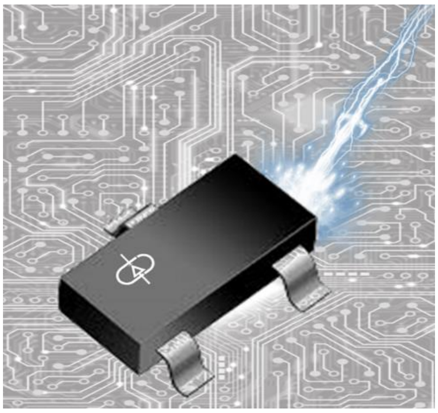
400 WATTS - ESD PROTECTION DIODE



DESCRIPTION:

The **ALPESDAS23T36C** is 400 Watts Peak Pulse Power per Line (tp=8/20µs) for ESD Protection Diode are optimized for high-speed networks, data lines, ATM and power line.

FEATURES:

- 400 Watts Peak Pulse Power per Line (tp=8/20µs)
- Solid-state silicon-avalanche technology
- Bidirectional configurations
- Low leakage current
- Low clamping voltage
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 4A (8/20µs)
- AEC-Q101 qualified

APPLICATIONS:

- Data lines
- Automatic Teller Machines
- Networks
- Power line

MECHANICAL CHARACTERISTICS

- SOT-23 package
- Molding compound flammability rating: UL94V-0
- Marking: Marking Code
- Packaging: Tape and Reel
- RoHS Compliant

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUES**	**UNITS**
IEC61000-4-2 ESD Voltage – Air Mode	$V_{ESD}^{(1)}$	±30	kV
IEC61000-4-2 ESD Voltage – Contact Mode		±30	
Peak Pulse Power	$P_{PP}^{(2)}$	400	W
Peak Pulse Current	I_{PP}	4	A
Maximum Lead Solder Temperature (10 seconds duration)	T_L	260	°C
Junction temperature	T_J	-55 to +125	°C
Storage temperature range	T_{STG}	-55 to +125	°C

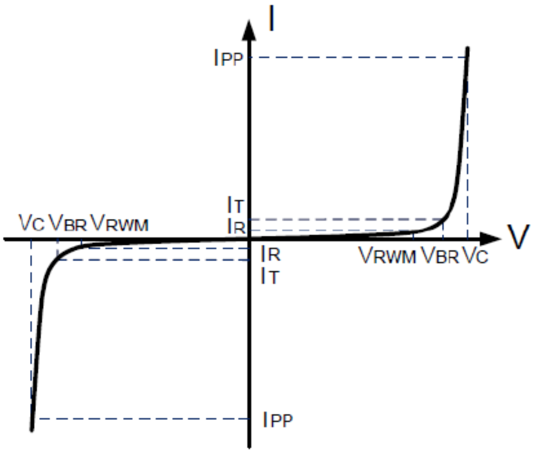
Note:
1. Device stressed with ten non-repetitive ESD pulses.
2. Non-repetitive current pulse 8/20µs exponential decay waveform according to IEC61000-4-5.
3. All ratings are measured at environmental temperature of TA = 25°C unless otherwise noted.

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**Min.**	**Typ.**	**Max.**	**UNIT**
Reverse Stand-off Voltage		$V_{RWM}^{(1)}$			36	V
Reverse Breakdown Voltage	I_T = 1mA	V_{BR}	40			V
Reverse Leakage Current	V_{RWM} = 36V	I_R			0.5	µA
Clamping Voltage @I_{PP}	I_{PP} = 4A	V_C			110	V
Junction Capacitance	V_R=0V, f=1MHz (Pin1, Pin2 to Pin3)	C_J		18	20	pF

Note:
1. Other voltages available upon request.
2. Non-repetitive current pulse 8/20µs exponential decay waveform according to IEC61000-4-5.
3. All ratings are measured at environmental temperature of T_A = 25°C unless otherwise noted.

