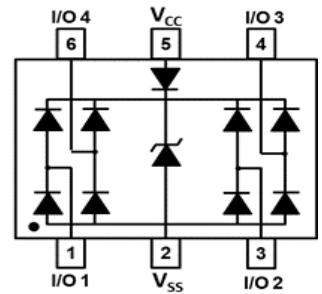


**Description**

The PESDAWC363T5VUD protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. They feature large cross-sectional area junctions for conducting high transient currents, offer desirable electrical character for board level protection, such as fast response time, low operating voltage. The PESDAWC363T5VUD is a high performance device suitable for protecting for protecting four high speed I/Os and one V<sub>cc</sub>. They have high ESD surge capability and low capacitance.



**Feature**

- SOT-363 Package
- IEC 61000-4-2 (ESD): Air-±15KV, Contact-±10KV
- Low Channel Input Capacitance of 0.72pF
- ESD Protection for four I/Os and one V<sub>cc</sub>
- Totally Lead-Free & Fully ROHS Compliant

**Applications**

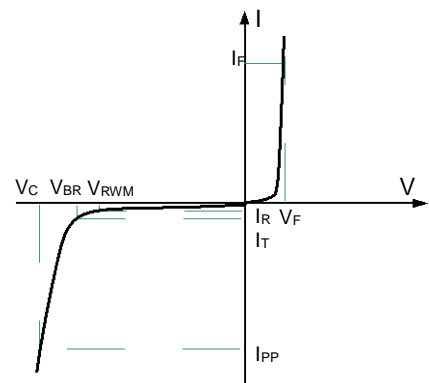
- IEEE 1394
- HDMI
- Laptop and Personal Computers
- USB 2.0
- Flat Panel Displays
- Video Graphics Displays

**Mechanical Characteristics**

- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260°C
- Device meets MSL 1 requirements
- Pure tin plating: 7 ~ 17 um
- Pin flatness: ≤3mil

**Electronics Parameter**

Symbol	Parameter
V <sub>RWM</sub>	Peak Reverse Working Voltage
I <sub>R</sub>	Reverse Leakage Current @ V <sub>RWM</sub>
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
I <sub>T</sub>	Test Current
I <sub>PP</sub>	Maximum Reverse Peak Pulse Current
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
P <sub>PP</sub>	Peak Pulse Power
C <sub>J</sub>	Junction Capacitance
I <sub>F</sub>	Forward Current
V <sub>F</sub>	Forward Voltage @ I <sub>F</sub>



Electrical characteristics per line@( unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	$V_{RWM}$	$V_{CC}$ to $V_{SS}$			5	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1mA$ , $V_{CC}$ to $V_{SS}$	5.8		9	V
Reverse Current	$I_R$	$V_R = V_{RWM} = 5.0V$ , any I/O to $V_{SS}$			5	$\mu A$
Reverse Current	$I_R$	$V_R = V_{RWM} = 5.0V$ any $V_{CC}$ to $V_{SS}$			5	$\mu A$
Forward Clamping Voltage	$V_F$	$I_F = 10mA$ , $V_{SS}$ to $V_{CC}$		0.95	1.2	V
Reverse Clamping Voltage	$V_{C\_I/O}$	$I_{PP} = 5A$ , I/O to $V_{SS}$ $t_P = 8/20\mu s$		9		V
Reverse Clamping Voltage	$V_{C\_VCC}$	$I_{PP} = 9A$ , $V_{CC}$ to $V_{SS}$ $t_P = 8/20\mu s$		9		V
ESD Clamping Voltage	$V_{ESD\_VCC}$	20A, $t_P = 100ns$ , $V_{CC}$ to $V_{SS}$		13.5		V
	$V_{ESD\_I/O}$	20A, $t_P = 100ns$ , I/O to $V_{SS}$		14		V
Dynamic Resistance	$R_{DIF\_VCC}$	20A, $t_P = 100ns$ , $V_{CC}$ to $V_{SS}$		0.28		$\Omega$
	$R_{DIF\_I/O}$	20A, $t_P = 100ns$ , I/O to $V_{SS}$		0.3		$\Omega$
Channel Input Capacitance	$C_{I/O \text{ to } V_{SS}}$	$V_R = 0V$ , $V_{CC} = \text{floating}$ , $f = 1MHz$		0.72		pF
Variation of Channel Input Capacitance	$C_{I/O \text{ MAX-}}$ $C_{I/O \text{ MIN}}$	$V_R = 0V$ , $V_{CC} = \text{floating}$ , $f = 1MHz$ , $T = 25^\circ C$		0.06		pF

