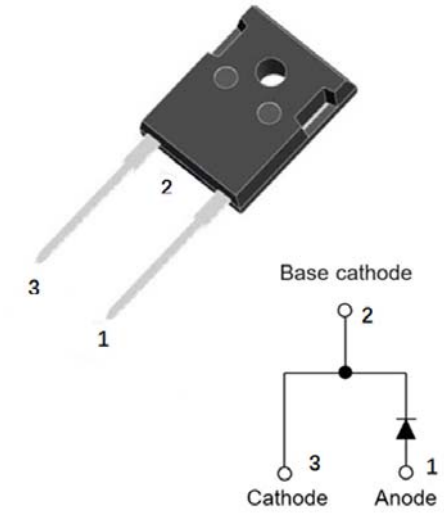
Silicon Carbide Schottky Diode

V_{RRM}	650V
$I_{F\ (135°C)}$	56A
Q_C	135nC



Features

- Positive temperature coefficient
- Temperature-independent switching
- Maximum working temperature at 175 °C
- Unipolar devices and zero reverse recovery current
- Zero forward recovery voltage
- 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
  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			D106550NQG3
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	119
Continuous forward current @ T_c=135°C			56
Continuous forward current @ T_c=143°C			50
Non-repetitive peak forward surge current @ T_c=25°C, tp=10ms, Half Sine Wave	I_{FSM}	A	380
Power Dissipation@ T_c=25°C	P_{TOT}	W	454
Power Dissipation@ T_c=110°C			196
i^2t Value@ Tc=25°C ,tp=10ms	$\int i^2dt$	A^2S	722
Operating junction and Storage temperature range	T_j ,T_{stg}	°C	-55 to +175

■Electrical Characteristics (Per Leg)

PARAMTETER	SYMBOL	UNIT	TEST CONDITIONS	Typ.	Max.
Forward voltage drop	V_F	V	I_F=50A, T_j=25°C	1.45	1.6
			I_F=50A, T_j=175°C	1.9	-
Reverse leakage current	I_R	μA	V_R=650V, T_j=25°C	3	25
			V_R=650V, T_j=175°C	20	-
Total capacitive charge	Q_C	nC	V_R=400V, T_j=25°C , $QC=\int_0^{VR} C(V)dV$	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_C	μJ	V_R=400V	16.5	-

