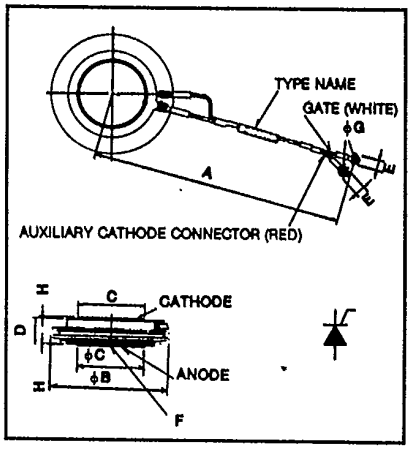
POWEREX

FT1000A

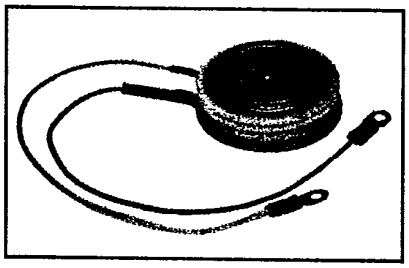
Powerex, Inc. Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272
Powerex Europe, S.A., 428 Ave. G. Durand, BP107, 72003 LeMans, France (43) 72.75.15

Phase Control SCR
1000 Amperes Avg
800-2500 Volts



FT1000A
Outline Drawing

Dimensions	Inches	Metric
A	11.62 ± .40	295 ± 10
ϕB	3.622	92
ϕC	1.968	50
D	.83 ± .02	21 ± 0.5
E	.30	7.5
F	M5	M5 × 0.8
ϕG	.169	4.3
H	.015 Min	0.4 Min



FT1000A
Phase Control SCR
1000 Amperes/800-2500 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

Applications:
- ☐ Power Supplies
- ☐ Battery Chargers
- ☐ Motor Control
- ☐ Light Dimmers
- ☐ VAR Generators

Ordering Information
Example: Select the complete nine digit part number you desire from the table – i.e. FT1000A-20 is a 1000 Volt, 1000 Ampere Phase Control SCR.

Type	Voltage*		Current
	V_{DRM} V_{RRM}	Code	I_T (avg)
FT1000A	800	-16	1000
	1000	-20	
	1200	-24	
	1400	-28	
	1600	-32	
	1800	-36	
	2000	-40	
	2500	-50	

*Voltage classes 32, 40, and 50 are standard products.

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

FT1000A
Phase Control SCR
1000 Amperes Avg/800-2500 Volts

Absolute Maximum Ratings

	Symbol	FT1000A	Units
RMS On-State Current	$I_{T(RMS)}$	1550	Amperes
Average On-State Current	$I_{T(av)}$	1000	Amperes
Peak One-Cycle Surge (Non Repetitive) On-State Current (60Hz)	I_{TSM}	18,000	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	I_{TSM}	16,450	Amperes
Critical Rate-of-Rise of On-State Current (Non-Repetitive)	di/dt	500	Amperes/μs
Critical Rate-of-Rise of On-State Current (Repetitive)	di/dt	200	Amperes/μs
I^2t (for Fusing), one cycle at 60Hz	I^2t	1.4×10^6	A^2sec
Peak Gate Power Dissipation	P_{GM}	10	Watts
Average Gate Power Dissipation	$P_{G(av)}$	3	Watts
Storage Temperature	T_{STG}	−40 to 150	°C
Operating Temperature	T_J	−40 to 125	°C
Mounting Force①		5900 to 7300	lb.
Mounting Force①		2700 to 3300	kg

① Consult recommended mounting procedures.

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

FT1000A
Phase Control SCR
1000 Amperes Avg/800-2500 Volts

Electrical and Thermal Characteristics

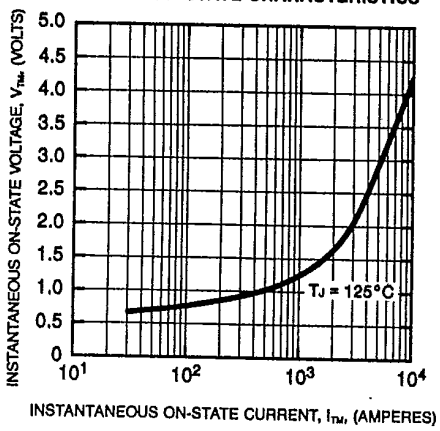
Characteristics	Symbol	Test Conditions	FT1000A	Units
Voltage—Blocking State Maximums				
Forward Leakage, Peak	I_{DRM}	T_J = 125°C, V_{DRM} applied	80	mA
Reverse Leakage, Peak	I_{RRM}	T_J = 125°C, V_{RRM} applied	80	mA
Current—Conducting State Maximums				
Peak On-State Voltage	V_{TM}	I_{TM} = 3200A, T_J = 125°C	2.10	Volts
Switching				
Min. Critical dv/dt exponential to V_{DRM}	dv/dt	T_J = 125°C, V_D = ½V_{DRM}	200	V/μsec
Thermal				
Maximum Thermal Resistance,① double sided cooling Junction to Sink	$R_{\theta JS}$		.025	°C/Watt
Gate—Maximum Parameters				
Gate Current to Trigger	I_{GT}	V_D = 6V, T_J = 25°C, R_L = 2Ω	250	mA
Gate Voltage to Trigger	V_{GT}	V_D = 6V, T_J = 25°C, R_L = 2Ω	2.5	Volts
Non-Triggering Gate Voltage	V_{GDM}	T_J = 125°C, V_D = ½V_{DRM}	.20	Volts
Peak Forward Gate Current	I_{GTM}		4.0	Amperes
Peak Reverse Gate Voltage	V_{GRM}		10	Volts

