



Silicon Carbide Schottky Diode

Features

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

Typical Applications

Typical applications are in power factor correction (PFC), solar inverter, uninterruptible power supply, motor drives, photovoltaic inverter, electric car and charger.

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 $T_c = 25^\circ\text{C}$ 8QOHVV RWKHUZZLVH VSHFLILHG

PARAMETER	SYMBOL	UNIT	VALUE
Device marking code			D106520BQG3
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	1000

$T_c = 135^\circ\text{C}$			50
Continuous forward current @ $T_c = 135^\circ\text{C}$			20
Non-repetitive peak forward surge current @ $T_c = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Wave	I_{FSM}	A	380
Power Dissipation @ $T_c = 25^\circ\text{C}$	P_{TOT}	W	375
Power Dissipation @ $T_c = 110^\circ\text{C}$			162.5
θ_{JA} Value @ $T_c = 25^\circ\text{C}$, $t_p = 10\text{ms}$	θ_{JA}	$^\circ\text{C/W}$	6

2SHUDWLQJ MXQFWLRQ DQG 6WRUDJHWHPSHUDWXUH UDQJH 7



Electrical Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Typ.	Max.
Forward voltage drop	V_F	V	$I_F = 20\text{A}$, $T_J = 25^\circ\text{C}$	1.2	1.3
			$I_F = 20\text{A}$, $T_J = 175^\circ\text{C}$	1.27	-
Reverse leakage current	I_R	μA	$V_R = 650\text{V}$, $T_J = 25^\circ\text{C}$	3	25
			$V_R = 650\text{V}$, $T_J = 175^\circ\text{C}$	20	-
Total capacitance	C_Q	nC	$V_R = 400\text{V}$, $f = 25\text{kHz}$, $Q_C = 0.1\text{nC}$ (V) dV	135.3	-
Total capacitance	C	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$	2453	-
			$V_R = 200\text{V}$, $f = 1\text{MHz}$	247	-
			$V_R = 400\text{V}$, $f = 1\text{MHz}$	243	-
Capacitance Stored Energy	E	μJ	$V = 400\text{V}$	16.5	-

Thermal Characteristics $T_a = 25^\circ\text{C}$ 8QOHVV RWKHUZZLVH VSHFLILHG

PARAMETER	SYMBOL	UNIT	Value
Thermal resistance	R_{dJ-C}	$^\circ\text{C/W}$	0.4

Typical Characteristics

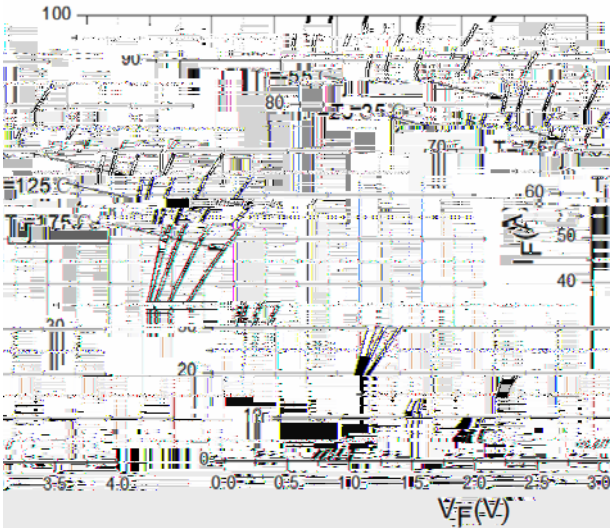


Figure 1. Forward Characteristics

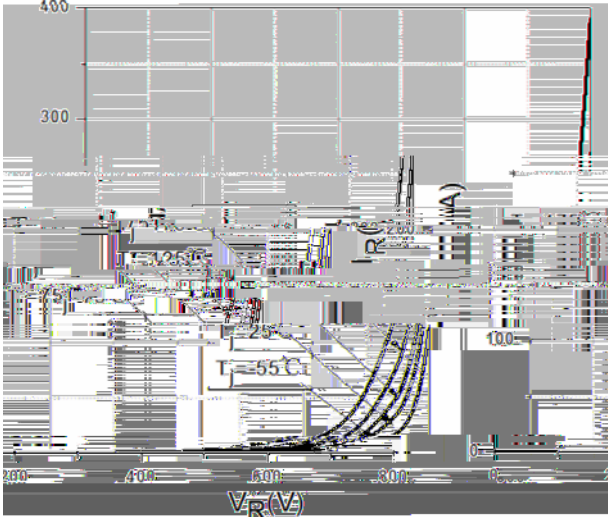


Figure 2. Reverse Characteristic



Figure 3 . Capacitance vs. Voltage

Figure 5 . Capacitance vs. Frequency

Figure 6 . Power Derating

Figure 7 . Current Derating

$$< - ' \quad \% 4 * 4$$
