

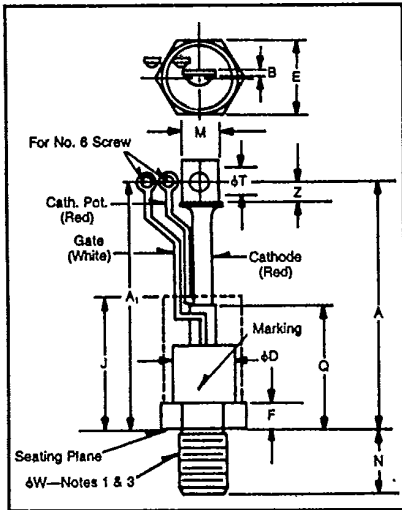
T-25-19



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

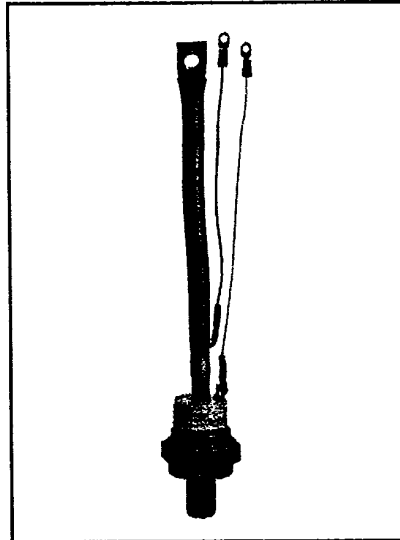
Phase Control SCR
 250-350 Amperes Avg
 200-2200 Volts



T70
 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	3/4-16 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).
- Complete threads to extend to within 2 1/2 threads of seating plane.
 - Angular orientation of terminals is undefined.
 - Pitch diameter of 3/4-16 UNF-2A (coated) threads (ASA B1.1—1960).
 - 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/dynamic) 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		
	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 ^④		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
T700						
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	$I_T = 250\text{A}, di_T/dt = 25\text{A}/\mu\text{sec}, \text{reapplied}$ $dv/dt = 20\text{V}/\mu\text{sec}$ linear to $0.8 V_{DRM}, T_J = 125^\circ\text{C}$		150		μsec
Typical Turn-On Time [Ⓢ]	t_{on}	$I_T = 100\text{A}, V_D = 100\text{V}$		7		μsec
Min. Critical dv/dt exponential to V_{DRM} ^{ⓈⓈ}	dv/dt	$T_J = 125^\circ\text{C}$		300		$\text{V}/\mu\text{sec}$
Thermal						
Maximum Thermal Resistance [Ⓢ]						
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

Ⓢ Consult recommended mounting procedures.

Ⓢ Applies for zero or negative gate bias.

Ⓢ Per JEDEC RS-397, 5.2.2.1.

Ⓢ With recommended gate drive.

