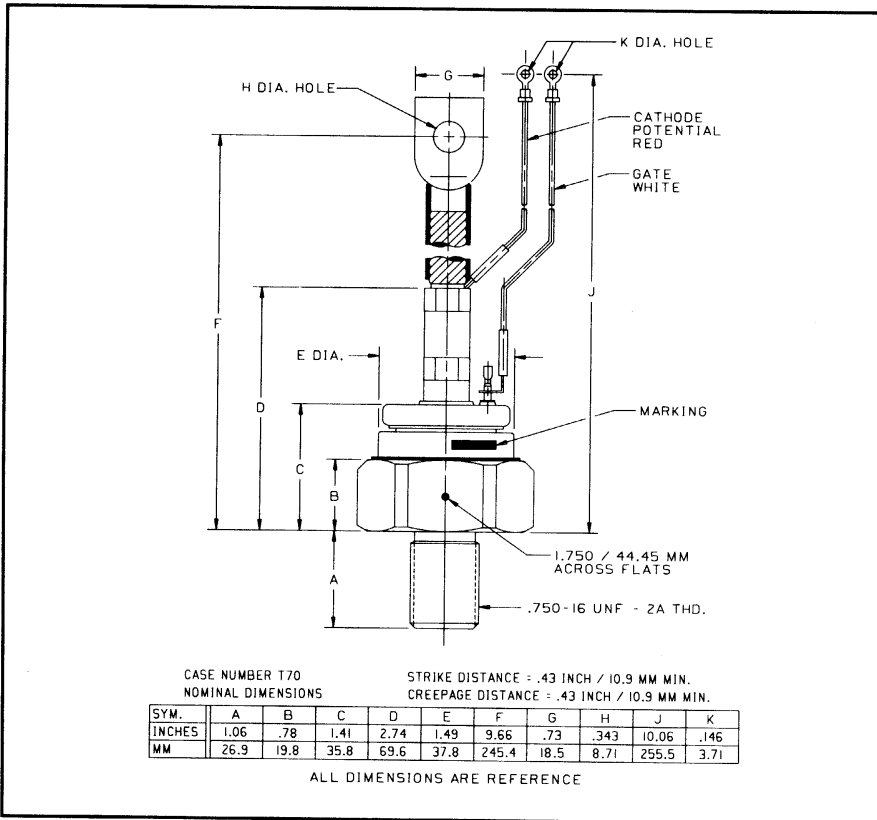
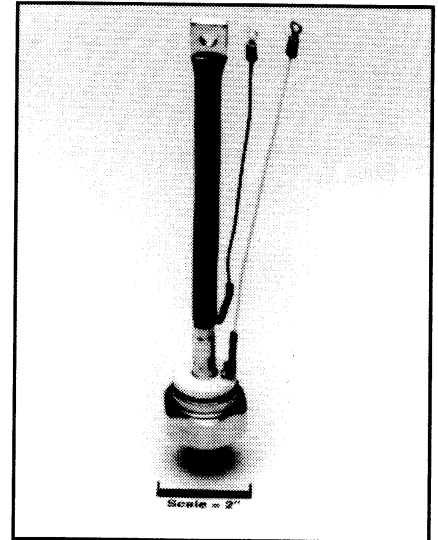


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 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

**Phase Control SCR**  
 300-350 Amperes  
 2400 Volts



T700 (Outline Drawing)



**T700 Phase Control SCR**  
 300-350 Amperes, 2400 Volts

### Ordering Information:

Select the complete eight digit part number you desire from the table, i.e. T7002435 is a 2400 Volt, 350 Ampere Phase Control SCR.

| Type | Voltage   |      | Current     |      |
|------|-----------|------|-------------|------|
|      | $V_{DRM}$ | Code | $I_{T(av)}$ | Code |
| T700 | 200       | 02   | 300         | 30   |
|      | 400       | 04   | 350         | 35   |
|      | 600       | 06   |             |      |
|      | 800       | 08   |             |      |
|      | 1000      | 10   |             |      |
|      | 1200      | 12   |             |      |
|      | 1400      | 14   |             |      |
|      | 1600      | 16   |             |      |
|      | 1800      | 18   |             |      |
|      | 2000      | 20   |             |      |
| 2200 | 22        |      |             |      |
| 2400 | 24        |      |             |      |