ELECTRICAL PARAMETERS

PARAMETER	SYMBOL
Maximum Reverse Peak Pulse Current	I_{PP}
Clamping Voltage @ I_{PP}	V_C
Working Peak Reverse Voltage	V_{RWM}
Maximum Reverse Leakage Current @ V_{RWM}	I_R
Breakdown Voltage @I_T	V_{BR}
Test Current	I_T



TYPICAL DEVICE CHARACTERISTICS CURVES

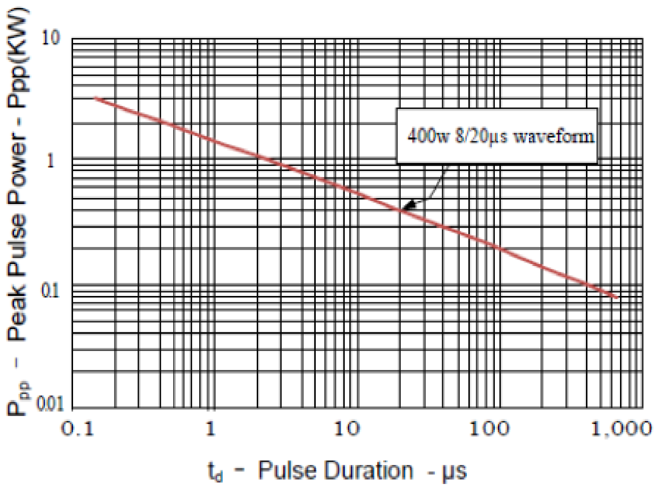


Fig1. PEAK PULSE POWER vs. PULSE TIME

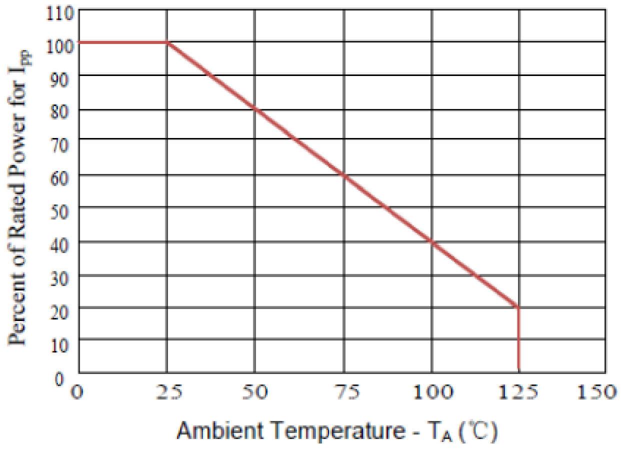


Fig2. POWER DERATING CURVE

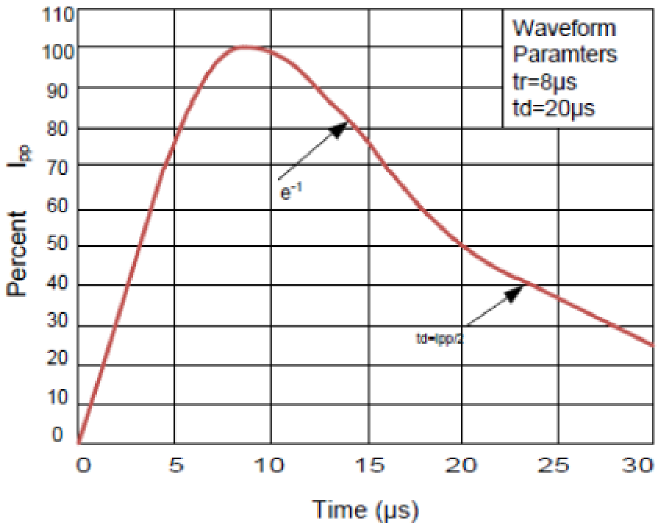


Fig3.PULSE WAVEFORM

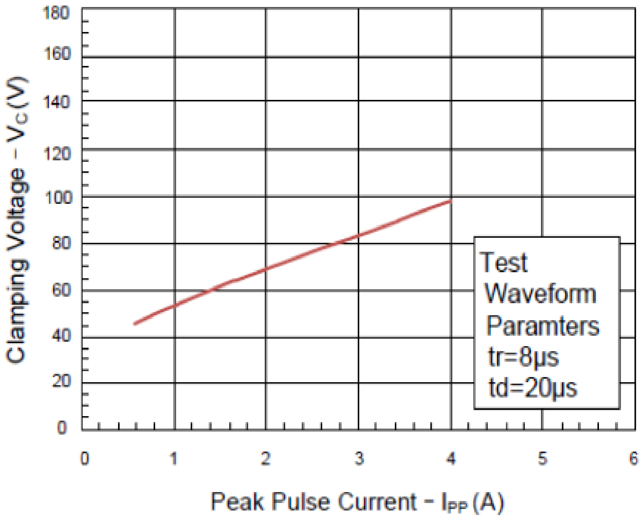
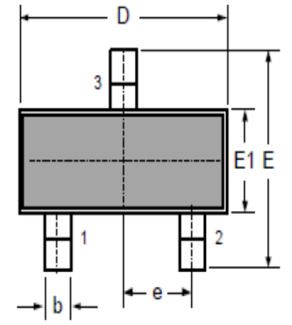
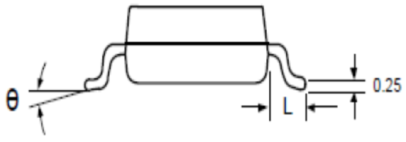


