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 forward 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-247AC
  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

PARAMTETER	SYMBOL	UNIT	VALUE
Device marking code			D112020NGG2
Reverse voltage (Repetitive peak) @ T_j=25°C	V_{RRM}	V	1200
Reverse voltage (Surge peak) @ T_j=25°C	V_{RSM}	V	1200
Reverse voltage (DC) @ T_j=25°C	V_{DC}	V	1200
Continuous forward current @ T_C=25°C	I_F	A	70
$_C$=25°C			33
Continuous forward current @ T_C=25°C			20
Non-repetitive peak forward surge current @ T_C=25°C, tp=10ms, Half Sine Wave	I_{FSM}	A	160
Power Dissipation @ T_C=25°C	P_{TOT}	W	319
Power Dissipation @ T_C=110°C			138
i^2t Value @ T_C=25°C ,tp=10ms	$\int i^2dt$	A^2S	128
Operating junction and Storage temperature range	T_j ,T_{stg}	°C	-55 to +175

■Electrical Characteristics

PARAMTETER	SYMBOL	UNIT	TEST CONDITIONS	Typ.	Max.
Forward voltage drop	V_F	V	I_F=20A, T_j=25°C	1.34	1.55
			I_F=20A, T_j=175°C	1.86	2.70
Reverse leakage current	I_R	μA	V_R=1200V, T_j=25°C	0.5	25
			V_R=1200V, T_j=175°C	5	-
Total capacitive charge	Q_C	nC	V_R=800V, T_j=25°C , $Q_C=\int_0^{V_R} C(V)dV$	114	-
Total capacitance	C	pF	V_R=0V, f=1MHZ	1552	-
			V_R=400V, f=1MHZ	107	-
			V_R=800V, f=1MHZ	79	-
Capacitance Stored Energy	E_C	μJ	V_R=800V	29.3	-

■Thermal Characteristics T_a=25 Unless otherwise specified

PARAMETER	SYMBOL	UNIT	VALUE
Thermal resistance	$R_{\theta J\text{-}C}$	°C /W	0.47

■Characteristics (Typical)

