

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-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

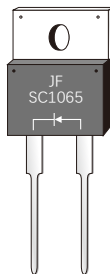
- SMPS, Solar inverter, UPS
- Power Switching Circuits
- Power Factor Correction

KEY PERFORMANCE AND PACKAGE PARAMETERS

Type	V _{DC}	I _F	Q _c	T _J ,max	Package
SC1065	650V	10A	25nC	175°C	TO-220AC
SC1065F	650V	10A	25nC	175°C	ITO-220AC
SC1065D2	650V	10A	25nC	175°C	TO-263
SC1065M2	650V	10A	25nC	175°C	TO-252

TO-220AC

SC1065



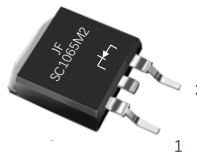
ITO-220AC

SC1065F



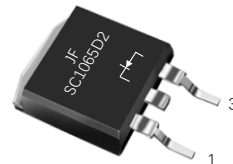
TO-252

SC1065M2



TO-263

SC1065D2



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 $R_{th(j-c)}$	I_F	10($T_c \leq 156^\circ\text{C}$ TO-220AC/TO-263) 10($T_c \leq 135^\circ\text{C}$ ITO-220AC/TO-252)	A
Non-Repetitive Forward Surge Current (Half-Sine Pulse, $t_p=8.3\text{ms}$)	I_{FSM}	70(25°C) 55(150°C)	A
I^2t value	$\int I^2T$	20(25°C) 12.5(150°C)	A^2S
Diode dv/dt ruggedness ($V_R=0\ldots 650\text{V}$)	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/TO-252) 43(ITO-220)	W
Operating junction temperature range	T_j	$-55\ldots 175$	$^\circ\text{C}$
Storage temperature range	T_{stg}	$-55\ldots 175$	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Parameter	Symbol	ITO-220AC	TO-220AC	TO-263	TO-252	Unit
Diode thermal resistance junction-case	$R_{th(j-c)}$	3.5	1.2	1.2	1.2	$^\circ\text{C/W}$

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

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
DC blocking voltage	V _{DC}	T _j =25...175 °C	650	-	-	V
Diode forward voltage	V _F ¹⁾	I _F =10A T _j =25°C	-	1.5	1.8	V
		I _F =10A T _j =125°C	-	1.6	1.9	
		I _F =10A T _j =175 °C	-	1.8	2.1	
Reverse current	I _R ²⁾	V _R =650V T _j =25°C	-	-	20	uA
		V _R =650V T _j =125°C	-	-	100	
		V _R =650V T _j =175°C	-	-	200	

Notes: 1.Pulse test: 300 μs pulse width,1% duty cycle

2.Pulse test: pulse width≤40ms

DYNAMIC CHARACTERISTICS(at T_j=25°C,unless otherwise specified)

Parameter	Symbol	conditions	Value			Unit
			min	typ	max	
Total capacitivecharge	Q _c	V _R =650V,I _F =10A di/dt=200A/uS	-	25	-	nC
Total capacitance	C _j	V _R =0V,f=1MHz V _R =200V,f=1MHz V _R =400V,f=1MHz		440 57 46		pF

