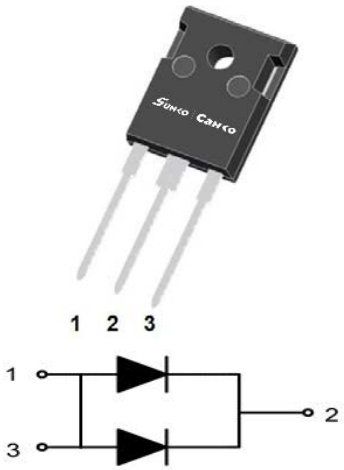
SCD112040NCQG2

Silicon Carbide Schottky Diode

V_{RRM}	1200V
$I_{F\ (135°C)}$	52A
Q_C	216nC



Features

- Positive temperature coefficient
- Temperature-independent switching
- Maximum working temperature at 175 °C
- Unipolar devices and zero reverse recovery current
- Zero reverse 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)

PARAMTETER	SYMBOL	UNIT	VALUE
Device marking code			D112040NCQG2
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 T_c=135°C T_c=150°C	I_F	A	108 52 40
Non-repetitive peak forward surge current @ T_c=25°C, tp=10ms, Half Sine Wave	I_{FSM}	A	300
Non-repetitive peak forward surge current @ T_c=25°C, tp=10us,square wave	I_{FSM}	A	2400
Power Dissipation@ T_c=25°C T_c=110°C	P_{TOT}	W	468 203
i^2t Value@ Tc=25°C ,tp=10ms	$\int i^2dt$	A^2S	450
Operating junction and Storage temperature range	T_j ,T_{stg}	°C	-55 to +175

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■Electrical Characteristics

PARAMTETER	SYMBOL	UNIT	TEST CONDITIONS	Typ.	Max.
Forward voltage drop	V_F	V	I_F=40A, T_j=25°C	1.41	1.58
			I_F=40A, T_j=175°C	2.02	2.2
Reverse leakage current	I_R	μA	V_R=1200V, T_j=25°C	2	38
			V_R=1200V, T_j=175°C	19	200
Total capacitive charge	Q_C	nC	V_R=800V, T_j=25°C , $QC=\int_0^{VR} C(V)dV$	216	
Total capacitance	C	pF	V_R=0V, f=1MHZ	2900	
			V_R=400V, f=1MHZ	204	
			V_R=800V, f=1MHZ	156	
Capacitance Stored Energy	E_C	μJ	V_R=800V	55	

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

PARAMETER	SYMBOL	UNIT	Typ	Max
Thermal resistance	$R_{\theta J-C}$	°C /W	0.30	0.32

■Characteristics (Typical)

