WS3A012065E

Silicon Carbide Schottky Diode

Features

- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Positive Temperature Coefficient on V_F
- Temperature-independent Switching
- 175°C Operating Junction Temperature



RoHS

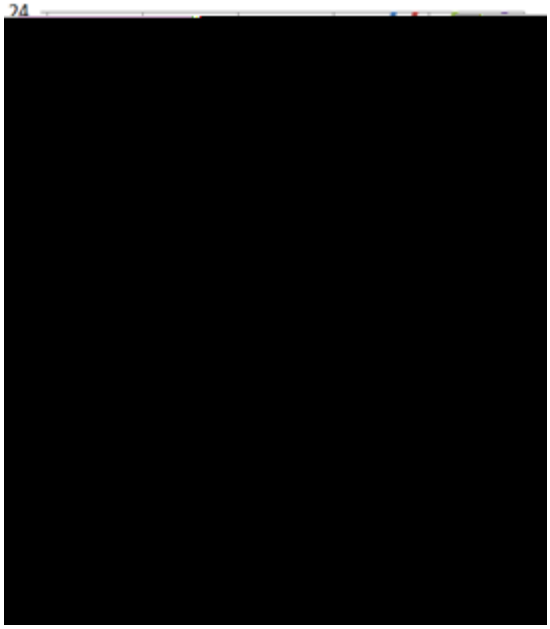
Benefits

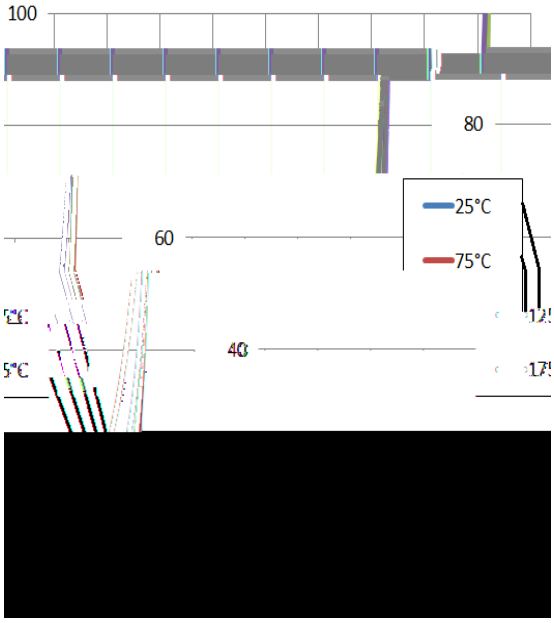
- Replace Bipolar with Unipolar Device
- Reduction of Heat Sink Size
- Parallel Devices Without Thermal Runaway
- Essentially No Switching Losses

Applications

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.4 1.7	1.65 2.3	V	I_F = 12A, T_J = 25 I_F = 12A, T_J = 175	Fig.1
I_R	Reverse Current	1 5	20 100	μA	V_R = 650V, T_J = 25 V_R = 650V, T_J = 175	Fig.2
C	Total Capacitance	690 68 59	/	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	Fig.5
Q_C	Total Capacitive Charge	30	/	nC	V_R = 650V, I_F = 12A di/dt = 200A/μs, T_J = 25	Fig.





