SEMICONDUCTOR

SC1065 SC1065F SC1065D2 SC1065M2

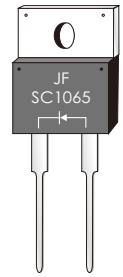
SILICON CARBIDE SCHOTTKY DIODE
Reverse Voltage - 650 Volts
Forward Current - 10.0Amperes

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-220AC

Sc1065



ITO-220AC

SC1065F

FEATURES

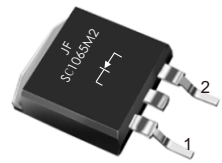
- Max Junction Temperature 175° C
- High Surge Current Capacity
- Positive Temperature Coefficient
- Ease of Paralleling
- No Reverse Recovery/No Forward Recovery

MECHANICAL DATA

- Case: JEDEC TO-220AC/ITO-220AC/TO-263AC/TO-252AC
- 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

TO-252

SC1065M2



TO-263AC

SC1065D2

TYPICAL APPLICATIONS

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

KEY PERFORMANCE AND PACKAGE PARAMETERS

Type	V_{DC}	I_F	Qc	T_j,max	Package
SC1065	650V	10A	25nC	175℃	TO-220AC
SC1065F	650V	10A	25nC	175℃	ITO-220AC
SC1065D2	650V	10A	25nC	175℃	TO-263AC
SC1065M2	650V	10A	25nC	175℃	TO-252AC

RATINGS AND CHARACTERISTIC OF SC1065XX

MAXIMUM RATINGS

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

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	650	V
Continuous Forward Current for $Rth_{(j-c)}$	I_F	10（T_c≤156℃ TO-220/TO-263) 10（Tc≤135℃ TO-252/ITO-220)	A
Non-Repetitive Forward Surge Current （Half-Sine Pulse,tp=8.3mS)	$I_{F,SM}$	85(25℃) 75(150℃)	A
I^2t value	$\int i^2t$	30（25℃） 23（150℃）	A^2S
Diode dv/dt ruggedness(VR=0...650V)	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-220AC	TO-220AC	TO-263AC	TO-252AC	Unit
Diode thermal resistance junction-case	$R_{th(j-c)}$	2.5	1.2	1.2	2.5	K/W

RATINGS AND CHARACTERISTIC OF SC1065XX

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

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
DC blocking voltage	V_{DC}	Tj=25...175℃	650			V
Diode forward voltage	V_F	IF=10A Tj=25℃ IF=10A Tj=125℃ IF=10A Tj=175℃		1.5 1.6 1.8	1.8 1.9 2.1	V
Reverse current	I_R	VR=650V Tj=25℃ VR=650V Tj=125℃ VR=650V Tj=175℃			20 100 200	uA

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

Parameter	Symbol	conditions	Value			Unit
			min	typ	max	
Total capacitive charge	Qc	VR=650V,IF=10A di/dt=200A/uS Tj=25℃		25		nC
Total capacitance	C	V_R=0V,f=1MHz V_R=200V,f=1MHz V_R=400V,f=1MHz Tj=25℃		440 57 46		pF

