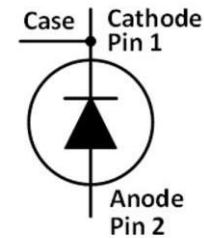


## SiC Schottky Barrier Diode

### Features

- Maximum junction temperature of 175°C
- High Surge Current Capacity
- Zero Backward Repetitive Current
- Zero Forward Repetitive Voltage
- High-Frequency Operation
- Switching Properties are free from temperature changes
- Forward Turn-on Voltage  $V_F$  of PTC

### Package Outline



### Applications

- Solar Boosters
- Inverter Renewal Reverse Parallel Diode
- Vienna Three-Phase PFC Rectifier Converter
- EV Charging Station
- Switching Power Supply

Part Number	Package
SL12015B	TO-247-2

### Maximum Ratings (Tc=25°C ,unless otherwise specified)

Symbol	Parameters	Value	Unit
$V_{RRM}$	Peak Repetitive Reverse Voltage	1200	V
$V_{DC}$	DC Peak Reverse Voltage	1200	V
$I_F$	Forward Continuous Direct Current @Tc=25°C	44	A
	Forward Continuous Direct Current @Tc=153°C	15	A
$I_{FSM}$	Non- Repetitive Peak Forward Surge Current (IFSM) Half Sine-Wave @ Tc=25°C tp=10ms	120	A
$P_{tot}$	Power Dissipation @ Tc=25°C	220	W
	Power Dissipation @ Tc=150°C	36	
$\int i^2 dt$	$I^2t$ Value @Tc=25°C	72	A·S
Tstg	Storage Temperature Range	-55 to 175	°C
Tj	Operating Junction Temperature Range	-55 to 175	°C

Excess of the maximum ratings listed above may cause damage to the device. Once beyond the maximum values, functional properties that the device features may change or be damaged, or suffer a reliability problem.

## Electrical specifications

Symbol	Parameters	Typical value	Max value	Unit	Testing conditions	Note
V <sub>F</sub>	Forward Voltage	1.56	1.8	V	I <sub>F</sub> = 15 A T <sub>J</sub> = 25°C	Figure 1
		2.2	3		I <sub>F</sub> = 15 A T <sub>J</sub> = 175°C	
I <sub>R</sub>	Reverse current	10	80	μA	V <sub>R</sub> = 1200 V T <sub>J</sub> = 25°C	Figure 2
		30	300		V <sub>R</sub> = 1200 V T <sub>J</sub> = 175°C	
C	Total Capacitance	888		pF	V <sub>R</sub> = 1 V, T <sub>J</sub> = 25°C, f = 1 MHz	Figure 3
		83			V <sub>R</sub> = 400 V, T <sub>J</sub> = 25°C, f = 1 MHz	
		58.5			V <sub>R</sub> = 800 V, T <sub>J</sub> = 25°C, f = 1 MHz	
Q <sub>C</sub>	Total Storage Charge	88		nC	V <sub>R</sub> = 800 V, T <sub>J</sub> = 25°C, Q = ∫ <sub>0</sub> <sup>V<sub>R</sub></sup> C(V)dV	Figure 4

## Thermal Resistance Property

Symbol	Parameters	Typical value	Unit	Note
R <sub>th(j-c)</sub>	Junction-to-Case Thermal Resistance	0.68	°C/W	Figure 7

