SEMICONDUCTOR

SC2065CT SC2065FCT SC2065D1

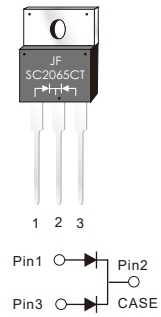
Silicon Carbide Schottky Diode
Reverse Voltage - 650 Volts
Forward Current - 20.0Amperes

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.

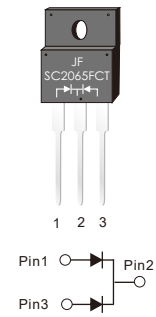
TO-220AB

SC2065CT



ITO-220AB

SC2065FCT

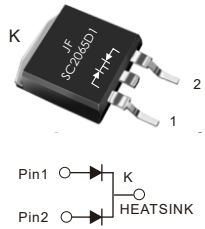


FEATURES

- Max Junction Temperature 175° C
- High Surge Current Capacity
- Positive Temperature Coefficient
- Ease of Paralleling
- No Reverse Recovery/No Forward Recovery

TO-263

SC2065D1



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-263

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 $Rth_{(j-c)}$	I_F	10/20（T_C≤131℃ TO-220/TO-263) 10/20（Tc≤91℃ ITO-220)	A
Non-Repetitive Forward Surge Current （Half-Sine Pulse,tp=8.3mS)	$I_{F,SM}$	75/150(Tc=25℃) 60/120(Tc=150℃)	A
I^2t value	$\int i^2t$	23/92（Tc=25℃） 15/60（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}	125(TO-220/TO-263) 60(TO-252/ITO-220)	W
Operating junction temperature range	Tj	-55. ..175	℃
Storage temperature range	Tstg	-55...175	℃

THERMAL CHARACTERISTCS（TA=25℃ Unless otherwise noted）

Paramerter	Symbol	ITO-220AB	TO-220AB	TO-263AB	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 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℃	650			V
Diode forward voltage	V_F	IF=10A/20A Tj=25℃ IF=10A/20A Tj=125℃ IF=10A/20A Tj=175℃ per diode; Fig. 3		1.35 1.50 1.55	1.45 1.60 1.65	V
Reverse current	I_R	VR=650V Tj=25℃ VR=650V Tj=125℃ VR=650V Tj=175℃ per diode; Fig. 4			50 100 200	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=10A di/dt=200A/uS Tj=25℃		25/50		nC
Total capacitance	C	V_R=0V,f=1MHz V_R=200V,f=1MHz V_R=400V,f=1MHz Tj=25℃		440/880 57/114 46/92		pF

RATINGS AND CHARACTERISTIC OF SC2065XX

FIG.1-FORWARD CURRENT DERATING CURVE(device)

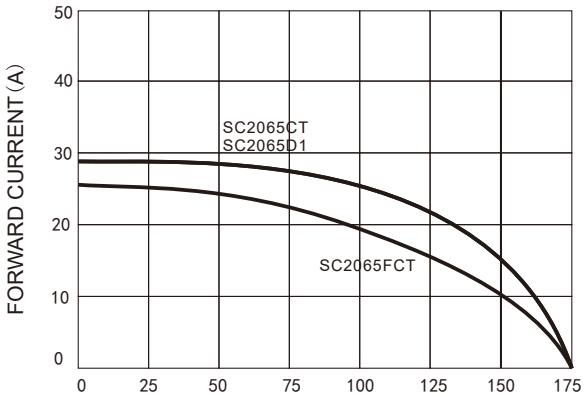


FIG.2-TYPICAL JUNCTION CAPACITANCE(per leg)

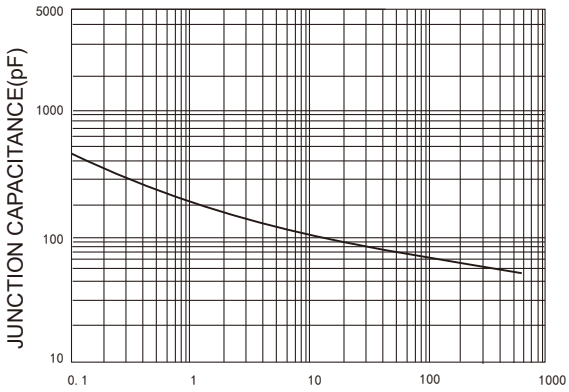


FIG.3-FORWARD CURRENT DERATING CURVE(per leg)

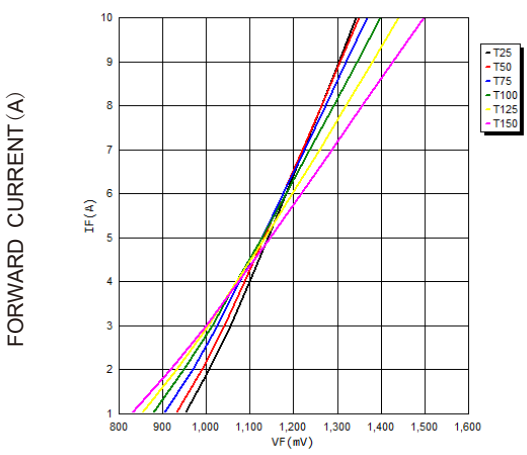
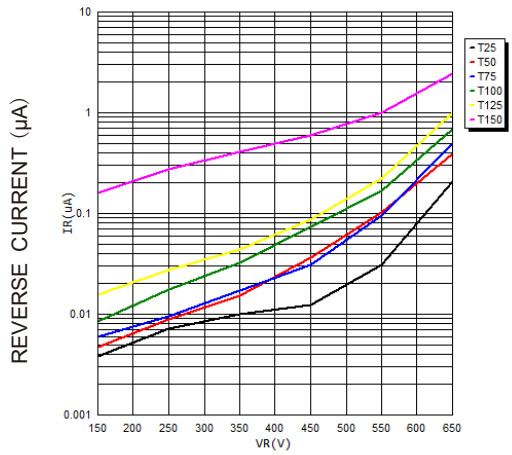


FIG.4-REVERSE CHARACTERISTICS(per leg)



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