

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-263

SC20170D2



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-263AC
- 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
SC20170D2	1700V	20A	250nC	175°C	TO-263AC

MAXIMUM RATINGS

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

Parameters	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	1700	V
Continuous forward current for $R_{th(j-c)}$	I_F	20($T_c=155^{\circ}C$) 93($T_c=25^{\circ}C$)	A
Non-repetitive forward surge current (Haif-Sine Pulse, $t_p=8.3ms$)	I_{FSM}	200 ($T_c=25^{\circ}C$)	A
I^2t value	I^2t	166($T_c=25^{\circ}C$)	A ² s
Power dissipation for $R_{th(j-c,max)}$ ($T_c=25^{\circ}C$)	P_{tot}	214	W
Operating junction temperature range	T_j	-55...175	°C
Storage temperature range	T_{stg}	-55...175	°C

THERMAL CHARACTERISTICS

Parameter	Symbol	Value		Unit
		Typ	Max	
Diode thermal resistance junction-case	$R_{th(j-c)}$	0.7	-	K/W

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

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
DC blocking voltage	V _{DC}	T _j =25...175°C	1700	-	-	V
Diode forward voltage	V _F	I _F =20A T _j =25°C	-	1.42	1.70	V
		I _F =20A T _j =125°C	-	1.78	2.50	
		I _F =20A T _j =175°C	-	2.10	2.70	
Reverse current	I _R	V _R =1700V T _j =25°C	-	-	30	uA
		V _R =1700V T _j =125°C	-	-	200	
		V _R =1700V T _j =175°C	-	-	400	

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		250		nC
Total capacitance	C	V _R =0V,f=1MHz		2400		pF
		V _R =800V,f=1MHz		120		
		V _R =1700V,f=1MHz		98		
		T _j =25°C				

FIG.1-FORWARD CURRENT DERATING CURVE

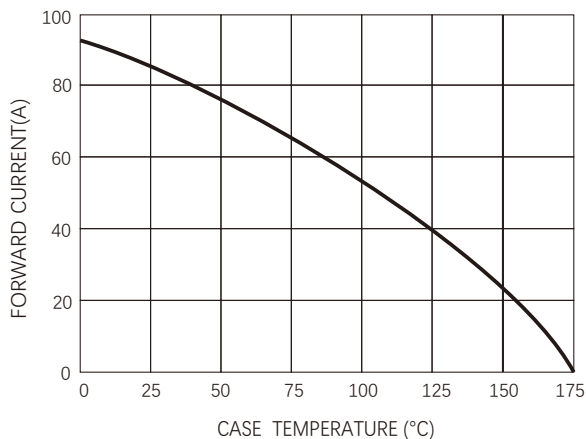


FIG.2-TYPICAL JUNCTION CAPACITANCE

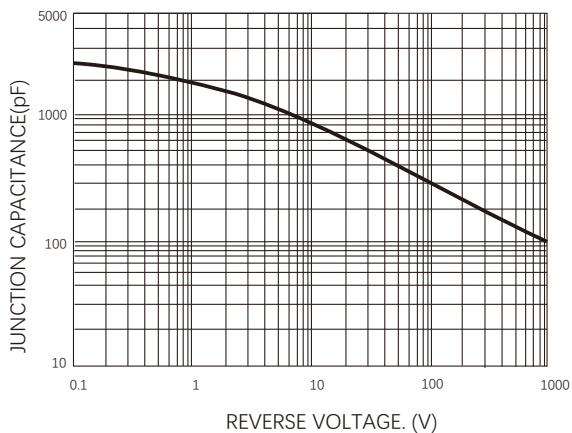


FIG.3-FORWARD CURRENT DERATING CURVE

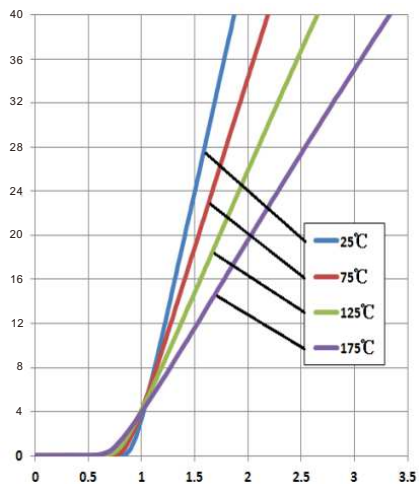
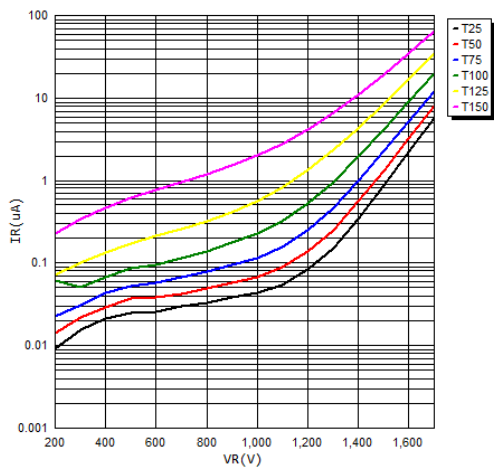
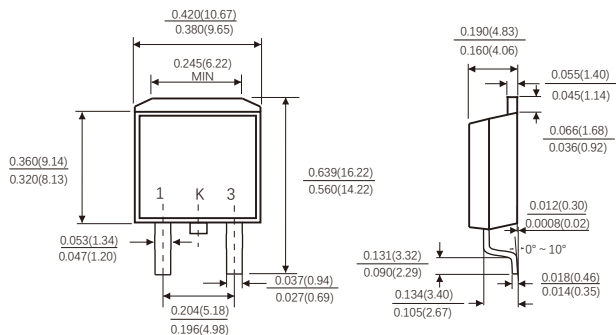


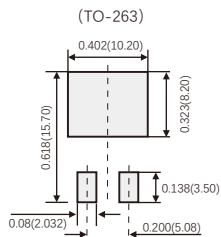
FIG.4-REVERSE CHARACTERISTICS



TO-263
D2PAK



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)

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