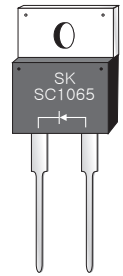
SILICON CARBIDE SCHOTTKY DIODE
Reverse Voltage – 650 Volts
Forward Current – 10.0Amperes

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



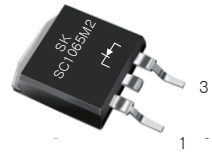
ITO-220AC
SC1065F



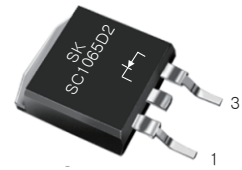
FEATURES

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

TO-252
SC1065M2



TO-263
SC1065D2



MECHANICAL DATA

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

- SMPS, Solar inverter, UPS
- Power Switching Circuits
- Power Factor Correction

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-263
SC1065M2	650V	10A	25nC	175℃	TO-252

RATINGS AND CHARACTERISTIC OF SC1065XX

MAXIMUM RATINGS

(Ratings at 25℃ 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(Tc≤156℃ TO-220AC/TO-263) 10(Tc≤135℃ ITO-220AC/TO-252)	A
Non-Repetitive Forward Surge Current (Half-Sine Pulse,tp=8.3mS)	I_{FSM}	70(25℃) 55(150℃)	A
I^2t value	$\int I^2T$	20(25℃) 12.5(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℃)	Ptot	125(TO-220/TO-263/TO-252) 43(ITO-220)	W
Operating junction temperature range	Tj	-55...175	℃
Storage temperature range	Tstg	-55...175	℃

THERMAL CHARACTERISTCS

Paramerter	Symbol	ITO-220AC	TO-220AC	TO-263	TO-252	Unit
Diode thermal resistance junction-case	$R_{th(j-c)}$	3.5	12	12	1.2	℃/W

RATINGS AND CHARACTERISTIC OF SC1065XX

ELECTRICAL CHARACTERISTCS (TA=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 1)	I_F=10A Tj=25℃ I_F=10A Tj=125℃ I_F=10A Tj=175 ℃	- - -	1.5 1.6 1.8	1.8 1.9 2.1	V
Reverse current	I_R 2)	V_R=650V Tj=25℃ V_R=650V Tj=125℃ V_R=650V Tj=175℃	- - -	- - -	20 100 200	uA

Notes: 1.Pulse test: 300 μs pulse width,1% duty cycle
2.Pulse test: pulse width≤40ms

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

Parameter	Symbol	conditions	Value			Unit
			min	typ	max	
Total capacitivecharge	Qc	V_R=650V,I_F=10A di/dt=200A/uS	-	25	-	nC
Total capacitance	Cj	V_R=0V,f=1MHz V_R=200V,f=1MHz V_R=400V,f=1MHz		440 57 46		pF

