



## ESD Array Protection Device

**Peak Pulse Power - 60 Watts**  
**Reverse Working Voltage - 5V****Description**

The H04X645V0U 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> = 60W (tp=8/20 us)
- Reverse Working Voltage : 5V
- Low Leakage Current
- Ultra Low Junction Capacitance : I/O to I/O , 0.3pF (Max)
- IEC 61000-4-2 (ESD) : ±20kV(Contact) / ±25kV(Air)
- IEC 61000-4-4 (EFT) 40A (5/50ns)

**Applications**

- High definition multi-media interface (HDMI)
- Digital visual interface (DVI)
- Display prot<sup>TM</sup> interface
- USB3.0(5G) / USB 3.1(10G)
- SATA
- Display and MDDI Ports
- Ethernet port:10/100/1000/2500 Mb/s

**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

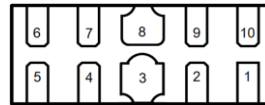
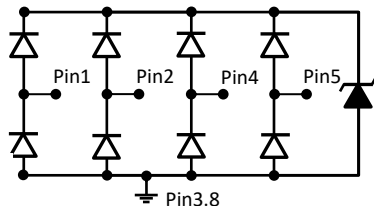
**Marking Information**

● 0524P

Product Type Marking Code

**Package Outline**

DFN2510 Top View

**Device Schematic & PIN Configuration**

Pin Assignment

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

**Maximum Ratings (@TA = +25°C, unless otherwise specified.)****Absolute Ratings**

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation (8/20 us)	P <sub>PP</sub>	60	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>	-	-	5	V
Reverse Breakdown Voltage	I <sub>T</sub> = 1mA	V <sub>B</sub>	6	-	9	V
Reverse Leakage Current	V <sub>R</sub> = 5V	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)		-	-	15	
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

