

DESCRIPTION

SiC Schottky Diode has no switching loss, provides improved system efficiency against Si diodes by utilizing new semiconductor material-Silicon Carbide, enables higher operating frequency, and helps increasing power density and reduction of system size /cost. Its high reliability ensures robust operation during surge or over_voltage conditions.

FEATURES

- Max Junction Temperature 175°C
- High Surge Current Capacity
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Replace Bipolar with Unipolar Device
- Reduction of Heat Sink Size
- Parallel Devices Without Thermal Runaway
- Essentially No Switching Losses

MECHANICAL DATA

- Case: JEDEC TO-247AC
- Molding compound meets UL94V-0 flammability rating
- Terminals: Lead solderable per J-STD-002 and JESD22-B102
- Polarity: As marked

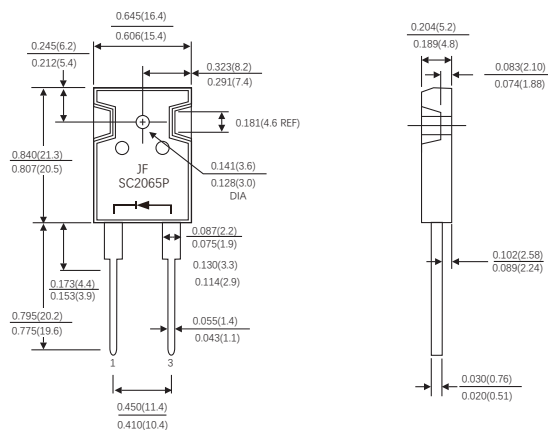
TYPICAL APPLICATIONS

- Switch Mode Power Supplies
- Power Factor Correction
- Motor drive, PV Inverter, Wind Power Station

KEY PERFORMANCE AND PACKAGE PARAMETERS

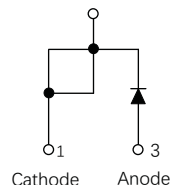
Type	V _{DC}	I _F	Qc	T _j max	Package
SC2065P	650V	20A	92nC	175°C	TO-247AC

TO-247AC



Dimensions in inches and (millimeters)

Base common cathode



MAXIMUM RATINGS (Ratings at 25°C ambient temperature unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	650	V	$T_c = 25^\circ\text{C}$	
V_{RSM}	Surge Peak Reverse Voltage	650	V	$T_c = 25^\circ\text{C}$	
V_R	DC Blocking Voltage	650	V	$T_c = 25^\circ\text{C}$	
I_F	Forward Current	35 20	A	$T_c \leq 25^\circ\text{C}$ $T_c \leq 105^\circ\text{C}$	
I_{FSM}	Non- Repetitive Forward Surge Current	150	A	$T_c = 25^\circ\text{C}$, 10ms, Half Sine Wave	
P_{tot}	Power Dissipation	234	W	$T_c = 25^\circ\text{C}$	
T_j	Operating Junction Temperature	-55 to 175	$^\circ\text{C}$		
TSTG	Storage Temperature	-55 to 175	$^\circ\text{C}$		
	TO-247 Mounting Torque	1	Nm	M3 Screw	

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.25 1.40	1.55	V	$I_F = 20\text{A}$, $T_j = 25^\circ\text{C}$ $I_F = 20\text{A}$, $T_j = 175^\circ\text{C}$	Fig.1
I_R	Reverse Current	5.0 50	45 200	μA	$V_R = 650\text{V}$, $T_j = 25^\circ\text{C}$ $V_R = 650\text{V}$, $T_j = 175^\circ\text{C}$	Fig.2
C	Total Capacitance	1030 100	/	pF	$V_R = 1\text{V}$, $T_j = 25^\circ\text{C}$, $f = 100\text{KHz}$ $V_R = 650\text{V}$, $T_j = 25^\circ\text{C}$, $f = 100\text{KHz}$	Fig.3
Qc	Total Capacitive Charge	92	/	nC	$V_R = 650\text{V}$, $I_F = 30\text{A}$ $di/dt = 200\text{A}/\mu\text{s}$, $T_j = 25^\circ\text{C}$	Fig.4

