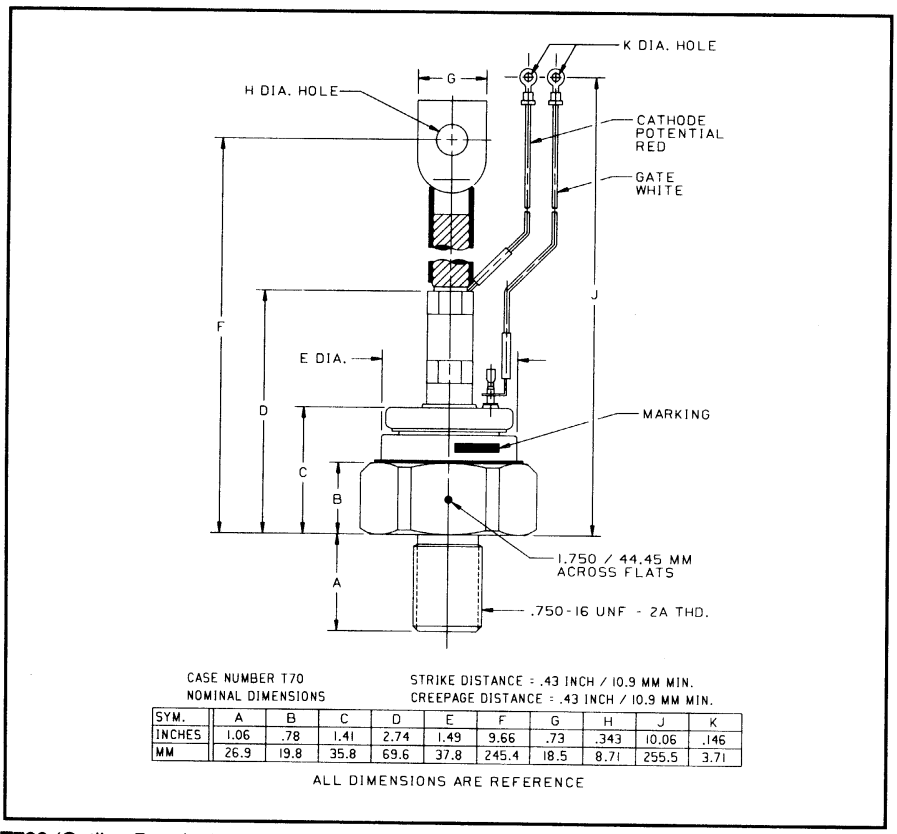
*Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272*
*Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14*

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



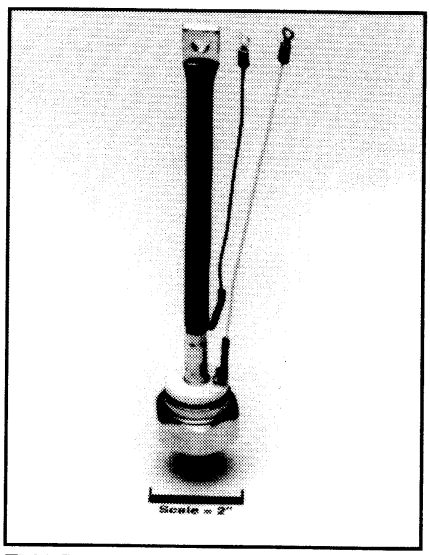

CASE NUMBER T70
NOMINAL DIMENSIONS

STRIKE DISTANCE = .43 INCH / 10.9 MM MIN.
CREEPAGE DISTANCE = .43 INCH / 10.9 MM MIN.

| SYM. | A | B | C | D | E | F | G | H | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| INCHES | 1.06 | .78 | 1.41 | 2.74 | 1.49 | 9.66 | .73 | .343 | 10.06 | .146 |
| MM | 26.9 | 19.8 | 35.8 | 69.6 | 37.8 | 245.4 | 18.5 | 8.71 | 255.5 | 3.71 |

ALL DIMENSIONS ARE REFERENCE

**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 | |
|---|---|---|---|---|
| | $V_{DRM}$ $V_{RRM}$ | 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/μs |
| Critical Rate-of-Rise of On-State Current (Repetitive) | di/dt | 150 | 150 | Amperes/μs |
| $I^2t$ (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 Torque | | 360 | 360 | in.-lb. |
| Mounting Torque (Lubricated) | | 400 | 400 | kg-cm |

## Electrical and Thermal Characteristics

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

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***T700***
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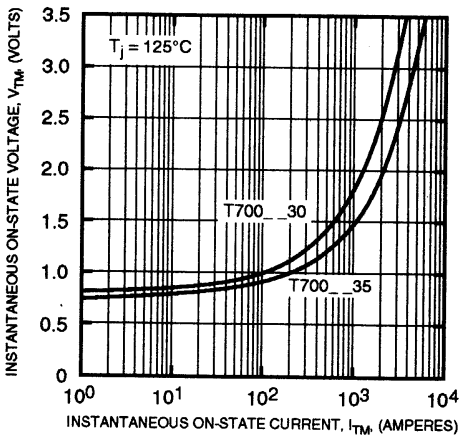
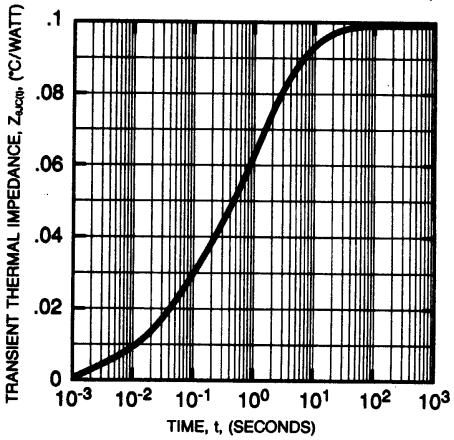
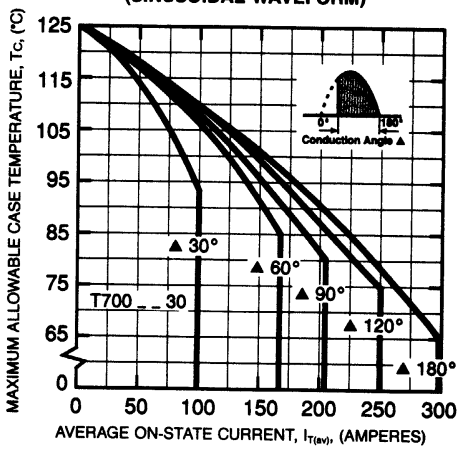
**MAXIMUM ON-STATE CHARACTERISTICS**



