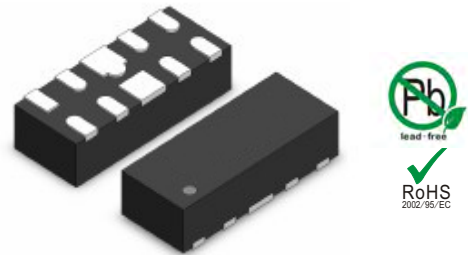


## Features

- Ultra low capacitance: 0.3pF typical (I/O to I/O)
- No Insertion loss to 3.0GHz
- Low clamping voltage
- Working voltage: 5V
- Up to 4 lines protects
- RoHS compliant



**DFN2510-10**

## IEC Compatibility (EN61000-4)

- IEC 61000-4-2 (ESD)  $\pm 8\text{kV}$  contact  $\pm 15\text{kV}$  air
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 5A (8/20 $\mu\text{s}$ )

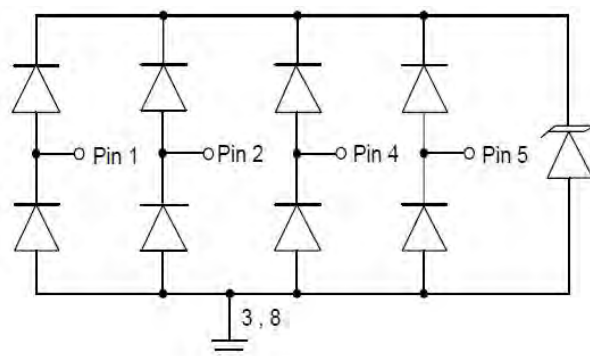
## Applications

- 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
- Digital Video Interface (DVI)
- Notebook Computers
- PCI Express and Serial SATA Ports

## Mechanical Characteristics

- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below

## Schematic & PIN Configuration



**DFN2510-10**

## Absolute Maximum Rating

Parameter	Symbol	Value	Units
Peak Pulse Power ( $t_p = 8/20\mu s$ waveform)	$P_{PP}$	100	W
Peak Pulse Current (8/20 $\mu s$ )	$I_{pp}$	5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	$V_{ESD}$	$\pm 15$ $\pm 8$	kV
Operating Temperature Range	$T_J$	-55 to + 125	$^{\circ}C$
Storage Temperature Range	$T_{STG}$	-55 to + 150	$^{\circ}C$

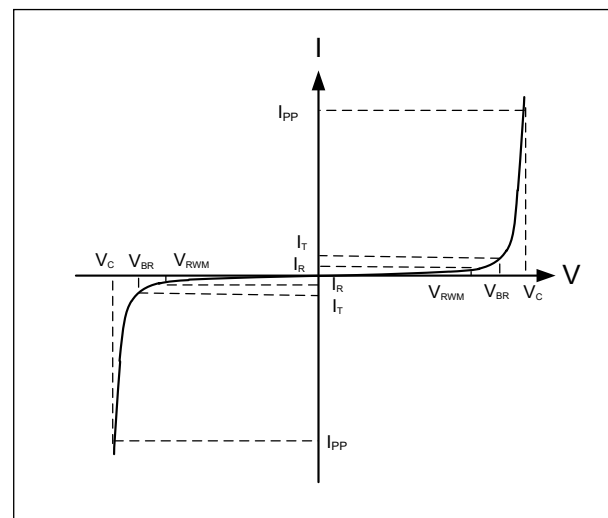
## Electrical Characteristics

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	$V_{RWM}$				5	V
Breakdown Voltage	$V_{BR}$	$I_T = 1mA$	6		10	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5V$			1	$\mu A$
Clamping Voltage	$V_C$	$I_{PP} = 1A$ (8 x 20 $\mu s$ pulse), Any I/O Pin to Gnd			9	V
Clamping Voltage	$V_C$	$I_{PP} = 5A$ (8 x 20 $\mu s$ pulse), Any I/O Pin to Gnd			15	V
Junction Capacitance	$C_J$	$V_R = 0V$ , $f = 1MHz$ , Between I/O Pin		0.3	0.4	pF
Junction Capacitance	$C_J$	$V_R = 0V$ , $f = 1MHz$ , Any I/O to Gnd			0.8	pF

## Electrical Parameters (TA = 25 $^{\circ}C$ unless otherwise noted)

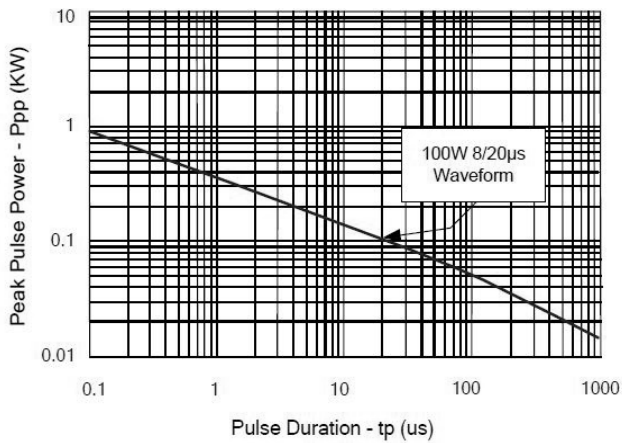
Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current

Note: 8/20 $\mu s$  pulse waveform.

