

POWEREX INC

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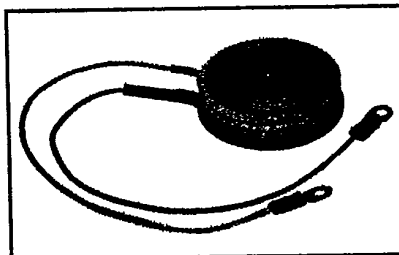
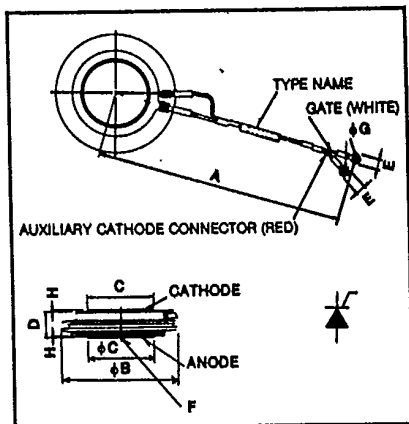
T-25-21



FT1000BV

Powerex, Inc. Hills 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
3000-4000 Volts



FT1000BV
Phase Control SCR
 1000 Amperes/3000-4000 Volts

FT1000BV
Outline Drawing

Dimensions	Inches	Metric
A	11.81 ± .40	300 ± 10
φB	4.016	102
φC	2.382	60
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/namio) 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 ten digit part number you desire from the table - i.e. FT1000BV-75 is a 3500 Volt, 1000 Ampere Phase Control SCR.

Type	Voltage		Current I _T (avg)
	V _{ONM} V _{ONM}	Code	
FT1000BV	3000	-60	1000
	3500	-75	
	4000	-80	

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	Symbol	FT1000BV	Units
RMS On-State Current	$I_{T(RMS)}$	1570	Amperes
Average On-State Current	$I_{T(av)}$	1000	Amperes
Peak One-Cycle Surge (Non Repetitive) On-State Current (60Hz)	I_{TSM}	20,000	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	I_{TSM}	18,250	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	1.7×10^6	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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Characteristics	Symbol	Test Conditions	FT1000BV	Units
Voltage—Blocking State Maximums				
Forward Leakage, Peak	I_{DRM}	$T_J = 125^\circ\text{C}$, V_{DRM} applied	120	mA
Reverse Leakage, Peak	I_{RRM}	$T_J = 125^\circ\text{C}$, V_{RRM} applied	120	mA
Current—Conducting State Maximums				
Peak On-State Voltage	V_{TM}	$I_{TM} = 3200\text{A}$, $T_J = 125^\circ\text{C}$	2.80	Volts
Switching				
Min. Critical dv/dt exponential to V_{DRM}	dv/dt	$T_J = 125^\circ\text{C}$, $V_D = \frac{1}{2}V_{DRM}$	1000	V/ μsec
Thermal				
Maximum Thermal Resistance, [ⓐ] double sided cooling Junction to Sink	$R_{\theta JS}$.017	$^\circ\text{C}/\text{Watt}$
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	Amperes
Peak Reverse Gate Voltage	V_{GRM}		10	Volts

ⓐ Consult recommended mounting procedures.

