

POWEREX INC

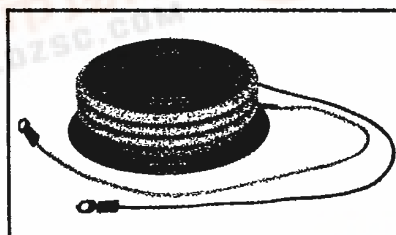
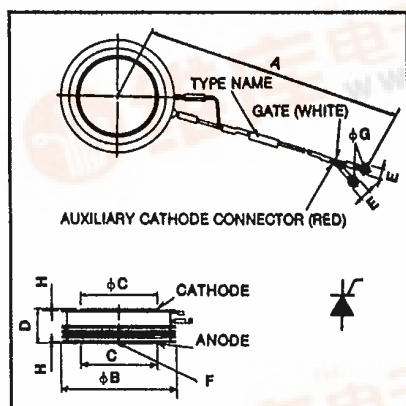
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T-25-21

POWEREX**FT3000AV**

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**3000 Amperes Avg
3000-4000 Volts**

FT3000AV
Phase Control SCR
3000 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 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. FT3000AV-80 is a 4000 Volt, 3000 Ampere Phase Control SCR.

**FT3000AV
Outline Drawing**

Dimensions	Inches	Metric
A	17.52 ± .40	445 ± 10
φB	5.906	150
φC	3.937	100
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 _T (avg)
	V _{ORM} V _{RRM}	Code	
FT3000AV	3000	-60	3000
	3500	-70	
	4000	-80	



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Absolute Maximum Ratings

	Symbol	FT3000AV	Units
RMS On-State Current	$I_{T(RMS)}$	4700	Amperes
Average On-State Current	$I_{T(av)}$	3000	Amperes
Peak One-Cycle Surge (Non Repetitive) On-State Current (60Hz)	I_{TSM}	60,000	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	I_{TSM}	55,000	Amperes
Critical Rate-of-Rise of On-State Current (Non-Repetitive)	di/dt	800	Amperes/ μs
Critical Rate-of-Rise of On-State Current (Repetitive)	di/dt	300	Amperes/ μs
I^2t (for Fusing), one cycle at 60Hz	I^2t	1.5×10^7	A^2sec
Peak Gate Power Dissipation	P_{GM}	30	Watts
Average Gate Power Dissipation	$P_{G(av)}$	8	Watts
Storage Temperature	T_{STG}	-40 to 150	$^{\circ}C$
Operating Temperature	T_J	-40 to 125	$^{\circ}C$
Mounting Force ^①		19,800 to 26,400	lb.
Mounting Force ^①		9000 to 12,000	kg

Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	FT3000AV	Units
Voltage—Blocking State Maximums				
Forward Leakage, Peak	I_{DRM}	$T_J = 125^{\circ}C$, V_{DRM} applied	500	mA
Reverse Leakage, Peak	I_{RRM}	$T_J = 125^{\circ}C$, V_{RRM} applied	500	mA
Current—Conducting State Maximums				
Peak On-State Voltage	V_{TM}	$I_{TM} = 9800A$, $T_J = 125^{\circ}C$	2.80	Volts
Switching				
Min. Critical dv/dt exponential to V_{DRM}	dv/dt	$T_J = 125^{\circ}C$, $V_D = \frac{1}{2}V_{DRM}$	2000	V/ μsec
Thermal				
Maximum Thermal Resistance, ^① double sided cooling Junction to Sink	$R_{\theta JS}$		.0075	$^{\circ}C/Watt$
Gate—Maximum Parameters				
Gate Current to Trigger	I_{GT}	$V_D = 6V$, $T_J = 25^{\circ}C$, $R_L = 2\Omega$	350	mA
Gate Voltage to Trigger	V_{GT}	$V_D = 6V$, $T_J = 25^{\circ}C$, $R_L = 2\Omega$	3.0	Volts
Non-Trigerring Gate Voltage	V_{GDM}	$T_J = 125^{\circ}C$, $V_D = \frac{1}{2}V_{DRM}$	.25	Volts
Peak Forward Gate Current	I_{GTM}		6	Amperes
Peak Reverse Gate Voltage	V_{GRM}		10	Volts

^① Consult recommended mounting procedures.



