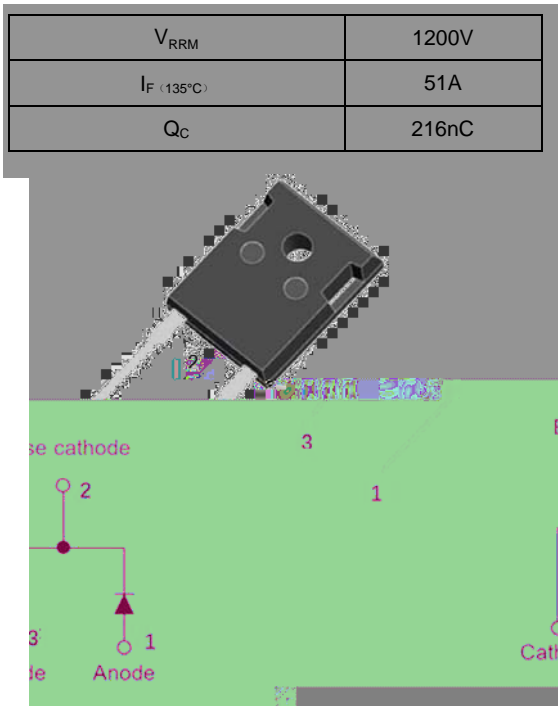


Silicon Carbide Schottky Diode



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
- 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

Terminals: Tin plated leads

Polarity: As marked

Maximum Ratings ($T_c=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Device marking code			D112040NQG2
Reverse voltage (repetitive peak) @ $T_j=25^\circ\text{C}$	V_{RRM}	V	1200
Reverse voltage (Surge Peak) @ $T_j=25^\circ\text{C}$	V_{RSM}	V	1200
Reverse voltage (DC) @ $T_j=25^\circ\text{C}$	V_{DC}	V	1200
Continuous forward current @ $T_c=25^\circ\text{C}$ $T_c=135^\circ\text{C}$ $T_c=144^\circ\text{C}$	I_F	A	105 51 40
Non-repetitive peak forward surge current @ $T_c=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	I_{FSM}	A	280
Power Dissipation @ $T_c=25^\circ\text{C}$ $T_c=110^\circ\text{C}$	P_{TOT}	W	440 191
i^2t Value @ $T_c=25^\circ\text{C}$, $t_p=10\text{ms}$	i^2t	A^2S	392
Operating junction and Storage temperature range	T_j, T_{stg}	$^\circ\text{C}$	-55 to +175



YJD112040NQG2

Electrical Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Typ.	Max.
Forward voltage drop	V_F	V	$I_F=40A, T_j=25^\circ C$	1.41	1.58
			$I_F=40A, T_j=175^\circ C$	2.02	
Reverse leakage current	I_R	μA	$V_R=1200V, T_j=25^\circ C$	3.1	38
			$V_R=1200V, T_j=175^\circ C$	19	
Total capacitive charge	Q_C	nC	$V_R=800V, T_j=25^\circ C, Q_C = \int_0^{V_R} I_C(V) dV$	216	
Total capacitance	C	μF	$V_R=0V, f=1MHz$	2900	
			$V_R=400V, f=1MHz$	204	
			$V_R=800V, f=1MHz$	156	
Capacitance Stored Energy	E_C	μJ	$V_R=800V$	55	

Thermal Characteristics ($T_a=25^\circ C$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Thermal resistance	R_{j-c}	$^\circ C/W$	0.34

Characteristics (Typical)