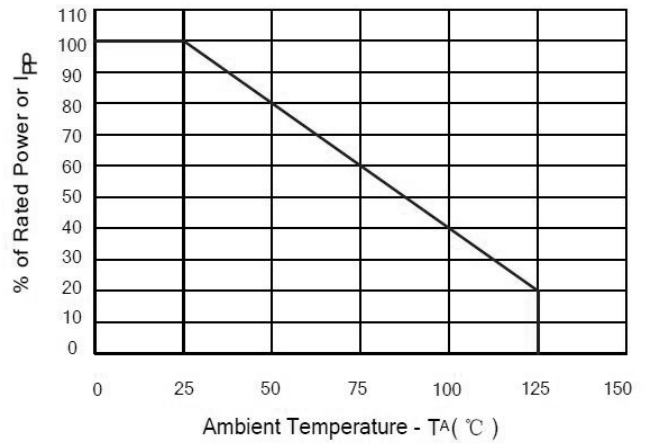


## Typical Characteristics

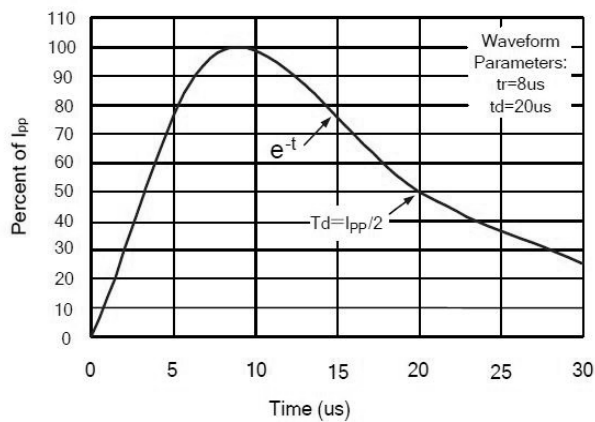
Non-Repetitive Peak Pulse Power vs. Pulse Time



