

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
- Positive Temperature Coefficient
- Ease of Paralleling
- No Reverse Recovery/No Forward Recovery

MECHANICAL DATA

- Case: JEDEC TO-247AB
- Molding compound meets UL94V-0 flammability rating
- Terminals: Lead solderable per J-STD-002 and JESD22-B102
- Polarity: As marked
- Mounting Torque: 10 in-lbs maximum

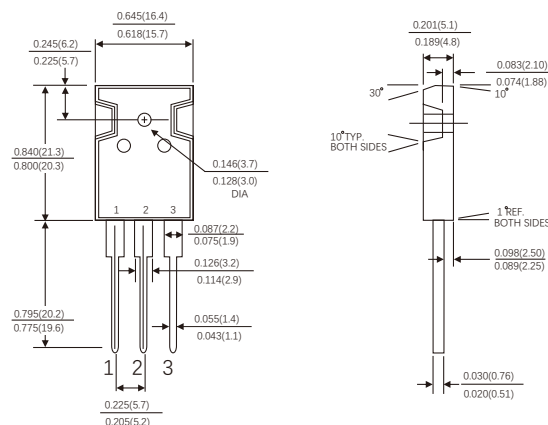
TYPICAL APPLICATIONS

- General Purpose
- SMPS, Solar inverter, UPS
- Power Switching Circuits

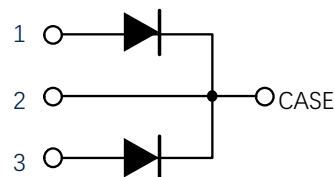
KEY PERFORMANCE AND PACKAGE PARAMETERS

Type	V _{DC}	I _F	Qc	T _{J,max}	Package
SC5065PT	650V	25A/50A	60nC	175°C	TO-247AB

TO-247AB



Dimensions in inches and (millimeters)



MAXIMUM RATINGS

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

Parameter	Symbol	Value	Unit
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Continuous Forward C urrent for $R_{th(j-c)}$	I_F	25A/50($T_c \leq 145^\circ\text{C}$) 67A/135($T_c \leq 25^\circ\text{C}$)	A
Non-Repetitive Forward Surge Current (Half-Sine Pulse , $t_p=8.3\text{ms}$)	I_{FSM}	180($T_c=25^\circ\text{C}$) 150($T_c=110^\circ\text{C}$)	A
Power dissipation for $R_{th(j-c,max)}$ ($T_c=25^\circ\text{C}$)	P_{tot}	833	W
Operating junction temperature range	T_j	-55...175	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55...175	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Parameterter	Symbol	Typ	Max	Unit
Diode thermal resistance junction-case	$R_{th(j-c)}$	-	0.35/0.18	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS (T_A=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Value(Per Leg)			Unit
			min	typ	max	
DC blocking voltage	V _{DC}	I _R =100uA, T _j =25°C	650	-	-	V
Diode forward voltage	V _F ¹⁾	I _F =25A T _j =25°C	-	1.50	1.70	V
		I _F =25A T _j =175°C	-	1.80	2.10	
Reverse current	I _R ²⁾	V _R =650V T _j =25°C	-	-	50	uA
		V _R =650V T _j =175°C	-	-	500	

Notes: 1.Pulse test: 300 μs pulse width,1% duty cycle

2.Pulse test: pulse width ≤40ms

DYNAMIC CHARACTERISTICS(at T_j=25°C,unless otherwise specified)

Parameter	Symbol	conditions	Value(Per Leg)			Unit
			min	typ	max	
Total capacitive charge	Q _C	V _R =400V, T _j =25°C	-	60	-	nC
Total capacitance	C _j	V _R =1V, f=1MHz V _R =200V, f=1MHz V _R =400V, f=1MHz		973 114 95		pF

FIG.1-FORWARD CURRENT DERATING CURVE(device)

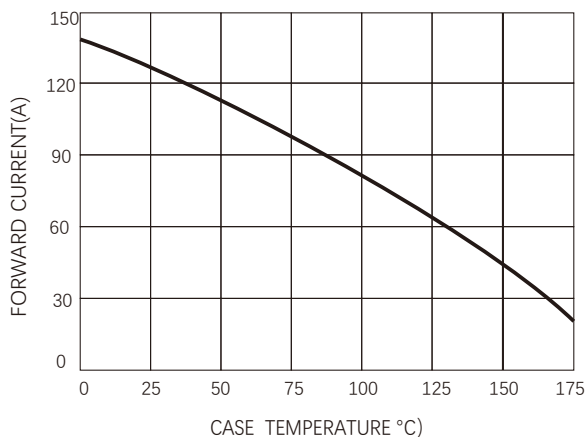


FIG.2-POWER DERATING CURVE(device)

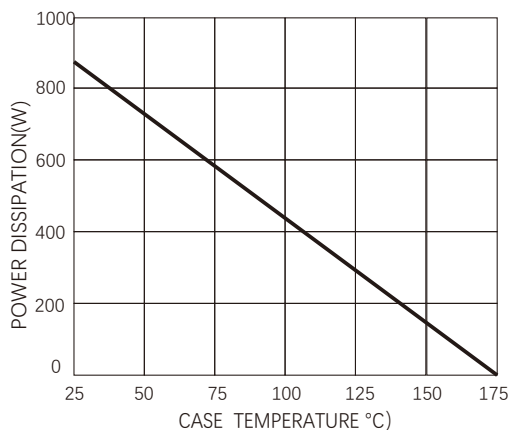


FIG.3-FORWARD CURRENT DERATING CURVE(Per Leg)

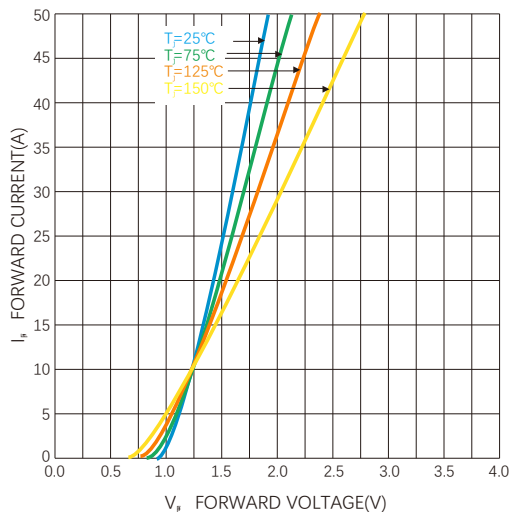
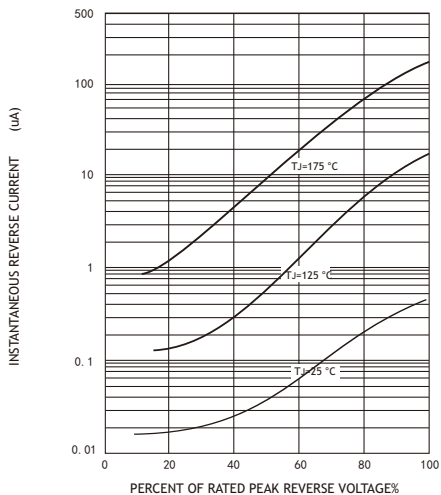


FIG.4-REVERSE CHARACTERISTICS(Per Leg)



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