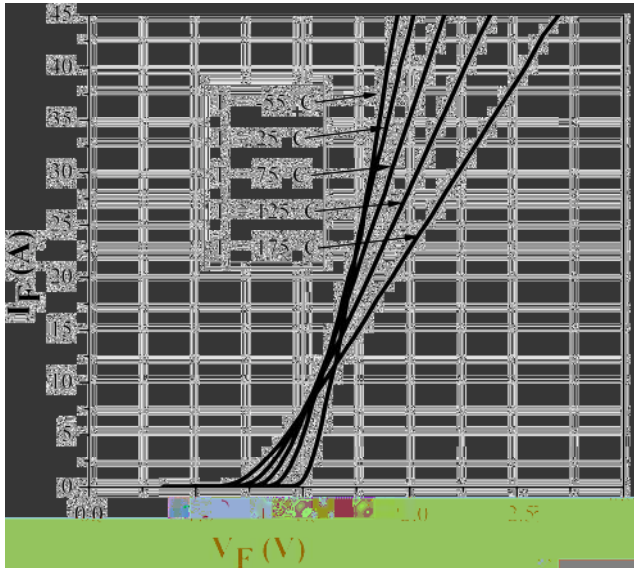


Figure 1. Forward Characteristics

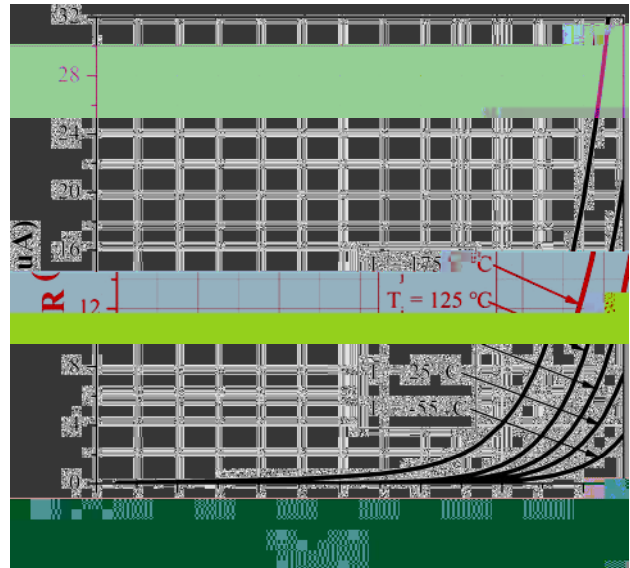


Figure2. Reverse Characteristic

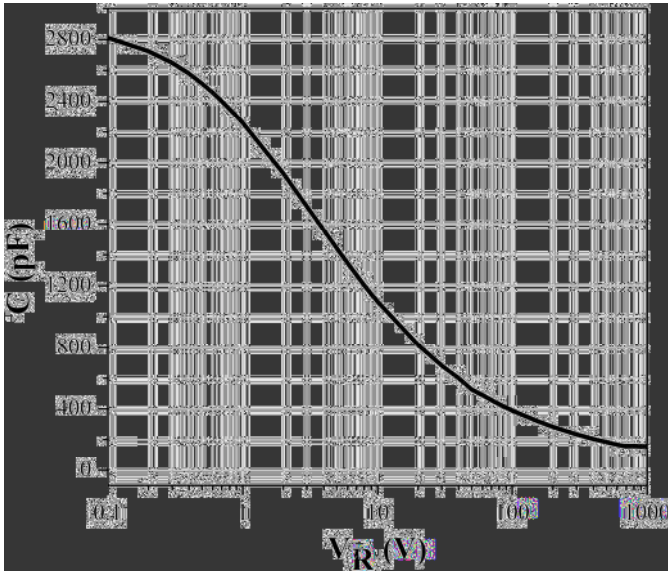


Figure 3. Capacitance vs. Reverse Voltage

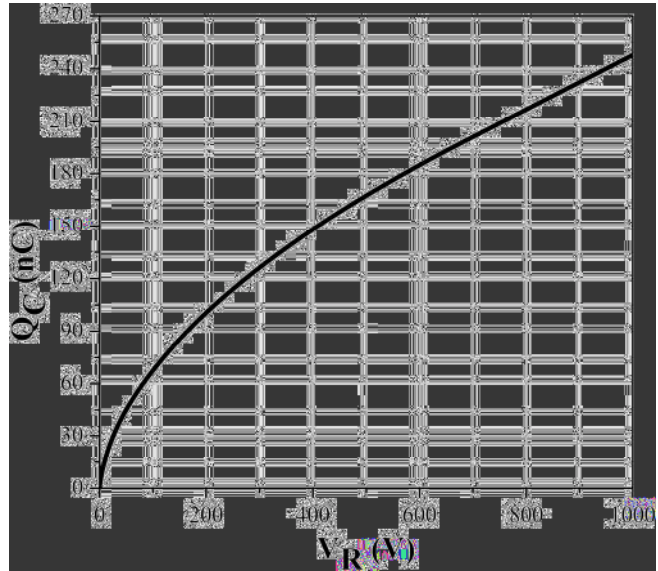


Figure 4. Total Capacitance Charge vs. Reverse Voltage

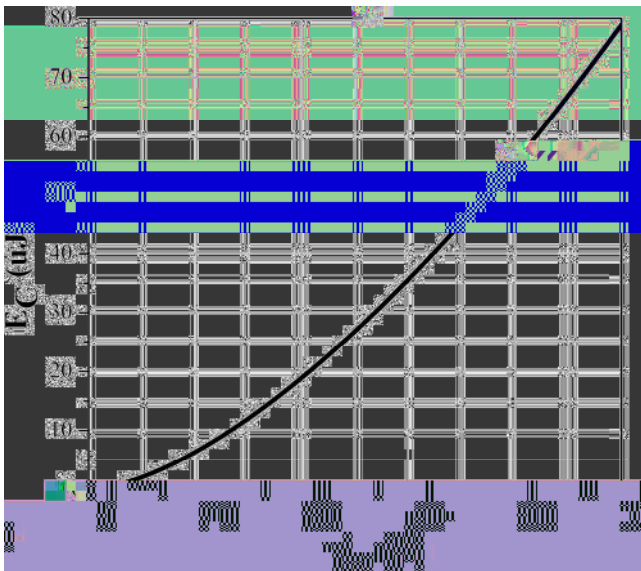


Figure 5. Capacitance Stored Energy