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p = 8/20\mu s$ )	$I_{PP\_I/O}$	5	A
	$I_{PP\_VCC}$	9	A
ESD Protection-Contact Discharge	$V_{ESD\_I/O}$	10	KV
	$V_{ESD\_VCC}$	20	KV
ESD Protection-Air Discharge	$V_{ESD\_I/O}$	15	KV
	$V_{ESD\_VCC}$	25	KV
Power Dissipation Typical	$P_D$	200	mW
Thermal Resistance, Junction to Ambient Typical	$R_{\theta JA}$	625	$^\circ C/W$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^\circ C$

Typical Characteristics

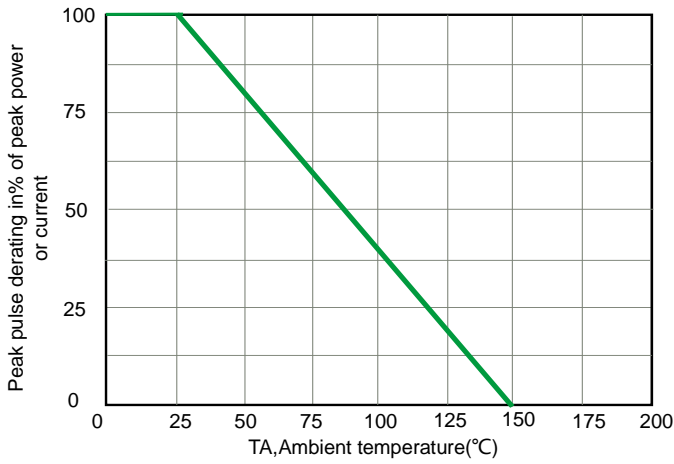


Fig 1. Pulse Derating Curve

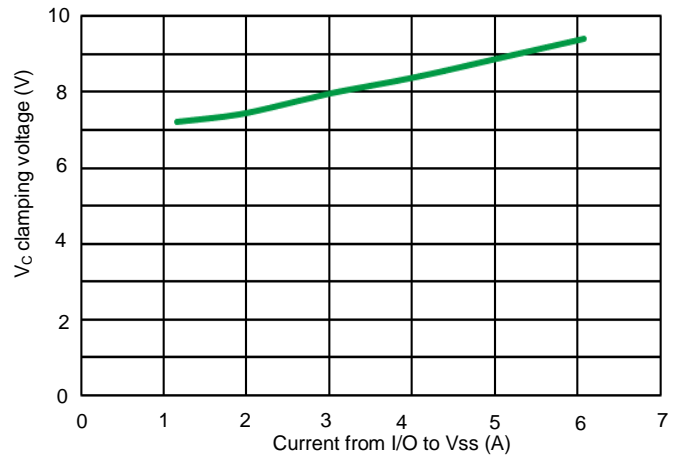


Fig 2. Clamping Voltage Characteristic

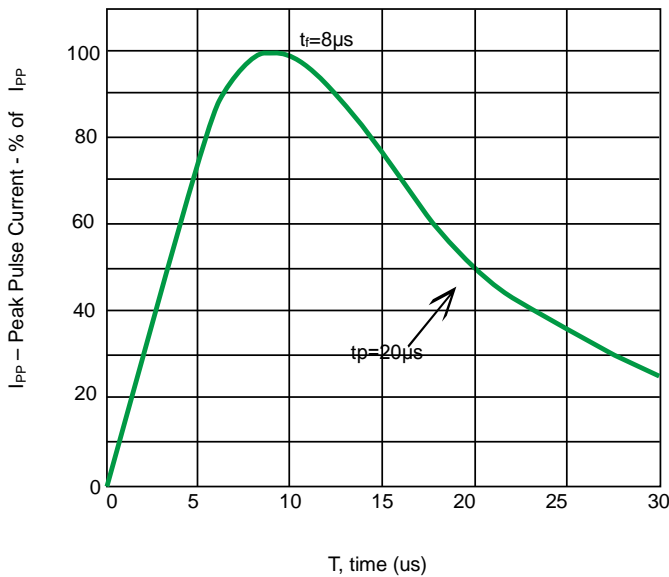


Fig 3. Waveform of clamping voltage, current vs time (8/20 us, I/O to Vss)

