

650V Silicon Carbide Schottky Diode

GENERAL DESCRIPTION

- ◆ 650V Schottky rectifier
- ◆ Zero Forward/Reverse Recovery Current
- ◆ High Blocking Voltage
- ◆ High frequency operation
- ◆ Temperature Independent Switching Behavior
- ◆ Positive temperature coefficient of forward voltage(VF)

BENEFIT

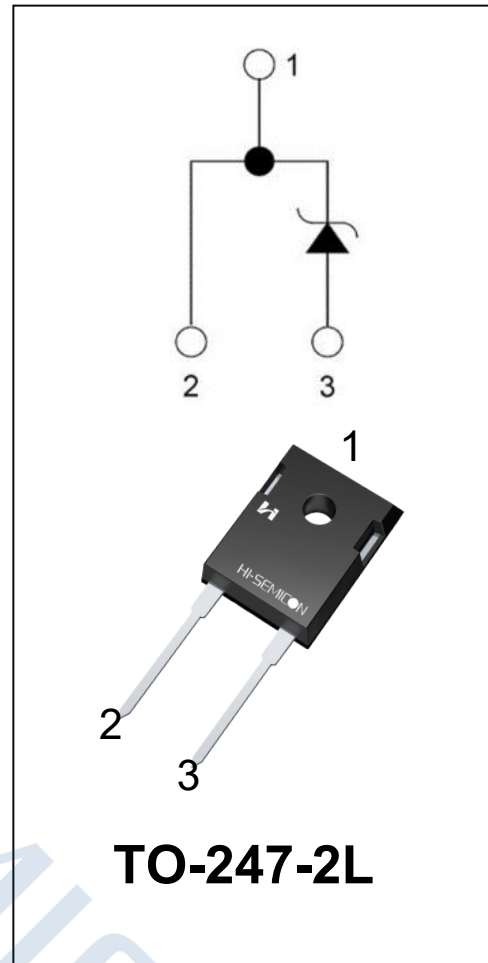
- ◆ Parallel Device Convenience without thermal runaway
- ◆ Higher Temperature Application
- ◆ Higher System Efficiency
- ◆ Hard Switching & Higher Reliability
- ◆ No Switching loss
- ◆ Environmental Protection

Product Summary

- ◆  $V_R=650V$
- ◆  $I_F=20A(TC=140^{\circ}C)$
- ◆  $Q_C=44nC(V_R=400V)$

Applications

- ◆ Uninterruptable power supplies
- ◆ AC/DC converters
- ◆ DC/DC Converters



ORDERING INFORMATION

Part No.	Package	Marking	Material	Packing
SC3D20065H	TO-247-2L	C3D20065	Pb free	Tube

ABSOLUTE MAXIMUM RATINGS (T<sub>J</sub>=25°C unless otherwise noted)

Characteristics	Symbol	Ratings	Unit
Repetitive peak reverse voltage	V <sub>RRM</sub>	650	V
Continuous forward current	I <sub>F</sub>	T <sub>C</sub> =25°C	55
		T <sub>C</sub> =135°C	24
		T <sub>C</sub> =145°C	20
Repetitive peak forward surge current	I <sub>FRM</sub>	tp=10ms T <sub>C</sub> =25°C	110
		tp=10ms T <sub>C</sub> =110°C	100
Non-repetitive peak forward surge current	I <sub>FSM</sub>	tp=10ms T <sub>C</sub> =25°C	120
		tp=10ms T <sub>C</sub> =110°C	110
Power dissipation	P <sub>tot</sub>	T <sub>C</sub> =25°C	167
		T <sub>C</sub> =110°C	72
Operating junction temperature	T <sub>J</sub>	-55~175	°C
Storage temperature range	T <sub>stg</sub>	-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	V <sub>DC</sub>	T <sub>J</sub> =25°C	650	--	--	V
Forward voltage drop	V <sub>F</sub>	I <sub>F</sub> =20A, T <sub>J</sub> =25°C	--	1.5	1.8	V
		I <sub>F</sub> =20A, T <sub>J</sub> =125°C	--	1.6	--	
		I <sub>F</sub> =20A, T <sub>J</sub> =175°C	--	1.7	--	
Reverse leakage current	I <sub>R</sub>	V <sub>R</sub> =650V, T <sub>J</sub> =25°C	--	20	80	uA
		V <sub>R</sub> =650V, T <sub>J</sub> =125°C	--	120	--	
		V <sub>R</sub> =650V, T <sub>J</sub> =175°C	--	250	--	
Total capacitance	C	V <sub>R</sub> =1V, f=1MHz	--	770	--	pF
		V <sub>R</sub> =200V, f=1MHz	--	90	--	
		V <sub>R</sub> =400V, f=1MHz	--	64	--	
Total capacitance charge	Q <sub>C</sub>	V <sub>R</sub> =400V, T <sub>J</sub> =25°C	--	44	--	nC

THERMAL CHARACTERISTICS

Characteristics	Symbol	Typ.	Unit
Thermal Resistance, Junction-to-Case	R <sub>θJC</sub>	0.9	°C/W