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

PARAMETER	SYMBOL	UNIT	Value
Thermal resistance	$R_{\theta J-C}$	°C /W	0.33

■Typical Characteristics

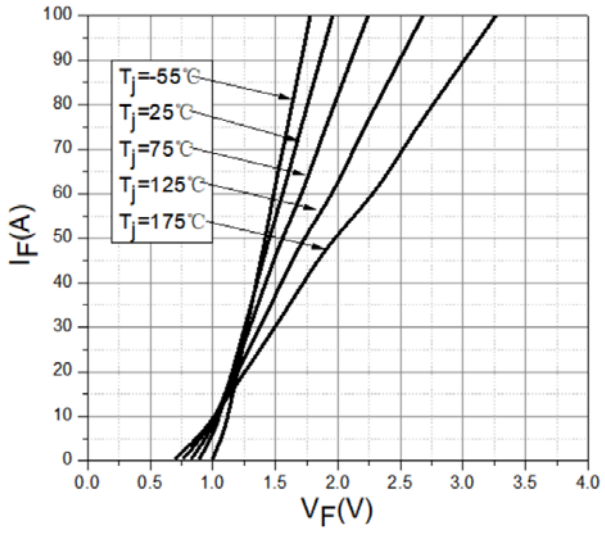


Figure 1. Forward Characteristics

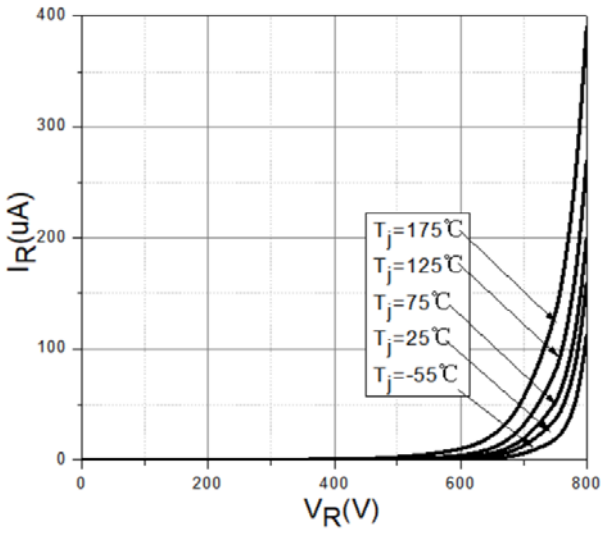


Figure2. Reverse Characteristic

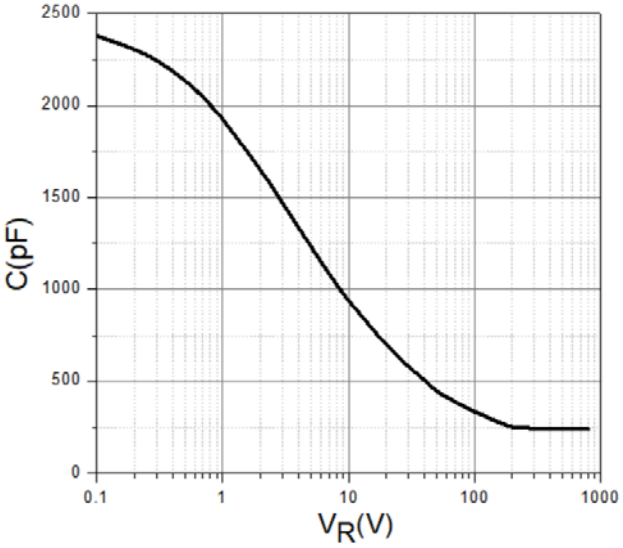


Figure 3. Capacitance vs. Reverse Voltage

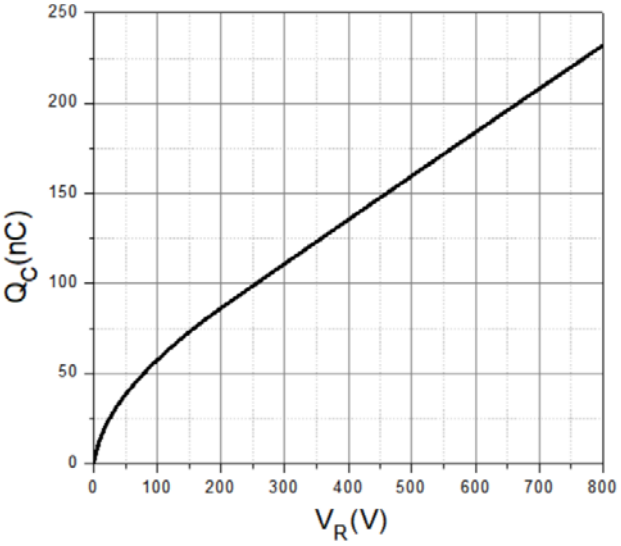


Figure 4. Total Capacitance Charge vs. Reverse Voltage

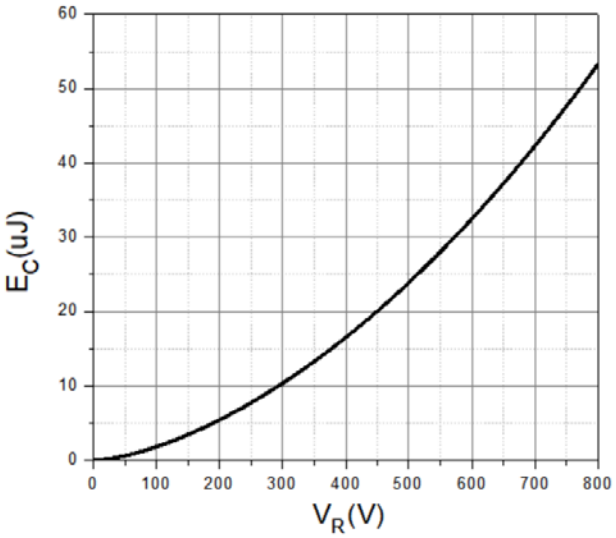


Figure 5. Capacitance Stored Energy