### Description:

Powerex Silicon Controlled Rectifiers (SCR) are designed for phase control applications. These are all-diffused, compression bonded encapsulated (CBE) 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  $I^2t$  Ratings

### Applications:

- Power Supplies
- Battery Chargers
- Motor Control



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**T700**  
**Phase Control SCR**  
 300-350 Amperes, 2400 Volts

**Absolute Maximum Ratings**

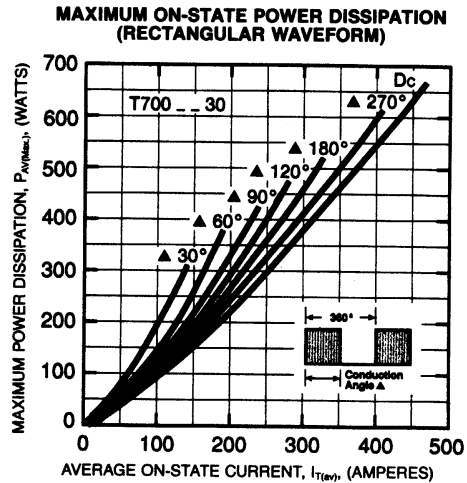
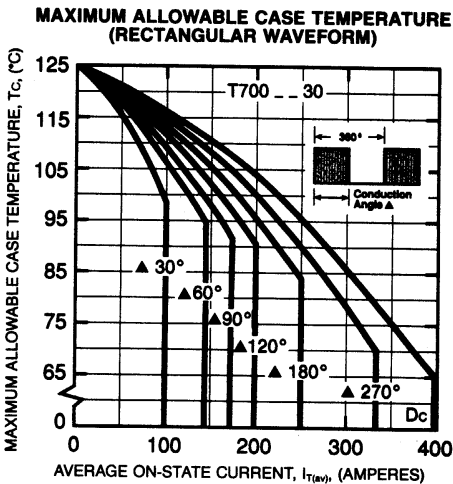
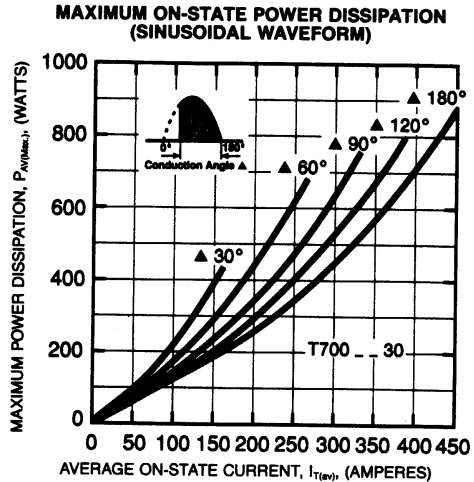
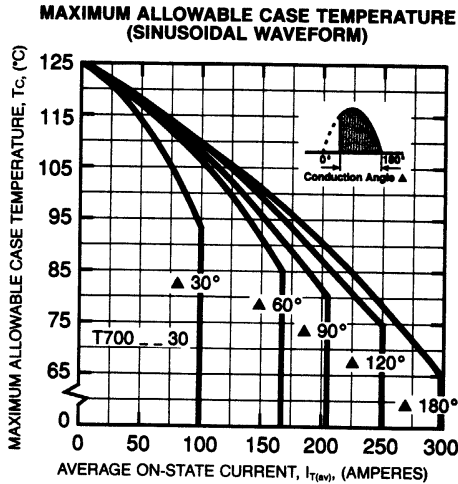
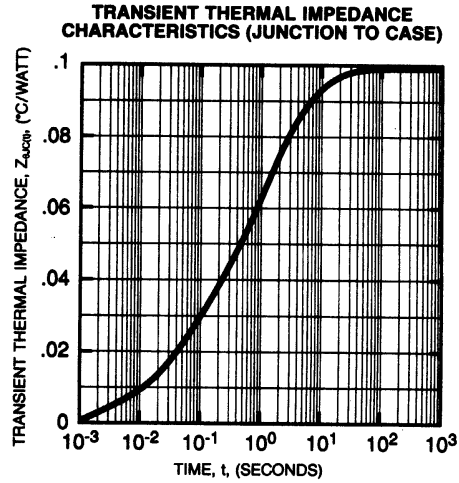
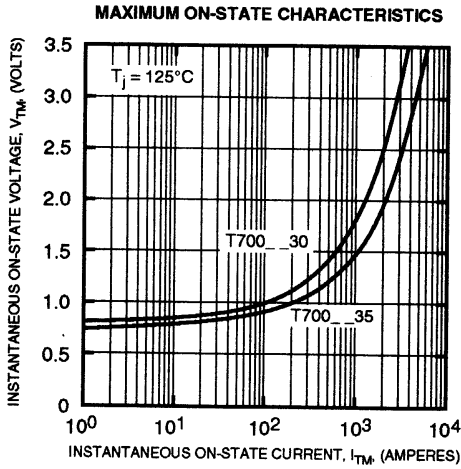
|   | Symbol       | T700 _ _ 30 | T700 _ _ 35 | Units              |
|---|--------------|-------------|-------------|--------------------|
| RMS On-State Current  | $I_{T(RMS)}$ | 470         | 550         | Amperes            |
| Average On-State Current                                      | $I_{T(av)}$  | 300         | 350         | 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) | $I_{TSM}$    | 7700        | 9100        | Amperes            |
| Critical Rate-of-Rise of On-State Current (Non-Repetitive)    | di/dt        | 800         | 800         | 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 <sup>2</sup> 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 Torque   |              | 360         | 360         | in.-lb.            |
| Mounting Torque (Lubricated)                                  |              | 400         | 400         | kg-cm              |

