

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

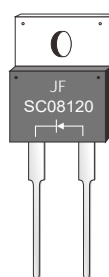
- General Purpose
- SMPS, Solar inverter, UPS
- Power Switching Circuits

KEY PERFORMANCE AND PACKAGE PARAMETERS

Type	V _{DC}	I _F	Q _c	T _{j,max}	Package
SC08120	1200V	8A	36nC	175°C	TO-220AC
SC08120F	1200V	8A	36nC	175°C	ITO-220AC
SC08120D2	1200V	8A	36nC	175°C	TO-263
SC08120M2	1200V	8A	36nC	175°C	TO-252

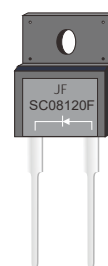
TO-220AC

SC08120



ITO-220AC

SC08120F



TO-252

SC08120M2



TO-263

SC08120D2



RATINGS AND CHARACTERISTIC OF SC08120XX

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	8 ($T_c \leq 160^\circ\text{C}$ TO-220 / TO-263 / TO-252) 8 ($T_c \leq 114^\circ\text{C}$ ITO-220) 27 ($T_c \leq 25^\circ\text{C}$ 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, $t_p=8.3\text{mS}$ Pulse, $t_p=10\mu\text{S}$	I_{FSM}	80 (25°C) 64 (110°C) 600 (25°C) 504 (110°C)	A
I^2t value	$\int i^2t$	26.6 (25°C) 20 (150°C)	A ² S
Diode dv/dt ruggedness(VR=0...650V)	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...175	°C
Storage temperature range	T_{stg}	-55...175	°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	K/W

RATINGS AND CHARACTERISTIC OF SC08120XX

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=8A T _j =25°C IF=8A T _j =125°C IF=8A T _j =175°C		1.5 2.1 2.6	1.7 2.3 3.0	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=800V, IF=5A di/dt=200A/uS T _j =25°C		36		nC
Total capacitance	C	V _R =0V, f=1MHz V _R =400V, f=1MHz V _R =800V, f=1MHz T _j =25°C		640 43 34		pF