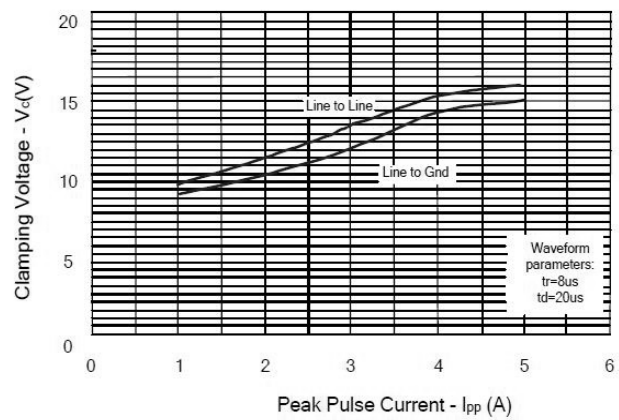
Power Derating curve



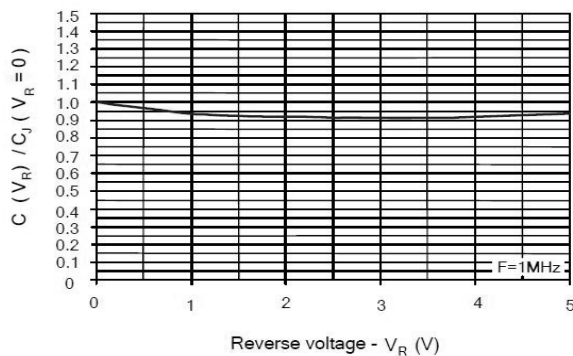
Pulse Waveform



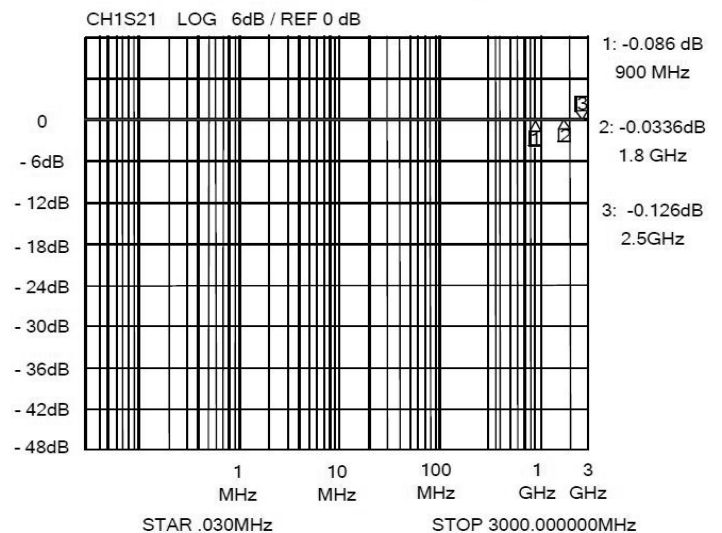
Clamping Voltage vs. Peak Pulse Current



Normalized Capacitance vs. Reverse Voltage

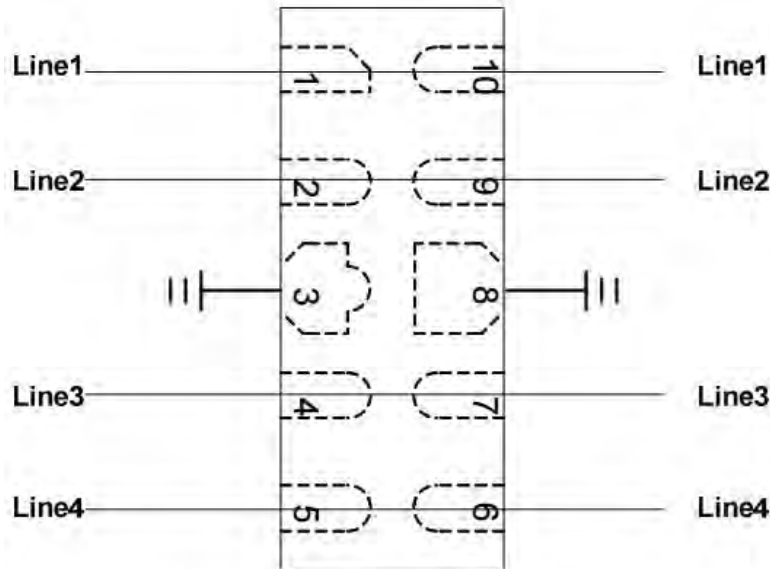


Insertion Loss S21 - I/O to GND

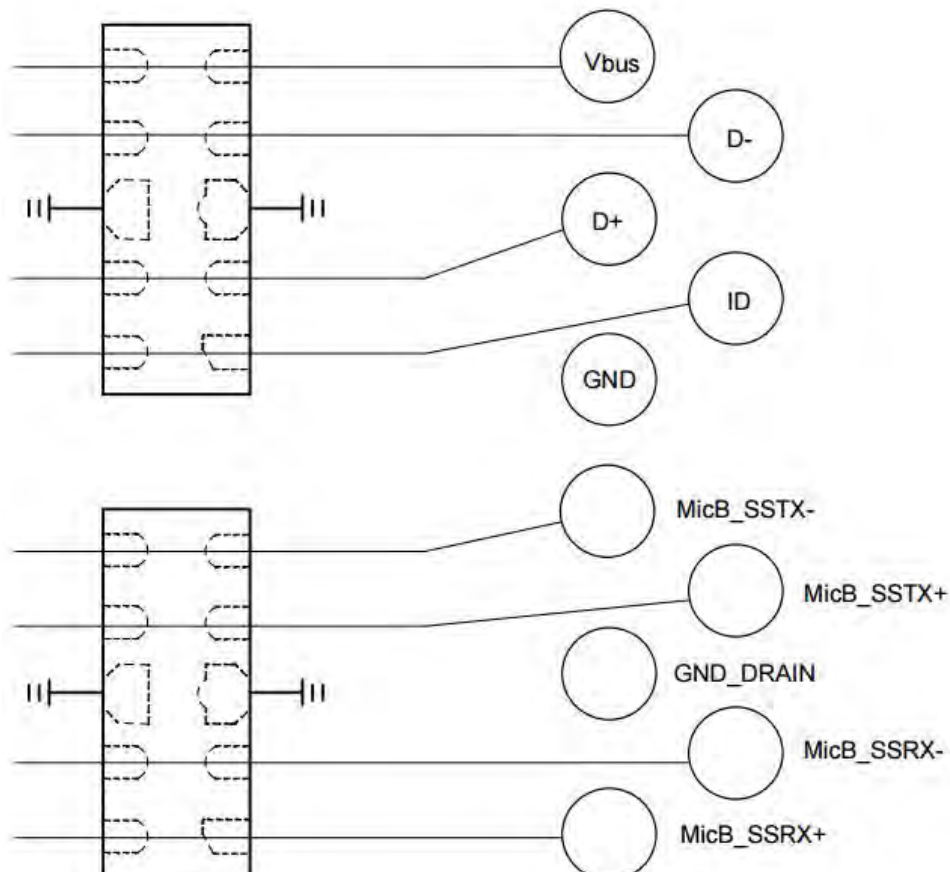


