

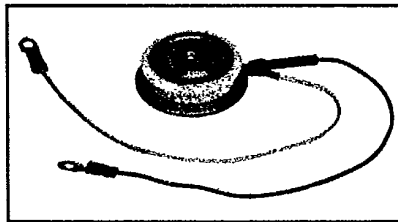
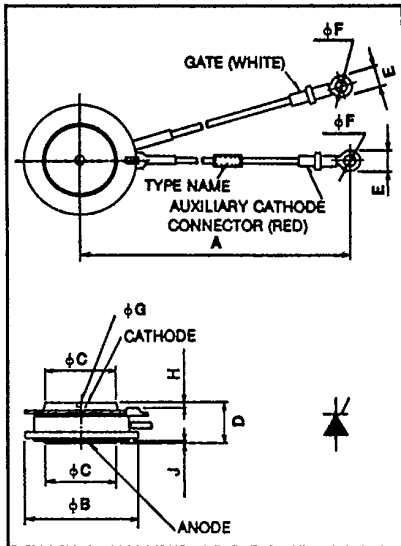
POWEREX INC



**FT100DM**

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**  
**100 Amperes Avg**  
**200-1800 Volts**



**FT100DM**  
**Phase Control SCR**  
 100 Amperes/200-1800 Volts

**Description**

Powerex Silicon Controlled Rectifiers (SCR) are designed for phase control applications. These are all-diffused, Press-Pak (Pow-R-Disc) devices employing center-fired 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 eight or nine digit part number you desire from the table - i.e. FT100DM-12 is a 600 Volt, 100 Ampere Phase Control SCR.

**FT100DM**  
**Outline Drawing**

Dimensions	Inches	Metric
A	12.60 ± .30	320 ± 8
φB	1.693 Max	43 Max
φC	.945	24
D	.57 ± .02	14.5 ± 0.5
E	.30	7.5
φF	.169	4.3
φG <sup>1</sup>	.138	3.5
H	.04 Min	1.0 Min
J	.02 Min	0.4 Min

<sup>1</sup>Depth .04 in or 1mm

Type	Voltage*		Current
	V <sub>onm</sub> V <sub>rrm</sub>	Code	
FT100DM	200	-4	100
	300	-6	
	400	-8	
	500	-10	
	600	-12	
	800	-16	
	1000	-20	
	1200	-24	
	1400	-28	
1600	-32		
1800	-36		

\*Voltage classes 8, 12, 16, 24, 32, and 36 are standard products.

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**POWEREX***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***FT100DM****Phase Control SCR***100 Amperes Avg/200-1800 Volts***Absolute Maximum Ratings**

	Symbol	FT100DM	Units
RMS On-State Current	$I_{T(RMS)}$	155	Amperes
Average On-State Current	$I_{T(av)}$	100	Amperes
Peak One-Cycle Surge (Non Repetitive) On-State Current (60Hz)	$I_{TSM}$	2000	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	$I_{TSM}$	1825	Amperes
Critical Rate-of-Rise of On-State Current (Non-Repetitive)	$di/dt$	300	Amperes/ $\mu$ s
Critical Rate-of-Rise of On-State Current (Repetitive)	$di/dt$	100	Amperes/ $\mu$ s
$I^2t$ (for Fusing), one cycle at 60Hz	$I^2t$	$1.7 \times 10^4$	$A^2sec$
Peak Gate Power Dissipation	$P_{GM}$	5	Watts
Average Gate Power Dissipation	$P_{G(av)}$	.50	Watts
Storage Temperature	$T_{STG}$	-40 to 150	$^{\circ}C$
Operating Temperature	$T_J$	-40 to 125	$^{\circ}C$
Mounting Force <sup>ⓐ</sup>		1200 to 1685	lb.
Mounting Force <sup>ⓐ</sup>		540 to 720	kg

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

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**FT100DM****Phase Control SCR**

100 Amperes Avg/200-1800 Volts

**Electrical and Thermal Characteristics**

Characteristics	Symbol	Test Conditions	FT100DM	Units
<b>Voltage—Blocking State Maximums</b>				
Forward Leakage, Peak	$I_{DRM}$	$T_J = 125^\circ\text{C}$ , $V_{DRM}$ applied	15	mA
Reverse Leakage, Peak	$I_{RRM}$	$T_J = 125^\circ\text{C}$ , $V_{RRM}$ applied	15	mA
<b>Current—Conducting State Maximums</b>				
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 310\text{A}$ , $T_J = 125^\circ\text{C}$	2	Volts
<b>Switching</b>				
Min. Critical dv/dt exponential to $V_{DRM}$	dv/dt	$T_J = 125^\circ\text{C}$ , $V_D = \frac{1}{2}V_{DRM}$	100	V/ $\mu\text{sec}$
<b>Thermal</b>				
Maximum Thermal Resistance, <sup>ⓐ</sup> double sided cooling Junction to Sink	$R_{\theta JS}$		0.2	$^\circ\text{C}/\text{Watt}$
<b>Gate—Maximum Parameters</b>				
Gate Current to Trigger	$I_{GT}$	$V_D = 6\text{V}$ , $T_J = 25^\circ\text{C}$ , $R_L = 2\Omega$	100	mA
Gate Voltage to Trigger	$V_{GT}$	$V_D = 6\text{V}$ , $T_J = 25^\circ\text{C}$ , $R_L = 2\Omega$	1.5	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	$I_{GTM}$		2.0	Amperes
Peak Reverse Gate Voltage	$V_{GRM}$		5.0	Volts