FIG.1-FORWARD CURRENT DERATING CURVE

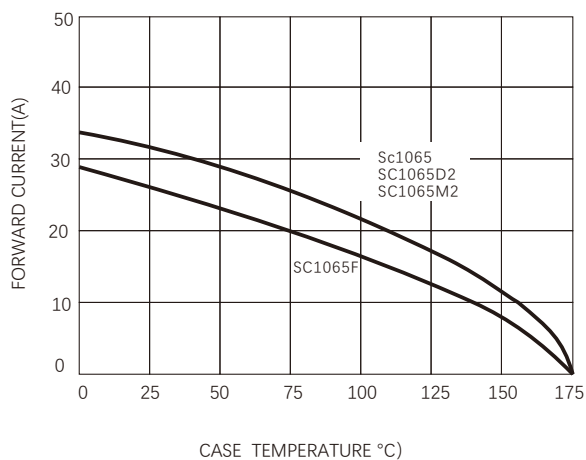


FIG.2-TYPICAL JUNCTION CAPACITANCE

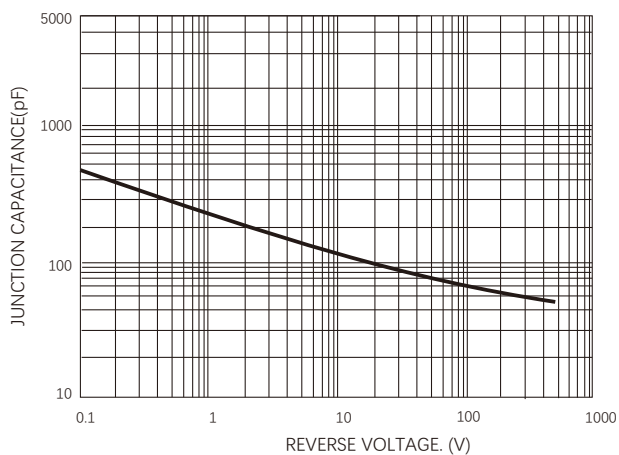


FIG.3-FORWARD CHARACTERISTICS

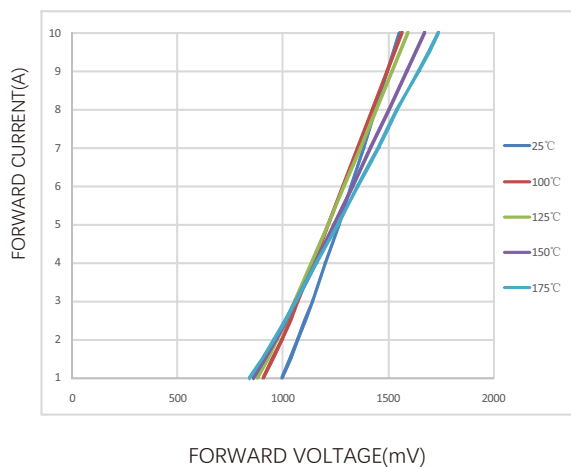


FIG.4-REVERSE CHARACTERISTICS

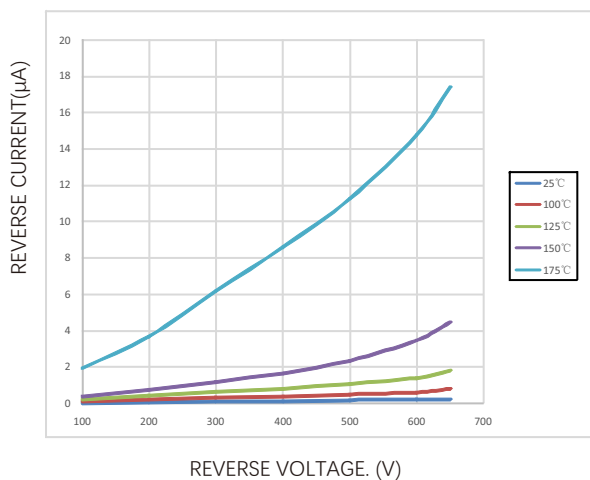
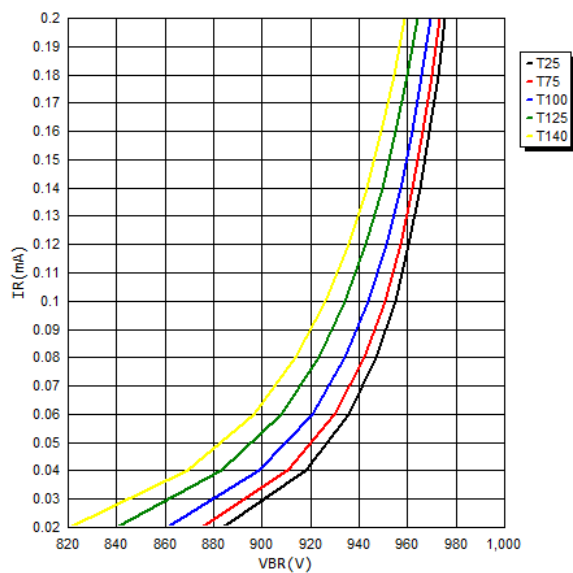


