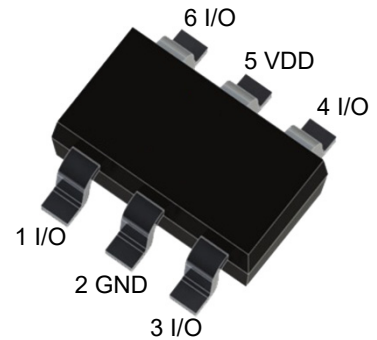


### Description

The PESDAWC236T5VU is low capacitance transient voltage suppressor array for high speed data interface that designed to protect sensitive electronics from damage or latch-up due to ESD lightning, and other voltage induced transient events. All pins are rated to withstand 15kV ESD pulses using the IEC 61000-4-2 air discharge method, which can meet the requirement of level 4.



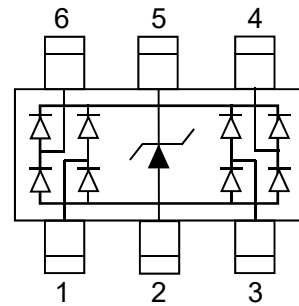
SOT-23-6L(Top View)

### Feature

- 150W peak pulse power ( $t_p = 8/20\mu s$ )
- SOT-23-6L package
- Working voltage: 5.0V
- Low clamping voltage
- Low capacitance
- RoHS Compliant Transient Protection for High Speed Data Lines to IEC61000-4-2(ESD) $\pm 15kV$ (air), $\pm 15kV$ (contact)

### Applications

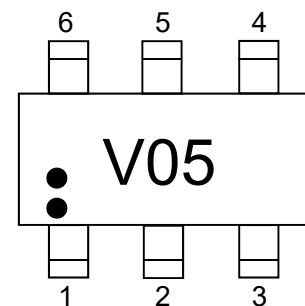
- USB 2.0 Power & Data Line Protection
- DVI & HDMI Port Protection
- Serial ATA Port Protection
- Mobile Handsets
- Digital Cameras and camcorders
- PDA & MP3 Players
- Digital TV and Set-top Boxes
- Other Portable Electronic Components



Circuit Diagram

### Mechanical Characteristics

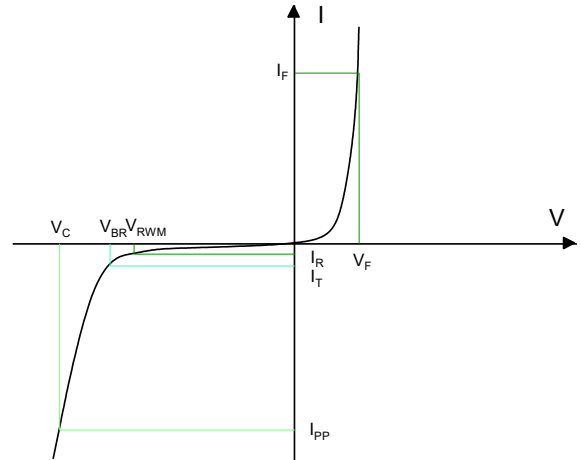
- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260°C
- Device meets MSL 3 requirements
- Pure tin plating: 7 ~ 17 um
- Pin flatness: $\leq 3mil$



Marking (Top View)

## Electronics Parameter

Symbol	Parameter
$V_{RWM}$	Peak Reverse Working Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$P_{PP}$	Peak Pulse Power
$C_J$	Junction Capacitance
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$



## Electrical characteristics per line@25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$	-	-	-	5.0	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	6.0	-	8.5	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5\text{V}$	-	-	1.0	$\mu\text{A}$
Clamping Voltage <sup>1)</sup>	$V_C$	TLP = 16A, $t_p = 100\text{ns}$	-	17.5	-	V
Dynamic resistance <sup>1)</sup>	$R_{DYN}$	-	-	0.6	-	$\Omega$
Clamping Voltage <sup>2)</sup>	$V_C$	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$	-	-	11.0	V
		$I_{PP} = 5\text{A}, t_p = 8/20\mu\text{s}$	-	-	15.0	V
Capacitance Between IO and GND	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$	-	0.75	-	pF
Capacitance Between IO and I/O	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$	-	0.4	-	pF

Notes:

1. TLP parameter:  $Z_0=50\Omega$ ,  $t_p=100\text{ns}$ ,  $t_r=2\text{ns}$ , averaging window from 60ns to 80ns.  $R_{DYN}$  is calculated from 4A to 16A.