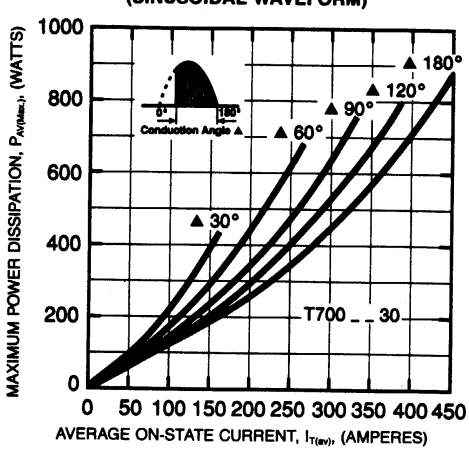

**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)**



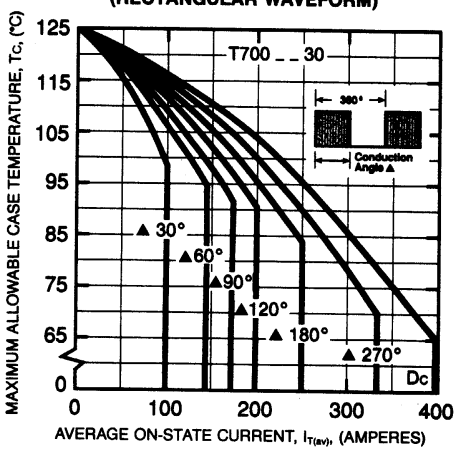

**MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)**



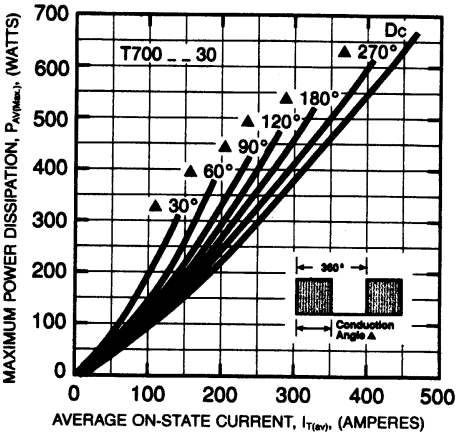

**MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)**




**MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)**




**MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)**



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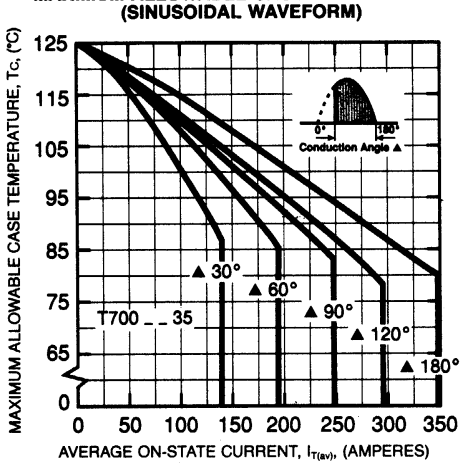
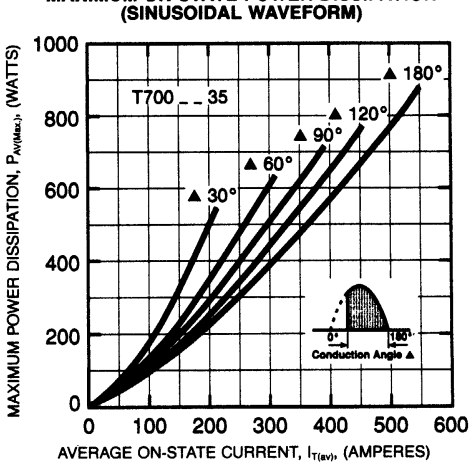
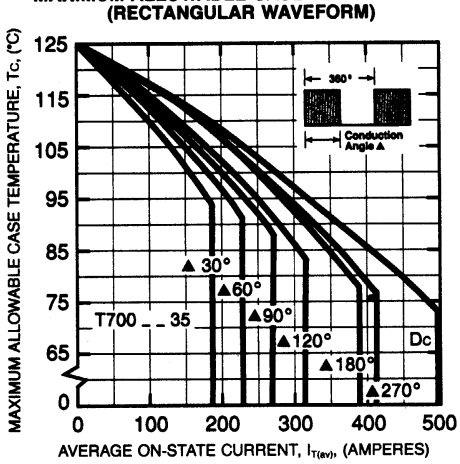



**MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)**




**MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)**




**MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)**