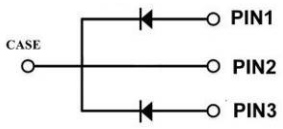
Silicon Carbide Schottky Diode

V_{RRM}	1200V
$I_{F\ (135°C)}$	90A[2]
Q_C	422nC[2]



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-247PLUS
  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			D112080NPQG2
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	98/196
Continuous forward current @ T_C=135°C			45/90
Continuous forward current @ T_C=143°C			40/80
Non-repetitive peak forward surge current @ T_C=25°C, tp=10ms, Half Sine Wave	I_{FSM}	A	300[1]
Power Dissipation@ T_C=25°C	P_{TOT}	W	375/750
Power Dissipation@ T_C=110°C			162/325
i^2t Value@ T_C=25°C ,tp=10ms	$\int i^2dt$	A^2S	450[1]
Operating junction and Storage temperature range	T_j ,T_{stg}	°C	-55 to +175

[1] Per Leg, [2] Per Device

■Electrical Characteristics (Per Leg)

PARAMTETER	SYMBOL	UNIT	TEST CONDITIONS	Typ.	Max.
Forward voltage drop	V_F	V	I_F=40A, T_j=25°C	1.42	1.58
			I_F=40A, T_j=175°C	2.02	-
Reverse leakage current	I_R	μA	V_R=1200V, T_j=25°C	1	12
			V_R=1200V, T_j=175°C	10	-
Total capacitive charge	Q_C	nC	V_R=800V, T_j=25°C , $Q_C=\int_0^{VR} C(V)dV$	211	-
Total capacitance	C	pF	V_R=0V, f=1MHZ	3010	-
			V_R=400V, f=1MHZ	198	-
			V_R=800V, f=1MHZ	155	-
Capacitance Stored Energy	E_C	μJ	V_R=800V	55	-

■Thermal Characteristics (T_a=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Thermal resistance	$R_{\theta J-C}$	°C /W	0.4(1) 0.2(2)

(1) Per Leg, (2) Per Device

■Typical Characteristics (Per Leg)

