SEMICONDUCTOR

SC0365 SC0365F SC0365D2 SC0365M2

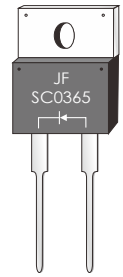
SILICON CARBIDE SCHOTTKY DIODE
Reverse Voltage - 650 Volts
Forward Current - 3Amperes

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-220AC

SC0365



ITO-220AC

SC0365F

Features

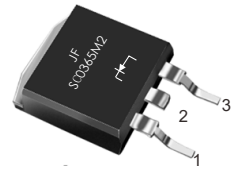
- Max Junction Temperature 175° C
- High Surge Current Capacity
- Positive Temperature Coefficient
- Ease of Paralleling
- No Reverse Recovery/No Forward Recovery

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

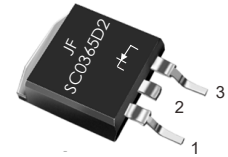
TO-252

SC0365M2



TO-263

SC0365D2



Typical Applications

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

Key Performance And Package Parameters

Type	V_{DC}	I_F	Qc	Tj,max	Package
SC0365	650V	3A	8nC	175℃	TO-220AC
SC0365F	650V	3A	8nC	175℃	ITO-220AC
SC0365D2	650V	3A	8nC	175℃	TO-263
SC0365M2	650V	3A	8nC	175℃	TO-252

RATINGS AND CHARACTERISTIC OF SC0365XX

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 $Rth_{(j-c)}$	I_F	11 Tc≤25℃ 5 Tc≤135℃ 3 Tc≤158℃	A
Non-Repetitive Forward Surge Current （Half-Sine Pulse,tp=8.3mS)	$I_{F,SM}$	30(25℃)	A
I^2t value	$\int i^2t$	3.7（25℃）	A^2S
Power dissipation for $R_{th(j-c,max)}$ （Tc=25℃）	P_{tot}	46.8 (TO-220/TO-263/TO-252) 60 (ITO-220)	W
Operating junction temperature range	Tj	-55. ..175	℃
Storage temperature range	Tstg	-55...175	℃

Thermal Characteristcs

Paramerter	Symbol	ITO-220AC	TO-220AC	TO-263	TO-252	Unit
Diode thermal resistance junction-case	$R_{th(j-c)}$	2.5	3. 2	3.2	3. 2	℃/W

RATINGS AND CHARACTERISTIC OF SC0365XX

Electrical Characteristcs（T_A=25°C Unless otherwise noted）

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
DC blocking voltage	V_{DC}	Tj=25...175℃	650			V
Diode forward voltage	V_F	IF=3A Tj=25℃ IF=3A Tj=175℃		1.4 1.7	1.65 2.3	V
Reverse current	I_R	VR=650V Tj=25℃ VR=650V Tj=175℃		1 5	10 100	uA

Dynamic Characteristics(at Tj=25℃,unless otherwise specified)

Parameter	Symbol	conditions	Value			Unit
			min	typ	max	
Total capacitive charge	Qc	VR=650V,IF=3A di/dt=200A/uS Tj=25℃		8		nC
Total capacitance	C	V_R=0V,f=1MHz V_R=200V,f=1MHz V_R=400V,f=1MHz Tj=25℃		180 18 15		pF

