

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

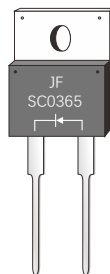
- Boost diodes in PFC or DC/DC stages
- SMPS, Solar inverter, UPS
- Power Switching Circuits

Key Performance And Package Parameters

Type	V _{DC}	I _F	Q _c	T _{j,max}	Package
SC0365	650V	3A	8nC	175°C	TO-220AC
SC0365F	650V	3A	8nC	175°C	ITO-220AC
SC0365D2	650V	3A	8nC	175°C	TO-263
SC0365M2	650V	3A	8nC	175°C	TO-252

TO-220AC

SC0365



ITO-220AC

SC0365F



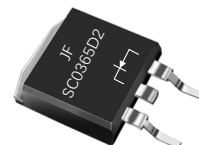
TO-252

SC0365M2



TO-263

SC0365D2



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	3 (Tc≤153°C,TO-220AC/TO-263/TO-252) 3 (Tc≤137°C,ITO-220AC)	A
Non-Repetitive Forward Surge Current (Half-Sine Pulse,tp=8.3mS)	I_{FSM}	26(25°C)	A
I^2t value	$\int i^2 t$	2.8(25°C)	A ² S
Power dissipation for $R_{th(j-c)}$ (Tc=25°C)	P_D	46.8 (TO-220/TO-263/TO-252) 27 (ITO-220)	W
Operating junction temperature range	T_J	-55 ~ 175	°C
Storage temperature range	T_{STG}	-55 ~ 175	°C

Thermal Characteristics

Parameter	Symbol	ITO-220AC	TO-220AC	TO-263	TO-252	Unit
Diode thermal resistance junction-case	$R_{th(j-c)}$	5.5	3.2	3.2	3.2	°C/W

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

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
DC blocking voltage	V_{DC}	$I_R=20\mu\text{A}, T_J=25^{\circ}\text{C}$	650	-	-	V
Forward voltage	V_F	$I_F=3\text{A}, T_J=25^{\circ}\text{C}$	-	1.4	1.65	V
		$I_F=3\text{A}, T_J=175^{\circ}\text{C}$	-	1.7	2.3	
Reverse current	I_R	$V_R=650\text{V}, T_J=25^{\circ}\text{C}$	-	-	20	μA
		$V_R=650\text{V}, T_J=175^{\circ}\text{C}$	-	-	150	

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

Parameter	Symbol	conditions	Value			Unit
			min	typ	max	
Total capacitivecharge	Q_C	$V_R=400\text{V}, I_F=3\text{A}$ $di/dt=200\text{A}/\mu\text{s}$ $T_J=25^{\circ}\text{C}$	-	8	-	nC
Total capacitance	C	$V_R=0\text{V}, f=1\text{MHz}$	-	180	-	pF
		$V_R=200\text{V}, f=1\text{MHz}$	-	18	-	
		$V_R=400\text{V}, f=1\text{MHz}$ $T_J=25^{\circ}\text{C}$	-	15	-	