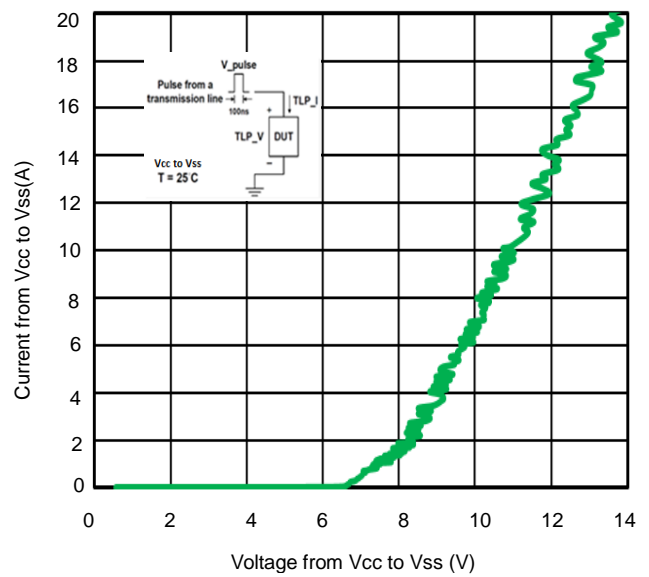


Fig 4. Transmission line pulsing (TLP) measurement current vs voltage

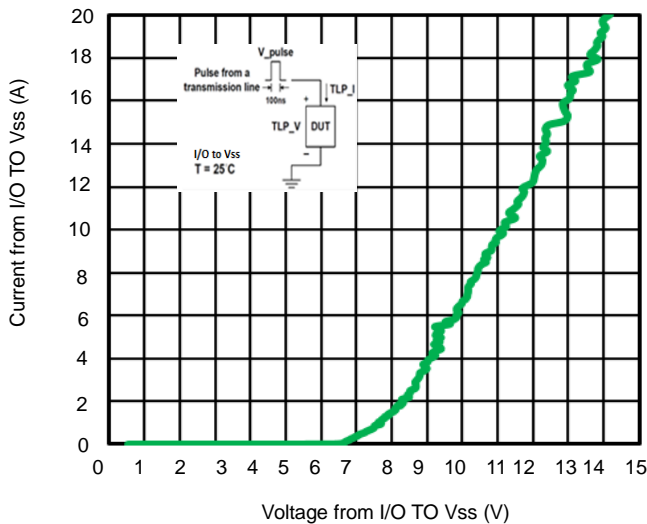
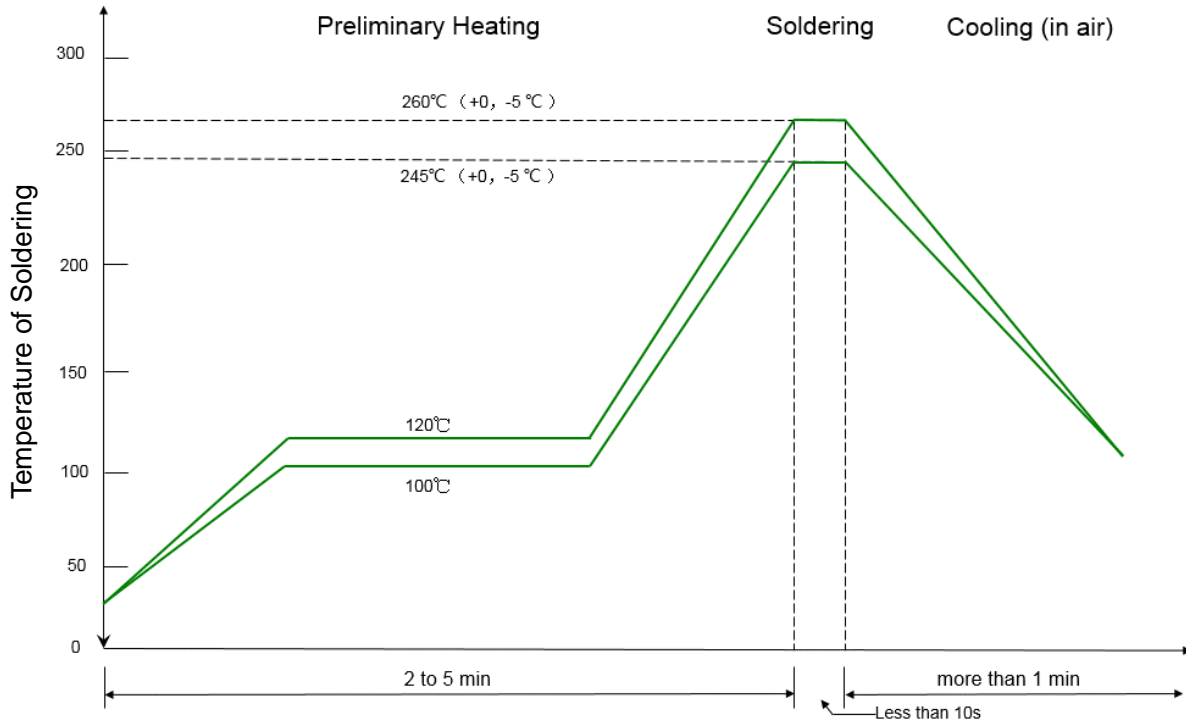