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



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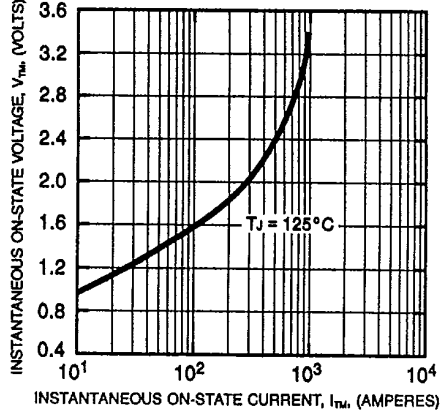
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**FT100DM**

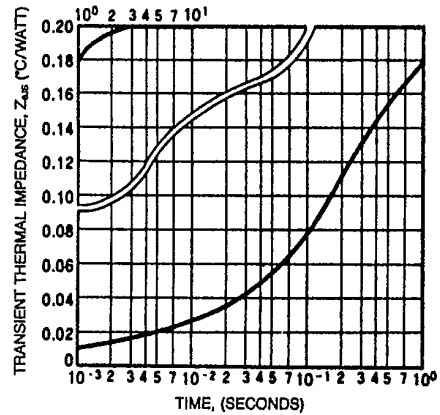
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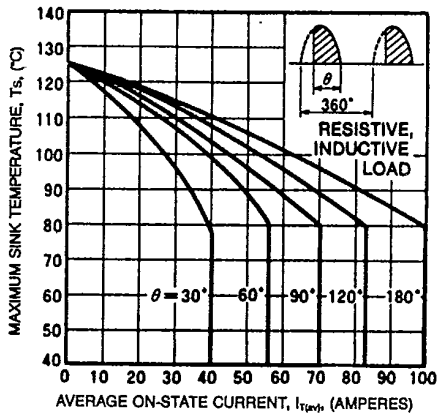
**MAXIMUM ON-STATE CHARACTERISTICS**



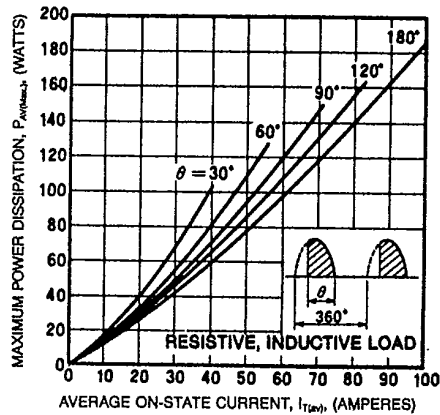
**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO SINK)**



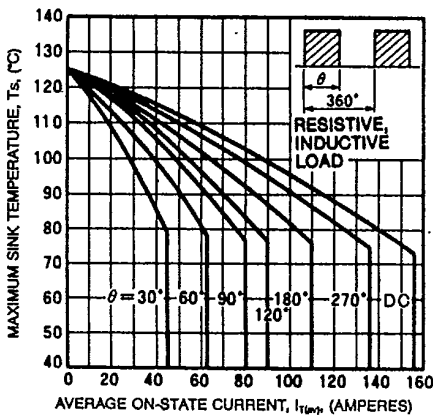
**MAXIMUM ALLOWABLE SINK TEMPERATURE (SINUSOIDAL WAVEFORM)**



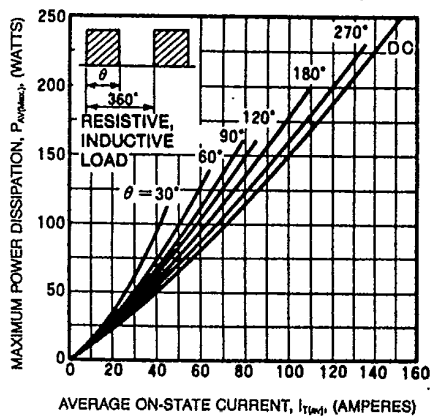
**MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)**



