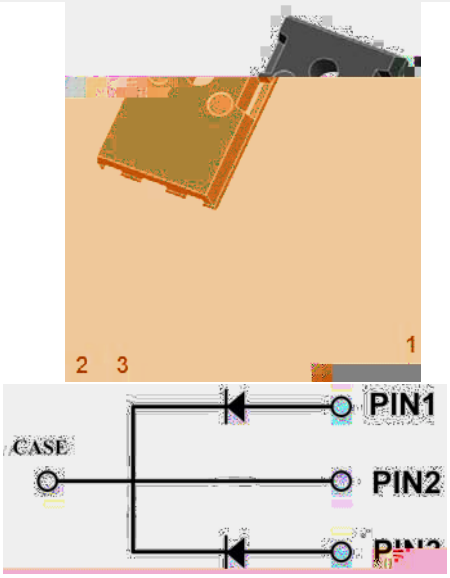
Silicon Carbide Schottky Diode

V_{RRM}	650V
$I_{F\ 135°C}$	52A(2)
Q_C	124nC(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
- 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-247AB
  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			D106540NCTQG2
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	56/112
Continuous forward current @ T_c=135°C			26/52
Continuous forward current @ T_c=148°C			20/40
Non-repetitive peak forward surge current @ T_c=25°C, tp=10ms, Half Sine Wave	I_{FSM}	A	160(1)
Power Dissipation@ T_c=25°C	P_{TOT}	W	187/365
Power Dissipation@ T_c=110°C			81/158
i^2t Value@ Tc=25°C ,tp=10ms	$\int i^2dt$	A^2S	128(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=20A, T_j=25°C	1.35	1.55
			I_F=20A, T_j=175°C	1.75	-

