



SiC SCHOTTKY DIODE TYPE 2×50A

Features

- High surge current capable
- Zero reverse recovery current
- High bandwidth
- Isolation type package
- Temperature Independent Switching Behavior
- VDC 1200 V
- I_F (T_c<135°C) 2×50 A

Benefits

- Unipolar rectifier
- Zero switching loss
- Higher efficiency
- Smaller heat sink
- Parallel devices without thermal runaway

Applications

- Motor drives
- Switch mode power supplies
- Ev chargers
- Solar inverters
- Welding equipment
- Power factor correction
- Diode snubber
- Automotive
- induction heating

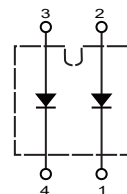
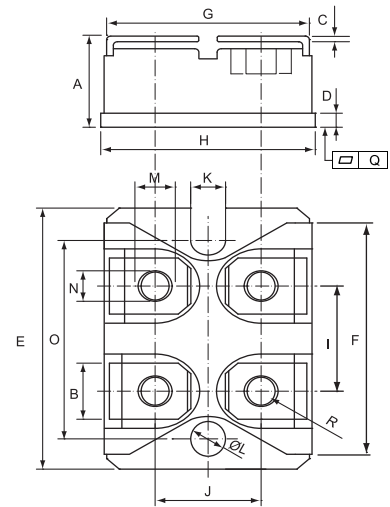
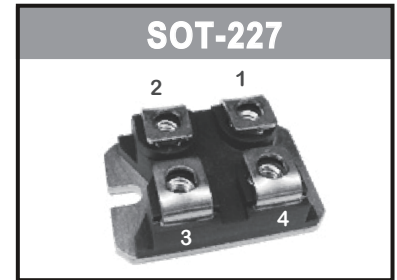
Maximum Ratings

Operating Junction Temperature : - 55 °C to +175 °C

Storage Temperature : -55 °C to +175 °C

Part Number	Maximum Recurrent Peak Reverse Voltage	Maximum DC Blocking Voltage
CSRI2×50-120P1B	1200V	1200V

Maximum Rating	Symbol	Conditions	Value	Unit	
Continuous forward current (per diode)	I _F	T _c =25°C, D=1	115	A	
		T _c =100°C, D=1	76		
		T _c =135°C, D=1	50		
Non-repetitive peak forward current sine half wave (per diode)	I _{FSM}	T _c =25°C, tp=10ms	400	A	
		T _c =150°C, tp=10ms	320		
Repetitive peak forward current sine half wave (per diode)	I _{FRM}	T _c =25°C, tp=10ms	240	A	
		T _c =150°C, tp=10ms	168		
Non-repetitive peak forward current (per diode)	I _{F,max}	T _c =25°C, tp=10μs	2000	A	
Repetitive peak reverse voltage	V _{RRM}	T _j =25°C	1200	V	
i ² t value (per diode)	∫i ² dt	T _c =25°C, tp=10ms	800	A ² s	
Diode dv/dt ruggedness (per diode)	dv/dt	V _R = 0~960V	200	V/ns	
Power dissipation (per diode)	P _{tot}	T _c =25°C	405	W	
Isolation voltage Between All Terminals and Baseplate	V _{iso}	50/60Hz, RMS I _{ISOL} ≤1 mA	t=1s	3000	V
			t=60s	2500	
Mounting torque		To heatsink	1.3	Nm	
		To terminals	1.1		



CSRI 2X50 - XXX P1B

	DIMENSIONS			
	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.460	0.483	11.68	12.28
B	0.307	0.323	7.80	8.20
C	0.030	0.033	0.75	0.85
D	0.071	0.081	1.80	2.05
E	1.488	1.504	37.80	38.20
F	1.248	1.260	31.70	32.00
G	0.917	0.957	23.30	24.30
H	0.996	1.008	25.30	25.60
I	0.579	0.602	14.70	15.30
J	0.492	0.516	12.50	13.10
K	0.161	0.169	4.10	4.30
L	0.161	0.169	4.10	4.30
M	0.181	0.197	4.60	5.00
N	0.165	0.181	4.20	4.60
O	1.181	1.197	30.00	30.40
Q	-0.002	0.004	-0.05	0.10
R	M4*8			



Electrical Characteristics, at $T_j=25\text{ }^\circ\text{C}$, unless otherwise specified. (per diode)

Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
DC blocking voltage	V_{DC}		1,200	-	-	V
Diode forward voltage	V_F	$I_F=50\text{A}, T_j=25\text{ }^\circ\text{C}$	-	1.6	1.8	V
		$I_F=50\text{A}, T_j=175\text{ }^\circ\text{C}$	-	2.4	2.9	
Reverse current	I_R	$V_R=1,200\text{V}, T_j=25\text{ }^\circ\text{C}$	-	5	25	μA
		$V_R=1,200\text{V}, T_j=175\text{ }^\circ\text{C}$	-	50	250	

