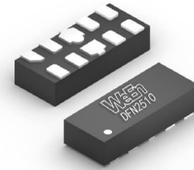


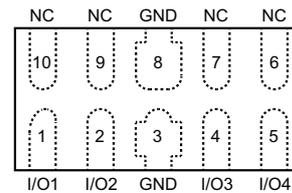
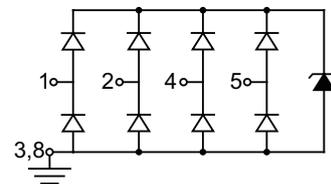
1. General description

The ESDALD05UG4 is a low capacitance TVS (Transient Voltage Suppressor) array designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD (Electrostatic Discharge).



2. Features and benefits

- Peak pulse power 60W @ 8/20 μ s waveform
- Protects two or four I/O lines
- IEC 61000-4-2 (ESD) \pm 15kV(air), \pm 8kV(contact)
- IEC 61000-4-5 (Lightning) 4A (8/20 μ s)
- Low capacitance
- Low leakage current
- 5V operating voltage
- Solid-state silicon avalanche technology
- Device meets MSL 1 requirements
- Halogen free and RoHS compliant



3. Applications

- High Definition Multi-Media Interface (HDMI)
- Digital Visual Interface (DVI)
- USB 1.1/2.0/OTG
- IEEE 1394 Firewire Ports
- Notebooks & Handhelds
- Projection TV & Monitors
- Set-top box
- Flat Panel Displays
- PCI Express



4. Ordering information

| Type number | Package Name | Orderable part number | Packing method | Small packing quantity | Marking | Package issue date |
|-------------|--------------|-----------------------|----------------|------------------------|---------|--------------------|
| ESDALD05UG4 | DFN2510 | ESDALD05UG4X | Tape and reel | 3000 | 0524P | 13-Oct-2020 |

5. Absolute maximum ratings

In accordance with the Absolute Maximum Rating System (IEC 60134).
 $T_j = 25^\circ\text{C}$ unless otherwise specified.

| Symbol | Parameter | Conditions | Values | Unit |
|--------------------------------|--|--------------------------|---------------------|------------------|
| Absolute maximum rating | | | | |
| P_{PPM} | peak pulse power | $t_p = 8/20 \mu\text{s}$ | 60 | W |
| I_{PP} | peak pulse current | $t_p = 8/20 \mu\text{s}$ | 4 | A |
| V_{ESD} | ESD per IEC 61000-4-2 (air) ESD per IEC 61000-4-2 (contact) | | \pm 15 \pm 8 | kV kV |
| T_{stg} | storage temperature range | | -55 to 150 | $^\circ\text{C}$ |
| T_j | operating temperature range | | -55 to 150 | $^\circ\text{C}$ |

6. Characteristics

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified.

| Symbol | Parameter | Condition | Min | Typ | Max | Unit |
|-----------|---------------------------|---|-----|------|-----|------|
| V_{RWM} | Reverse Working Voltage | Any I/O pin to GND | - | - | 5 | V |
| V_{BR} | Reverse Breakdown Voltage | $I_T = 1\text{ mA}$; Any I/O pin to GND | 6 | - | - | V |
| I_R | Reverse Leakage Current | $V_{RWM} = 5\text{ V}$; Any I/O pin to GND | - | - | 100 | nA |
| V_F | Diode Forward Voltage | $I_F = 15\text{ mA}$ | - | 0.85 | 1.2 | V |
| V_C | Clamping Voltage | $I_{PP} = 4\text{ A}$; $t_p = 8/20\text{ }\mu\text{s}$; Any I/O pin to GND | - | - | 15 | V |
| C_J | Junction Capacitance | $V_R = 0\text{ V}$; $f = 1\text{ MHz}$; Between I/O pins | - | 0.3 | 0.5 | pF |
| | | $V_R = 0\text{ V}$; $f = 1\text{ MHz}$; Any I/O pin to GND | - | 0.6 | 1 | pF |

