



为您的产品保驾护航

PRODUCT DATASHEET

Electro-Static Discharge

JEN2510-5V-UL4 ESD

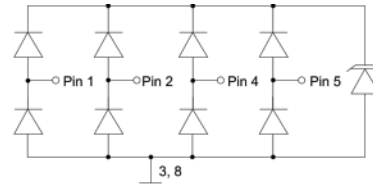
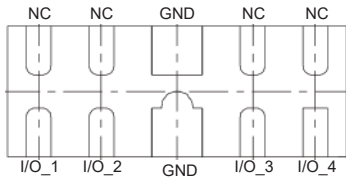
Features

- Ultra small package: 2.5×1.0×0.5mm(DFN2510)
- Ultra low capacitance: 0.3pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Up to 4 lines protects
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: ±25kV
Contact discharge: ±20kV
 - IEC61000-4-5 (Lightning) 5A (8/20μs)
- RoHS Compliant

Applications

- HDMI 1.3 & 1.4, USB 2.0 & 3.0 and MDDI ports
- Monitors and flat panel displays
- Set-top box and Digital TV
- Video graphics cards
- HDMI 2.0
- Digital Visual Interface (DVI)
- Notebook Computers
- PCI Express and Serial SATA Ports

Pin Description



Circuit and Pin Schematic

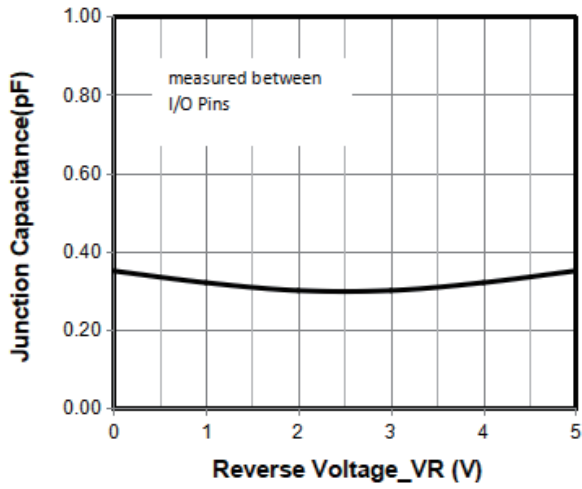
Limiting Values(T_A = 25 °C, unless otherwise specified)

Symbol	Parameter	Conditions	Value	Unit
V _{ESD}	Electrostatic Discharge Voltage	IEC 61000-4-2;Contact Discharge	±20	kV
		IEC 61000-4-2;Air Discharge	±25	kV
P _{PP}	Peak Pulse Power	t _p =8/20μs	80	W
I _{PP}	Rated Peak Pulse Current	t _p =8/20μs	5.0	A
T _J	Operating Temperature Range	-	-55 to +125	°C
T _{stg}	Storage Temperature Range	-	-55 to +150	°C

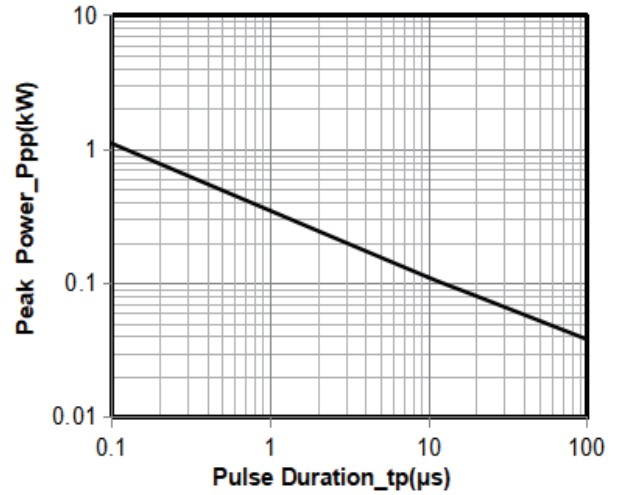
Electrical Characteristics(T_A = 25 °C, unless otherwise specified)

Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
V _{RWM}	Reverse Working Voltage	Any I/O pin to ground	-	-	5	V
V _{BR}	Breakdown Voltage	I _T =1mA,any I/O pin to ground	6	-	-	V
I _R	Reverse Leakage Current	V _{RWM} =5V,any I/O pin to ground	-	0.01	0.5	μA
V _C	Clamping Voltage	I _{PP} =1A(8x20μs pulse),any I/O pin to ground	-	-	9	V
		I _{PP} =5A(8x20μs pulse),any I/O pin to ground	-	-	16	V
C _J	Junction Capacitance	V _R =0V,f=1 MHZ,between I/O pins	-	0.3	0.4	pF
		V _R =0V,f=1 MHZ,any I/O pin to ground	-	-	0.8	pF

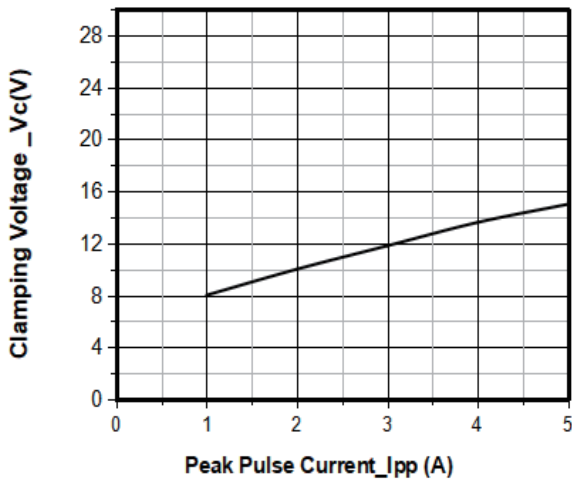
Typical Characteristics



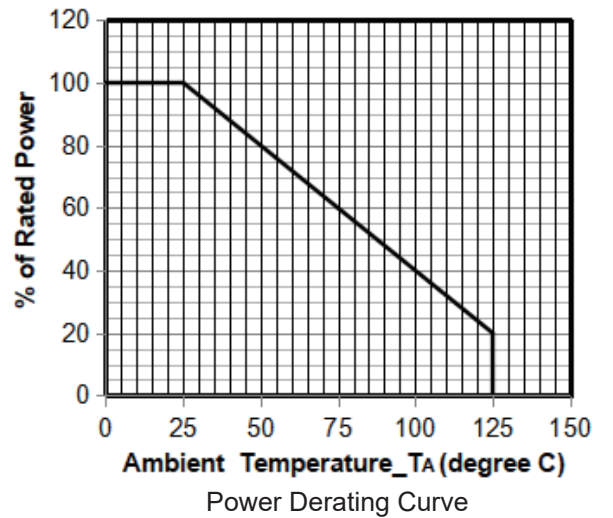
Junction Capacitance vs. Reverse Voltage



