SEMICONDUCTOR

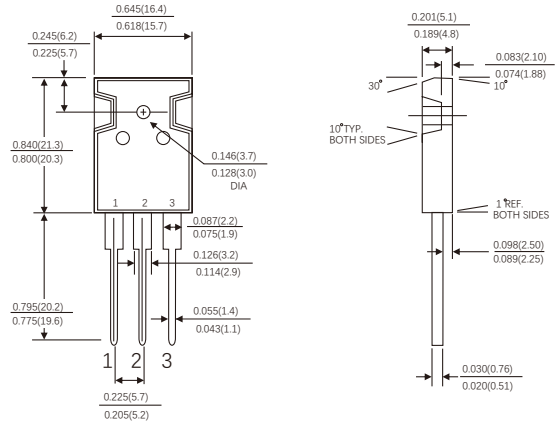
SC20120PT

Silicon Carbide Schottky Diode
Reverse Voltage - 1200 Volts
Forward Current - 20.0Amperes

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.

TO-247AB



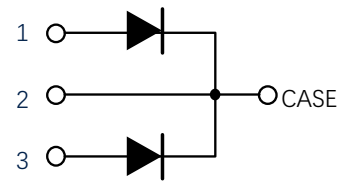
Dimensions in inches and (millimeters)

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(leg/device)

Type	V_{DC}	I_F	Qc	$T_j$max	Package
SC20120PT	1200V	10A/20A	30nC/60nC	175℃	TO-247AB

MAXIMUM RATINGS

(Ratings at 25℃ ambient temperature unless otherwise specified)

Parameters	Symbol	Value	Unit
Maximum repetitive peak reverse voltage Per Leg	V_{RRM}	1200	V
Continuous forward current for $Rth_{(j-c)}$ Per Leg	I_F	10 (T_C =156 ℃) 16 (T_C =133 ℃) 34 (T_C =25℃)	A
Non-repetitive forward surge current Per Leg (Haif-Sine Pulse,tp=8.3ms)	I_{FSM}	90 (Tc=25℃) 78(Tc=150℃)	A
I^2t value Per Leg	$\int i^2t$	34 (Tc=25℃) 27 (Tc=150℃)	A^2S
Diode dv/dt ruggedness (V_R=0...960V) Per Leg	dv/dt	80	V/nS
Power dissipation for $R_{th(j-c,max)}$ (Tc=25℃)	Ptot	150	W
Operating junction temperature range	Tj	-55...175	℃
Storage temperature range	Tstg	-55...175	℃

THERMAL CHARACTERISTCS (TA=25℃ Unless otherwise noted)

Parameter	Symbol	Value (leg/device)		Unit
		Typ	Max	
Diode thermal resistance junction-case	$R_{th(j-c)}$	0.8/0.4		℃/W

ELECTRICAL CHARACTERISTCS (TJ=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Value(leg/device)			Unit
			min	typ	max	
DC blocking voltage	V_{DC}	Tj=25...175℃	1200			V
Diode forward voltage	V_F	I_F=10A/20A Tj=25℃ I_F=10A/20A Tj=125℃ I_F=10A/20A Tj=175℃		1.7 2.3 2.8	1.9 2.5 3.2	V
Reverse current	I_R	V_R=1200V Tj=25℃ V_R=1200V Tj=125℃ V_R=1200V Tj=175℃			20/40 100/200 200/400	uA

DYNAMIC CHARACTERISTICS(at Tj=25℃,unless otherwise specified)

Parameter	Symbol	conditions	Value(leg/device)			Unit
			min	typ	max	
Total capacitive charge	Qc	V_R=1200V,I_F=10A di/dt=200A/uS Tj=25℃		30/60		nC
Total capacitance	C	V_R=1V,f=1MHz V_R=400V,f=1MHz V_R=800V,f=1MHz Tj=25℃		650/1300 49/98 40/80		pF

RATINGS AND CHARACTERISTIC OF SC20120PT

FIG.1-FORWARD CURRENT DERATING CURVE(device)

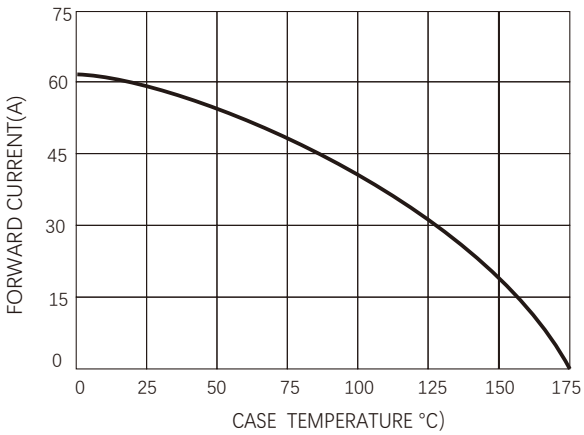


FIG.2-TYPICAL JUNCTION CAPACITANCE(per leg)

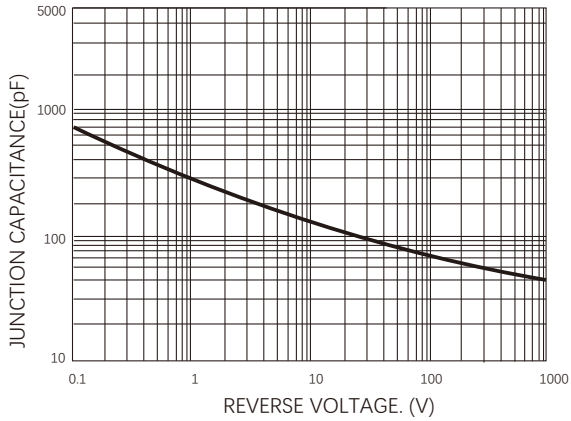


FIG.3-FORWARD CURRENT DERATING CURVE(per leg)

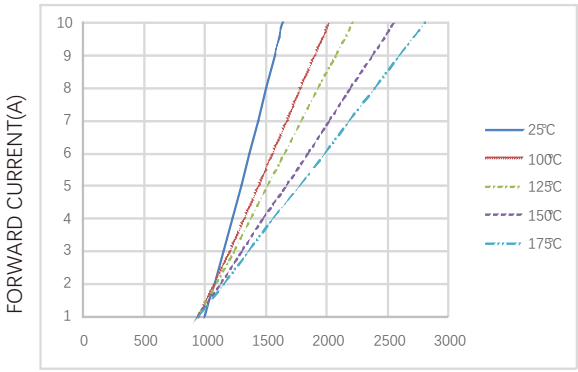
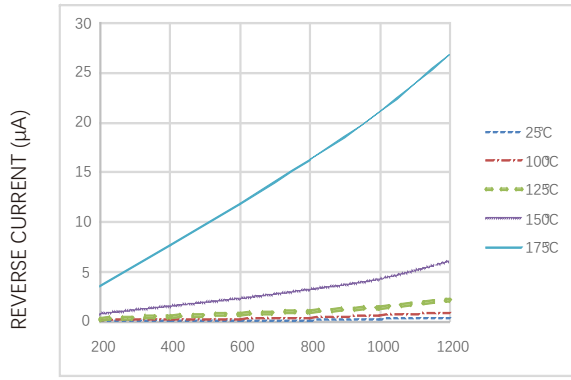


FIG.4-REVERSE CHARACTERISTICS(per leg)



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