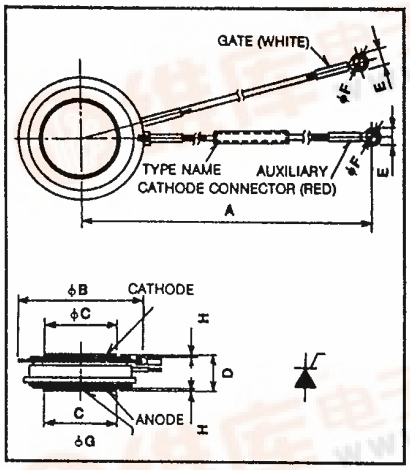
POWEREX

FT800DL

Phase Control SCR

800 Amperes Avg
200-1200 Volts

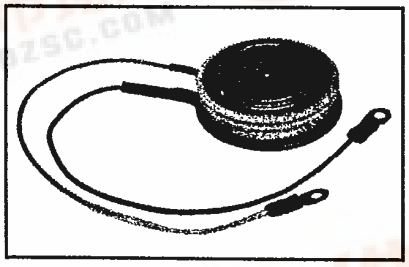
Powerex, Inc. Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272
Powerex Europe, S.A., 428 Ave. G. Durand, BP107, 72003 LeMans, France (43) 72.75.15



FT800DL
Outline Drawing

Dimensions	Inches	Metric
A	16.93 ± 40	430 ± 10
ϕB	2.362 Max	60 Max
ϕC	1.260	32
D	.57 ± .02	14.5 ± 0.5
E	.30	7.5
ϕF	.169	4.3
ϕG	.165	4.2
H	.015 Min	0.4 Min

[1]Depth .08 in or 2mm



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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^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. FT800DL-12 is a 600 Volt, 800 Ampere Phase Control SCR.

Type	Voltage*		Current
	V_{DRM} V_{RRM}	Code	I_T (avg)
FT800DL	200	-4	800
	300	-6	
	400	-8	
	500	-10	
	600	-12	
	800	-16	
	1000	-20	
	1200	-24	

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

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Absolute Maximum Ratings

	Symbol	FT800DL	Units
RMS On-State Current	$I_{T(RMS)}$	1250	Amperes
Average On-State Current	$I_{T(av)}$	800	Amperes
Peak One-Cycle Surge (Non Repetitive) On-State Current (60Hz)	I_{TSM}	14,000	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	I_{TSM}	12,800	Amperes
Critical Rate-of-Rise of On-State Current (Non-Repetitive)	di/dt	500	Amperes/µs
Critical Rate-of-Rise of On-State Current (Repetitive)	di/dt	200	Amperes/µs
I^2t (for Fusing), one cycle at 60Hz	I^2t	8.2×10^5	A^2sec
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 Force①		3000 to 4000	lb.
Mounting Force①		1350 to 1800	kg

Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	FT800DL	Units
Voltage—Blocking State Maximums				
Forward Leakage, Peak	I_{DRM}	T_J = 125°C, V_{DRM} applied	30	mA
Reverse Leakage, Peak	I_{RRM}	T_J = 125°C, V_{RRM} applied	30	mA
Current—Conducting State Maximums				
Peak On-State Voltage	V_{TM}	I_{TM} = 2500A	1.50	Volts
Switching				
Min. Critical dv/dt exponential to V_{DRM}	dv/dt	T_J = 125°C, V_D = ½V_{DRM}	200	V/µsec
Thermal				
Maximum Thermal Resistance,① double sided cooling Junction to Sink	$R_{\theta JS}$		.040	°C/Watt
Gate—Maximum Parameters				
Gate Current to Trigger	I_{GT}	V_D = 6V, T_J = 25°C, R_L = 2Ω	250	mA
Gate Voltage to Trigger	V_{GT}	V_D = 6V, T_J = 25°C, R_L = 2Ω	2.5	Volts
Non-Triggering Gate Voltage	V_{GDM}	T_J = 125°C, V_D = 1/2V_{DRM}	.20	Volts
Peak Forward Gate Current	I_{GTM}		4	Amperes
Peak Reverse Gate Voltage	V_{GRM}		5	Volts

① Consult recommended mounting procedures.

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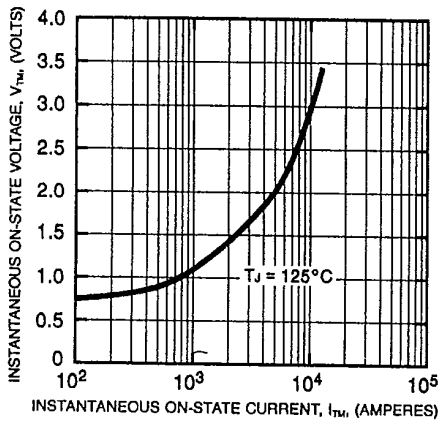
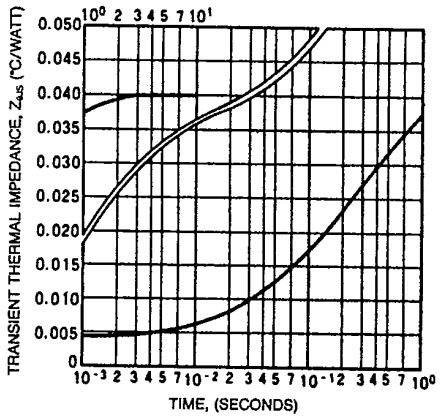
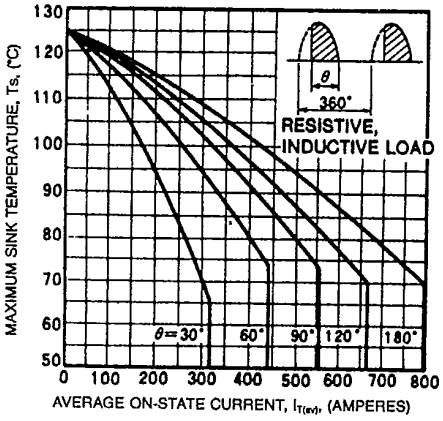
MAXIMUM ON-STATE CHARACTERISTICS