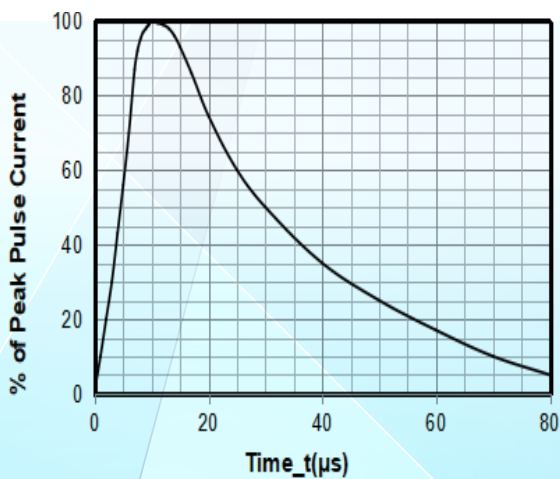
Peak Pulse Power vs. Pulse Time



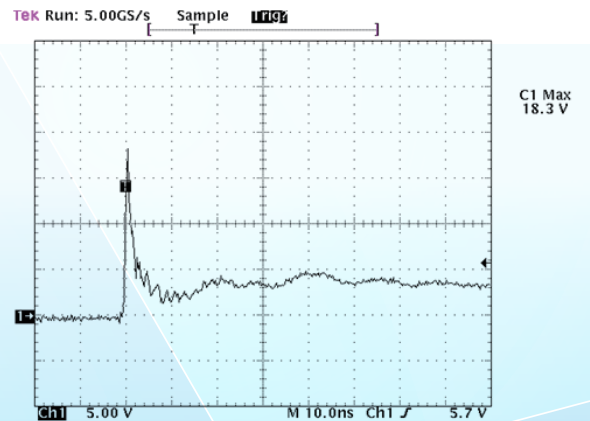
Clamping Voltage vs. Peak Pulse Current



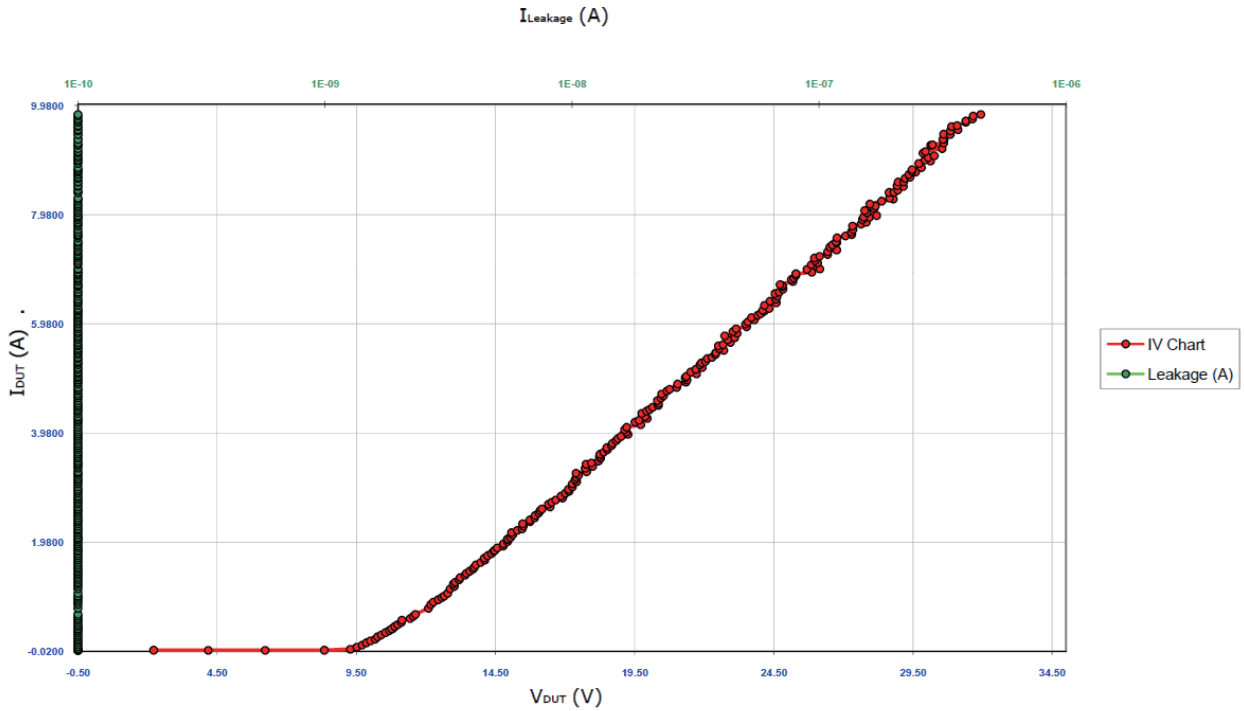
Power Derating Curve



8 X 20 μ s Pulse Waveform



Note: Data is taken with a 10x attenuator
ESD Clamping Voltage
8 kV Contact per IEC61000-4-2

