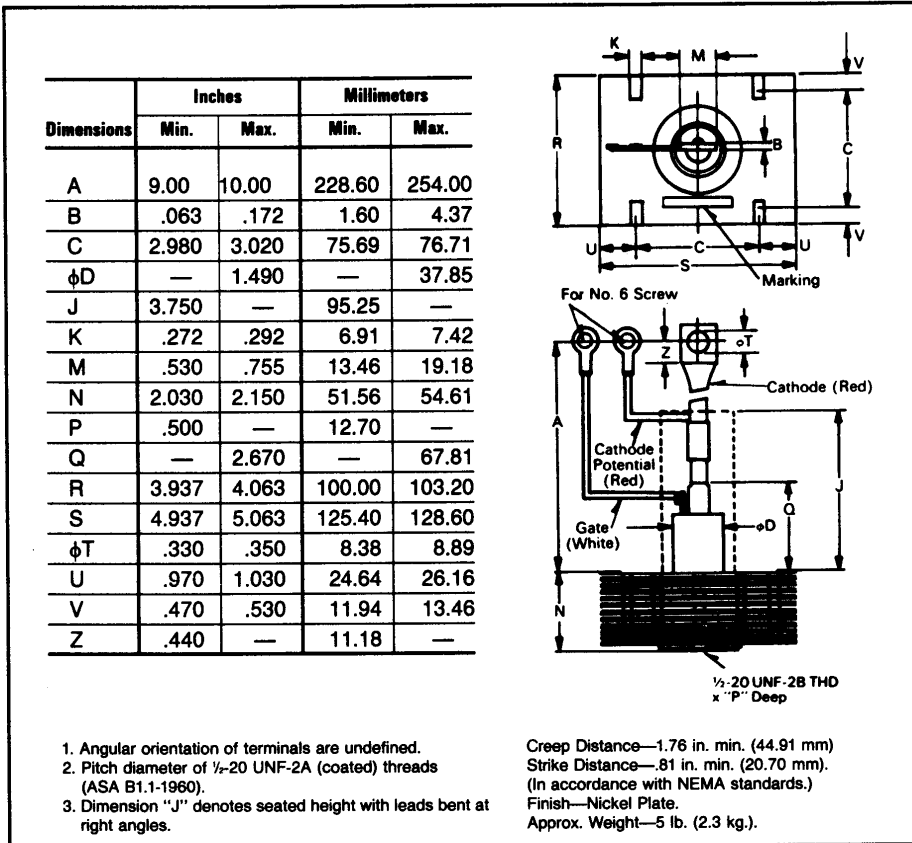
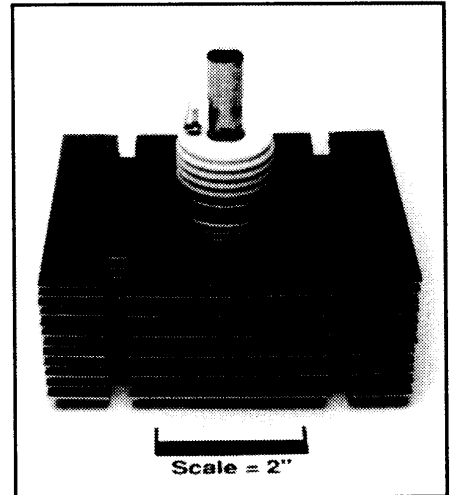


Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272  
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

**Phase Control SCR**  
 300 Amperes Average  
 2000 Volts



T760 (Outline Drawing)



T760 Phase Control SCR  
 300 Amperes Average, 2000 Volts  
 (Flex Lead Not Shown)

**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/damic) gate.

**Features:**

- Low On-State Voltage
- High di/dt
- High dv/dt
- Hermetic Packaging
- Excellent Surge and I<sup>2</sup>t Ratings
- Integral Heat Sink

**Applications:**

- Power Supplies
- Battery Chargers
- Motor Control

**Ordering Information:**

Select the complete eight digit part number you desire from the table, i.e. T7602030 is a 2000 Volt, 300 Ampere Phase Control SCR.

Type	Voltage		Current	
	V <sub>DRM</sub>	V <sub>RRM</sub> Code	I <sub>T(av)</sub>	Code
T760	200	02	300	30
	400	04		
	600	06		
	800	08		
	1000	10		
	1200	12		
	1400	14		
	1600	16		
1800	18			
2000	20			



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**T760**  
**Phase Control SCR**  
300 Amperes, 2000 Volts

### Absolute Maximum Ratings

	Symbol	T760	Units
RMS On-State Current	$I_{T(RMS)}$	470	Amperes
Average On-State Current	$I_{T(av)}$	300	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)	$I_{TSM}$	8400	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	$I_{TSM}$	7650	Amperes
Critical Rate-of-Rise of On-State Current (Non-Repetitive)	di/dt	600	Amperes/ $\mu$ s
Critical Rate-of-Rise of On-State Current (Repetitive)	di/dt	150	Amperes/ $\mu$ s
$I^2t$ (for Fusing), 8.3 milliseconds	$I^2t$	295,000	A <sup>2</sup> sec
Peak Gate Power Dissipation	$P_{GM}$	16	Watts
Average Gate Power Dissipation	$P_{G(av)}$	3	Watts
Storage Temperature	$T_{STG}$	-40 to 150	°C
Operating Temperature	$T_J$	-40 to 125	°C



