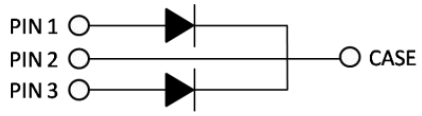
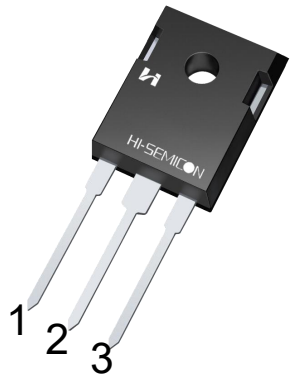
1200V Silicon Carbide Schottky Diode





TO-247-3L

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=30A(TC=150℃)
- ◆Q_C=160nC(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
SC3D30120D	TO-247-3L	C3D30120	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
Maximum DC blocking voltage		V_R	1200		V
Surge peak reverse voltage		V_{RSM}	1200		V
Continuous forward current (per leg / per device)	T_C=25℃	I_F	42.5	85	A
	T_C=135℃		20	40	
	T_C=150℃		15	30	
Repetitive peak forward surge current	tp=10ms T_C=25℃	I_{FRM}	75		A
	tp=10ms T_C=110℃		66		
Non-repetitive peak forward surge current	tp=10ms T_C=25℃	I_{FSM}	180		A
	tp=10ms T_C=110℃		170		
Power dissipation (per leg / per device)	T_C=25℃	P_{tot}	175	350	W
	T_C=110℃		75	150	
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=15A, T_j=25℃	--	1.4	1.7	V
		I_F=15A, T_j=125℃	--	1.75	--	
		I_F=15A, T_j=175℃	--	1.95	--	
Reverse leakage current	I_R	V_R=1200V, T_j=25℃	--	5.5	100	uA
		V_R=1200V, T_j=125℃	--	30	--	
		V_R=1200V, T_j=175℃	--	40	--	
Total capacitance	C	V_R=1V, f=1MHz	--	1245	--	pF
		V_R=400V, f=1MHz	--	75	--	
		V_R=800V, f=1MHz	--	62	--	
Total capacitance charge	Q_C	V_R=800V, T_j=25℃	--	80	--	nC

THERMAL CHARACTERISTICS

Characteristics	Symbol	Typ.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.425	℃/W