2. Non-repetitive current pulse, according to IEC61000-4-5.

## Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p = 8/20\mu\text{s}$ )	$P_{PP}$	150	W
Peak Pulse Current ( $t_p = 8/20\mu\text{s}$ )	$I_{PP}$	5	A
Lead Soldering Temperature	$T_L$	260 (10 sec)	$^{\circ}\text{C}$
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	$^{\circ}\text{C}$
ESD Protection-Contact Discharge	$V_{ESD}$	$\pm 15$	kV
ESD Protection-Air Discharge	$V_{ESD}$	$\pm 15$	kV

Typical Characteristics

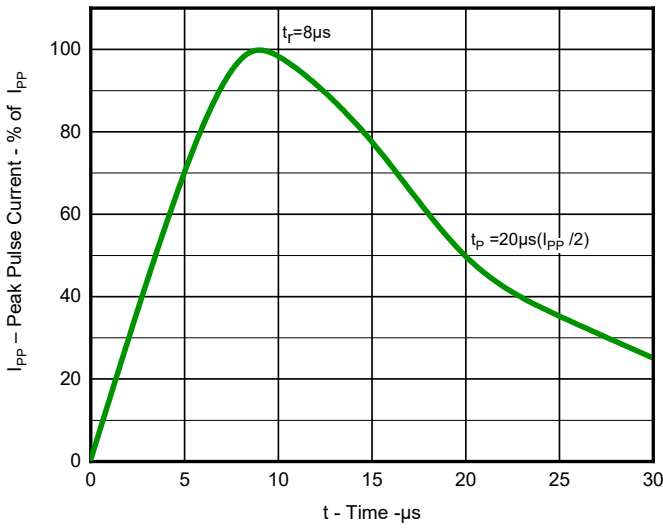


Fig 1. Pulse Waveform(8/20µs)