## Typical Characteristics

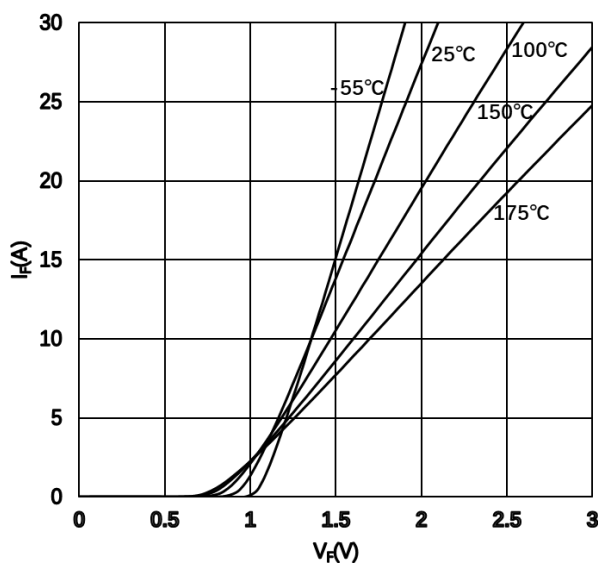


Figure 1 Typical Forward Features

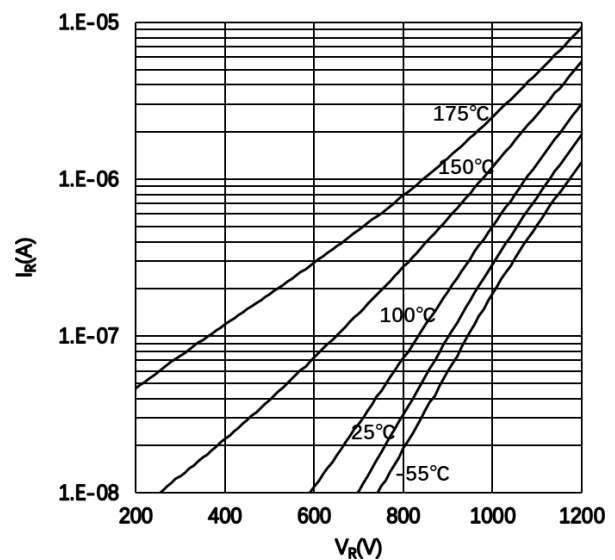


Figure 2 Typical Backward Features

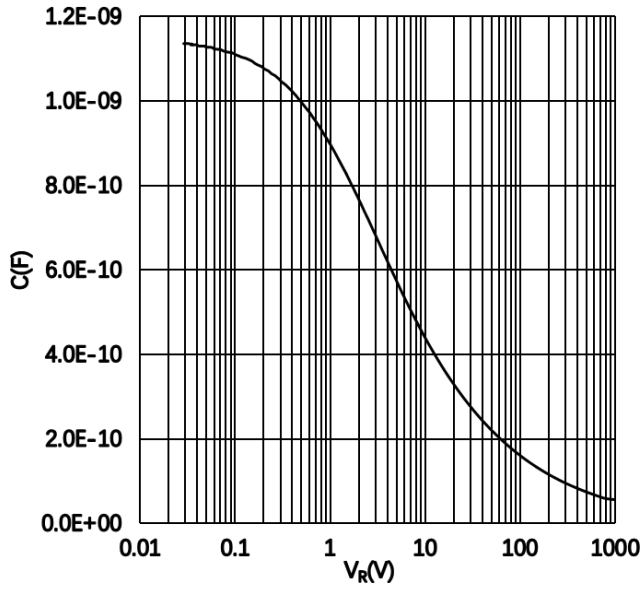


Figure 3 Typical Capacitance VS Backward Voltage

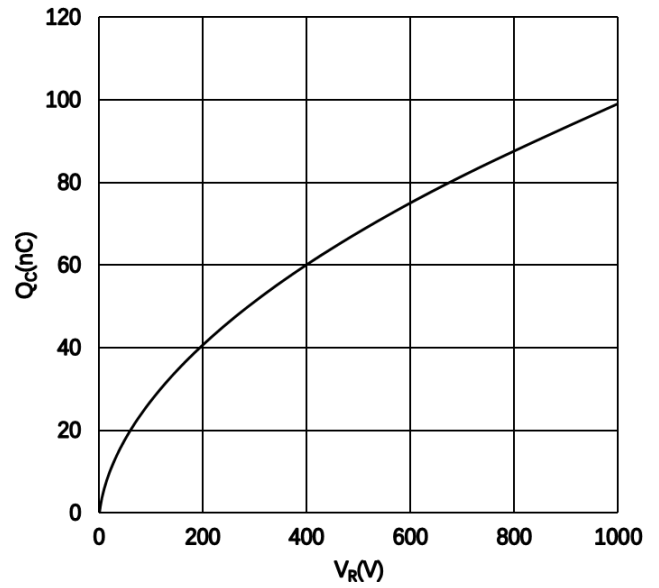
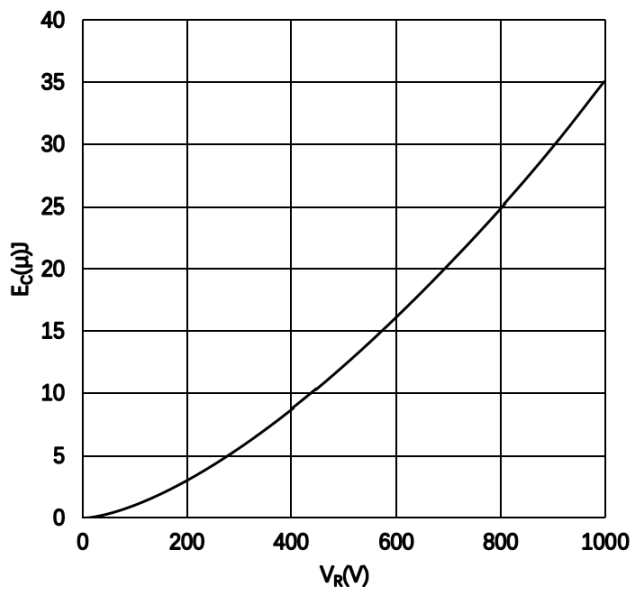


