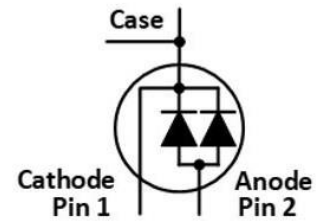
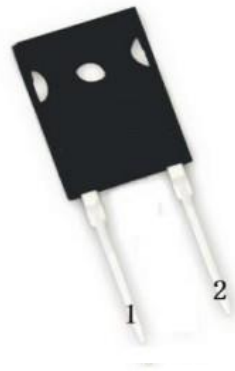


SiC Schottky Barrier Diode

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
- The forward voltage V_F is a positive temperature coefficient

Package Outline



Applications

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

Part Number	Package
SL12040B	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	94	A
	Forward Continuous Direct Current @Tc=141°C	40	A
I_{FSM}	Non- Repetitive Peak Forward Surge Current (IFSM) Half Sine-Wave @ Tc=25°C Tp=10ms	216	A
P_{tot}	Power Dissipation @ Tc=25°C	385	W
	Power Dissipation @ Tc=150°C	64	
$\int i \cdot dt$	I^2t Value @Tc=25°C	233	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 _F	Forward Voltage	1.52	1.8	V	I _F = 40 A T _J = 25°C	Figure 1
		2.20	3.0		I _F = 40 A T _J = 175°C	
I _R	Reverse current	20	200	μA	V _R = 1200 V T _J = 25°C	Figure 2
		90	600		V _R = 1200 V T _J = 175°C	
C	Total Capacitance	2300		pF	V _R = 1 V, T _J = 25°C, f = 1 MHz	Figure 3
		220			V _R = 400 V, T _J = 25°C, f = 1 MHz	
		156			V _R = 800 V, T _J = 25°C, f = 1 MHz	
Q _C	Total Storage Charge	232		nC	V _R = 800 V, T _J = 25°C, Q = ∫ ₀ ^{V_R} C(V) dV	Figure 4

Thermal Resistance Property

Symbol	Parameters	Typical value	Unit	Note
R _{th(j-c)}	Junction-to-Case Thermal Resistance	0.39	°C/W	Figure 7