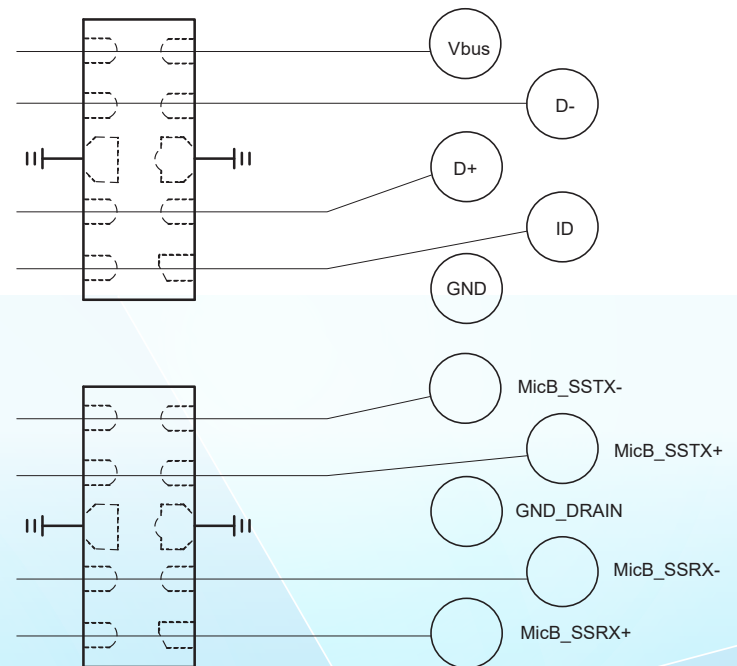
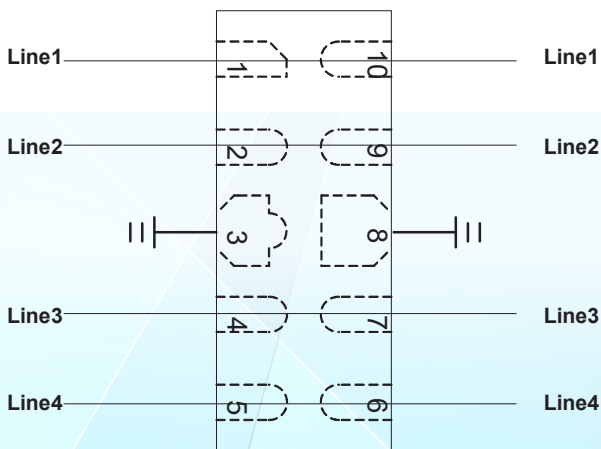


Typical Application

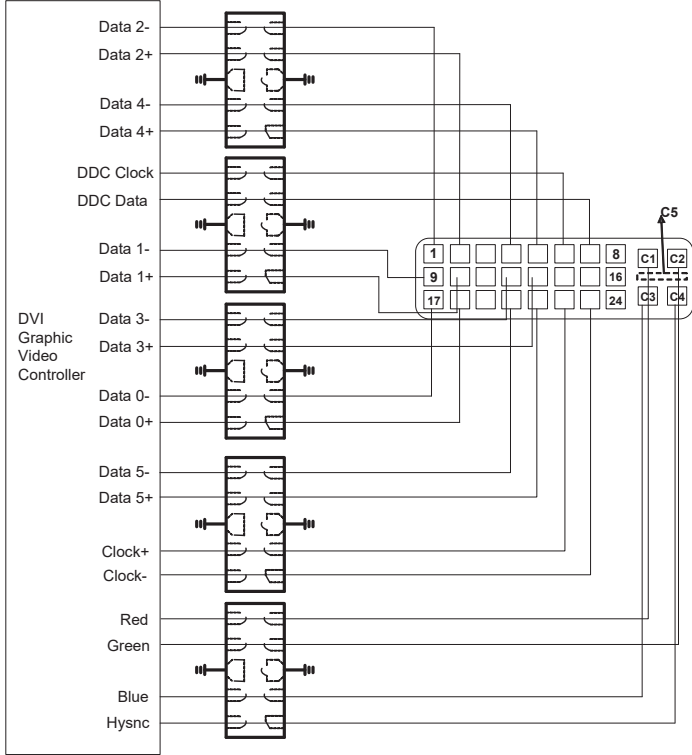
The JEN2510-5V-UL4 is designed for easy PCB layout by allowing the traces to run straight through the device.

The PCB traces could be used to connect the pin pairs for each line. For example, line 1 enters at pin 1 and exits at pin 10 and the PCB trace connects Pin 1 and Pin 10 together. Ground is connected at Pin 3 and Pin 8.

