

SCHOTTKY BARRIER DIODE

DESCRIPTION:



The ALPBAT54X is 200mA surface mount Schottky Barrier Diode in SOT23 (Standard) package, offers low turn-on voltage and fast switching capability, designed with PN Junction Guard Ring for Transient and ESD Protection, totally lead-free finish, and RoHS compliant.

FEATURES:

- High Conductance
- Low leakage current
- Small Outline Surface Mount Package
- Excellent clamping voltage
- IEC 61000-4-2 (ESD): $\pm 30\text{kV}$ (Air) ESD protection
- IEC 61000-4-2 $\pm 30\text{kV}$ (Contact) ESD protection
- IEC 61000-4-5 22A/28A (8/20 μs) Lightning protection
- RoHS Compliant
- REACH Compliant

APPLICATIONS:

- Fast switching converters for power regulation
- Junction guard ring for transient
- ESD protection
- In microwave circuits

MECHANICAL CHARACTERISTICS

- Package: SOT23
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Lead frame (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Polarity: See Diagrams in section - PINNING INFORMATION

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25 °C unless otherwise specified			
PARAMETER	SYMBOL	VALUE	UNIT
Reverse Voltage	V_R	30	V
Forward Continuous Current	I_F	200	mA
Power Dissipation	P_{tot}	200	mW
Peak Forward Surge Current (t=1S.NON-Repetitive)	I_{FSM}	1	A
Soldering temperature during	T_j	260	°C
Thermal Resistance Junction to Ambient	R_j	500	°C/W
Operating Junction Temperature Range	T_j	-55 to +125	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS @ 25 °C unless otherwise specified					
PARAMETER	TEST CONDITIONS	SYMBOL	MIN	MAX	UNIT
Forward Voltage	$I_F=0.1mA$	V_F		0.24	V
	$I_F=1mA$			0.32	
	$I_F=10mA$			0.40	
	$I_F=30mA$			0.50	
	$I_F=100mA$			1.00	
Reverse breakdown voltage	$I_R=100\mu A$	V_R	30		V
Reverse voltage leakage current	$V_R=25V$	I_R		10	μA
Typical Junction Capacitance	$V_R=1V, f=1.0MHz$	C_J		10	pF
Reverse recovery time	$I_F=I_R=10mA,$ $I_{rr}=0.1 \times I_R, R_L=100\Omega$	T_{rr}		5	nS

TYPICAL DEVICE CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)