AC Characteristics (per diode)

Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Total capacitive charge	Q_C	$di/dt=1000\text{A}/\mu\text{s}$ $I_F=50\text{A}, V_R=600\text{V}$	-	168	-	nC
Switching time	t_s		-	26	-	ns
Total capacitance	C	$V_R=1\text{V}, f=1\text{ MHz}$ $T_j=25\text{ }^\circ\text{C}$	-	2,500	-	pF
		$V_R=400\text{V}, f=1\text{ MHz}$ $T_j=25\text{ }^\circ\text{C}$	-	244	-	
		$V_R=800\text{V}, f=1\text{ MHz}$ $T_j=25\text{ }^\circ\text{C}$	-	170	-	

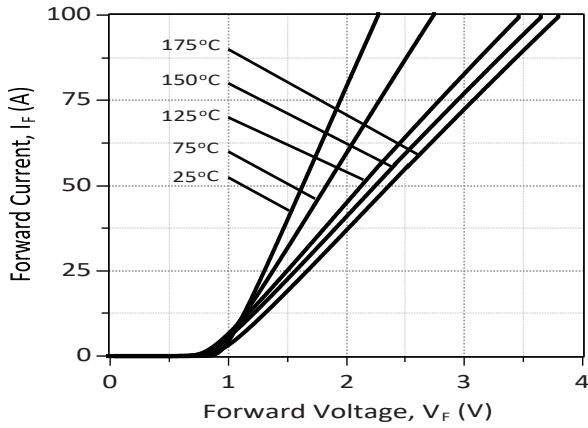
Thermal Characteristics (per diode)

Characteristics	Symbol	Values	Unit
		typ.	
Thermal resistance from junction to case	$R_{\theta JC}$	0.37	$^\circ\text{C}/\text{W}$

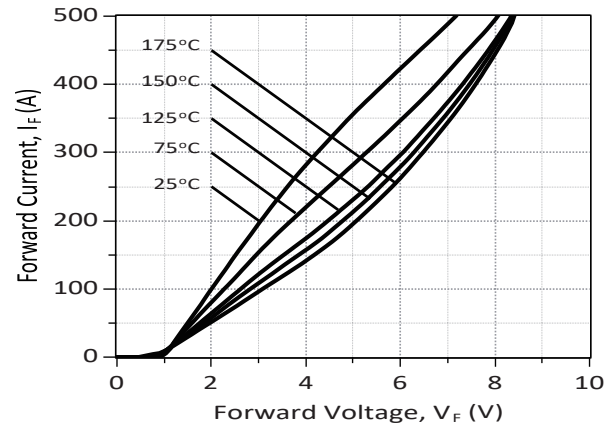


Typical Performance

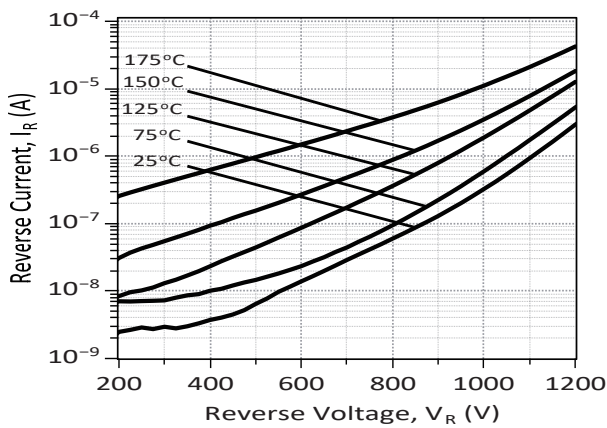
Typical Forward Characteristics (Per diode)



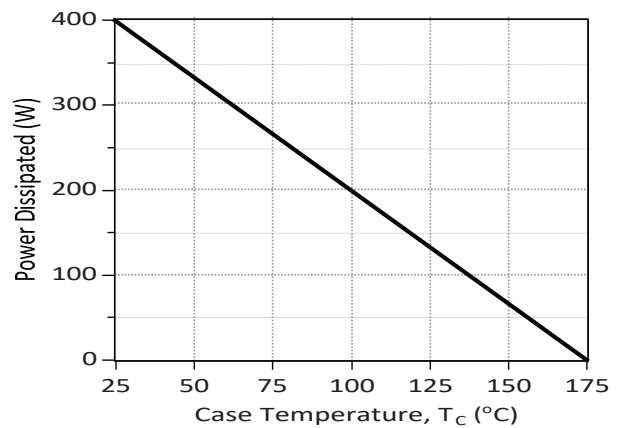
Typical High Current Forward Characteristics (Per diode)



