



## ESD Array Protection Device

**Peak Pulse Power - 50 Watts**  
**Reverse Working Voltage - 3.3V**

## Description

The H04X643V3U is ultra low capacitance ESD arrays designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from over voltage caused by ESD (electrostatic discharge).

## Features

- Protects four I/O lines (Data line)
- Peak Pulse Power : P<sub>pp</sub> = 50W (t<sub>p</sub>=8/20 us)
- Reverse Working Voltage : 3.3V
- Low Leakage Current
- Low Clamping Voltage
- Ultra Low Junction Capacitance : I/O to I/O , 0.3pF (Max)
- IEC 61000-4-2 (ESD) : ±20kV(Contact) / ±25kV(Air)

## Applications

- High definition multi-media interface (HDMI)
- Digital visual interface (DVI)
- Display port™ interface
- USB 3.0/3.1
- MDDI ports / SATA

## Mechanical Data

- Case: DFN2510 Package
- Case Material: "Green" Molding Compound UL Flammability

Classification Rating 94V-0

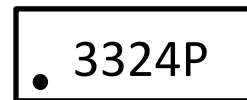
- Terminal: Matte tin plated.
- Component in accordance to RoHS
- Halogen Free

Note: Products with logo  or  are made by HY Electronic (Cayman) Limited.

## Ordering Information

- Package : DFN2510
- Reel Size : 7 (inches)
- Quantity Per Reel : 3,000/Tape & Reel
- Quantity One Box : 30,000/Tape & Reel
- Quantity One Carton : 120,000/Tape & Reel

## Marking Information



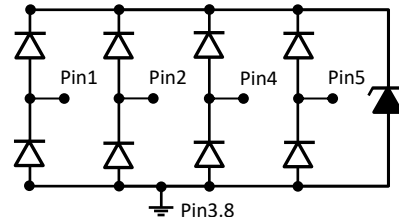
Product Type Marking Code

## Package Outline



DFN2510 Top View

## Device Schematic &amp; PIN Configuration



Pin Assignment	
1, 2, 4, 5	Input lines
6, 7, 9, 10	NC
3, 8	Ground

Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

## Absolute Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation (8/20 us)	P <sub>PP</sub>	50	W
Peak Pulse Current (8/20 us)	I <sub>PP</sub>	4	A
ESD Protection- Contact (Standard IEC 61000-4-2)	V <sub>ESD</sub>	±20	k V
ESD Protection- Air (Standard IEC 61000-4-2 )		±25	
Operating Temperature Range	T <sub>J</sub>	-55 to +125	° C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	° C
Soldering Temperature, t max =10s	T <sub>L</sub>	260	° C

## Electrical Characteristics

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Reverse Working Voltage	Any I/O pin to ground	V <sub>RWM</sub>	-	-	3.3	V
Reverse Breakdown Voltage	I <sub>T</sub> = 1mA	V <sub>B</sub>	4.2	-	9	V
Reverse Current	V <sub>R</sub> = 3.3V	I <sub>R</sub>	-	-	1	uA
Reverse Clamping Voltage	I <sub>PP</sub> = 1A (8/20μs)	V <sub>C</sub>	-	-	10	V
	I <sub>PP</sub> = 4A (8/20μs)		-	-	14	
Junction Capacitance	V <sub>R</sub> = 0V, F = 1MHz Between I/O pins	C <sub>j</sub>	-	0.25	0.3	p F
	V <sub>R</sub> = 0V, F = 1MHz Any I/O pin to ground		-	0.5	0.6	