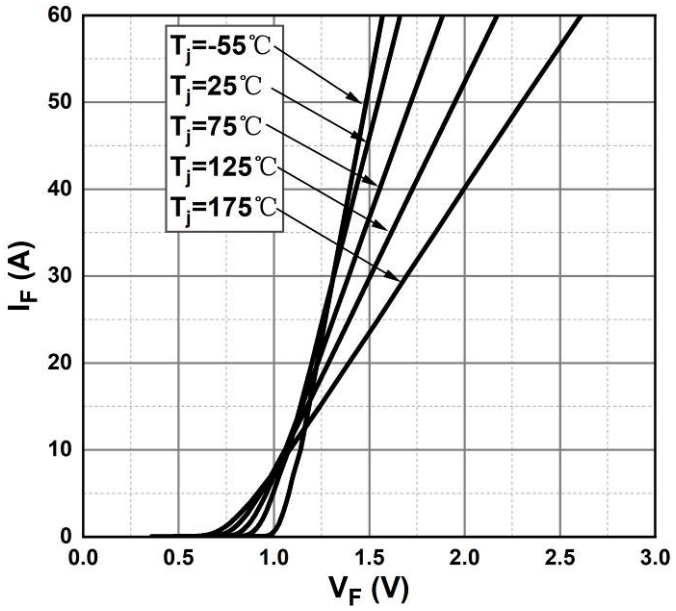


Figure 1. Forward Characteristics

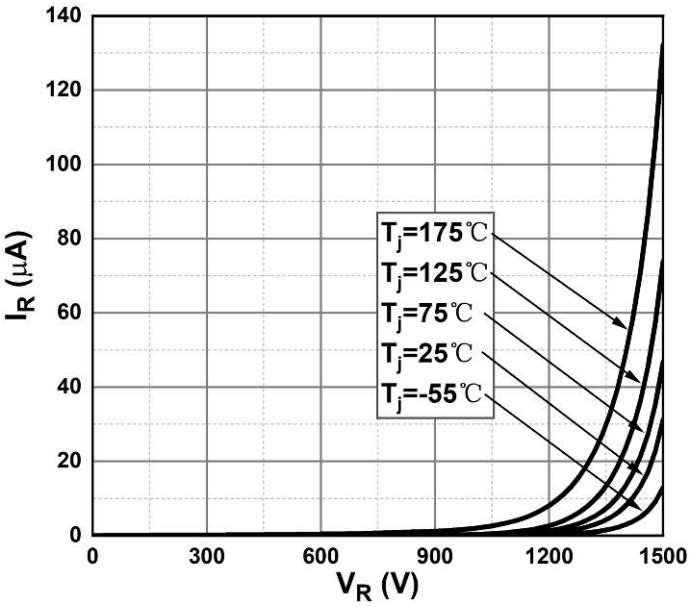


Figure 2. Reverse Characteristics

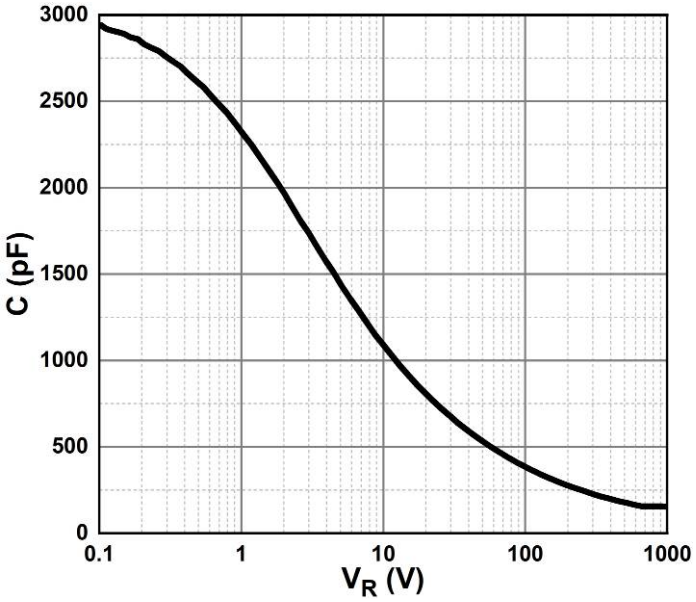


Figure 3. Capacitance vs. Reverse Voltage

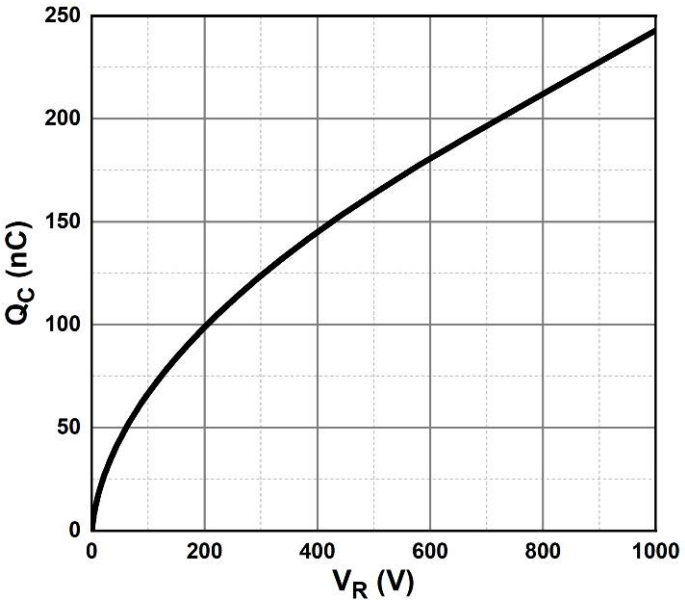


