Silicon Carbide Schottky Diode

V_{RRM}	650V
$I_{F(135°C)}$	14A
Q_C	30nC





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-220AC
  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 Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Device marking code			D106510PQG2
Reverse voltage (Repetitive peak) @ T_j=25°C	V_{RRM}	V	650
Reverse voltage (Surge peak) @ T_j=25°C	V_{RSM}	V	650
Reverse voltage (DC) @ T_j=25°C	V_{DC}	V	650
Continuous forward current @ T_C=25°C	I_F	A	30
Continuous forward current @ T_C=135°C			14
Continuous forward current @ T_C=154°C			10
Non-repetitive peak forward surge current @ T_C =25°C, tp=10ms, Half Sine Wave	I_{FSM}	A	80
Power Dissipation@ T_C=25°C	P_{TOT}	W	136
Power Dissipation@ T_C=110°C			59
i^2t Value@ T_C=25°C, tp=10ms	$\int i^2dt$	A^2S	32
Operating junction and Storage temperature range	T_j , T_{stg}	°C	-55 to +175

■Electrical Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Min.	Typ.	Max.
Reverse voltage (DC)	V_{DC}	V	I_R=0.25mA, T_j=25°C	650	-	-
Forward voltage	V_F	V	I_F=10A, T_j=25°C	-	1.35	1.55
			I_F=10A, T_j=175°C	-	1.8	-
Reverse current	I_R	μA	V_R=650V, T_j=25°C	-	0.5	25
			V_R=650V, T_j=175°C	-	2	-
Total capacitive charge	Q_C	nC	V_R=400V, T_j=25°C , $QC=\int_0^{VR} C(V)dV$	-	30	-
Total capacitance	C	pF	V_R=0V, f=1MHZ	-	543	-
			V_R=200V, f=1MHZ	-	55	-
			V_R=400V, f=1MHZ	-	52	-
Capacitance stored energy	E_C	μJ	V_R=400V	-	3.7	-

■Thermal Characteristics (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Value
Thermal resistance	$R_{\theta J-C}$	°C /W	1.1