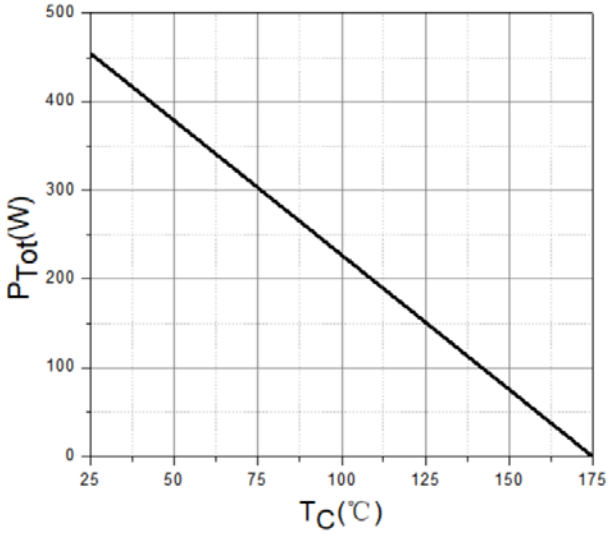


Figure 6. Power Derating

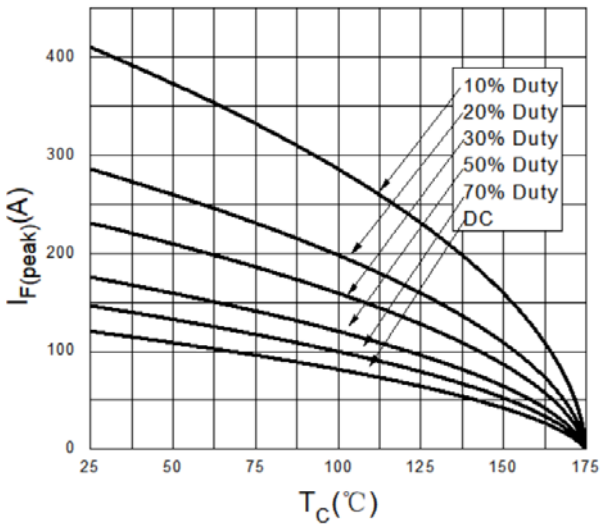


Figure 7. Current Derating

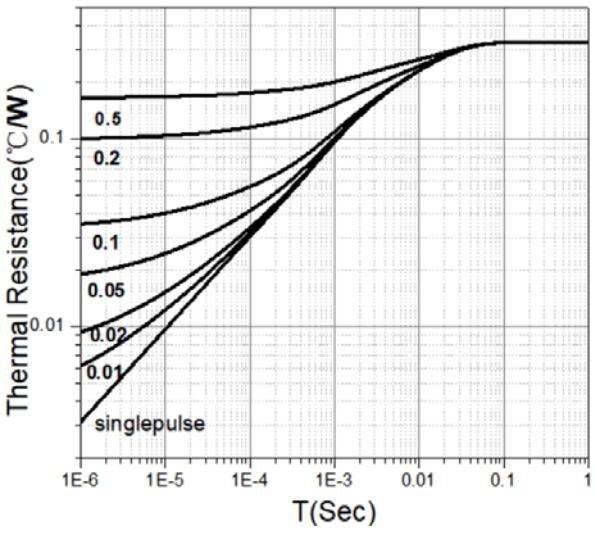
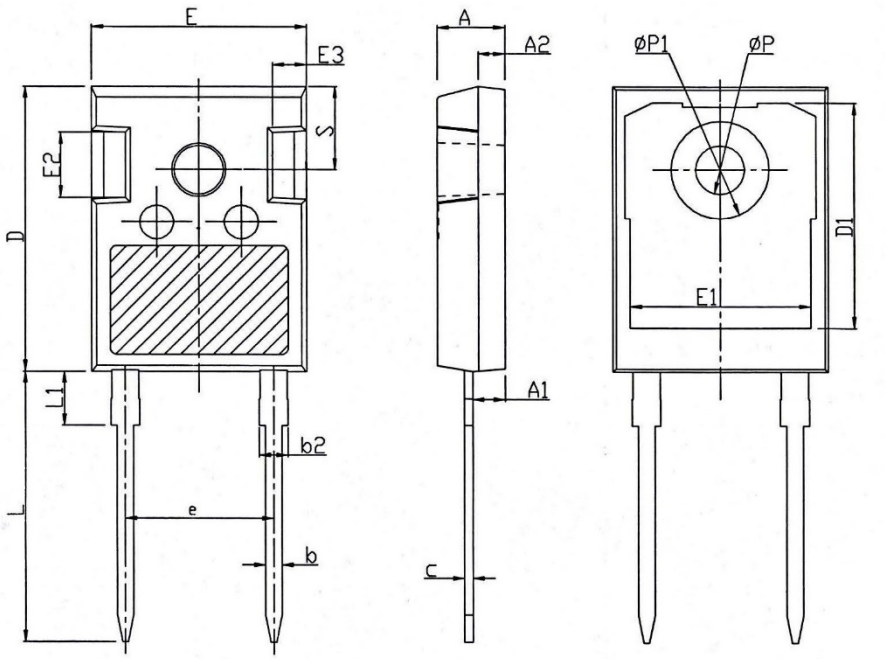


Figure 8. Transient Thermal Impedance

■Outline Dimensions

TO-247AC



TO-247AC		
Dim	Min	Max
A	4.80	5.20
A1	2.21	2.61
A2	1.85	2.15
b	1.11	1.36
b2	1.91	2.21
c	0.51	0.75
D	20.70	21.30
D1	16.25	16.85
E	15.50	16.10
E1	13.00	13.60
E2	4.80	5.20
E3	2.30	2.70
e	10.88BSC	
L	19.62	20.22
L1	-	4.30
ϕP	3.40	3.80
ϕP1	-	7.30
S	6.15BSC	

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