Typical Performance Characteristics

Figure.1: Forward characteristics

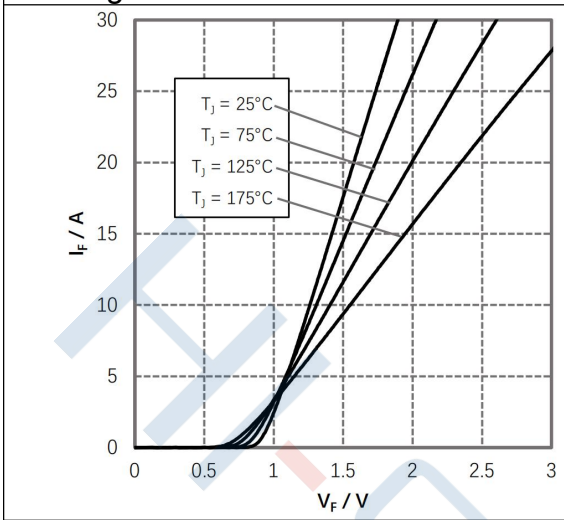


Figure.2: Reverse Characteristics

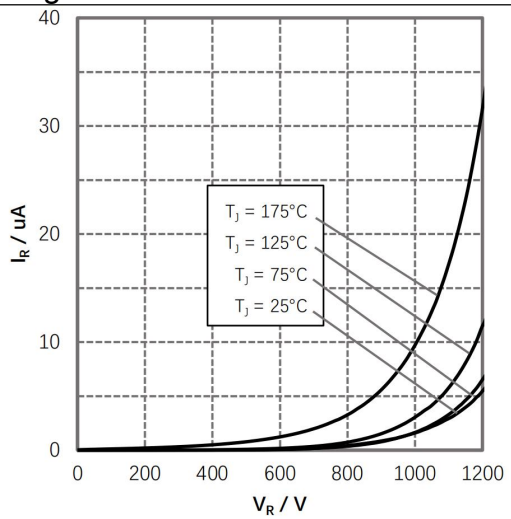


Figure.3: Power Derating

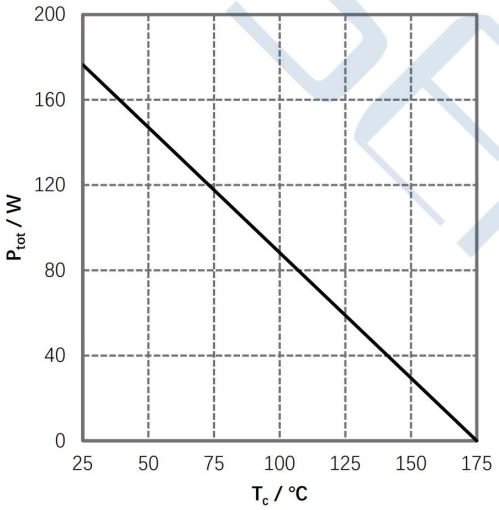


Figure.4: Current Derating

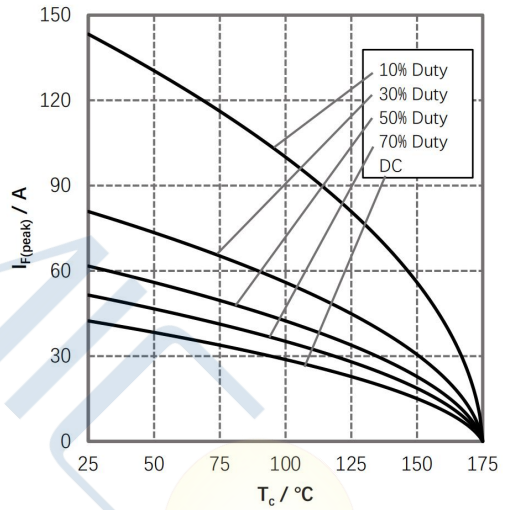


Figure.5: Reversecharge vs. Reverse Voltage

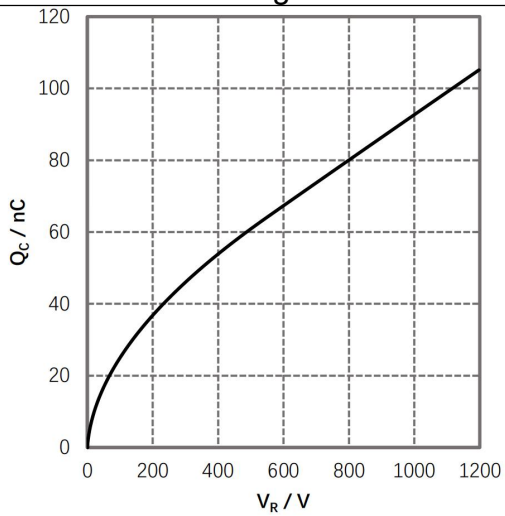
