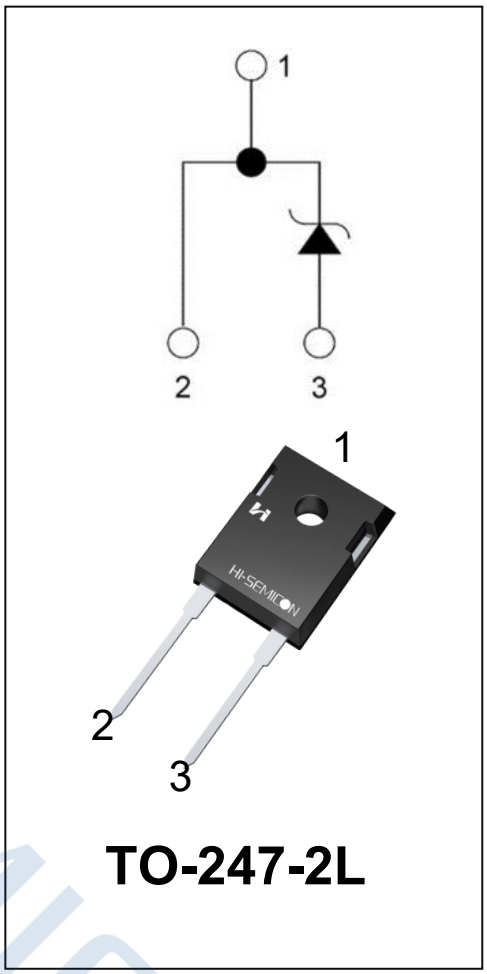
1200V Silicon Carbide Schottky Diode



GENERAL DESCRIPTION

- ◆1200V Schottky rectifier
- ◆Zero Forward/Reverse Recovery Current
- ◆High Blocking Voltage
- ◆High frequency operation
- ◆Switching characteristics independent of temperature
- ◆Positive temperature coefficient of forward voltage(VF)

BENEFIT

- ◆Replace bipolar with unipolar rectifiers
- ◆Essentially no switching losses
- ◆higher efficiency
- ◆Reduction of heat requirements
- ◆Parallel devices without thermal runaway

Product Summary

- ◆V_R=1200V
- ◆I_F=20A(TC=150℃)
- ◆Q_C=93nC(V_R=800V)

Applications

- ◆Motor Drives
- ◆Solar / Wind Inverters
- ◆Uninterruptable power supplies
- ◆AC/DC converters
- ◆DC/DC Converters

ORDERING INFORMATION

Part No.	Package	Marking	Material	Packing
SC3D20120H	TO-247-2L	C3D20120	Pb free	Tube

ABSOLUTE MAXIMUM RATINGS (T_J=25°C unless otherwise noted)

Characteristics		Symbol	Ratings	Unit
Repetitive peak reverse voltage		V_{RRM}	1200	V
Continuous forward current	T_C=25℃	I_F	58	A
	T_C=135℃		26	
	T_C=150℃		20	
Repetitive peak forward surge current	tp=10ms T_C=25℃	I_{FRM}	110	A
	tp=10ms T_C=110℃		100	
Non-repetitive peak forward surge current	tp=10ms T_C=25℃	I_{FSM}	140	A
	tp=10ms T_C=110℃		130	
Power dissipation	T_C=25℃	P_{tot}	250	W
	T_C=110℃		108	
Single Pulse Avalanche Energy	L=2mH, IAS=10A	EAS	100	mJ
Diode dv/dt ruggedness	VR = 0-1200V	dv/dt	80	V/ns
Operating junction temperature		T_j	-55~175	°C
Storage temperature range		T_{stg}	-55~175	
Maximum lead temperature for soldering purposes,1/8" from case for 5 seconds		TL	300	°C

