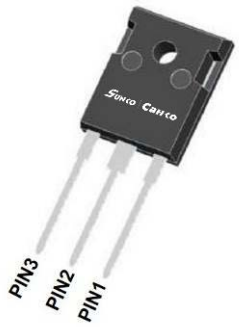
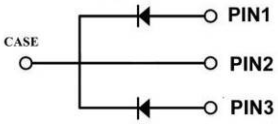
SCD117020NCTG1

Silicon Carbide Schottky Diode

V_{RRM}	1700V
$I_{F\ (135°C)}$	38A[2]
Q_C	286nC[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			D117020NCTG1
Reverse voltage (repetitive peak) @ T_j=25°C	V_{RRM}	V	1700
Reverse voltage (Surge Peak) @ T_j=25°C	V_{RSM}	V	1700
Reverse voltage (DC) @ T_j=25°C	V_{DC}	V	1700
Continuous forward current @ T_C=25°C	I_F	A	39/78
Continuous forward current @ T_C=135°C			19/38
Continuous forward current @ T_C=162°C			10/20
Non-repetitive peak forward surge current @ T_C=25°C, tp=10ms, Half Sine Wave	I_{FSM}	A	72[1]
Power Dissipation@ T_C=25°C	P_{TOT}	W	254/483
Power Dissipation@ T_C=110°C			110/209
i^2t Value@ T_C=25°C ,tp=10ms	$\int i^2dt$	A^2S	25[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=10A, T_j=25°C	1.4	1.55
			I_F=10A, T_j=175°C	2.2	-
Reverse leakage current	I_R	μA	V_R=1700V, T_j=25°C	3	18
			V_R=1700V, T_j=175°C	10	-
Total capacitive charge	Q_C	nC	V_R=1700V, T_j=25°C , $Q_C=\int_0^{V_R} C(V)dV$	143	-
Total capacitance	C	pF	V_R=0V, f=1MHZ	1258	-
			V_R=800V, f=1MHZ	64	-
			V_R=1700V, f=1MHZ	63	-
Capacitance Stored Energy	E_C	μJ	V_R=1700V	73	-

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

PARAMETER	SYMBOL	UNIT	VALUE
Thermal resistance	$R_{\theta J-C}$	°C /W	0.59(1) 0.31(2)

(1) Per Leg, (2) Per Device

■Typical Characteristics (Per Leg)