Typical Performance

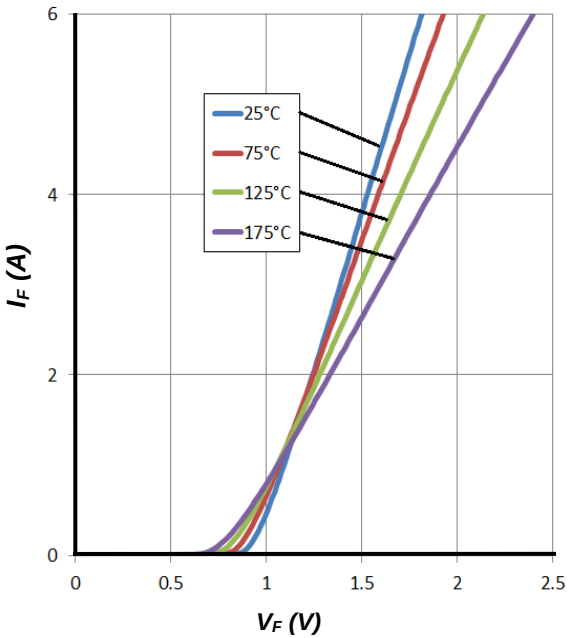


Figure 1. Forward Characteristics

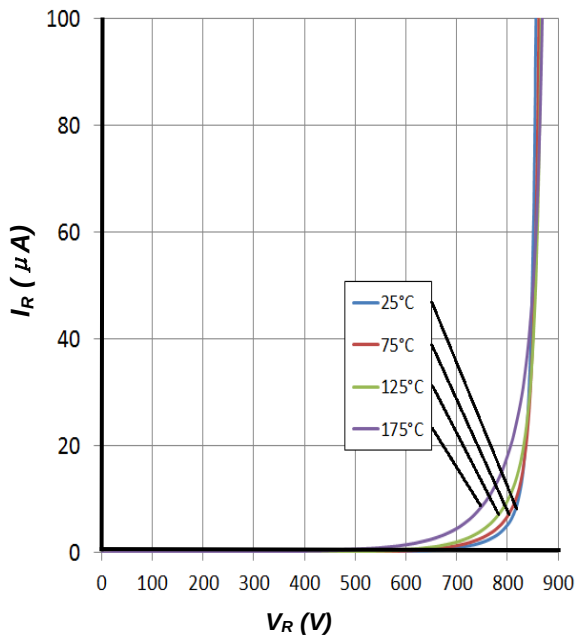


Figure 2. Reverse Characteristics

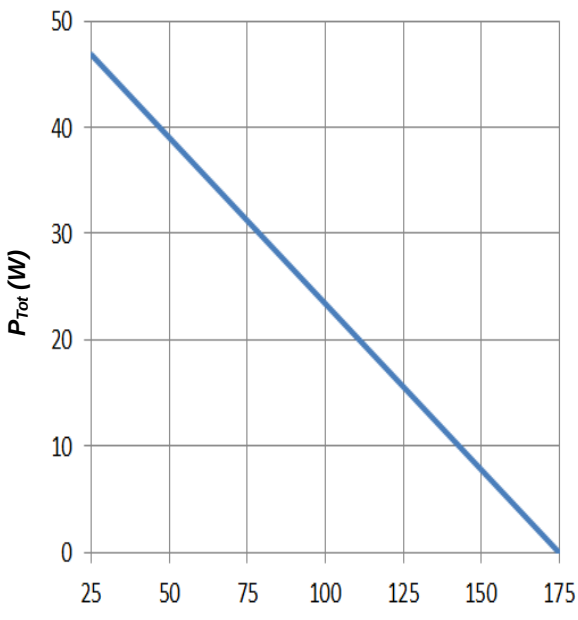


Figure 3. Power Derating
(TO-220/TO-263/TO-252)

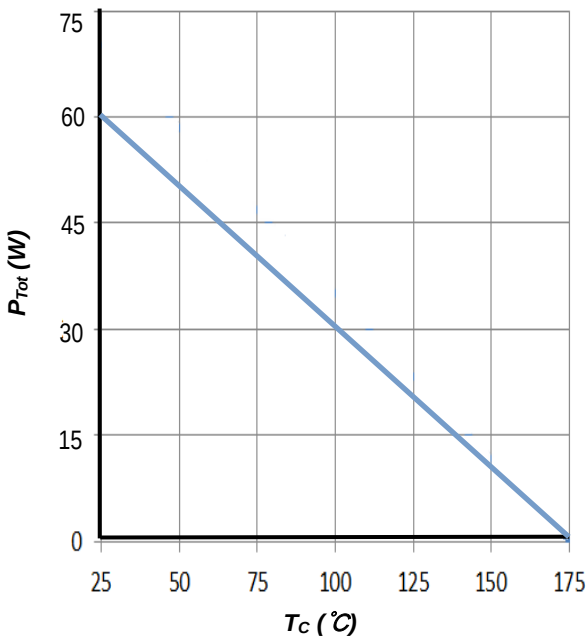


Figure 4. Power Derating
(ITO-220)