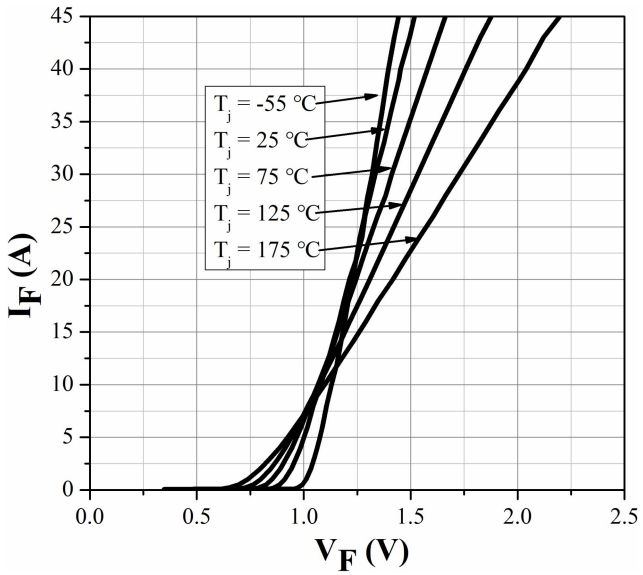

Figure 1. Forward Characteristics

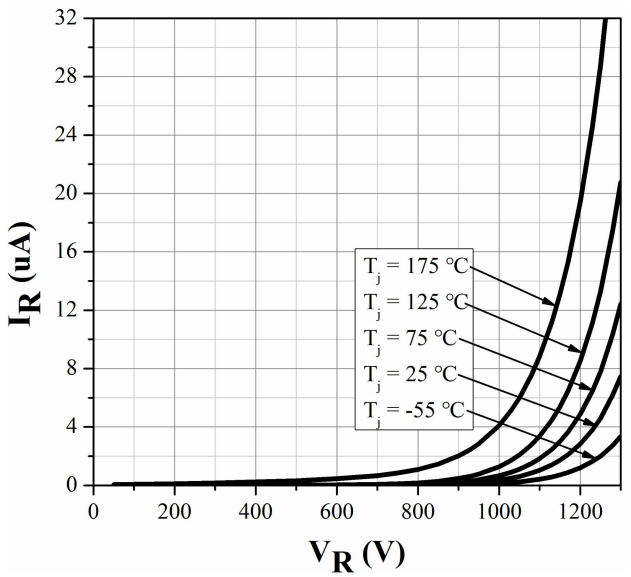

Figure2. Reverse Characteristic

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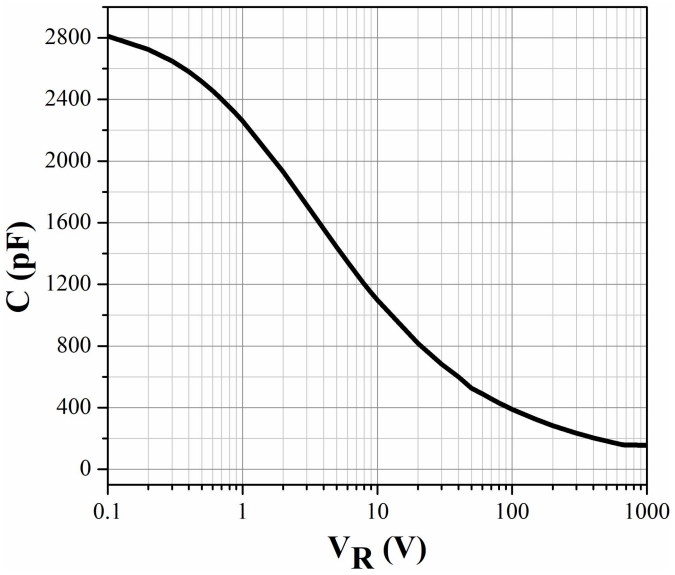

