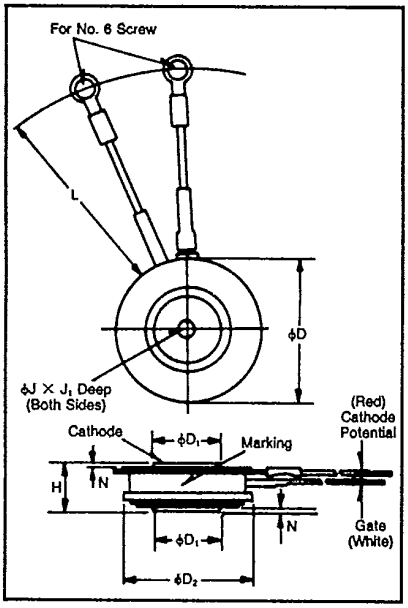
T625

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

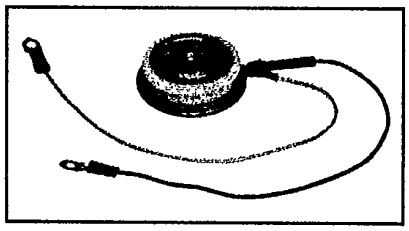
Phase Control SCR
250-400 Amperes Avg
100-1200 Volts



T62
Outline Drawing

Dimensions	Inches		Millimeters	
	Min.	Max.	Min.	Max.
ϕD	1.610	1.650	40.89	41.91
ϕD_1	.745	.755	18.92	19.18
ϕD_2	1.420	1.460	36.07	37.08
H	.500	.560	12.70	14.22
ϕJ	.135	.145	3.43	3.68
J_1	.072	.082	1.83	2.08
L	7.75	8.50	196.85	215.90
N	.030	—	.76	—

Creep Distance—.34 in. min. (8.64 mm)
Strike Distance—.26 in. min. (6.60 mm).
(In accordance with NEMA standards.)
Finish—Nickel Plate.
Approx. Weight—2.3 oz. (66 g).
1. Dimension "H" is clamped dimension.



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Phase Control SCR
250-400 Amperes/100-1200 Volts

Description
Powerex Silicon Controlled Rectifiers (SCR) are designed for phase control applications. These are all-diffused, Press-Pak (Pow-R-Disc) 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
- ☐ 150°C Juntion Temperature Rating

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. T6250625 is a 600 Volt, 250 Ampere Phase Control SCR.

Type	Voltage		Current	
	V_{DRM} V_{RRM}	Code	I_T (avg)	Code
T625	100	01	250	25
	200	02	300	30
	300	03	400	40
	400	04		
	500	05		
	600	06		
	700	07		
	800	08		
	900	09		
	1000	10		
	1100	11		
	1200	12		

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Absolute Maximum Ratings

	Symbol	T625_ _25	T625_ _30	T625_ _40	Units
RMS On-State Current	$I_{T(RMS)}$	390	470	625	Amperes
Average On-State Current	$I_{T(av)}$	250	300	400	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)③	I_{TSM}	2800	3600	5000	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)③	I_{TSM}	2550	3300	4550	Amperes
Critical Rate-of-Rise of On-State Current (Non-Repetitive)①②④	di/dt	800	800	800	Amperes/μs
Critical Rate-of-Rise of On-State Current (Repetitive)	di/dt	200	200	200	Amperes/μs
I^2t (for Fusing), 8.3 milliseconds	I^2t	32,500	54,000	100,000	A^2sec
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 150	−40 to 150	−40 to 150	°C
Mounting Force①		1000 to 1400	1000 to 1400	1000 to 1400	lb.
Mounting Force①		450 to 635	450 to 635	450 to 635	kg