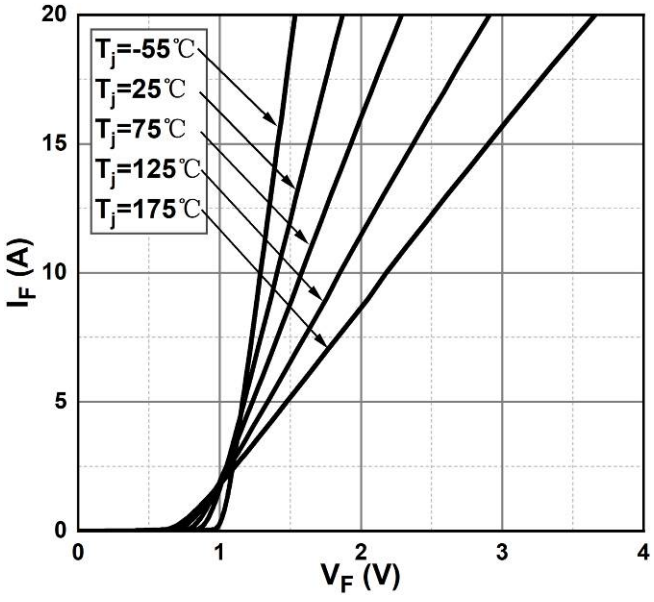


Figure 1. Forward Characteristics

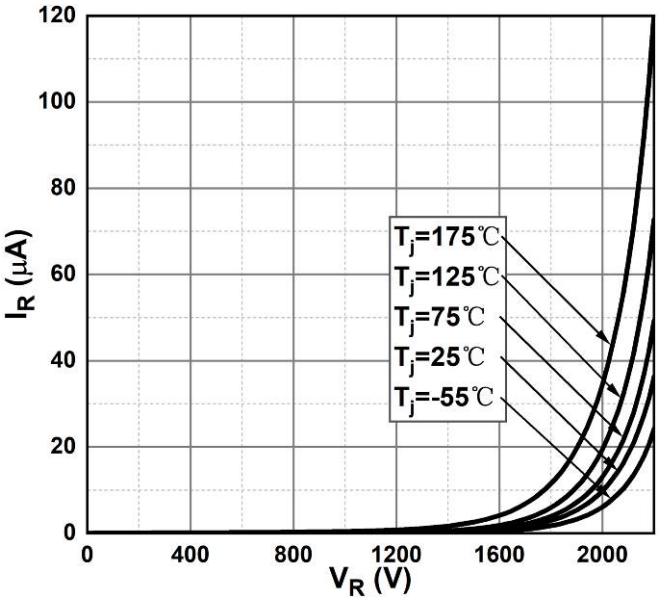


Figure 2. Reverse Characteristics

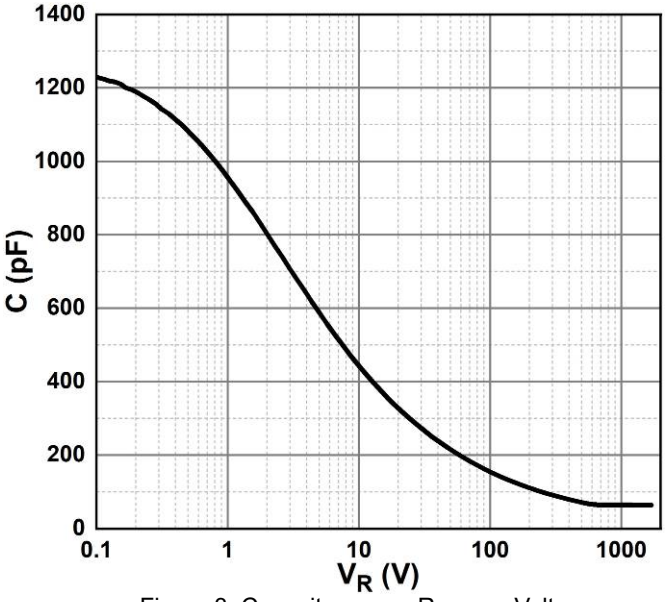


Figure 3. Capacitance vs. Reverse Voltage

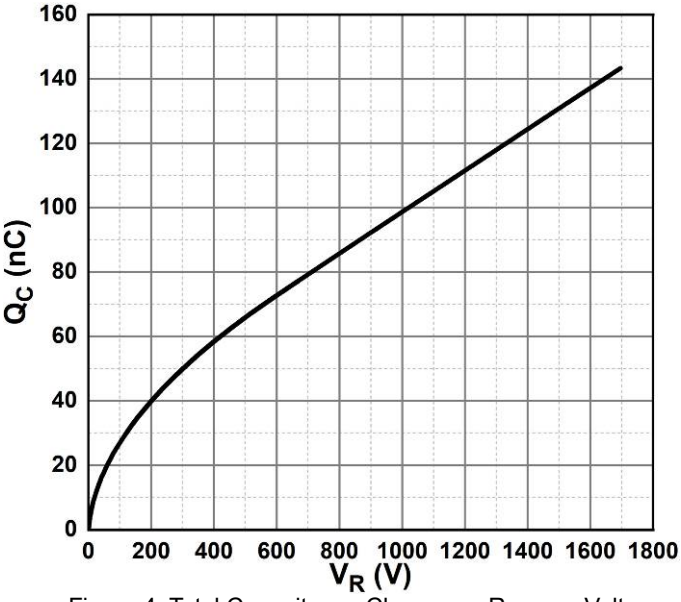


