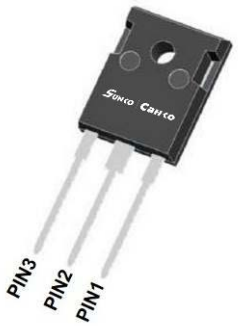
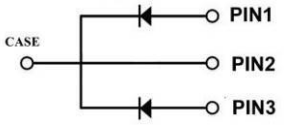
SCD112040NCTGH

Silicon Carbide Schottky Diode

V_{RRM}	1200V
$I_{F\ (135°C)}$	56A[2]
Q_C	208nC[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, -, halogen-free
- **Terminals**: Tin plated leads
- **Polarity**: As marked

■Maximum Ratings (T_C=25℃ Unless otherwise specified)

PARAMTETER	SYMBOL	UNIT	VALUE
Device marking code			D112040NCTGH
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	59/118
Continuous forward current @ T_C=135°C			28/56
Continuous forward current @ T_C=152°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	263/517
Power Dissipation@ T_C=110°C			114/224
i^2t Value@ T_C=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

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■Electrical Characteristics (Per Leg)

PARAMTETER	SYMBOL	UNIT	TEST CONDITIONS	Typ.	Max.
Forward voltage drop	V_F	V	I_F=20A, T_j=25°C	1.4	1.55
			I_F=20A, T_j=175°C	1.95	-
Reverse leakage current	I_R	μA	V_R=1200V, T_j=25°C	0.5	20
			V_R=1200V, T_j=175°C	4	-
Total capacitive charge	Q_C	nC	V_R=800V, T_j=25°C , $Q_C=\int_0^{VR} C(V)dV$	104	-
Total capacitance	C	pF	V_R=0V, f=1MHZ	1509	-
			V_R=400V, f=1MHZ	98	-
			V_R=800V, f=1MHZ	70	-
Capacitance Stored Energy	E_C	μJ	V_R=800V	27	-

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

PARAMETER	SYMBOL	UNIT	VALUE
Thermal resistance	$R_{\theta J-C}$	°C /W	0.57(1) 0.29(2)

(1) Per Leg, (2) Per Device

■Typical Characteristics (Per Leg)

