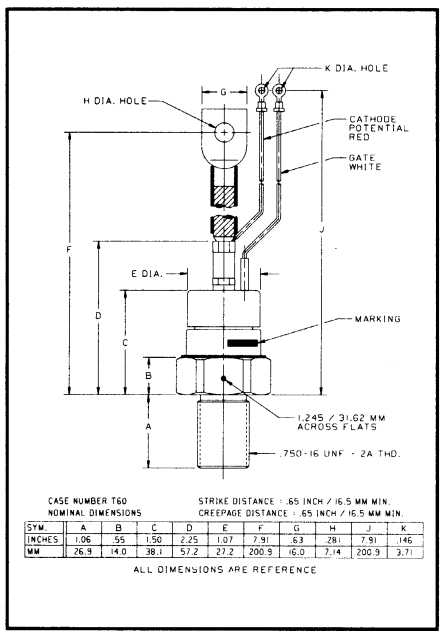
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

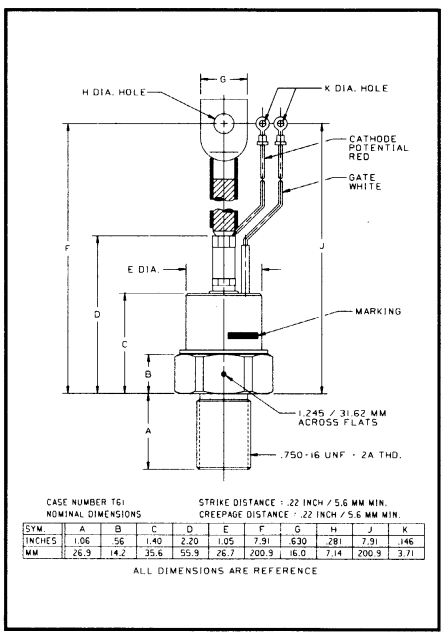
Phase Control SCR

150-175 Amperes
1600 Volts



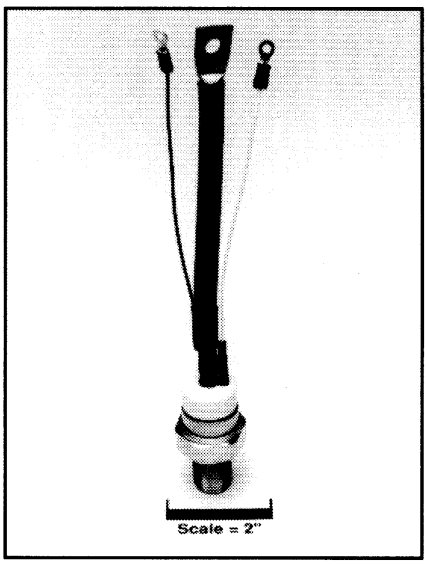
SYM.	A	B	C	D	E	F	G	H	J	K
INCHES	1.06	.55	1.50	2.25	1.07	7.91	6.3	.281	7.91	.146
MM	26.9	14.0	38.1	57.2	27.2	200.9	16.0	7.14	200.9	3.71

T600 (Outline Drawing)

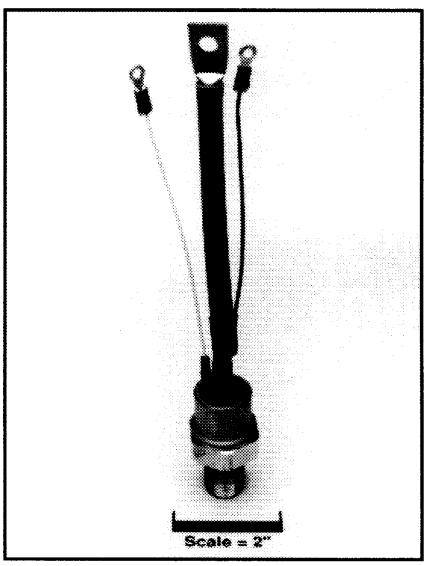


SYM.	A	B	C	D	E	F	G	H	J	K
INCHES	1.06	.56	1.40	2.20	1.05	7.91	6.30	.281	7.91	.146
MM	26.9	14.2	35.6	55.9	26.7	200.9	16.0	7.14	200.9	3.71

T610 (Outline Drawing)



T600 Phase Control SCR
150-175 Amperes, 1300-1600 Volts



T610 Phase Control SCR
150-175 Amperes, 100-1200 Volts

Ordering Information:

Select the complete eight digit part number you desire from the table, i.e. T6101215 is a 1200 Volt, 150 Ampere Phase Control SCR.

