

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

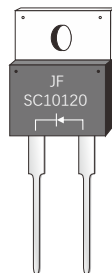
- General Purpose
- SMPS, Solar inverter, UPS
- Power Switching Circuits

KEY PERFORMANCE AND PACKAGE PARAMETERS

Type	V _{DC}	I _F	Q _c	T _j max	Package
SC10120	1200V	10A	30nC	175°C	TO-220AC
SC10120F	1200V	10A	30nC	175°C	ITO-220AC
SC10120D2	1200V	10A	30nC	175°C	TO-263
SC10120M2	1200V	10A	30nC	175°C	TO-252

TO-220AC

SC10120



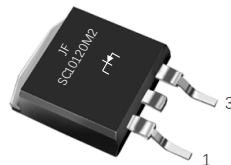
ITO-220AC

SC10120F



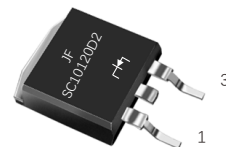
TO-252

SC10120M2



TO-263

SC10120D2



MAXIMUM RATINGS

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

Parameters	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	1200	V
Continuous Forward Current for $R_{th(j-c)}$	I_F	10 ($T_c \leq 156^\circ\text{C}$ TO-220/TO-263/TO-252) 10 ($T_c \leq 110^\circ\text{C}$ ITO-220) 33 ($T_c \leq 25^\circ\text{C}$ TO-220/TO-263/TO-252) 20 ($T_c \leq 25^\circ\text{C}$ ITO-220)	A
Non-Repetitive Forward Surge Current (Half-Sine Pulse, $t_p=8.3\text{ms}$)	I_{FSM}	75 (25°C) 60 (150°C)	A
I^2t value	$\int i^2 dt$	37 (25°C) 30 (150°C)	A^2S
Diode dv/dt ruggedness ($V_R=0\sim 650\text{V}$)	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) 60(TO-252/ITO-220)	W
Operating junction temperature range	T_j	$-55\sim 175$	$^\circ\text{C}$
Storage temperature range	T_{stg}	$-55\sim 175$	$^\circ\text{C}$

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	0.7	0.7	0.7	$^\circ\text{C/W}$

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	1200	-	-	V
Diode forward voltage	V _F	I _F =10A T _j =25°C	-	1.4	1.8	V
		I _F =10A T _j =175°C	-	2.1	3.0	
Reverse current	I _R	V _R =1200V T _j =25°C	-	2.4	20	uA
		V _R =1200V T _j =175°C	-	73	200	

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

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Total capacitive charge	Q _c	V _R =1200V,I _F =5A di/dt=200A/uS T _j =25°C		30		nC
Total capacitance	C	V _R =0V,f=1MHz		650		pF
		V _R =400V,f=1MHz		49		
		V _R =800V,f=1MHz T _j =25°C		40		