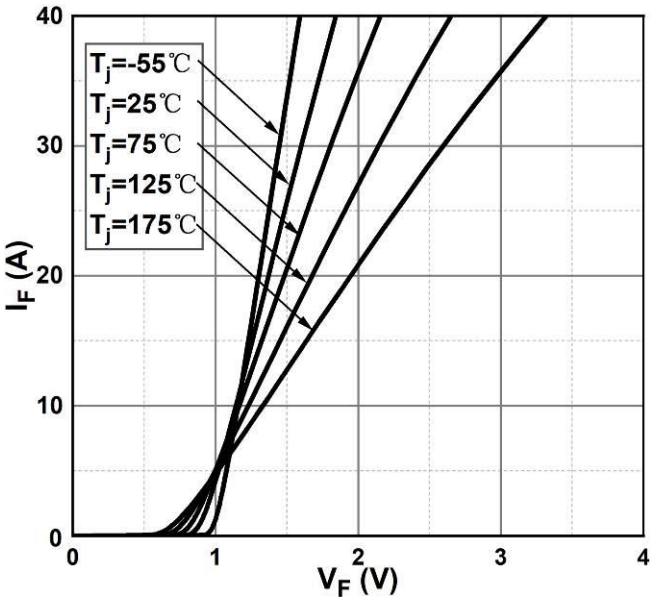

Figure 1. Forward Characteristics

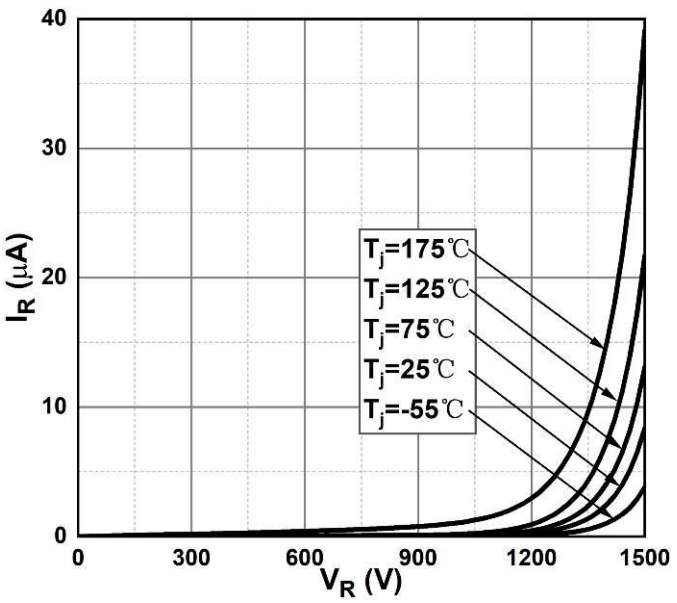

Figure 2. Reverse Characteristics

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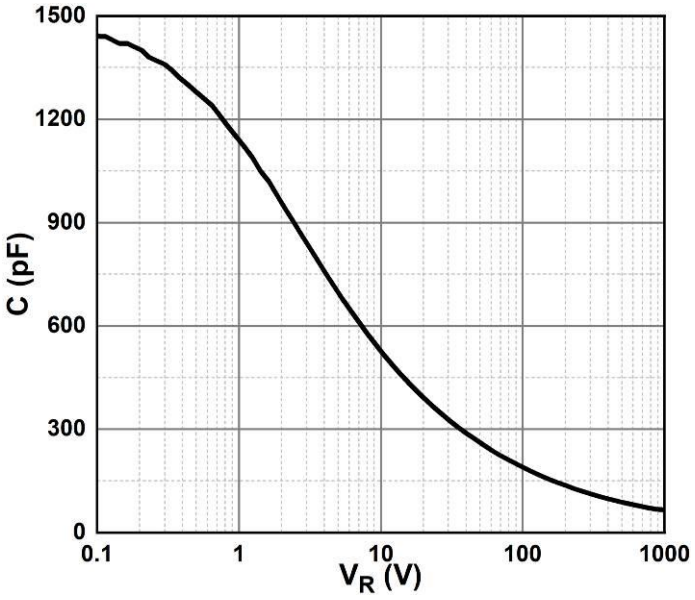

