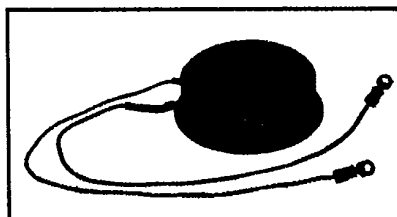
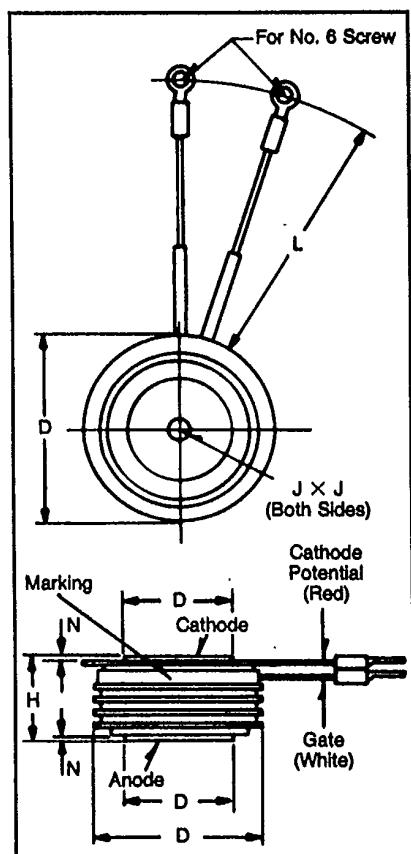


**T9G0**

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**1000-1200 Amperes Avg
100-2200 Volts**

T9G0
Phase Control SCR
1000-1200 Amperes/100-2200 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 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. T9G01210 is a 1200 Volt, 1000 Ampere Phase Control SCR.

T9G
Outline Drawing

Dimensions	Inches		Millimeters	
	Min.	Max.	Min.	Max.
φD	2.850	2.900	72.39	73.66
φD ₁	1.845	1.855	46.86	47.12
φD ₂	2.560	2.640	65.02	67.06
H	1.03	1.07	26.16	27.18
φJ	.135	.145	3.43	3.68
J ₁	.075	.090	1.91	2.29
L	11.50	12.50	292.10	317.50
N	.050	—	1.27	—

Creep Distance—1.20 in. min. (30.48 mm)

Strike Distance—.70 in. min. (17.78 mm).

(In accordance with NEMA standards.)

Finish—Nickel Plate.

Approx. Weight—1 lb. (454 g).

1. Dimension "H" is a clamped dimension.

Type	Voltage		Current	
	V _{onm} V _{nom}	Code	I _r (avg)	Code
T9G0	100	01	1000	10
	200	02	1200	12
	400	04		
	600	06		
	800	08		
	1000	10		
	1200	12		
	1400	14		
	1600	16		
	1800	18		
	2000	20		
	2200	22		



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Absolute Maximum Ratings

	Symbol	T9G0 _ _ 10	T9G0 _ _ 12	Units
RMS On-State Current	$I_{T(RMS)}$	1590	1880	Amperes
Average On-State Current	$I_{T(av)}$	1000	1200	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)®	I_{TSM}	17,000	27,000	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)®	I_{TSM}	15,500	24,650	Amperes
Critical Rate-of-Rise of On-State Current (Non-Repetitive)® ① ②	di/dt	300	300	Amperes/ μ s
Critical Rate-of-Rise of On-State Current (Repetitive)	di/dt	150	150	Amperes/ μ s
I^2t (for Fusing), One Cycle at 60Hz	I^2t	1,203,000	3,040,000	A ² sec
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 Force®		5000 to 5500	5000 to 5500	lb.
Mounting Force®		2270 to 2500	2270 to 2500	kg

