

POWEREX INC

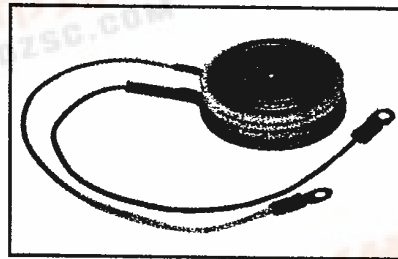
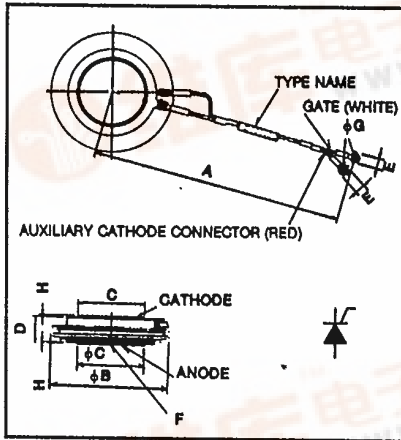
02 DE 7294621 0003064 7 D T-25-21



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
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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

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 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 _{ORM} V _{RRM}	Code	
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.





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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/ μ s
Critical Rate-of-Rise of On-State Current (Repetitive)	di/dt	200	Amperes/ μ s
I^2t (for Fusing), one cycle at 60Hz	I^2t	1.4×10^6	A ² sec
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 Force [Ⓞ]		5900 to 7300	lb.
Mounting Force [Ⓞ]		2700 to 3300	kg

Ⓞ Consult recommended mounting procedures.



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Electrical and Thermal Characteristics

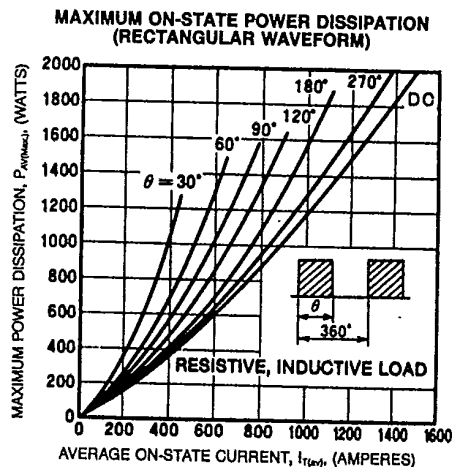
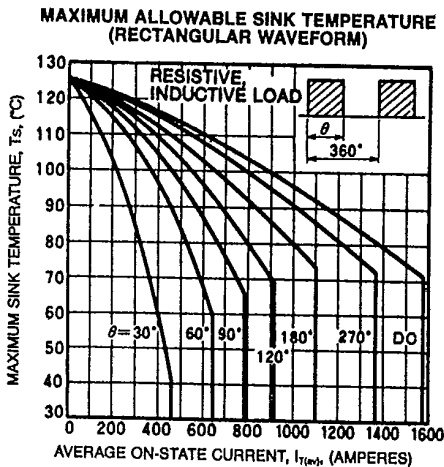
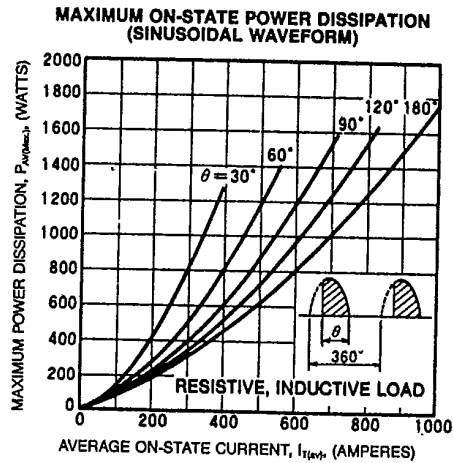
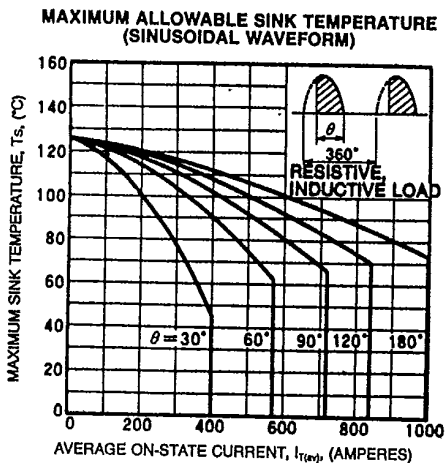
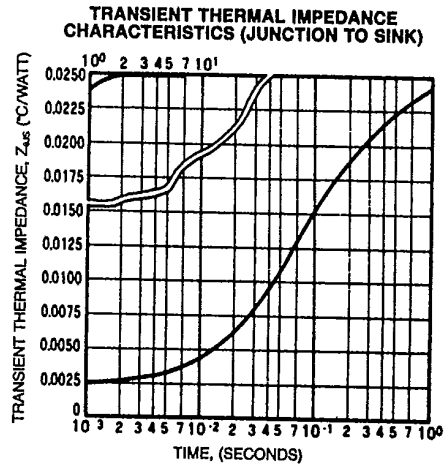
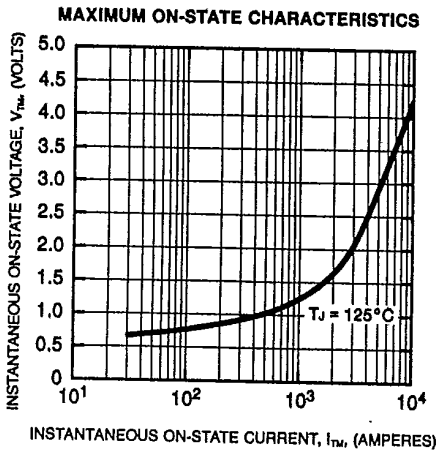
Characteristics	Symbol	Test Conditions	FT1000A	Units
Voltage—Blocking State Maximums				
Forward Leakage, Peak	I_{DRM}	$T_J = 125^\circ\text{C}$, V_{DRM} applied	80	mA
Reverse Leakage, Peak	I_{RRM}	$T_J = 125^\circ\text{C}$, V_{RRM} applied	80	mA
Current—Conducting State Maximums				
Peak On-State Voltage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