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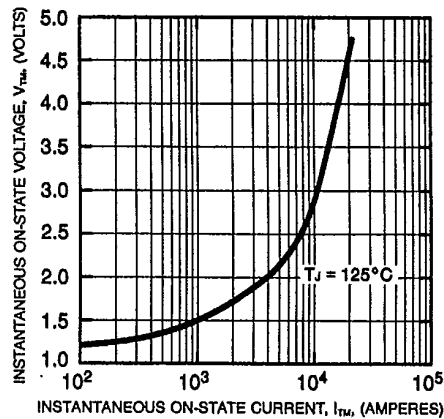
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FT3000AV

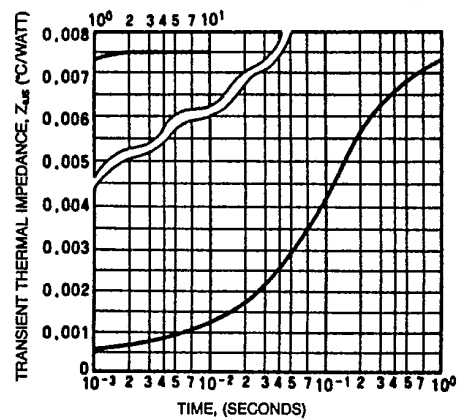
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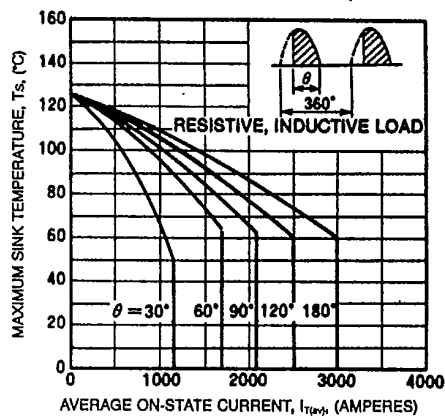
MAXIMUM ON-STATE CHARACTERISTICS



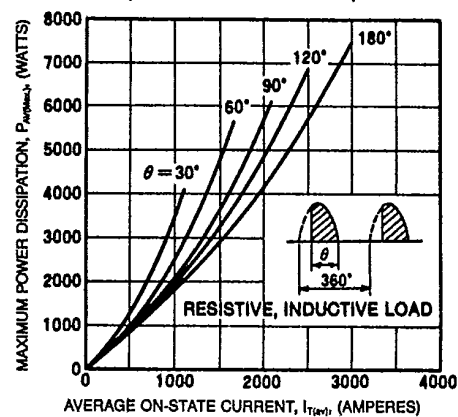
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO SINK)



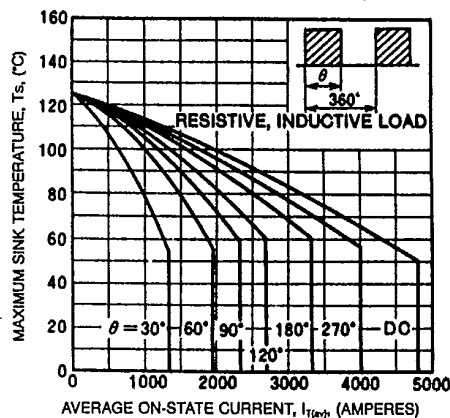
MAXIMUM ALLOWABLE SINK TEMPERATURE (SINUSOIDAL WAVEFORM)



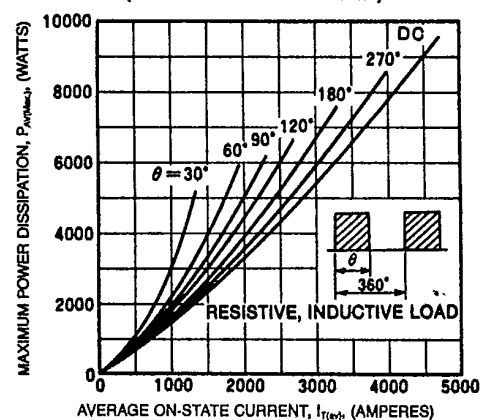
MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)



MAXIMUM ALLOWABLE SINK TEMPERATURE (RECTANGULAR WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



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