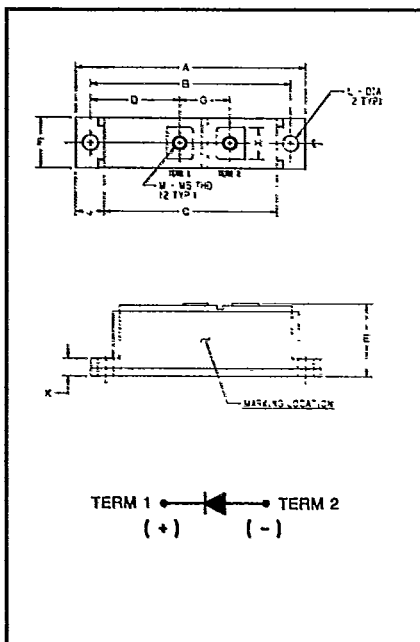




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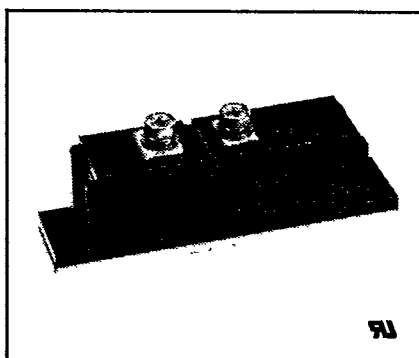
CS41 ___ 99

**Single Diode
 POW-R-BLOK™ Module
 100 Amperes/400-2400 Volts**



**400-2400 Volts CS41 ___ 99
 Outline Drawing**

Dimension	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	3.602	3.640	91.49	92.45
B	3.146	3.154	79.91	80.11
C	2.705	2.735	68.71	69.47
D	1.386	1.426	35.20	36.22
E	1.125	1.165	28.58	29.59
F	.795	.805	20.19	20.45
G	.788	.798	19.76	20.27
H	.480	.520	12.19	13.21
J	.43	.47	10.92	11.94
K	.265	.285	6.73	7.24
L0	.245	.255	6.22	6.48
M	—	—	M5 x 0.8	



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Ordering Information

Example: Select the complete eight digit module part number you desire from the table — i.e. CS412499 is a 2400 Volt, 100 Ampere Single Diode POW-R-BLOK™ Module.

Type	V _{RRM} Volts (x100)	Current Rating Amperes (100)
CS41	04	99
	06	
	08	
	10	
	12	
	14	
	16	
	18	
	20	
	22	
	24	

Description

Powerex POW-R-BLOK™ Assemblies combine multiple power semiconductor devices in a single, electrically isolated module. This dense, cost-effective packaging is made possible by Powerex's proprietary *glass passivation* process, in which each semiconductor junction is sealed with a protective layer of glass. Exhaustive testing at high voltages and high temperatures has demonstrated the excellent parameter stability of these glass-protected products.

The POW-R-BLOK™ features a self-contained electrical isolation system. The use of BeO ceramic isolators with high thermal conductivity has achieved excellent circuit-to-baseplate isolation (≥ 2500 volts RMS), while maintaining efficient cooling of the semiconductors. POW-R-BLOK™ has been tested and recognized by Underwriters Laboratories (QQX2 Power Switching Semiconductors).

Features:

- Glass Passivation
- Hybrid Construction
- Isolated Base Plate
- Low Thermal Impedance
- Metal Base Plate
- UL Recognized

Applications:

- Battery Supplies
- Rectifiers
- Free Wheeling Diode

Benefits:

- No Additional Insulating Components Required
- Easy Installation
- Reduced Engineering Time
- Improved Heat Transfer
- Voltage Stability



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Absolute Maximum Ratings

Characteristics	Symbol	CS410499	CS410699	CS410899	CS411099	CS411299	CS411499	Units
Peak Reverse Blocking Voltage	V_{RRM}	400	600	800	1000	1200	1400	Volts
Transient Peak Reverse Blocking Voltage (Non-Repetitive) $t < 5ms$	V_{RSM}	500	800	1000	1200	1400	1600	Volts
DC Reverse Blocking Voltage	$V_{R(DC)}$	320	480	640	800	960	1120	Volts
		CS411699	CS411899	CS412099	CS412299	CS412499		
Peak Reverse Blocking Voltage	V_{RRM}	1600	1800	2000	2200	2400		Volts
Transient Peak Reverse Blocking Voltage (Non-Repetitive) $t < 5ms$	V_{RSM}	1800	2000	2200	2400	2600		Volts
DC Reverse Blocking Voltage	$V_{R(DC)}$	1280	1440	1600	1760	1920		Volts
		CS41 ___ 99						
RMS On-State Current	$I_{F(RMS)}$			157				Amperes
Average On-State Current, $T_C = 113^\circ C$	$I_{F(AV)}$			100				Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60 Hz)	I_{FSM}			2400				Amperes
Peak Three-Cycle Surge (Non-Repetitive) On-State Current (60 Hz)	I_{FSM}			1950				Amperes
Peak Ten-Cycle Surge (Non-Repetitive) On-State Current (60 Hz)	I_{FSM}			1400				Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50 Hz)	I_{FSM}			2190				Amperes
I^2t (for Fusing), 8.3 milliseconds	I^2t			23900				A ² sec
Storage Temperature	T_{STG}			-40 to 165				°C
Operating Temperature	T_J			-40 to 150				°C
Maximum Mounting Torque M6 Mounting Screw	—			50				in.-lb.
Maximum Terminal Torque M5 Terminal Screw	—			35				in.-lb.
Module Weight (Typical)	—			142				Grams
V Isolation	V_{RMS}			2500				Volts