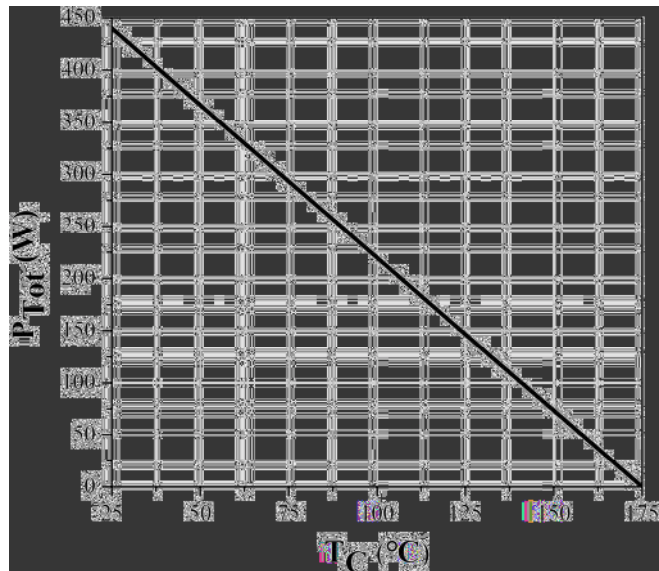


Figure 6. Power Derating

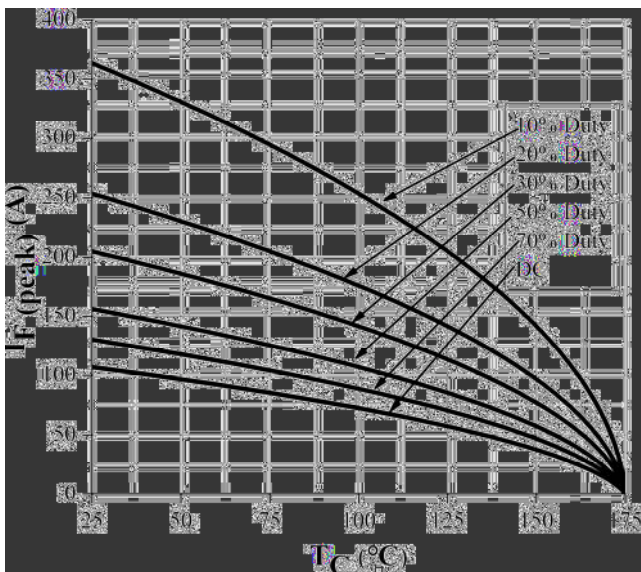


Figure 7. Current Derating

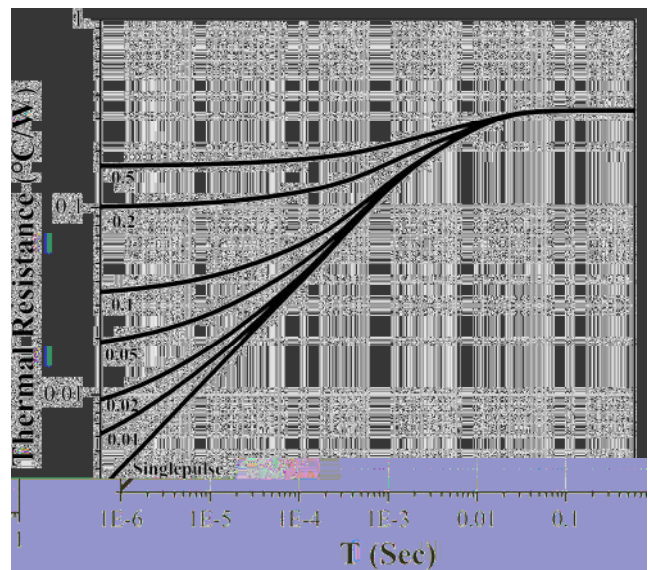


Figure 8. Transient Thermal Impedance

O-247AC	
Min	Max
4.80	5.20



Disclaimer

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The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

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