THERMAL CHARACTERISTICS

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.64	$^\circ\text{C}/\text{W}$	
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	80	$^\circ\text{C}/\text{W}$	

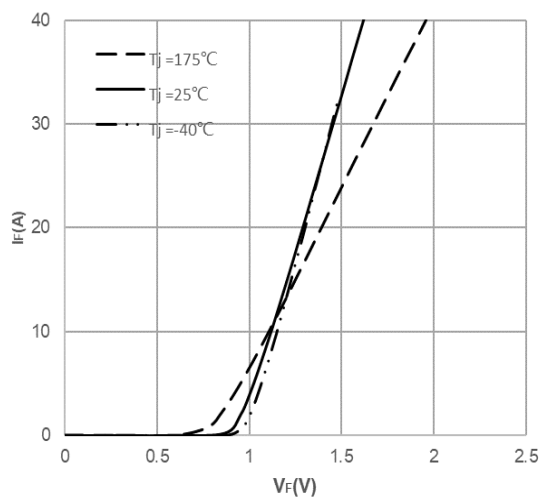


Fig1. Forward Characteristics

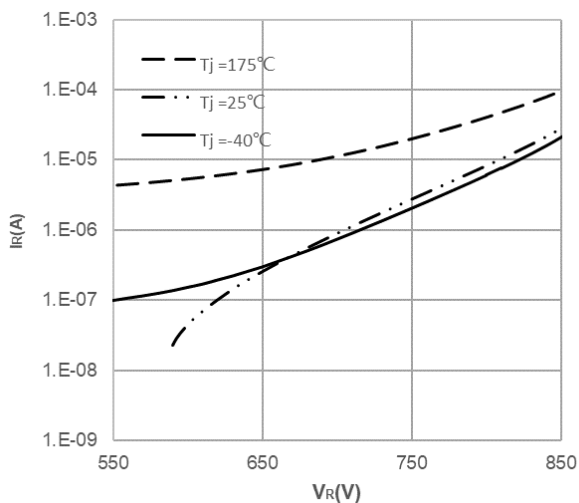


Fig2. Reverse Characteristics

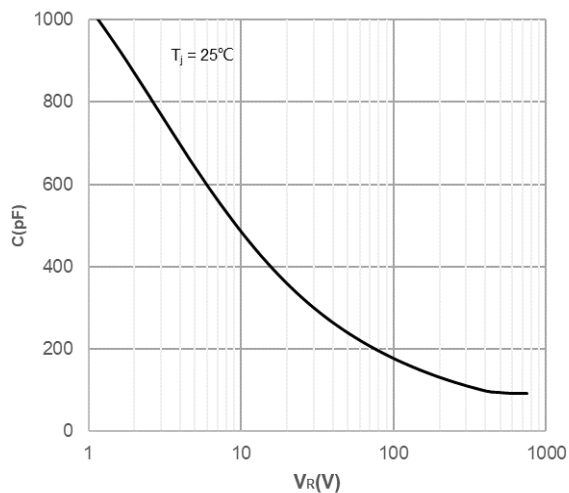


Fig3. Capacitance vs. Reverse Voltage

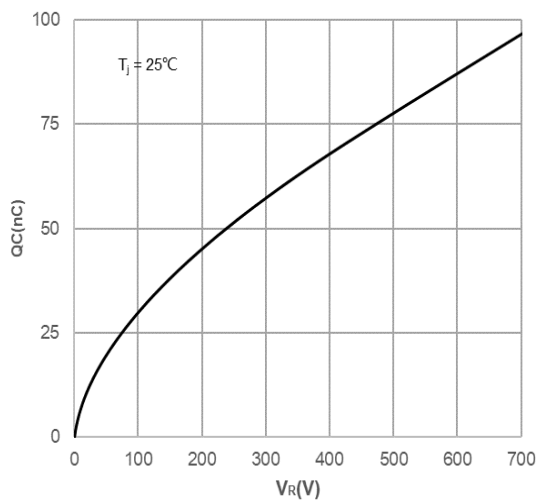


Fig4. Recovery Charge vs. Reverse Voltage

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