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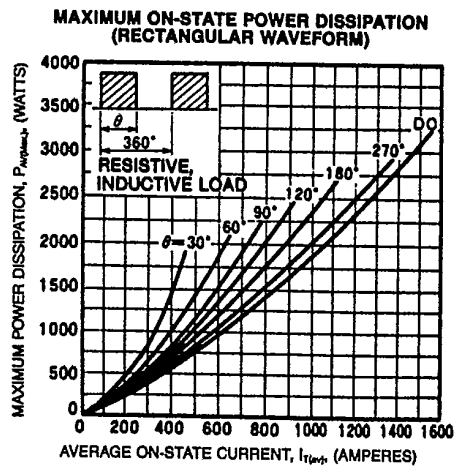
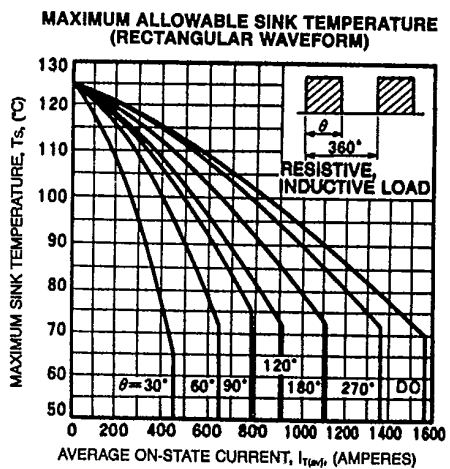
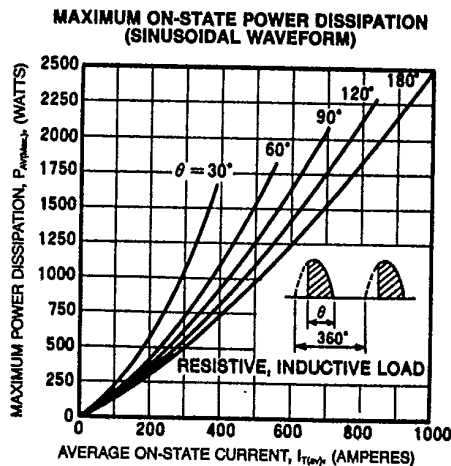
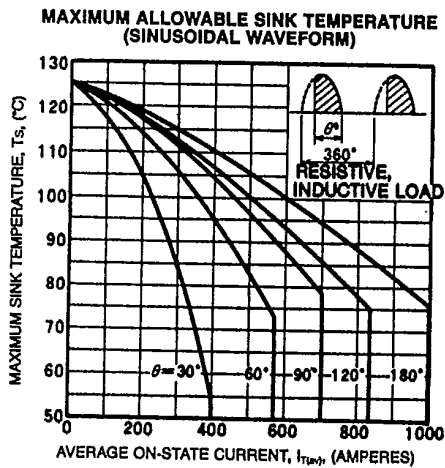
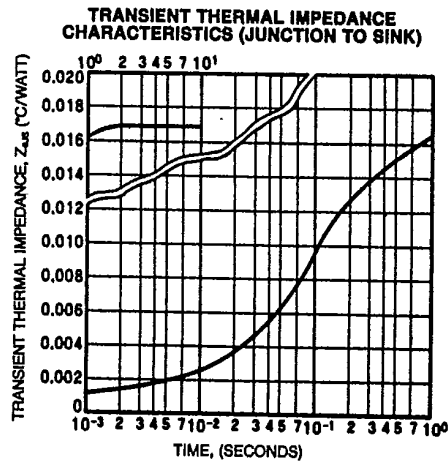
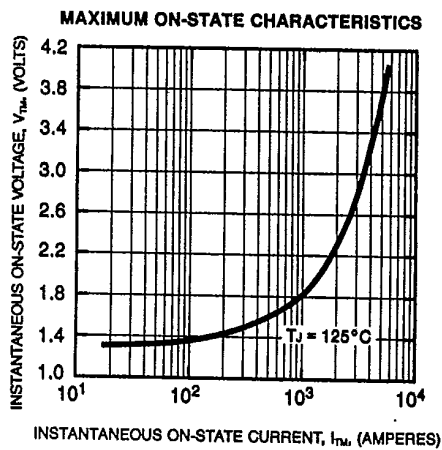
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FT1000BV

Phase Control SCR

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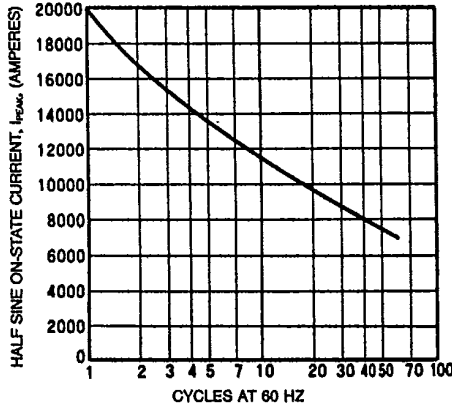
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FT1000BV

