

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

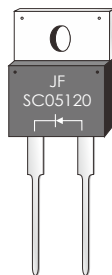
- General Purpose
- SMPS, Solar inverter, UPS
- Power Switching Circuits

KEY PERFORMANCE AND PACKAGE PARAMETERS

Type	V _{DC}	I _F	Qc	T _{J,max}	Package
SC05120	1200V	5A	19nC	175°C	TO-220AC
SC05120F	1200V	5A	19nC	175°C	ITO-220AC
SC05120D2	1200V	5A	19nC	175°C	TO-263
SC05120M2	1200V	5A	19nC	175°C	TO-252

TO-220AC

SC05120



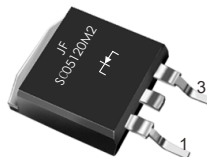
ITO-220AC

SC05120F



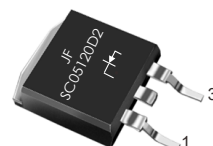
TO-252

SC05120M2



TO-263

SC05120D2



RATINGS AND CHARACTERISTIC OF SC05120XX

MAXIMUM RATINGS

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

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	1200	V
Continuous Forward Current for $R_{th(j-c)}$	I_F	20 ($T_c \leq 25^{\circ}C$ TO-220/TO-263) 14 ($T_c \leq 25^{\circ}C$ TO-252/ITO-220) 5 ($T_c \leq 156^{\circ}C$ TO-220/TO-263) 5 ($T_c \leq 135^{\circ}C$ TO-252/ITO-220)	A
Non-Repetitive Forward Surge Current (Half-Sine Pulse, $t_p=8.3ms$)	I_{FSM}	60 ($25^{\circ}C$) 52 ($150^{\circ}C$)	A
I^2t value	$\int i^2t$	15 ($25^{\circ}C$) 11.2 ($150^{\circ}C$)	A ² S
Diode dv/dt ruggedness($V_R=0\ldots650V$)	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	$^{\circ}C$
Storage temperature range	T_{stg}	-55...175	$^{\circ}C$

THERMAL CHARACTERISTICS (TA=25°C Unless otherwise noted)

Parameter	Symbol	ITO-220AC	TO-220AC	TO-263	TO-252	Unit
Diode thermal resistance junction-case	$R_{th(j-c)}$	2.5	1.2	1.2	2.5	K/W

RATINGS AND CHARACTERISTIC OF SC05120XX

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	1200			V
Diode forward voltage	V _F	IF=5A T _j =25°C IF=5A T _j =125°C IF=5A T _j =175°C		1.5 1.7 2.0	1.8 2.0 2.3	V
Reverse current	I _R	VR=1200V T _j =25°C VR=1200V T _j =125°C VR=1200V T _j =175°C			20 100 200	uA

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

Parameter	Symbol	conditions	Value			Unit
			min	typ	max	
Total capacitive charge	Q _C	VR=1200V,IF=5A di/dt=200A/uS T _j =25°C		19		nC
Total capacitance	C	V _R =0V,f=1MHz V _R =400V,f=1MHz V _R =800V,f=1MHz T _j =25°C		385 28 22		pF