V_R

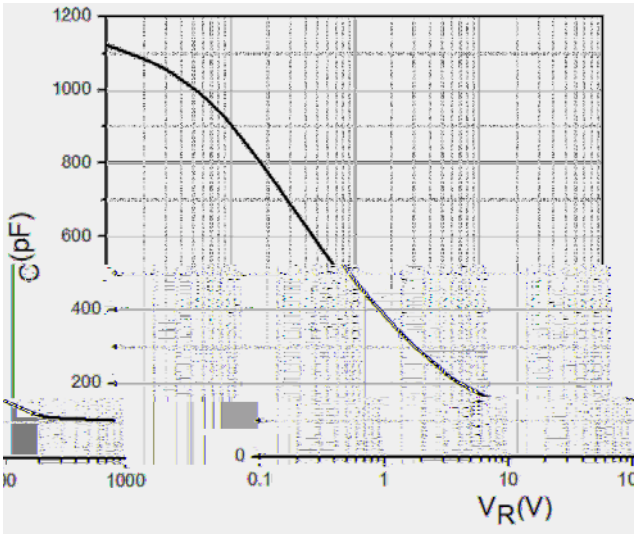


Figure 3. Capacitance vs. Reverse Voltage

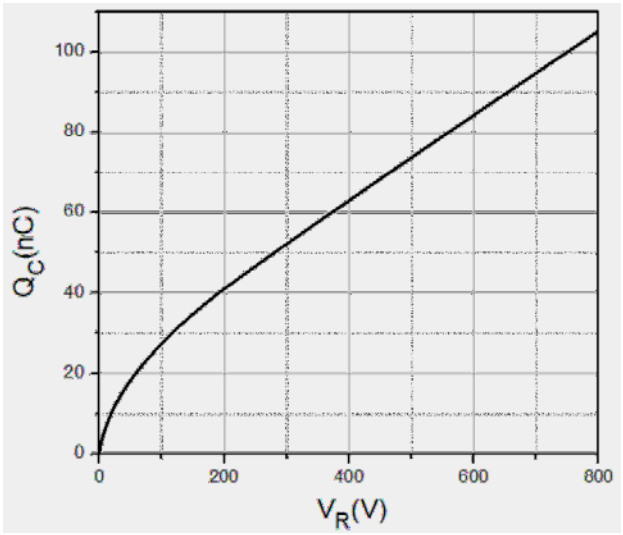


Figure 4. Total Capacitance Charge vs. Reverse Voltage

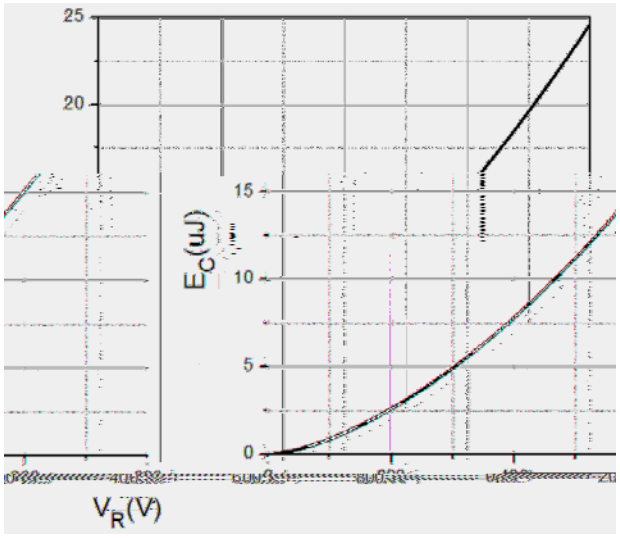


Figure 5. Capacitance Stored Energy

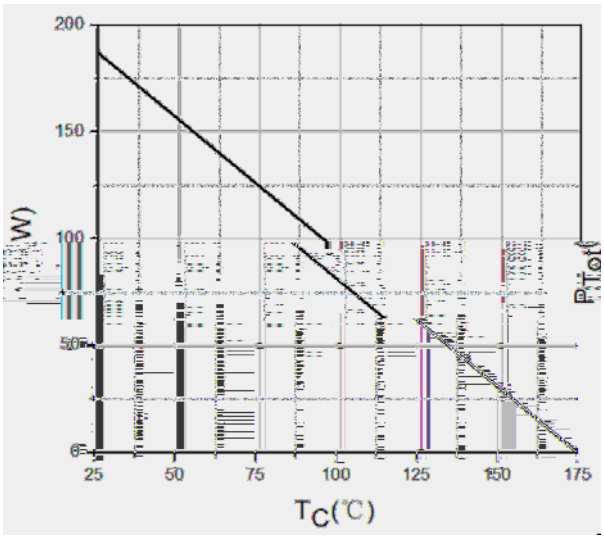


Figure 6. Power Derating

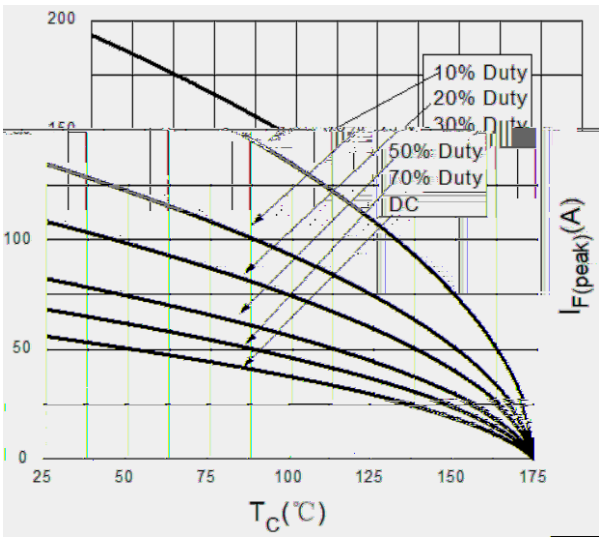


Figure 7. Current Derating

■Typical Characteristics (Device)

