

DISCRETE TVS FOR GENERAL INTERFACES

DESCRIPTION:



The ALPESXXVHD1006 is a Discrete TVS for General Interfaces is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time.

The ALPESXXVHD1006 are suited for use in cellular phones, portable device, digital cameras, power supplies and many other portable applications.

FEATURES:

- IEC 61000-4-2 (ESD)
 - $\pm 30\text{kV}$ Contact Discharge
 - $\pm 30\text{kV}$ Air Discharge
- 300W Peak pulse Power (8/20 μs)
- IEC 61000-4-4 EFT Protection
 - 40A (5/50ns)
- Halogen free and RoHS compliant
- Protects one directional I/O line
- Low clamping voltage
- Low capacitance
- Low leakage current

APPLICATIONS:

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants
- Notebooks / Desktops / Servers
- Portable Instrumentation
- Peripherals & Pagers

MECHANICAL CHARACTERISTICS

- Epoxy: UL94-V0 rated flame retardant.
- Case: Molded plastic, DFN1006-2L
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position: Any.

ABSOLUTE MAXIMUM RATINGS

MAXIMUM RATINGS @ $T_A = 25^\circ\text{C}$ unless otherwise specified			
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power ($t_p=8/20\mu\text{s}$) @25°C	P_{pk}	300	W
ESD (IEC61000-4-2 air discharge) @25°C	V_{ESD}	± 30	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V_{ESD}	± 30	kV
Junction Temperature	T_J	+125	°C
Operating Temperature Range	T_{OP}	-40 to +125	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Lead Temperature	T_L	260	°C

ELECTRICAL CHARACTERISTICS
ELECTRICAL CHARACTERISTICS @ $T_A = 25^\circ\text{C}$ unless otherwise specified

PART NUMBER	Reverse Stand-off Voltage	Reverse Breakdown Voltage	Clamping Voltage	Peak pulse current ($t_p=8/20\mu\text{s}$) @25°C	Clamping Voltage	Reverse Leakage Current	Junction Capacitance
	V_{RWM} (max.)	V_{BR} (min.)	$V_{CL} @ I=1\text{A}$ (max.)	I_{PP} (max.)	$V_{CL} @ I=I_{PP}$ (max.)	I_R (max.)	C_J (typ.)
	(V)	(V)	(V)	(A)	(V)	(μA)	(pF)
ALPES03VHD1006	3.3	4.0	8.5	24.0	18	1.0	200
ALPES05VHD1006	5.0	6.0	9.5	15.0	20	1.0	180
ALPES07VHD1006	7.0	7.4	11	10.0	22	1.0	140
ALPES12VHD1006	12.0	13.3	19	8.0	35	1.0	100
ALPES15VHD1006	15.0	16.4	25	7.0	45	1.0	80
ALPES24VHD1006	24.0	26.0	40	6.0	55	1.0	60
ALPES36VHD1006	36.0	37.9	50	5.0	70	1.0	40

