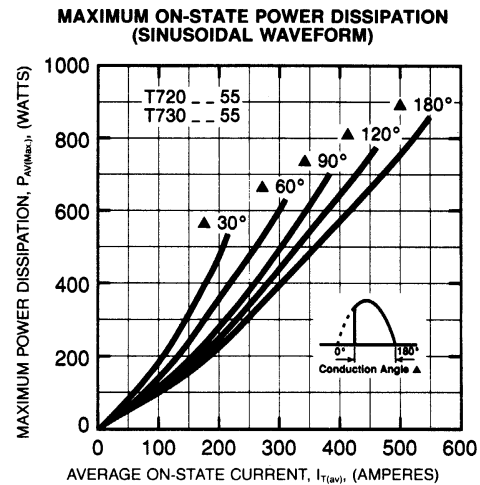
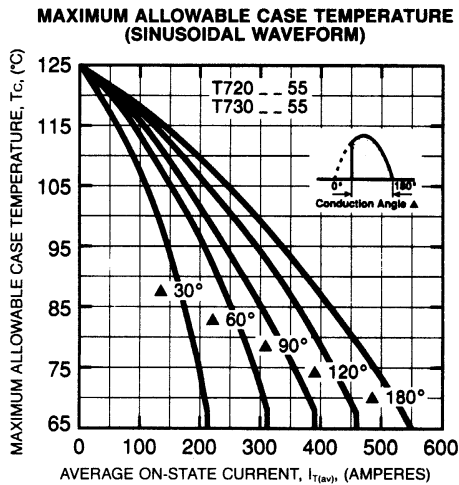
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