Figure 4. Total Capacitance Charge vs. Reverse Voltage

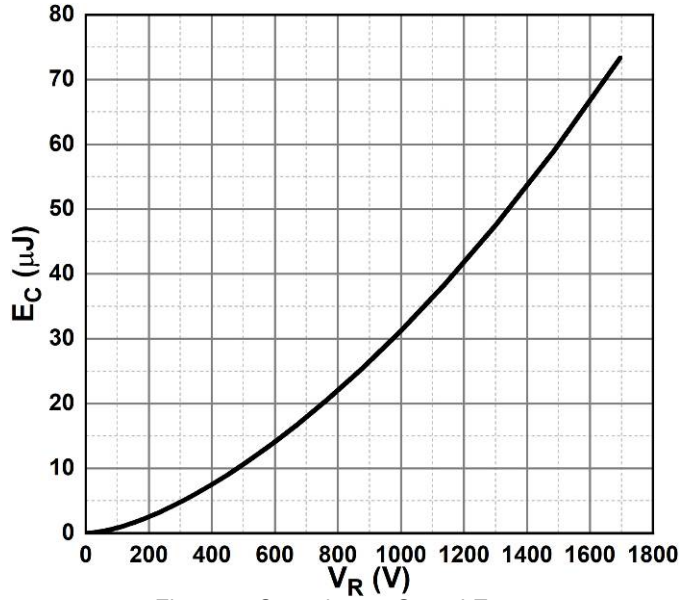


Figure 5. Capacitance Stored Energy

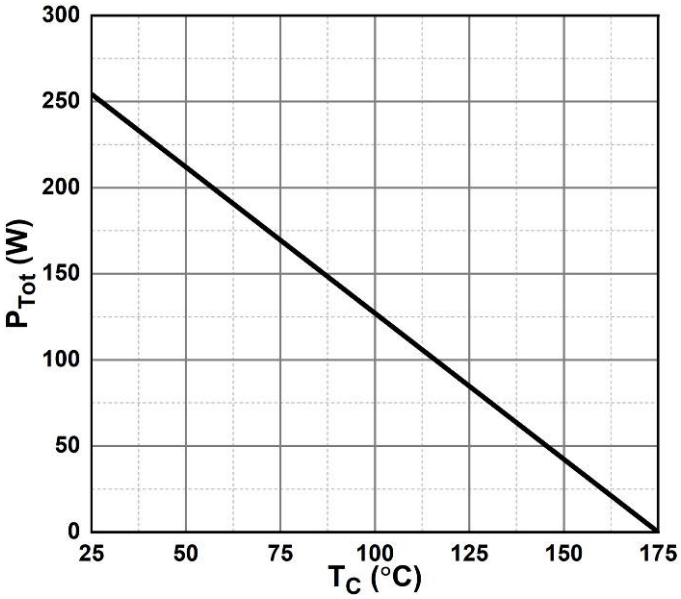


Figure 6. Power Derating

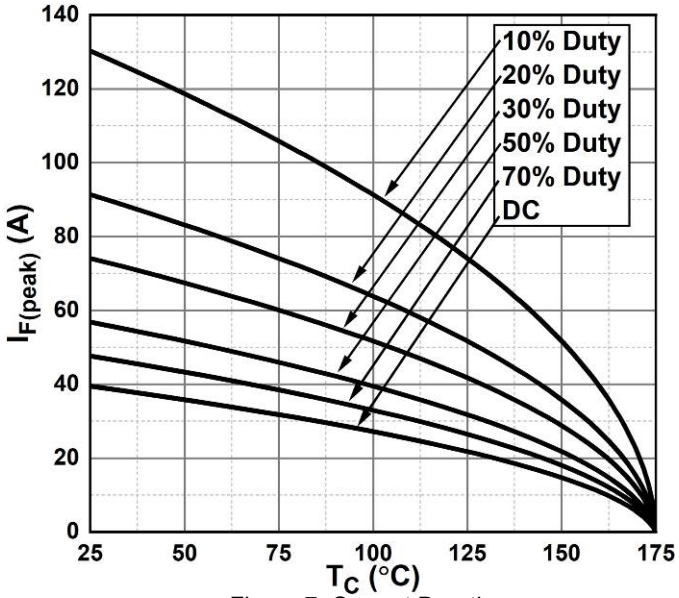


Figure 7. Current Derating

■Typical Characteristics (Device)