■Typical Characteristics

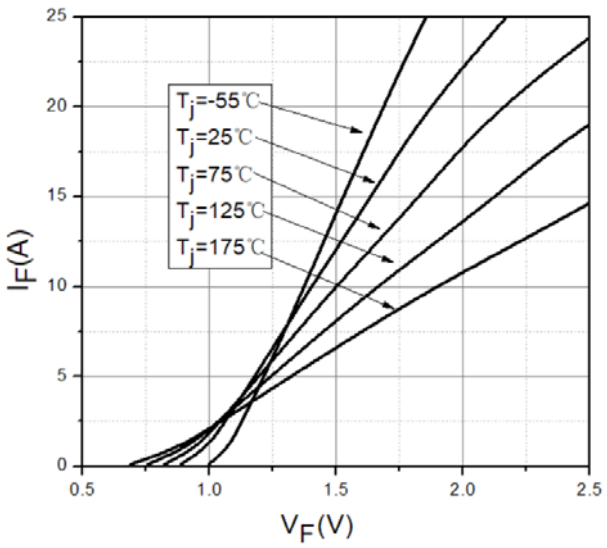


Figure 1. Forward Characteristics

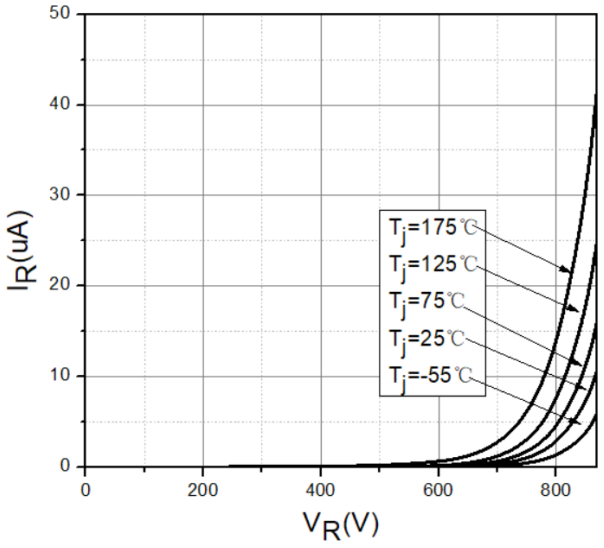


Figure2. Reverse Characteristic

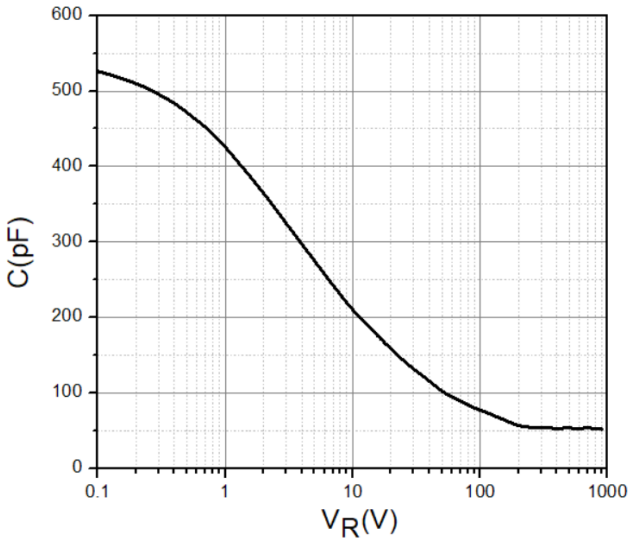


Figure 3. Capacitance vs. Reverse Voltage

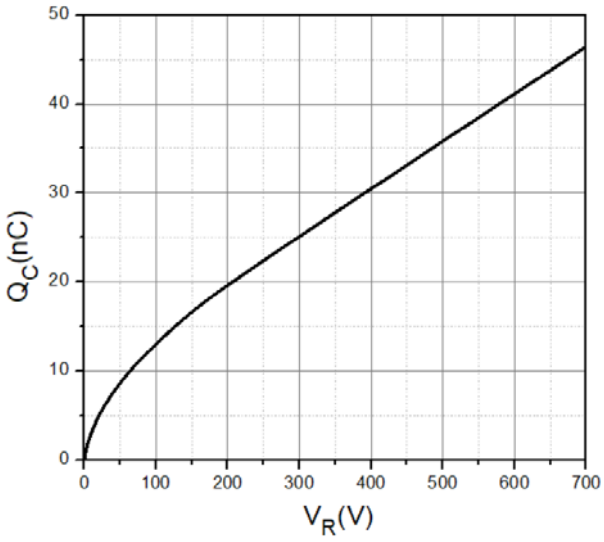


Figure 4. Total Capacitance Charge vs. Reverse Voltage

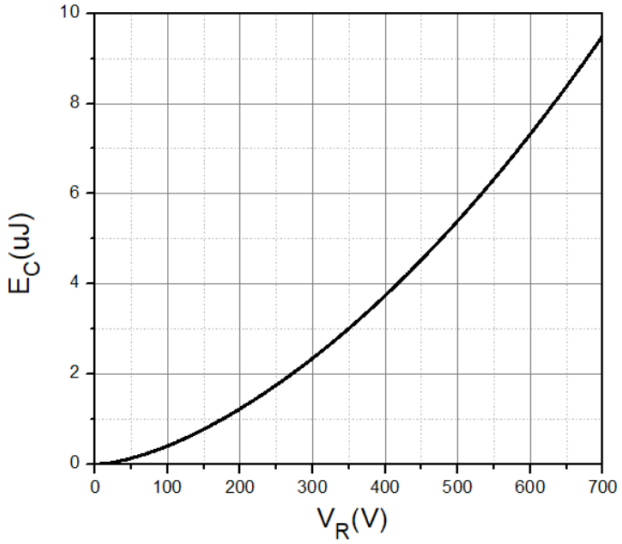


Figure 5. Capacitance Stored Energy

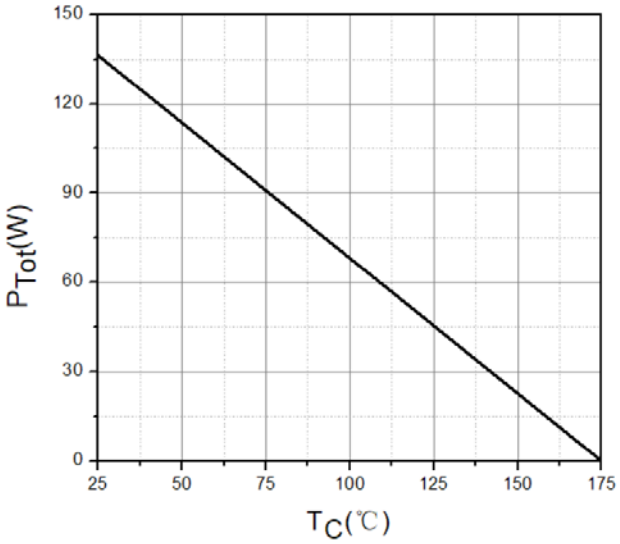


Figure 6. Power Derating

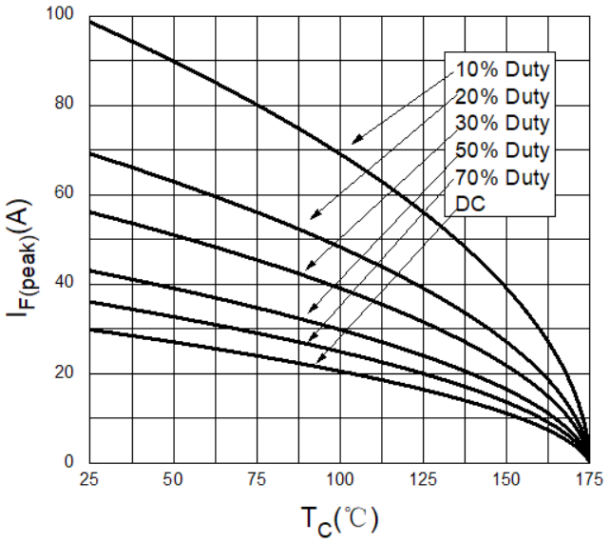


Figure 7. Current Derating

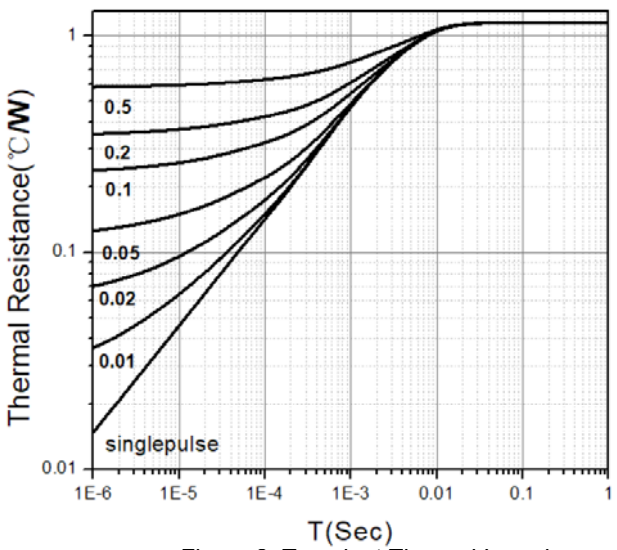
