

## SiC Schottky Diode Full Bridge Power Module

### Features

- Zero reverse recovery
- Zero forward recovery
- Temperature-independent switching behavior
- Positive temperature coefficient on VF
- Very low stray inductance
- High level of integration

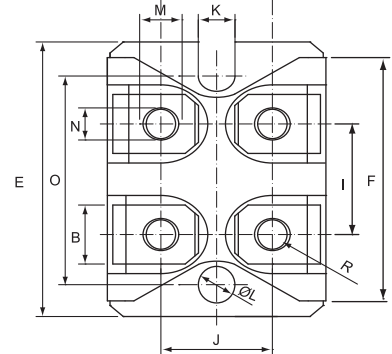
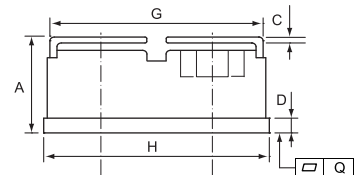
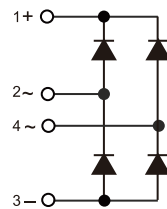
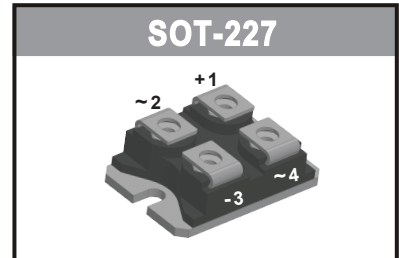
### Benefits

- Outstanding performance at high-frequency operation
- Direct mounting to heatsink (isolated package)
- Low junction-to-case thermal resistance
- RoHS compliant

### Applications

- Switch mode power supplies rectifier
- Induction heating
- Welding equipment
- High-speed rectifiers

$V_{RRM}=1,700V$   
 $I_F=50A@T_C=135^{\circ}C$



### Maximum Ratings

Operating Junction Temperature :  $-55^{\circ}C$  to  $+175^{\circ}C$

Storage Temperature :  $-55^{\circ}C$  to  $+175^{\circ}C$

Part Number	Maximum Recurrent Peak Reverse Voltage	Maximum DC Blocking Voltage
CSRI4×50-170L2B	1700V	1700V

Maximum Rating	Symbol	Conditions	Value	Unit
Continuous forward current (per diode)	$I_F$	$T_C=135^{\circ}C$	50	A
Surge non-repetitive forward current sine halfwave (per diode)	$I_{FSM}$	$T_C=25^{\circ}C, t_p=8.3\text{ ms}$	400	
		$T_C=150^{\circ}C, t_p=8.3\text{ ms}$	250	
Non-repetitive peak forward current (per diode)	$I_{F,max}$	$T_C=25^{\circ}C, t_p=10\ \mu s$	1600	
		$T_C=150^{\circ}C, t_p=10\ \mu s$	1000	
Repetitive peak reverse voltage	$V_{RRM}$	$T_J=25^{\circ}C$	1700	V
Isolation voltage between all terminals and baseplate	$V_{iso}$	50/60 Hz, $t=1\text{min}$ $I_{ISOL} \leq 1\text{mA}$	2500	V
Mounting torque		To heatsink	1.3	Nm
		To terminal	1.1	

	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)

