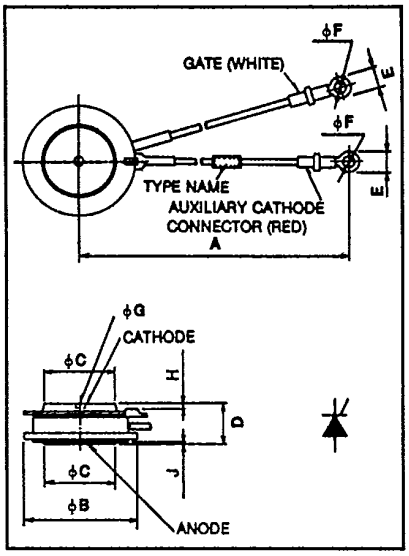
POWEREX INC

FT100DM

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

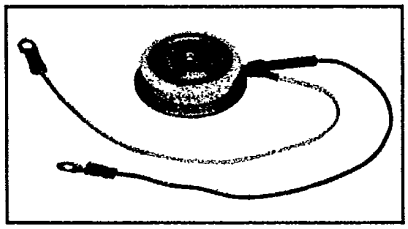
Phase Control SCR
100 Amperes Avg
200-1800 Volts



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[1]	.138	3.5
H	.04 Min	1.0 Min
J	.02 Min	0.4 Min

[1]Depth .04 in or 1mm



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^2t 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.

Type	Voltage*		Current
.	V_{DRM} V_{RRM}	Code	I_T (avg)
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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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/μs
Critical Rate-of-Rise of On-State Current (Repetitive)	di/dt	100	Amperes/μs
I^2t (for Fusing), one cycle at 60Hz	I^2t	1.7×10^4	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	°C
Operating Temperature	T_J	−40 to 125	°C
Mounting Force①		1200 to 1585	lb.
Mounting Force①		540 to 720	kg

① Consult recommended mounting procedures.

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Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	FT100DM	Units
Voltage—Blocking State Maximums				
Forward Leakage, Peak	I_{DRM}	T_J = 125°C, V_{DRM} applied	15	mA
Reverse Leakage, Peak	I_{RRM}	T_J = 125°C, V_{RRM} applied	15	mA
Current—Conducting State Maximums				
Peak On-State Voltage	V_{TM}	I_{TM} = 310A, T_J = 125°C	2	Volts
Switching				
Min. Critical dv/dt exponential to V_{DRM}	dv/dt	T_J = 125°C, V_D = ½V_{DRM}	100	V/μsec
Thermal				
Maximum Thermal Resistance,① double sided cooling				
Junction to Sink	$R_{\theta JS}$		0.2	°C/Watt
Gate—Maximum Parameters				
Gate Current to Trigger	I_{GT}	V_D = 6V, T_J = 25°C, R_L = 2Ω	100	mA
Gate Voltage to Trigger	V_{GT}	V_D = 6V, T_J = 25°C, R_L = 2Ω	1.5	Volts
Non-Triggering Gate Voltage	V_{GDM}	T_J = 125°C, V_D = ½V_{DRM}	.20	Volts
Peak Forward Gate Current	I_{GTM}		2.0	Amperes
Peak Reverse Gate Voltage	V_{GRM}		5.0	Volts

① Consult recommended mounting procedures.