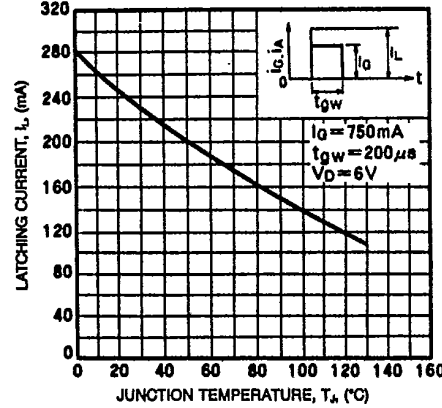
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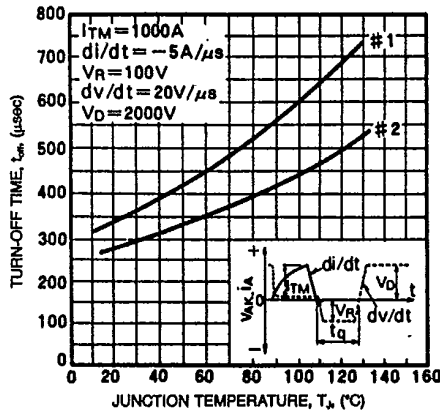
MAXIMUM ALLOWABLE SURGE ON-STATE CURRENT (NON-REPETITIVE)



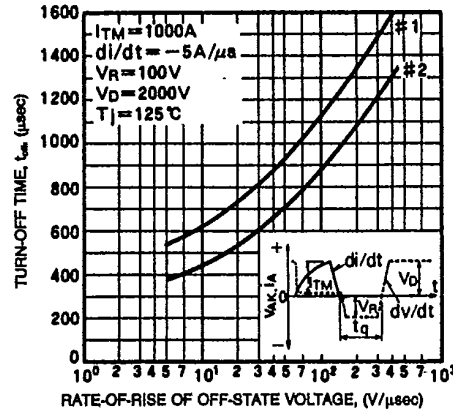
LATCHING CURRENT (TYPICAL)



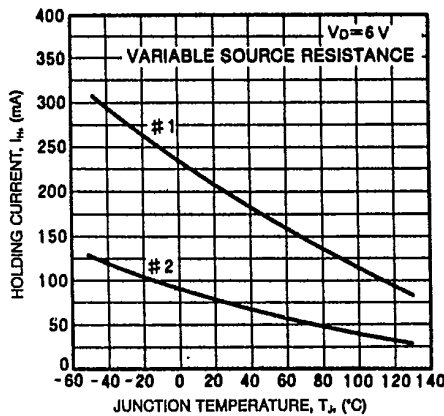
TURN-OFF TIME VS. JUNCTION TEMPERATURE (TYPICAL)



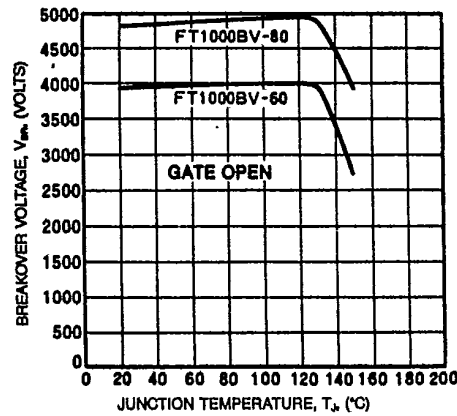
TURN-OFF TIME VS. RATE-OF-RISE



HOLDING CURRENT (TYPICAL)



BREAKOVER VOLTAGE vs. JUNCTION TEMPERATURE (TYPICAL)



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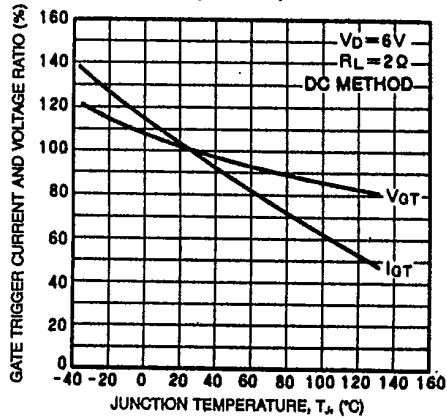
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GATE TRIGGER CURRENT AND VOLTAGE (TYPICAL)



GATE CHARACTERISTICS