Typical Characteristics

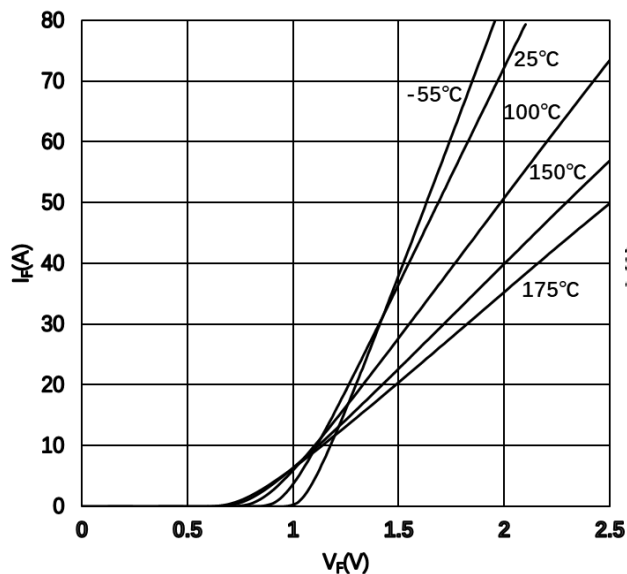


Figure 1 Typical Forward Features

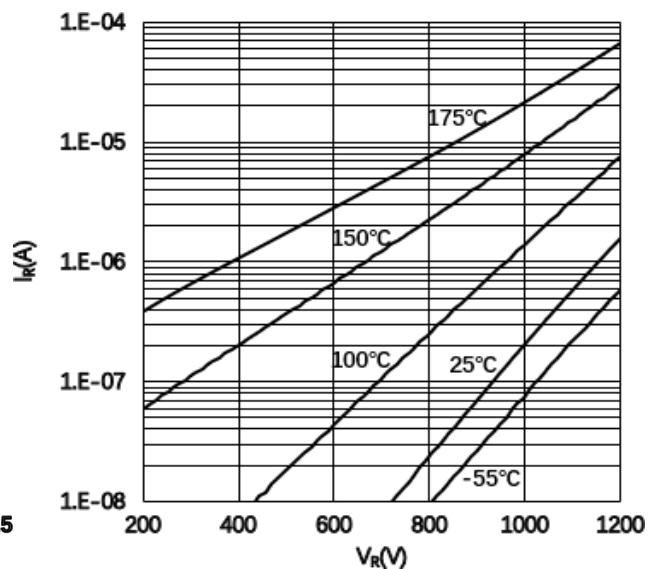


Figure 2 Typical Backward Features

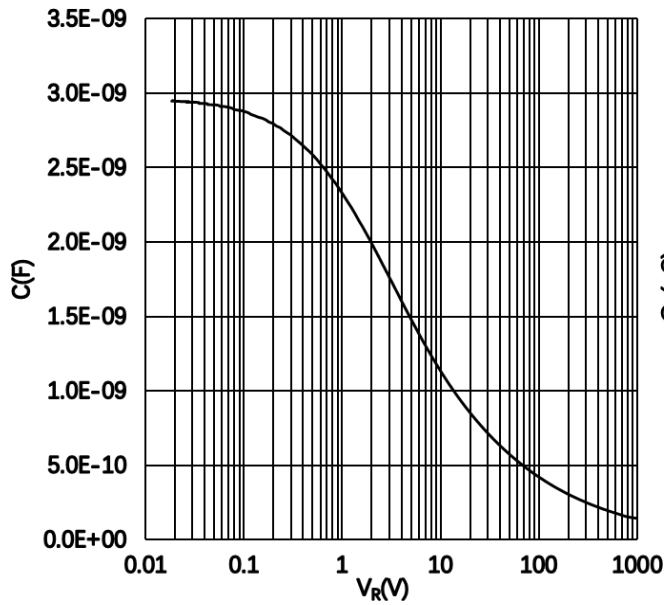


Figure 3 Typical Capacitance VS Backward Voltage

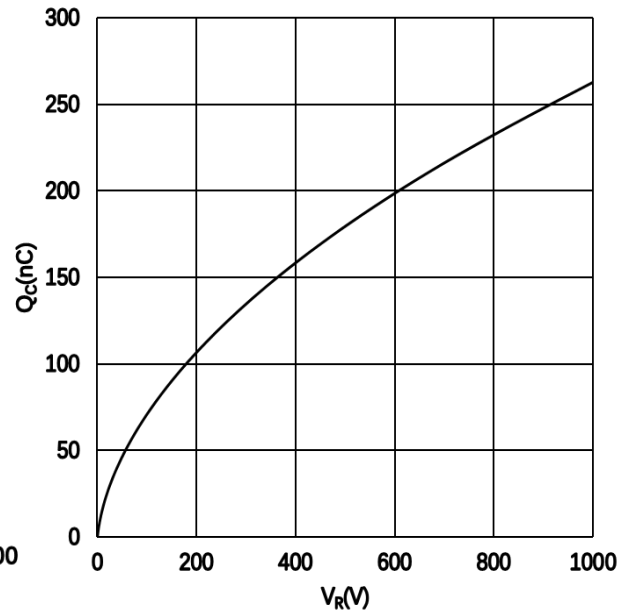


