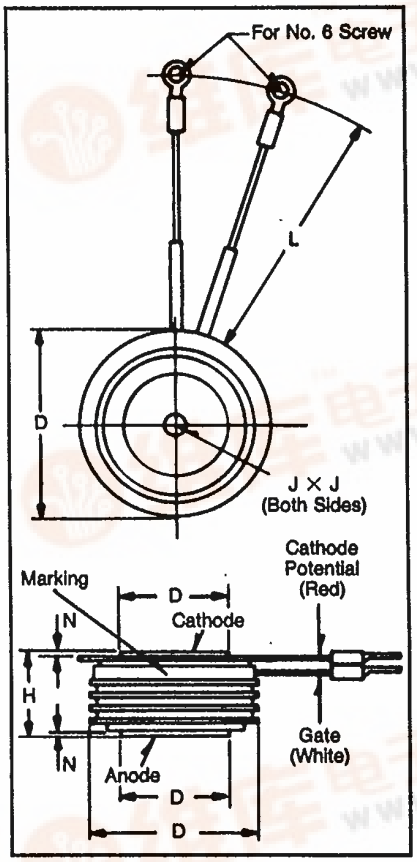
POWEREX

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

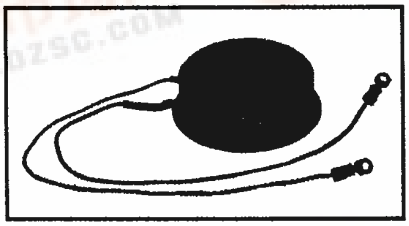
Phase Control SCR
1000-1200 Amperes Avg
100-2200 Volts



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.



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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

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.

Type	Voltage		Current	
	V_{DRM} V_{RRM}	Code	I_T (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)④	I_{TSM}	17,000	27,000	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)④	I_{TSM}	15,500	24,650	Amperes
Critical Rate-of-Rise of On-State Current (Non-Repetitive)①②⑤	dI/dt	300	300	Amperes/μs
Critical Rate-of-Rise of On-State Current (Repetitive)	dI/dt	150	150	Amperes/μs
I^2t (for Fusing), One Cycle at 60Hz	I^2t	1,203,000	3,040,000	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 Force①		5000 to 5500	5000 to 5500	lb.
Mounting Force①		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°C	1.75	1.35	Volts
			T9G0		
Voltage—Blocking State Maximums②					
Forward Leakage, Peak	I_{DRM}	T_J = 125°C, V_{DRM} = rated	75		mA
Reverse Leakage, Peak	I_{RRM}	T_J = 125°C, V_{RRM} = rated	75		mA
Switching					
Typical Turn-Off Time	t_q	I_T = 250A, T_J = 125°C, di_R/dt = 50A/μsec, reapplied dv/dt = 20V/μsec linear to 0.8V_{DRM}	350		μsec
Typical Turn-On Time④	t_{on}	I_{TM} = 1000A, V_D = 450V	3		μsec
Min. Critical dv/dt exponential to V_{DRM}②⑤	dv/dt	T_J = 125°C	300		V/μsec
Thermal					
Maximum Thermal Resistance,① 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°C, V_D = 12V	200		mA
Gate Voltage to Trigger	V_{GT}	T_J = 25°C, V_D = 12V	3.0		Volts
Non-Triggering Gate Voltage	V_{GDM}	T_J = 125°C, 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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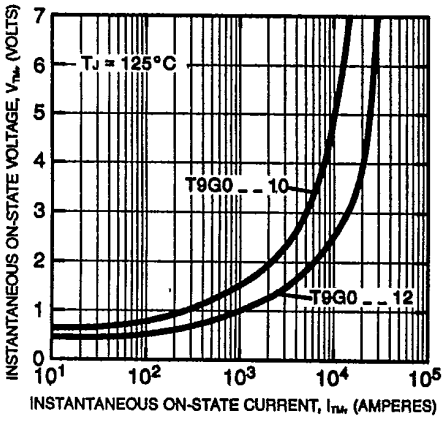
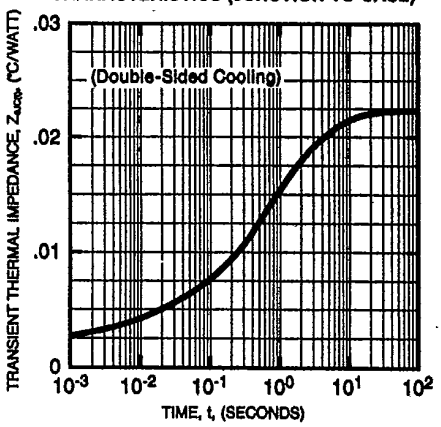
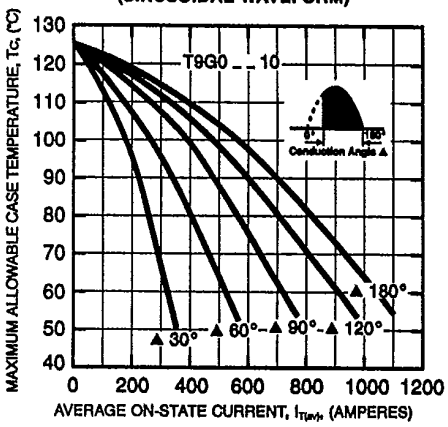
MAXIMUM ON-STATE CHARACTERISTICS