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

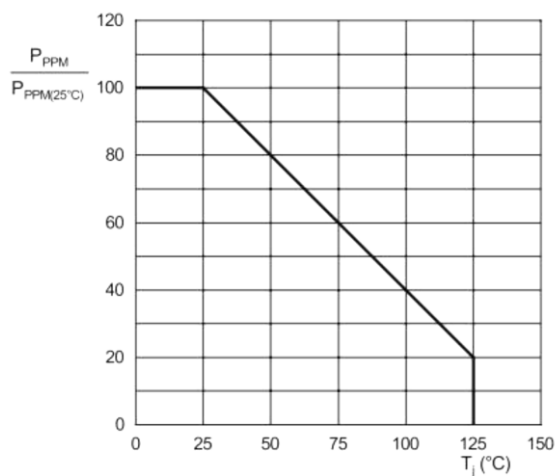


Fig.1 PEAK PULSE POWER DERATING CURVE

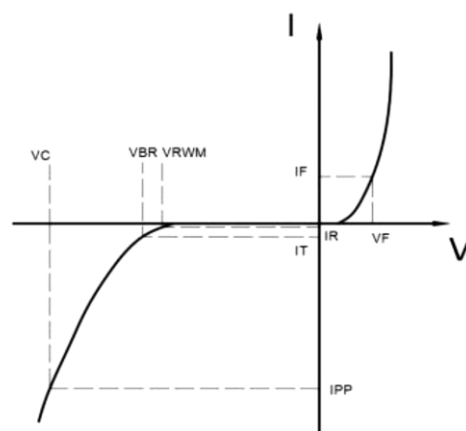


Fig.2 PARAMETER DEFINITION

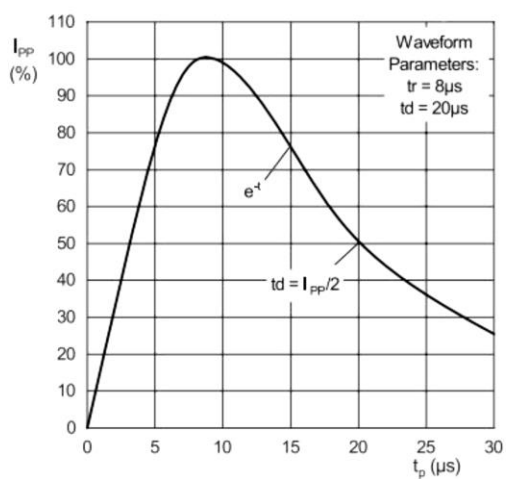


Fig.3 PULSE WAVEFORM

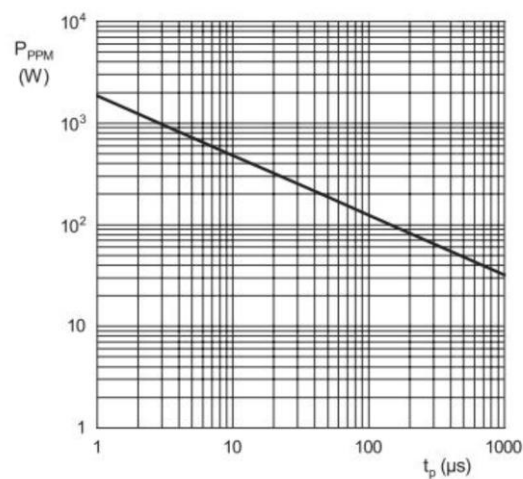
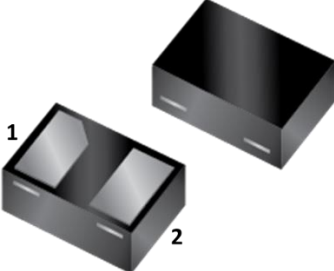
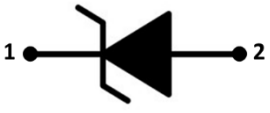


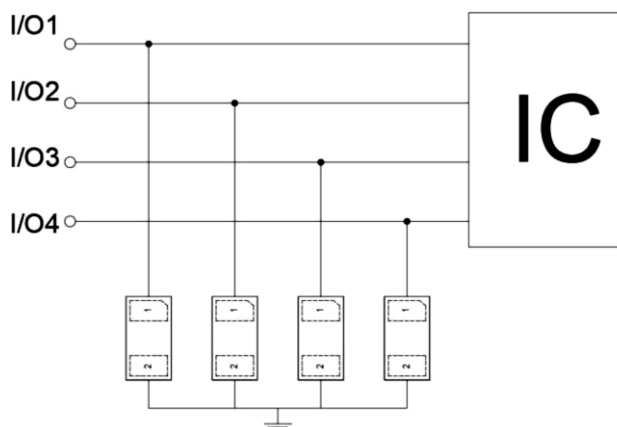
Fig.4 PEAK PULSE POWER VS. PULSE TIME

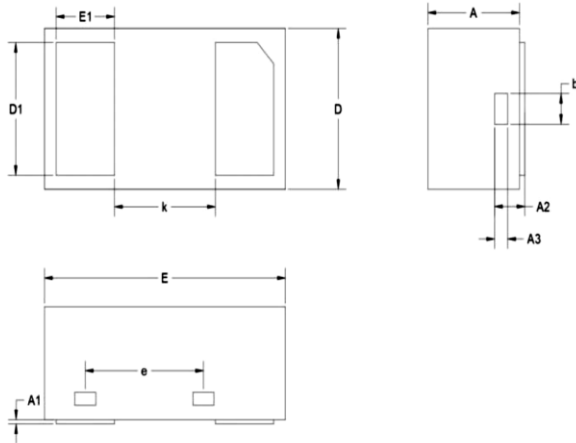
PINNING INFORMATION

PIN	NAME	DESCRIPTION	SIMPLIFIED OUTLINE	CIRCUIT DIAGRAM
1	IO	Connect to IO		
2	GND	Connect to GND		