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
DC Blocking Voltage	VDC	T_j=25℃	1200	--	--	V
Forward voltage drop	V_F	I_F=20A, T_j=25℃	--	1.45	1.8	V
		I_F=20A, T_j=125℃	--	1.8	--	
		I_F=20A, T_j=175℃	--	2.0	--	
Reverse leakage current	I_R	V_R=1200V, T_j=25℃	--	10	200	uA
		V_R=1200V, T_j=125℃	--	20	--	
		V_R=1200V, T_j=175℃	--	50	--	
Total capacitance	C	V_R=1V, f=1MHz	--	1120	--	pF
		V_R=400V, f=1MHz	--	92	--	
		V_R=800V, f=1MHz	--	62	--	
Total capacitance charge	Q_C	V_R=800V, T_j=25℃	--	93	--	nC

THERMAL CHARACTERISTICS

Characteristics	Symbol	Typ.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.6	℃/W

Typical Performance Characteristics

Figure.1: Forward characteristics

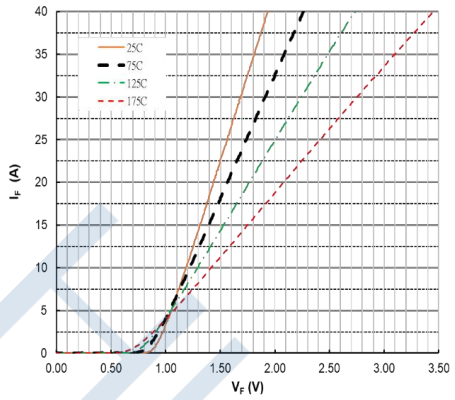


Figure.2: Forward Characteristics

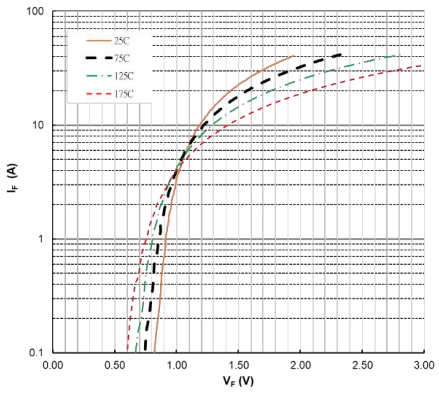


Figure.3: Reverse Characteristics

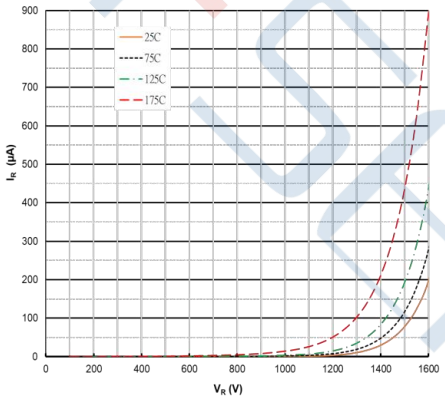


Figure.4: Power Derating

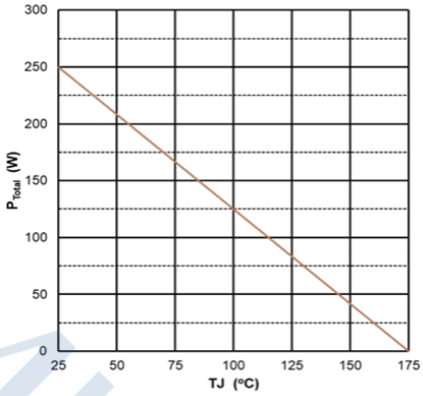


Figure.5: Reversecharge vs. Reverse Voltage

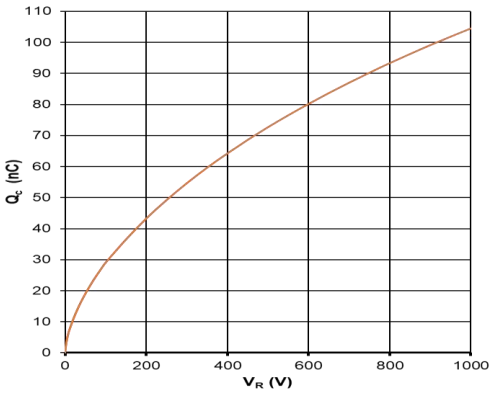
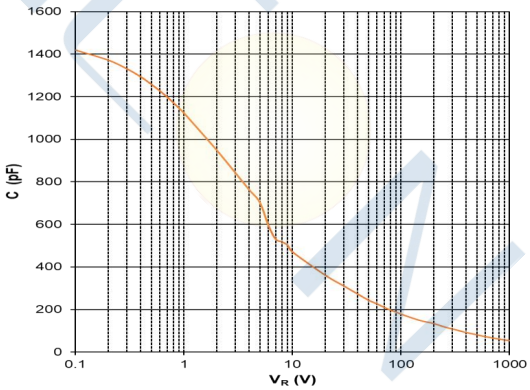
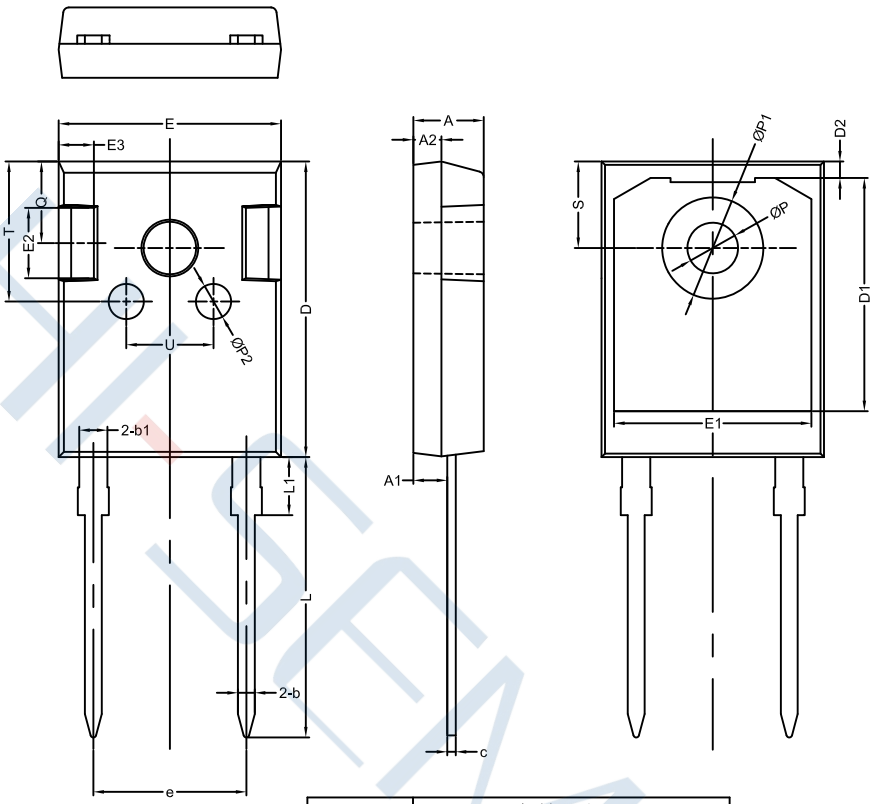


Figure.6: Capacitance vs. Reverse Voltage



Package Dimensions of TO-274-2L



符号	机械尺寸/mm		
	最小值	典型值	最大值
A	4.80	5.00	5.20
A1	2.21	2.41	2.61
A2	1.90	2.00	2.10
b	1.10	1.20	1.35
b1		2.00	
c	0.55	0.60	0.75
D	20.80	21.00	21.20
D1		16.58	
D2		1.17	
E	15.60	15.80	16.0
E1		14.02	
E2		5.00	
E3		2.50	
e		10.88	
L	19.42	19.92	20.42
L1		4.13	
P	3.50	3.60	3.70
P1		7.19	
P2		2.50	
Q		5.80	
S	6.05	6.15	6.25
T		10.00	
U		6.20	

Disclaimer:

► Hi-semicon reserves the right to make changes to the information herein for the improvement of the design and performance without further notice! Customers should obtain the latest relevant information before placing orders and should verify that such information is complete and current.

► All semiconductor products malfunction or fail with some probability under special conditions. When using Hi-semicon products in system design or complete machine manufacturing, it is the responsibility of the buyer to comply with the safety standards strictly and take essential measures to avoid situations in which a malfunction or failure of such Hi-semicon products could cause loss of body injury or damage to property.

► Hi-semicon will supply the best possible product for customers!