

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

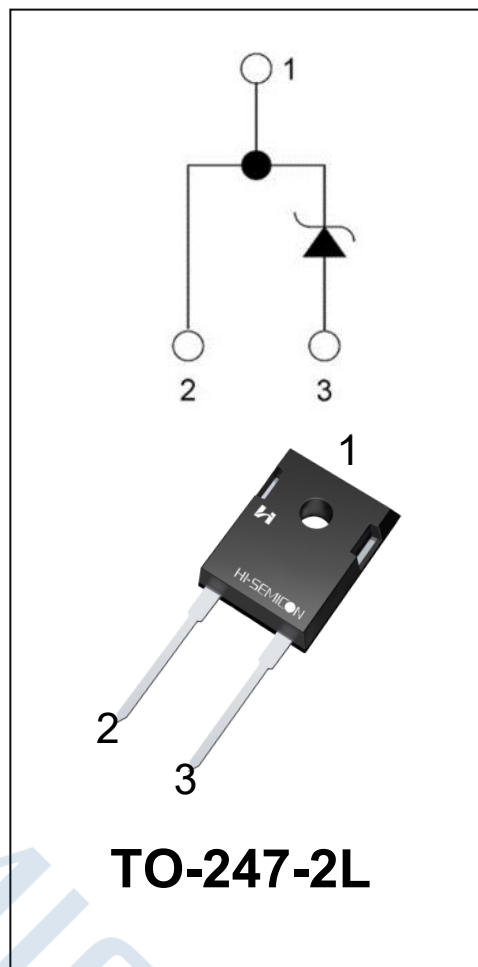
- ◆ Replace bipolar with unipolar rectifiers
- ◆ Essentially no switching losses
- ◆ higher efficiency
- ◆ Reduction of heat requirements
- ◆ Parallel devices without thermal runaway

Product Summary

- ◆ $V_R=1200V$
- ◆ $I_F=10A(TC=150^{\circ}C)$
- ◆ $Q_C=52nC(V_R=800V)$

Applications

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



ORDERING INFORMATION

Part No.	Package	Marking	Material	Packing
SC3D10120H	TO-247-2L	C3D10120	Pb free	Tube

ABSOLUTE MAXIMUM RATINGS ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Characteristics	Symbol	Ratings	Unit
Repetitive peak reverse voltage	V_{RRM}	1200	V
Continuous forward current	I_F	$T_C=25^{\circ}\text{C}$	A
		$T_C=135^{\circ}\text{C}$	
		$T_C=150^{\circ}\text{C}$	
Repetitive peak forward surge current	I_{FRM}	$tp=10\text{ms } T_C=25^{\circ}\text{C}$	A
		$tp=10\text{ms } T_C=110^{\circ}\text{C}$	
Non-repetitive peak forward surge current	I_{FSM}	$tp=10\text{ms } T_C=25^{\circ}\text{C}$	A
		$tp=10\text{ms } T_C=110^{\circ}\text{C}$	
Power dissipation	P_{tot}	$T_C=25^{\circ}\text{C}$	W
		$T_C=110^{\circ}\text{C}$	
Single Pulse Avalanche Energy	EAS	$L=2\text{mH}, I_{AS}=5\text{A}$	mJ
Diode dv/dt ruggedness	dv/dt	$V_R = 0\text{--}1200\text{V}$	V/ns
Operating junction temperature	T_J	-55~175	$^{\circ}\text{C}$
Storage temperature range	T_{stg}	-55~175	
Maximum lead temperature for soldering purposes, 1/8"	TL	300	$^{\circ}\text{C}$
from case for 5 seconds			

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
DC Blocking Voltage	VDC	$T_J=25^{\circ}\text{C}$	1200	--	--	V
Forward voltage drop	V_F	$I_F=10\text{A}, T_J=25^{\circ}\text{C}$	--	1.45	1.8	V
		$I_F=10\text{A}, T_J=125^{\circ}\text{C}$	--	1.8	--	
		$I_F=10\text{A}, T_J=175^{\circ}\text{C}$	--	2.0	--	
Reverse leakage current	I_R	$V_R=1200\text{V}, T_J=25^{\circ}\text{C}$	--	5	200	μA
		$V_R=1200\text{V}, T_J=125^{\circ}\text{C}$	--	15	--	
		$V_R=1200\text{V}, T_J=175^{\circ}\text{C}$	--	60	--	
Total capacitance	C	$V_R=1\text{V}, f=1\text{MHz}$	--	590	--	pF
		$V_R=400\text{V}, f=1\text{MHz}$	--	53	--	
		$V_R=800\text{V}, f=1\text{MHz}$	--	34	--	
Total capacitance charge	Q_C	$V_R=800\text{V}, T_J=25^{\circ}\text{C}$	--	52	--	nC