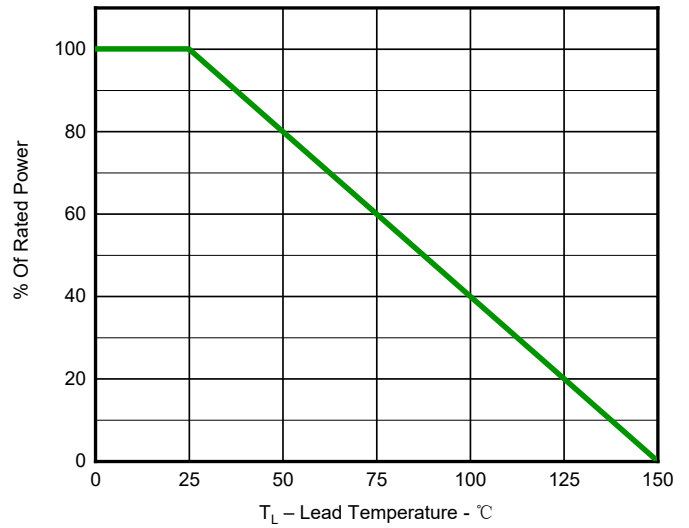


Fig 2. Power Derating Curve

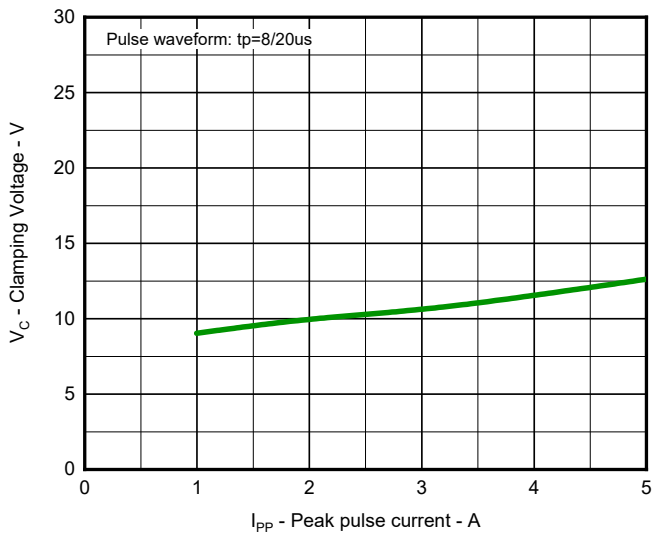


Fig 3. Clamping voltage vs. Peak pulse current

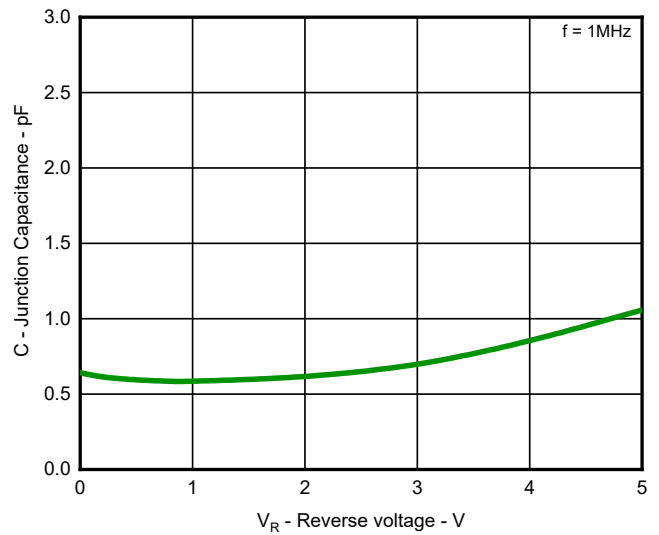


Fig 4. Capacitance vs. Reverse voltage

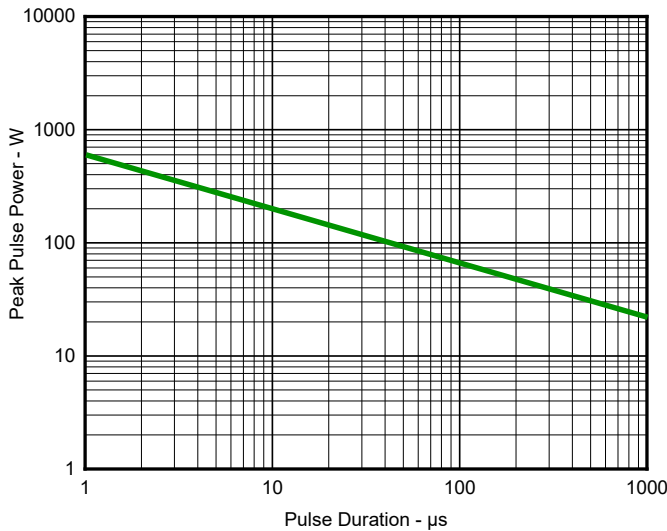


Fig 5. Non Repetitive Peak Pulse Power vs. Pulse time

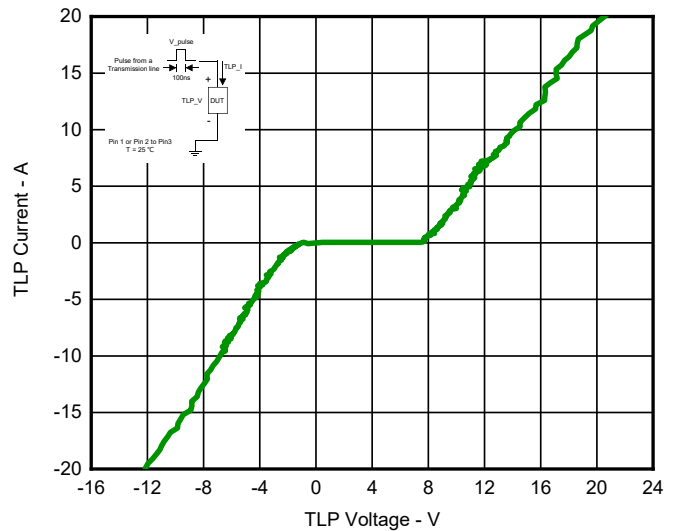
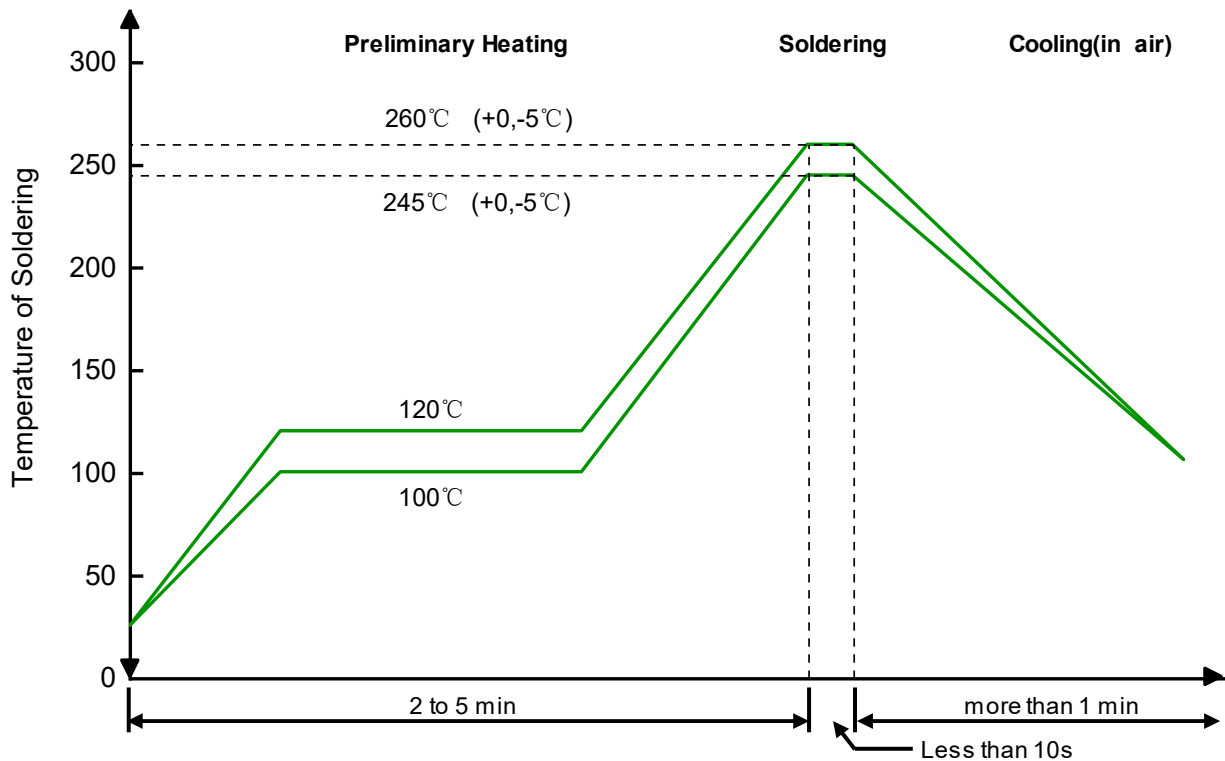


Fig 6. TLP Measurement

## Solder Reflow Recommendation



Remark: Pb free for 260°C; Pb for 245°C.