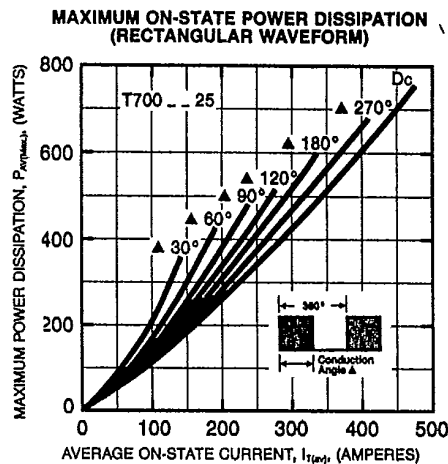
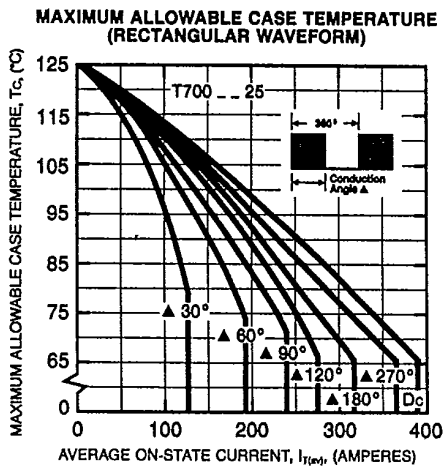
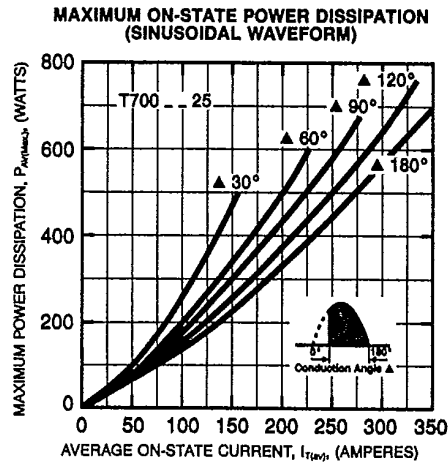
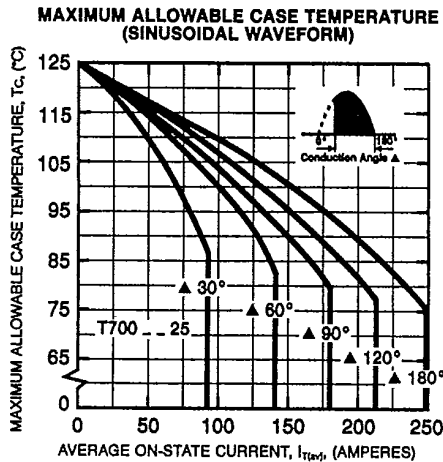
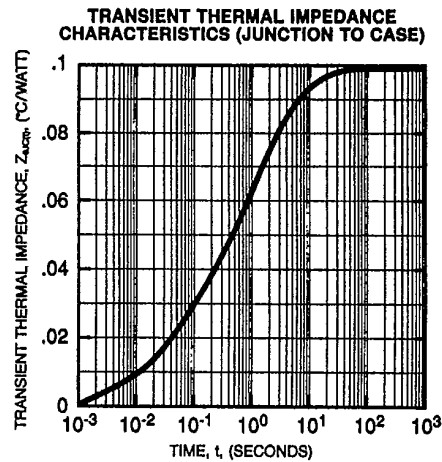
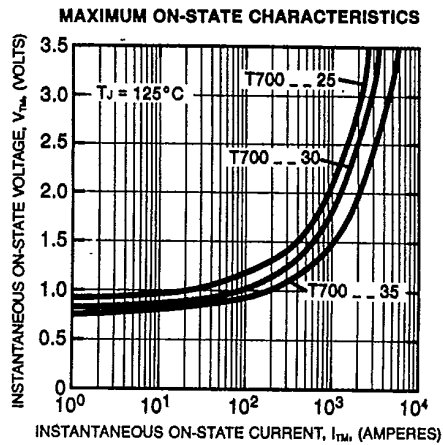
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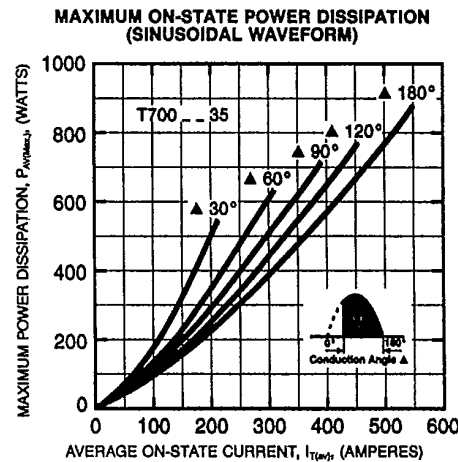
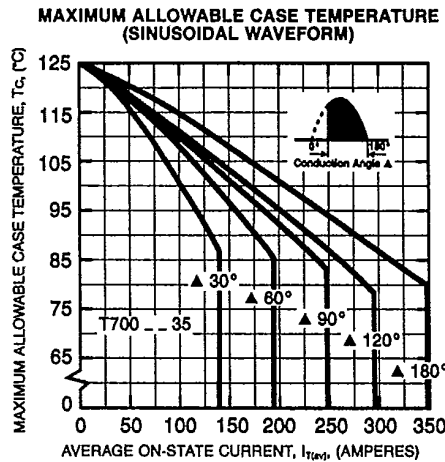
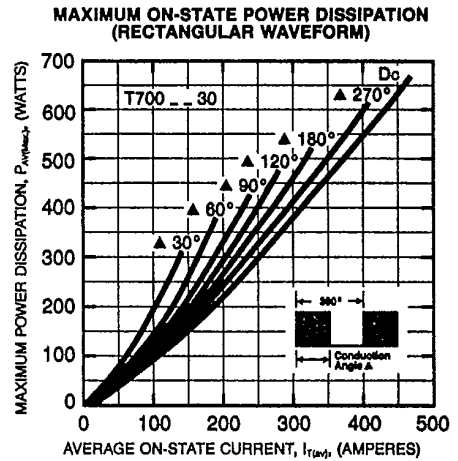
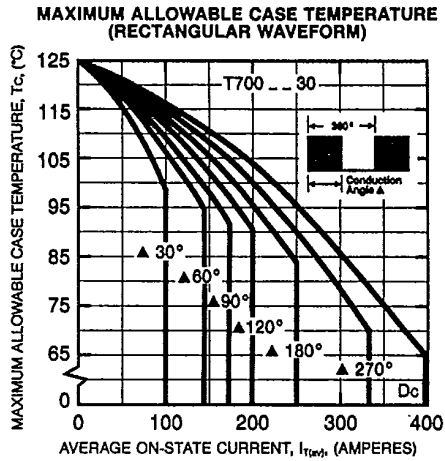
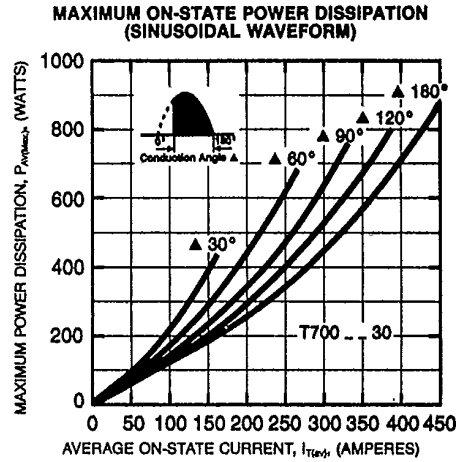
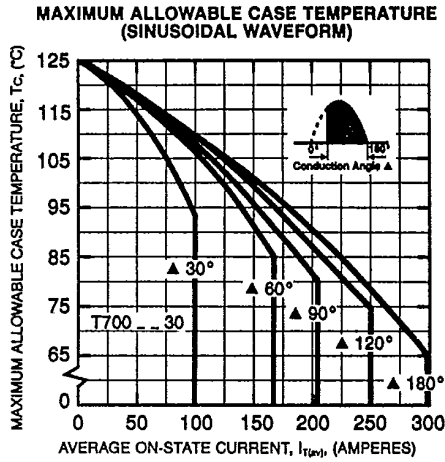
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