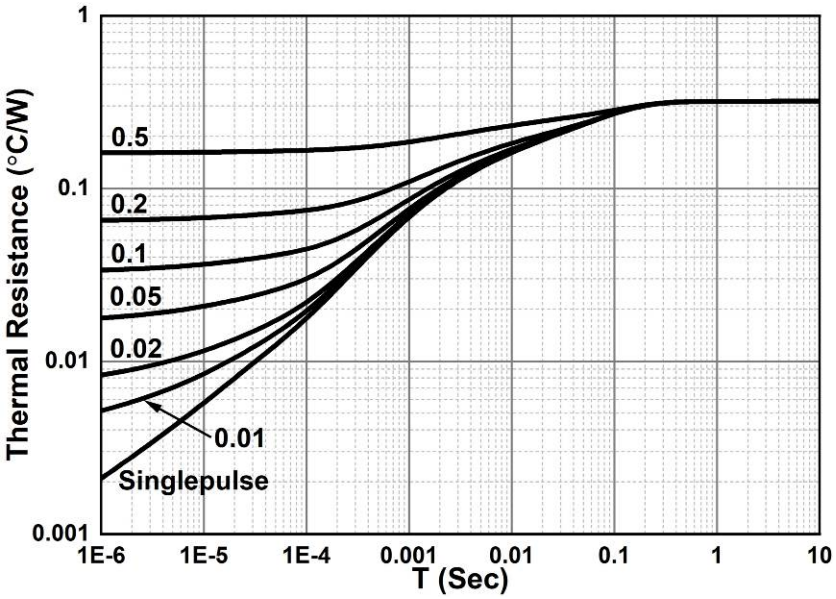
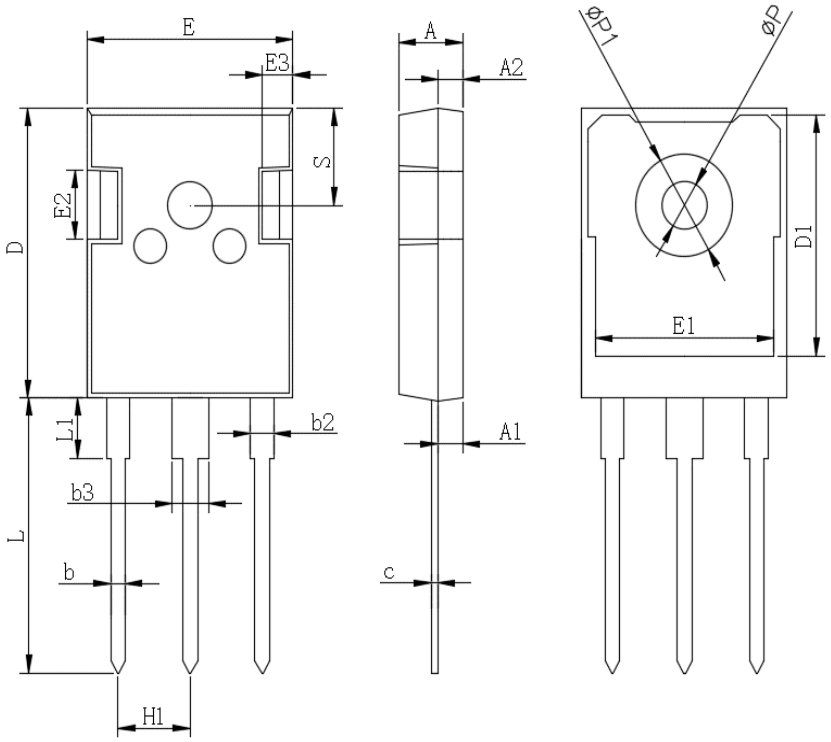


Figure 8. Transient Thermal Impedance

■Outline Dimensions

TO-247AB



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

Disclaimer

The information presented in this document is for reference only. Shanghai Sunco Electronics Co., Ltd reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Russiansunco or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website http:// www.russiansunco.com , or consult your nearest Russiansunco's sales office for further assistance.