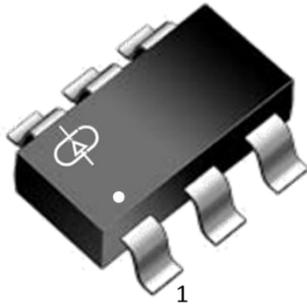


LOW CAPACITANCE TVS ARRAY**DESCRIPTION:**

The ALPSVG024G is a Low Capacitance TVS Array for balanced overvoltage protection. It has Low clamping voltage, low leakage with response time under 500ns.

The ALPSVG024G is suited for using in G.Fast equipment and xDSL modems and line cards.

FEATURES:

- Compatible with VDSL2, ADSL2 and with G.Fast
- Low capacitance and leakage current
- Balanced overvoltage protection
- Low clamping voltage
- Response time under 500ns
- Low insertion loss
- Low distortion
- IEC 61000-4-2 (ESD)
 - ±8kV Contact Discharge
 - ±15kV Air Discharge
- IEC 61000-4-5(Lightning)
 - 40A (8/20μs)
- IEC 61000-4-4 EFT Protection
 - 40A (5/50ns)
- Halogen free and RoHS compliant

APPLICATIONS:

- xDSL modems and line cards
- G.Fast equipment

MECHANICAL CHARACTERISTICS

- Epoxy: UL94-V0 rated flame retardant.
- Case: Molded plastic, SOT23-6
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

ABSOLUTE MAXIMUM RATINGS

MAXIMUM RATINGS @ T _A = 25 °C unless otherwise specified			
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power (t _p =8/20μs)	P _{PP}	800	W
Non-repetitive impulse current waveform (t _p =8/20μs)	I _{PP}	40	A
ESD (IEC61000-4-2 air discharge)	V _{ESD}	±15	kV
ESD (IEC61000-4-2 contact discharge)		±8	
Operating Junction Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS

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

PARAMETER	CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Stand-off Voltage	$I_{DRM} = 100\text{nA}$	V_{DRM}			24	V
Off-state current	$V_{DRM} = 24\text{V}$	I_{DRM}			100	nA
Breakover Voltage	$di/di = \pm 1\text{mA}/\mu\text{s}$	V_{BO}		27	29	V
Clamping Voltage	$I_{PP} = 40\text{A}$, $t_p = 8/20\mu\text{s}$	V_C			20	V
On-state Voltage	$I_t = \pm 1\text{A}$, I/O to GND	V_T		3.6		V
	$I_t = 1\text{A}$, REF to GND			1		V
Holding current	$di/di = \pm 1\text{mA}/\mu\text{s}$	I_H		40		mA
Off-state capacitance	$V_R = 0\text{V}$, $f = 1\text{MHz}$ (I/O to I/O)	C_o		1		pF
	$V_R = 0\text{V}$, $f = 1\text{MHz}$ (I/O to GND)			2		pF