Figure 3. Capacitance vs. Reverse Voltage

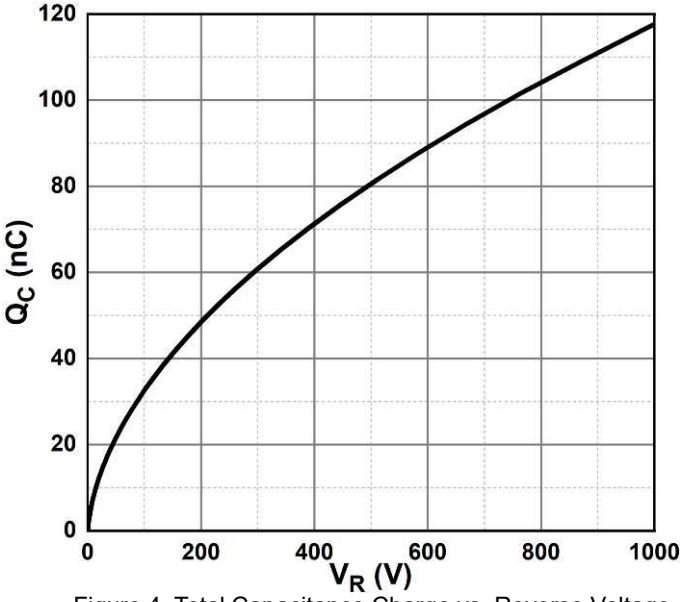

Figure 4. Total Capacitance Charge vs. Reverse Voltage

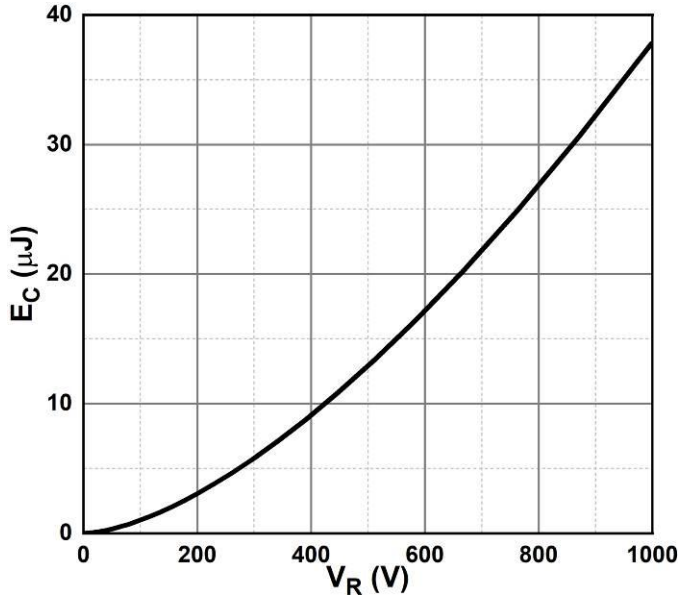

Figure 5. Capacitance Stored Energy

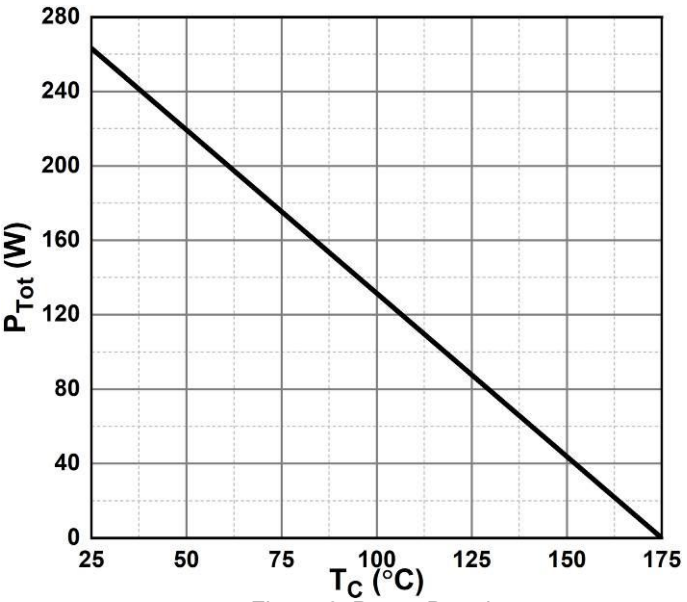

Figure 6. Power Derating

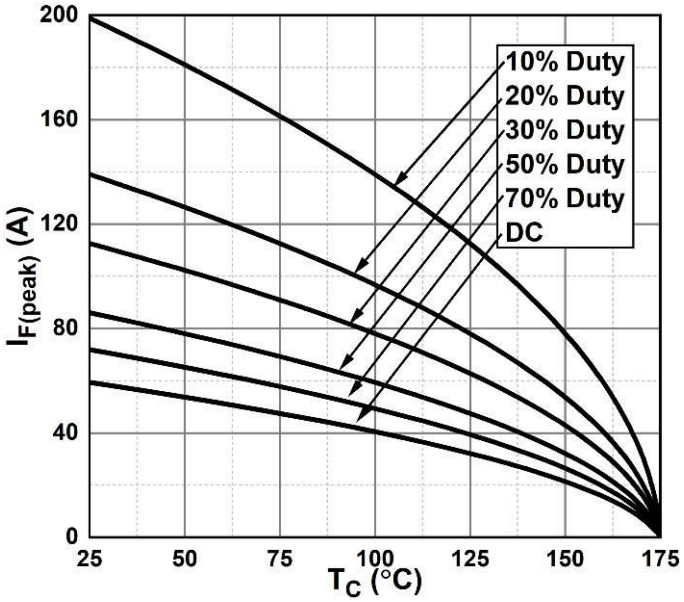

Figure 7. Current Derating

■Typical Characteristics (Device)

