SC1665PT

Silicon Carbide Schottky Diode
Reverse Voltage - 650 Volts
Forward Current -16.0 Amperes

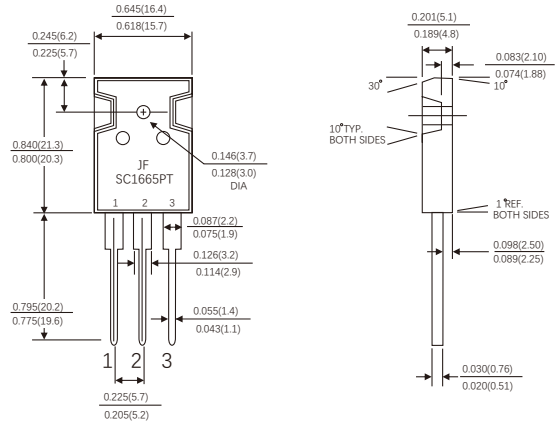
DESCRIPTION

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

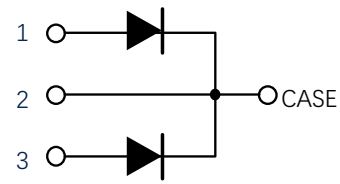
TO-247AB



Dimensions in inches and (millimeters)

MECHANICAL DATA

- Case: JEDEC TO-247AB
- 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	Qc	T_j,max	Package
SC1665PT	650V	8A/16A	22/44nC	175℃	TO-247AB

MAXIMUM RATINGS(Per Leg)

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

Parameter	Symbol	Value	Unit
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Continuous Forward C urrent for $Rth_{(j-c)}$	I_F	24(Tc≤25℃) 11(Tc≤135℃) 8(Tc≤153℃)	A
Non-Repetitive Forward Surge Current (Half-Sine Pulse ,tp=8.3mS)	I_{FSM}	50	A
Power dissipation for $R_{th(j-c,max)}$(Tc=25℃)	Ptot	107	W
Operating junction temperature range	Tj	-55...175	℃
Storage temperature range	Tstg	-55...175	℃

THERMAL CHARACTERISTCS

Paramerter	Symbol	Typ	Unit
Diode thermal resistance junction-case(Per Leg/device)	$R_{th(j-c)}$	1.40/0.70	℃/W

ELECTRICAL CHARACTERISTICS (Per Leg)

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions
VF	Forward Voltage	1.4 1.7	1.65 2.3	V	I_F=8A,T_J=25℃ I_F=8A,T_J=175℃
IR	Reverse Current	- -	20 200	μA	V_R=650V,T_J=25℃ V_R=650V,T_J=175℃
C	Total Capacitance	520 50 41	/	pF	V_R=0V,T_J=25℃,f=1MHz V_R=200V,T_J=25℃,f=1MHz V_R=400V,T_J=25℃,f=1MHz
Q_C	Total Capacitive Charge	22	/	nC	V_R=650V,I_F=8A,di/dt=200A/μs, T_J=25℃

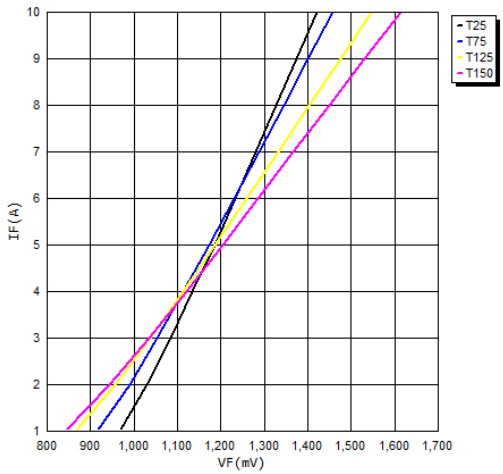


Figure 1. Forward Characteristics (Per Leg)

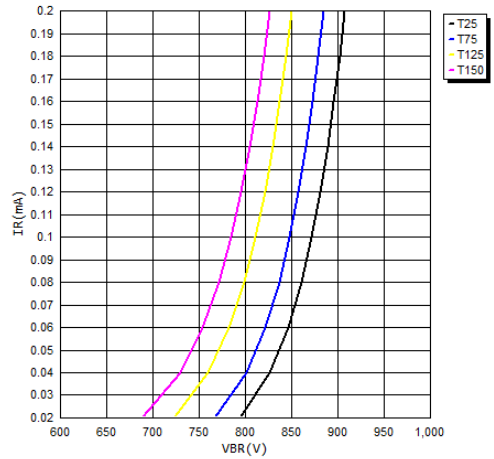


Figure 2. Reverse Characteristics (Per Leg)