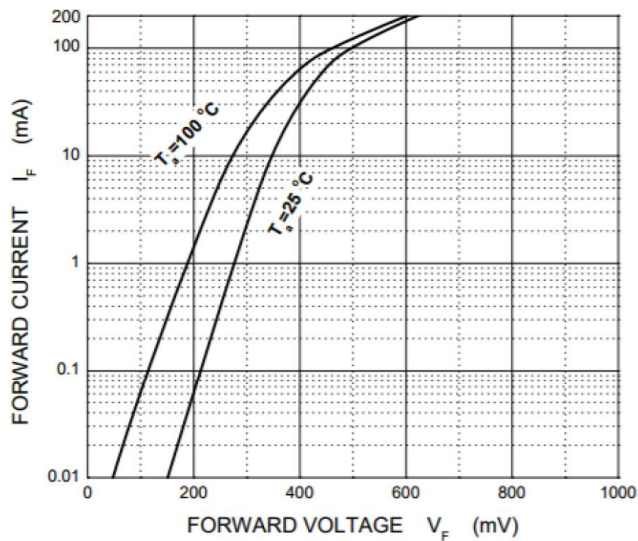


Fig.1 FORWARD CHARACTERISTICS

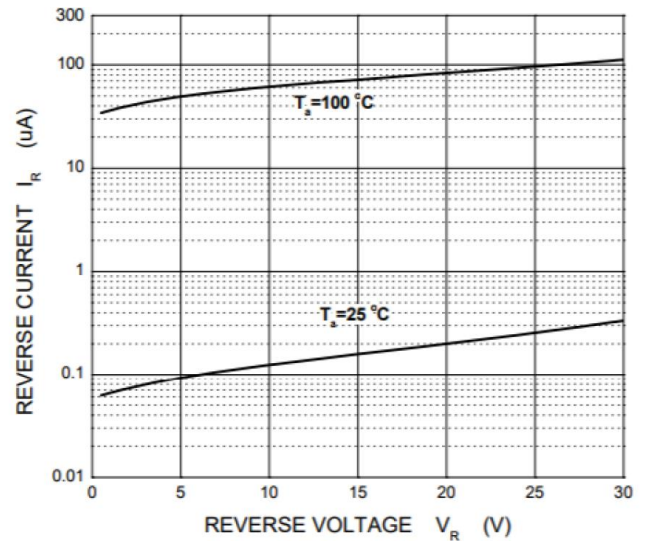


Fig.2 REVERSE CHARACTERISTICS

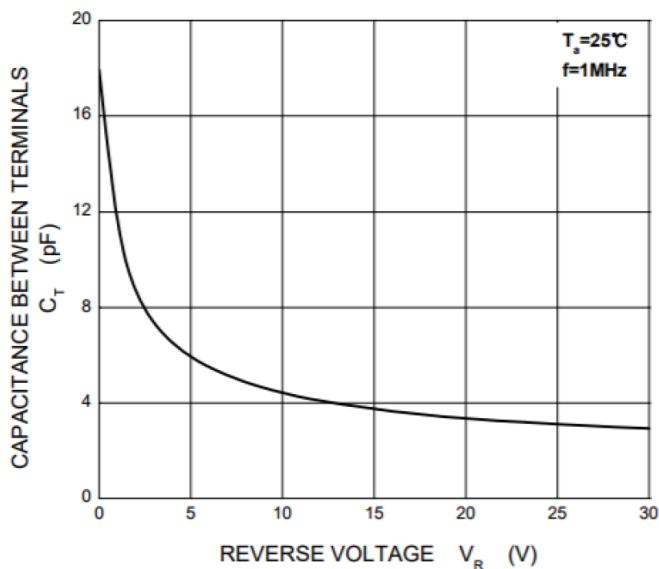


Fig.3 CAPACITANCE CHARACTERISTICS

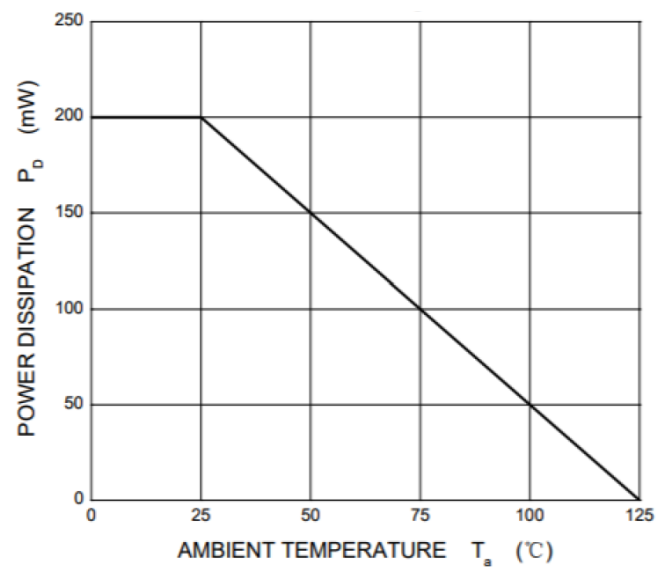
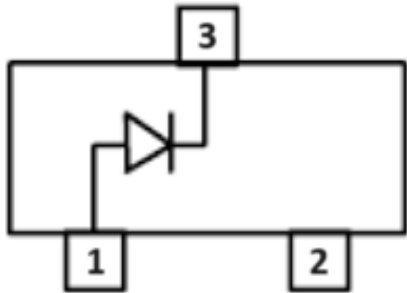
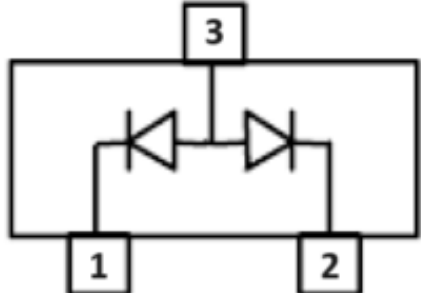
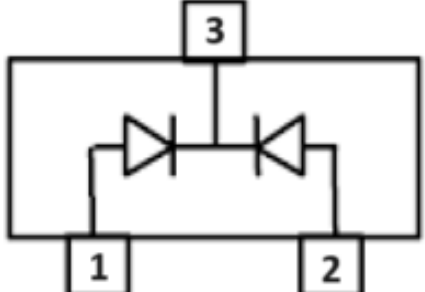
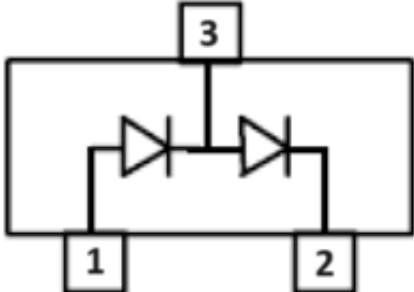


