



**SiC Schottky Diode  
Full Bridge Power Module**

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

**Features**

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

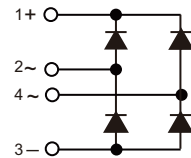
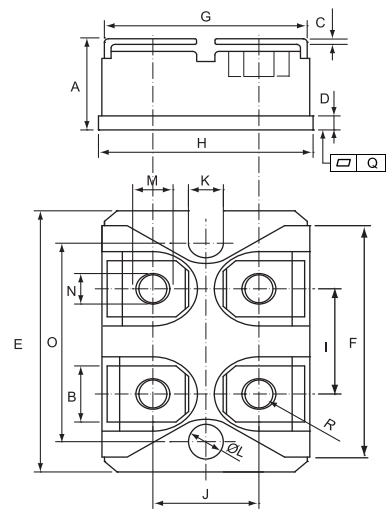
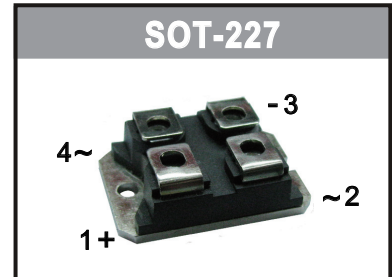
Preliminary

**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



**Maximum Ratings**

Part Number	Maximum Recurrent Peak Reverse Voltage	Maximum DC Blocking Voltage
CSRI4×50-170L1B	1700V	1700V

Maximum Rating	Symbol	Conditions	Value	Unit
Continuous forward current (per diode)	$I_F$	$T_c=25^{\circ}C$	120	A
		$T_c=125^{\circ}C$	60	
		$T_c=135^{\circ}C$	50	
Non-repetitive peak forward surge current (per diode)	$I_{FSM}$	$T_c=25^{\circ}C, t_p=8.3ms$ half sine wave	400	A
		$T_c=150^{\circ}C, t_p=8.3ms$ half sine wave	250	
		$T_c=25^{\circ}C, t_p=10\mu s$ pulse	1600	
Repetitive peak forward surge current (per diode)	$I_{FRM}$	$T_c=25^{\circ}C, t_p=10ms$ half sine wave, $D=0.1$	320	A
		$T_c=125^{\circ}C, t_p=10ms$ half sine wave, $D=0.1$	176	
DC blocking voltage	$V_R$	$T_j=25^{\circ}C$	1700	V
Repetitive peak reverse voltage	$V_{RRM}$	$T_j=25^{\circ}C$	1700	V
Isolation voltage	$V_{iso}$	50/60Hz, RMS $I_{ISOL} \leq 1mA$	2500	V
Operating junction and storage temperature	$T_j$		175	$^{\circ}C$
	$T_{stg}$		-55 to 175	
Mounting torque		To heatsink	1.5	Nm
		To terminal	1.3	

	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	V
		$I_F=50\text{A}, T_j=175\text{ }^\circ\text{C}$	-	2.4	2.9	
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)

Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Total capacitive charge	$Q_{rr}$	$V_R=800\text{V}$ $I_F=50\text{A}, T_j=25\text{ }^\circ\text{C}$	-	133.9	-	nC
Total capacitance	C	$V_R=0\text{V}, f=1\text{ MHz}$ $T_j=25\text{ }^\circ\text{C}$	-	2,874	-	pF
		$V_R=800\text{V}, f=1\text{ MHz}$ $T_j=25\text{ }^\circ\text{C}$	-	200	-	
		$V_R=1000\text{V}, f=1\text{ MHz}$ $T_j=25\text{ }^\circ\text{C}$	-	199	-	

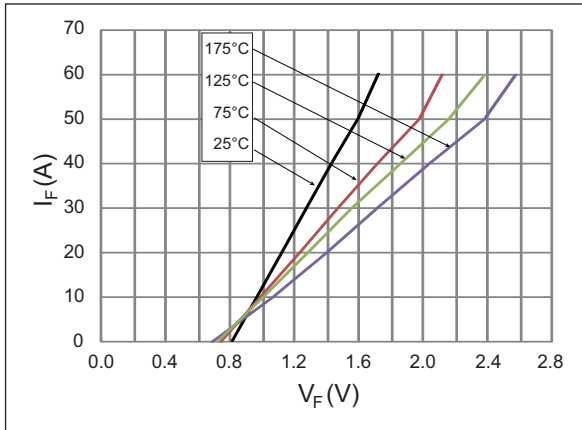
**Thermal Characteristics** (per diode)