Typical Performance

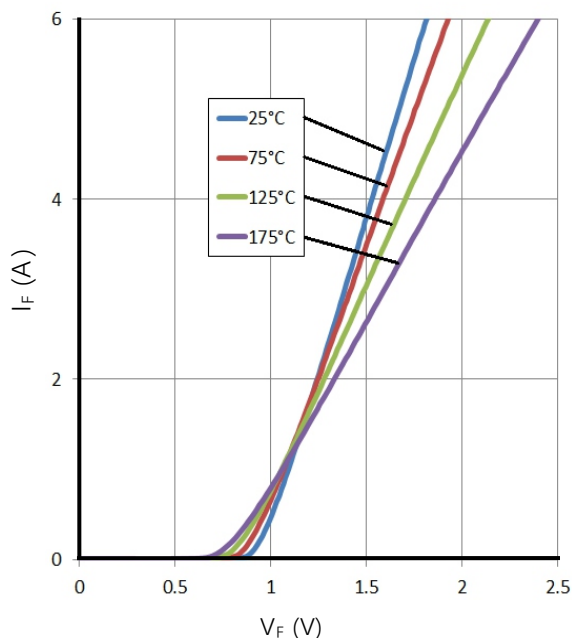


Figure 1. Forward Characteristics

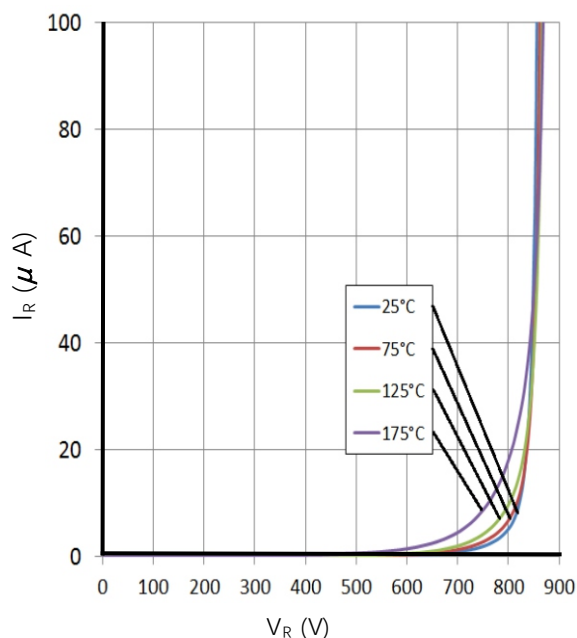


Figure 2. Reverse Characteristics

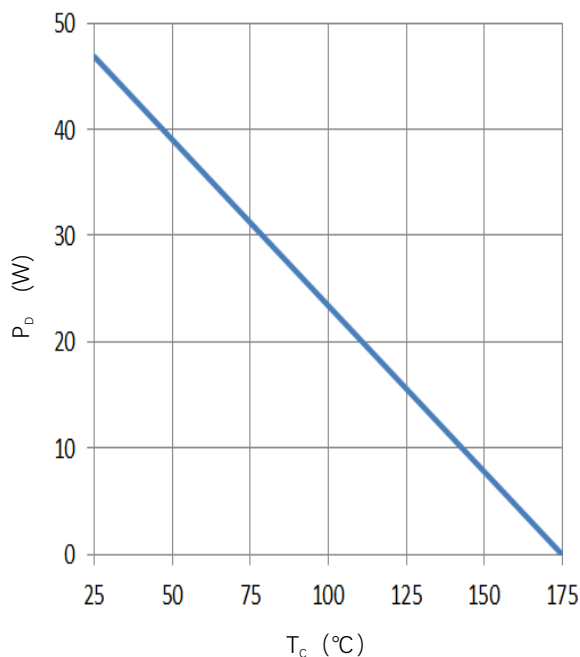


Figure 3 . Power Derating
(TO-220/TO-263/TO-252)

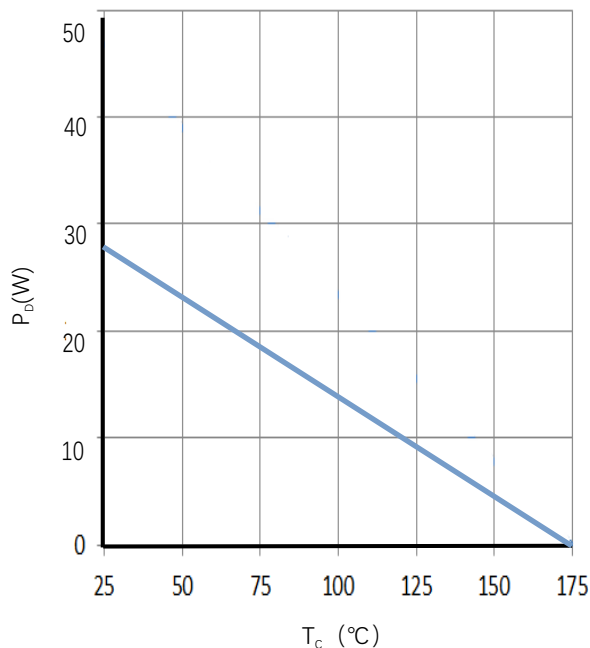


Figure 4 . Power Derating
(ITO-220)

