



SiC SCHOTTKY DIODE TYPE 12A

Features

- High surge current capable
- Zero reverse recovery current
- High bandwidth
- RoHS compliant
- Temperature Independent Switching Behavior
- High temperature soldering guaranteed: 260°C / 10 seconds at terminals
- VDC 650 V
- I_F (T_C<150°C) 12 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

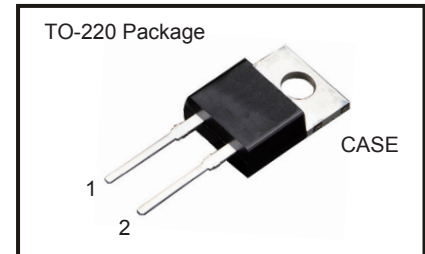
Maximum Ratings

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

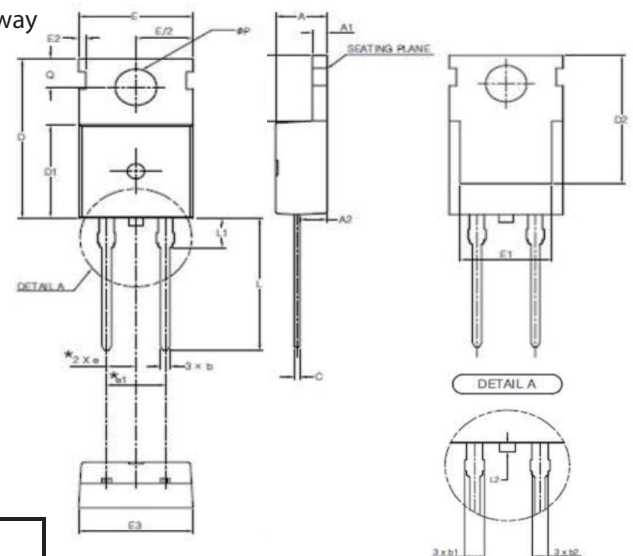
Storage Temperature : -55 °C to +175 °C

Part Number	Maximum Recurrent Peak Reverse Voltage	Maximum DC Blocking Voltage
CSR12065	650V	650V

Maximum Rating	Symbol	Conditions	Value	Unit
Continuous forward current	I _F	T _C =150 °C	12	A
Surge non-repetitive forward current sine halfwave	I _{FSM}	T _C =25 °C, t _p =8.3 ms	96	
		T _C =150 °C, t _p =8.3 ms	60	
Non-repetitive peak forward current	I _{F,max}	T _C =25 °C, t _p =10 μs	240	
Repetitive peak reverse voltage	V _{RRM}	T _j =25 °C	650	V



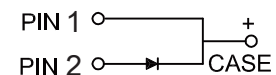
Package Dimensions



SYMBOL	MIN	NOM	MAX
A	4.30	4.50	4.70
A1	1.25	1.30	1.40
A2	2.20	2.40	2.60
b	0.70	0.80	0.90
b1	1.42	1.52	1.62
b2	1.17	1.27	1.37
c	0.45	0.50	0.60
D	15.50	15.70	15.90
D1	9.00	9.20	9.40
D2		(12.70)	
E	9.00	9.20	9.40
E1		(8.00)	
E2		(0.60)	
E3	9.70	9.90	10.10
e		2.54 BSC	
e1		5.08 BSC	
H1	6.30	6.50	6.70
L	12.88	13.08	13.28
L1		(3.00)	
L2	-	-	0.80
φP	3.50	3.60	3.70
Q	2.70	2.80	2.90

NOTE

1. THESE DIMENSIONS DO NOT INCLUDE PROTRUSIONS OF THE MOLD.
2. THE "()" MARK IS THE REFERENCE
3. THE "L2" SYMBOL IS A PROTRUSION OF THE MOLD.





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

Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
DC blocking voltage	V_{DC}		650	-	-	V
Diode forward voltage	V_F	$I_F=12\text{A}, T_j=25\text{ }^\circ\text{C}$	-	1.45	1.65	
		$I_F=12\text{A}, T_j=175\text{ }^\circ\text{C}$	-	1.65	2.00	
Reverse current	I_R	$V_R=650\text{V}, T_j=25\text{ }^\circ\text{C}$	-	11	120	μA
		$V_R=650\text{V}, T_j=175\text{ }^\circ\text{C}$	-	210	1200	

AC Characteristics

Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Total capacitive charge	Q_c	$V_R=650\text{V}, T_j=25\text{ }^\circ\text{C}$	-	27	-	nC
Total capacitance	C	$V_R=1\text{V}, f=1\text{ MHz}$ $T_j=25\text{ }^\circ\text{C}$	-	632	-	pF
		$V_R=325\text{V}, f=1\text{ MHz}$ $T_j=25\text{ }^\circ\text{C}$	-	52	-	
		$V_R=650\text{V}, f=1\text{ MHz}$ $T_j=25\text{ }^\circ\text{C}$	-	45	-	

