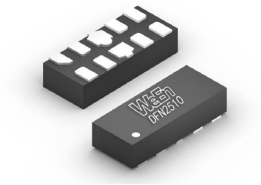
ESDAUDS05UG4

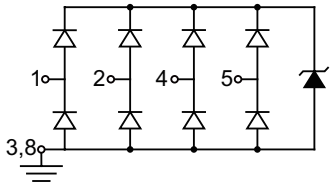
ESD Protection Diodes Array

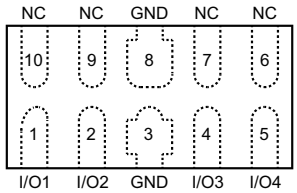
Rev.01 - 25 January 2024 Product data sheet

1. General description

The ESDAUDS05UG4 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 32W @ 8/20µs waveform
- Protects two or four I/O lines
- IEC 61000-4-2 (ESD) ±12kV(air), ±12kV(contact)
- IEC 61000-4-5 (Lightning) 4A (8/20µs)
- 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
ESDAUDS05UG4	DFN2510	ESDAUDS05UG4X	Tape and reel	3000	S05UG4	22-May-2023

5. Absolute maximum ratings

In accordance with the Absolute Maximum Rating System (IEC 60134).
T_j = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Values	Unit
Absolute maximum rating				
P_{PPM}	peak pulse power	t_p = 8/20 µs	32	W
I_{PP}	peak pulse current	t_p = 8/20 µs	4	A
V_{ESD}	ESD per IEC 61000-4-2 (air) ESD per IEC 61000-4-2 (contact)		±12 ±12	kV kV
T_{stg}	storage temperature range		-55 to 150	°C
T_j	operating temperature range		-55 to 150	°C

6. Characteristics

T_j = 25 °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 mA; Any I/O pin to GND	5.6	-	-	V
I_R	Reverse Leakage Current	V_{RWM} = 5 V; Any I/O pin to GND	-	-	1	µA
V_F	Diode Forward Voltage	I_F = 15 mA	-	0.85	1.2	V
V_H	Hold Voltage		2	-	-	V
V_C	Clamping Voltage	I_{PP} = 4 A; t_p = 8/20 µs; Any I/O pin to GND	-	-	8	V
C_J	Junction Capacitance	V_R = 0 V; f = 1 MHz; Between I/O pins	-	0.35	0.45	pF
		V_R = 0 V; f = 1 MHz; Any I/O pin to GND	-	0.58	0.7	pF