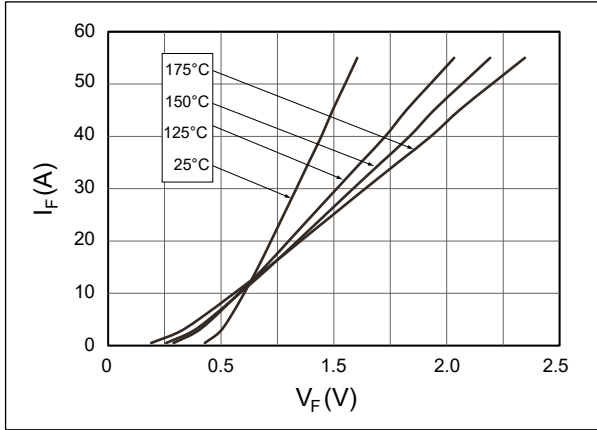
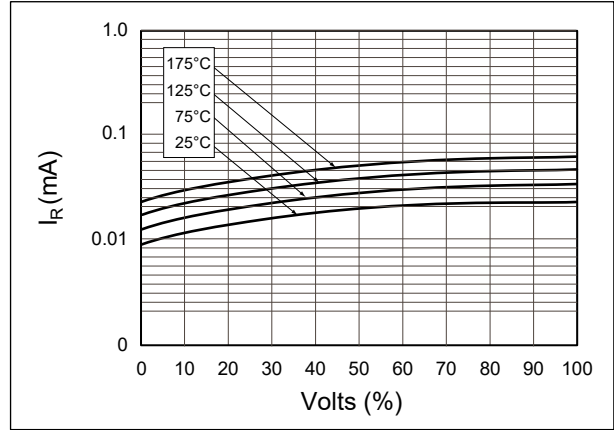
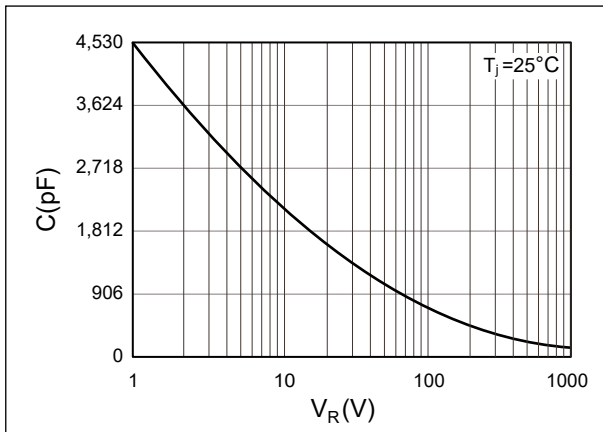
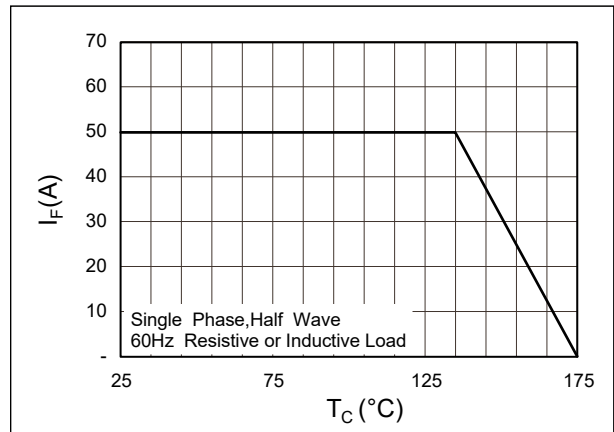
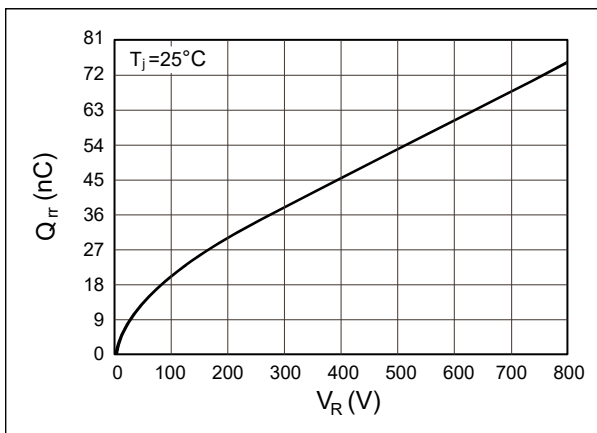
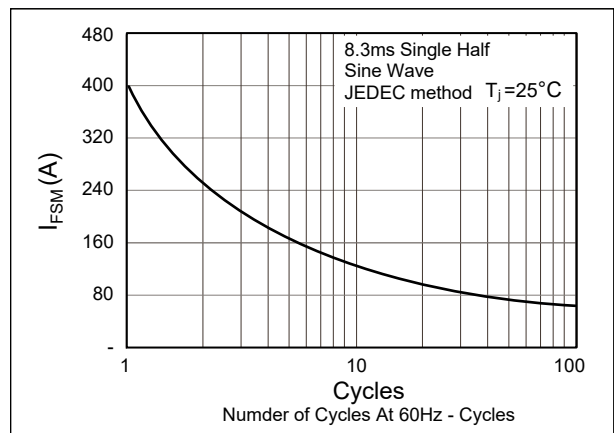
Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
DC blocking voltage	$V_{DC}$		1,700	-	-	V
Diode forward voltage	$V_F$	$I_F=50\text{A}, T_j=25\text{ }^\circ\text{C}$	-	1.6	1.8	
		$I_F=50\text{A}, T_j=175\text{ }^\circ\text{C}$	-	2.2	2.5	
Reverse current	$I_R$	$V_R=1,700\text{V}, T_j=25\text{ }^\circ\text{C}$	-	30	60	$\mu\text{A}$
		$V_R=1,700\text{V}, T_j=175\text{ }^\circ\text{C}$	-	60	250	

**AC Characteristics** (per diode)

Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Total capacitive charge	$Q_{rr}$	$V_R=800\text{V}, I_F=50\text{A}$ $di/dt=333\text{A}/\mu\text{s}, T_j=25\text{ }^\circ\text{C}$	-	75	-	nC
Total capacitance	C	$V_R=1\text{V}, f=1\text{ MHz}$ $T_j=25\text{ }^\circ\text{C}$	-	4,530	-	pF
		$V_R=800\text{V}, f=1\text{ MHz}$ $T_j=25\text{ }^\circ\text{C}$	-	140	-	
		$V_R=1000\text{V}, f=1\text{ MHz}$ $T_j=25\text{ }^\circ\text{C}$	-	120	-	

**Thermal Characteristics** (per diode)

Characteristics	Symbol	Values	Unit
		typ.	
Thermal resistance from junction to case	$R_{\theta JC}$	0.28	$^\circ\text{C}/\text{W}$

**Typical Performance**
**Forward Characteristics (parameterized on  $T_j$ )**

**Reverse Characteristics (parameterized on  $T_j$ )**

**Capacitance**

**Current Derating**

**Recovery Charge**

**Forward Surge Current**


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