[ⓐ] Consult recommended mounting procedures.



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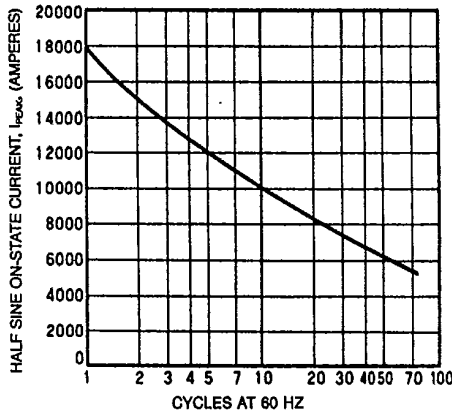




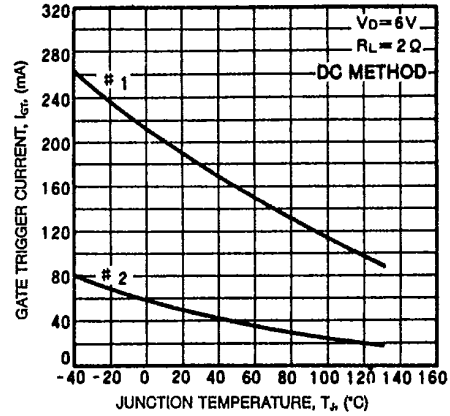
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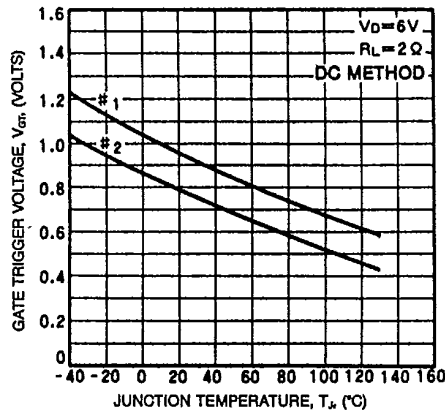
MAXIMUM ALLOWABLE SURGE ON-STATE CURRENT (NON-REPETITIVE)



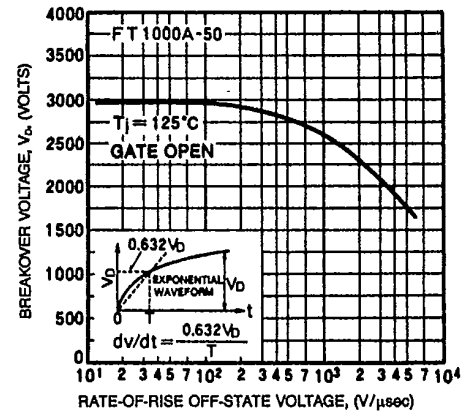
GATE TRIGGER CURRENT (TYPICAL)



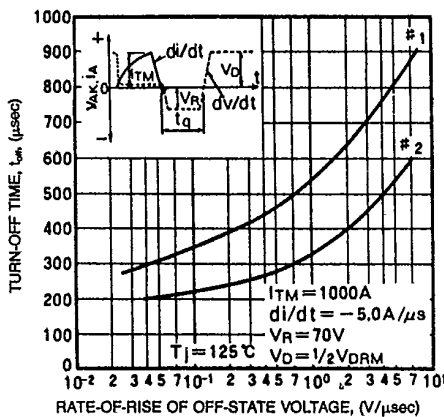
GATE TRIGGER VOLTAGE (TYPICAL)



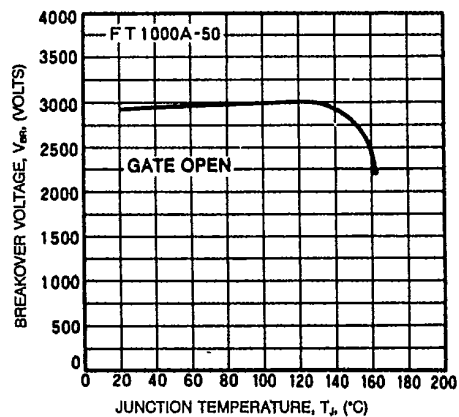
BREAKOVER VOLTAGE (TYPICAL)



TURN-OFF TIME VS. RATE-OF-RISE



BREAKOVER VOLTAGE vs. JUNCTION TEMPERATURE (TYPICAL)





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