Figure 4 Typical Storage Charge VS Backward Voltage



Typical Capacitance VS Backward Voltage

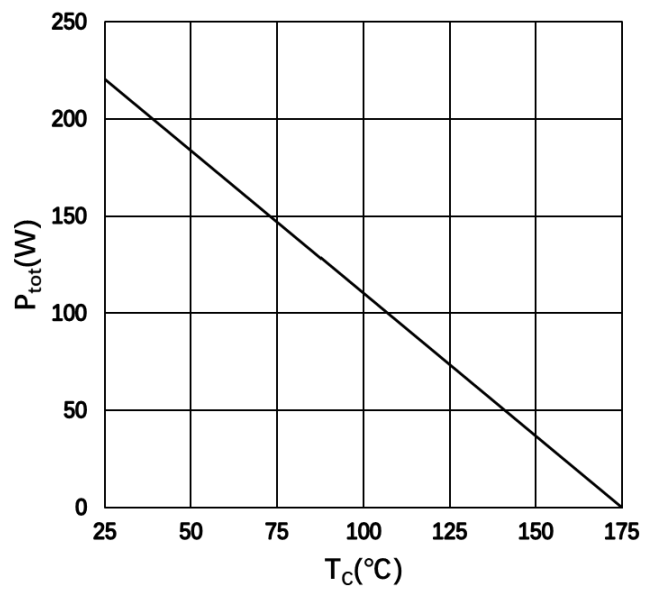
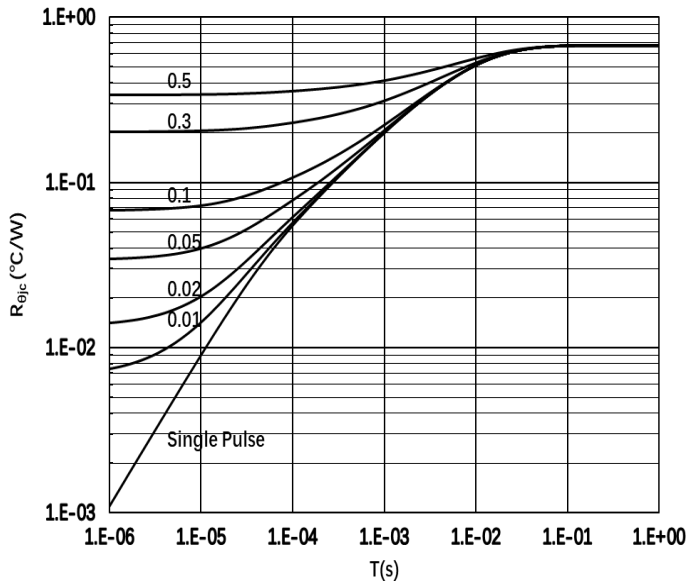
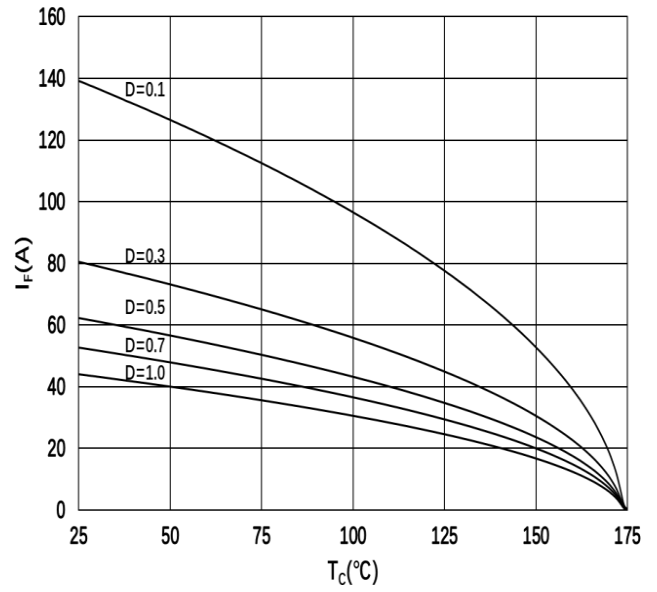