## PCB Design

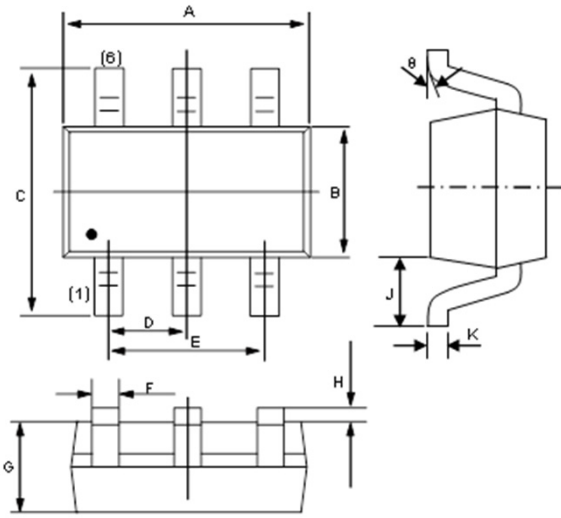
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- Do not use stubs, but place the cathode of the TVS diode directly on the signal trace.
- Do not make false economies and save copper for the ground connection.
- Place via holes to ground as close as possible to the anode of the TVS diode.
- Use as many via holes as possible for the ground connection.
- Keep the length of via holes in mind! The longer the more inductance they will have.