Figure 4 Typical Storage Charge VS Backward Voltage

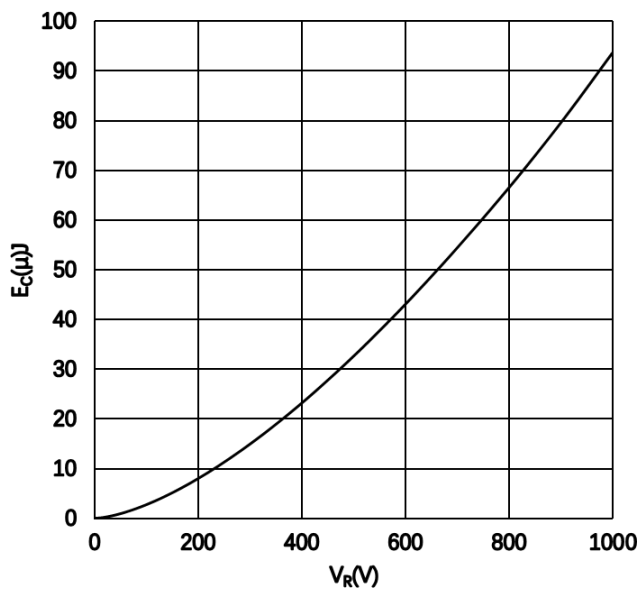


Figure 5 Typical Capacitance Energy VS Backward Voltage

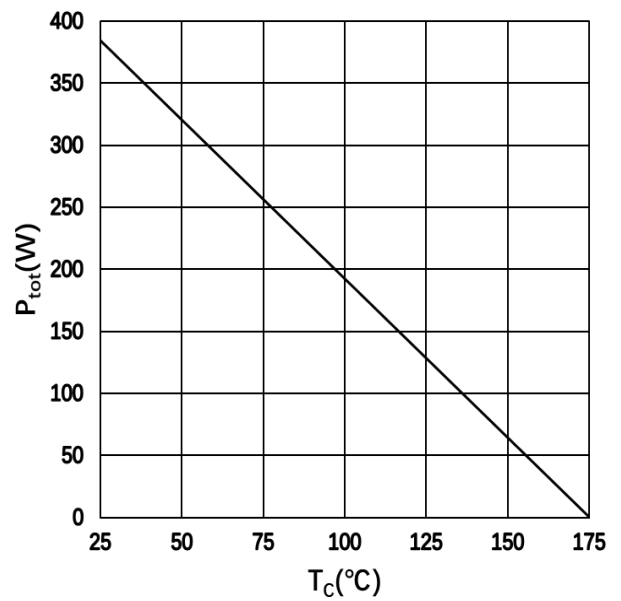


Figure 6 Typical Power Derating

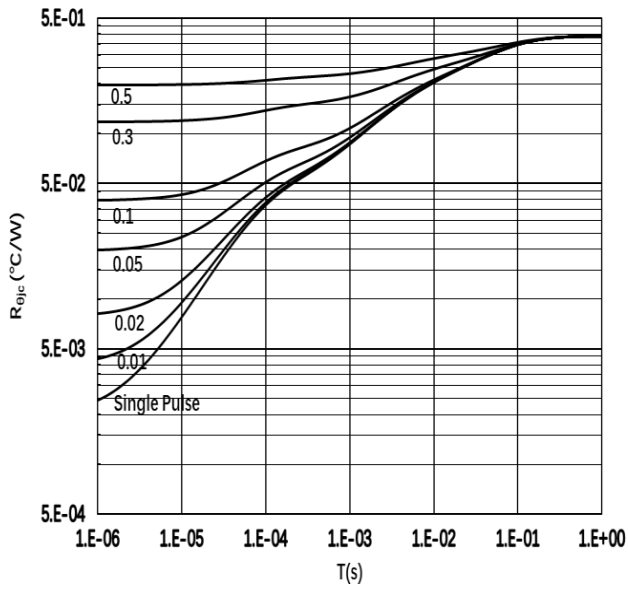


Figure 7 Transient Thermal Impedance

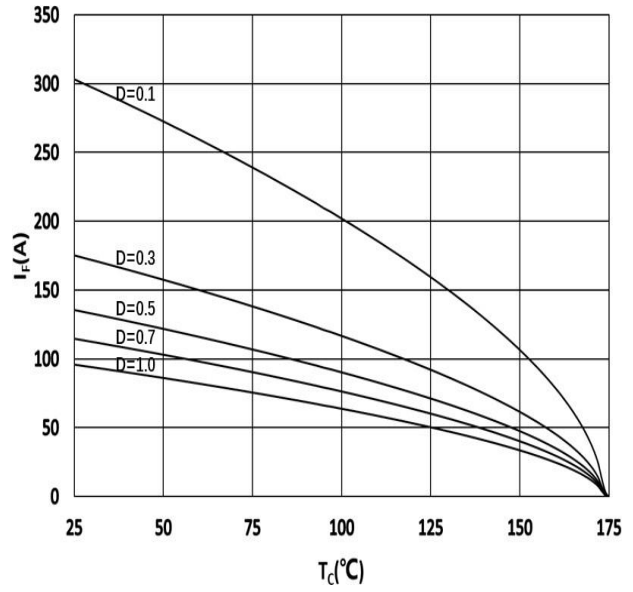