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

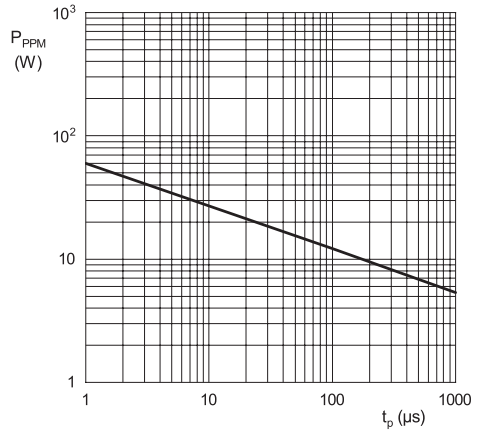


Fig. 1. Pulse rating curve

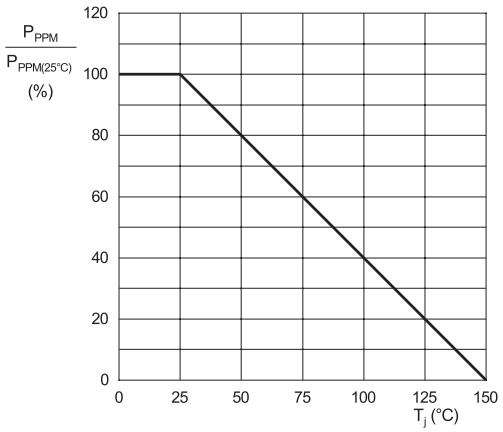


Fig. 2. Peak pulse power derating curve

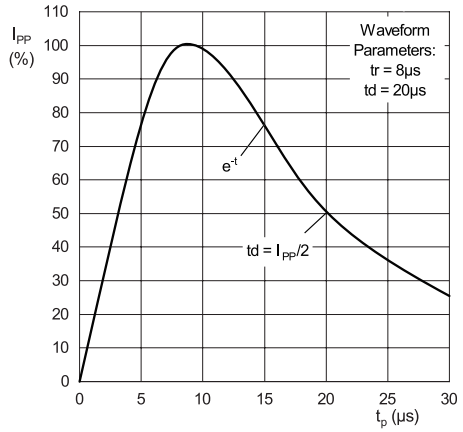


Fig. 3. Pulse waveform

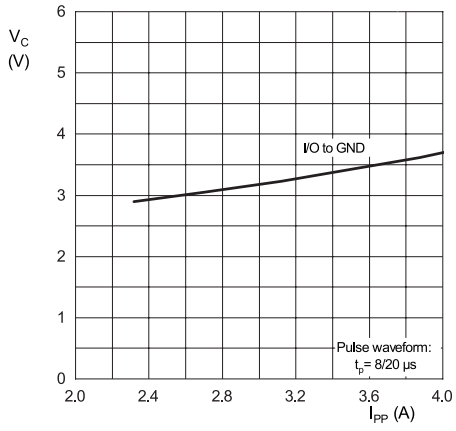


Fig. 4. Clamping voltage vs Peak pulse current

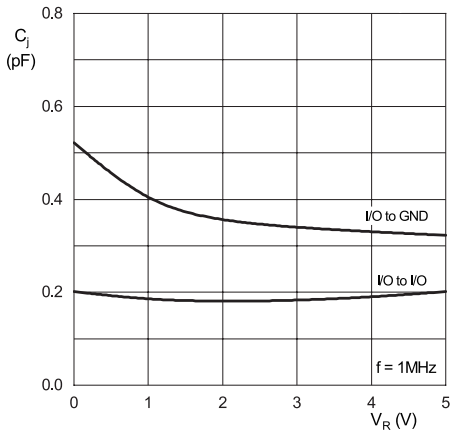


Fig. 5. Capacitance vs Reverse voltage

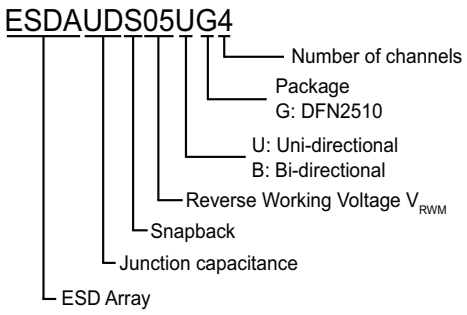
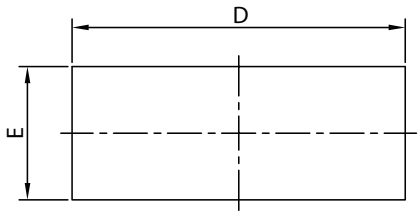
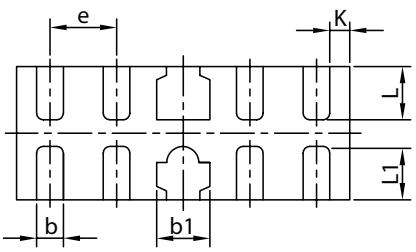


Fig. 6. Part numbering

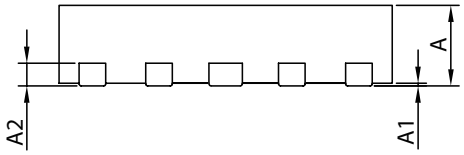
7. Package outline



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Dim	Min	Typ	Max
A	0.500	0.585	0.620
A1	0.000	--	0.050
A2	0.150	0.160	0.200
b	0.120	0.200	0.270
b1	0.350	0.400	0.450
D	2.420	2.500	2.580
e	0.450	0.500	0.550
E	0.920	1.000	1.080
L	0.340	0.400	0.460
L1	0.340	0.400	0.460
K	0.100	0.150	0.200
All Dimensions in mm			

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".
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