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	T625_ _25	T625_ _30	T625_ _40	Units
Current—Conducting State Maximums						
Peak On-State Voltage	V_{TM}	I_{TM} = 625A, T_J = 25°C	2.60	2.05	1.55	Volts
				T625		
Voltage—Blocking State Maximums④						
Forward Leakage, Peak	I_{DRM}	T_J = 150°C, V_{DRM} = rated		50		mA
Reverse Leakage, Peak	I_{RRM}	T_J = 150°C, V_{RRM} = rated		50		mA
Switching						
Typical Turn-Off Time	t_q	I_T = 150A, T_J = 150°C, di_R/dt = 12.5A/µsec, reapplied dv/dt = 20V/µsec linear to 0.8V_{DRM}		150		µsec
Typical Turn-On Time⑤	t_{on}	I_T = 100A, V_D = 500V		3		µsec
Min. Critical dv/dt exponential to V_{DRM}⑥⑥	dv/dt	T_J = 150°C		300		V/µsec
Thermal						
Maximum Thermal Resistance, double sided cooling①						
Junction to Case	$R_{\theta JC}$			.08		°C/Watt
Case to Sink, Lubricated	$R_{\theta CS}$			.02		°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 = 150°C, rated V_{DRM}		.25		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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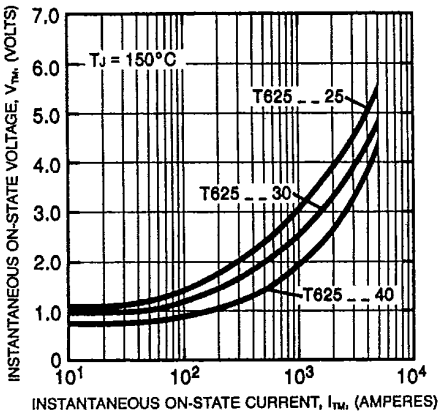
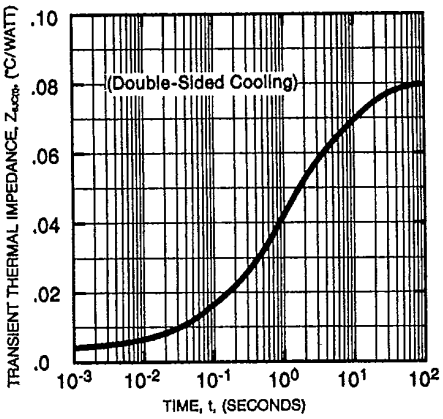
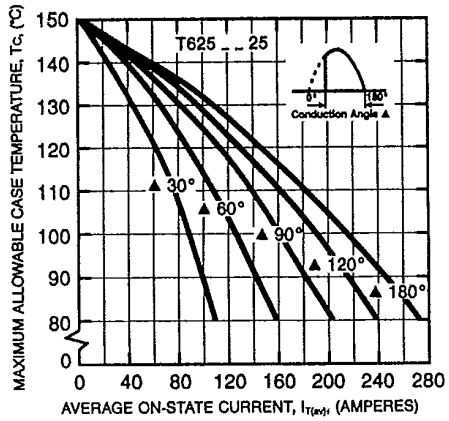
MAXIMUM ON-STATE CHARACTERISTICS



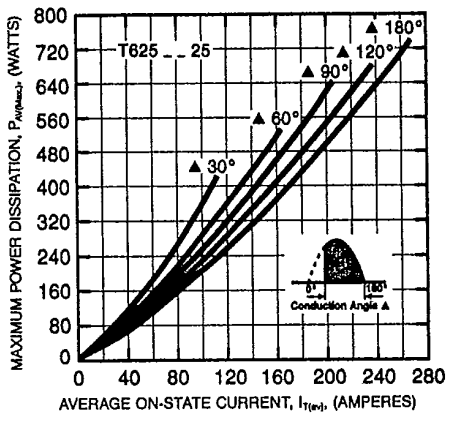
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



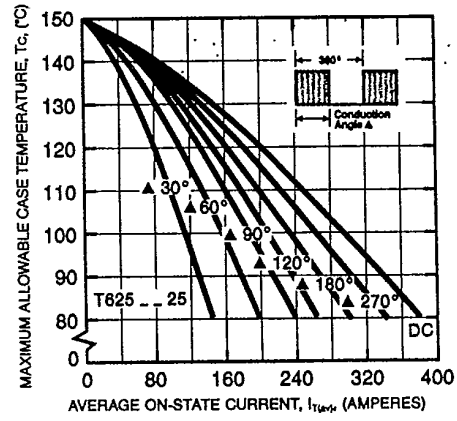
MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)



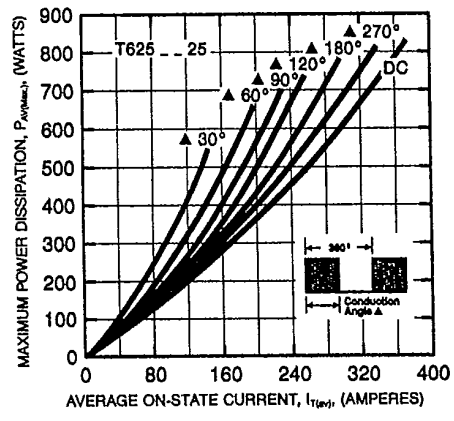
MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)



MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



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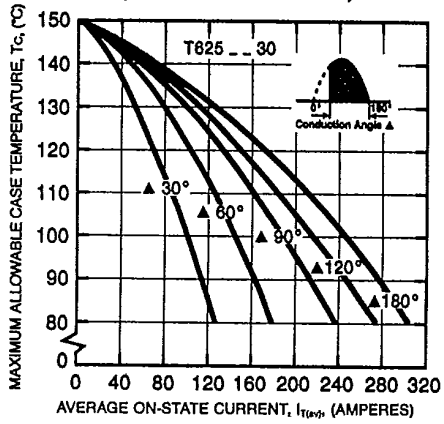

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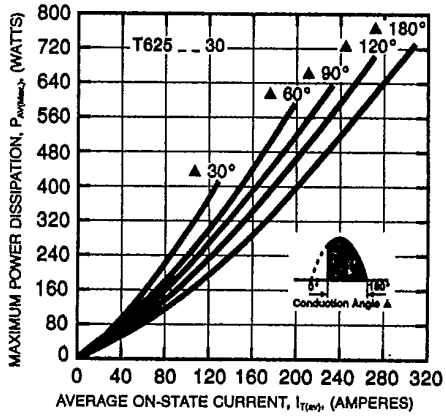

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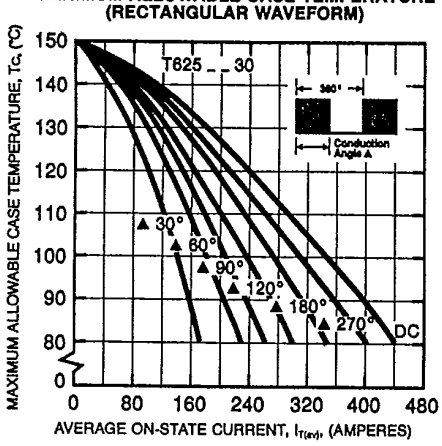

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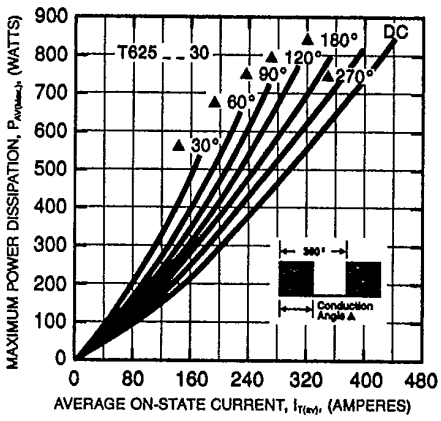

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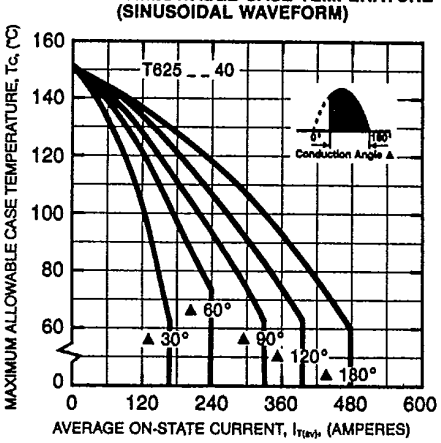

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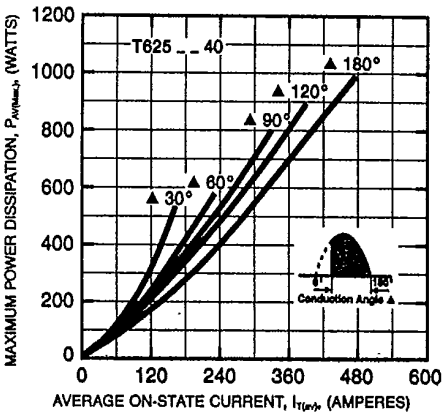

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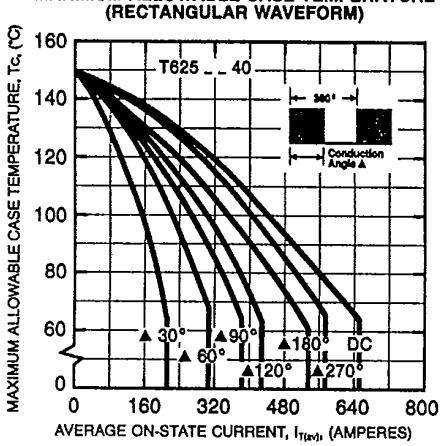

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