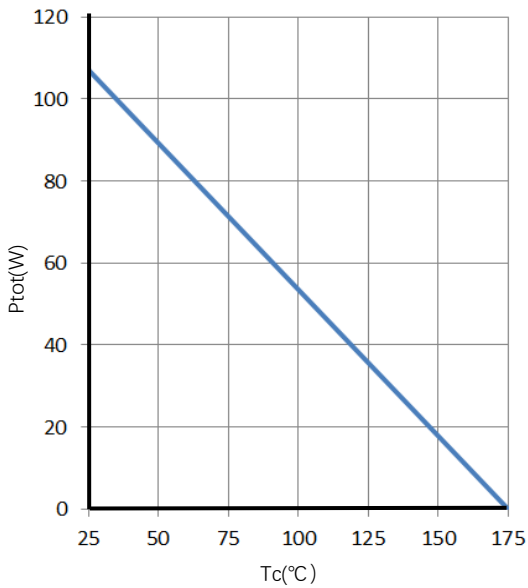


Figure 3.Power Derating(Per Leg)

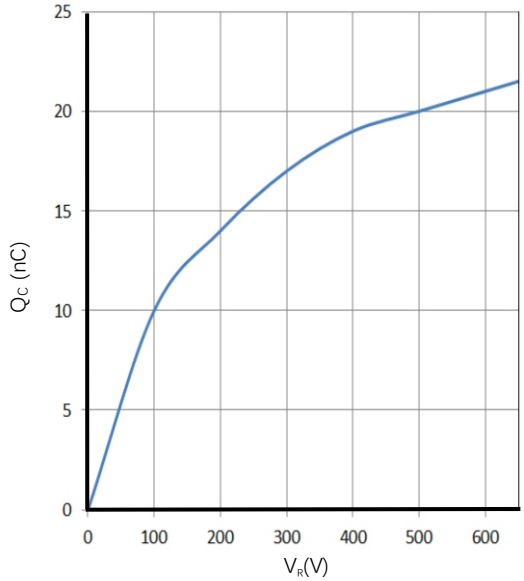


Figure 4.Total Capacitive Charge vs. Reverse Voltage(Per Leg)

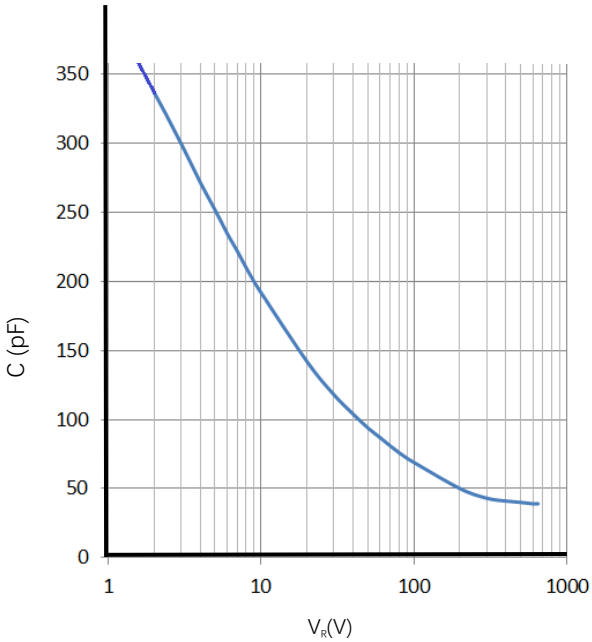


Figure 5. Total Capacitance vs. Reverse Voltage (Per Leg)

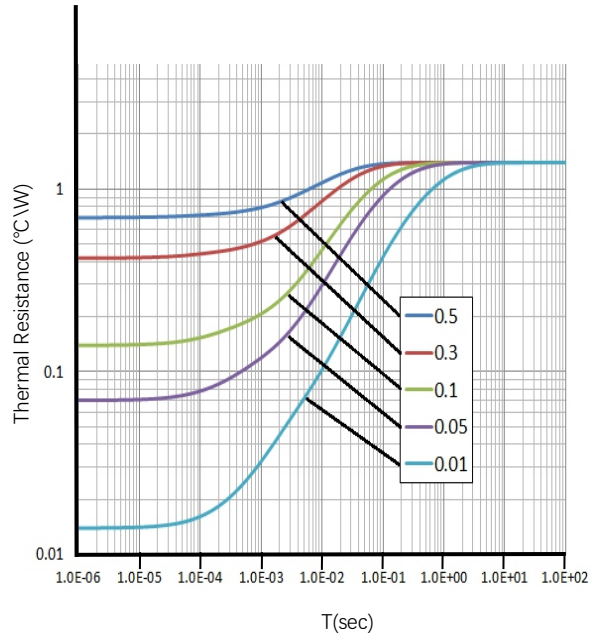


Figure 6. Transient Thermal Impedance (Per Leg)

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