SEMICONDUCTOR

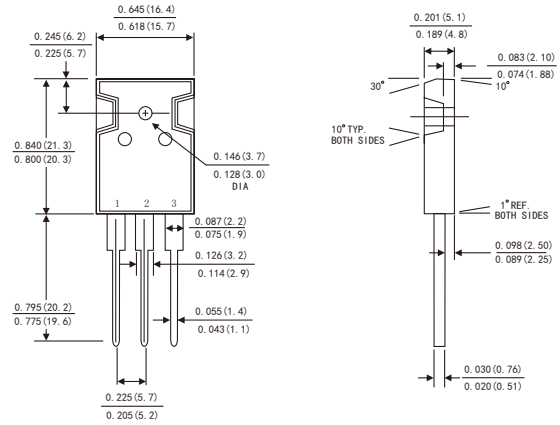
SC10120PT

Silicon Carbide Schottky Diode
Reverse Voltage - 1200 Volts
Forward Current - 10.0Amperes

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



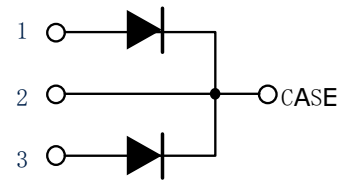
Dimensions in inches and (millimeters)

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
SC10120PT	1200V	5A/10A	19nC/38nC	175℃	TO-247AB

RATINGS AND CHARACTERISTIC OF SC10120PT

MAXIMUM RATINGS

(Ratings at 25℃ ambient temperature unless otherwise specified)

Parameter	Symbol	Value（leg/device)	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	1200	V
Continuous Forward Current for $Rth_{(j-c)}$	I_F	5/10（T_c=156℃） 17/34（T_c=25℃）	A
Non-Repetitive Forward Surge Current （Half-Sine Pulse,tp=8.3mS)	$I_{F,SM}$	77/154(Tc=25℃) 70/140(Tc=150℃)	A
I^2t value	$\int i^2t$	25/98（Tc=25℃） 20/80（Tc=150℃）	A^2S
Diode dv/dt ruggedness(VR=0...960V)	dv/dt	80	V/nS
Power dissipation for $R_{th(j-c,max)}$ （Tc=25℃）	P_{tot}	150/150	W
Operating junction temperature range	Tj	-55. ..175	℃
Storage temperature range	Tstg	-55...175	℃

THERMAL CHARACTERISTCS（TA=25℃ Unless otherwise noted）

Parameter	Symbol	Value		Unit
		Typ	Max	
Diode thermal resistance junction-case	$R_{th(j-c)}$	0.8/0.6	1.0/0.8	K/W

RATINGS AND CHARACTERISTIC OF SC10120PT

ELECTRICAL CHARACTERISTCS（T_A=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	IF=5A/10A Tj=25℃ IF=5A/10A Tj=125℃ IF=5A/10A Tj=175℃		1.8 2.4 3. 0	2. 0 2.6 3.2	V
Reverse current	I_R	VR=1200V Tj=25℃ VR=1200V Tj=125℃ VR=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	VR=1200V,IF=5A di/dt=200A/uS Tj=25℃		19/38		nC
Total capacitance	C	V_R=0V,f=1MHz V_R=400V,f=1MHz V_R=800V,f=1MHz Tj=25℃		385/770 28/56 22/44		pF

RATINGS AND CHARACTERISTIC OF SC10120PT

FIG.1-FORWARD CURRENT DERATING CURVE（device）

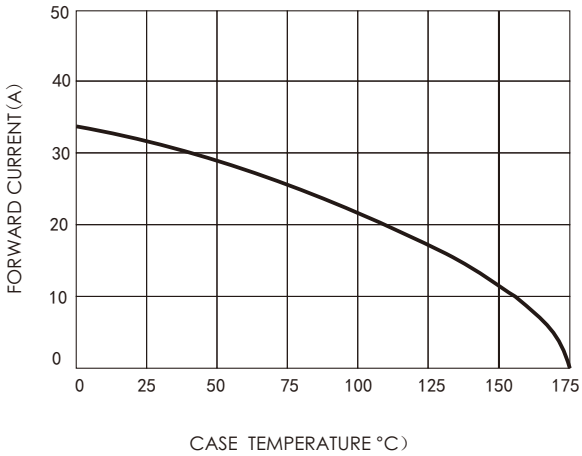


FIG.2-TYPICAL JUNCTION CAPACITANCE（pre leg)

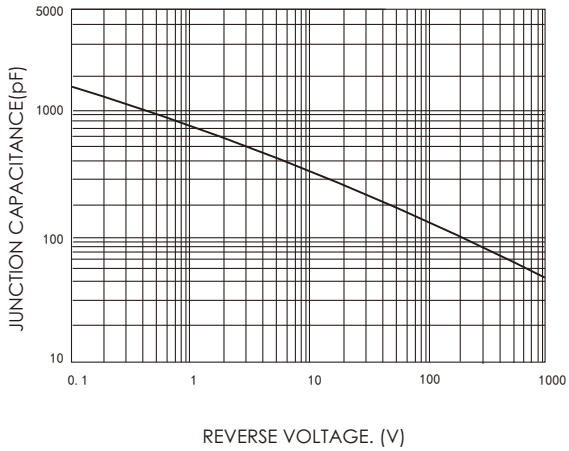


FIG.3-FORWARD CURRENT DERATING CURVE(device)

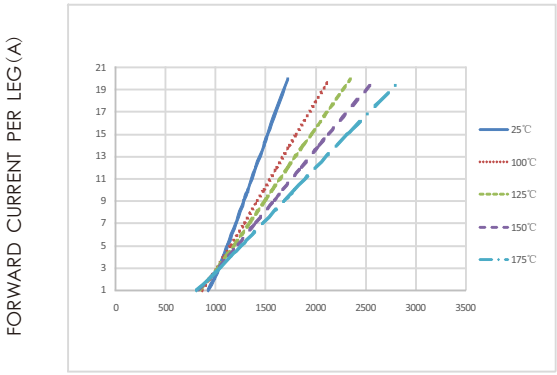
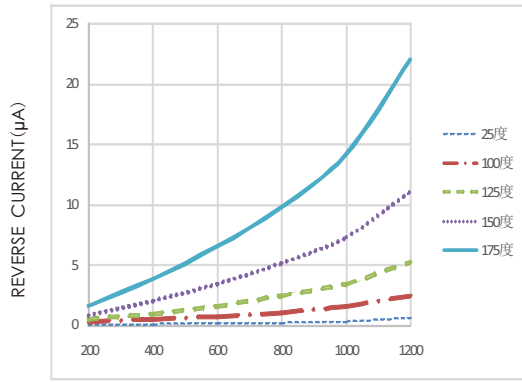


FIG.4-REVERSE CHARACTERISTICS(pre leg)



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