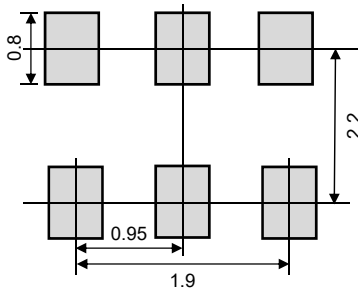
## Ordering information

Device	Package	Reel	Shipping
PESDAWC236T5VU	SOT-23-6L (Pb-Free)	7"	3000 / Tape & Reel

## Product dimension (SOT-23-6L)



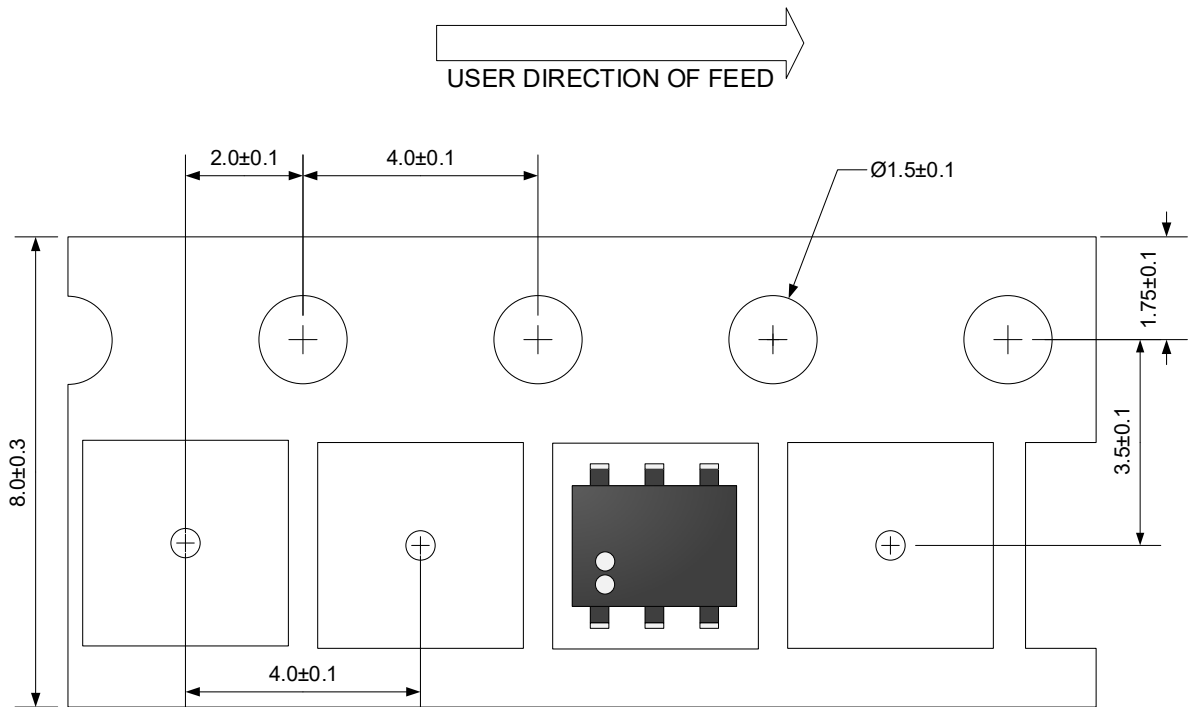
Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	2.720	3.120	0.107	0.123
B	1.400	1.800	0.055	0.071
C	2.600	3.000	0.102	0.118
D	0.950 (BSC)		0.037 (BSC)	
E	1.800	2.000	0.071	0.079
F	0.300	0.500	0.012	0.020
G	1.000	1.250	0.040	0.049
H	0.000	0.150	0.000	0.006
J	0.450	0.750	0.0180	0.029
K	0.100	0.200	0.004	0.008
$\theta$	0°	8°	0°	8°



Unit:mm


Suggested PCB Layout

## Load with information



Unit:mm


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