**Electrical and Thermal Characteristics**

|  | Symbol          | Test Conditions   | T700 _ _ 30 | T700 _ _ 35 | Units              |
|--|-----------------|---|-------------|-------------|--------------------|
| <b>Current—Conducting State Maximums</b>       |                 |   |             |             |                    |
| Peak On-State Voltage                          | $V_{TM}$        | $T_J = 25^\circ\text{C}, I_{TM} = 625\text{A}$  | 1.60        | 1.40        | Volts              |
| <b>T700</b>                                    |                 |   |             |             |                    |
| <b>Voltage—Blocking State Maximums</b>         |                 |   |             |             |                    |
| Forward Leakage, Peak                          | $I_{DRM}$       | $T_J = 125^\circ\text{C}, V_{DRM} = \text{rated}$   | 30          |             | mA                 |
| Reverse Leakage, Peak                          | $I_{RRM}$       | $T_J = 125^\circ\text{C}, V_{RRM} = \text{rated}$   | 30          |             | mA                 |
| <b>Switching</b>                               |                 |   |             |             |                    |
| Typical Turn-Off Time                          | $t_q$           | $I_T = 250\text{A}, di_r/dt = 25\text{A}/\mu\text{sec}, \text{reapplied}$<br>$dv/dt = 20\text{V}/\mu\text{sec linear}$<br>$\text{to } 0.8 V_{DRM}, T_J = 125^\circ\text{C}$ | 150         |             | $\mu\text{sec}$    |
| Typical Turn-On Time                           | $t_{on}$        | $I_T = 100\text{A}, V_D = 100\text{V}$  | 7           |             | $\mu\text{sec}$    |
| Min. Critical dv/dt exponential to $V_{DRM}$   | dv/dt           | $T_J = 125^\circ\text{C}$   | 300         |             | V/ $\mu\text{sec}$ |
| <b>Thermal</b>                                 |                 |   |             |             |                    |
| Maximum Thermal Resistance<br>Junction to Case | $R_{\theta JC}$ |   | 0.10        |             | °C/Watt            |
| Case to Sink, Lubricated                       | $R_{\theta CS}$ |   | 0.05        |             | °C/Watt            |
| <b>Gate—Maximum Parameters</b>                 |                 |   |             |             |                    |
| Gate Current to Trigger                        | $I_{GT}$        | $T_J = 25^\circ\text{C}, V_D = 12\text{V}$  | 150         |             | mA                 |
| Gate Voltage to Trigger                        | $V_{GT}$        | $T_J = 25^\circ\text{C}, V_D = 12\text{V}$  | 3           |             | Volts              |
| Non-Triggering Gate Voltage                    | $V_{GDM}$       | $T_J = 125^\circ\text{C}, V_{DRM} = \text{rated}$   | 0.15        |             | Volts              |
| Peak Forward Gate Current                      | $I_{GTM}$       |   | 4           |             | Amperes            |
| Peak Reverse Gate Voltage                      | $V_{GRM}$       |   | 5           |             | Volts              |

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