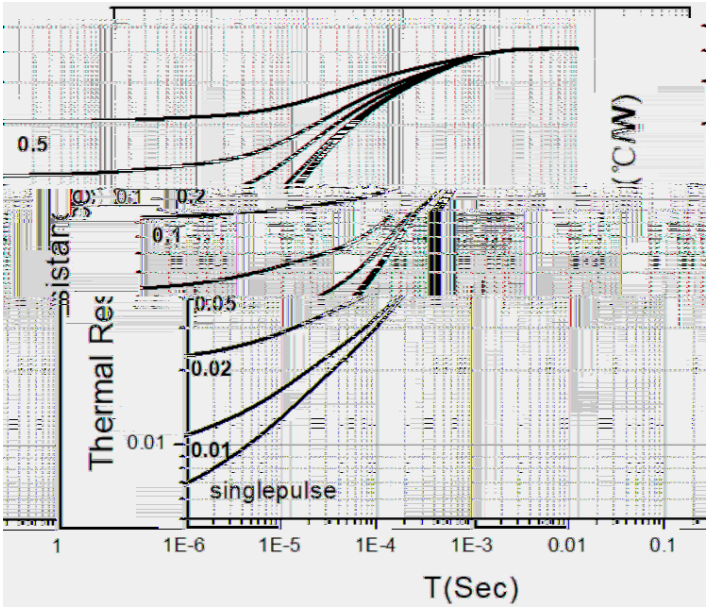
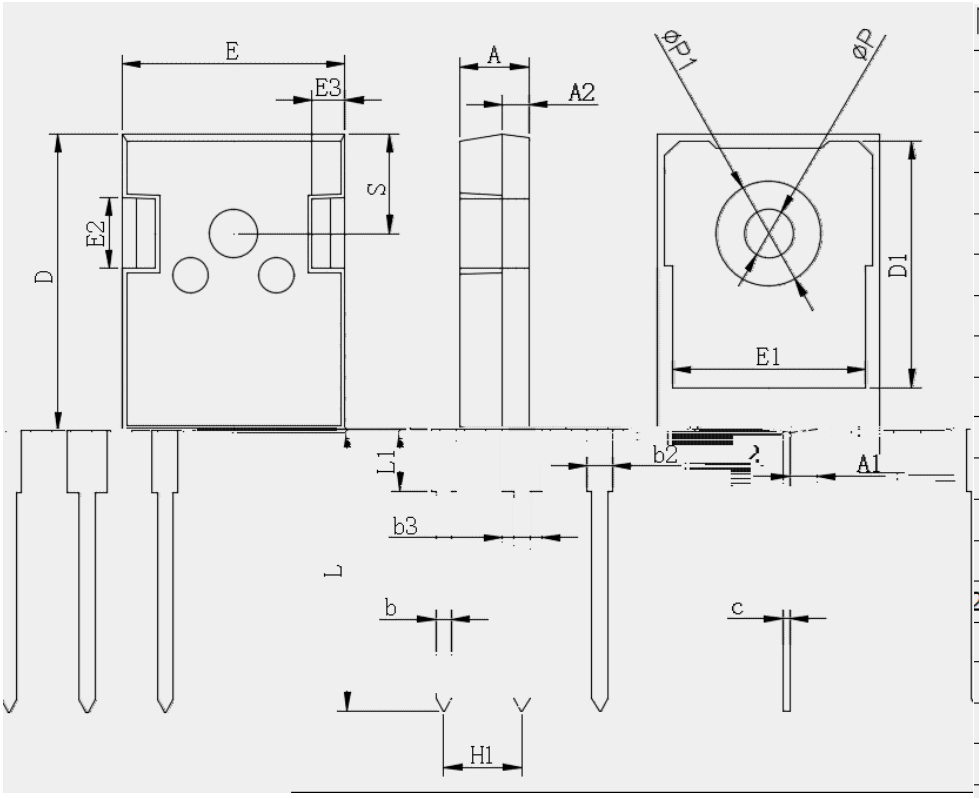


Figure 8. Transient Thermal Impedance

■Outline Dimensions



TO-247AB		
Dim	Min	Max
A	4.8	5.2
A1	2.21	2.61
A2	1.85	2.15
b	1	1.4
b2	1.91	2.21
C	0.5	0.7
D	20.7	21.3
D1	16.25	16.85
E	15.5	16.1
E2	4.8	5.2
E3	2.3	2.7
L	19.62	20.2
L1	-	4.3
ΦP	3.4	3.8
ΦP1		7.3
S	6.15TYP	
H1	5.44TYP	