① Consult recommended mounting procedures.

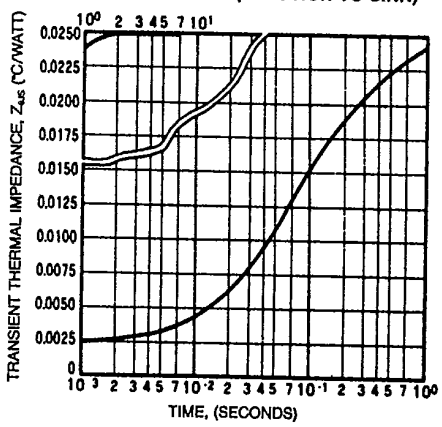
Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272
Powerex Europe, S.A., 428 Ave. G. Durand, BP107, 72003 LeMans, France (43) 72.75.15

FT1000A
Phase Control SCR
1000 Amperes Avg/800-2500 Volts

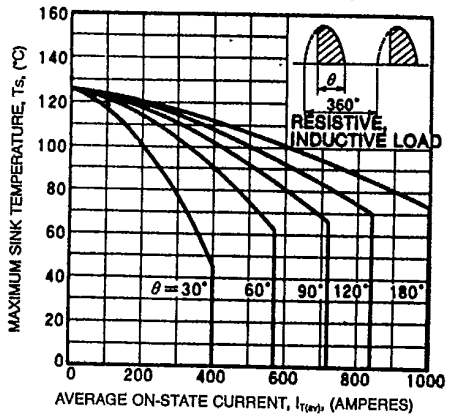
MAXIMUM ON-STATE CHARACTERISTICS



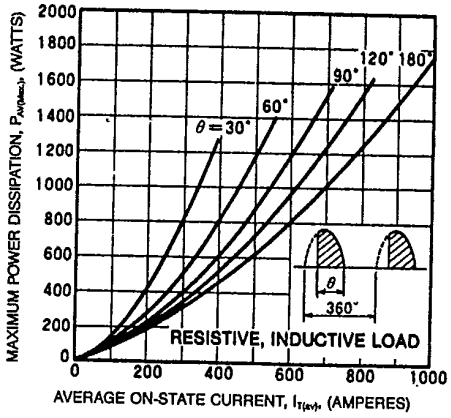
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO SINK)



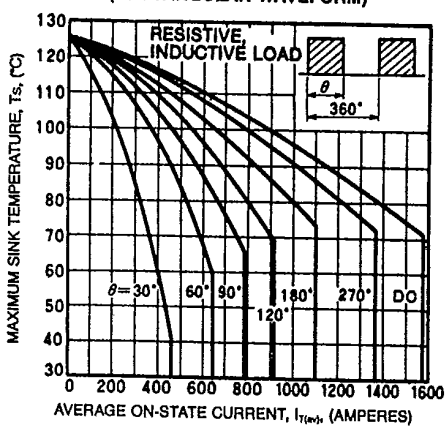
MAXIMUM ALLOWABLE SINK TEMPERATURE (SINUSOIDAL WAVEFORM)



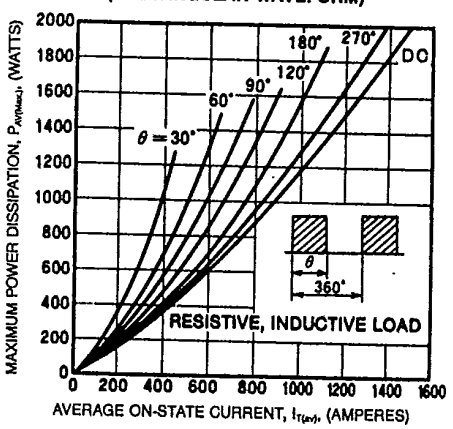
MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)



MAXIMUM ALLOWABLE SINK TEMPERATURE (RECTANGULAR WAVEFORM)



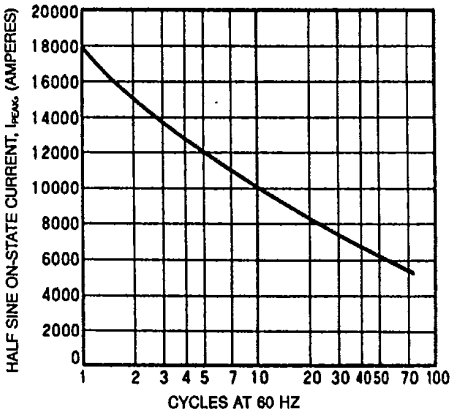
MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