Type	Voltage V_{DRM} V_{RRM}	Code	Current $I_{T(av)}$	Code
T610	100	01	150	15
	200	02	175	18
	300	03		
	400	04		
	500	05		
	600	06		
	700	07		
	800	08		
	900	09		
	1000	10		
	1100	11		
	1200	12		
T600	1300	13		
	1400	14		
	1500	15		
	1600	16		

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
- ☐ Welders

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.

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T600/T610
Phase Control SCR
150-175 Amperes, 1600 Volts

Absolute Maximum Ratings

	Symbol	T600_ _15 T610_ _15	T600_ _18 T610_ _18	Units
RMS On-State Current	$I_{T(RMS)}$	235	275	Amperes
Average On-State Current	$I_{T(av)}$	150	175	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)	I_{TSM}	4000	5500	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	I_{TSM}	3650	5000	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	66,000	120,000	A^2sec
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		300	300	in.-lb.
Mounting Torque (Lubricated)		340	340	kg-cm

Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	T600_ _15 T610_ _15	T600_ _18 T610_ _18	Units
Current—Conducting State Maximums					
Peak On-State Voltage	V_{TM}	T_J = 25°C, I_T = 625A	1.8	1.55	Volts
			T600/T610		
Voltage—Blocking State Maximums					
Forward Leakage, Peak	I_{DRM}	T_J = 125°C, V_{DRM} = rated	25		mA
Reverse Leakage, Peak	I_{RRM}	T_J = 125°C, V_{RRM} = rated	25		mA
Switching					
Typical Turn-Off Time	t_q		100		μsec
Typical Turn-On Time	t_{on}	I_T = 100A, V_D = 100V	5		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	$R_{\theta JC}$		0.13		°C/Watt
Case to Sink, Lubricated	$R_{\theta CS}$		0.75		°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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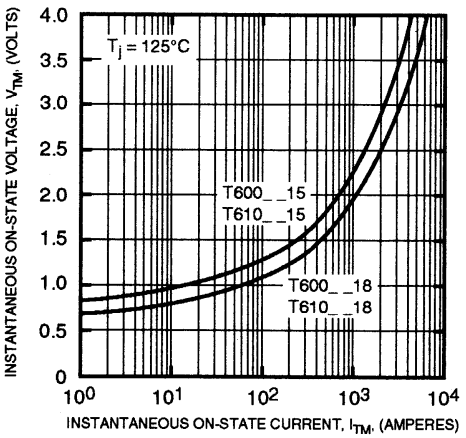
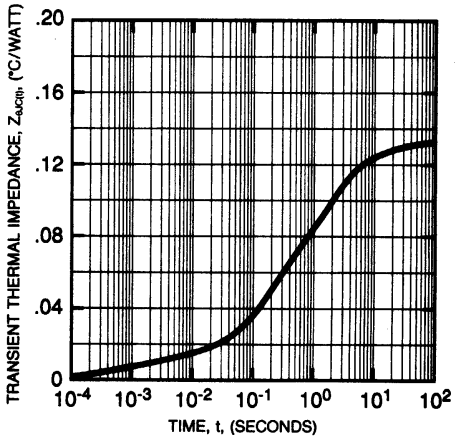
T600/T610
Phase Control SCR
150-175 Amperes, 1600 Volts

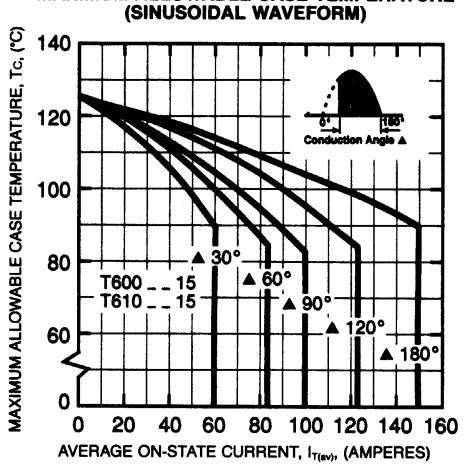
MAXIMUM ON-STATE CHARACTERISTICS



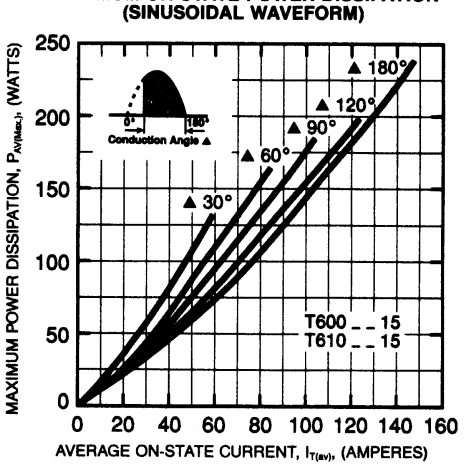
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