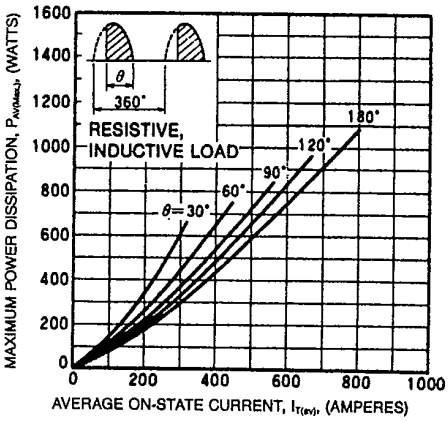
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO SINK)



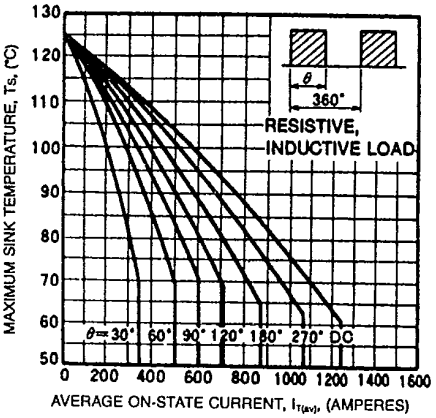
MAXIMUM ALLOWABLE SINK TEMPERATURE (SINUSOIDAL WAVEFORM)



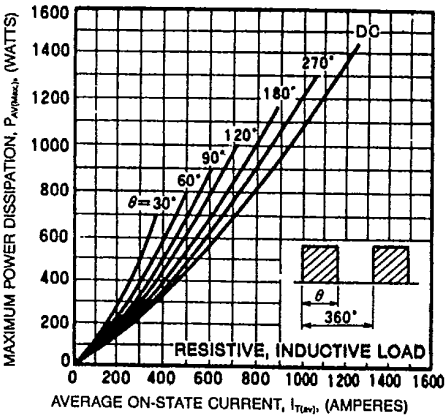
MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)



MAXIMUM ALLOWABLE SINK TEMPERATURE (RECTANGULAR WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



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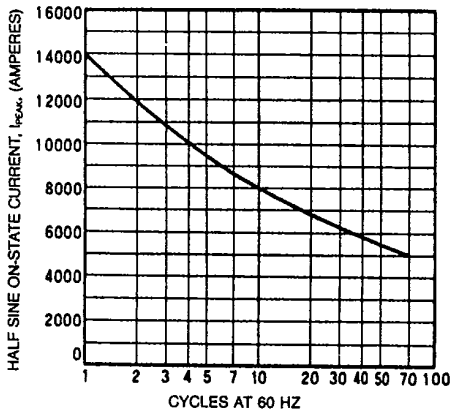
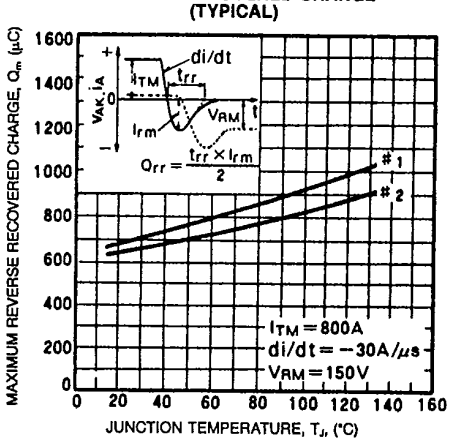
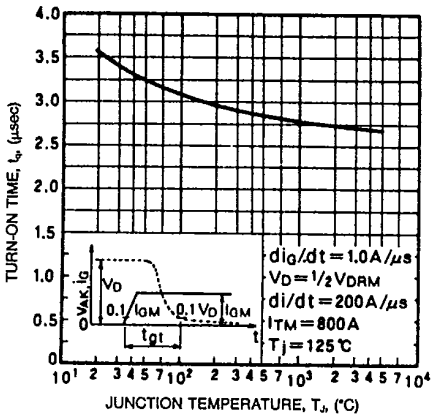
MAXIMUM ALLOWABLE SURGE ON-STATE CURRENT (NON-REPETITIVE)



REVERSE RECOVERED CHARGE (TYPICAL)



TURN-ON TIME VS. JUNCTION TEMPERATURE (TYPICAL)



GATE CHARACTERISTICS