

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

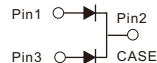
- General Purpose
- SMPS, Solar inverter, UPS
- Power Switching Circuits

KEY PERFORMANCE AND PACKAGE PARAMETERS (leg/device)

Type	V _{DC}	I _F	Qc	T _{j,max}	Package
SC2065CT	650V	10/20A	25nC/50nC	175℃	TO-220AB
SC2065FCT	650V	10/20A	25nC/50nC	175℃	ITO-220AB
SC2065D1	650V	10/20A	25nC/60nC	175℃	TO-263AB

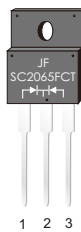
TO-220AB

SC2065CT



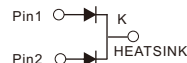
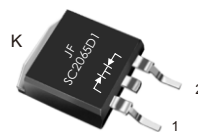
ITO-220AB

SC2065FCT



TO-263

SC2065D1



RATINGS AND CHARACTERISTIC OF SC2065XX

MAXIMUM RATINGS

(Ratings at 25℃ 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	10/20 ($T_c \leq 131^{\circ}C$ TO-220/TO-263) 10/20 ($T_c \leq 91^{\circ}C$ ITO-220)	A
Non-Repetitive Forward Surge Current (Half-Sine Pulse, $t_p=8.3ms$)	$I_{F,SM}$	75/150($T_c=25^{\circ}C$) 60/120($T_c=150^{\circ}C$)	A
I^2t value	$\int i^2t$	23/92 ($T_c=25^{\circ}C$) 15/60 ($T_c=150^{\circ}C$)	A ² S
Diode dv/dt ruggedness($V_R=0\ldots960V$)	dv/dt	80	V/nS
Power dissipation for $R_{th(j-c,max)}$ ($T_c=25^{\circ}C$)	P_{tot}	125(TO-220/TO-263) 60(TO-252/ITO-220)	W
Operating junction temperature range	T_j	-55...175	℃
Storage temperature range	T_{stg}	-55...175	℃

THERMAL CHARACTERISTICS (TA=25℃ Unless otherwise noted)

Paramerter	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 SC2065XX

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=10A/20A T _j =25°C IF=10A/20A T _j =125°C IF=10A/20A T _j =175°C		1.6 1.7 1.8	1.9 2.0 2.2	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	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		25/50		nC
Total capacitance	C	V _R =0V,f=1MHz V _R =200V,f=1MHz V _R =400V,f=1MHz T _j =25°C		440/880 57/114 46/92		pF

RATINGS AND CHARACTERISTIC OF SC2065XX

FIG.1-FORWARD CURRENT DERATING CURVE(device)

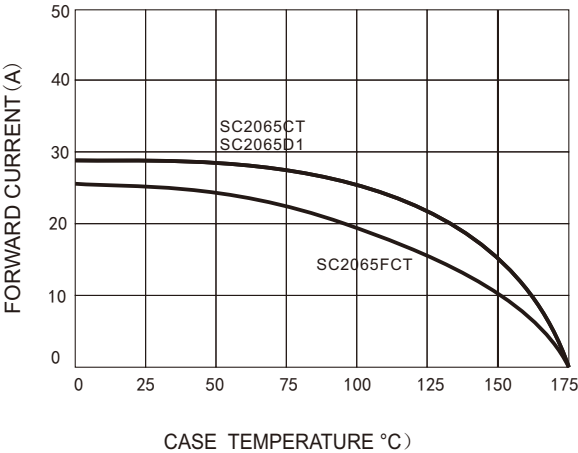


FIG.2-TYPICAL JUNCTION CAPACITANCE(per leg)

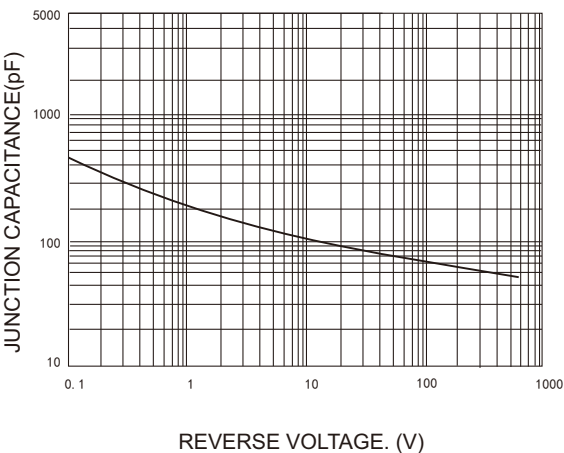


FIG.3-FORWARD CURRENT DERATING CURVE(per leg)

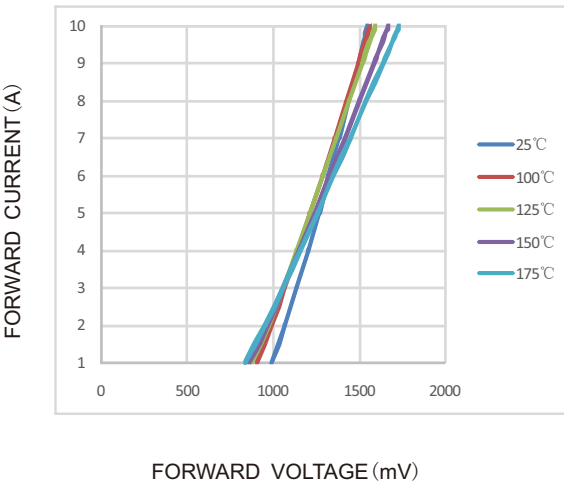
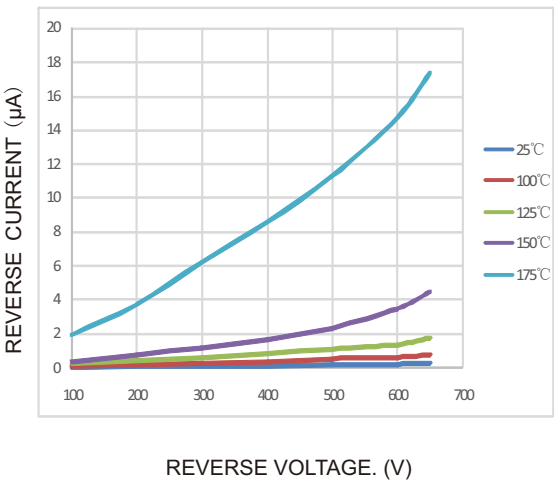


FIG.4-REVERSE CHARACTERISTICS(per leg)



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