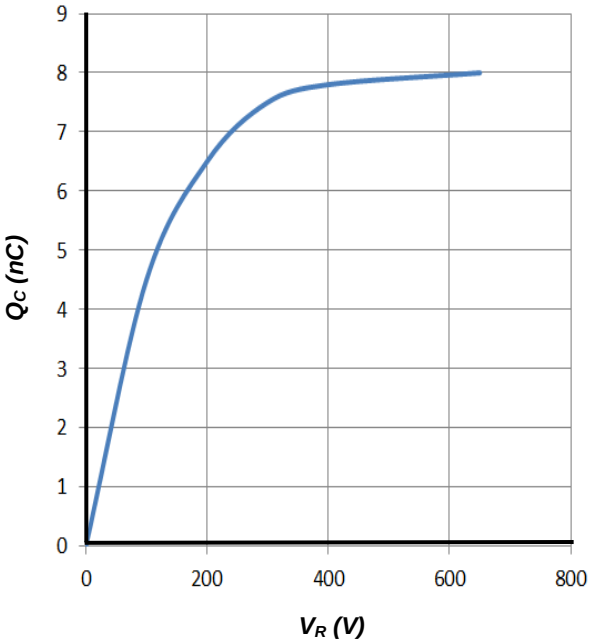


Figure 5. Total Capacitive Charge vs. Reverse Voltage

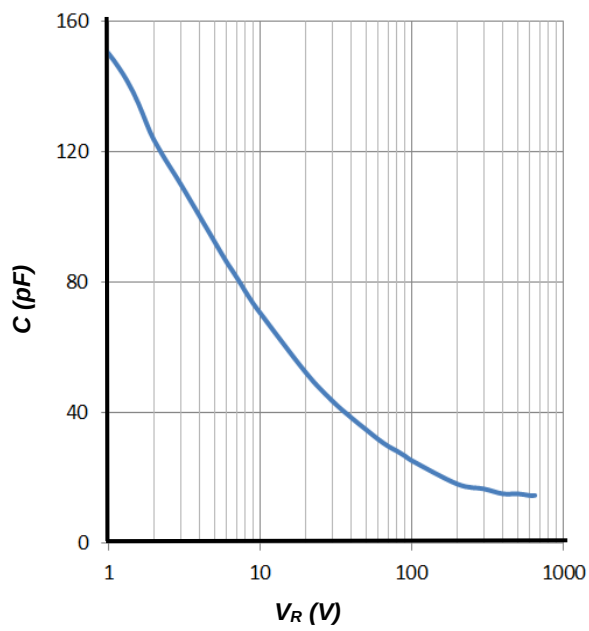
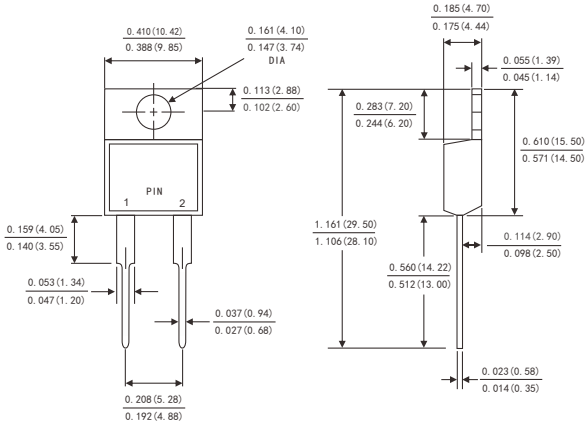


Figure 6 Total Capacitance vs. Reverse Voltage

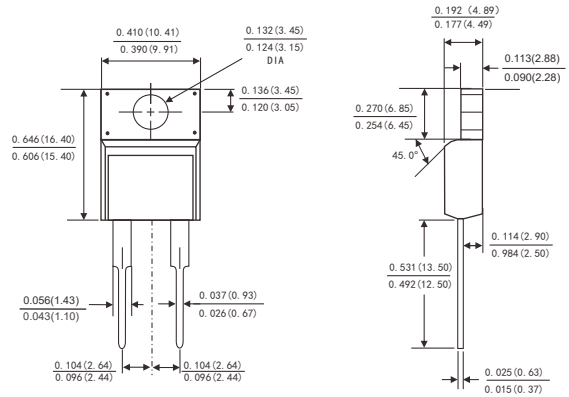
PACKAGE OUTLINE DIMENSIONS

TO-220AC



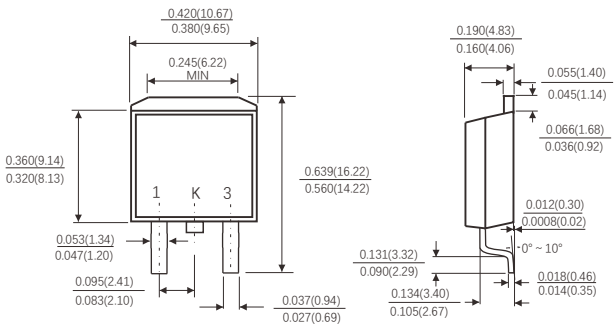
Dimensions in inches and (millimeters)

ITO-220AC

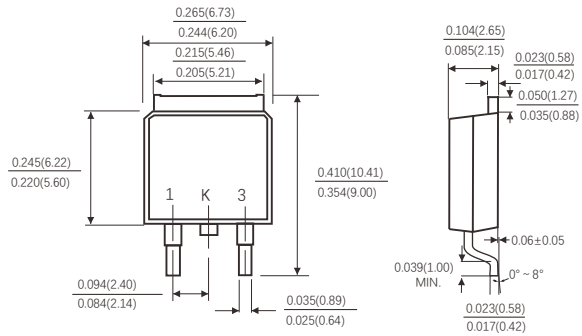


Dimensions in inches and (millimeters)

TO-263

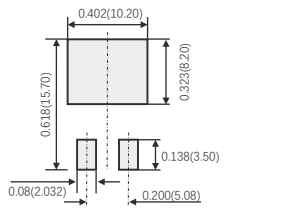


TO-252



Suggested Pad Layout

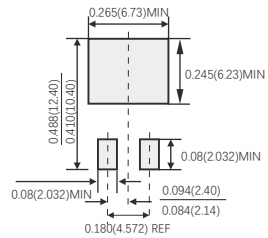
(TO-263)



(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)



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