Fig 5. Transmission line pulsing (TLP) measurement vs voltage

**Solder Reflow Recommendation**



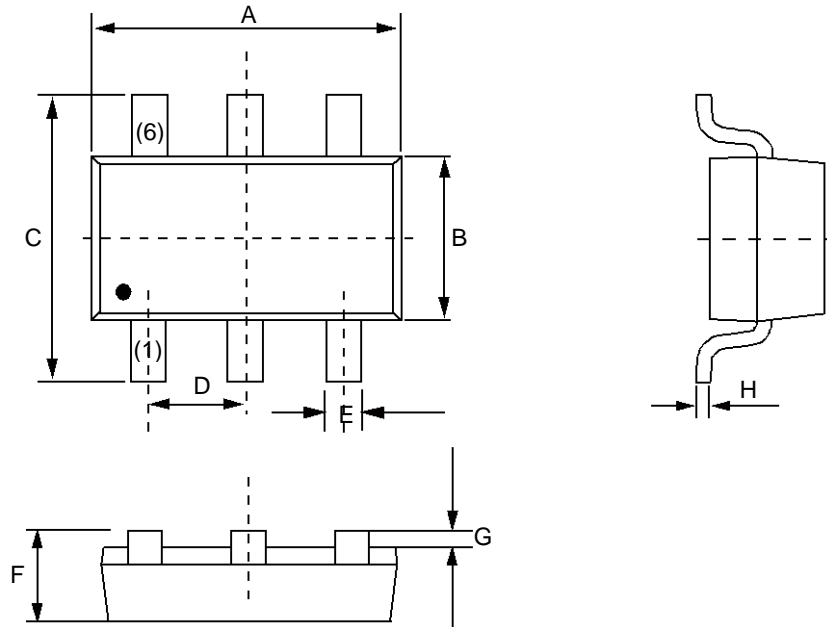
Remark: Pb free for 260°C; Pb for 245°C.

**PCB Design**

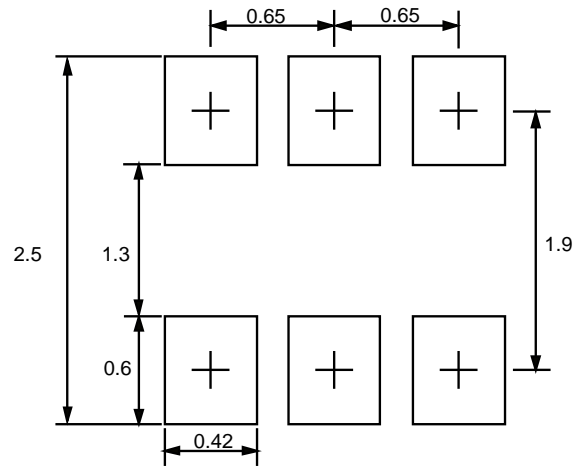
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- 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.

Product dimension (SOT-363)



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.0	2.2	0.079	0.087
B	1.15	1.35	0.045	0.053
C	2.15	2.45	0.085	0.096
D	0.65BSC		0.026BSC	
E	0.15	0.35	0.006	0.014
F	0.90	1.10	0.035	0.043
G	0.00	0.10	0.000	0.004
H	0.08	0.15	0.003	0.006

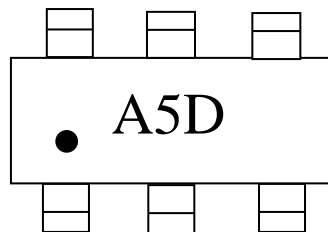


Unit: mm


Ordering information

Device	Package	MPQ
PESDAWC363T5VUD	SOT-363 (Pb-Free)	3000 / Tape & Reel

Marking Information




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