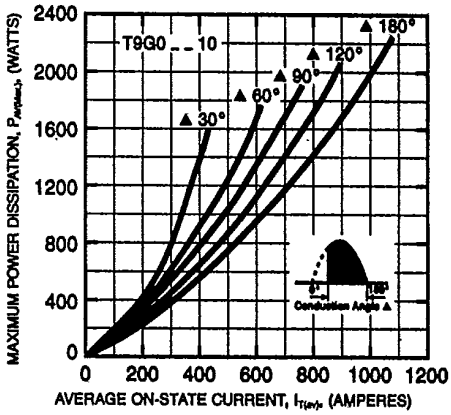
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



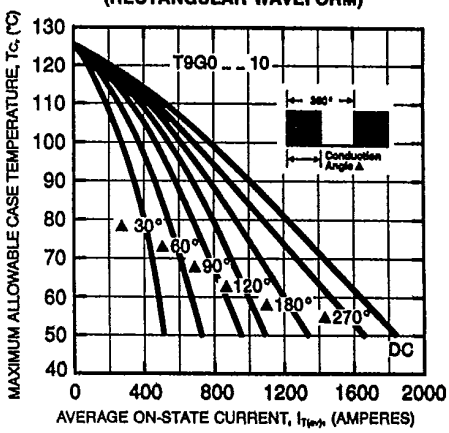
MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)



MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)



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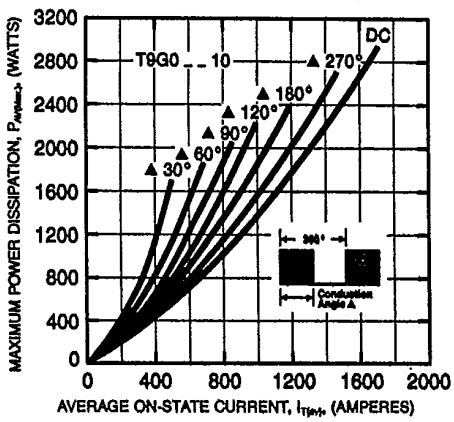

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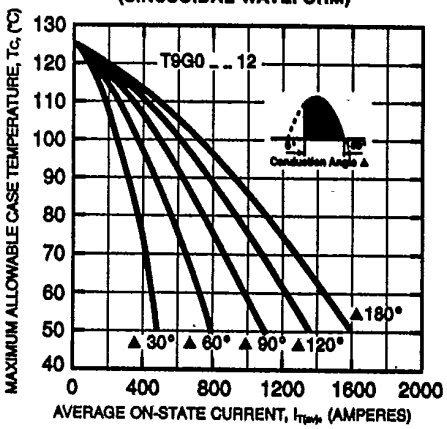

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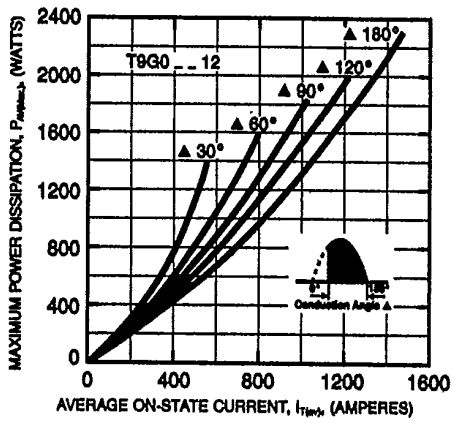

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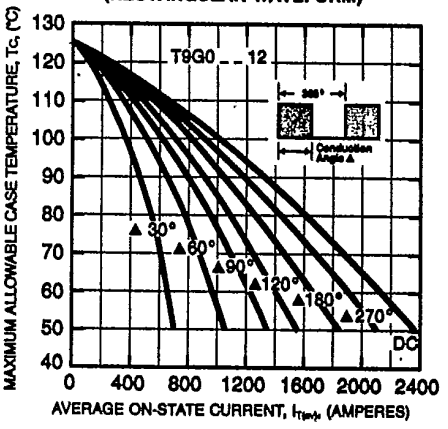

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