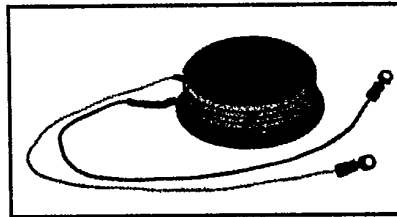
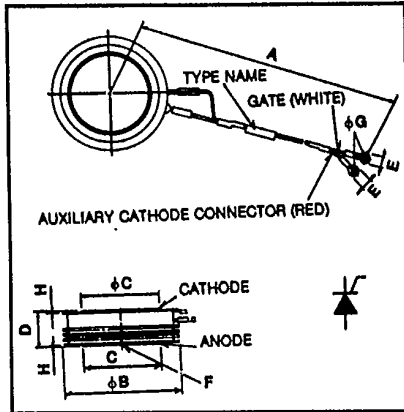




**FT1500DV**

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**  
**1500 Amperes Avg**  
**3000-4000 Volts**



**FT1500DV**  
**Phase Control SCR**  
 1500 Amperes/3000-4000 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<sup>2</sup>t 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. FT1500DV-70 is a 3500 Volt, 1500 Ampere Phase Control SCR.

**FT1500DV**  
**Outline Drawing**

Dimensions	Inches	Metric
A	17.13 ± .40	435 ± 10
φB	4.73 Max	120 Max
φC	3.15	80
D	1.38 ± .02	35 ± 0.5
E	.30	7.5
F	M5	M5 × 0.8
φG	.169	4.3
H	.015 Min	0.4 Min

Type	Voltage		Current I <sub>r</sub> (avg)
	V <sub>ORM</sub> V <sub>RRM</sub>	Code	
FT1500DV	3000	-60	1500
	3500	-70	
	4000	-80	



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### FT1500DV

#### Phase Control SCR

1500 Amperes Avg/3000-4000 Volts

### Absolute Maximum Ratings

	Symbol	FT1500DV	Units
RMS On-State Current	$I_{T(RMS)}$	2350	Amperes
Average On-State Current	$I_{T(av)}$	1500	Amperes
Peak One-Cycle Surge (Non Repetitive) On-State Current (60Hz)	$I_{TSM}$	30,000	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	$I_{TSM}$	27,400	Amperes
Critical Rate-of-Rise of On-State Current (Non-Repetitive)	di/dt	500	Amperes/ $\mu$ s
Critical Rate-of-Rise of On-State Current (Repetitive)	di/dt	250	Amperes/ $\mu$ s
$I^2t$ (for Fusing), One Cycle at 60Hz	$I^2t$	$3.7 \times 10^6$	A <sup>2</sup> sec
Peak Gate Power Dissipation	$P_{GM}$	30	Watts
Average Gate Power Dissipation	$P_{G(av)}$	8	Watts
Storage Temperature	$T_{STG}$	-40 to 150	°C
Operating Temperature	$T_J$	-40 to 125	°C
Mounting Force <sup>ⓐ</sup>		8800 to 11,400	lb.
Mounting Force <sup>ⓐ</sup>		4000 to 5200	kg

### Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	FT1500DV	Units
<b>Voltage—Blocking State Maximums</b>				
Forward Leakage, Peak	$I_{DRM}$	$T_J = 125^\circ\text{C}$ , $V_{DRM}$ applied	300	mA
Reverse Leakage, Peak	$I_{RRM}$	$T_J = 125^\circ\text{C}$ , $V_{RRM}$ applied	300	mA
<b>Current—Conducting State Maximums</b>				
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 4800\text{A}$ , $T_J = 125^\circ\text{C}$	2.60	Volts
<b>Switching</b>				
Min. Critical dv/dt exponential to $V_{DRM}$	dv/dt	$T_J = 125^\circ\text{C}$ , $V_D = \frac{1}{2}V_{DRM}$	1500	V/ $\mu$ sec
<b>Thermal</b>				
Maximum Thermal Resistance, <sup>ⓐ</sup> double sided cooling Junction to Sink	$R_{\theta JS}$		.01	°C/Watt
<b>Gate—Maximum Parameters</b>				
Gate Current to Trigger	$I_{GT}$	$V_D = 6\text{V}$ , $T_J = 25^\circ\text{C}$ , $R_L = 2\Omega$	350	mA
Gate Voltage to Trigger	$V_{GT}$	$V_D = 6\text{V}$ , $T_J = 25^\circ\text{C}$ , $R_L = 2\Omega$	3.0	Volts
Non-Triggering Gate Voltage	$V_{GDM}$	$T_J = 125^\circ\text{C}$ , $V_D = \frac{1}{2}V_{DRM}$	.25	Volts
Peak Forward Gate Current	$I_{GTM}$		6	Amperes
Peak Reverse Gate Voltage	$V_{GRM}$		10	Volts

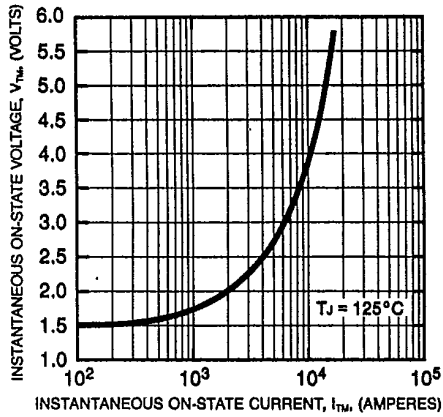
<sup>ⓐ</sup> Consult recommended mounting procedures.