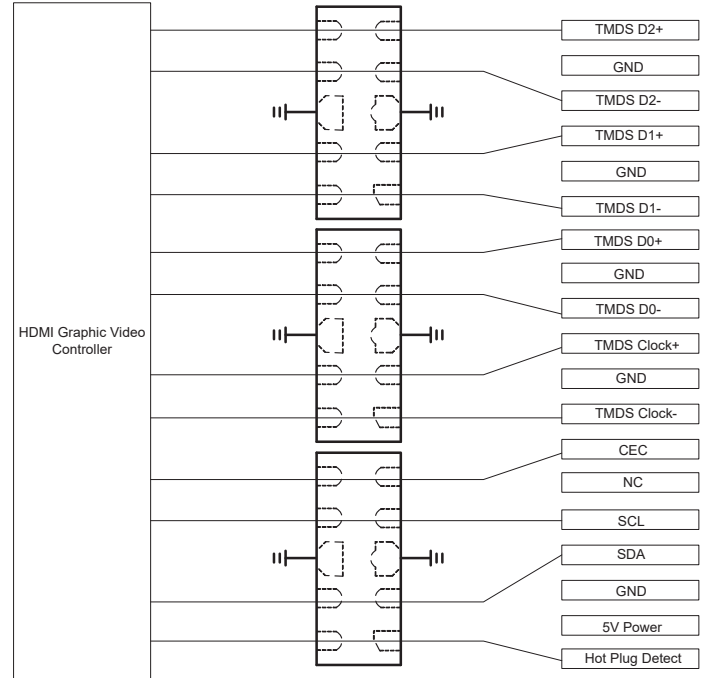
JEN2510-5V-UL4 on USB 3.0 Port Application



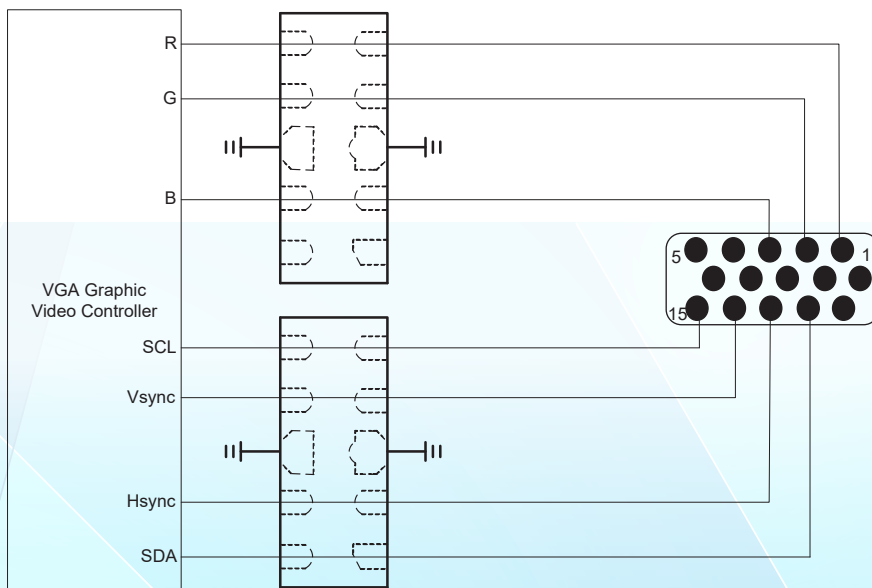
JEN2510-5V-UL4 on DVI Port Application:

