

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-252(DPAK) molded plastic body
- Terminals: Solderable per MIL-STD-202,method 208
- Polarity: As marked
- Mounting Position: Any

TO-252 DPAK



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
SC2065M2	650V	20A	40nC	175°C	TO-252

MAXIMUM RATINGS

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

Parameter	Symbol	Value	Unit
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Continuous Forward Current for $R_{th(j-c)}$	I_F	20($T_c \leq 150^\circ\text{C}$) 33($T_c \leq 125^\circ\text{C}$) 66($T_c \leq 25^\circ\text{C}$)	A
Non-Repetitive Forward Surge Current (Half-Sine Pulse, $t_p=8.3\text{ms}$)	I_{FSM}	130	A
I^2t value	$\int I^2T$	70	A^2S
Power dissipation for $R_{th(j-c)max}$ ($T_c=25^\circ\text{C}$)	P_{tot}	176	W
Operating junction temperature range	T_j	-55...175	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55...175	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Max	Unit
Diode thermal resistance junction-case	$R_{th(j-c)}$	-	0.85	$^\circ\text{C/W}$

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	650	-	-	V
Diode forward voltage	V _F ¹⁾	I _F =20A T _j =25°C	-	1.35	1.60	V
		I _F =20A T _j =175 °C	-	1.60	2.15	
Reverse current	I _R ²⁾	V _R =650V T _j =25°C	-	-	20	uA
		V _R =650V T _j =175°C	-	-	200	

Notes: 1.Pulse test: 300 μs pulse width,1% duty cycle

2.Pulse test: pulse width≤40ms

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

Parameter	Symbol	conditions	Value			Unit
			min	typ	max	
Total capacitivecharge	Q _c	V _R =650V,I _F =20A di/dt=200A/uS	-	40	-	nC
Total capacitance	C _j	V _R =0V,f=1MHz V _R =200V,f=1MHz V _R =400V,f=1MHz		1153 115 96		pF

FIG.1-FORWARD CURRENT DERATING CURVE

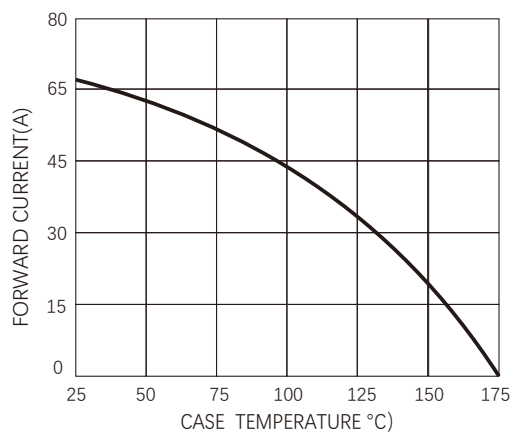


FIG.2-POWER DERATING CURVE

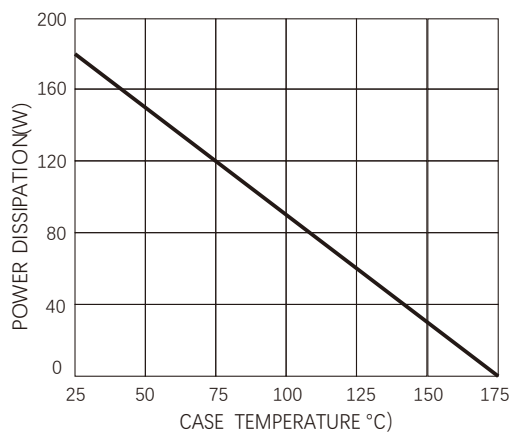


FIG.3-FORWARD CURRENT DERATING CURVE

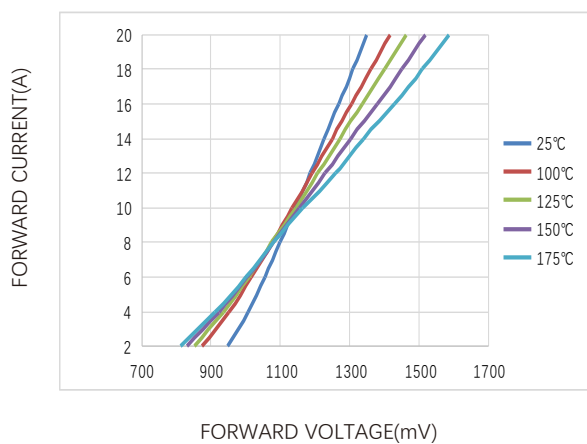
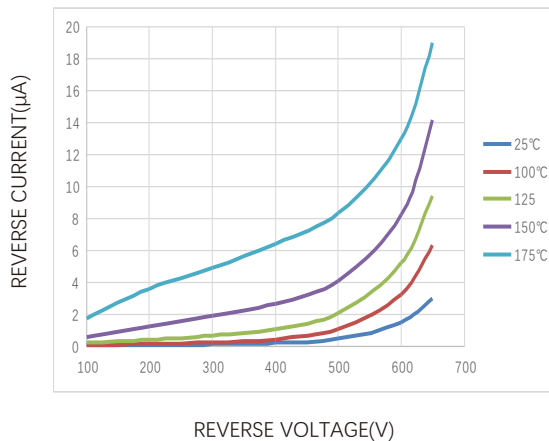
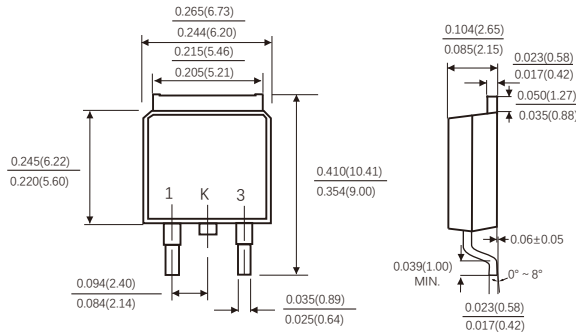


FIG.4-REVERSE CHARACTERISTICS

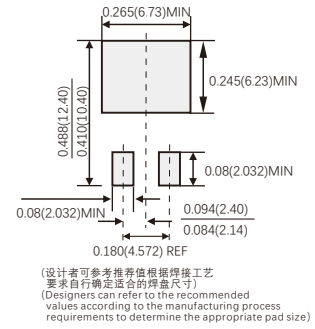


TO-252



Suggested Pad Layout

(TO-252)



Dimensions in inches and (millimeters)

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