SURFACE MOUNT SCHOTTKY RECTIFIER
Reverse Voltage 70V to 100V Forward Current 5A

DESCRIPTION:

The ALPSK57A through ALPSK5BA is Surface Mount Schottky Rectifier are Reverse Voltage 70 to 100V, Forward Current 5.0A and low forward voltage drop. It is Ideal for polarity protection applications.

FEATURES:

- Schottky barrier diodes
- Low forward voltage drop
- High Junction Temperature
- Moisture sensitivity: level 1, per J-STD-020
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- RoHS Compliant
- REACH Compliant
- Halogen-free according to IEC 61249-2-21 definition

APPLICATIONS:

- Low voltage high frequency inverters
- Free wheeling
- Polarity protection application applications

MECHANICAL CHARACTERISTICS

- Terminals: Solder plated, solderable per MIL-STD-750, method 2026.
- Case: JEDEC DO-214AC (SMA).
- Polarity: Indicated by cathode band.

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	**SYMBOL**	**ALPSK57A**	**ALPSK58A**	**ALPSK59A**	**ALPSK5BA**	**UNIT**
Maximum repetitive peak reverse voltage	V_{RRM}	70	80	90	100	V
Maximum RMS voltage	V_{RMS}	42	56	63	70	V
Maximum DC blocking voltage	V_{DC}	70	80	90	100	V
Maximum average output rectified current	$I_{F(AV)}$	5.0				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	120				A
Operating junction temperature range	T_J	-55 to +150				°C
Storage temperature range	T_{STG}	-55 to +150				°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**ALPSK57A**	**ALPSK58A**	**ALPSK59A**	**ALPSK5BA**	**UNIT**
Maximum instantaneous forward voltage	I_F = 5 A T_A = 25 °C	V_F	0.79				V
Maximum DC reverse current at rated DC blocking voltage	T_A = 25 °C	I_R	30				μA
	T_A = 125 °C		2000				
Typical junction capacitance	4.0 V, 1 MHz	C_J	96				pF

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

PARAMETER	**SYMBOL**	**ALPSK57A**	**ALPSK58A**	**ALPSK59A**	**ALPSK5BA**	**UNIT**
Typical thermal resistance [1]	$R_{\theta JA}$	75				°C/W
	$R_{\theta JC}$	38				
	$R_{\theta JL}$	15				

Note:

(1) The thermal resistance from junction to lead, mounted on P.C.B with 0.2×0.2” (5.0 x 5.0mm) mm copper pads.