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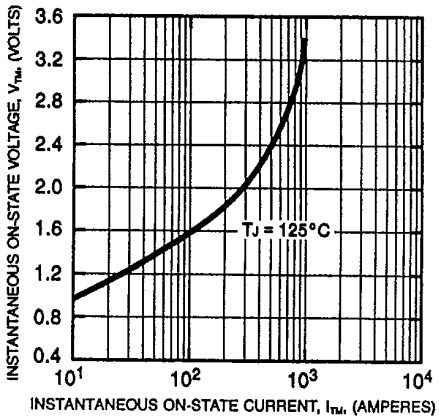
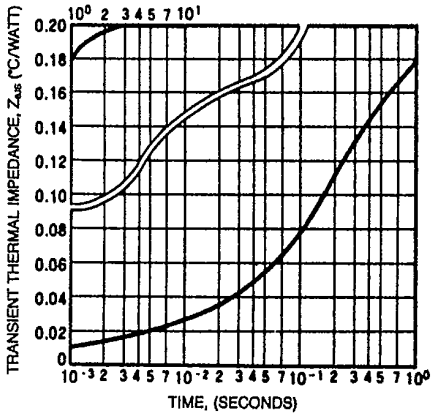
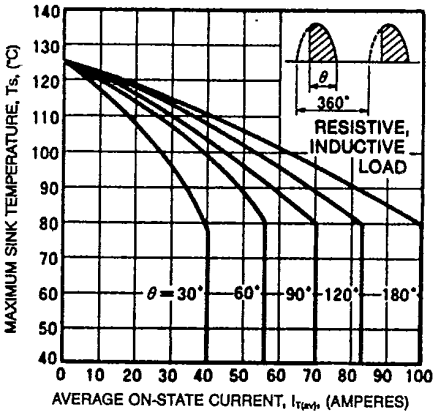
MAXIMUM ON-STATE CHARACTERISTICS



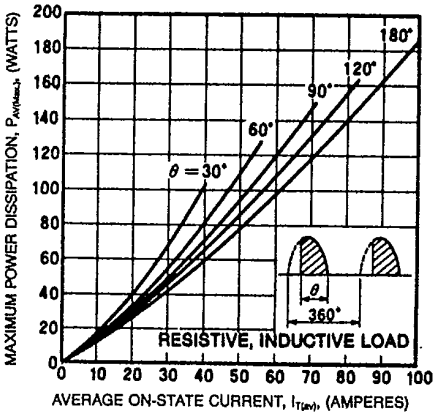
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO SINK)



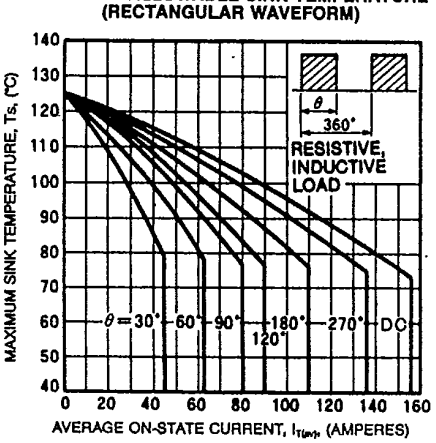
MAXIMUM ALLOWABLE SINK TEMPERATURE (SINUSOIDAL WAVEFORM)



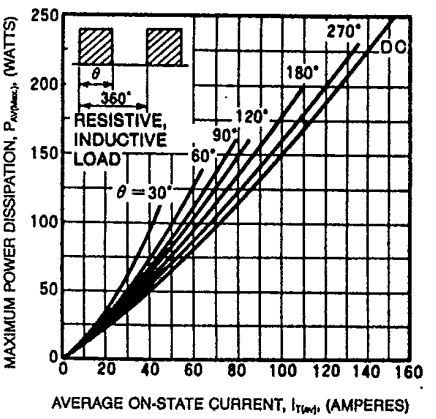
MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)