Electrical and Thermal Characteristics

	Symbol	Test Conditions	T9G0 _ _ 10	T9G0 _ _ 12	Units
Current—Conducting State Maximums					
Peak On-State Voltage	V_{TM}	$I_{TM} = 1500A, T_J = 25^\circ C$	1.75	1.35	Volts
Voltage—Blocking State Maximums®					
T9G0					
Forward Leakage, Peak	I_{DRM}	$T_J = 125^\circ C, V_{DRM} = \text{rated}$	75		mA
Reverse Leakage, Peak	I_{RRM}	$T_J = 125^\circ C, V_{RRM} = \text{rated}$	75		mA
Switching					
Typical Turn-Off Time	t_q	$I_T = 250A, T_J = 125^\circ C,$ $di_R/dt = 50A/\mu\text{sec},$ reapplied $dv/dt = 20V/\mu\text{sec}$ linear to $0.8V_{DRM}$	350		μsec
Typical Turn-On Time®	t_{on}	$I_{TM} = 1000A, V_D = 450V$	3		μsec
Min. Critical dv/dt exponential to V_{DRM} ® ③	dv/dt	$T_J = 125^\circ C$	300		V/ μsec
Thermal					
Maximum Thermal Resistance,® double sided cooling Junction to Case	$R_{\theta JC}$.023		°C/Watt
Case to Sink, Lubricated	$R_{\theta CS}$.0075		°C/Watt
Gate—Maximum Parameters					
Gate Current to Trigger	I_{GT}	$T_J = 25^\circ C, V_D = 12V$	200		mA
Gate Voltage to Trigger	V_{GT}	$T_J = 25^\circ C, V_D = 12V$	3.0		Volts
Non-Triggering Gate Voltage	V_{GDM}	$T_J = 125^\circ C, \text{rated } V_{DRM}$.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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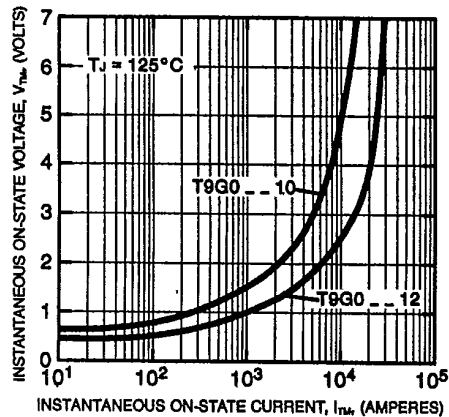
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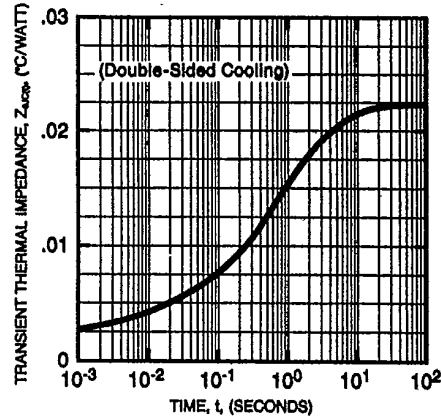
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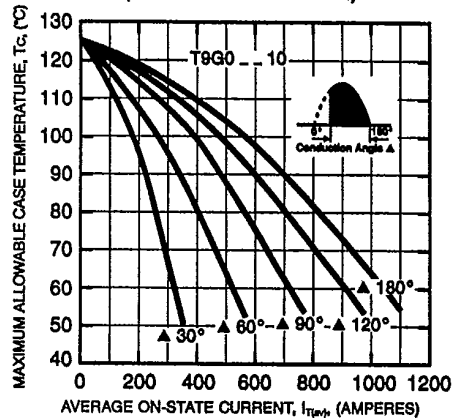
MAXIMUM ON-STATE CHARACTERISTICS



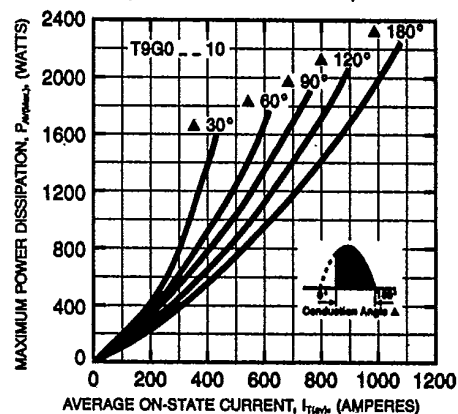
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



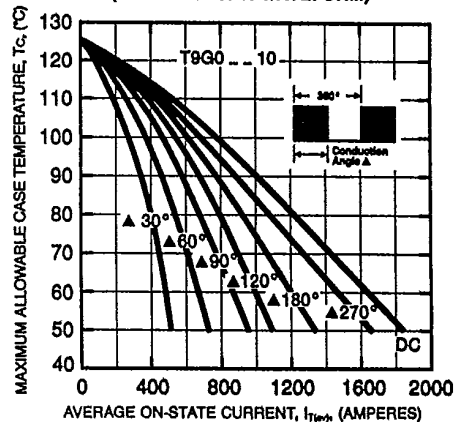
MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)



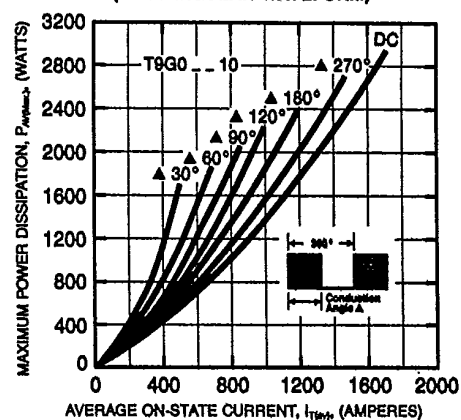
MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)



MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)





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