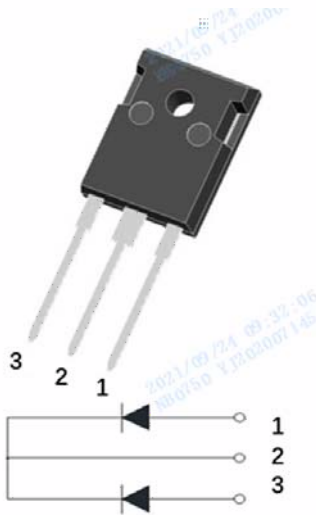


Silicon Carbide Schottky Diode

V_{RRM}	1200V
I_F 135°C	66A ⁽²⁾
Q_C	228nC ⁽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

Terminals: Tin plated leads

Polarity: As marked

Maximum Ratings ($T_c=25$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Device marking code			D112040NCTGG2
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 @ $T_c=25^\circ\text{C}$ (Per Leg/Device)	I_F	A	70/140
Continuous forward current @ $T_c=135^\circ\text{C}$ (Per Leg/Device)			33/66
Continuous forward current @ $T_c=157^\circ\text{C}$ (Per Leg/Device)			20/40
Non-repetitive peak forward surge current @ $T_c=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	I_{FSM}	A	160 ⁽¹⁾
Power Dissipation @ $T_c=25^\circ\text{C}$ (Per Leg/Device)	P_{TOT}	W	319/638
Power Dissipation @ $T_c=110^\circ\text{C}$ (Per Leg/Device)			138/276
i^2t Value @ $T_c=25^\circ\text{C}$, $t_p=10\text{ms}$	i^2t	A ² S	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)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Typ.	Max.
Forward voltage drop	V_F	V	$I_F=20A, T_j=25^\circ C$	1.34	1.55
			$I_F=20A, T_j=175^\circ C$	1.86	2.70
Reverse leakage current	I_R	μA	$V_R=1200V, T_j=25^\circ C$	0.5	25
			$V_R=1200V, T_j=175^\circ C$	5	-
Total capacitive charge	Q_C	nC	$V_R=800V, T_j=25^\circ C, Q_C = \int_0^{V_R} I_C(V) dV$	114	-
Total capacitance	C	pF	$V_R=0V, f=1MHz$	1552	-
			$V_R=400V, f=1MHz$	107	-
			$V_R=800V, f=1MHz$	79	-
Capacitance Stored Energy	E_C	μJ	$V_R=800V$	29.3	-

Thermal Characteristics $T_a=25$ Unless otherwise specified

PARAMETER	SYMBOL	UNIT	VALUE
Thermal resistance	R_{j-c}	$^\circ C/W$	0.47 ⁽¹⁾ 0.24 ⁽²⁾

⁽¹⁾Per Leg, ⁽²⁾Per Device

Typical Characteristics (Per Leg)