RATINGS AND CHARACTERISTIC OF SC1065XX

FIG.1-FORWARD CURRENT DERATING CURVE

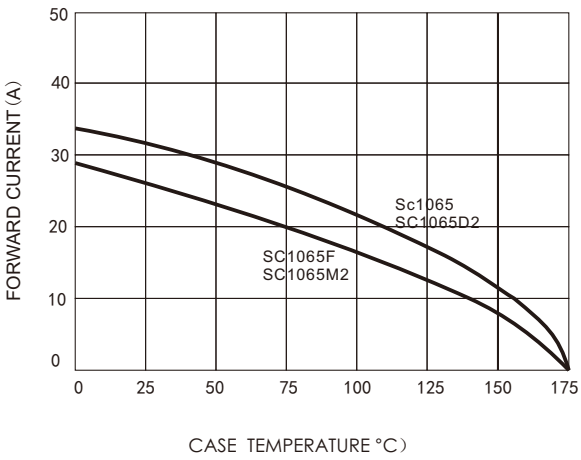


FIG.2-TYPICAL JUNCTION CAPACITANCE

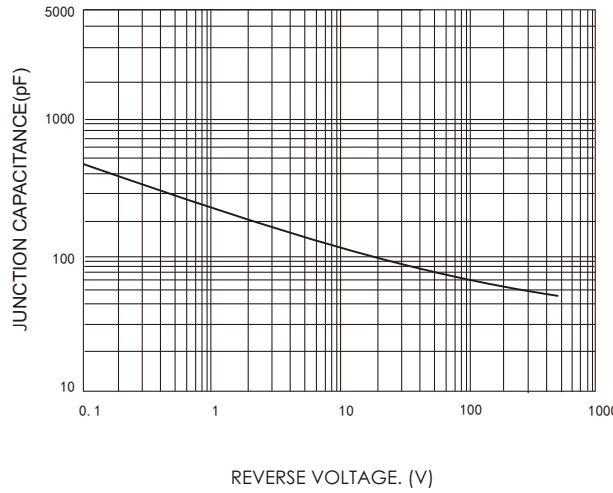


FIG.3-FORWARD CHARACTERISTICS

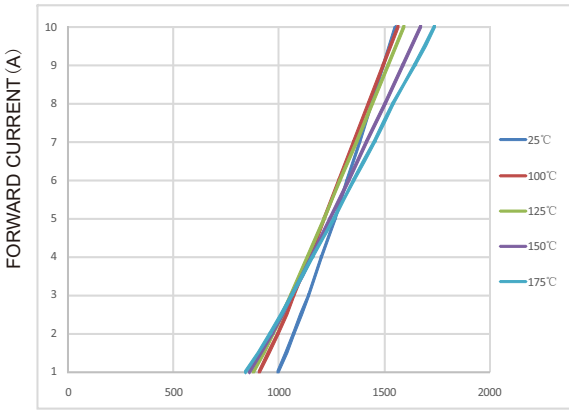
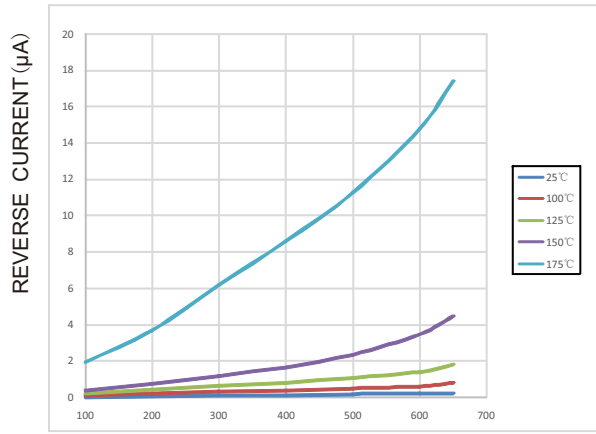
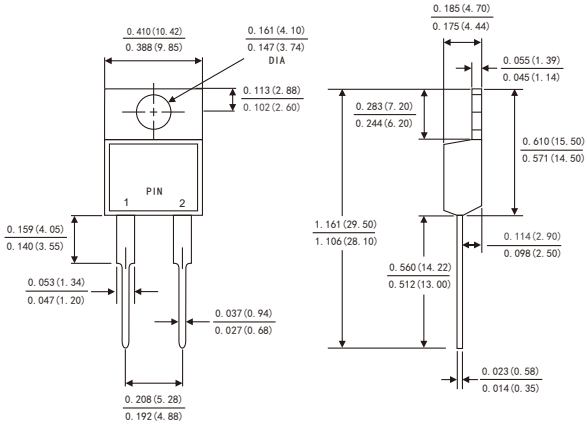


FIG.4-REVERSE CHARACTERISTICS



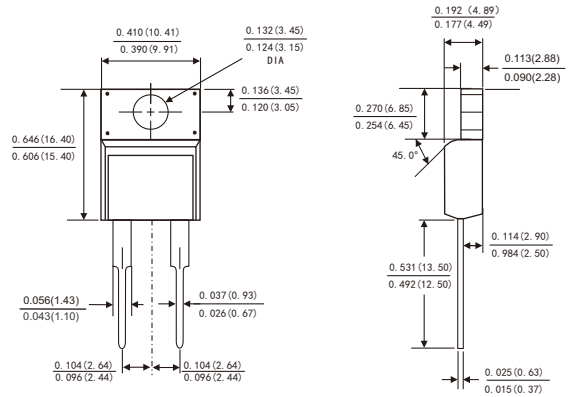
PACKAGE OUTLINE DIMENSIONS

TO-220AC



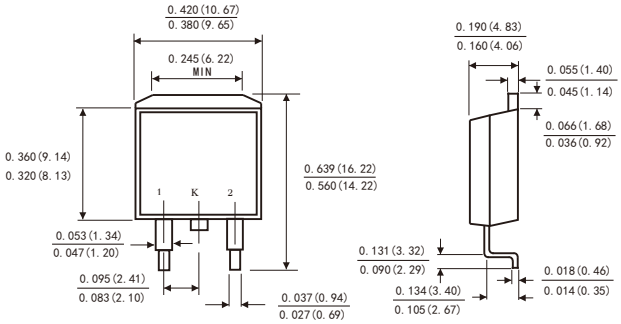
Dimensions in inches and (millimeters)

ITO-220AC

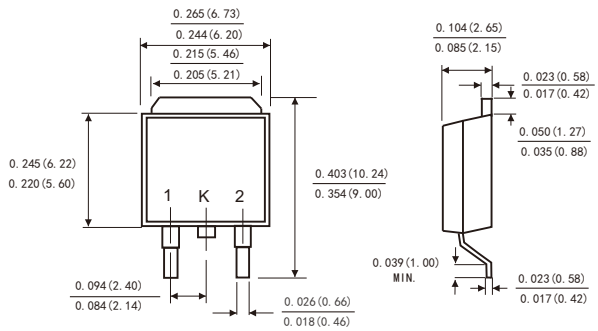


Dimensions in inches and (millimeters)

TO-263

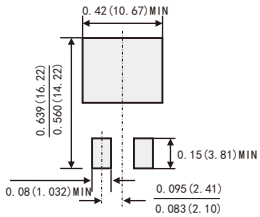


TO-252



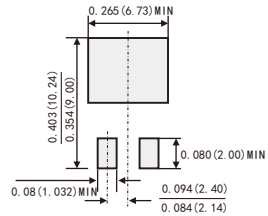
Suggested Pad Layout

（TO-263）



Suggested Pad Layout

（TO-252）



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