FIG.1-FORWARD CURRENT DERATING CURVE

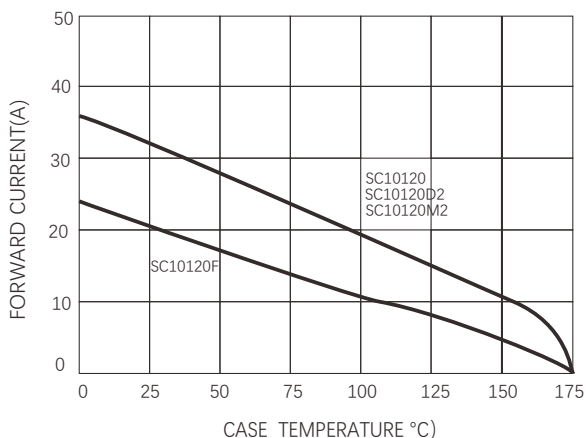


FIG.2-TYPICAL JUNCTION CAPACITANCE

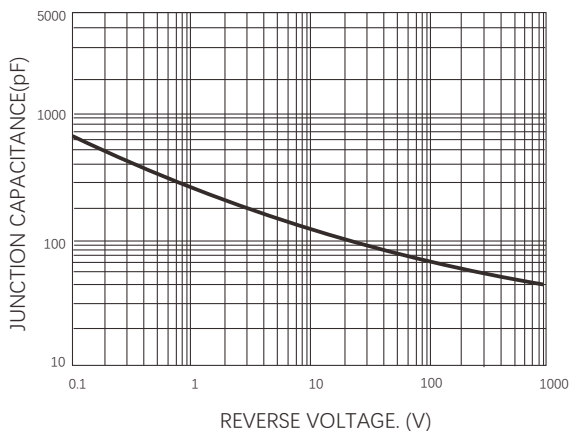


FIG.3-FORWARD CURRENT DERATING CURVE

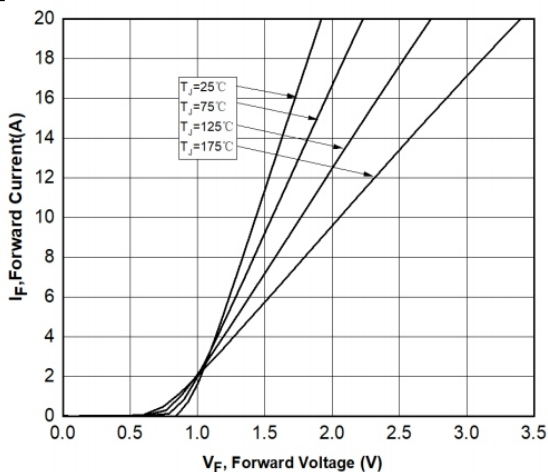


FIG.4-REVERSE CHARACTERISTICS

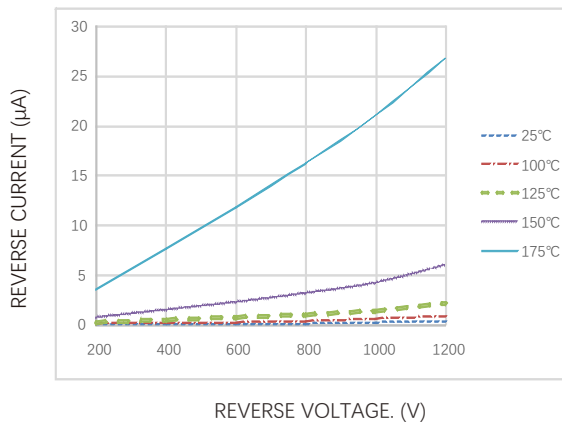
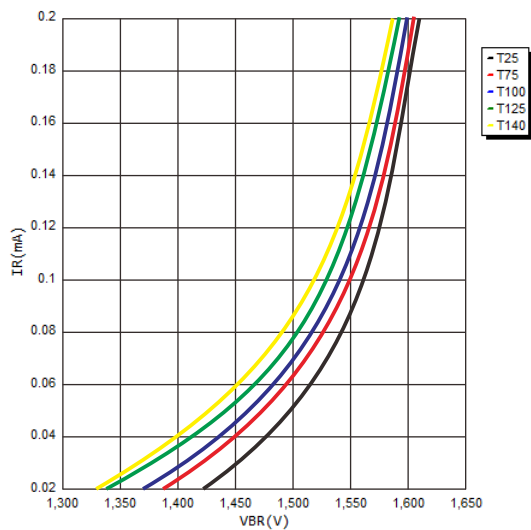
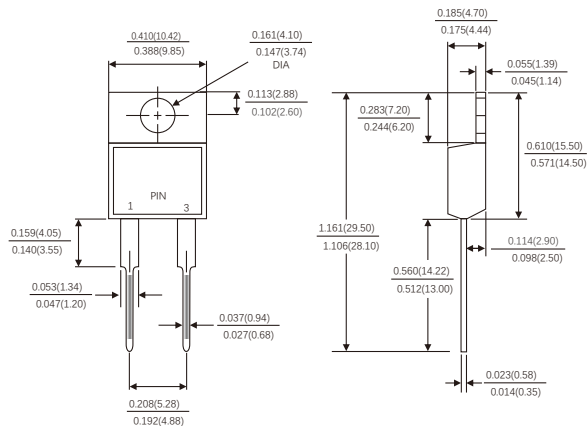


FIG.5-REVERSE CHARACTERISTICS(IR:0.02-0.2mA)

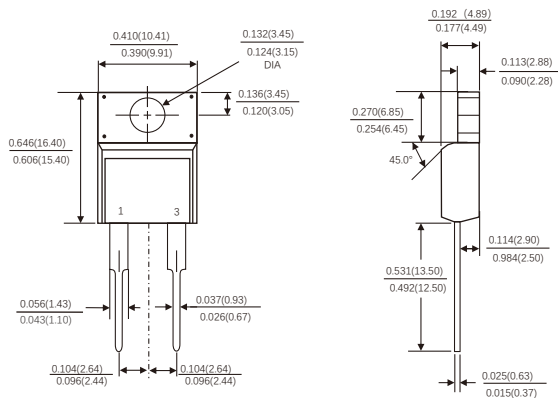


Dimensions in inches and (millimeters)

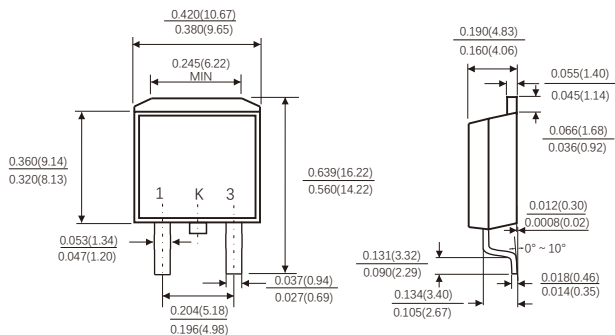
TO-220AC



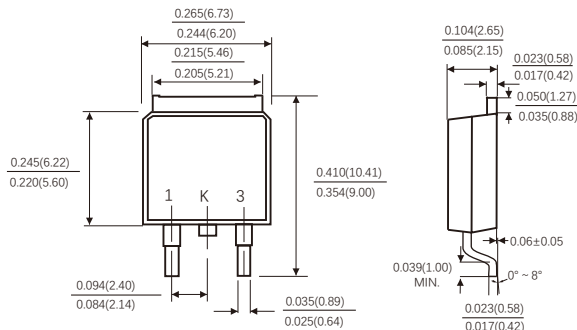
ITO-220AC



TO-263

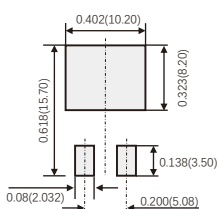


TO-252



Suggested Pad Layout

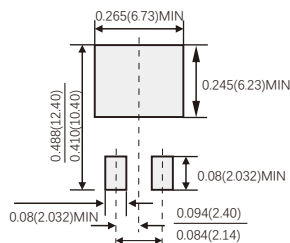
(TO-263)



(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)



0.180(4.572) REF
(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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