RATINGS AND CHARACTERISTIC

FIG.1-FORWARD CURRENT DERATING CURVE

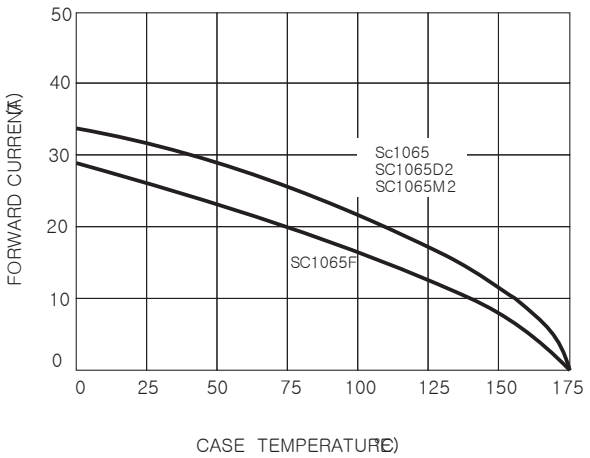


FIG.2-TYPICAL JUNCTION CAPACITANCE

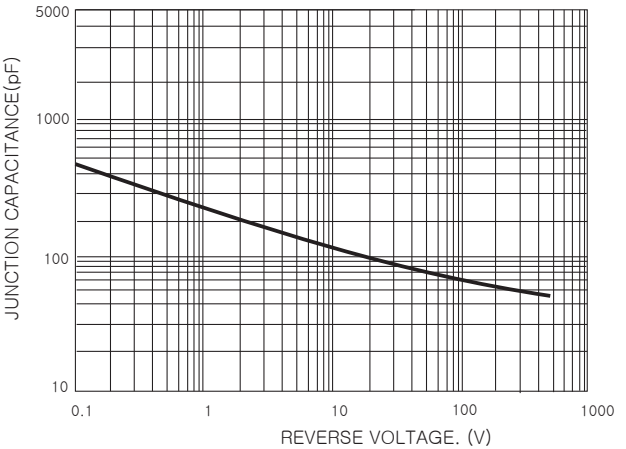


FIG.3-FORWARD CHARACTERISTICS

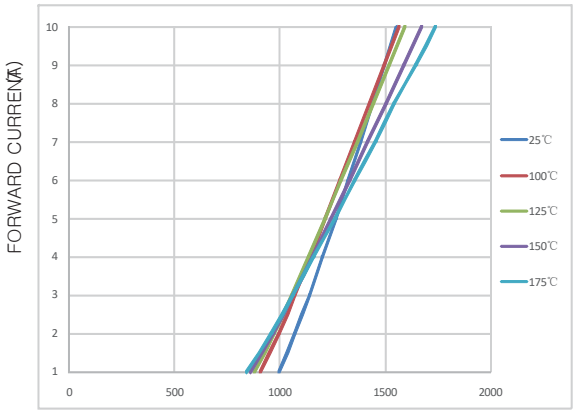
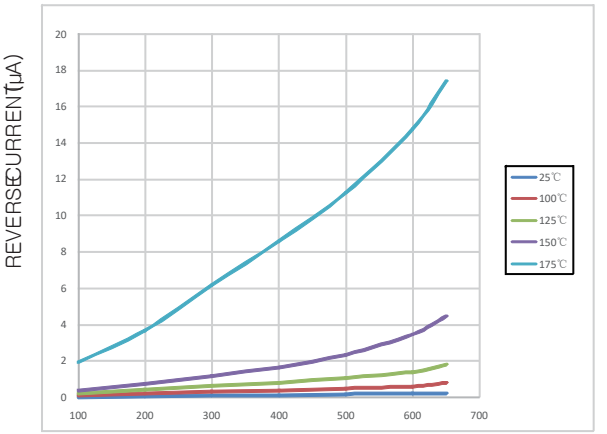
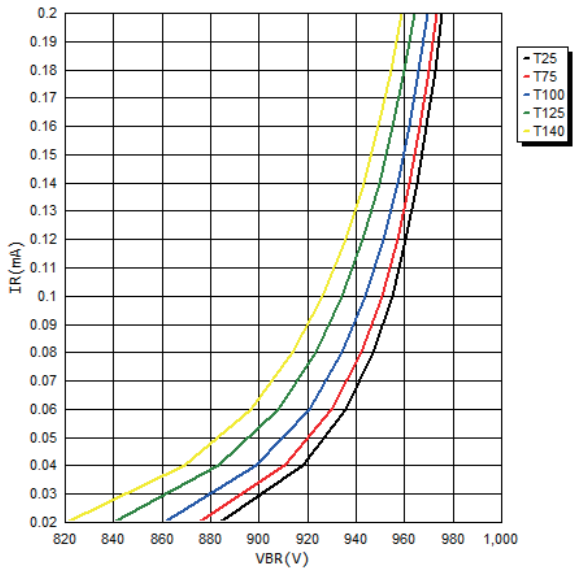