TYPICAL DEVICE CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

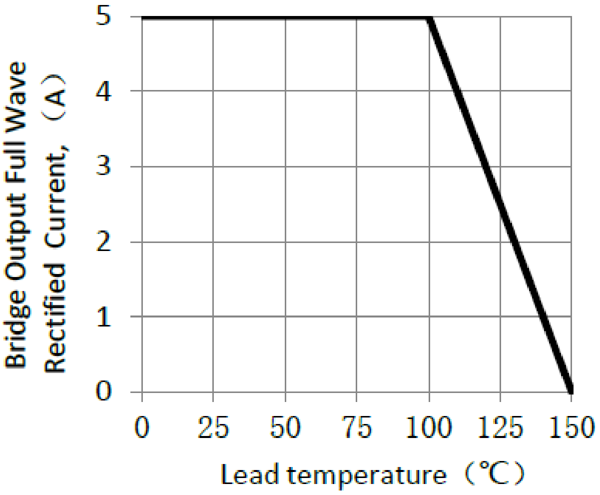


Fig1. FORWARD CURRENT DERATING CURVE

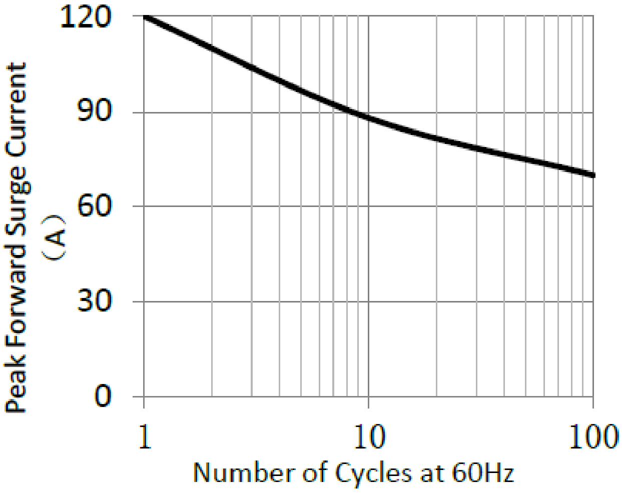


Fig2. MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

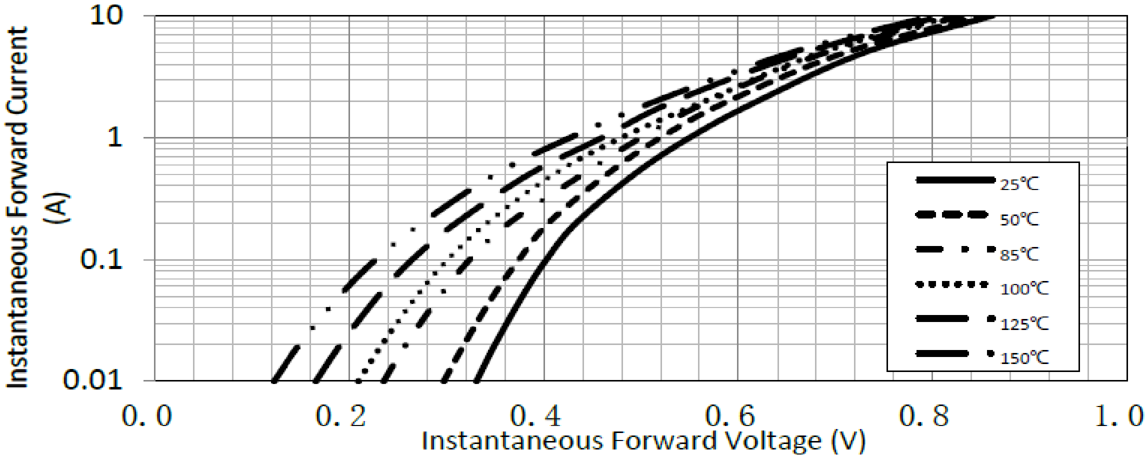


Fig3. TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

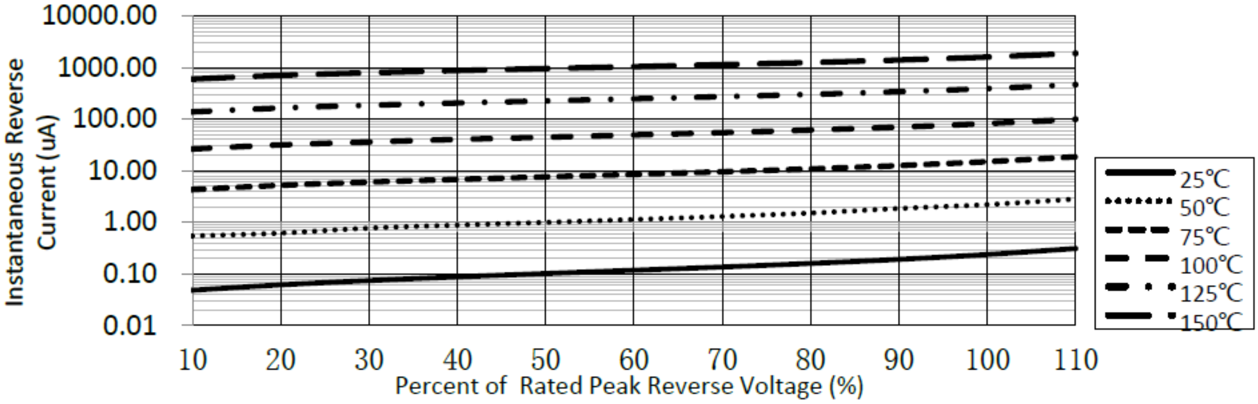
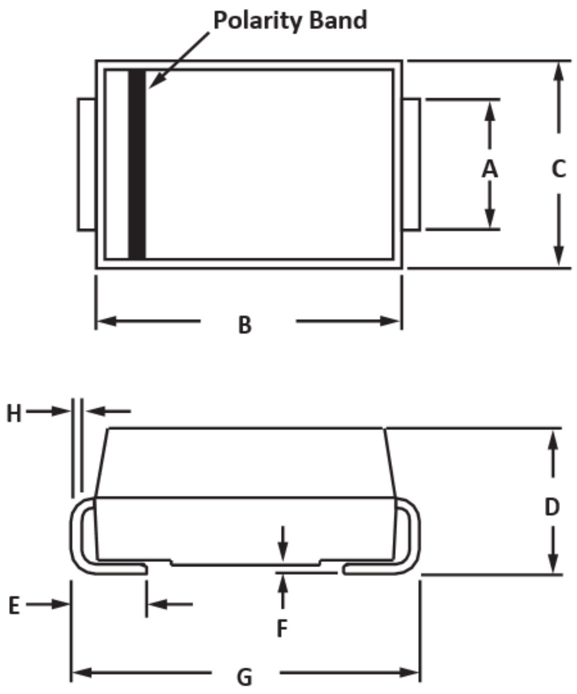