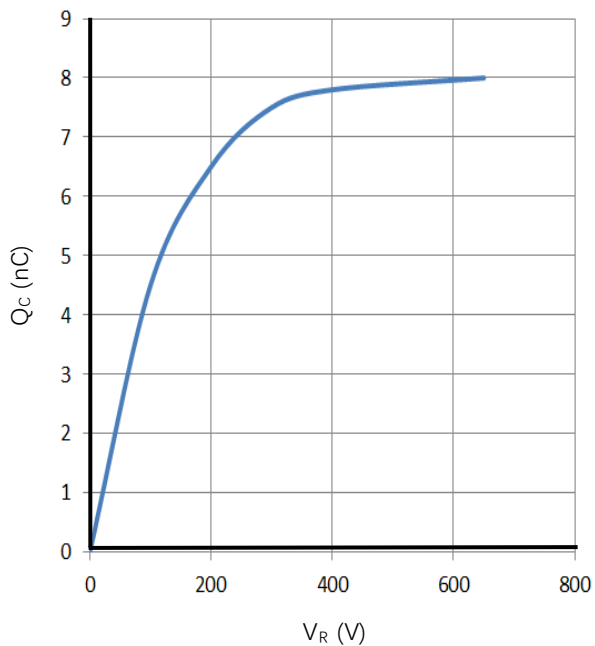


Figure 5.Total Capacitive Charge vs. Reverse Voltage

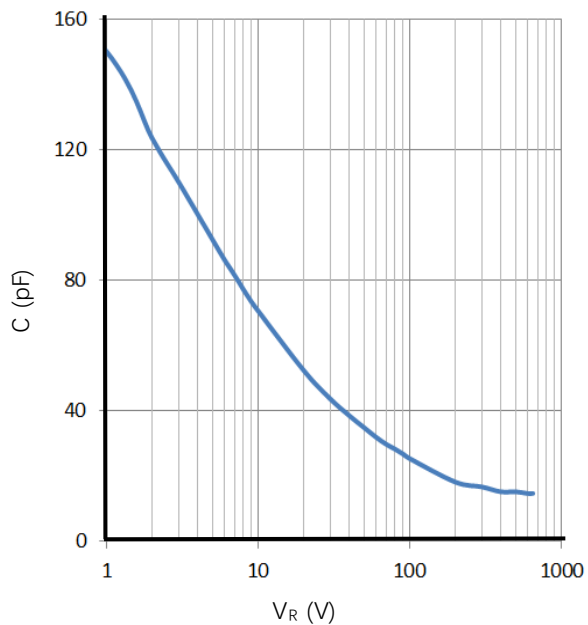
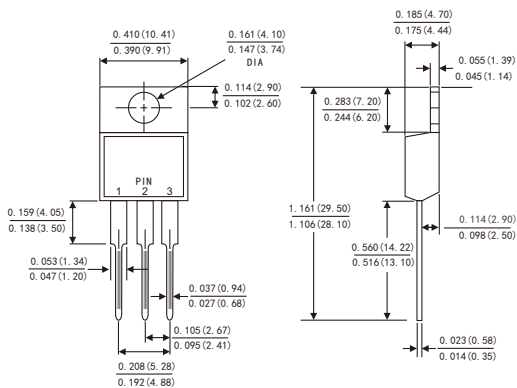


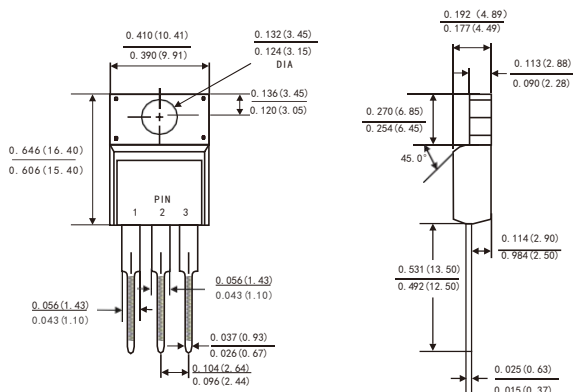
Figure 6.Total Capacitance vs. Reverse Voltage

Dimensions in inches and (millimeters)

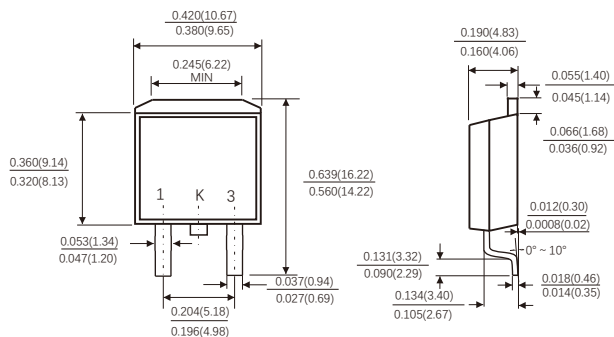
TO-220AB



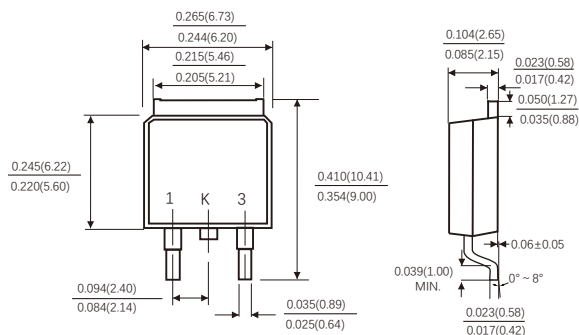
ITO-220AB



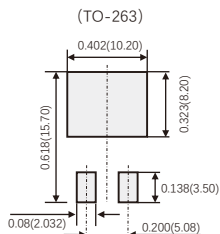
TO-263



TO-252

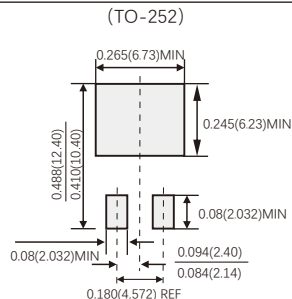


Suggested Pad Layout



(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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