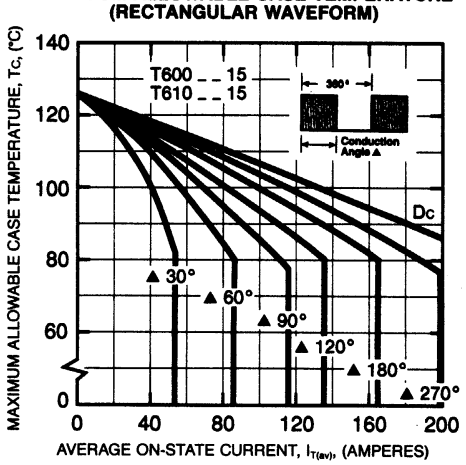
MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)



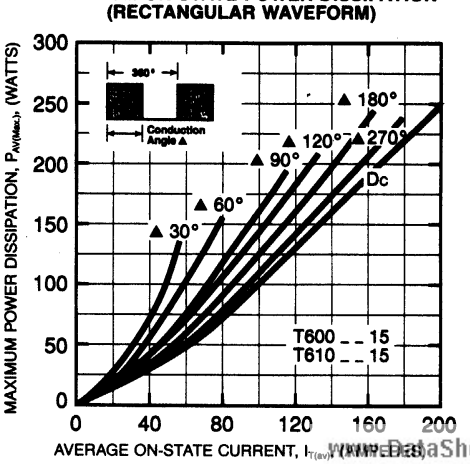
MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)



MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



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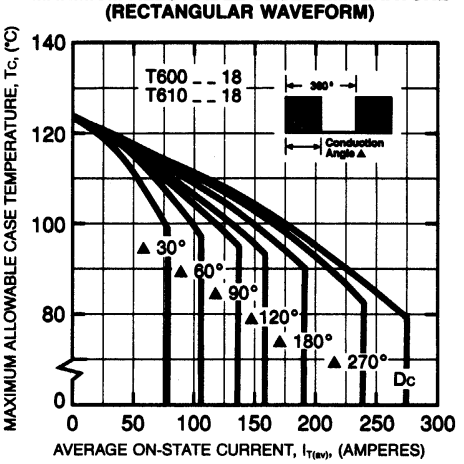
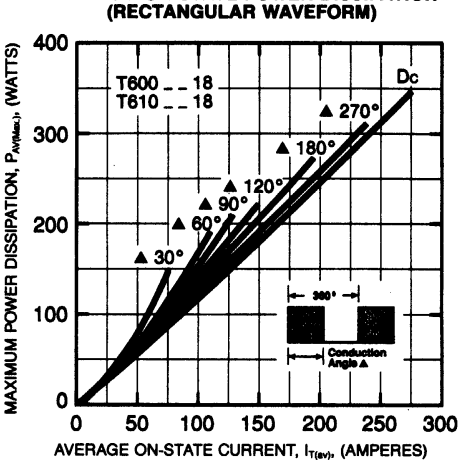
T600/T610
Phase Control SCR
150-175 Amperes, 1600 Volts

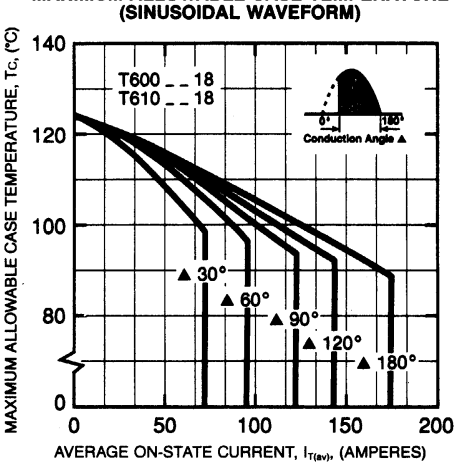
MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)