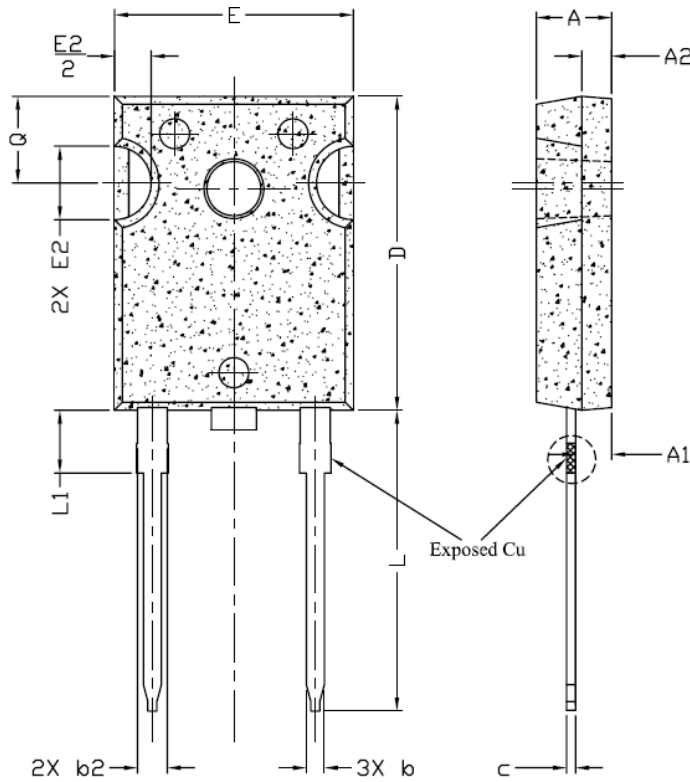
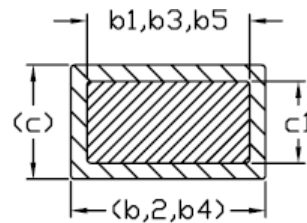
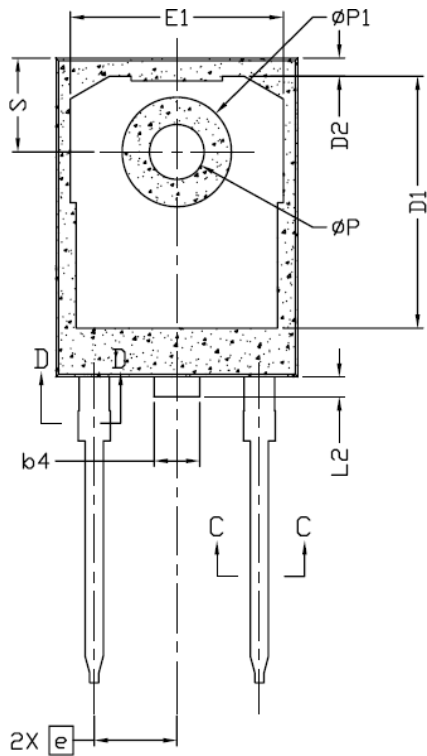


Figure 8 Currents with Different Loads

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	
ØP	3.56	3.61	3.65	7
ØP1	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

Note:

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.