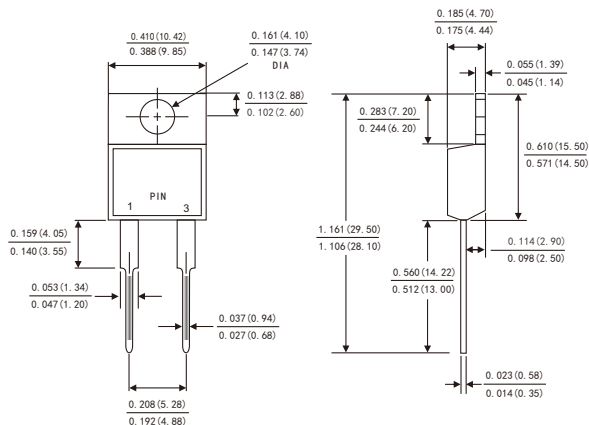
FIG.5-REVERSE CHARACTERISTICS



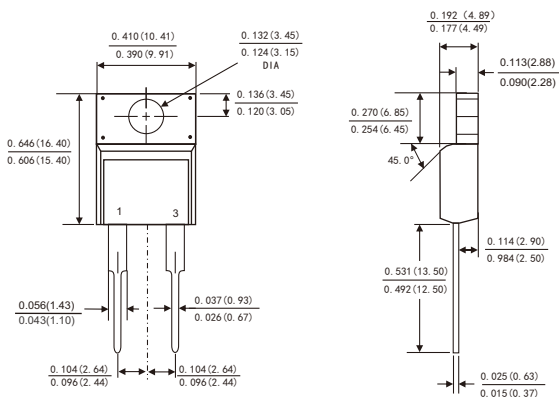
PACKAGE OUTLINE DIMENSIONS

Dimensions in inches and (millimeters)

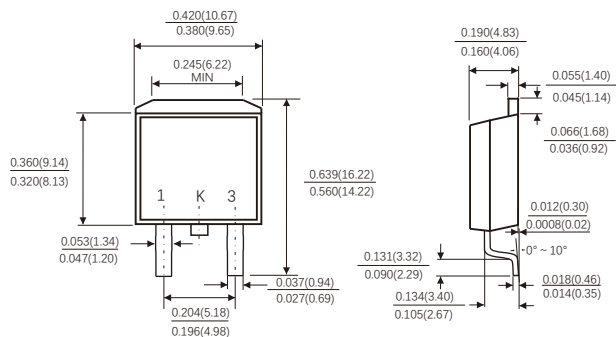
TO-220AC



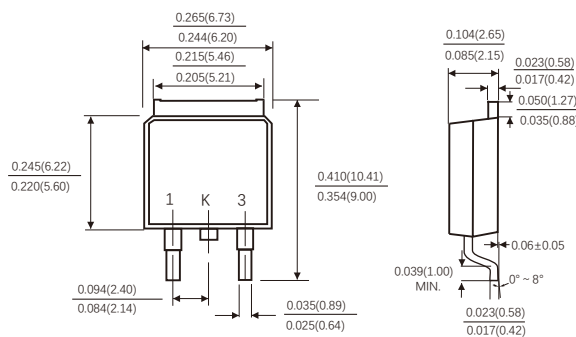
ITO-220AC



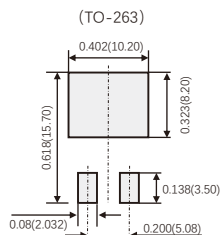
TO-263



TO-252

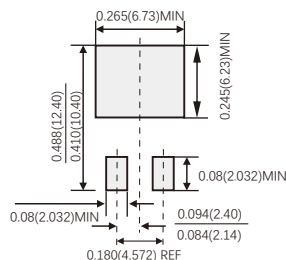


Suggested Pad Layout



(设计者可参考推荐值根据焊接工艺要求自行确定适合的焊盘尺寸)
(Designers can refer to the recommended values according to the manufacturing process requirements to determine the appropriate pad size)

Suggested Pad Layout (TO-252)



(设计者可参考推荐值根据焊接工艺要求自行确定适合的焊盘尺寸)
(Designers can refer to the recommended values according to the manufacturing process requirements to determine the appropriate pad size)

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