Typical Performance

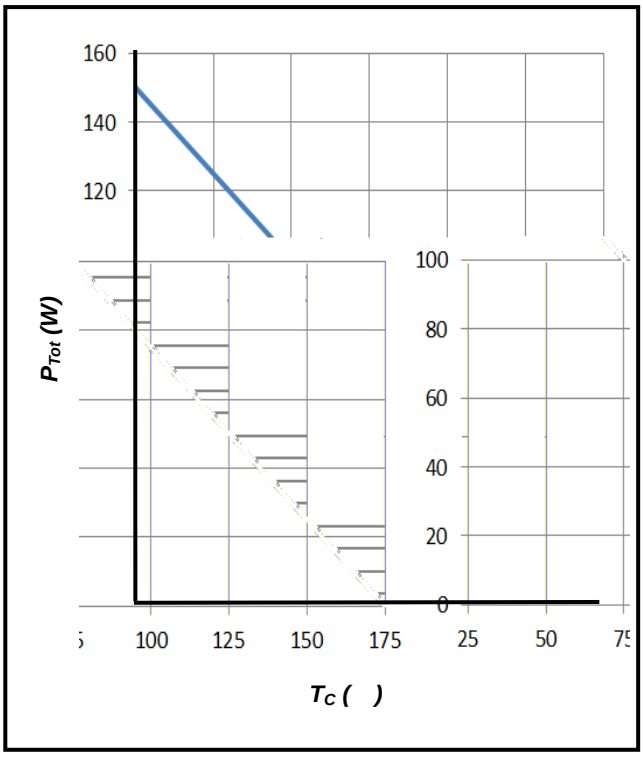


Figure 3. Power Derating

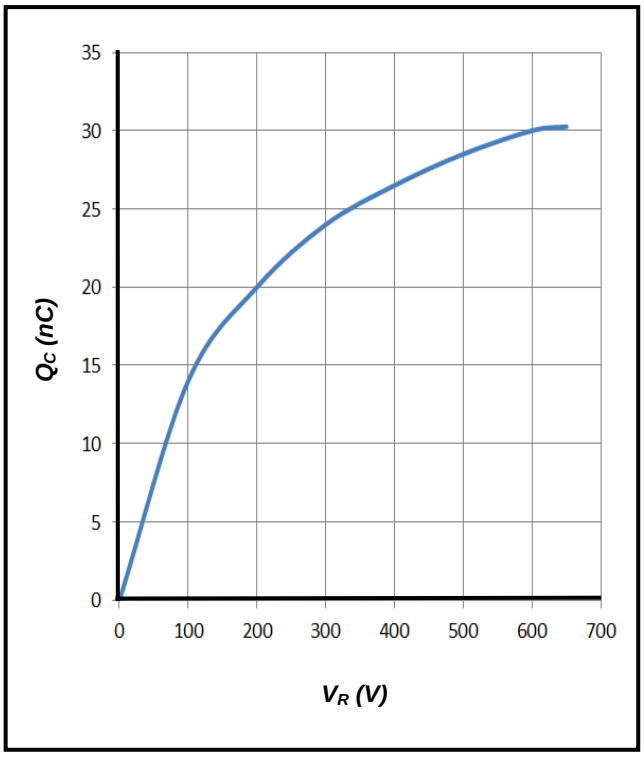


Figure 4. Total Capacitive Charge vs. Reverse Voltage

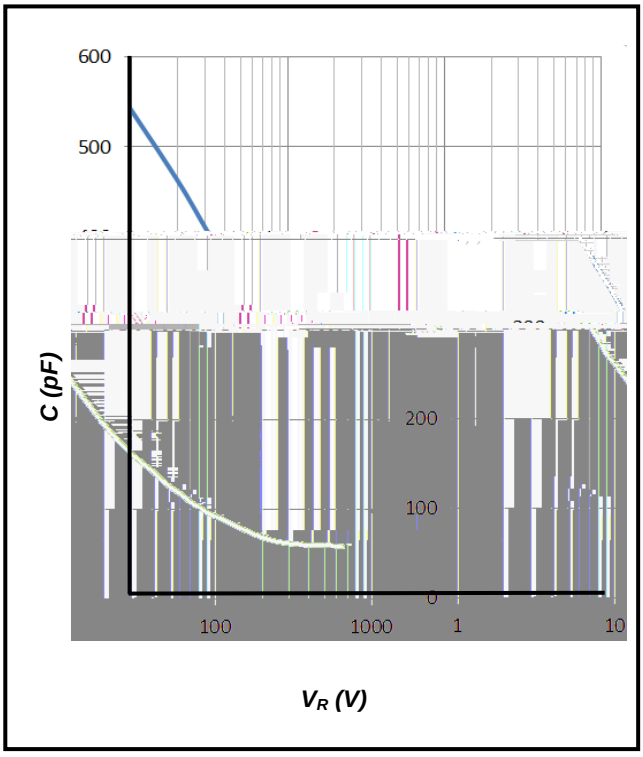


Figure 5. Total Capacitance vs. Reverse Voltage

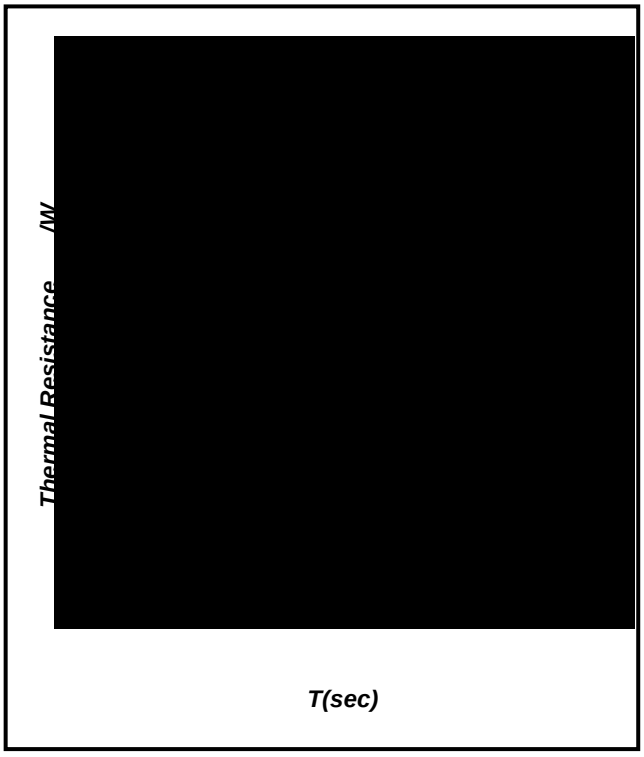


Figure 6. Transient Thermal Impedance

Package Dimensions

Package TO-252

Simplified Diode Model

Equivalent IV Curve for Model

Mathematical Equation

$$V_F = V_t$$

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