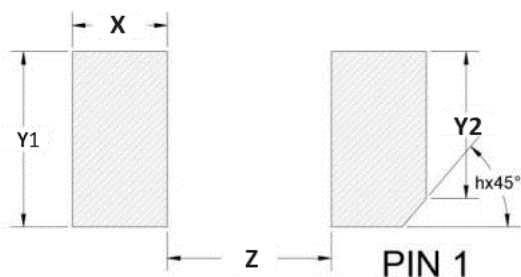
APPLICATIONS INFORMATION

Typical Interface Application



PACKAGE INFORMATION
DFN1006-2L


OUTLINE DIMENSIONS						
SYMBOL	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.350	0.450	0.550	0.014	0.018	0.022
A1	0.000	0.020	0.050	0.000	0.001	0.002
A2	0.077	0.127	0.207	0.003	0.005	0.008
A3	0.013	0.063	0.113	0.001	0.002	0.004
b	0.070	0.120	0.200	0.003	0.005	0.008
D	5.000	0.600	0.700	0.197	0.024	0.028
D1	0.400	0.500	0.600	0.016	0.020	0.024
E	0.900	1.000	1.100	0.035	0.039	0.043
E1	0.150	0.250	0.350	0.006	0.010	0.014
e	0.310	0.410	0.560	0.012	0.016	0.022
k	0.300	0.400	0.500	0.012	0.016	0.020
Note: 1. Controlling dimension: in millimeters. 2. General tolerance: $\pm 0.05\text{mm}$						

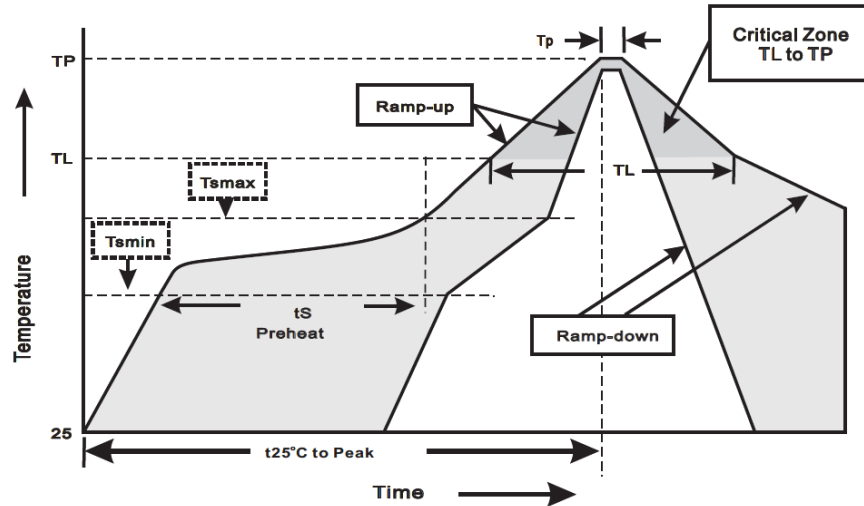
SUGGESTED SOLDER PAD LAYOUT


OUTLINE DIMENSIONS		
SYMBOL	MILLIMETERS	INCHES
X	0.250	0.010
Y1	0.500	0.020
Y2	0.375	0.015
Z	0.400	0.016

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})	150 °C
- Temperature Max (T_{smax})	200 °C
- Time (min to max) (t_s)	60 ~ 120 sec
T_{smax} to T_L	
- Ramp-upRate	<3 °C/sec
Time maintained above:	
- Temperature (T_L)	217 °C
- Time(t_L)	60 ~ 260 sec
Peak Temperature (T_P)	255 °C-0/+5 °C
Time within 5 °C of actual Peak Temperature(t_P)	10 ~ 30 sec
Ramp-down Rate	<6 °C/sec
Time 25 °C to Peak Temperature	<6 minutes



beyond boundaries...

ALPESXXVHD1006

DFN1006-2L

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.

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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).



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