



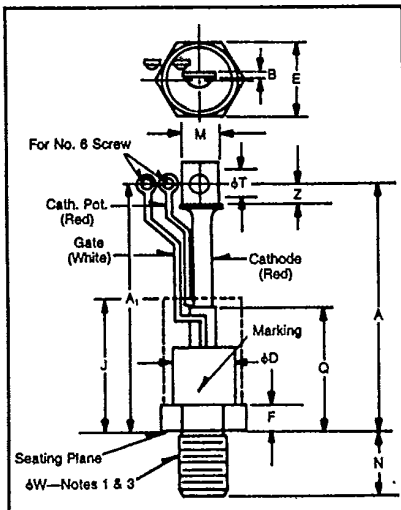
T700

Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272

Powerex Europe, S.A., 428 Ave. G. Durand, BP107, 72003 LeMans, France (43) 72.75.15

Phase Control SCR

250-350 Amperes Avg
200-2200 Volts



T700
Outline Drawing

Dimensions	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	9.23	10.00	234.44	254.00
A ₁	9.65	10.42	245.11	264.67
B	.063	.172	1.60	4.37
φD	—	1.490	—	37.85
E	1.620	1.750	41.15	44.45
F	.430	.810	10.92	20.57
J	4.000	—	101.60	—
M	.530	.755	13.46	19.18
N	1.04	1.08	26.42	27.43
Q	—	3.100	—	78.74
φT	.330	.350	8.38	8.89
Z	.440	—	11.18	—
φW	⅜-16 UNF-2A			

T700

Creep Distance—1.76 in. min. (44.70 mm)

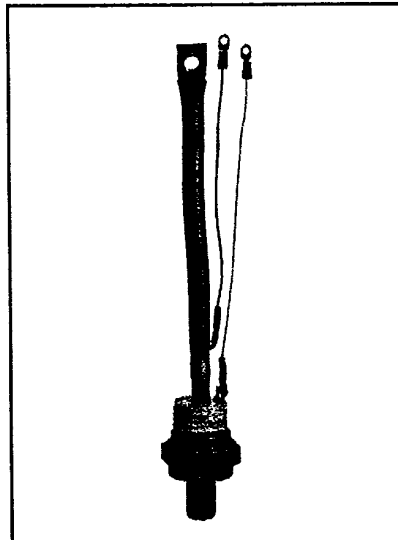
Strike Distance—.81 in. min. (20.70 mm).

(In accordance with NEMA standards.)

Finish—Nickel Plate.

Approx. Weight—18 oz. (510 g).

1. Complete threads to extend to within 2½ threads of seating plane.
2. Angular orientation of terminals is undefined.
3. Pitch diameter of ⅜-16 UNF-2A (coated) threads (ASA B1.1—1960).
4. Dimension "J" denotes seated height with leads bent at right angles.



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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 I²t Ratings

Applications:

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

Ordering Information

Example: Select the complete eight digit part number you desire from the table — i.e. T7001435 is a 1400 Volt, 350 Ampere Phase Control SCR.

Type	Voltage		Current	
	V _{onm} V _{RRM}	Code	I _T (avg)	Code
T700	200	02	350	35
	400	04	300	30
	600	06	250	25
	800	08		
	1000	10		
	1200	12		
	1300	13		
	1400	14		
	1600	16		
	1800	18		
	2000	20		
	2200	22		



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Absolute Maximum Ratings

	Symbol	T700 _ _ 25	T700 _ _ 30	T700 _ _ 35	Units
RMS On-State Current	$I_{T(RMS)}$	400	470	550	Amperes
Average On-State Current	$I_{T(av)}$	250	300	350	Amperes
Peak One-Cycle Surge (Non Repetitive) On-State Current (60Hz) ^①	I_{TSM}	7000	8400	10,000	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz) ^①	I_{TSM}	6400	7700	9100	Amperes
Critical Rate-of-Rise of On-State Current (Non-Repetitive) ^{① ② ③}	di/dt	800	800	800	Amperes/ μ s
Critical Rate-of-Rise of On-State Current (Repetitive)	di/dt	150	150	150	Amperes/ μ s
I^2t (for Fusing), 8.3 milliseconds	I^2t	205,000	295,000	416,000	A ² sec
Peak Gate Power Dissipation	P_{GM}	16	16	16	Watts
Average Gate Power Dissipation	$P_{G(av)}$	3	3	3	Watts
Storage Temperature	T_{STG}	-40 to 150	-40 to 150	-40 to 150	°C
Operating Temperature	T_J	-40 to 125	-40 to 125	-40 to 125	°C
Mounting Torque ^④		360	360	360	in.-lb.
Mounting Torque ^⑤		400	400	400	kg-cm

① Consult recommended mounting procedures.

② Applies for zero or negative gate bias.

③ Per JEDEC RS-397, 5.2.2.1.

④ With recommended gate drive.

⑤ Higher dv/dt ratings available, consult factory.

⑥ Per JEDEC standard RS-397, 5.2.2.6.