Typical Performance Characteristics

Figure.1: Forward characteristics

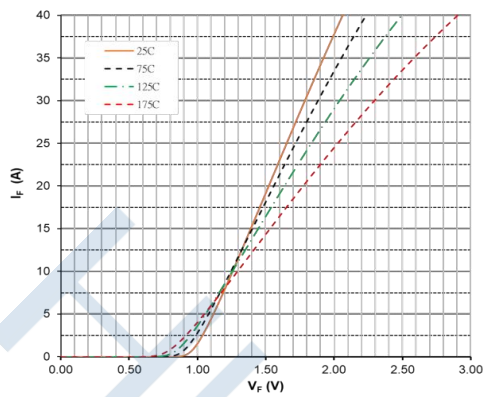


Figure.2: Forward Characteristics

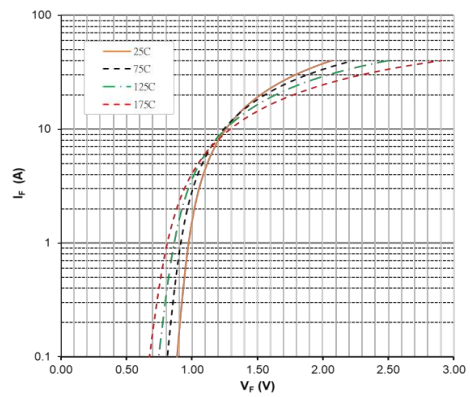


Figure.3: Reverse Characteristics

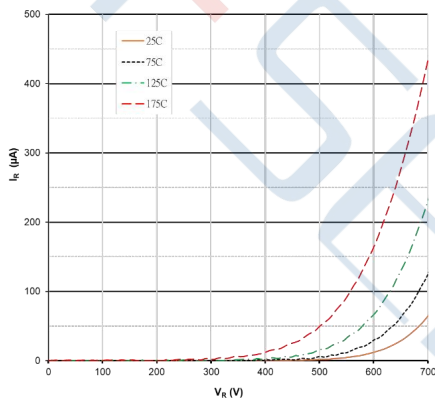


Figure.4: Power Derating

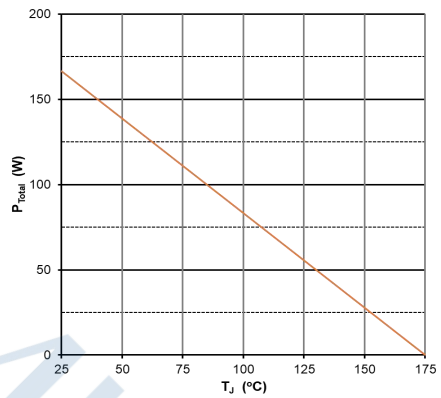


Figure.5: Reversecharge vs. Reverse Voltage

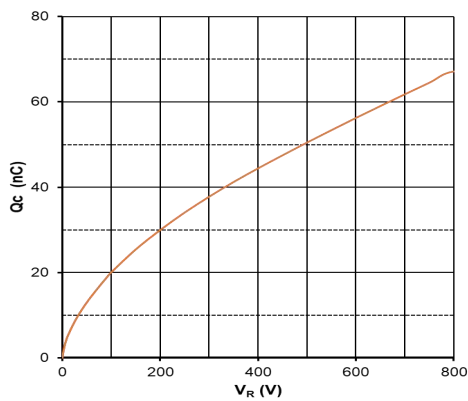
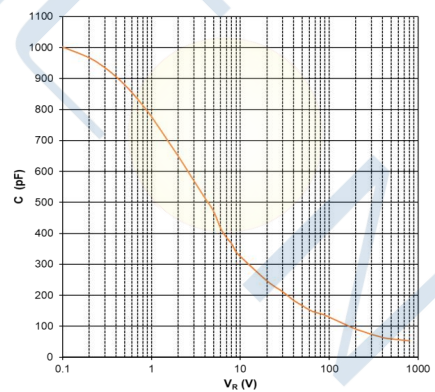
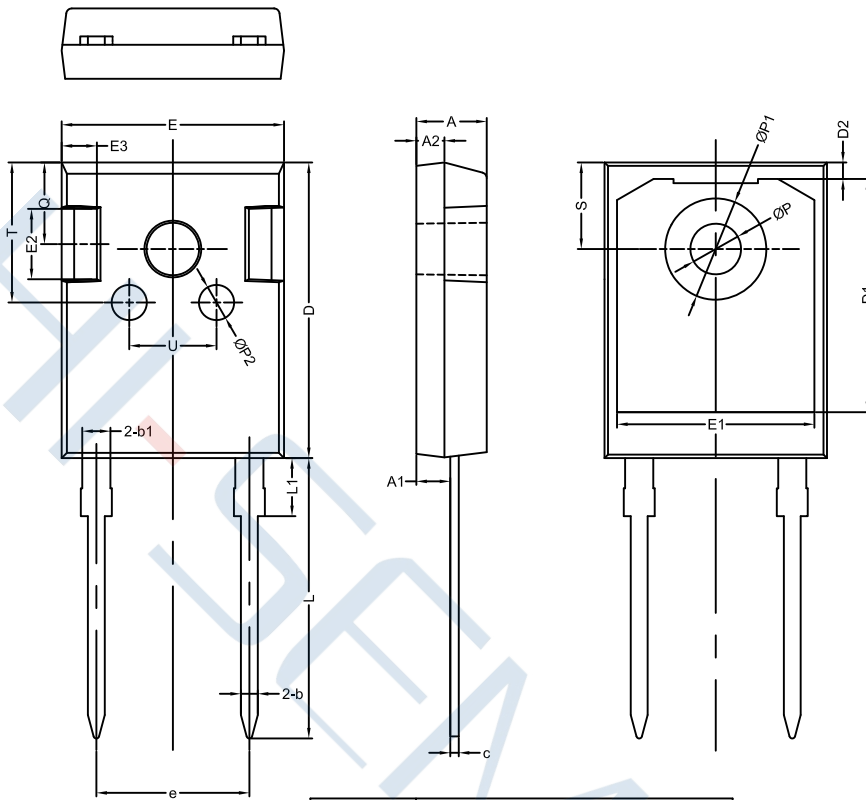


Figure.6: Capacitance vs. Reverse Voltage



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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