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T760  
 Phase Control SCR  
 300 Amperes, 2000 Volts

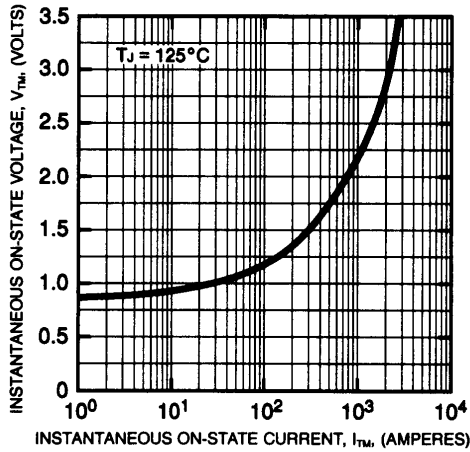
**Electrical and Thermal Characteristics**

Characteristics	Symbol	Test Conditions	T760	Units
<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>Current—Conducting State Maximums</b>				
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 3000\text{A}, T_J = 25^\circ\text{C}$	3.30	Volts
<b>Switching</b>				
Typical Turn-Off Time	$t_q$	$I_T = 250\text{A}, T_J = 125^\circ\text{C},$ $di_R/dt = 25\text{A}/\mu\text{sec}, \text{reapplied}$ $dv/dt = 20\text{V}/\mu\text{sec}$ linear to $0.8 V_{DRM}$	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	$\text{V}/\mu\text{sec}$
<b>Thermal</b>				
Maximum Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	1500 LFM Airflow	0.18	$^\circ\text{C}/\text{Watt}$
<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-Triggerring Gate Voltage	$V_{GDM}$	$T_J = 125^\circ\text{C}, \text{rated } V_{DRM}$	0.15	Volts
Peak Forward Gate Current	$I_{GTM}$		4	Amperes
Peak Reverse Gate Voltage	$V_{GRM}$		5	Volts

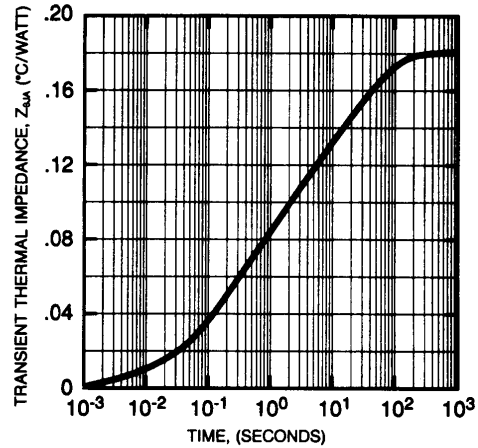
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**T760**  
**Phase Control SCR**  
 300 Amperes, 2000 Volts

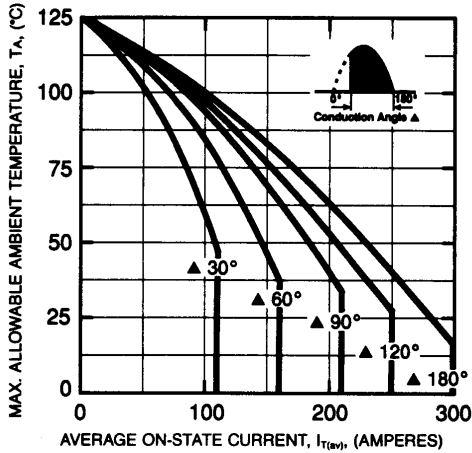
**MAXIMUM ON-STATE CHARACTERISTICS**



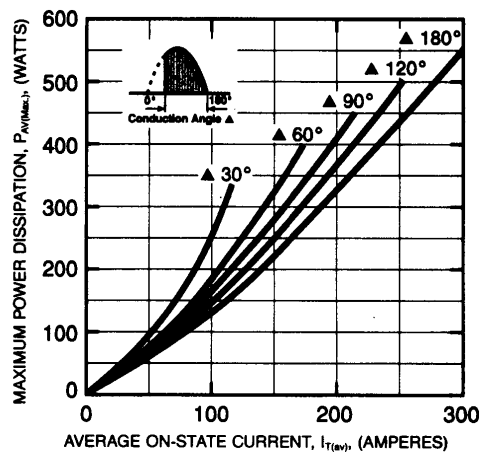
**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO AMBIENT)**



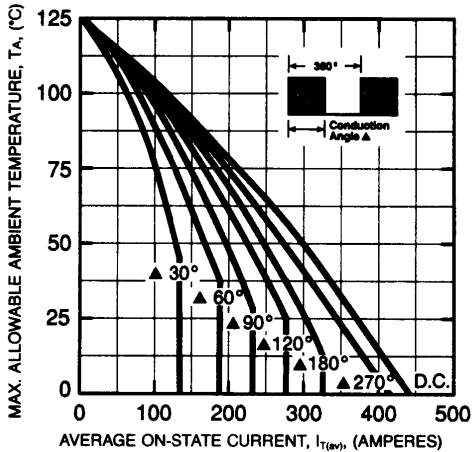
**MAXIMUM ALLOWABLE AMBIENT TEMPERATURE (SINUSOIDAL WAVEFORM)**



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



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



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

