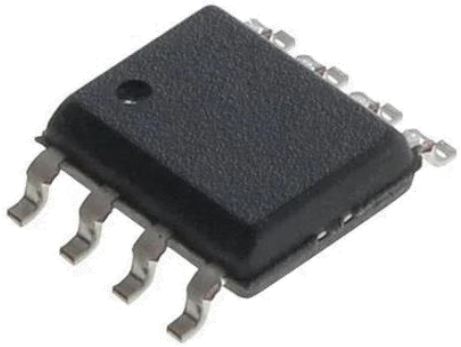
4-LINE SMD TVS FOR ESD PROTECTION 5.0V - 24V

DESCRIPTION:



ALPN054BT8 Thru ALPN244BT8 has 4-Line SMD TVS for ESD Protection 5.0V - 24V features 350 Watts (tp = 8/20µs) of power handling capability to accommodate the higher transient voltage levels which may be expected in extended common mode applications.

FEATURES

- 350 watts peak pulse power (t_p = 8/20µs)
- Protects four I/O lines (bidirectional).
- Working voltage: 5V, 8V, 12, 15V, 18V, 24V.
- Low leakage current.
- IEC 61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- Suffix "-H" indicates Halogen-free part, ex. ALPN054BT8-H

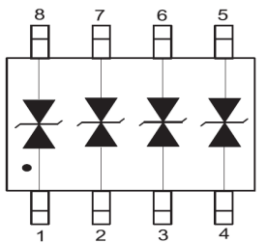
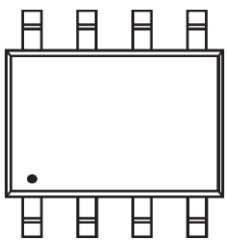
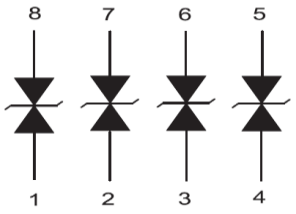
APPLICATIONS

- Cell phone handsets and accessories.
- Microprocessor based equipment.
- Personal digital assistants (PDA's).
- Notebooks, instrumentation.
- Portable instrumentation.

MECHANICAL DATA

- Molding compound flammability rating: UL 94V-0.
- Case: Molded plastic, SOP-08.
- Terminals: Plated terminals, solderable per MIL-STD-750, Method 2026.
- Weight: Approximately 0.18 gram.

PINNING INFORMATION

PIN CONFIGURATION	SIMPLIFIED OUTLINE	CIRCUIT DIAGRAM
		

ELECTRICAL CHARACTERISTICS

ELECTRICAL CHARACTERISTICS (at T_A = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	VALUES						UNIT
		ALPN054BT8	ALPN084BT8	ALPN124BT8	ALPN154BT8	ALPN184BT8	ALPN244BT8	
Reverse Stand-Off Voltage	V_{RWM}	5	8	12	15	18	24	V
Reverse Leakage Current	I_R	0.1	0.1	0.1	0.1	0.1	0.1	µA
Minimum Reverse Breakdown Voltage (@I_T = 1mA)	$V_{BR\ (Min)}$	6	9.2	13.3	16.7	20.4	26.7	V
Clamping Voltage (@I_{PP} = 1A)	V_C	10	13	18	24	29	35	V
Maximum Peak Pulse Current (8/20µs)	I_{PPM}	22	15	10	7	6	5	A
Maximum Clamping Voltage (@I_{PPM})	V_{CM}	16	20	25	30	35	42	V
Junction Capacitance	C_T	90	75	50	40	30	25	pF

Note:
1. Non-repetitive current pulse 8/20 us exponential decay waveform according to IEC61000-4-5.