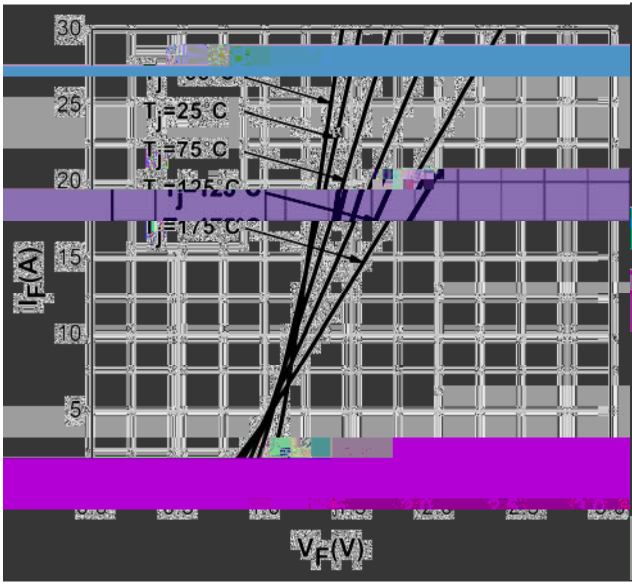

Figure 1. Forward Characteristics

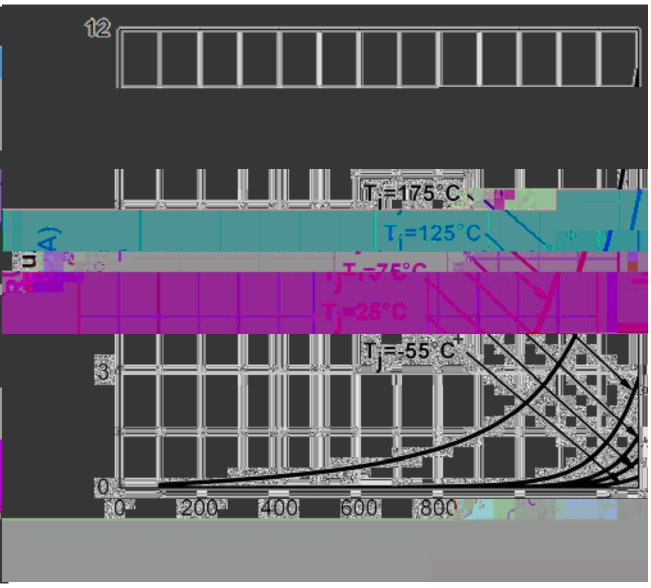

Figure 2. Reverse Characteristic

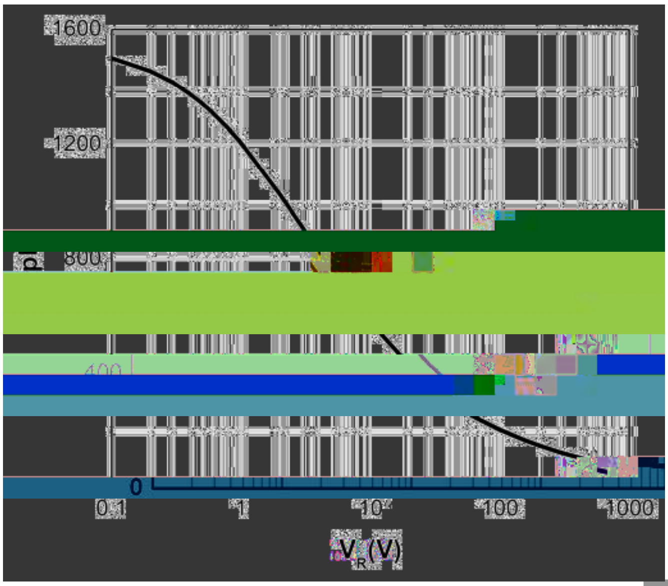

Figure 3. Capacitance vs. Reverse Voltage

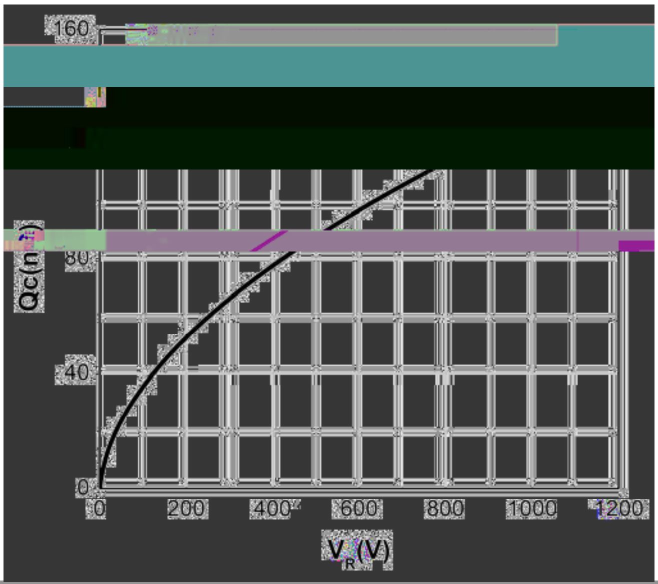

Figure 4. Total Capacitance Charge vs. Reverse Voltage