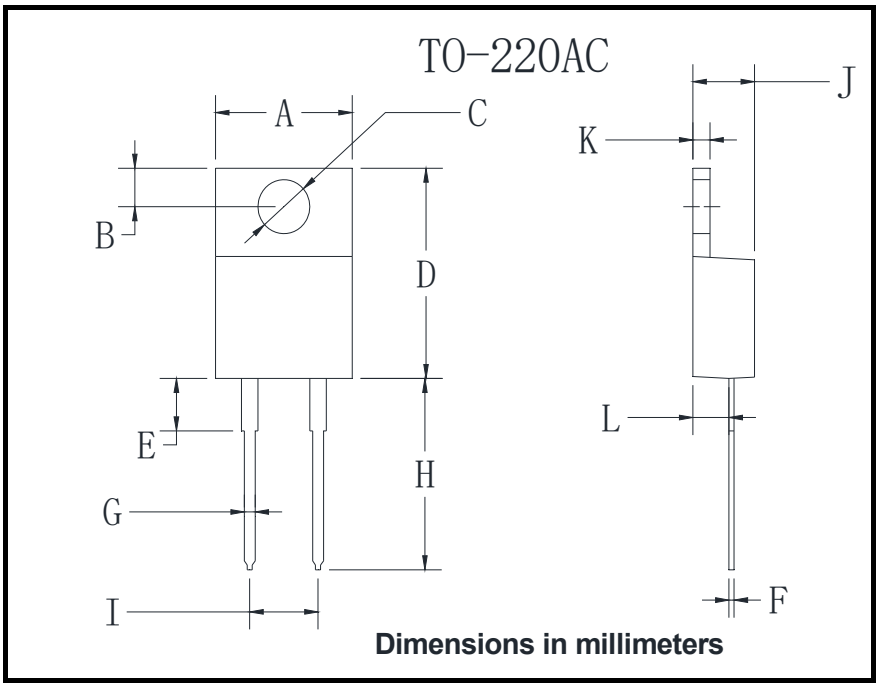


Figure 8. Transient Thermal Impedance

■Outline Dimensions



TO-220AC		
Dim	Min	Max
A	9.95	10.35
B	2.55	2.95
C	3.75	4.05
D	14.95	15.25
E	3.75	4.25
F	0.26	0.5
G	0.68	0.94
H	13.3	13.9
I	4.86	5.26
J	4.38	4.78
K	1.14	1.4
L	2.37	2.79

Disclaimer

All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise.
Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in STARSEA's terms and conditions of sale for such products, STARSEA assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of STARSEA products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.