FIG.4-REVERSE CHARACTERISTICS



RATINGS AND CHARACTERISTIC

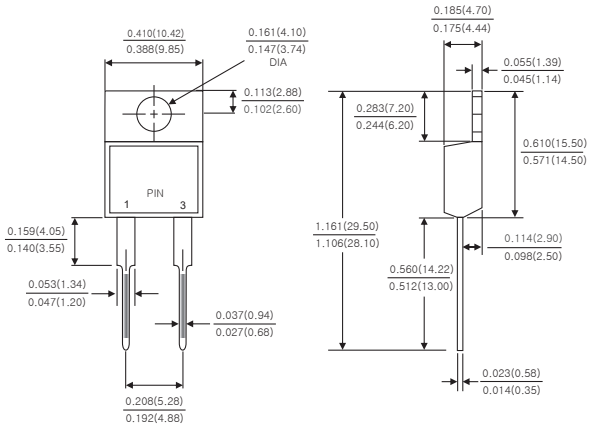
FIG.5-REVERSE CHARACTERISTICS



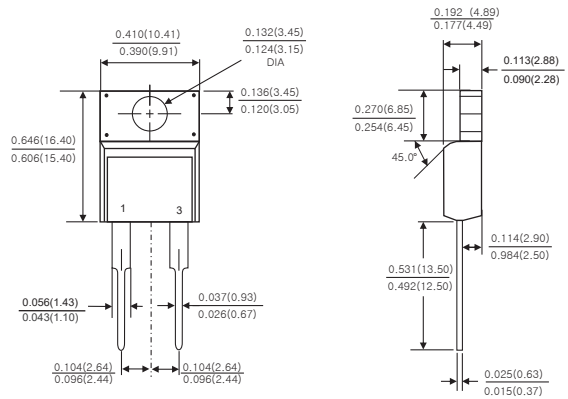
PACKAGE OUTLINE DIMENSIONS

Dimensions in inches and (millimeters)

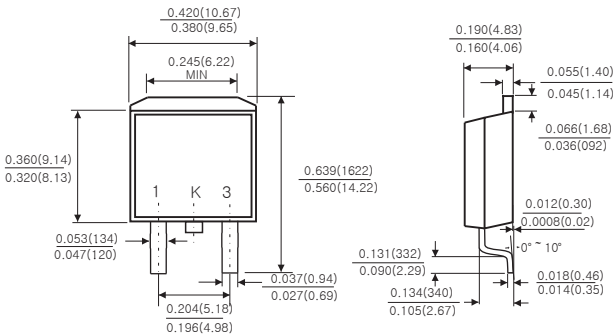
TO-220AC



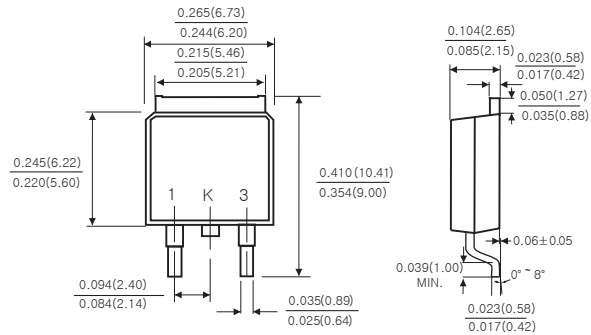
ITO-220AC



TO-263

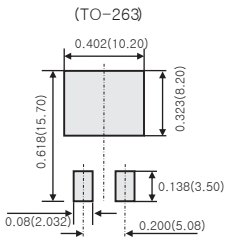


TO-252



Suggested Pad Layout

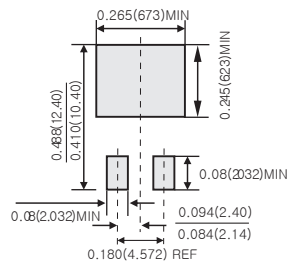
(TO-263)



(Designers can refer to the recommended values according to the manufacturing process requirements to determine the appropriate pad size)

Suggested Pad Layout

(TO-252)



(Designers can refer to the recommended values according to the manufacturing process requirements to determine the appropriate pad size)