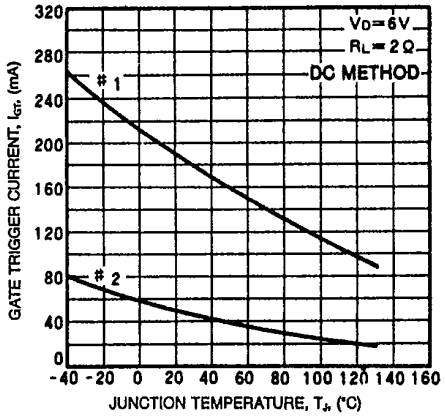
Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272
Powerex Europe, S.A., 428 Ave. G. Durand, BP107, 72003 LeMans, France (43) 72.75.15

FT1000A
Phase Control SCR
1000 Amperes Avg/800-2500 Volts

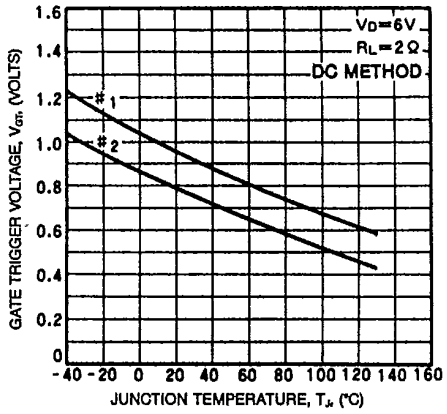
MAXIMUM ALLOWABLE SURGE ON-STATE CURRENT (NON-REPETITIVE)



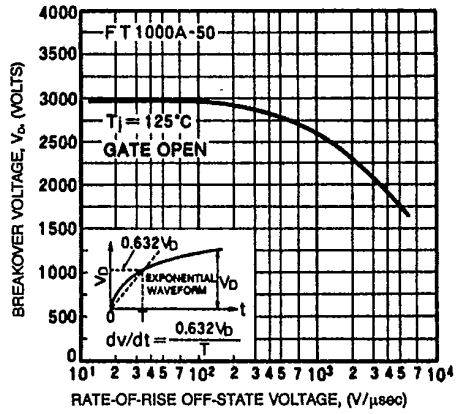
GATE TRIGGER CURRENT (TYPICAL)



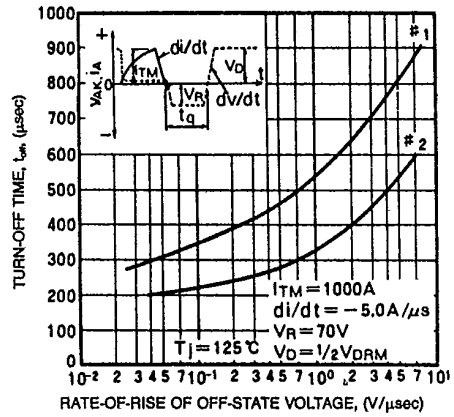
GATE TRIGGER VOLTAGE (TYPICAL)



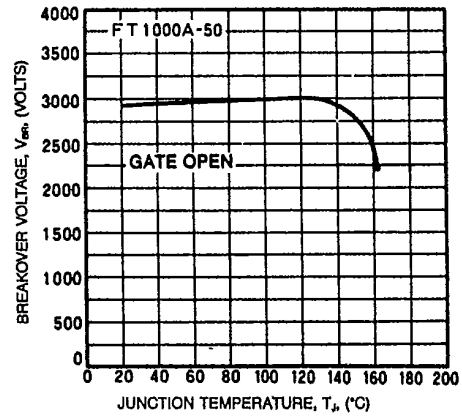
BREAKOVER VOLTAGE (TYPICAL)



TURN-OFF TIME VS. RATE-OF-RISE



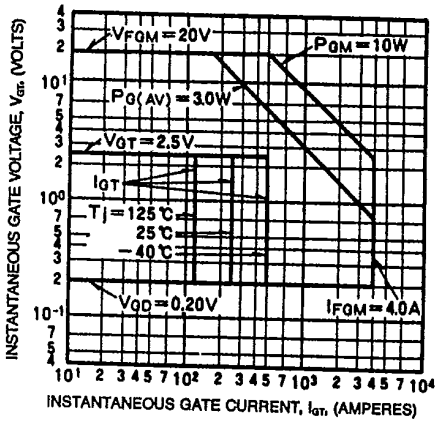
BREAKOVER VOLTAGE vs. JUNCTION TEMPERATURE (TYPICAL)



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

FT1000A
Phase Control SCR
1000 Amperes Avg/800-2500 Volts

GATE CHARACTERISTICS



littlediode
COMPONENTS FOR ALL

Littlediode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.