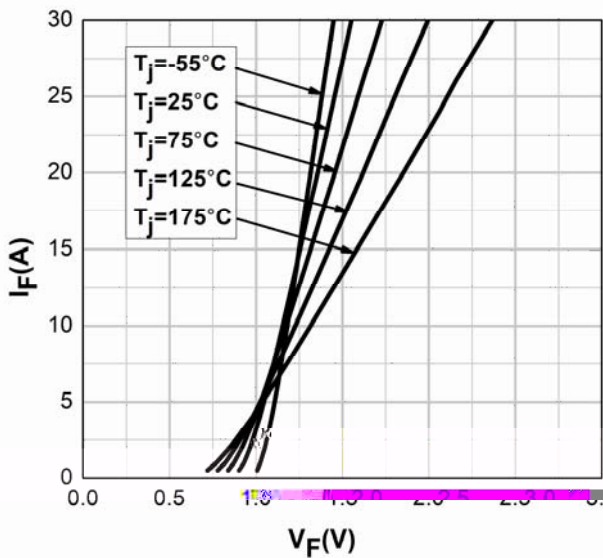


Figure 1. Forward Characteristics

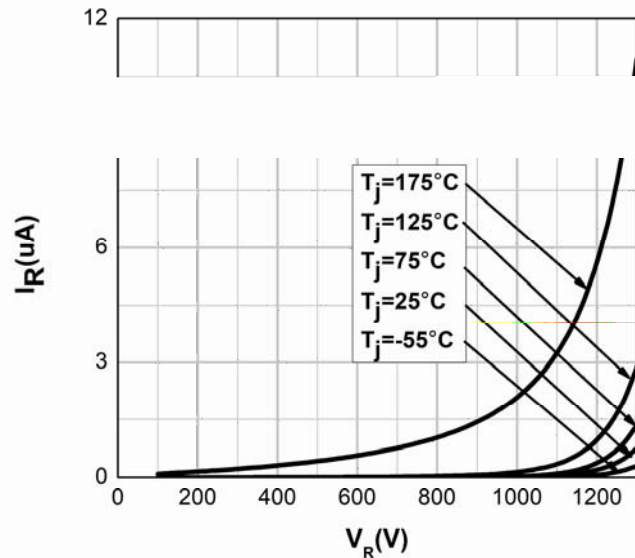


Figure2. Reverse Characteristic

Figure 3. Capacitance vs. Reverse Voltage

Figure 4. Total Capacitance Charge vs. Reverse Voltage

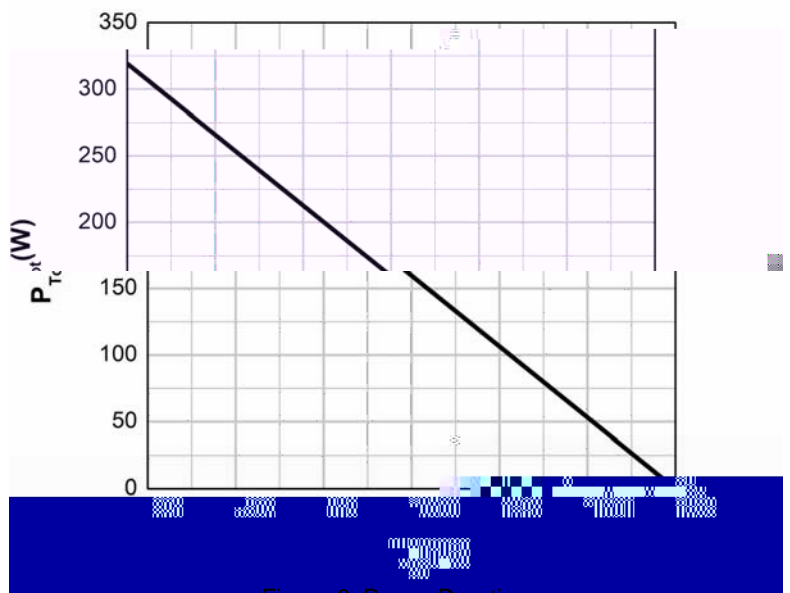


Figure 5. Capacitance Stored Energy

Figure 6. Power Derating

Figure 7. Current Deratin

Typical Characteristics (Device)

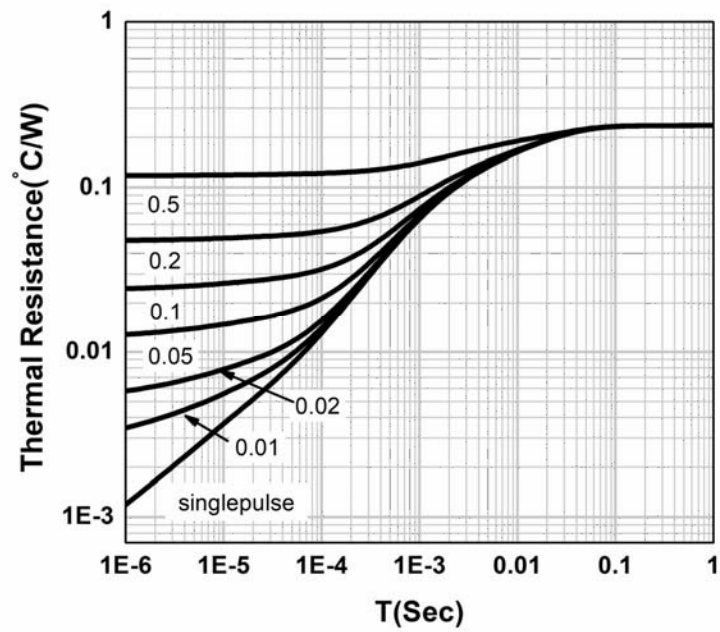
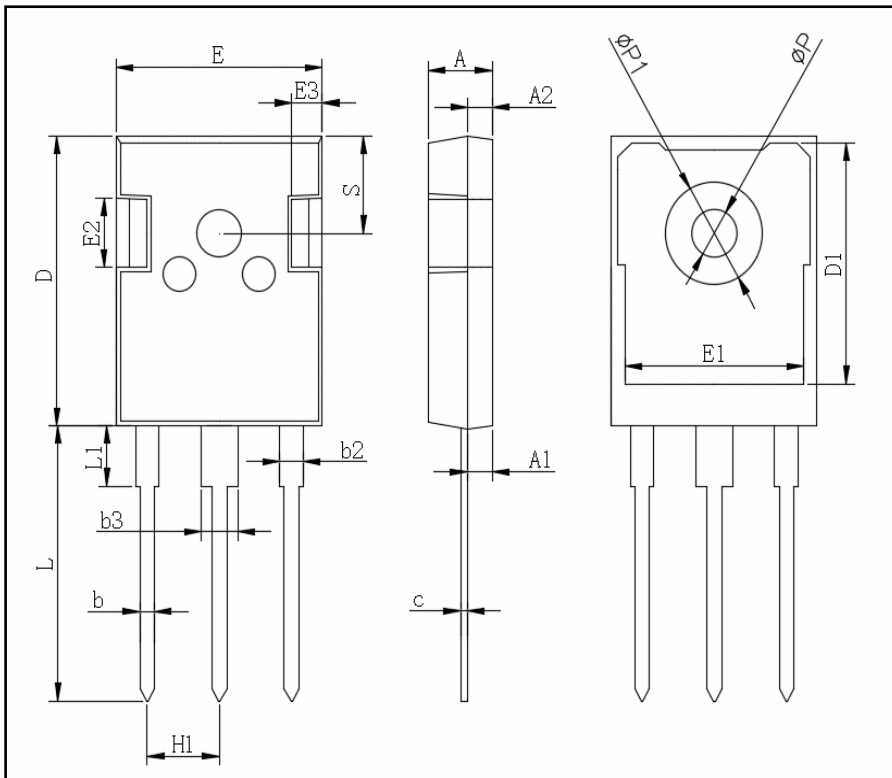


Figure 8. Transient Thermal Impedance

Outline Dimensions



TO-247AB		
Dim	Min	Max
A	4.80	5.20
A1	2.21	2.61
A2	1.85	2.15
b	1.0	1.4
b2	1.91	2.21
C	0.5	0.7
D	20.70	21.30
D1	16.25	16.85
E	15.50	16.10
E1	13.0	13.6
E2	4.80	5.20
E3	2.30	2.70
L	19.62	20.22
L1	-	4.30
P	3.40	3.80
P1		7.30
S	6.15TYP	
H1	5.44TYP	
b3	2.80	3.20



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