Note: I/O pins are pin 1,2,4,5

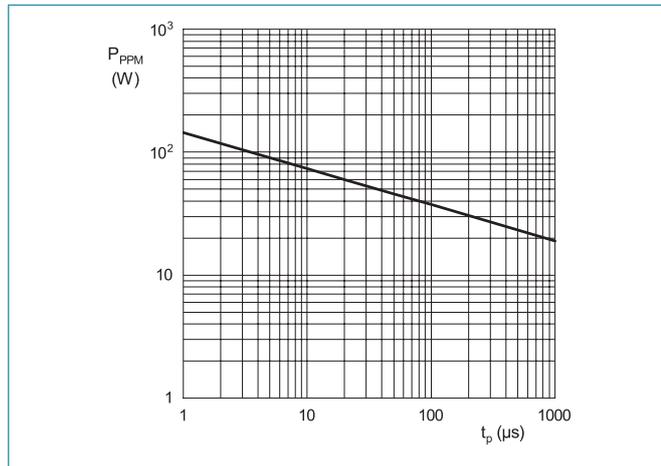


Fig. 1. Pulse rating curve

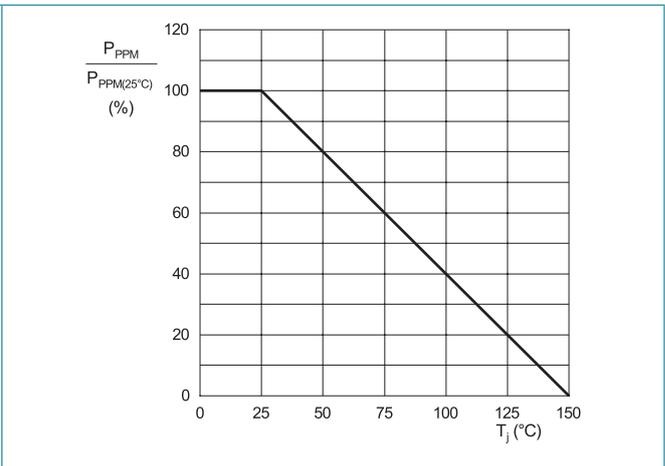


Fig. 2. Peak pulse power derating curve

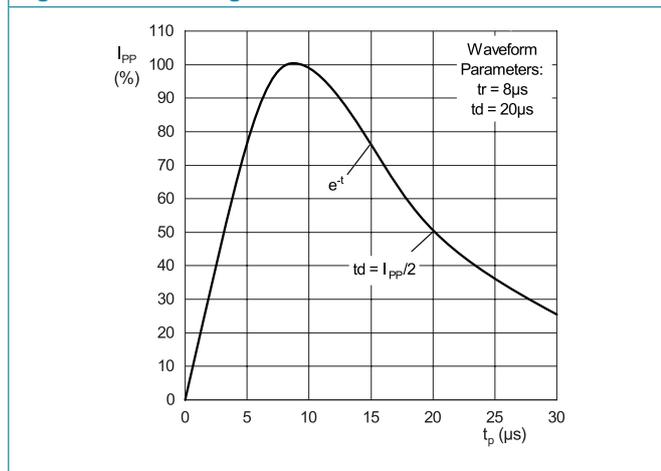


Fig. 3. Pulse waveform

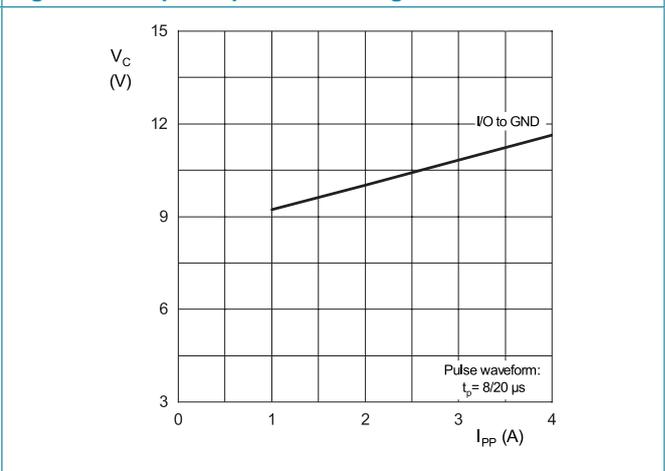


Fig. 4. Clamping voltage vs Peak pulse current

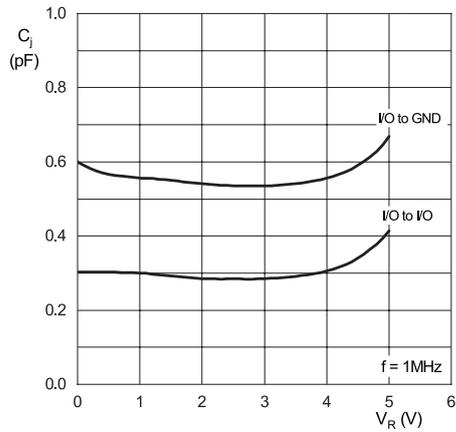


Fig. 5. Capacitance vs Reverse voltage

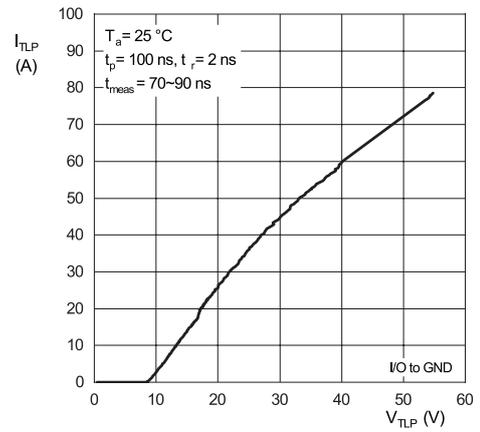


Fig. 6. TLP I-V Curve

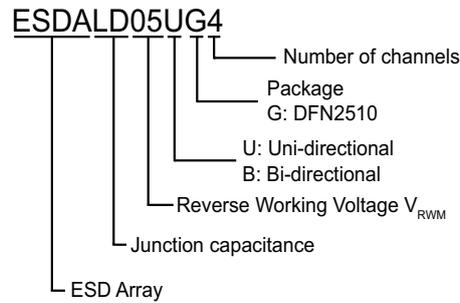
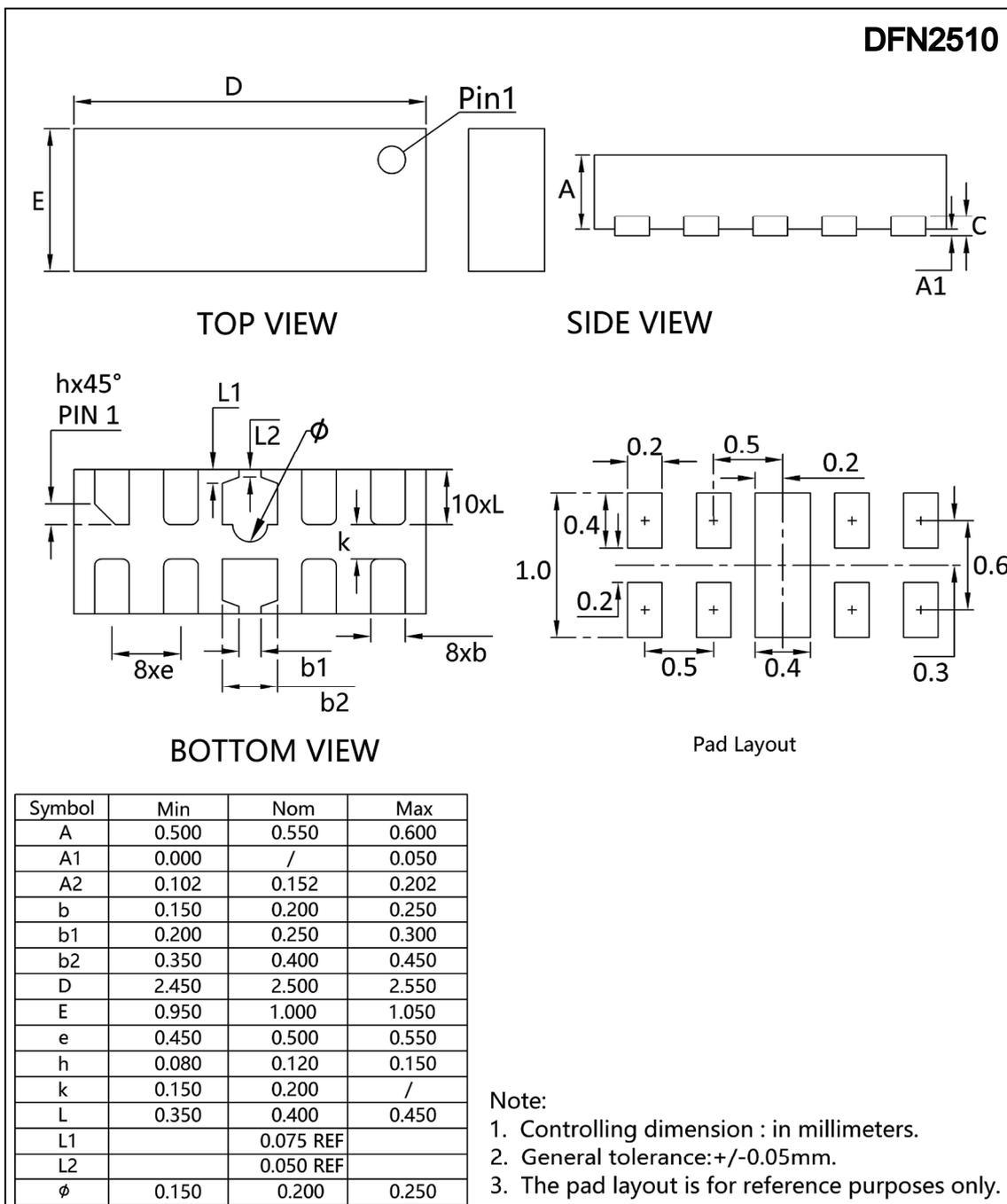


Fig. 7. Part numbering

7. Package outline



8. Legal information

Data sheet status

| Document status [1][2] | Product status [3] | Definition |
|--------------------------------|--------------------|---|
| Objective [short] data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet | Qualification | This document contains data from the preliminary specification. |
| Product [short] data sheet | Production | This document contains the product specification. |

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
- [3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.ween-semi.com>.

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