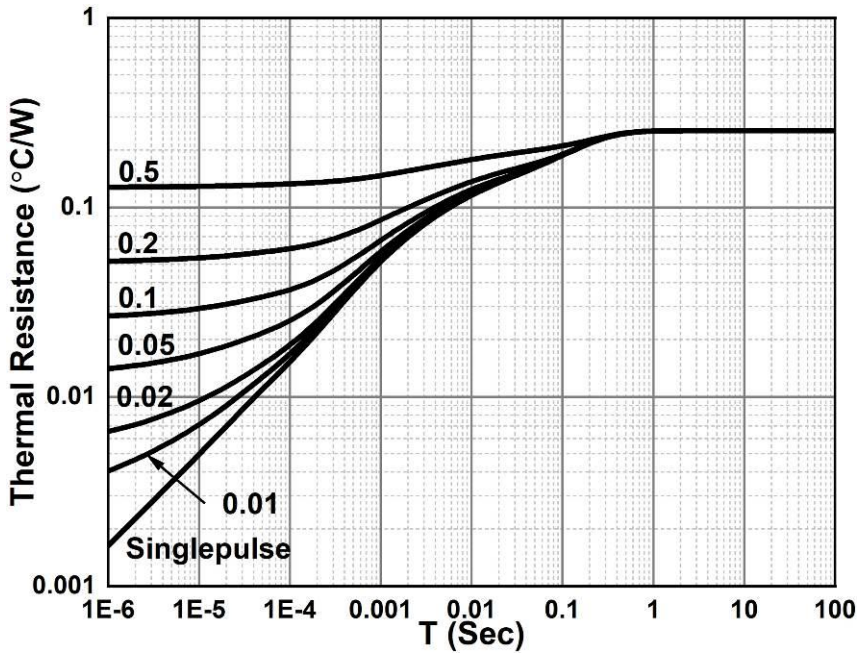

Figure 8. Transient Thermal Impedance

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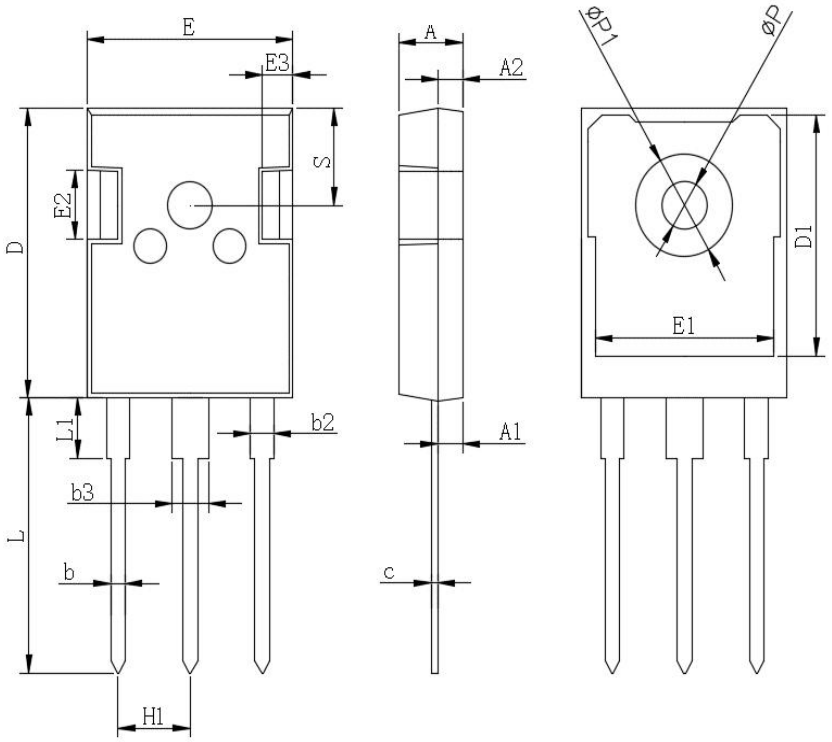
■Outline Dimensions

TO-247AB



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
ΦP	3.40	3.80
ΦP1	-	7.30
S	6.15TYP	
H1	5.44TYP	
b3	2.80	3.20

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