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

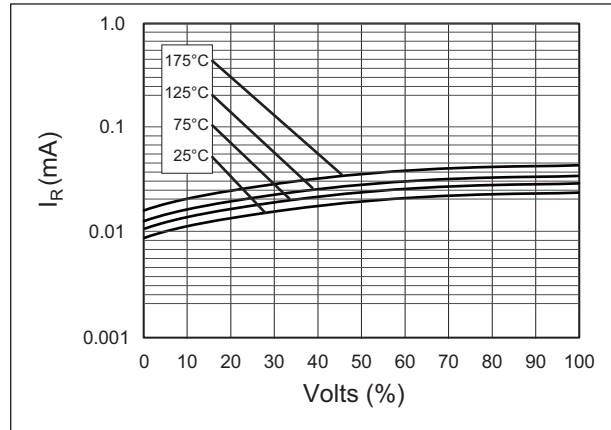


Typical Performance

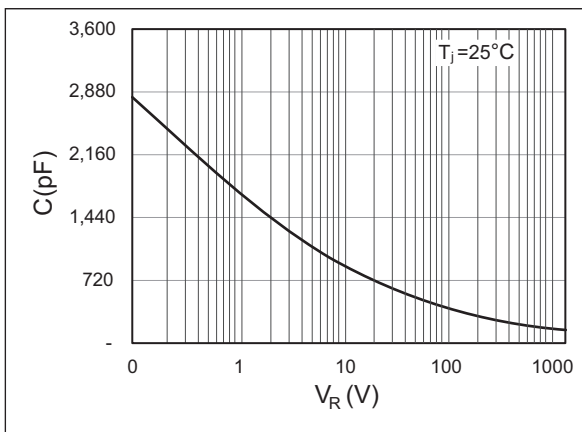
Forward Characteristics (parameterized on  $T_j$ )



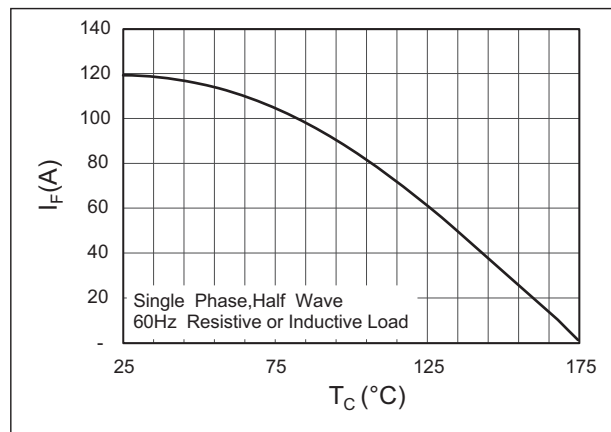
Reverse Characteristics (parameterized on  $T_j$ )



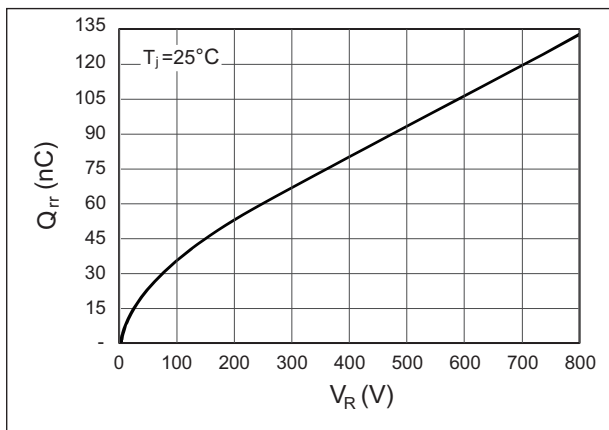
Capacitance



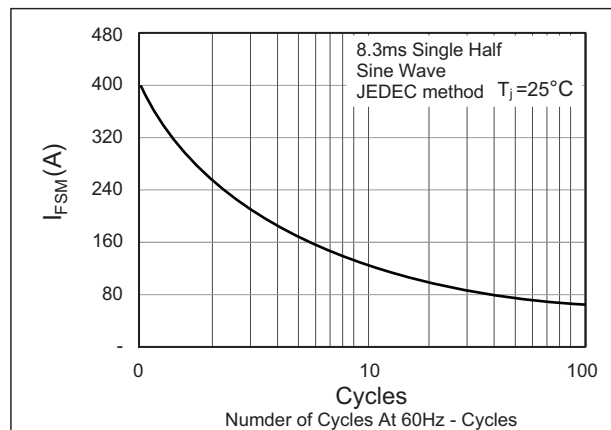
Current Derating



Recovery Charge



Forward Surge Current





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