## Rating and Characteristic Curves

FIG.1 - 8/20us Pulse Waveform According to IEC 61000-4-5

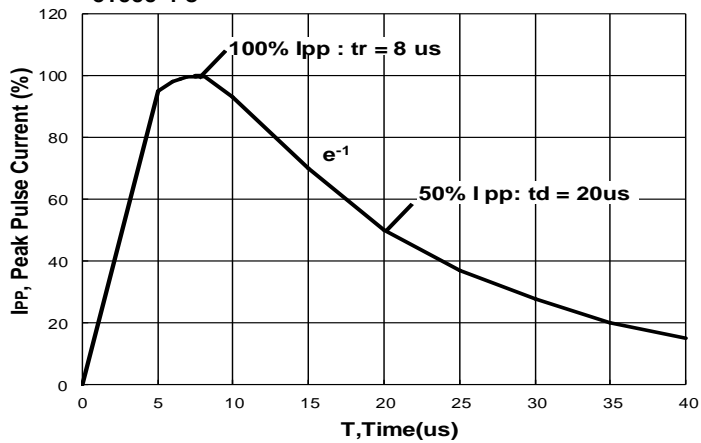


FIG.2 - Power Dissipation Versus Pulse Time

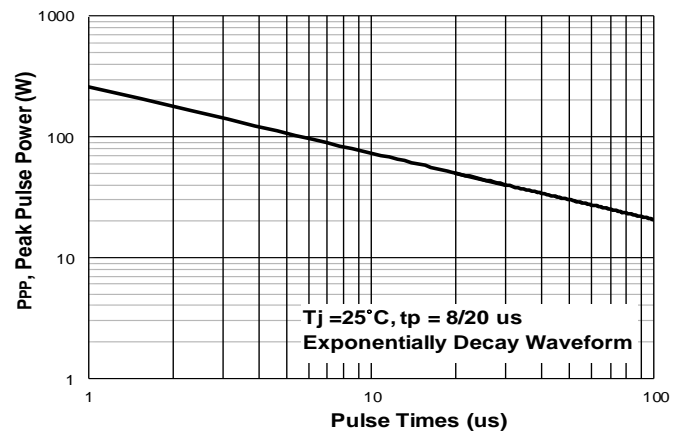


FIG.3 - Peak Pulse Power Versus Tj

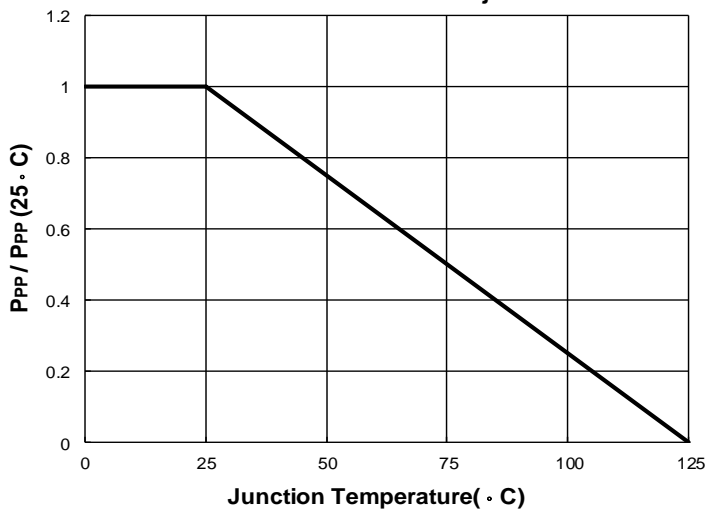
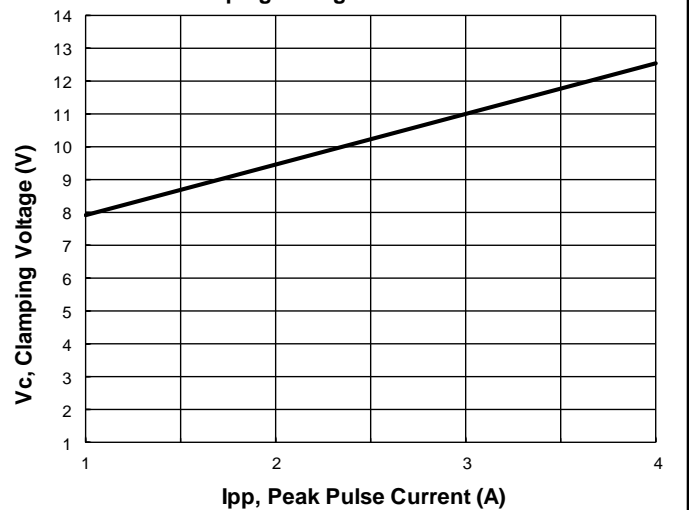
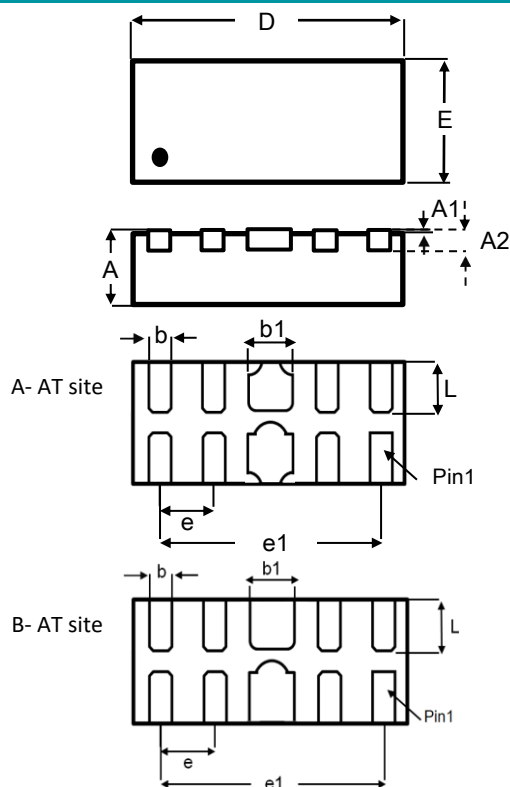


FIG.4 - Clamping Voltage Characteristic





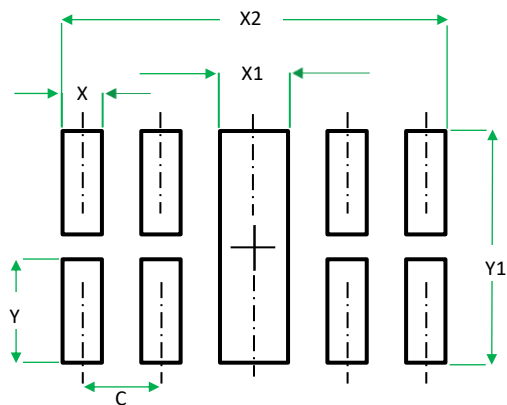
## Package Outline Dimensions



DFN2510 Package			
Dim.	Min	Typ	Max
D	2.45	2.50	2.55
E	0.95	1.00	1.05
A	0.45	0.50	0.55
A1	0.00	-	0.05
A2	0.15REF		
b	0.15	0.20	0.25
b1	0.35	0.40	0.45
e	-	0.50	-
e1	-	2.00	-
L	0.33	0.38	0.43
All Dimensions in mm			

Note: HY internal have both AT site

## Suggested Soldering Pad Layout



Dim.	Value
X	0.25
X1	0.45
X2	2.25
Y	0.63
Y1	1.40
C	0.50
All Dimensions in mm	



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