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Electrical and Thermal Characteristics

	Symbol	Test Conditions	T700 - 25	T700 - 30	T700 - 35	Units
Current—Conducting State Maximums						
Peak On-State Voltage	V_{TM}	$T_J = 25^\circ\text{C}$, $I_{TM} = 625\text{A}$	1.80	1.60	1.40	Volts
Voltage—Blocking State Maximums						
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
Switching						
Typical Turn-Off Time	t_q	$I_T = 250\text{A}$, $di_T/dt = 25\text{A}/\mu\text{sec}$, reapplied $dv/dt = 20\text{V}/\mu\text{sec}$ linear to $0.8 V_{DRM}$, $T_J = 125^\circ\text{C}$		150		μsec
Typical Turn-On Time ^①	t_{on}	$I_T = 100\text{A}$, $V_D = 100\text{V}$		7		μsec
Min. Critical dv/dt exponential to V_{DRM} ^{②③}	dv/dt	$T_J = 125^\circ\text{C}$		300		$\text{V}/\mu\text{sec}$
Thermal						
Maximum Thermal Resistance ^④						
Junction to Case	$R_{\theta JC}$			.10		$^\circ\text{C}/\text{Watt}$
Case to Sink, Lubricated	$R_{\theta CS}$			.05		$^\circ\text{C}/\text{Watt}$
Gate—Maximum Parameters						
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}	$T_J = 125^\circ\text{C}$, $V_{DRM} = \text{rated}$		.15		Volts
Peak Forward Gate Current	I_{GTM}			4		Amperes
Peak Reverse Gate Voltage	V_{GRM}			5		Volts

① Consult recommended mounting procedures.

② Applies for zero or negative gate bias.

③ Per JEDEC RS-397, 5.2.2.1.

④ With recommended gate drive.

⑤ Higher dv/dt ratings available, consult factory.

⑥ Per JEDEC standard RS-397, 5.2.2.6.



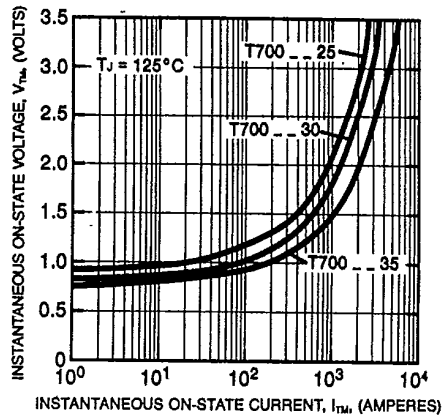
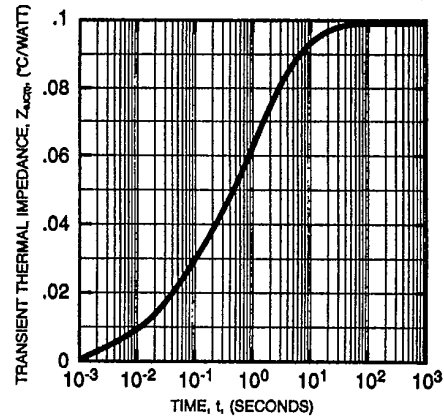
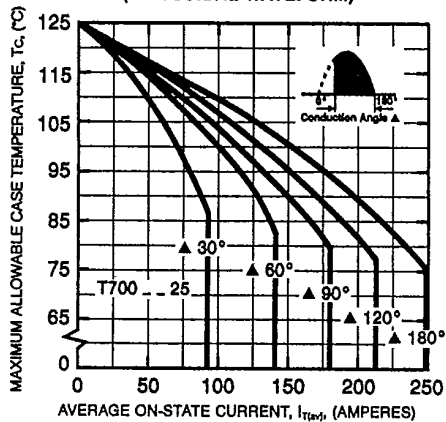
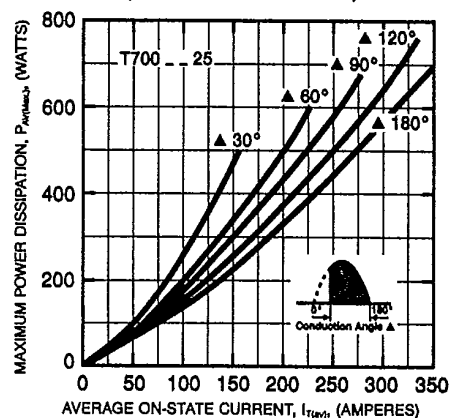
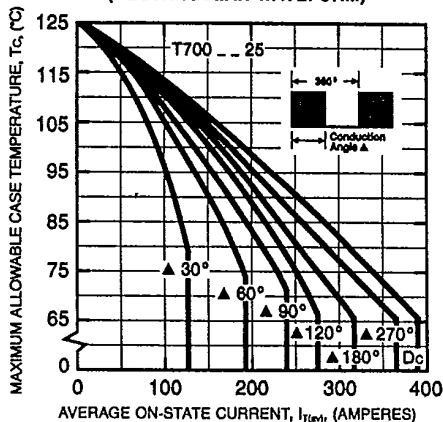
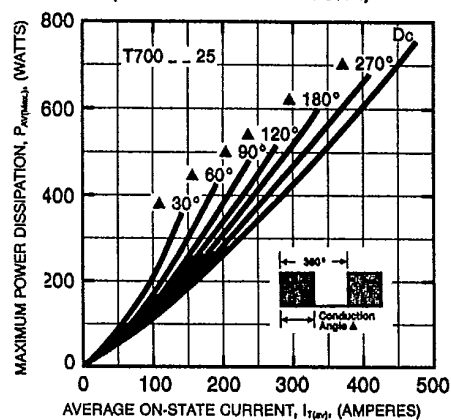
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MAXIMUM ON-STATE CHARACTERISTICS**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)****MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)****MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)****MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)****MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)**