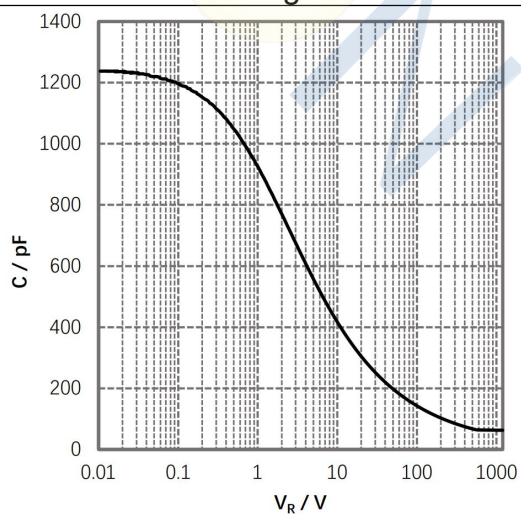
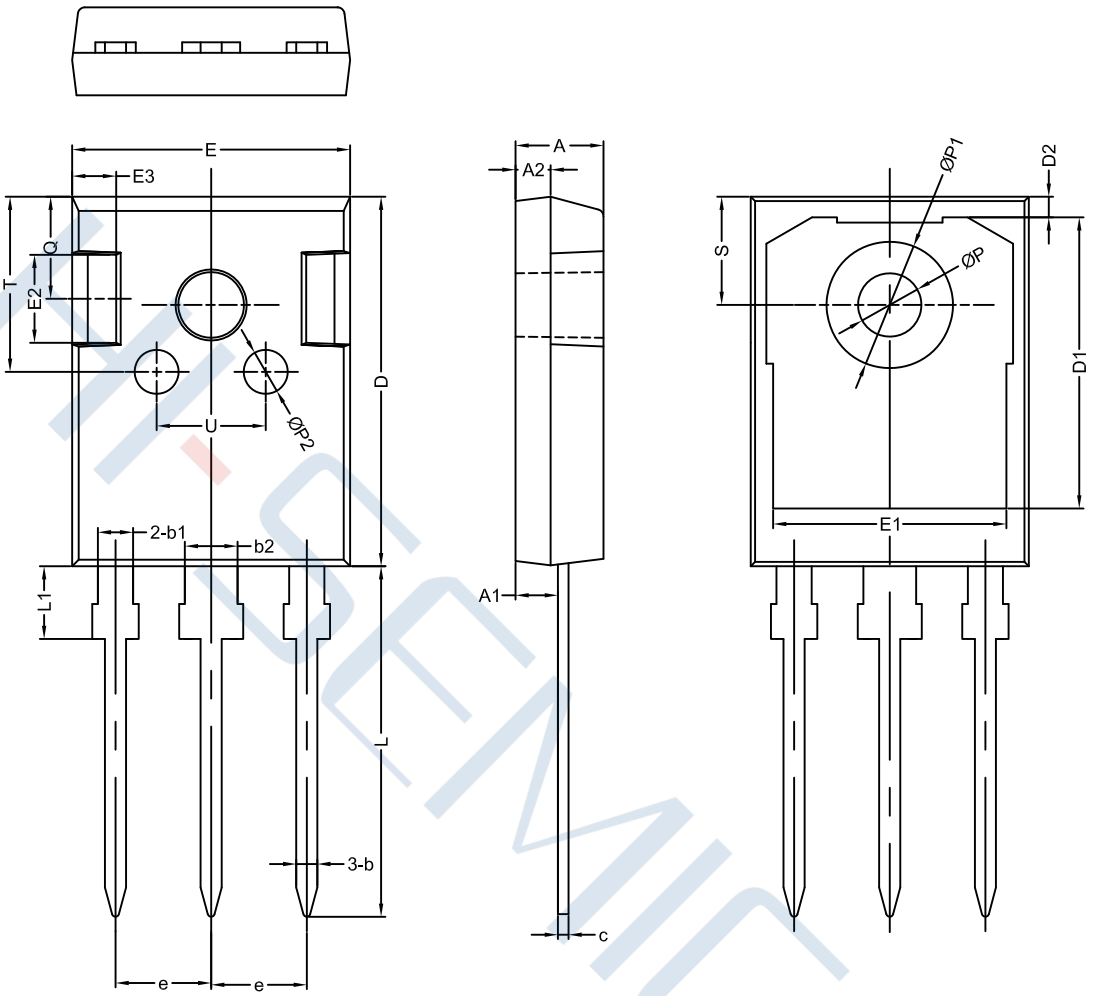


Figure.6: Capacitance vs. Reverse Voltage



Package Dimensions of TO-274-3L



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	
b2		3.00	
c	0.55	0.60	0.75
D	20.80	21.00	21.20
D1		16.55	
D2		1.20	
E	15.60	15.80	16.0
E1		13.30	
E2		5.00	
E3		2.50	
e		5.44	
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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