Fig.4 TYPICAL REVERSE CAPACITANCE

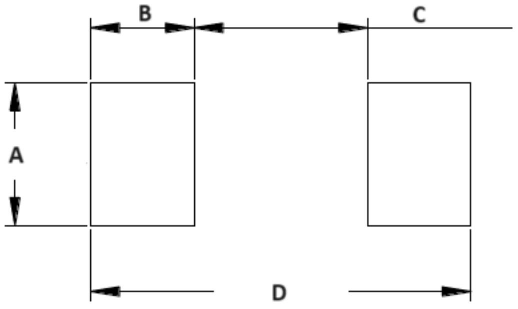
PACKAGE INFORMATION

DO-214AC (SMA)



OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.27	1.63	0.050	0.064
B	4.00	4.60	0.157	0.181
C	2.40	2.65	0.095	0.104
D	1.90	2.25	0.075	0.089
E	0.80	1.50	0.031	0.059
F	0.00	0.20	0.000	0.008
G	4.80	5.20	0.189	0.205
H	0.15	0.31	0.006	0.012

NOTES
1. Dimensions are exclusive of mold flash and metal burrs.

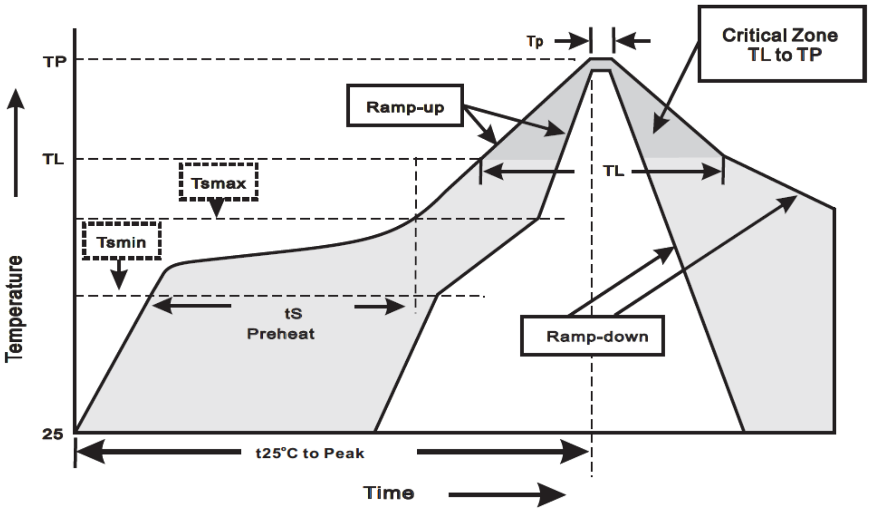


PAD LAYOUT DIMENSIONS		
DIM	MILLIMETERS	INCHES
	REF.	REF.
A	2.18	0.086
B	1.52	0.060
C	2.55	0.100
D	5.59	0.220

SOLDERING PARAMETERS

SUGGESTED THERMAL PROFILES FOR SOLDERING PROCESSES

1. Storage environment: Temperature=5 °C~40 °C Humidity=55% ±25%
2. Reflow soldering of surface-mount devices



3. Reflow soldering

PROFILE FEATURE	SOLDERING CONDITION
Average ramp-up rate (T_L to T_P)	<3 °C/sec
Preheat - Temperature Min (T_{smin}) - Temperature Max (T_{smax}) - Time (min to max) (t_s)	 150 °C 200 °C 60 ~ 120 sec
T_{smax} to T_L - Ramp-upRate	 <3 °C/sec
Time maintained above: - Temperature (T_L) - Time(tL)	 217 °C 60 ~ 260 sec
Peak Temperature (T_P)	255 °C-0/+5 °C
Time within 5 °C of actual Peak Temperature(tP)	10 ~ 30 sec
Ramp-down Rate	<6 °C/sec
Time 25 °C to Peak Temperature	<6 minutes

PRODUCT HIGH RELIABLITY TEST CAPABILITIES

ITEM	TEST CONDITIONS	STANDARD
Solder Resistance	At 260±5°C for 10±Sec.	MIL-STD-750D METHOD-2031
Solderability	At 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
High Temperature Reverse Bias	V_{BR}= V_{BR} N_{OM}*80% at T_J=150° for 168 hrs.	MIL-STD-750D METHOD-1038
Pressure Cooker	15P_{SIG} at T_A=121°C for 4Hrs	JESD22-A102
Temperature Cycling	-55°C to +125°C dwelled for 30min and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
Humidity	At T_A=85°C, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
High Temperature Storage Life	At 175°C for 1000hrs.	MIL-STD-750D METHOD-1031

CUSTOMER NOTE:

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2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

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sales@alpinesemi.com
www.alpinesemi.com