

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-220AB/ITO-220AB/TO-263AB
- 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

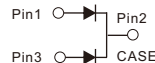
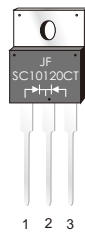
- General Purpose
- SMPS, Solar inverter, UPS
- Power Switching Circuits

KEY PERFORMANCE AND PACKAGE PARAMETERS (leg/device)

Type	V _{oc}	I _F	Q _c	T _{j,max}	Package
SC10120CT	1200V	5/10A	19nC/38nC	175°C	TO-220AB
SC10120FCT	1200V	5/10A	19nC/38nC	175°C	ITO-220AB
SC10120D1	1200V	5/10A	19nC/38nC	175°C	TO-263AB

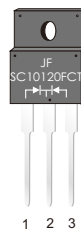
TO-220AB

SC10120CT



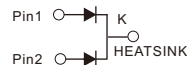
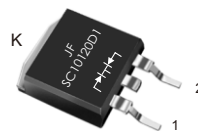
ITO-220AB

SC10120FCT



TO-263

SC10120D1



RATINGS AND CHARACTERISTIC OF SC10120XX

MAXIMUM RATINGS

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

Parameter	Symbol	Value (leg/device)	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	1200	V
Continuous Forward Current for $R_{th(j-c)}$	I_F	5/10 ($T_c \leq 151^\circ\text{C}$ TO-220/TO-263) 5/10 ($T_c \leq 132^\circ\text{C}$ ITO-220)	A
Non-Repetitive Forward Surge Current (Half-Sine Pulse, $t_p=8.3\text{ms}$)	$I_{F,SM}$	60/120($T_c=25^\circ\text{C}$) 50/120($T_c=150^\circ\text{C}$)	A
I^2t value	$\int i^2t$	14.5/58 ($T_c=25^\circ\text{C}$) 10.6/42.4 ($T_c=150^\circ\text{C}$)	A^2S
Diode dv/dt ruggedness($V_R=0\dots960\text{V}$)	dv/dt	80	V/nS
Power dissipation for $R_{th(j-c,max)}$ ($T_c=25^\circ\text{C}$)	P_{tot}	125(TO-220/TO-263) 60(TO-252/ITO-220)	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	ITO-220AC	TO-220AC	TO-263AC	Unit
Diode thermal resistance junction-case(device)	$R_{th(j-c)}$	2.5	1.2	1.2	K/W

RATINGS AND CHARACTERISTIC OF SC10120XX

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=5A/10A T _j =25°C IF=5A/10A T _j =125°C IF=5A/10A T _j =175°C		1.5 1.7 2.0	1.8 2.0 2.3	V
Reverse current	I _R	VR=1200V T _j =25°C VR=1200V T _j =125°C VR=1200V T _j =175°C			20/40 100/200 200/400	uA

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=10A di/dt=200A/uS T _j =25°C		19/38		nC
Total capacitance	C	V _R =0V, f=1MHz V _R =400V, f=1MHz V _R =800V, f=1MHz T _j =25°C		385/770 28/56 22/44		pF

RATINGS AND CHARACTERISTIC OF SC10120XX

FIG.1-FORWARD CURRENT DERATING CURVE(device)

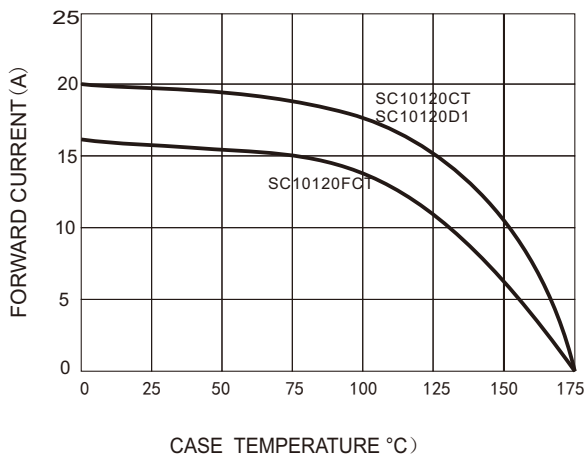


FIG.2-TYPICAL JUNCTION CAPACITANCE(device)

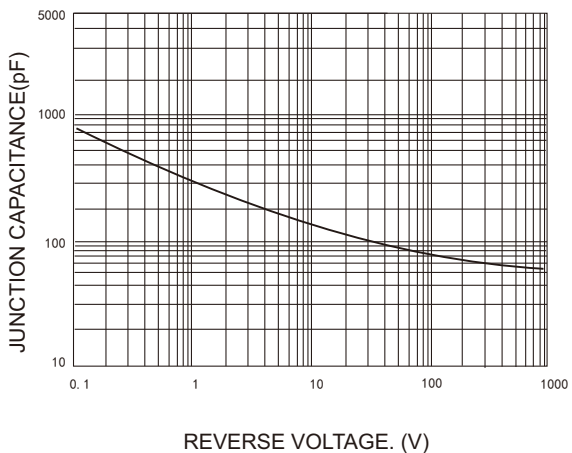


FIG.3-FORWARD CURRENT DERATING CURVE(per leg)

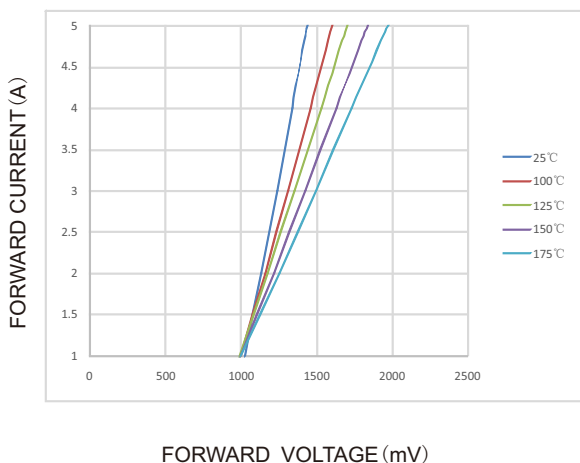
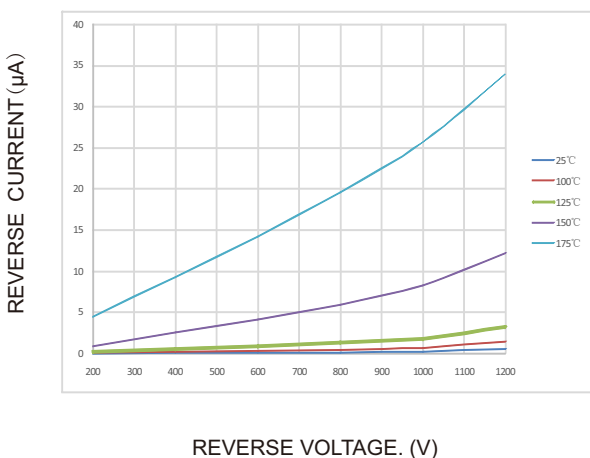


FIG.4-REVERSE CHARACTERISTICS(per leg)



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