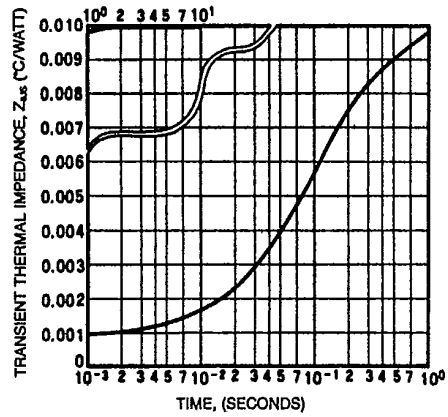
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**FT1500DV**  
**Phase Control SCR**  
 1500 Amperes Avg/3000-4000 Volts

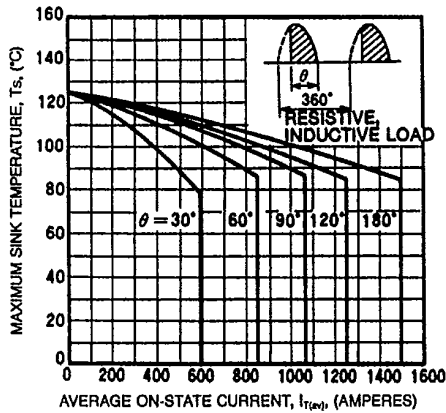
**MAXIMUM ON-STATE CHARACTERISTICS**



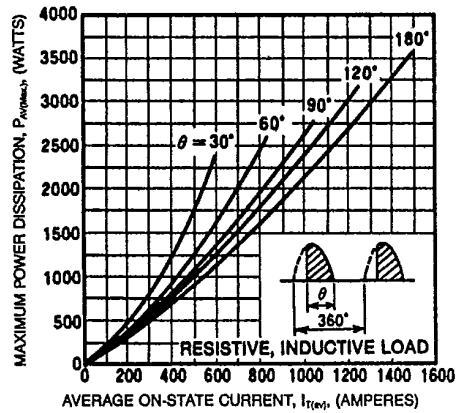
**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO SINK)**



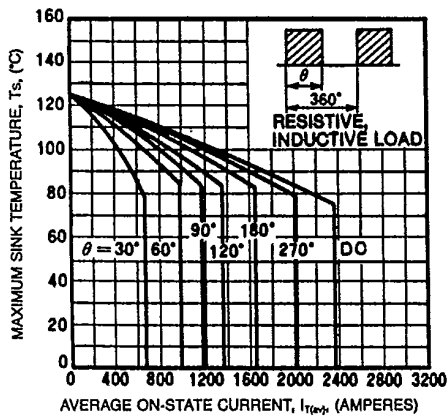
**MAXIMUM ALLOWABLE SINK TEMPERATURE (SINUSOIDAL WAVEFORM)**



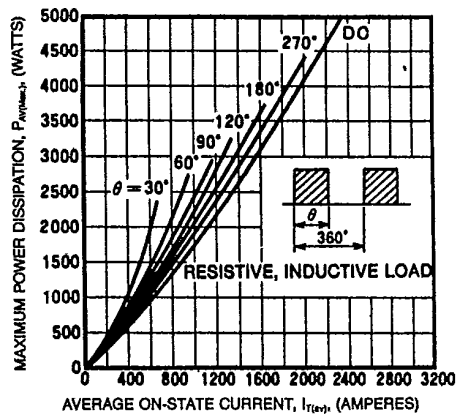
**MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)**



**MAXIMUM ALLOWABLE SINK TEMPERATURE (RECTANGULAR WAVEFORM)**



**MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)**





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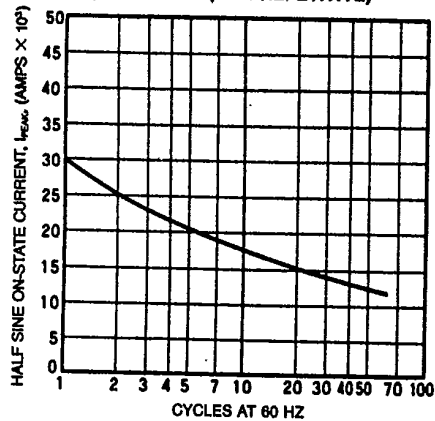
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FT1500DV

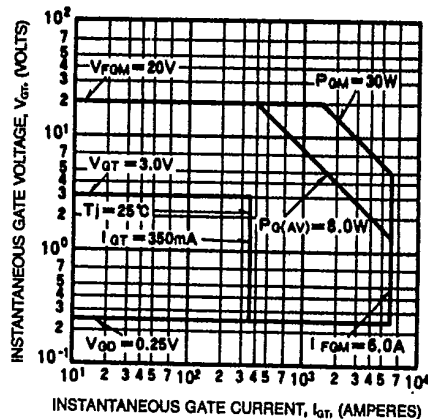
Phase Control SCR

1500 Amperes Avg/3000-4000 Volts

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



GATE CHARACTERISTICS





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