



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 $T_c = 25$ °C

PARAMETER	SYMBOL	UNIT	VALUE
Device marking code			D106520BQG3
Reverse voltage (repetitive peak) @ $T_j = 25$ °C	V_{RRM}	V	650
Reverse voltage (Surge Peak) @ $T_j = 25$ °C	V_{RSM}	V	T

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

2SHUDWLQJ MXQFWLRQ DQG 6WRUDJHWHPSHUDWXUH UDQJH 7



Electrical Characteristics

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

Thermal Characteristics $T_a = 25^{\circ}C$

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

Typical Characteristics

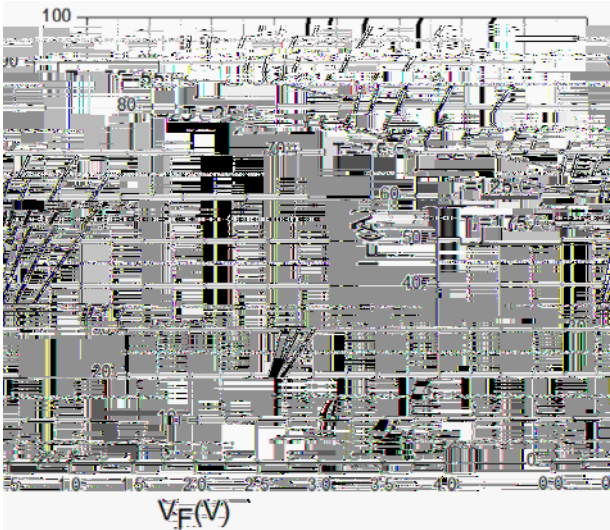


Figure 1. Forward Characteristics

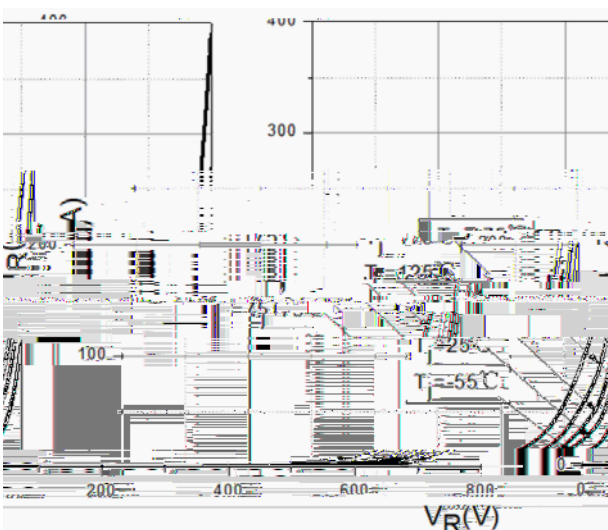


Figure 2. Reverse Characteristic



Figure 3 . Capacitance vs. Voltage

Figure 5 . Capacitance vs. Frequency

Figure 6 . Power Derating

Figure 7 . Current Derating

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