



Silicon Carbide Schottky Diode

V_{RRM}	650V
I_F 135°C	

Features

- Positive temperature coefficient
- Temperature-independent switching
- Maximum working temperature at 175 °C
- Unipolar devices and zero reverse recovery current
- Zero forward recovery current
- Essentially no switching losses
- Reduction of heat sink requirements
- AEC-Q101 qualified
- High-frequency operation
- Reduction of EMI

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Mechanical Data

Package: TO-263

Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free

Terminals: Tin plated leads

Polarity: As marked

Maximum Ratings ($T_c=25$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Device marking code			D106520BXQG2
Reverse voltage (repetitive peak) @ $T_j=25^\circ\text{C}$	V_{RRM}	V	650
Reverse voltage (Surge Peak) @ $T_j=25^\circ\text{C}$	V_{RSM}	V	650
Reverse voltage (DC) @ $T_j=25^\circ\text{C}$	V_{DC}	V	650
Continuous forward current @ $T_c=25^\circ\text{C}$	I_F	A	48
Continuous forward current @ $T_c=135^\circ\text{C}$			22
Continuous forward current @ $T_c=140^\circ\text{C}$			20
Non-repetitive peak forward surge current @ $T_c=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	I_{FSM}	A	160
Power Dissipation @ $T_c=25^\circ\text{C}$	P_{TOT}	W	144
Power Dissipation @ $T_c=110^\circ\text{C}$			62
i^2t Value @ $T_c=25^\circ\text{C}$, $t_p=10\text{ms}$	i^2dt	A^2S	128
Operating junction and Storage temperature range	T_j, T_{stg}	$^\circ\text{C}$	-55 to +175



Electrical Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Typ.	Max.
Forward voltage drop	V_F	V	$I_F=20A, T_J=25^{\circ}C$	1.35	1.55
			$I_F=20A, T_J=175^{\circ}C$	1.75	-
Reverse leakage current	I_R	μA	$V_R=650V, T_J=25^{\circ}C$	1	25
			$V_R=650V, T_J=175^{\circ}C$	5	-
Total capacitive charge	Q_C	nC	$V_R=400V, T_J=25^{\circ}C, Q_C=\int_0^{V_R} I_C(V)dV$	62	-
Total capacitance	C	pF	$V_R=0V, f=1MHz$	1157	-
			$V_R=200V, f=1MHz$	115.6	-
			$V_R=400V, f=1MHz$	107	-
Capacitance Stored Energy	E_C	μJ	$V_R=400V$	7.8	-

Thermal Characteristics ($T_a=25$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Value
Thermal resistance	R_{J-C}	$^{\circ}C/W$	1.04

Typical Characteristics

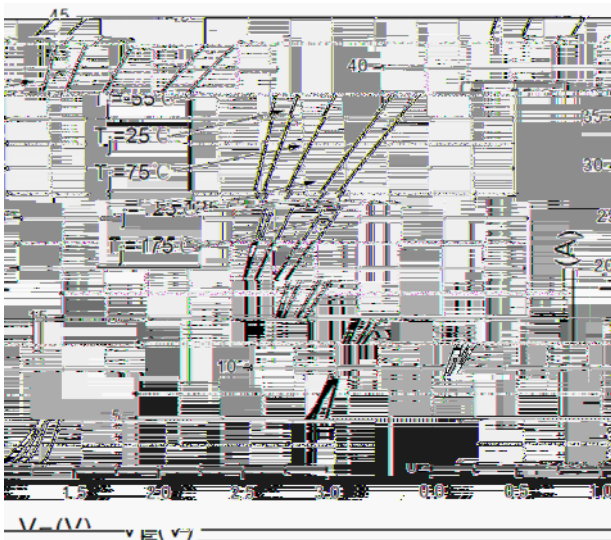


Figure 1. Forward Characteristics

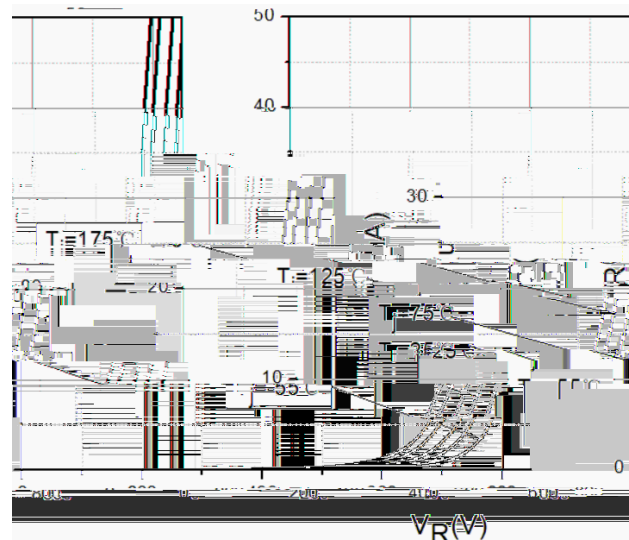


Figure2. Reverse Characteristic

Figure 3. Capacitance vs. Reverse Voltage

Figure 4. Total Capacitance Charge vs. Reverse Voltage

Figure 5. Capacitance Stored Energy

Figure 6. Power Derating

Figure 7. Current Derating

Figure 8. Transient Thermal Impedance

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