Figure 6 Typical Power Derating

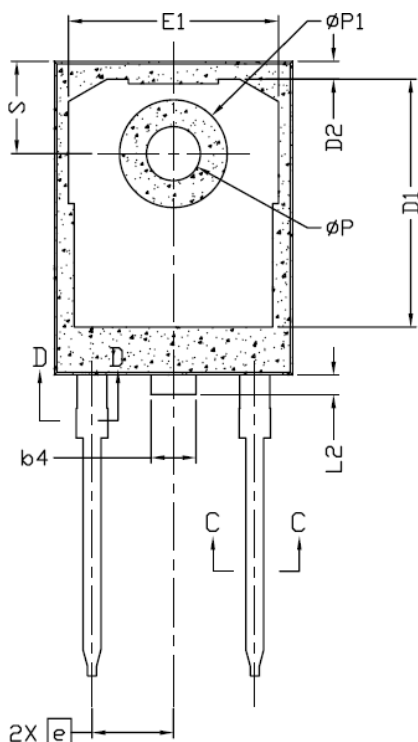
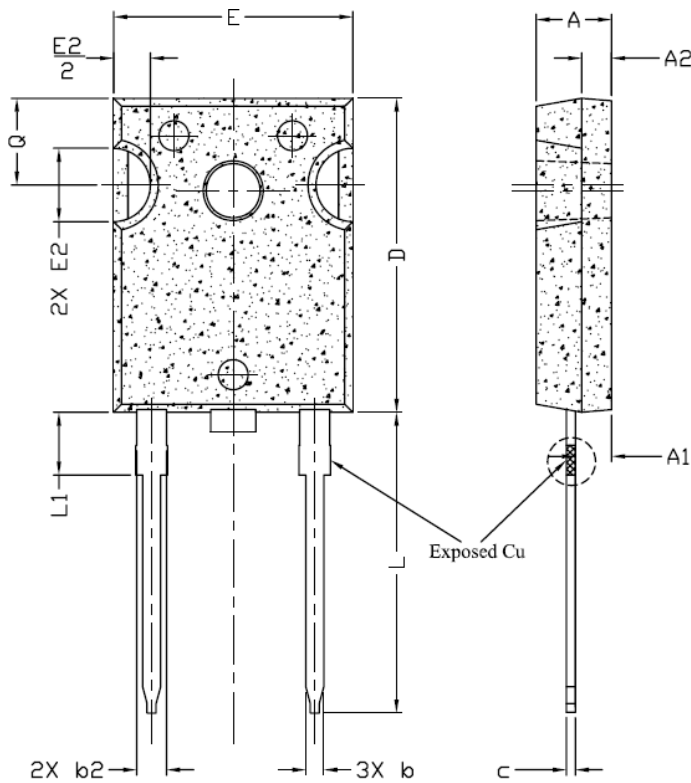


**Figure 7 Transient Thermal Impedance**

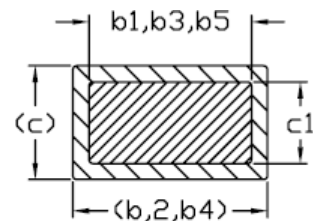


**Figure 8 Currents with Different Loads**

## Package Specification



SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.83	5.02	5.21	
A1	2.29	2.41	2.55	
A2	1.50	2.00	2.49	
b	1.12	1.20	1.33	
b1	1.12	1.20	1.28	
b2	1.91	2.00	2.39	6
b3	1.91	2.00	2.34	
b4	2.87	3.00	3.22	6, 8
b5	2.87	3.00	3.18	
c	0.55	0.60	0.69	6
c1	0.55	0.60	0.65	
D	20.80	20.95	21.10	4
D1	16.25	16.55	17.65	5
D2	0.51	1.19	1.35	
E	15.75	15.94	16.13	4
E1	13.46	14.02	14.16	5
E2	4.32	4.91	5.49	3
e	5.44BSC			
L	19.81	20.07	20.32	
L1	4.10	4.19	4.40	6
L2	1.00	1.30	1.50	
$\phi P$	3.56	3.61	3.65	7
$\phi P1$	6.90	7.09	7.15	
Q	5.39	5.79	6.20	
S	6.04	6.17	6.30	



Section C-C, D-D

### Description :

1. Standard Reference: JEDEC TO247, Variation AD
2. Unit: mm
3. There shall be slots in it, and the shape can be round.
4. Mould overflowing is excluded from D and E.