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

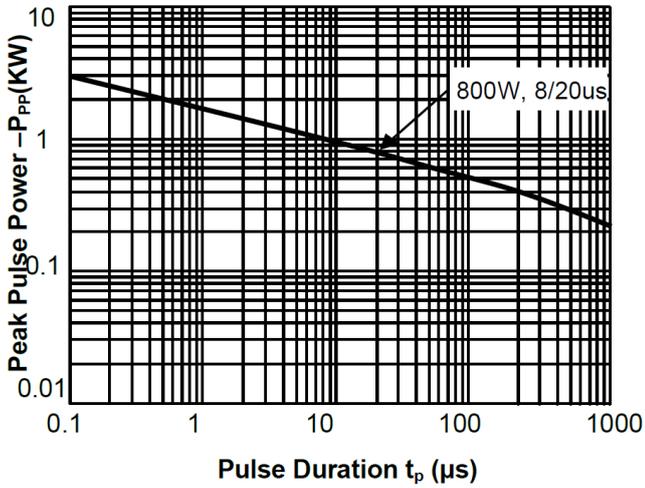


Fig.1 PEAK PULSE POWER RATING CURVE

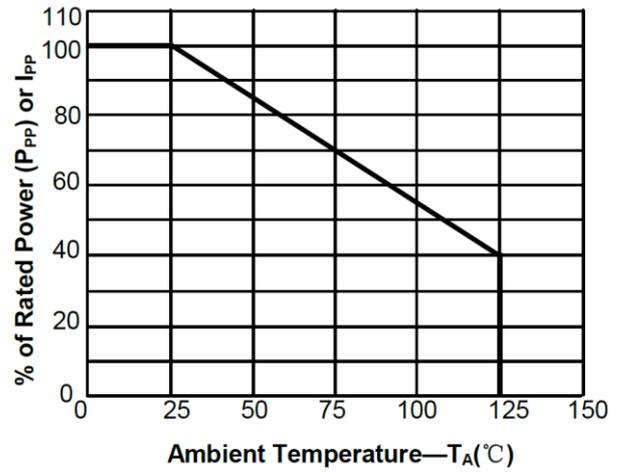


Fig.2 PULSE DERATING CURVE

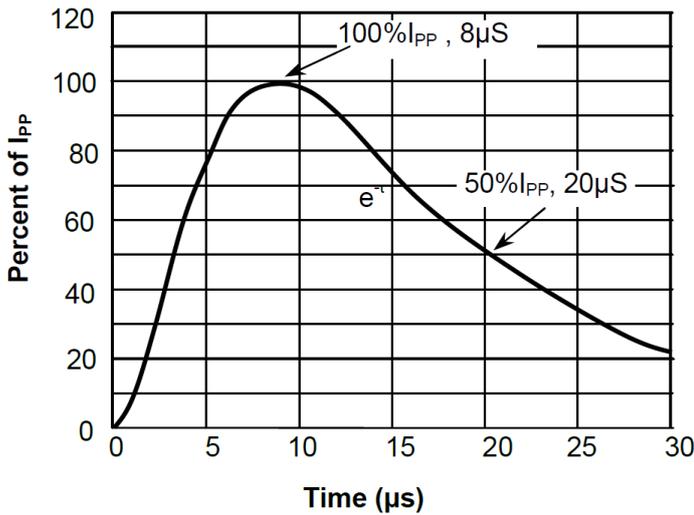


Fig.3 PULSE WAVEFORM - 8/20μs

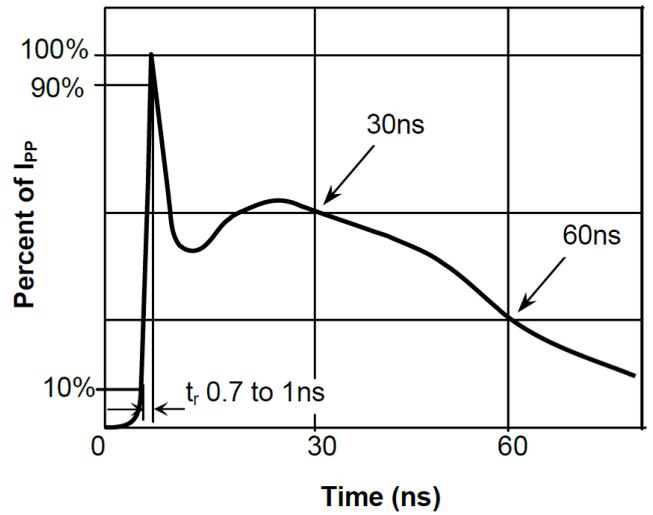


Fig.4 PULSE WAVEFORM-ESD(IEC61000-4-2)

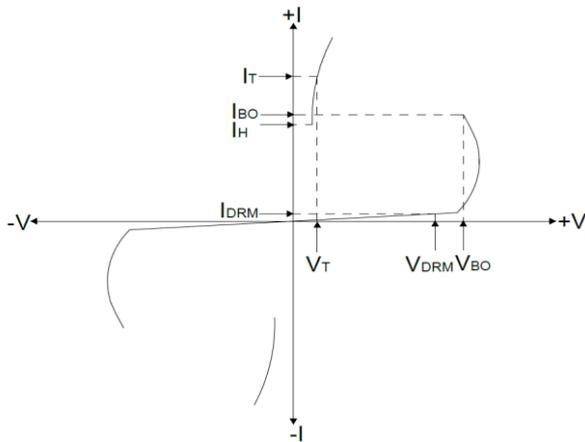
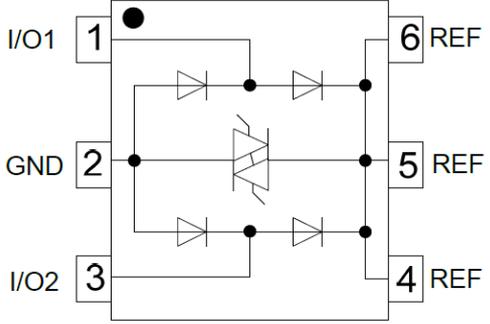