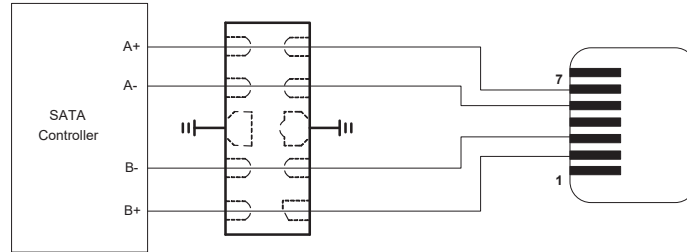
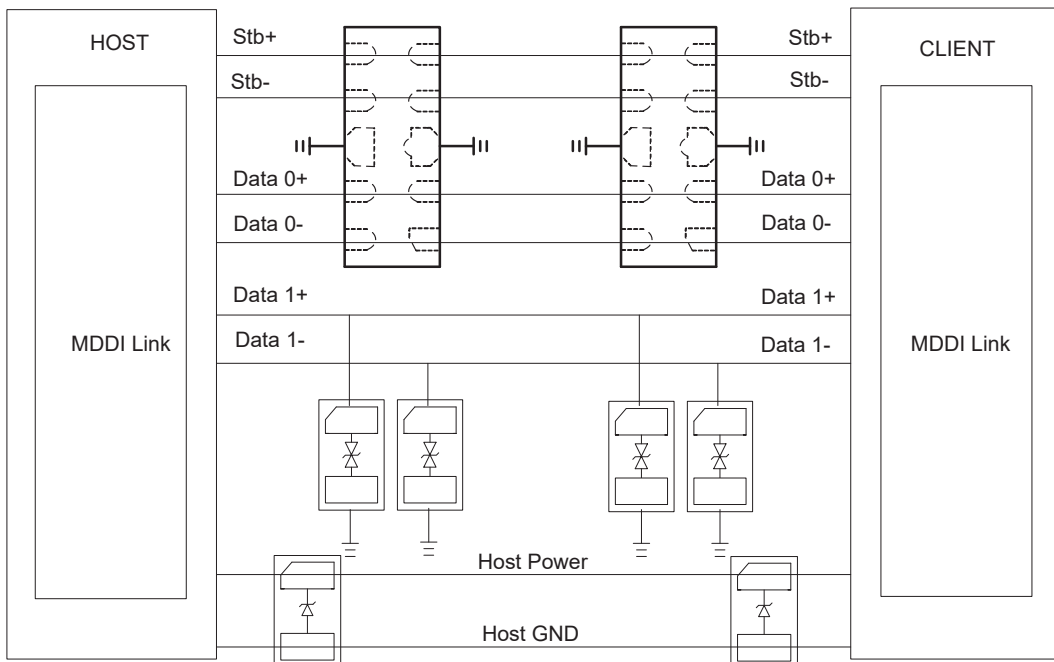
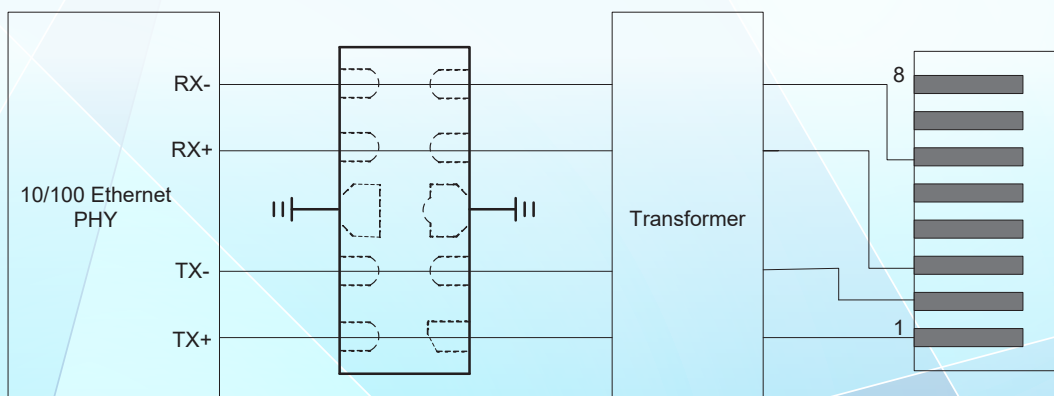


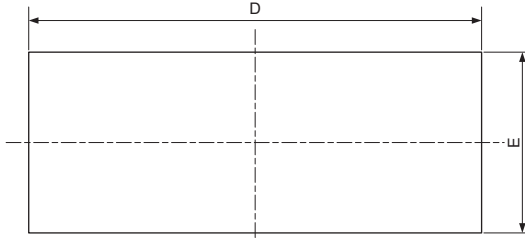
JEN2510-5V-UL4 on HDMI Port Application:



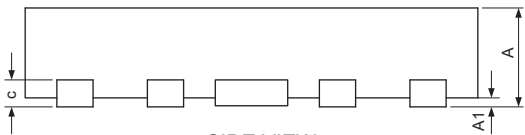
JEN2510-5V-UL4 on VGA Port Application:



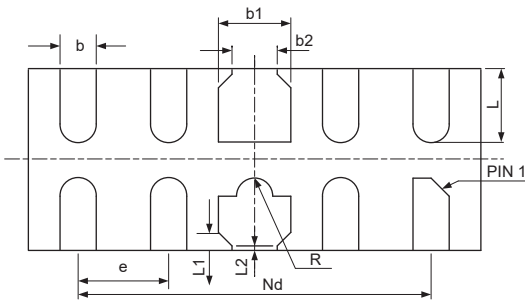
JEN2510-5V-UL4 on eSATA Port Application:

JEN2510-5V-UL4 on MDDI Port Application:

JEN2510-5V-UL4 on 10/100 Base Ethernet Port Application:


Physical Dimensions(mm.)