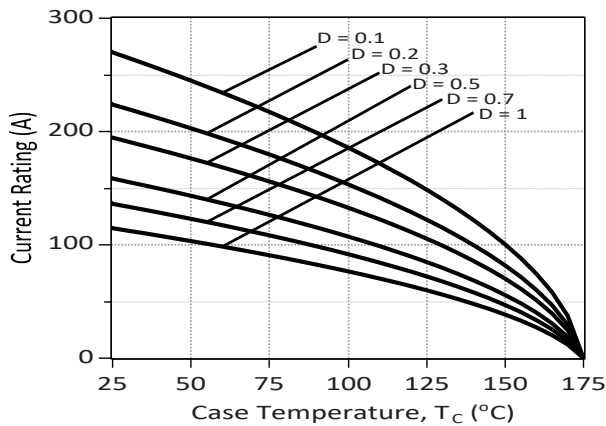
Typical Reverse Characteristics (Per diode)



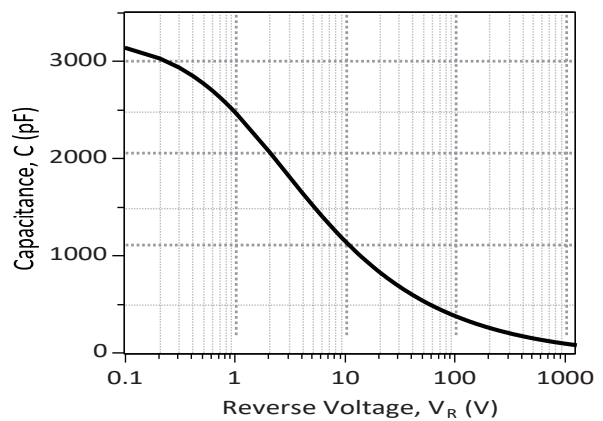
Power Derating Curve (Per diode)



Current Derating Curves (Per diode)



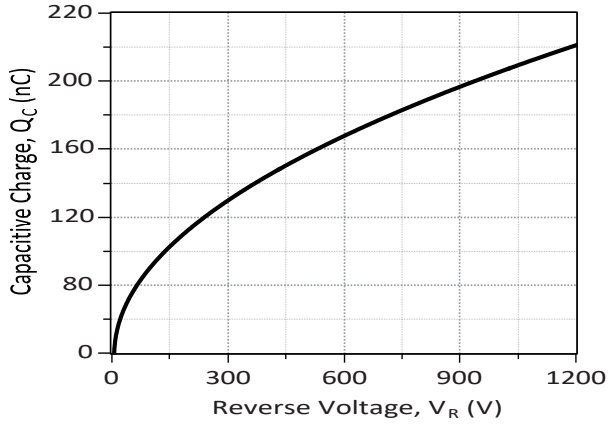
Typical Junction Capacitance vs. Reverse Voltage Characteristics (Per diode)



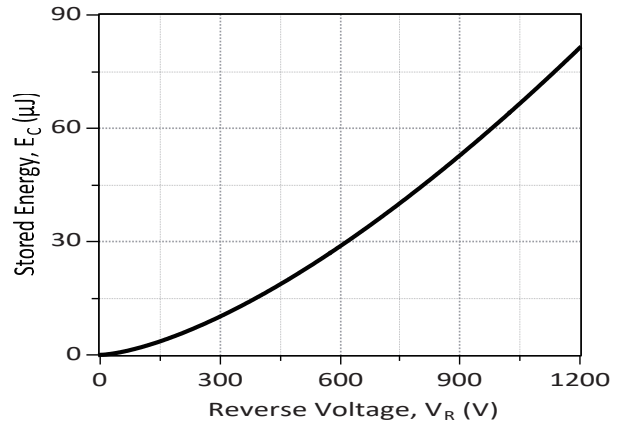


Typical Performance

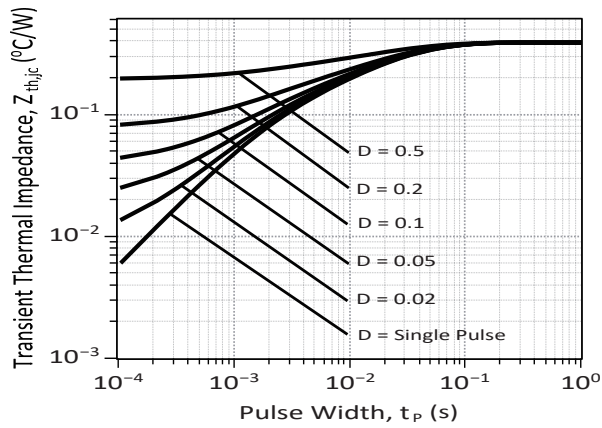
Typical Capacitive Charge vs. Reverse Voltage Characteristics (Per diode)



Typical Capacitive Energy vs. Reverse Voltage Characteristics (Per diode)



Transient Thermal Impedance (Per diode)





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