RATINGS AND CHARACTERISTIC OF SC05120XX

FIG.1-FORWARD CURRENT DERATING CURVE

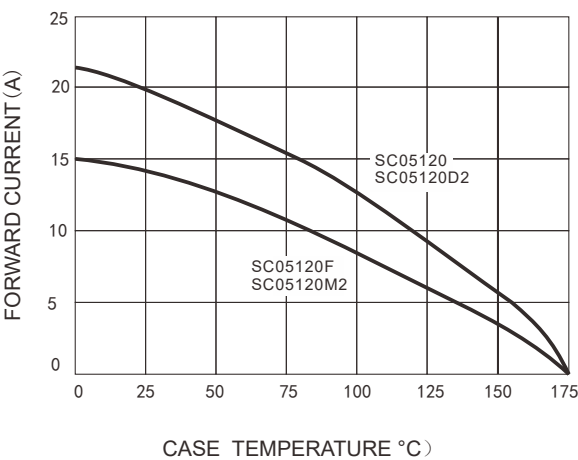


FIG.2-TYPICAL JUNCTION CAPACITANCE

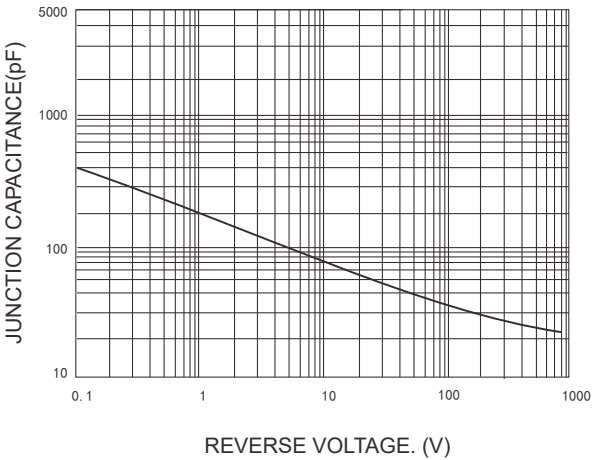


FIG.3-FORWARD CHARACTERISTICS

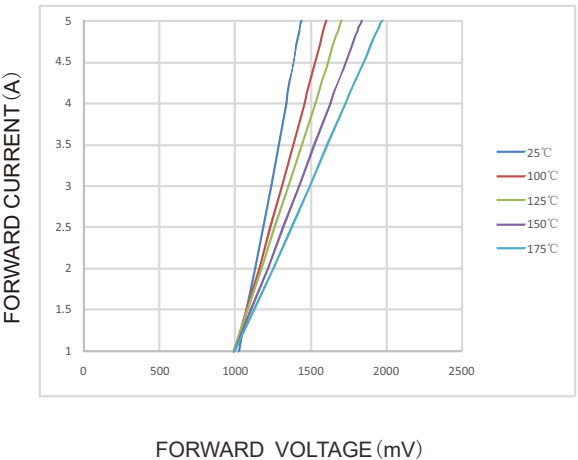
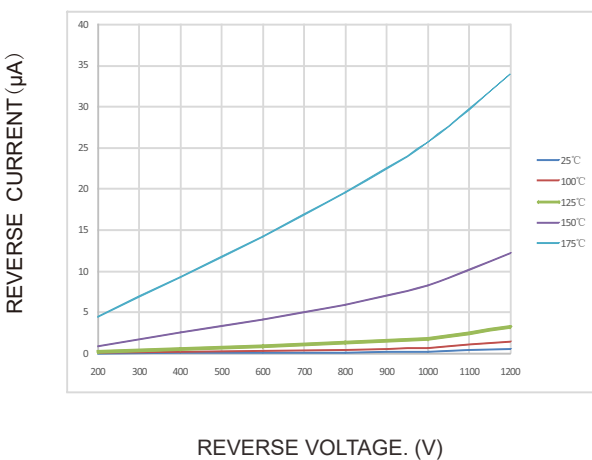
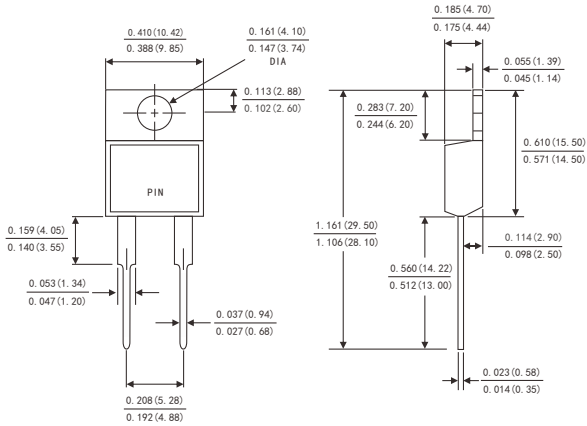


FIG.4-REVERSE CHARACTERISTICS

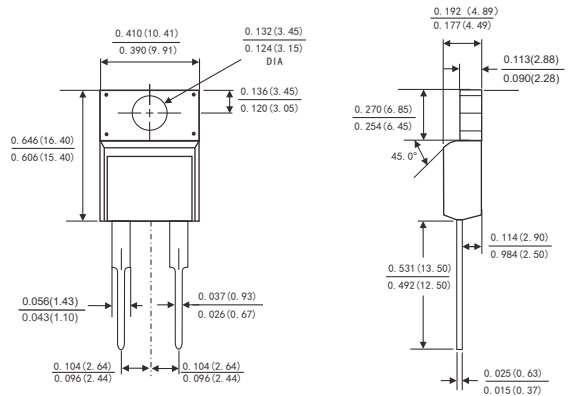


PACKAGE OUTLINE DIMENSIONS

TO-220AC



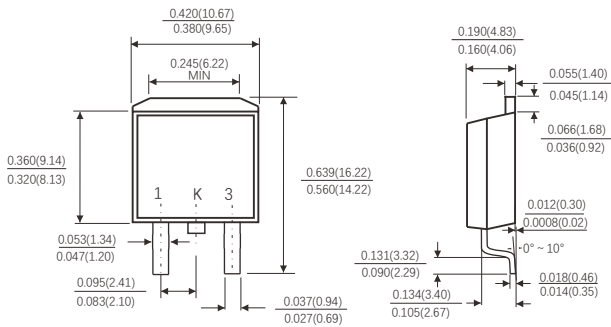
ITO-220AC



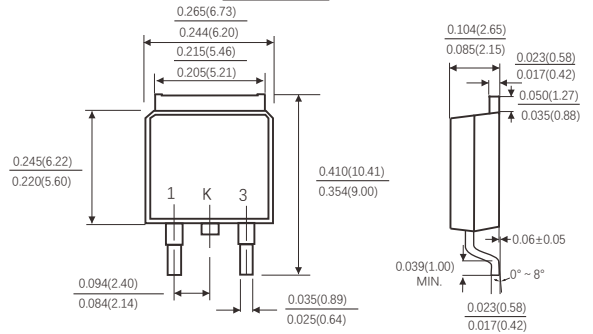
Dimensions in inches and (millimeters)

Dimensions in inches and (millimeters)

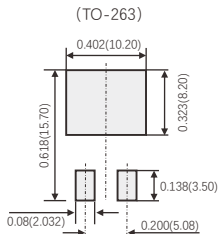
TO-263



TO-252

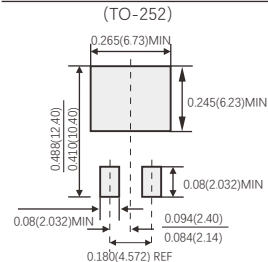


Suggested Pad Layout



(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



(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)

Friendship Reminder

■ JiNan JingHeng (hereinafter referred to as JH) reserves the right to make changes to this document and its products and specifications at anytime without notice.

■ Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.

■ JH makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does JH assume any liability for application assistance or customer product design.

■ JH does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.

■ No license is granted by implication or otherwise under any intellectual property rights of JH.

■ JH's products are not authorized for use as critical components in life support devices or systems without express written approval of JH.