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



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

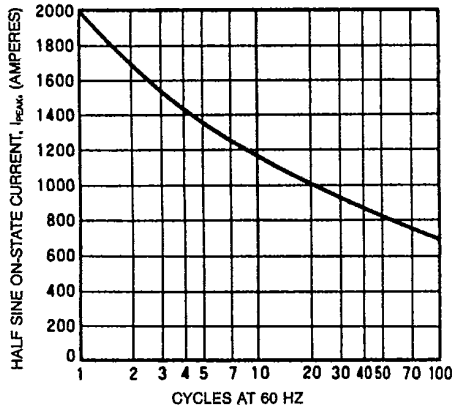




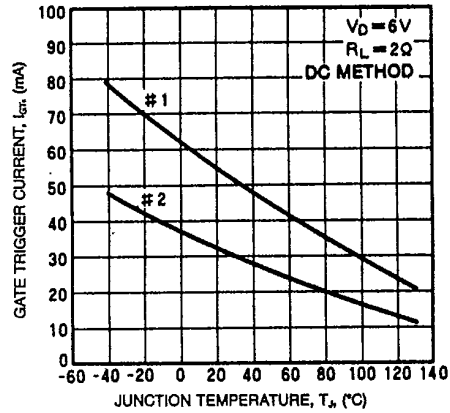
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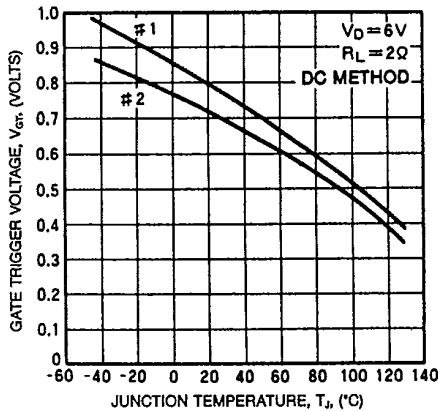
MAXIMUM ALLOWABLE SURGE ON-STATE CURRENT (NON-REPETITIVE)



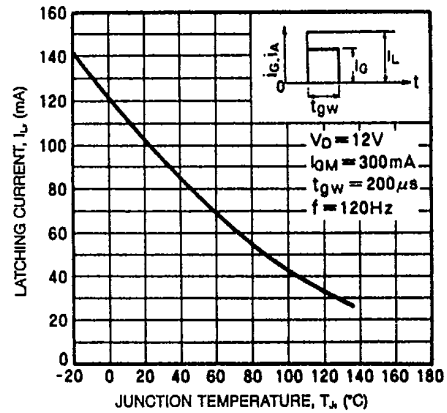
GATE TRIGGER CURRENT (TYPICAL)



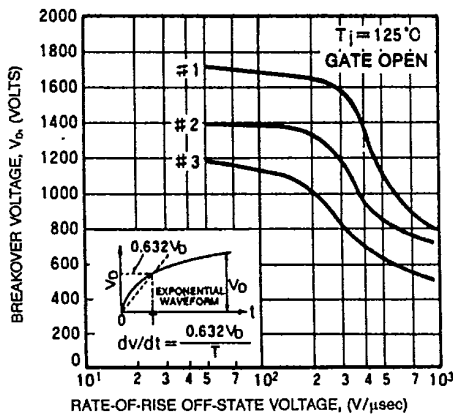
GATE TRIGGER VOLTAGE (TYPICAL)



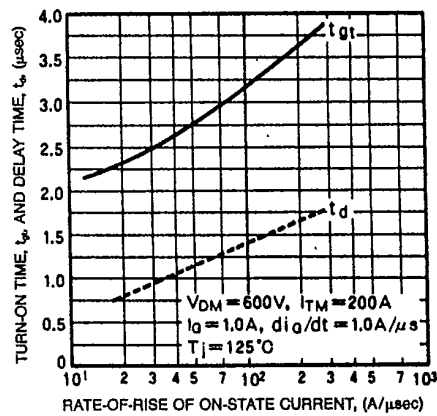
LATCHING CURRENT (TYPICAL)



BREAKOVER VOLTAGE (TYPICAL)



TURN-ON AND DELAY TIME





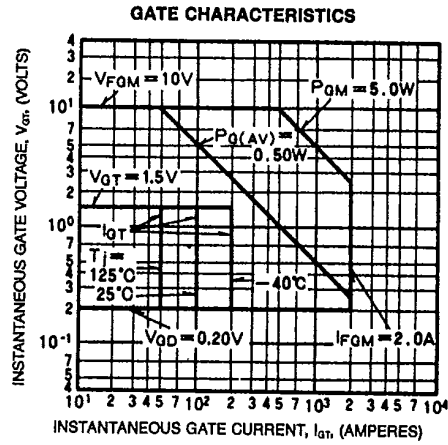
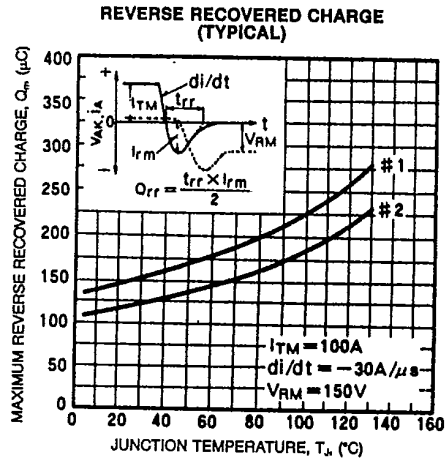
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