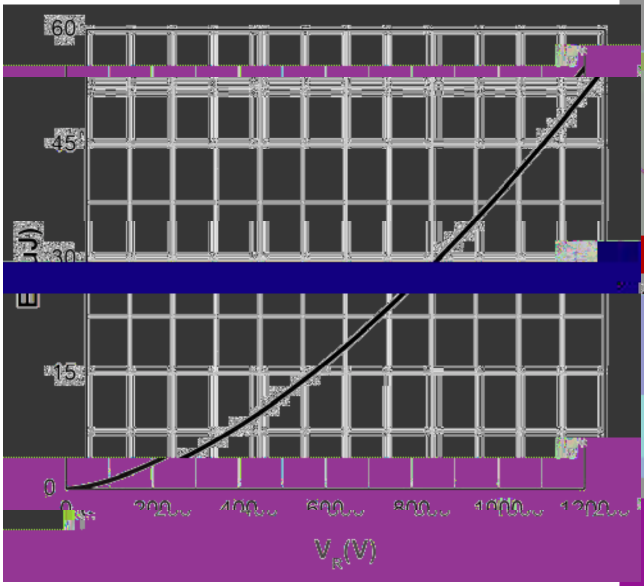

Figure 5. Capacitance Stored Energy

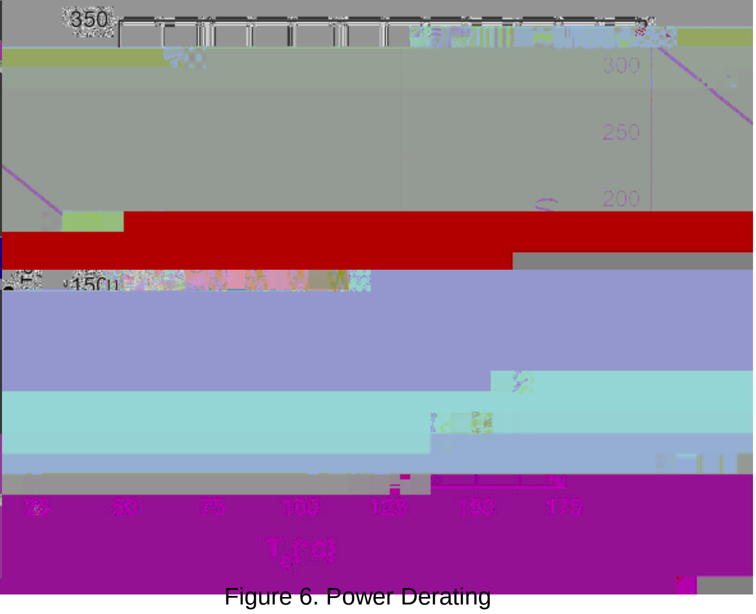

Figure 6. Power Derating

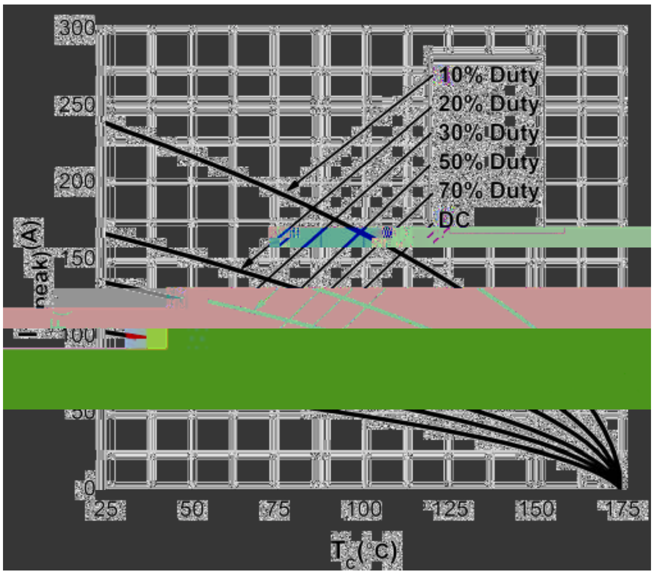

Figure 7. Current Derating

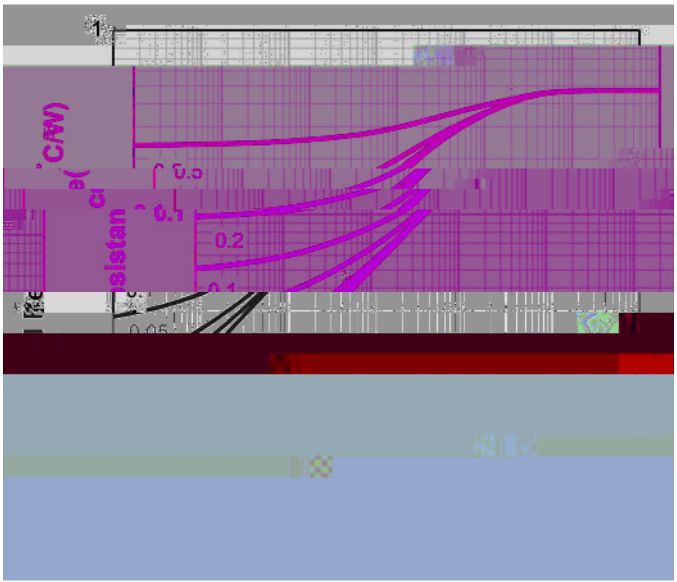

Figure 8. Transient Thermal Impedance