THERMAL CHARACTERISTICS

Characteristics	Symbol	Typ.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.8	$^{\circ}\text{C/W}$

Typical Performance Characteristics

Figure.1: Forward characteristics

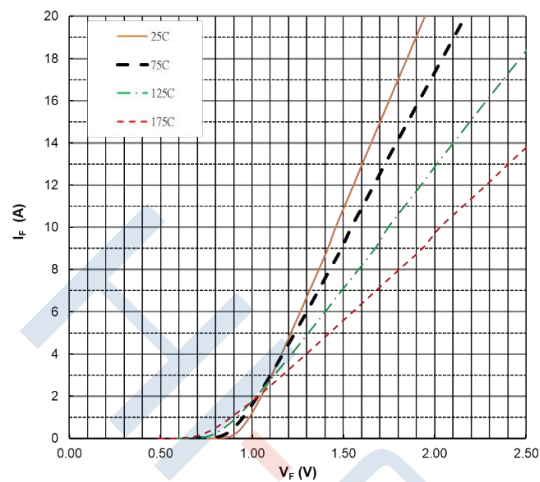


Figure.2: Forward Characteristics

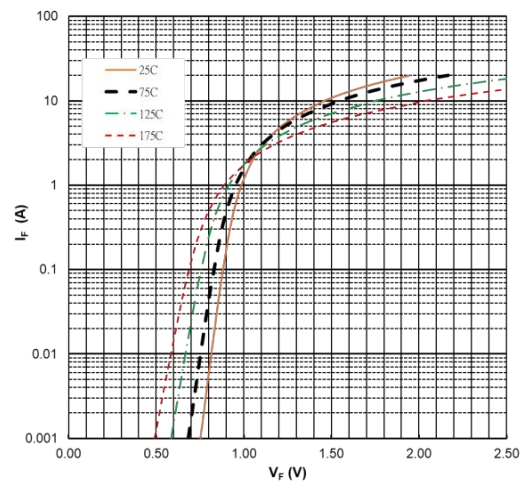


Figure.3: Reverse Characteristics

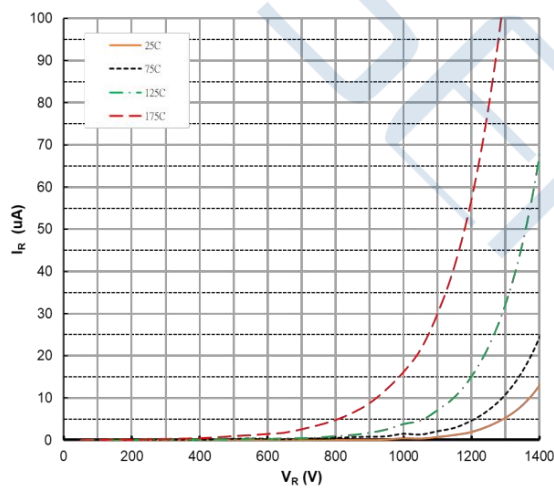