Figure 4. Total Capacitance Charge vs. Reverse Voltage

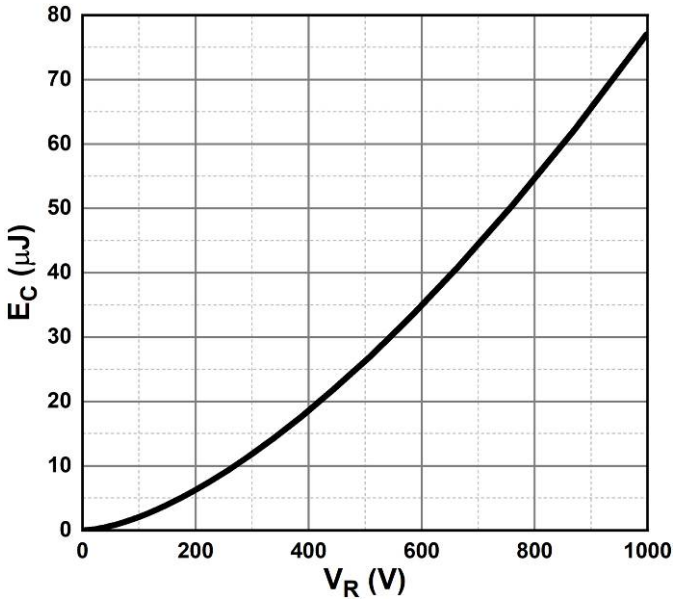


Figure 5. Capacitance Stored Energy

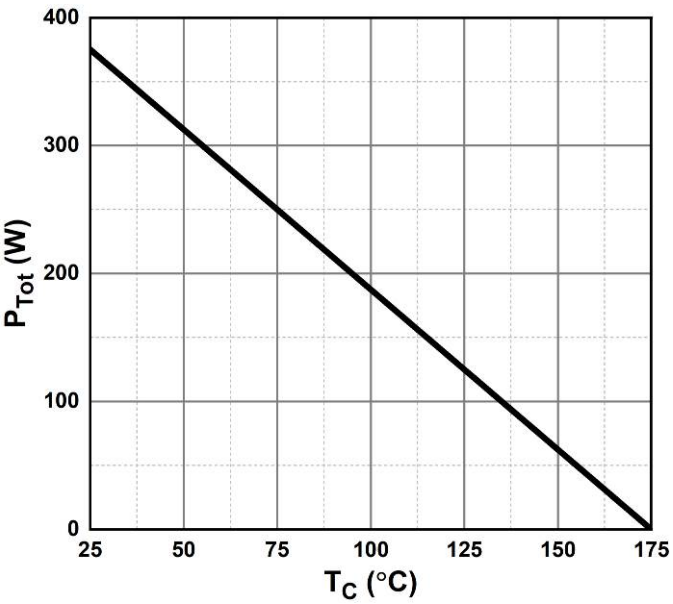


Figure 6. Power Derating

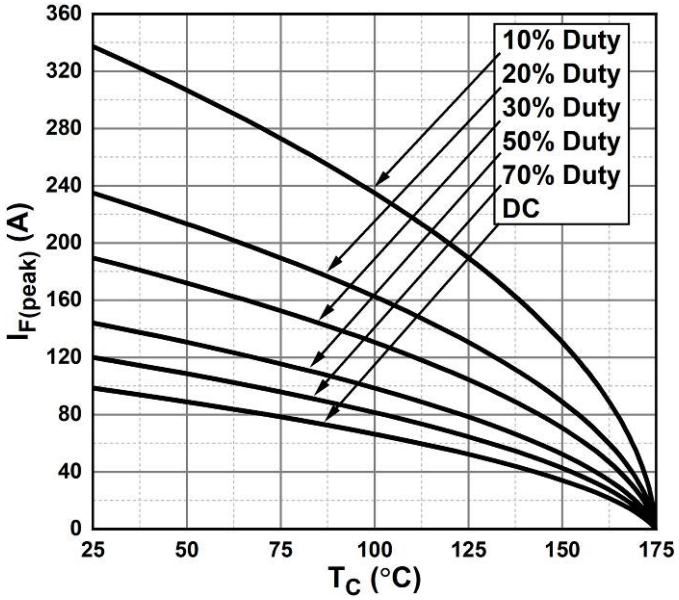


Figure 7. Current Derating

■Typical Characteristics (Device)