ABSOLUTE MAXIMUM RATINGS

ABSOLUTE MAXIMUM RATINGS (at T_A = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
IEC 61000-4-2 (ESD) Air Contact	V_{ESD}	±30 ±30	kV
Peak pulse power (t_p=8/20us waveform)	P_{PP}	350	W
Lead Soldering Temperature	T_L	260 (10 sec.)	°C
Operating Temperature	T_{OPT}	+150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

TYPICAL DEVICE CHARACTERISTICS CURVES

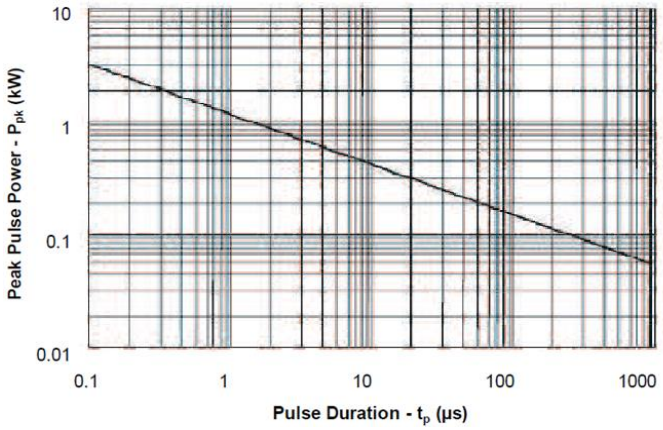


Fig1. Non-Repetitive Peak Pulse Power vs. Pulse Time

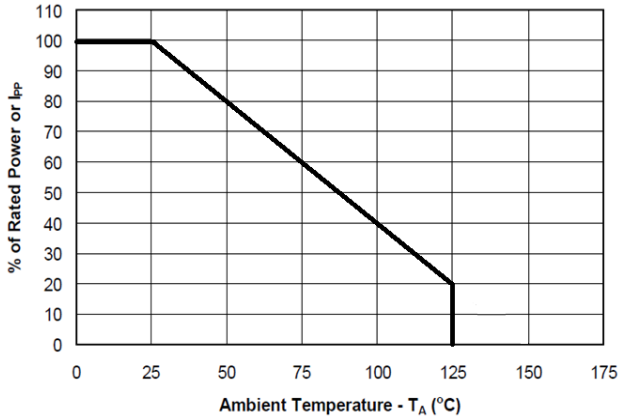


Fig2. Power Derating Curve

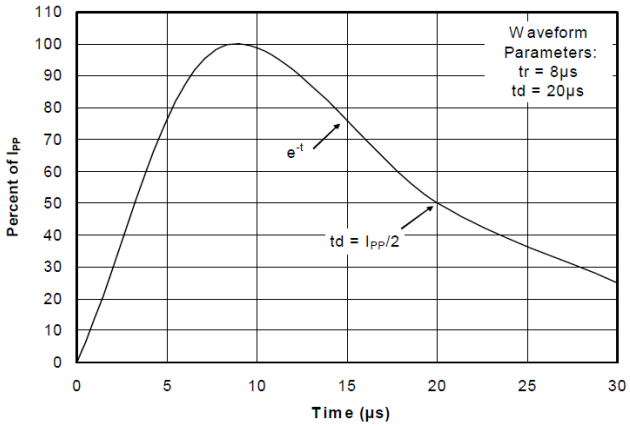
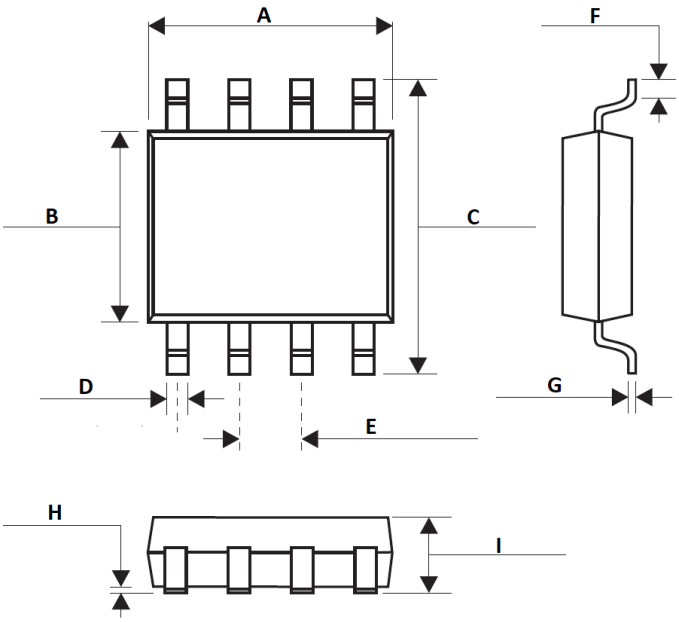