RATINGS AND CHARACTERISTIC OF SC08120XX

FIG.1-FORWARD CURRENT DERATING CURVE

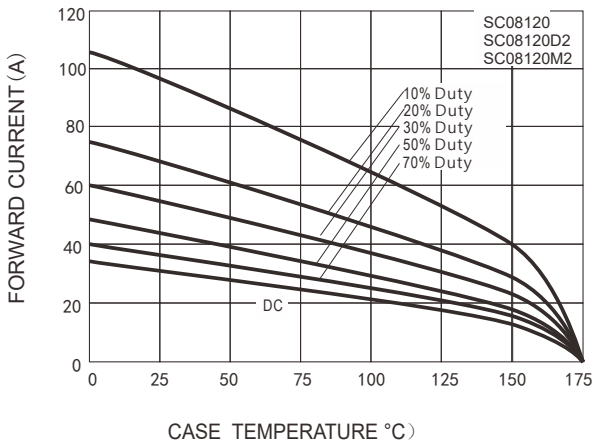


FIG.2-TYPICAL JUNCTION CAPACITANCE

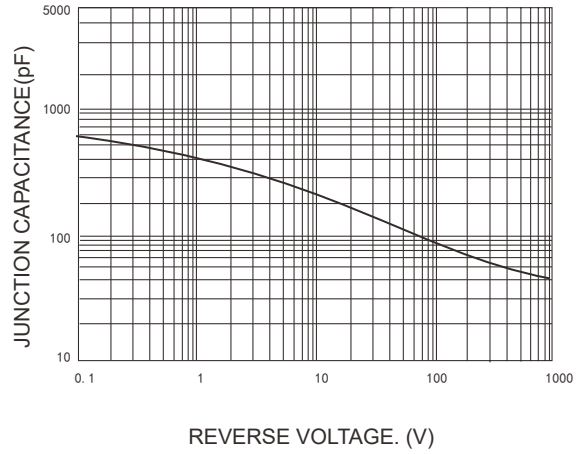


FIG.3-FORWARD CURRENT DERATING CURVE

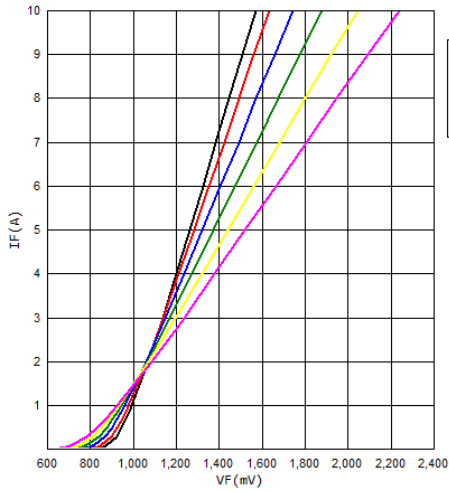
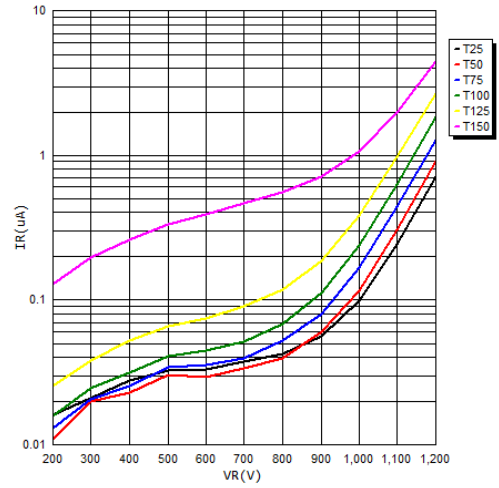
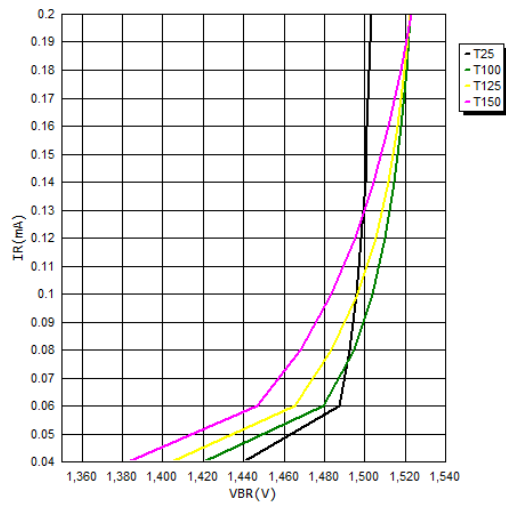


FIG.4-REVERSE CHARACTERISTICS



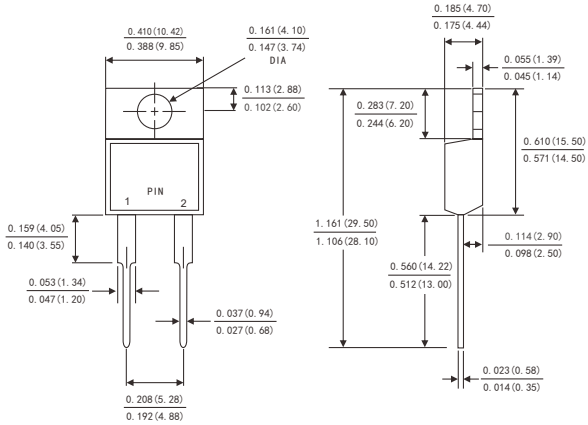
RATINGS AND CHARACTERISTIC OF SC08120XX

FIG.5-REVERSE CHARACTERISTICS (IR:0.04-0.2mA)



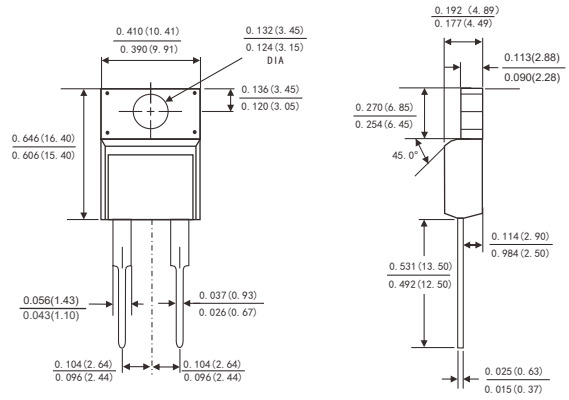
PACKAGE OUTLINE DIMENSIONS

TO-220AC



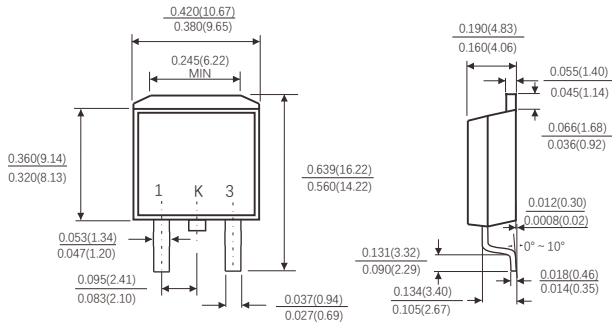
Dimensions in inches and (millimeters)

ITO-220AC

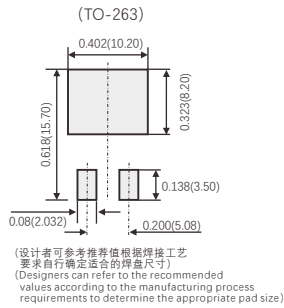


Dimensions in inches and (millimeters)

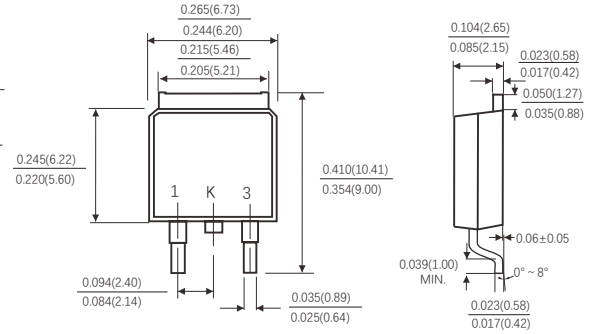
TO-263



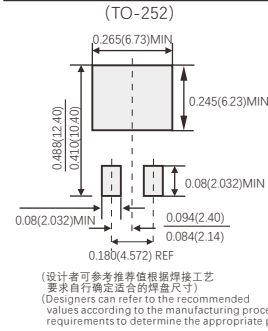
Suggested Pad Layout



TO-252



Suggested Pad Layout



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