

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-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

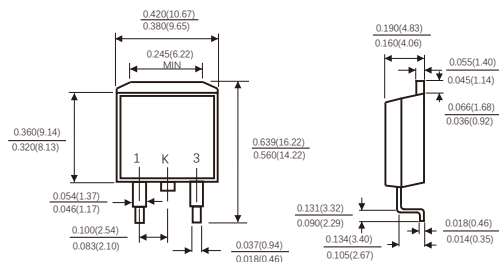
TYPICAL APPLICATIONS

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

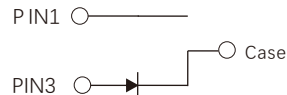
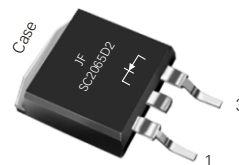
KEY PERFORMANCE AND PACKAGE PARAMETERS

Type	V _{DC}	I _F	Q _c	T _y max	Package
SC2065D2	650V	20A	40nC	175°C	TO-263AC

TO-263AC



Dimensions in inches and (millimeters)



RATINGS AND CHARACTERISTIC OF SC2065D2

MAXIMUM RATINGS

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

Parameters	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	650	V
Continuous Forward Current for $R_{th(j-c)}$	I_F	20($T_c \leq 147^\circ\text{C}$) 25($T_c = 135^\circ\text{C}$) 56($T_c = 25^\circ\text{C}$)	A
Non-Repetitive Forward surge Current (Half-Sine Pulse, $t_p = 8.3\text{ms}$)	$I_{F,SM}$	170($T_c = 25^\circ\text{C}$) 155($T_c = 150^\circ\text{C}$)	A
I^2t value	$\int I^2 dt$	119 ($T_c = 25^\circ\text{C}$) 99 ($T_c = 150^\circ\text{C}$)	A^2S
Diode dv/dt ruggedness($V_R = 0 \dots 960\text{V}$)	dv/dt	80	V/nS
Power dissipation for $R_{th(j-c, max)}$ ($T_c = 25^\circ\text{C}$)	P_{tot}	250/300	W
Operating junction temperature range	T_j	-55...175	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55...175	$^\circ\text{C}$

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value		Unit
		Typ	Max	
Diode thermal resistance junction-case	$R_{th(j-c)}$	0.85	1.0	K/W

RATINGS AND CHARACTERISTIC OF SC2065D2

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	IF=20A/40A T _J =25°C IF=20A/40A T _J =125°C IF=20A/40A T _J =175°C		1.4 1.5 1.75	1.65 1.8 2.3	V
Reverse current	I _R	VR=650V T _J =25°C VR=650V T _J =125°C VR=650V T _J =175°C			20 50 100	μA

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

Parameter	Sym bol	conditions	Value			Unit
			min	typ	max	
Total capacitive charge	Q _c	VR=1200V,IF=20A di/dt=200A/μS T _J =25°C		40		nC
Total capacitance	C	V _R =0V,f=1MHz V _R =200V,f=1MHz V _R =400V,f=1MHz T _J =25°C		1190 115 96		pF

RATINGS AND CHARACTERISTIC OF SC2065D2

FIG.1-FORWARD CURRENT DERATING CURVE

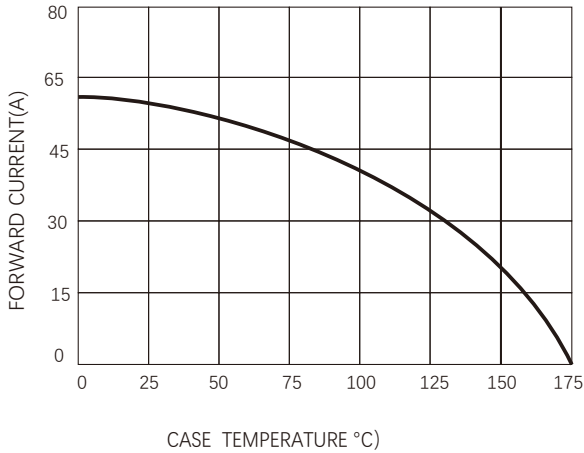


FIG.2-TYPICAL JUNCTION CAPACITANCE

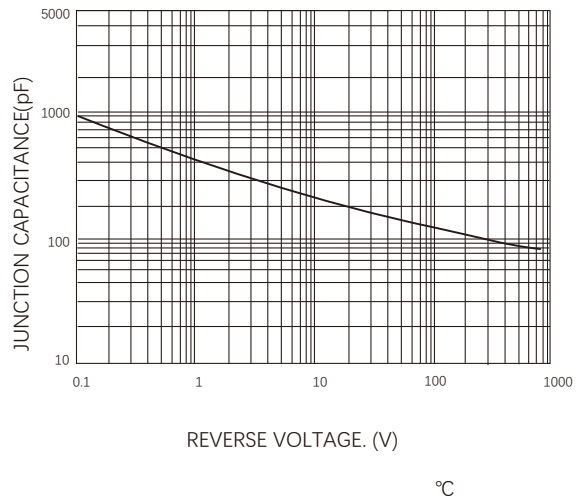


FIG.3-FORWARD CURRENT DERATING CURVE

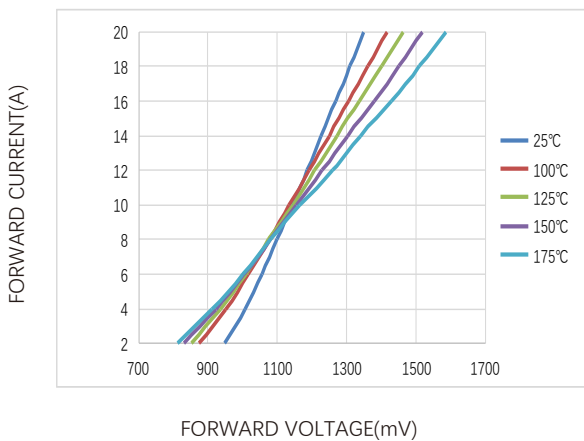
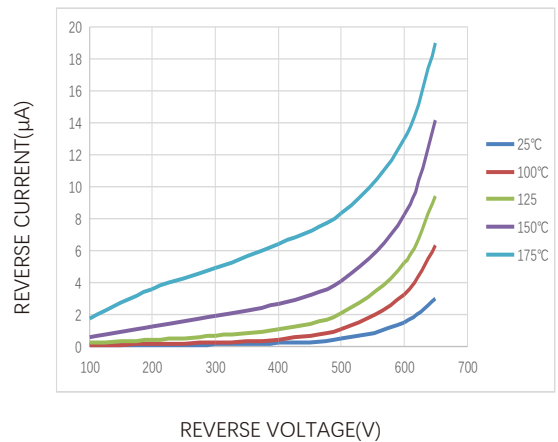


FIG.4-REVERSE CHARACTERISTICS



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