Fig3. Pulse Waveform

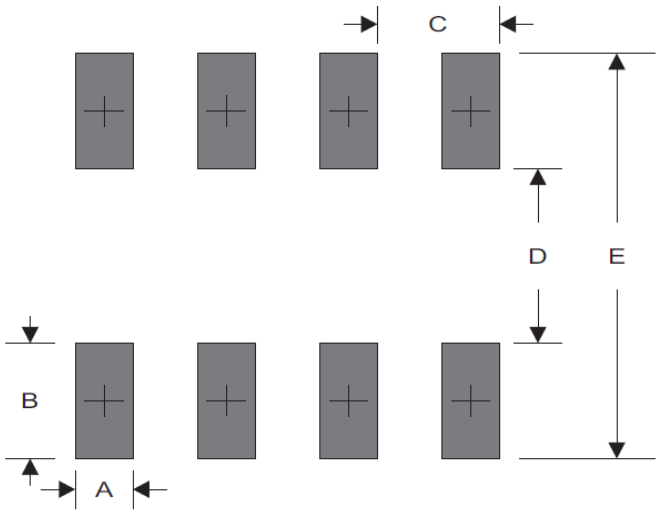
PACKAGE INFORMATION

SOP-08



OUTLINE DIMENSIONS				
SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
C	5.80	6.20	0.229	0.224
D	0.35	0.49	0.014	0.019
E	1.27 BSC.		0.050 BSC.	
F	0.40	1.25	0.016	0.049
G	0.18	0.25	0.007	0.009
H	0.05	0.25	0.004	0.008
I	1.35	1.75	0.054	0.068

PAD LAYOUT

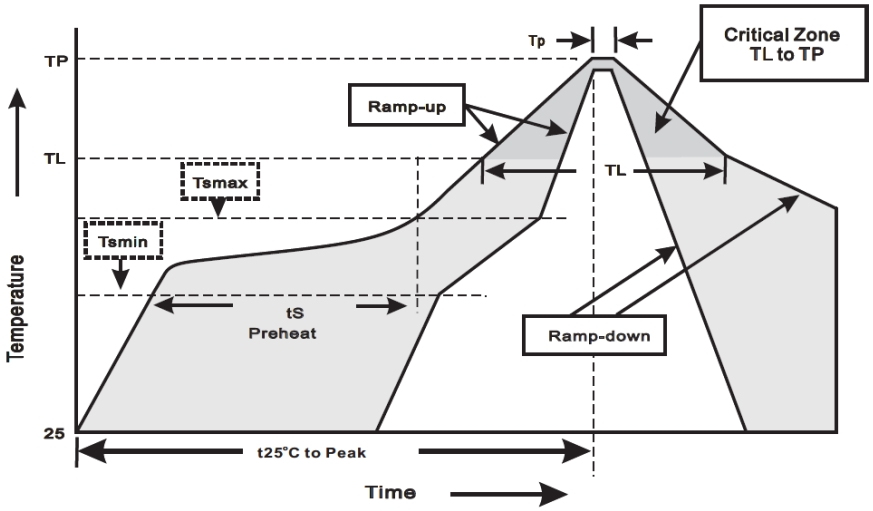


OUTLINE DIMENSIONS		
SYMBOL	MILLIMETERS	INCHES
A	0.60	0.024
B	1.10	0.043
C	0.95	0.037
D	2.50	0.098
E	1.40	0.055

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 (TL to TP)	<3 °C/sec
Preheat - Temperature Min (Tsmin) - Temperature Max (Tsmax) - Time (min to max) (ts)	 150 °C 200 °C 60 ~ 120 sec
Tsmax to TL - Ramp-upRate	 <3 °C/sec
Time maintained above: - Temperature (TL) - Time(tL)	 217 °C 60 ~ 260 sec
Peak Temperature (TP)	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} Min * 80% at T_J=150°C 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 150°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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