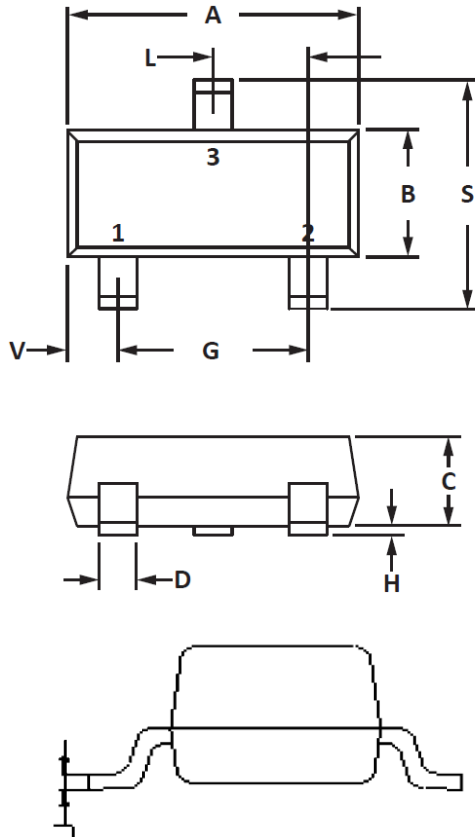
Fig.4 POWER DERATING CURVE

PINNING INFORMATION

PART NO	DEVICE MARKING		TYPE	SYMBOL
	1	2		
ALPBAT54	KL1	L4/L4P	Single	
ALPBAT54A	KL2	L42	Dual	
ALPBAT54C	KL3	L43	Dual	
ALPBAT54S	KL4	L44	Dual	

PACKAGE INFORMATION

SOT-23



OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.110	0.120
B	1.20	1.40	0.047	0.055
C	0.90	1.11	0.035	0.044
D	0.37	0.51	0.015	0.020
G	1.78	2.05	0.070	0.081
H	0.013	0.10	0.001	0.004
J	0.09	0.18	0.004	0.007
L	0.89	1.03	0.035	0.041
S	2.10	2.64	0.083	0.104
V	0.45	0.60	0.018	0.024

NOTES

- Controlling dimension: millimeters.
- Halogen free, EMC
- Pb free solder
- Lead thickness solder plating
- Lead frame CAC-5
- Other Tolerance ± 0.05
- Dimensions are exclusive of Burn Mold Flash and Tie Bar extrusions



beyond boundaries...

ALPBAT54X
SOT-23

CUSTOMER NOTE:

DISCLAIMER

The product information and the selection guide facilitates the selection of the ALPINESEMI™'s Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review the Data sheet(s) so as to confirm that the Device(s) meets functionality parameters for your application. The information furnished on the Data Sheet and the ALPINESEMI™'s Web Site is believed to be accurate and reliable at the time of preparation of this document. ALPINESEMI™ however, does not assume any inaccuracies that may arise when the components are mounted and removed. Furthermore, ALPINESEMI™ does not assume liability whatsoever, arising out of the application or the use of any of ALPINESEMI™'s product(s). Neither, does it convey any license under its patent rights nor the rights of others. These products are not guaranteed for use in life saving/support appliances or systems. ALPINESEMI™'s customers using these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and ALPINESEMI™ will not be responsible in any way(s) for any damage(s) resulting from such use.

Please check the website **www.alpinesemi.com** for continues updates and revision of datasheets.

DESIGN CHANGES: ALPINESEMI™ strives for continuous improvement and reserves the right to change the specifications of its products without prior notice. ALPINESEMI™ reserves the right to discontinue product lines without prior notice. Any product selection is a recommendation based on best understanding of such product(s) by our engineers. However, buyers are advised to rely on their own judgment for such selection of the products.

ALPINESEMI™ makes no warranty, representation or guarantee regarding the suitability of its products for any particular applications. Neither does ALPINESEMI™ assume any liability arising out of the applications nor the use of such products. ALPINESEMI™ specifically disclaims all liabilities either consequential or incidental.

All rights of the product and datasheet are reserved to ALPINESEMI™.

All logos and information provided in the datasheets are for reference only. Any registered and/or trademark/logos belonging to respective companies be the property of those companies. ALPINESEMI™ extends the courtesy to them, if any of the information found in its datasheet.

Component Disposal Instructions

1. ALPINESEMI™ Semiconductor Devices are RoHS compliant and hence customers are requested to dispose as per the prevailing Environmental Legislation put forth in their specific country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).



sales@alpinesemi.com
www.alpinesemi.com