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CS41 __ __ 99

Single Diode POW-R-BLOK™ Module

100 Amperes/400-2400 Volts

Electrical and Thermal Characteristics, $T_J=25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Test Conditions	CS41 __ __ 99	Units
Blocking State Maximums				
Reverse Leakage Current, Peak	I_{RRM}	$T_J = 150^\circ\text{C}$, $V_{RRM} = \text{rated}$	15	mA
Conducting State Maximums				
Peak On-State Voltage	V_{FM}	$I_{FM} = 250\text{A}$	1.3	Volts
Switching Typical				
Reverse Recovery Time	t_{rr}	$I_{FM} = 314\text{A}$, $-di/dt = 25\text{A}/\mu\text{s}$	7	μs
Thermal Maximums				
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Per Device	0.28	$^\circ\text{C}/\text{Watt}$
Thermal Resistance, Case to Sink Lubricated	$R_{\theta CS}$	Per Device	0.2	$^\circ\text{C}/\text{Watt}$

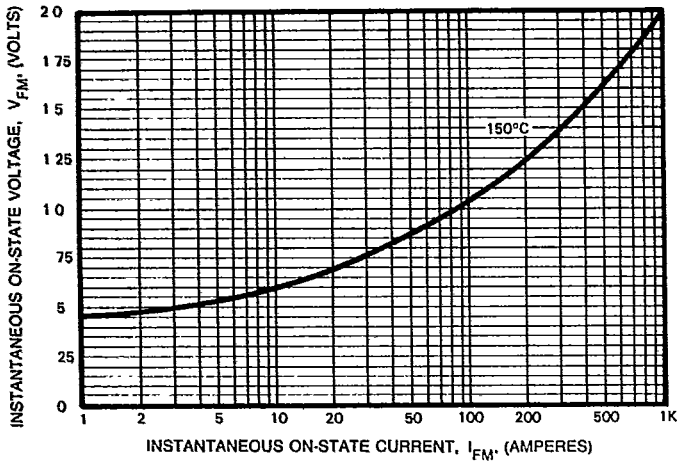


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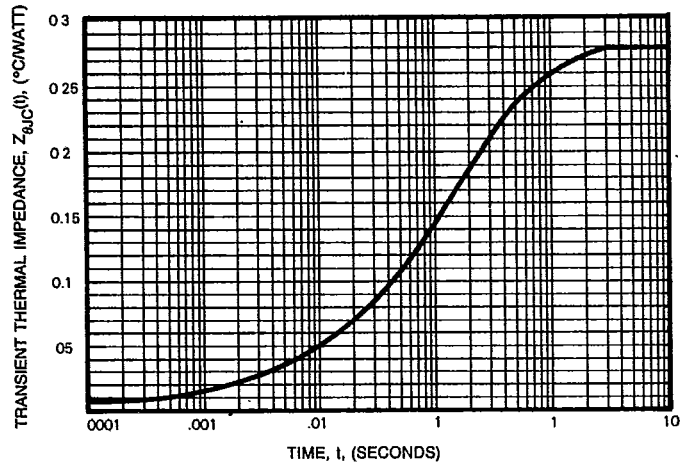
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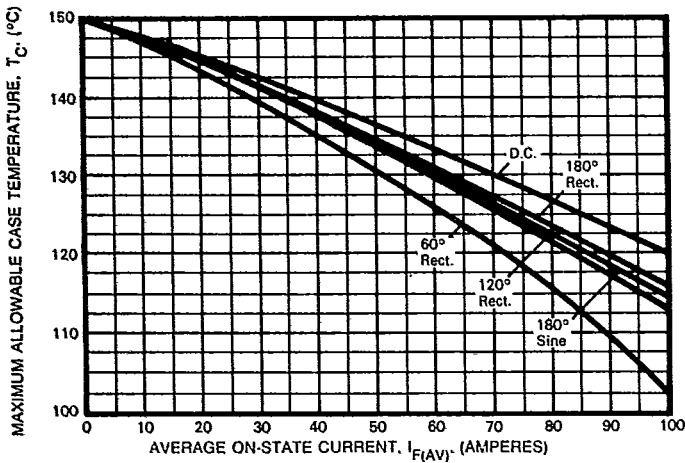
MAXIMUM ON-STATE CHARACTERISTICS



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



MAXIMUM ALLOWABLE CASE TEMPERATURE



MAXIMUM ON-STATE POWER DISSIPATION

