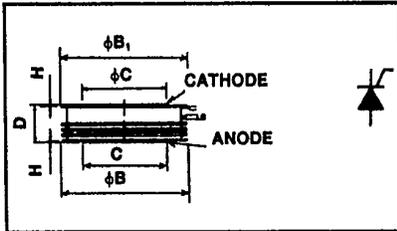




TD20

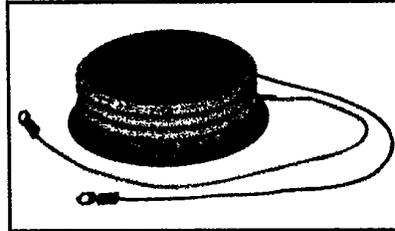
Powerex, Inc. Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272
 Powerex Europe, S.A., 428 Ave. G. Durand, BP107, 72003 LeMans, France (43) 72.75.15

Phase Control SCR
2800-3600 Amperes Avg
3000-4500 Volts



TD20
Outline Drawing

Dimensions	Inches	Metric
φB	5.906	150
φC	3.937	100
D	1.41 ± .02	36 ± 0.5
H	.019 Min	0.5 Min
φB ₁	5.197	132



TD20
Phase Control SCR
 2800-3600 Amperes/3000-4500 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. TD204528 is a 4500 Volt, 2800 Ampere Phase Control SCR.

Type	Voltage*		Current	
	V _{ORM} V _{RRM}	Code	I _r (avg)	Code
TD20	3000	30	2800	28
	3200	32		
	3400	34		
	3600	36		
	4000	40		
	4200	42		
	4400	44		
	4500	45		

*All voltages not available in all current ratings.



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2800-3600 Amperes Avg/3000-4500 Volts

Absolute Maximum Ratings

	Symbol	TD20 - 28	TD20 - 36	Units
Maximum Blocking Voltage	V_{DRM}, V_{RRM}	4500	3600	Volts
RMS On-State Current	$I_{T(RMS)}$	4400	5600	Amperes
Average On-State Current	$I_{T(av)}$	2800	3600	Amperes
Peak One-Cycle Surge (Non Repetitive) On-State Current (60Hz)	I_{TSM}	45,800	55,600	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	I_{TSM}	42,000	51,000	Amperes
Critical Rate-of-Rise of On-State Current (Repetitive)	di/dt	170	170	Amperes/ μ s
I^2t (for Fusing), one cycle at 60Hz	I^2t	8.7×10^6	1.28×10^7	A ² sec
Peak Gate Power Dissipation	P_{GM}	250	250	Watts
Average Gate Power Dissipation	$P_{G(av)}$	35	35	Watts
Storage Temperature	T_{STG}	-40 to 125	-40 to 125	°C
Operating Temperature	T_J	-40 to 125	-40 to 125	°C
Mounting Force [ⓐ]		16,000 to 20,000	16,000 to 20,000	lb.
Mounting Force [ⓐ]		72 to 88	72 to 88	kN

[ⓐ] Consult recommended mounting procedures.



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Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	TD20 - 28	TD20 - 35	Units
Current—Conducting State Maximums					
Peak On-State Voltage	V_{TM}	$I_{TM} = 4000A, T_J = 125^\circ C$	1.9	1.55	Volts
Threshold Voltage	$V_{(TO)}$	$T_J = 125^\circ C$	1.16	1.00	Volts
Slope Resistance	r_T	$T_J = 125^\circ C$.18	.137	mOhm
TD20					
Voltage—Blocking State Maximums					
Forward Leakage, Peak	I_{DRM}	$T_J = 125^\circ C, V_{DRM}$ applied	550		mA
Reverse Leakage, Peak	I_{RRM}	$T_J = 125^\circ C, V_{RRM}$ applied	550		mA
Switching					
Min. Critical dv/dt exponential to V_{DRM}	dv/dt	Gate open, $T_J = 125^\circ C, V_D = .7V_{DRM}$	2000		V/ μ sec
Thermal					
Maximum Thermal Resistance, [ⓐ] double sided cooling Junction to Sink	$R_{\theta JS}$.009		$^\circ C/Watt$
Gate—Maximum Parameters					
Gate Current to Trigger	I_{GT}	$V_D = 12V, T_J = 25^\circ C, R_L = 3\Omega$	300		mA
Gate Voltage to Trigger	V_{GT}	$V_D = 12V, T_J = 25^\circ C, R_L = 3\Omega$	4.5		Volts
Non-Triggering Gate Voltage	V_{GDM}	$T_J = 125^\circ C, V_D = \frac{1}{2}V_{DRM}$.25		Volts
Peak Forward Gate Current	I_{GTM}		6		Amperes
Peak Reverse Gate Voltage	V_{GRM}		20		Volts

[ⓐ] Consult recommended mounting procedures.



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