MAXIMUM ALLOWABLE SINK TEMPERATURE (RECTANGULAR WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



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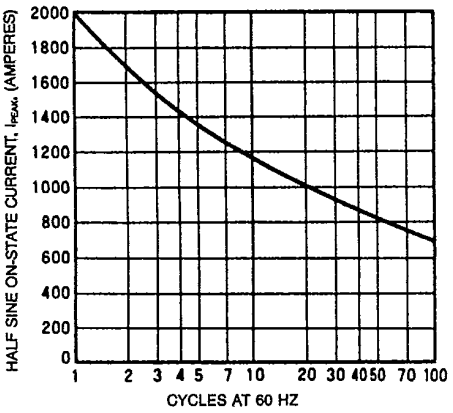
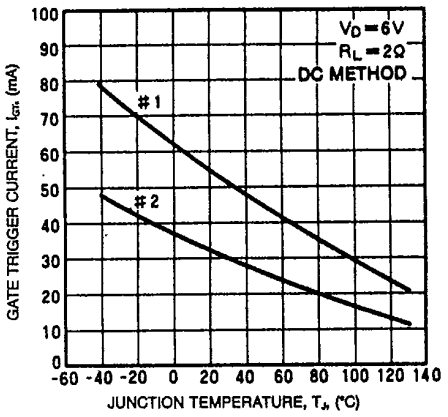
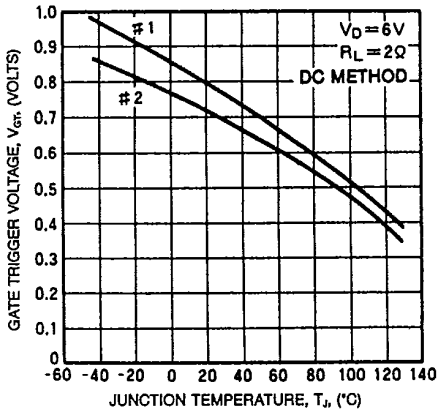
MAXIMUM ALLOWABLE SURGE ON-STATE CURRENT (NON-REPETITIVE)



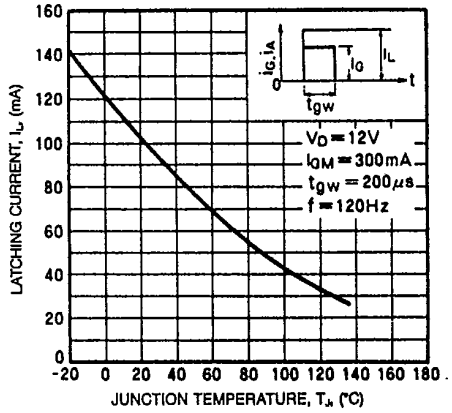
GATE TRIGGER CURRENT (TYPICAL)



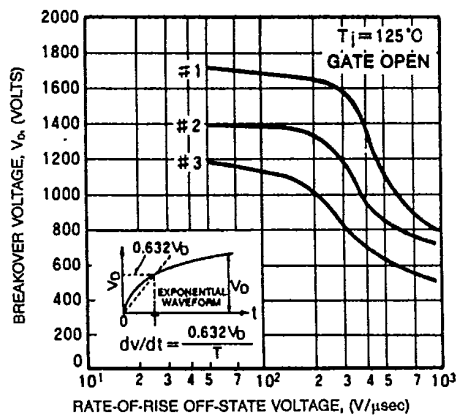
GATE TRIGGER VOLTAGE (TYPICAL)



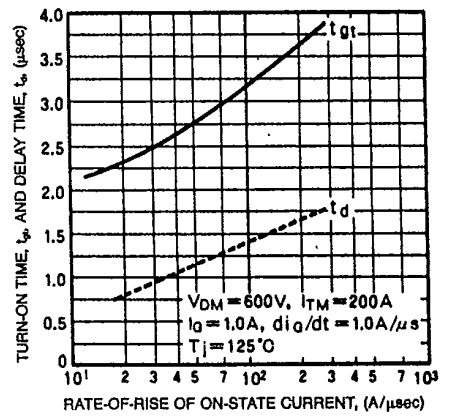
LATCHING CURRENT (TYPICAL)



BREAKOVER VOLTAGE (TYPICAL)



TURN-ON AND DELAY TIME



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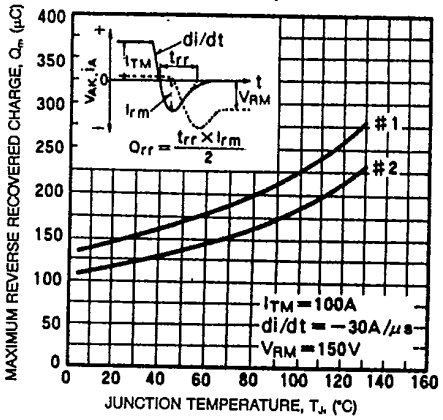
REVERSE RECOVERED CHARGE (TYPICAL)



GATE CHARACTERISTICS