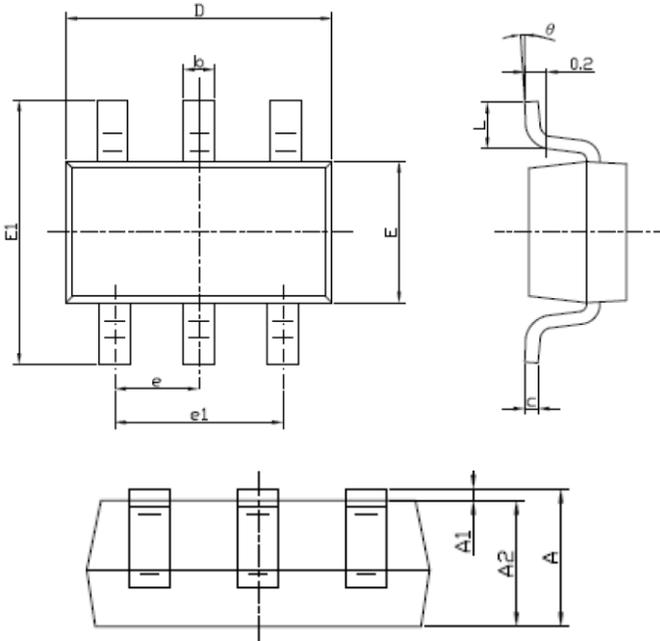
Fig.5 V- I CURVE CHARACTERISTICS

PINNING INFORMATION

PIN	SCHEMATIC DIAGRAM
<p>Pin 1 – I/O 1 Pin 2 – GND Pin 3 – I/O 2 Pin 4 – REF. Pin 5 – REF. Pin 6 – REF.</p>	

PACKAGE INFORMATION

SOT23-6

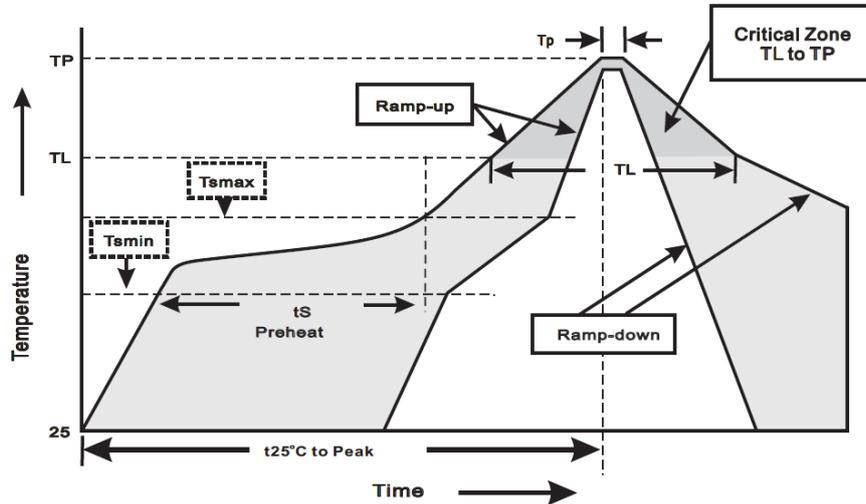


OUTLINE DIMENSIONS				
SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.05	1.25	0.041	0.049
A1	0.00	0.10	0.000	0.004
A2	1.05	1.15	0.041	0.045
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.85	3.05	0.112	0.120
E	1.50	1.70	0.059	0.067
E1	2.65	2.95	0.104	0.116
e	0.95 (BSC)		0.037 (BSC)	
e1	1.80	2.00	0.071	0.079
L	0.30	0.60	0.012	0.024
θ	0°	8°	0°	8°
M	-	2.59	-	0.102
O	-	0.69	-	0.027
P	-	0.99	-	0.039
R	-	0.95	-	0.037
Note:				
1. Controlling dimension: in millimeters.				
2. General tolerance: ±0.05mm				

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 (T _{smin})	150 °C
- Temperature Max (T _{smax})	200 °C
- Time (min to max) (ts)	60 ~ 120 sec
T _{smax} to TL	
- Ramp-upRate	<3 °C/sec
Time maintained above:	
- Temperature (TL)	217 °C
- Time(tL)	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



beyond boundaries...

ALPSVG024G

SOT23-6

CUSTOMER NOTE:

DISCLAIMER

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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).



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