Figure 3. Capacitance vs. Reverse Voltage

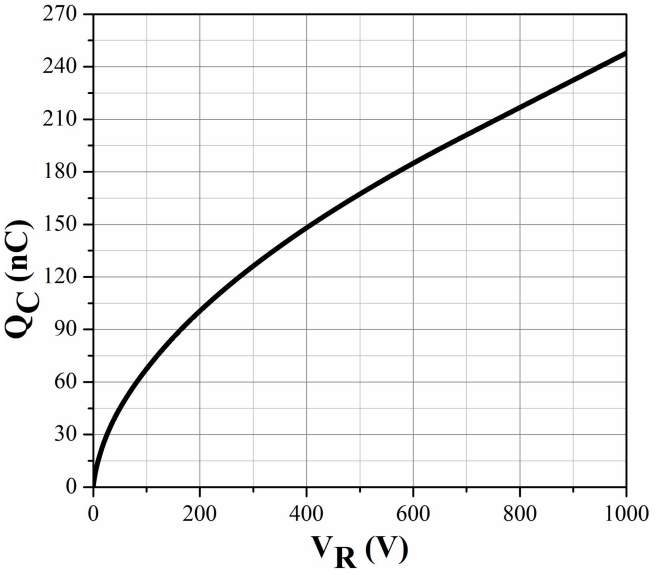

Figure 4. Total Capacitance Charge vs. Reverse Voltage

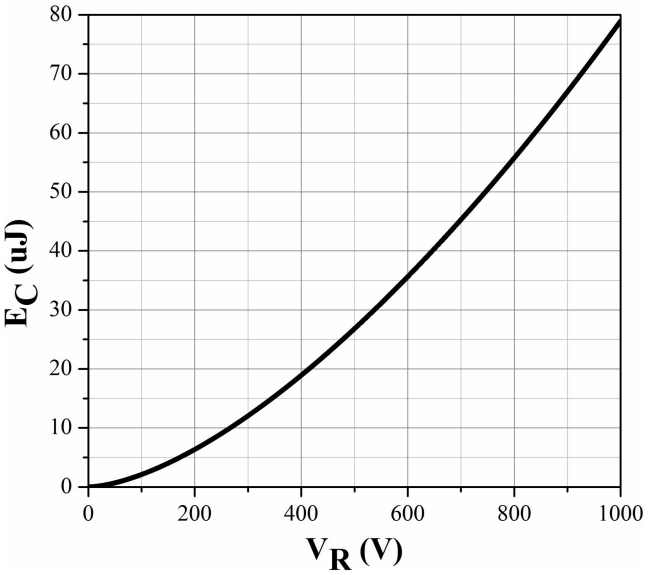

Figure 5. Capacitance Stored Energy

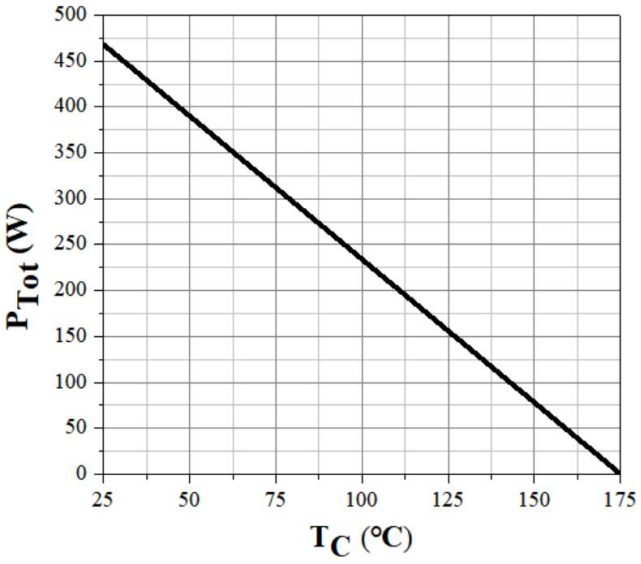

Figure 6. Power Derating

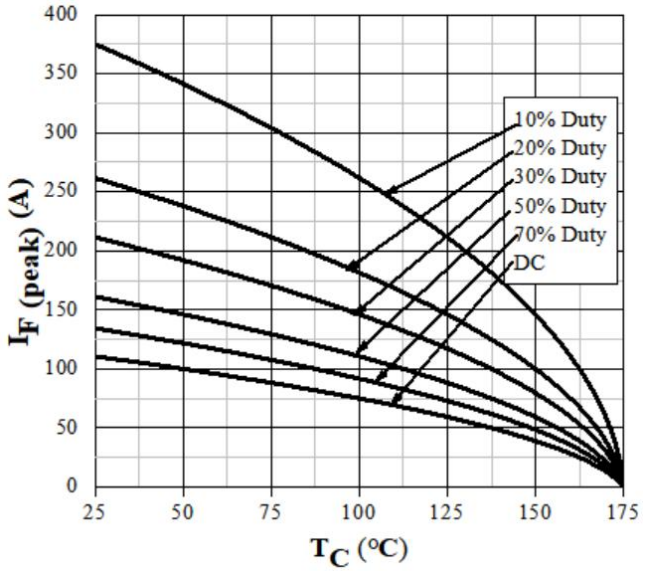

Figure 7. Current Derating

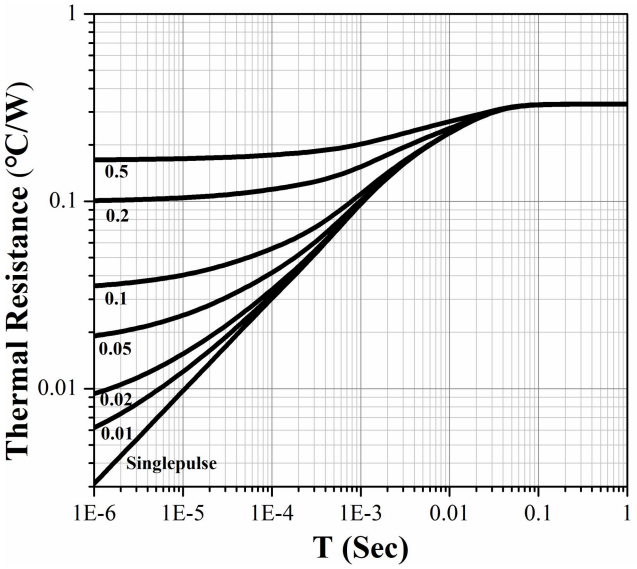