TOP VIEW

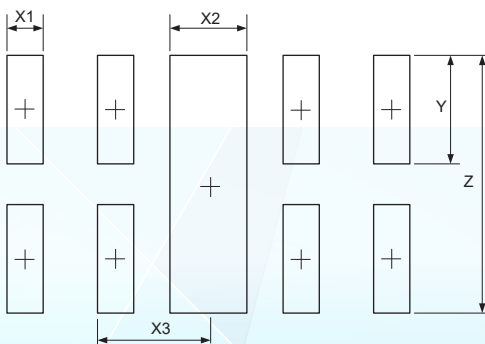


SIDE VIEW



BOTTOM VIEW

Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min	Nom	Max	Min	Nom	Max
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.15	0.20	0.25	0.006	0.008	0.010
b1	0.35	0.40	0.45	0.014	0.016	0.018
b2	0.20	0.25	0.30	0.008	0.010	0.012
c	0.10	0.15	0.20	0.004	0.006	0.008
D	2.45	2.50	2.55	0.098	0.100	0.102
e	0.50 BSC			0.020 BSC		
Nd	2.00 BSC			0.080 BSC		
E	0.95	1.00	1.05	0.038	0.040	0.042
L	0.35	0.40	0.45	0.014	0.016	0.018
L1	0.075 REF			0.003 REF		
L2	0.050 REF			0.002 REF		
h	0.08	0.12	0.15	0.003	0.005	0.006
R	0.05	0.10	0.15	0.002	0.004	0.006

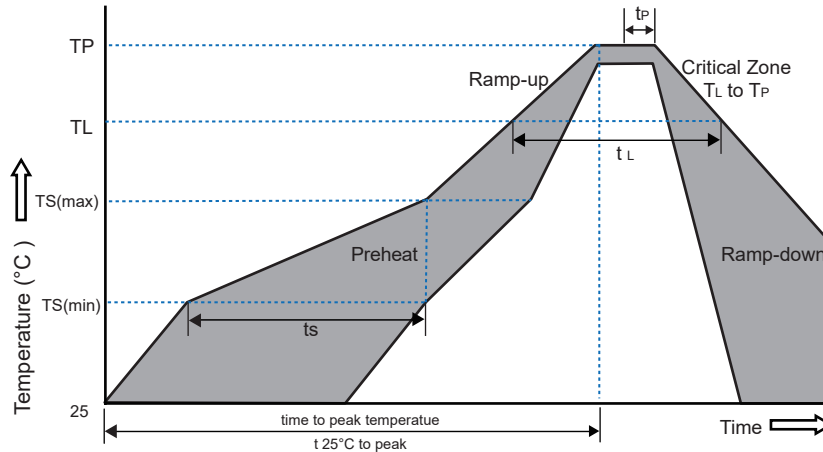
Suggested Land Pattern


Symbol	Dimensions	
	Millimeters	Inches
X1	0.200	0.008
X2	0.400	0.016
X3	0.600	0.024
Y	0.600	0.024
Z	1.400	0.056

Packaging Quantity

Part Number	Size(mm)	Delivery Form	Delivery Quantity
JEN2510-5V-UL4	2.5×1.0×0.5	7" T&R	3,000

Soldering Parameters



Reflow Condition		Pb-Free Assembly
Pre-heat	-Temperature Min($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time(Min to Max)(t_s)	60~180 secs.
Average ramp up rate (Liquid us Temp(T_L) to peak)		3°C/sec. Max
Ts(max) to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature (t_L)	60~150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
xTime 25°C to Peak Temp (TP)		8 min. Max
Do not exceed		+260°C

Part Number System

JE N2510 - 5V - UL 4