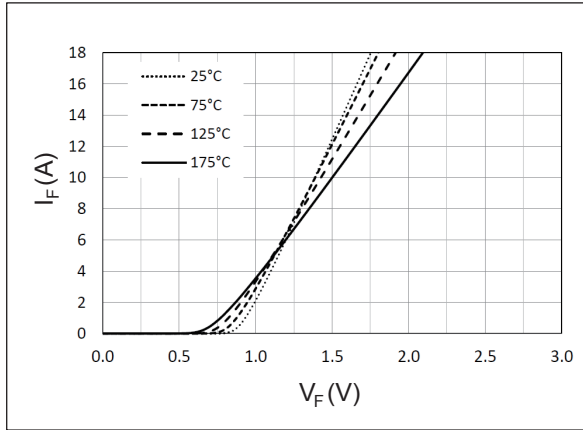
Thermal Characteristics

Static Characteristics	Symbol	Values	Unit
		typ.	
Thermal resistance from junction to case	$R_{\theta JC}$	1.2	$^\circ\text{C/W}$

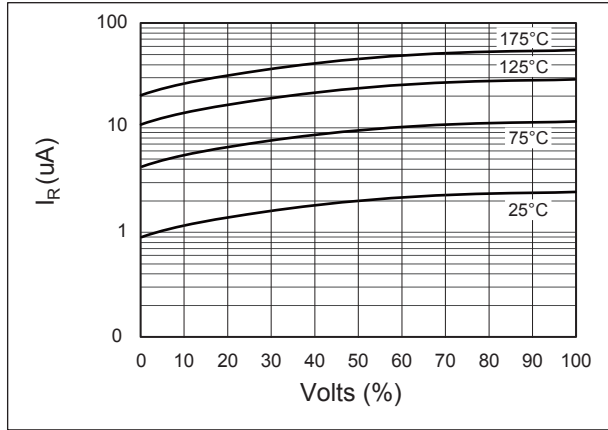


Typical Performance

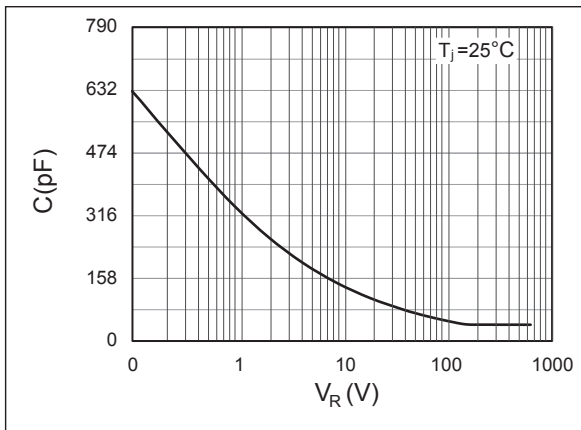
Forward Characteristics (parameterized on T_j)



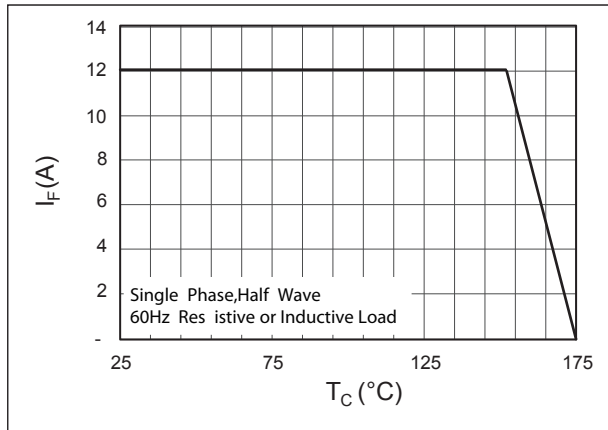
Reverse Characteristics (parameterized on T_j)



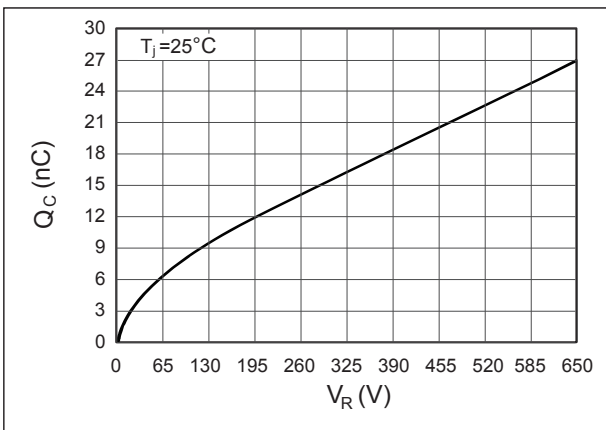
Capacitance



Current Derating



Recovery Charge



Forward Surge Current