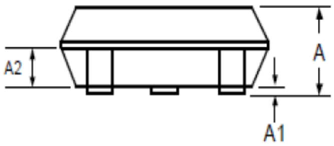
Fig4. CLAMPING VOLTAGE vs. I_{PP}

PACKAGE INFORMATION

SOT-23



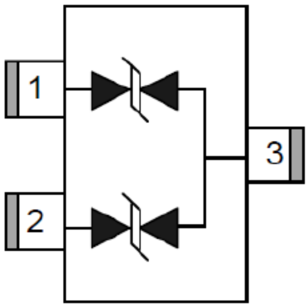
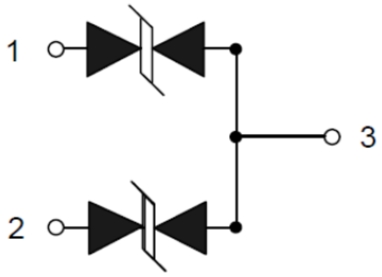




OUTLINE DIMENSIONS		
DIM	MILLIMETERS	
	MIN	MAX
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
D	2.80	3.00
E	2.25	2.55
E1	1.20	1.40
e	0.95 BSC	
L	0.30	0.50
ϴ	0°	8°

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

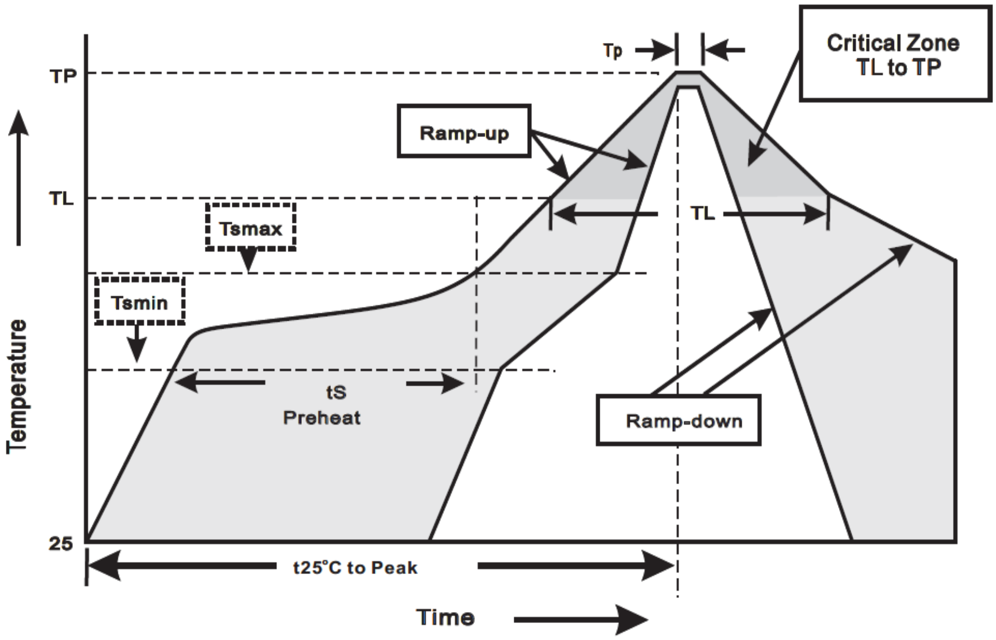
PINNING INFORMATION

SIMPLIFIED OUTLINE (TOP VIEW)	SYMBOL
	

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

CUSTOMER NOTE:

DISCLAIMER

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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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