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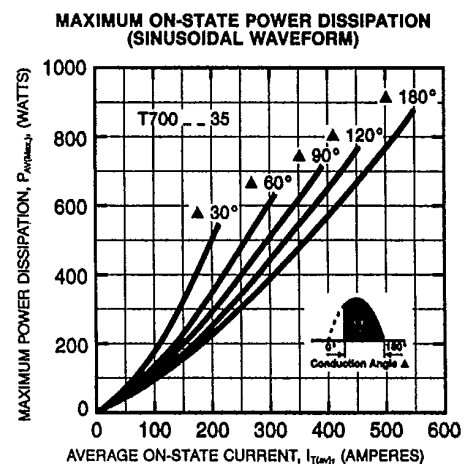
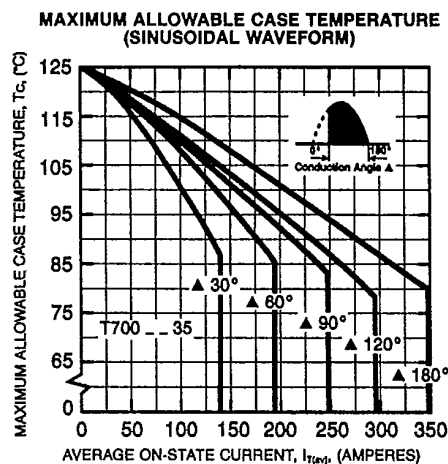
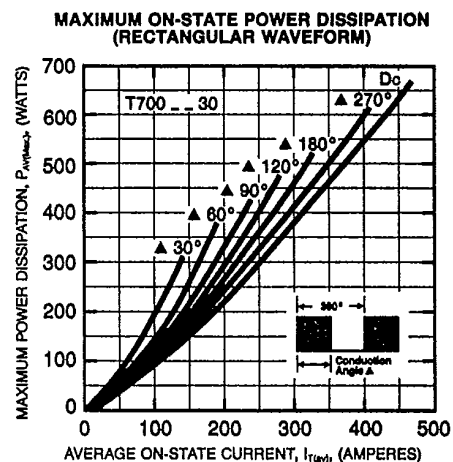
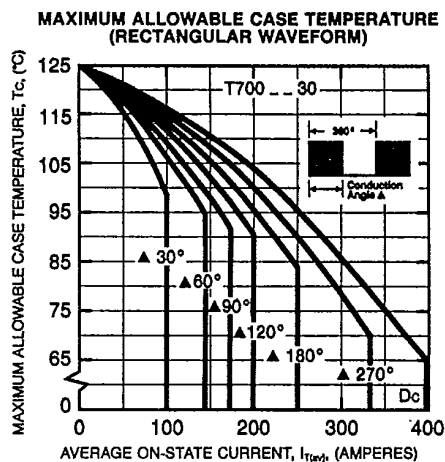
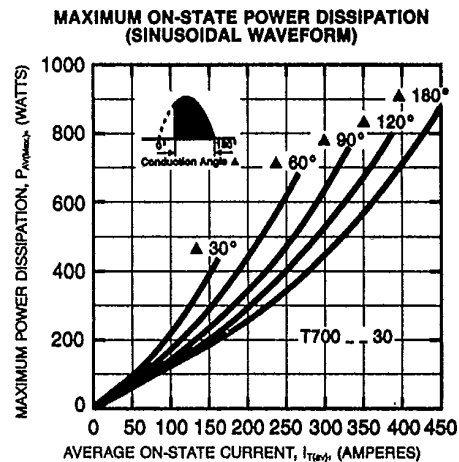
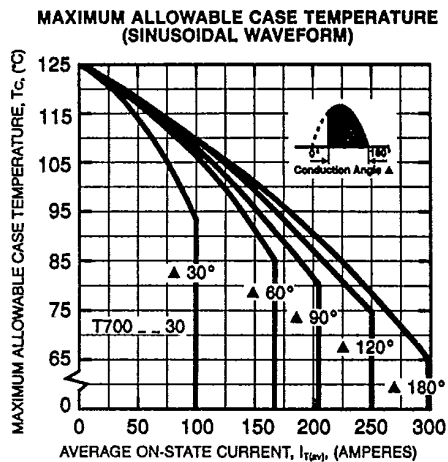
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