Figure.4: Power Derating

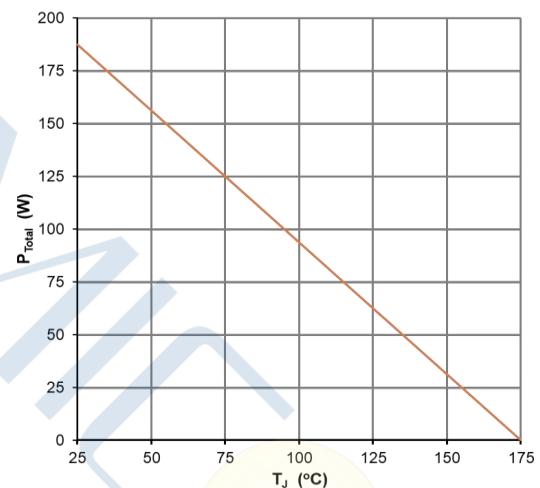


Figure.5: Reversecharge vs. Reverse Voltage

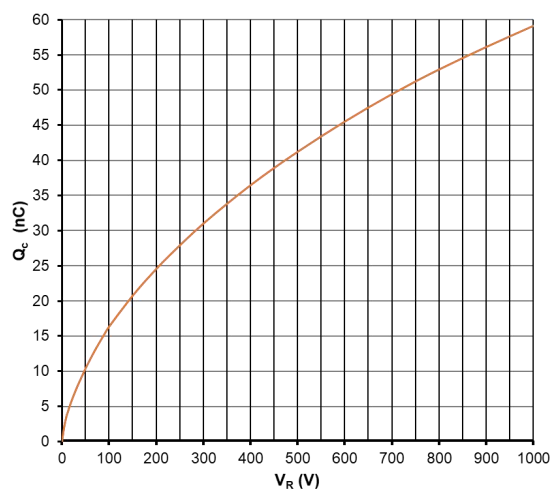
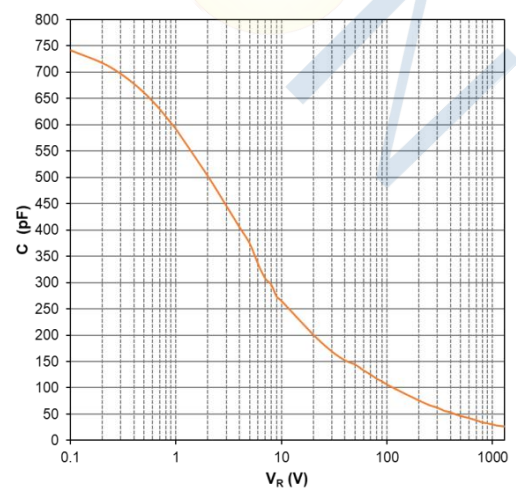
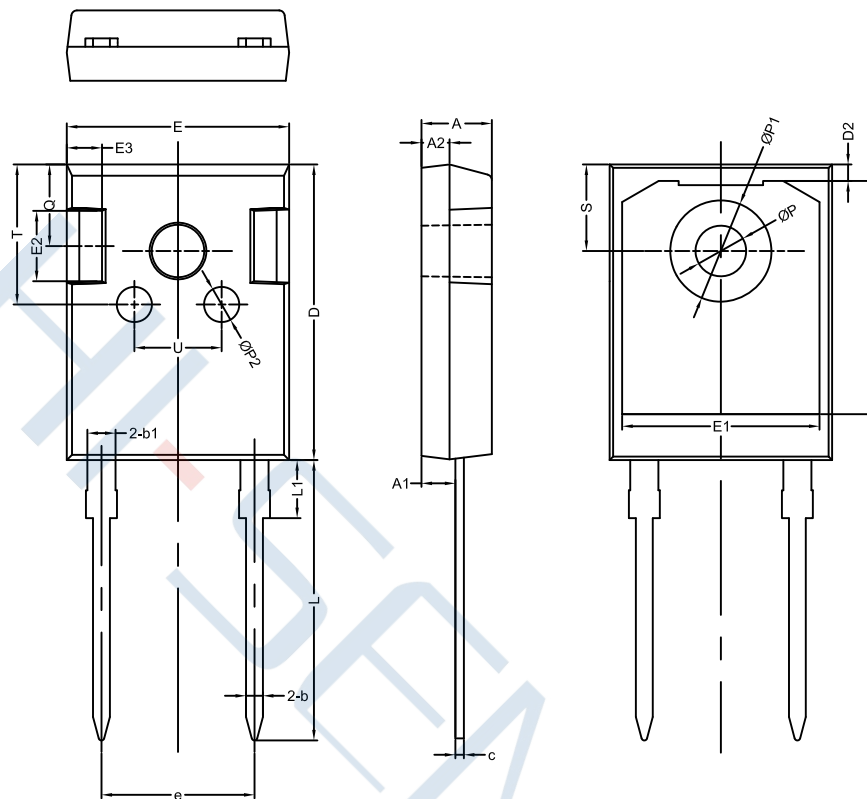


Figure.6: Capacitance vs. Reverse Voltage



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	

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