

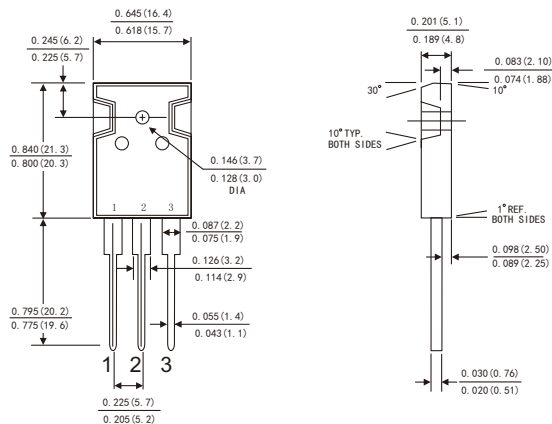
DESCRIPTION

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

TO-247AB



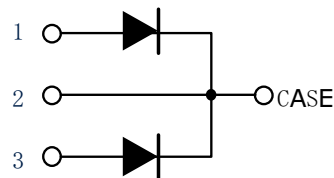
Dimensions in inches and (millimeters)

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 (leg/device)

Type	V _{DC}	I _F	Q _c	T _{J,max}	Package
SC4065PT	650V	20A/40A	40nC/80nC	175°C	TO-247AB

RATINGS AND CHARACTERISTIC OF SC4065PT

MAXIMUM RATINGS

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

Parameter	Symbol	Value (leg/device)	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	650	V
Continuous Forward Current for $R_{th(j-c)}$	I_F	20/40 ($T_c \leq 148^\circ\text{C}$) 26/52 ($T_c = 135^\circ\text{C}$) 55/110 ($T_c = 25^\circ\text{C}$)	A
Non-Repetitive Forward Surge Current (Half-Sine Pulse, $t_p = 8.3\text{ms}$)	$I_{F,SM}$	170/340 ($T_c = 25^\circ\text{C}$) 155/310 ($T_c = 150^\circ\text{C}$)	A
I^2t value	$\int i^2t$	119/238 ($T_c = 25^\circ\text{C}$) 99/198 ($T_c = 150^\circ\text{C}$)	A^2S
Diode dv/dt ruggedness ($V_R = 0 \dots 960\text{V}$)	dv/dt	80	V/nS
Power dissipation for $R_{th(j-c,max)}$ ($T_c = 25^\circ\text{C}$)	P_{tot}	250/300	W
Operating junction temperature range	T_j	-55...175	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55...175	$^\circ\text{C}$

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value(leg/device)		Unit
		Typ	Max	
Diode thermal resistance junction-case	$R_{th(j-c)}$	0.6/0.5	0.8/0.7	K/W

RATINGS AND CHARACTERISTIC OF SC4065PT

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

Parameter	Symbol	Conditions	Value(leg/device)			Unit
			min	typ	max	
DC blocking voltage	V _{DC}	T _j =25...175°C	650			V
Diode forward voltage	V _F	IF=20A/40A T _j =25°C IF=20A/40A T _j =125°C IF=20A/40A T _j =175°C		1.4 1.5 1.75	1.65 1.8 2.3	V
Reverse current	I _R	VR=650V T _j =25°C VR=650V T _j =125°C VR=650V T _j =175°C			20/40 50/100 100/200	μA

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

Parameter	Symbol	conditions	Value(leg/device)			Unit
			min	typ	max	
Total capacitive charge	Q _c	VR=1200V, IF=20A di/dt=200A/μS T _j =25°C		4080		nC
Total capacitance	C	V _R =0V, f=1MHz V _R =200V, f=1MHz V _R =400V, f=1MHz T _j =25°C		1190/2380 115/230 96/192		pF

RATINGS AND CHARACTERISTIC OF SC4065PT

FIG.1-FORWARD CURRENT DERATING CURVE(device)

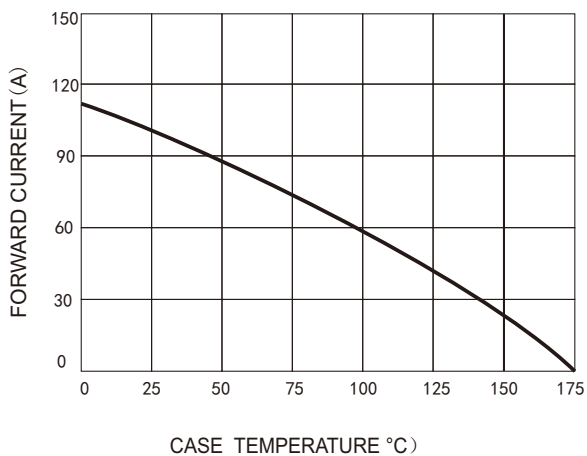


FIG.2-TYPICAL JUNCTION CAPACITANCE(device)

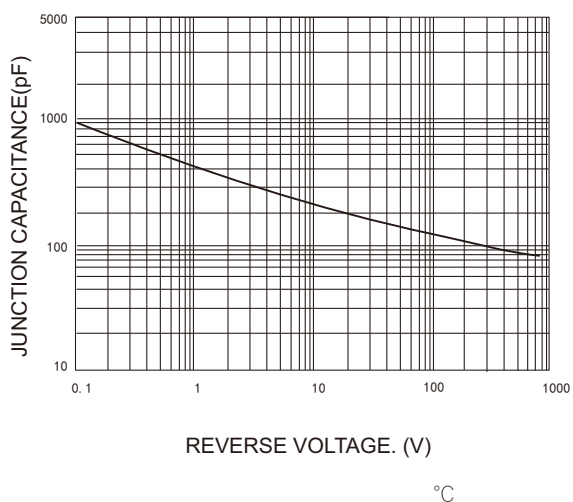


FIG.3-FORWARD CURRENT DERATING CURVE(per leg)

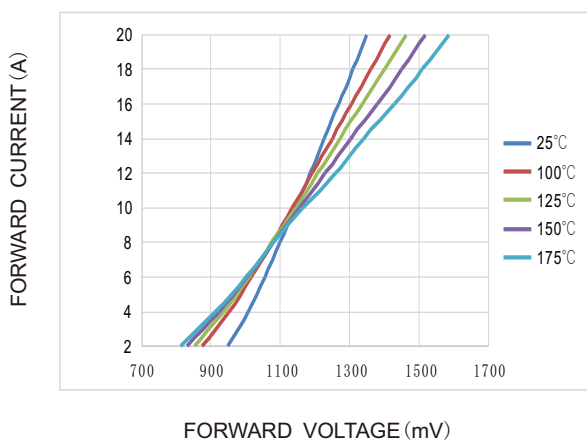
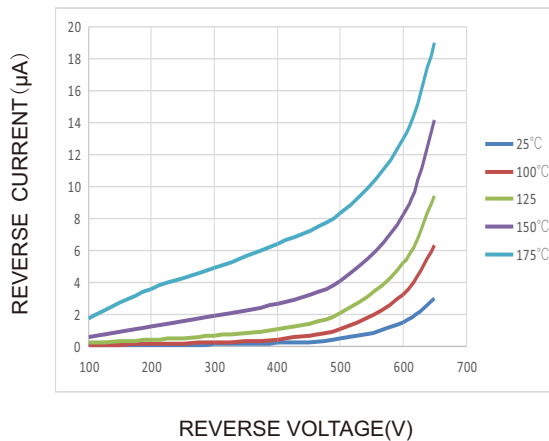


FIG.4-REVERSE CHARACTERISTICS(per leg)



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