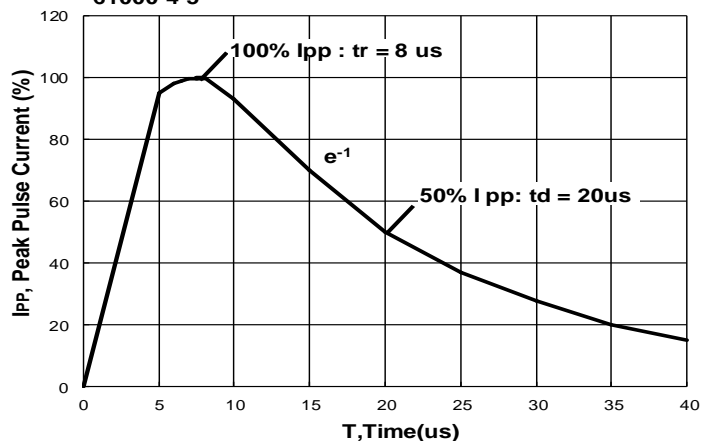


FIG.2 - Power Dissipation Versus Pulse Time

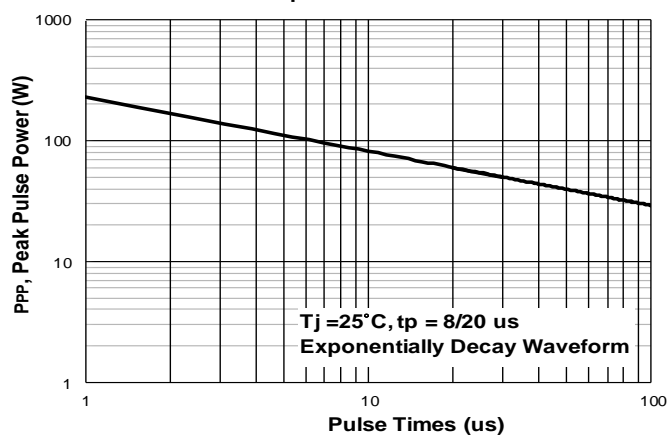


FIG.3 - Peak Pulse Power Versus Tj

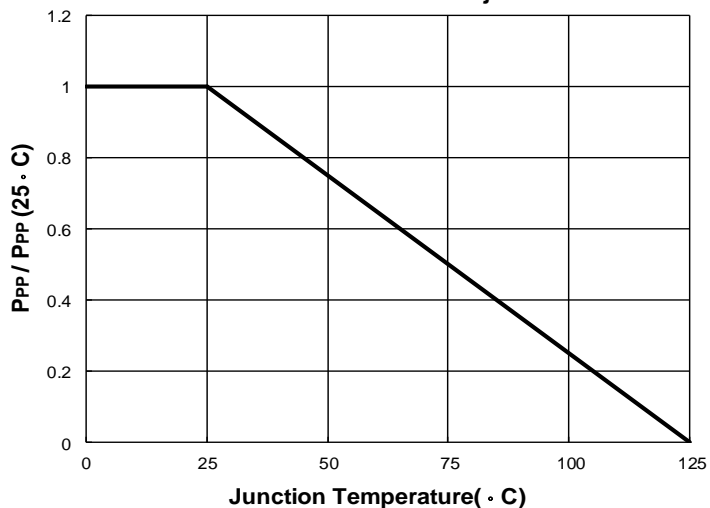
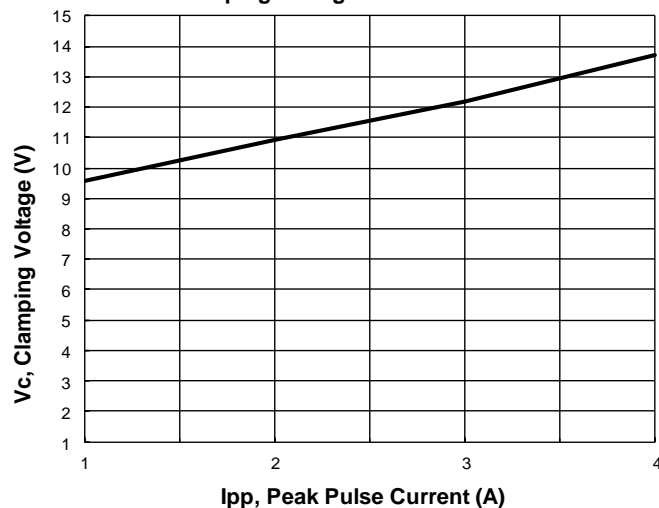
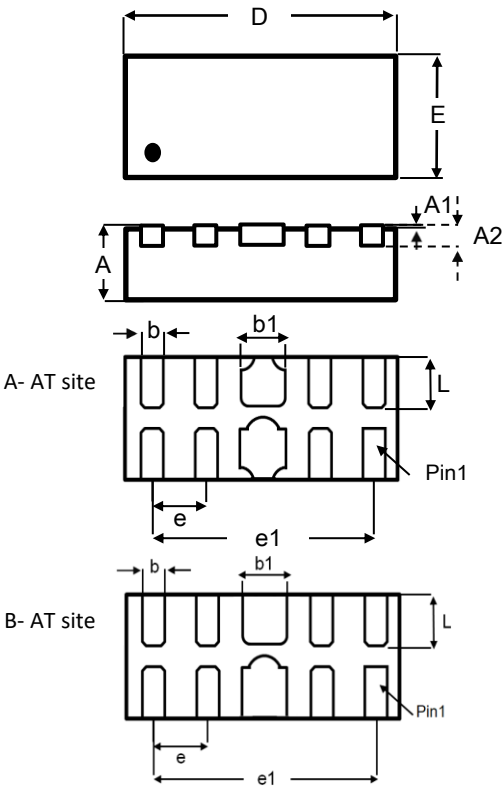


FIG.4 - Clamping Voltage Characteristic





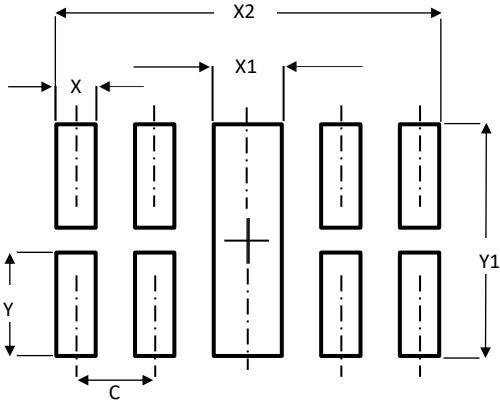
Package Outline Dimensions



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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