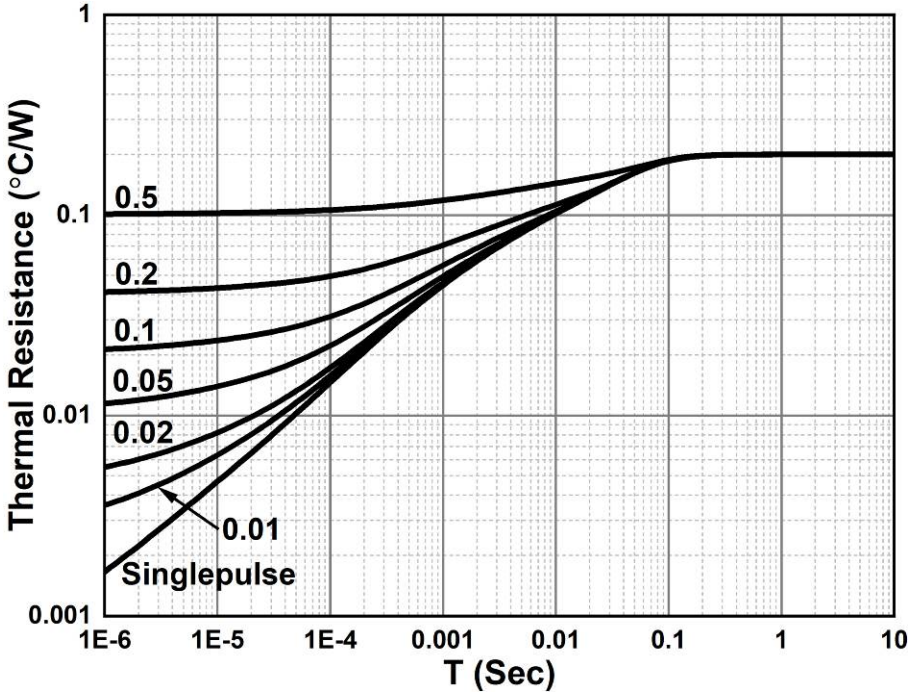
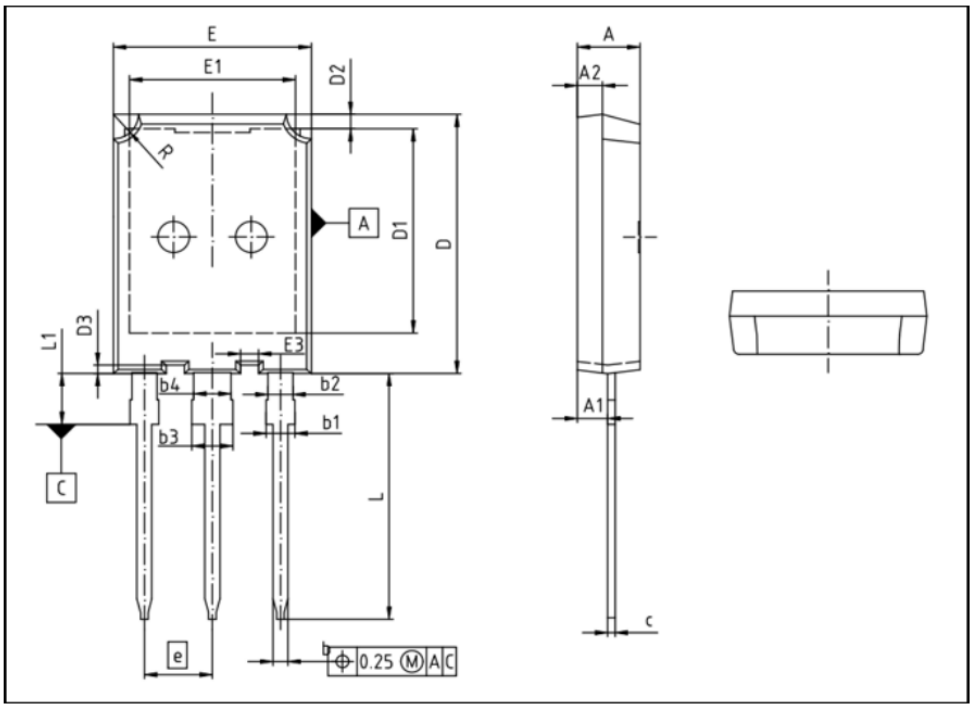


Figure 8. Transient Thermal Impedance

■Outline Dimensions

TO-247PLUS



DIM	MILLIMETERS	
	MIN	MAX
A	4.90	5.10
A1	2.31	2.51
A2	1.90	2.10
b	1.16	1.26
b1	1.86	2.16
b2	1.96	2.06
c	0.58	0.64
D	20.90	21.10
D1	16.25	16.85
D2	1.05	1.35
D3	0.58	0.78
E	15.70	15.90
E1	13.10	13.50
E3	1.35	1.55
e	5.44(BSC)	
L	19.78	20.08
L1	4.03	4.23
R	1.90	2.10

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