Figure 8. Transient Thermal Impedance

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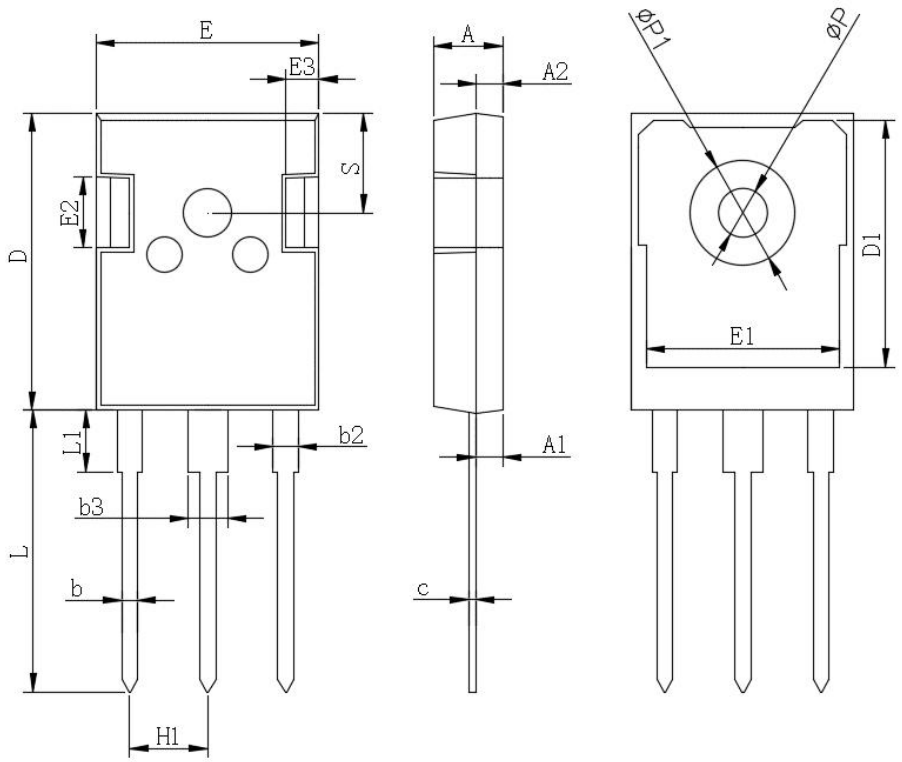
■Outline Dimensions



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
E1	13	13.6
E2	4.8	5.2
E3	2.3	2.7
L	19.62	20.22
L1	-	4.3
ΦP	3.4	3.8
ΦP1		7.3
S	6.15TYP	
H1	5.44TYP	

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