## Typical Application

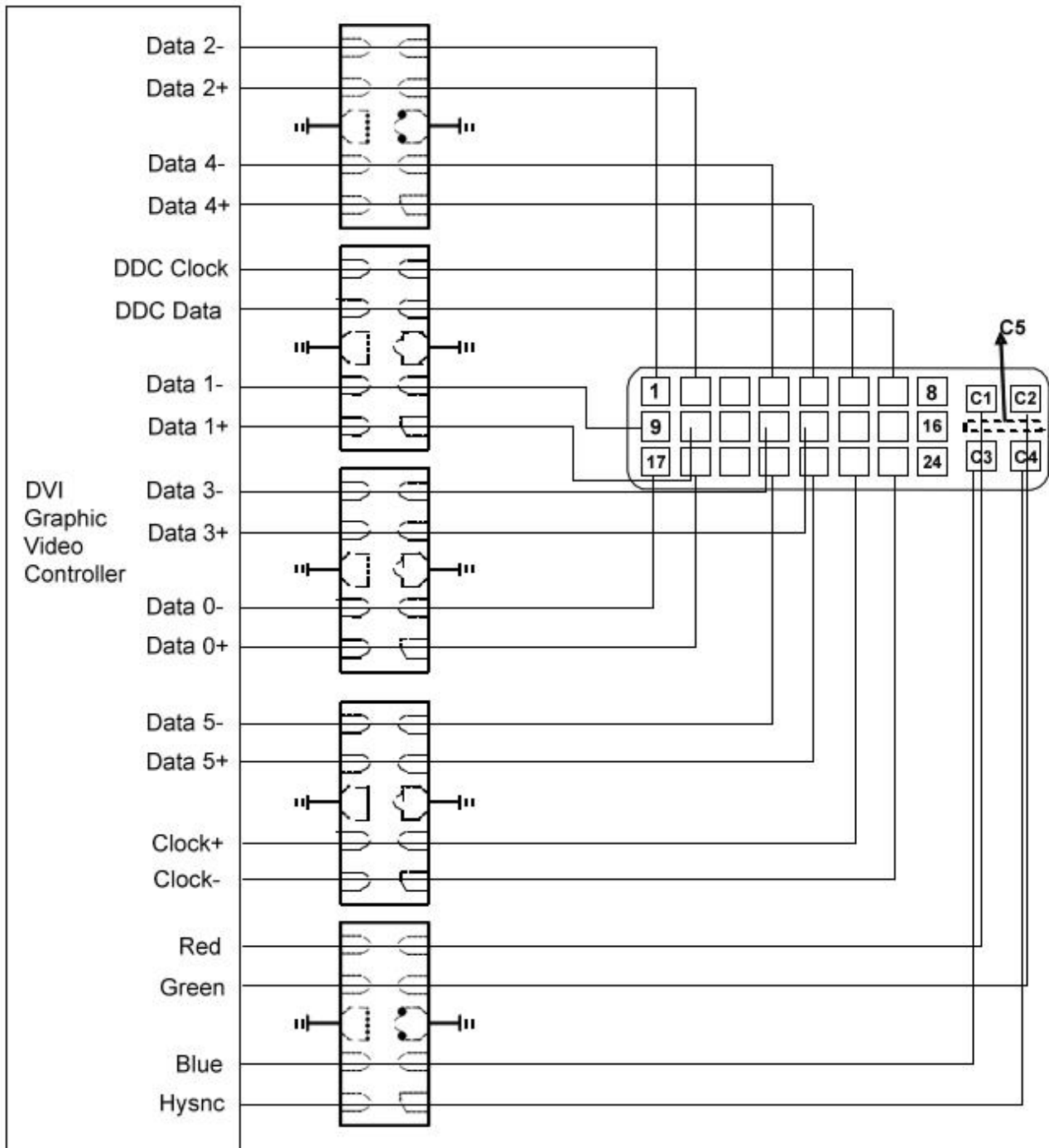
The PTN2510L08S5CA10 is designed for easy PCB layout by allowing the traces to run straight through the device. The PCB traces could be used to connect the pin pairs for each line. For example, line 1 enters at pin 1 and exits at pin 10 and the PCB trace connects Pin 1 and Pin 10 together. Ground is connected at Pin 3 and Pin 8.



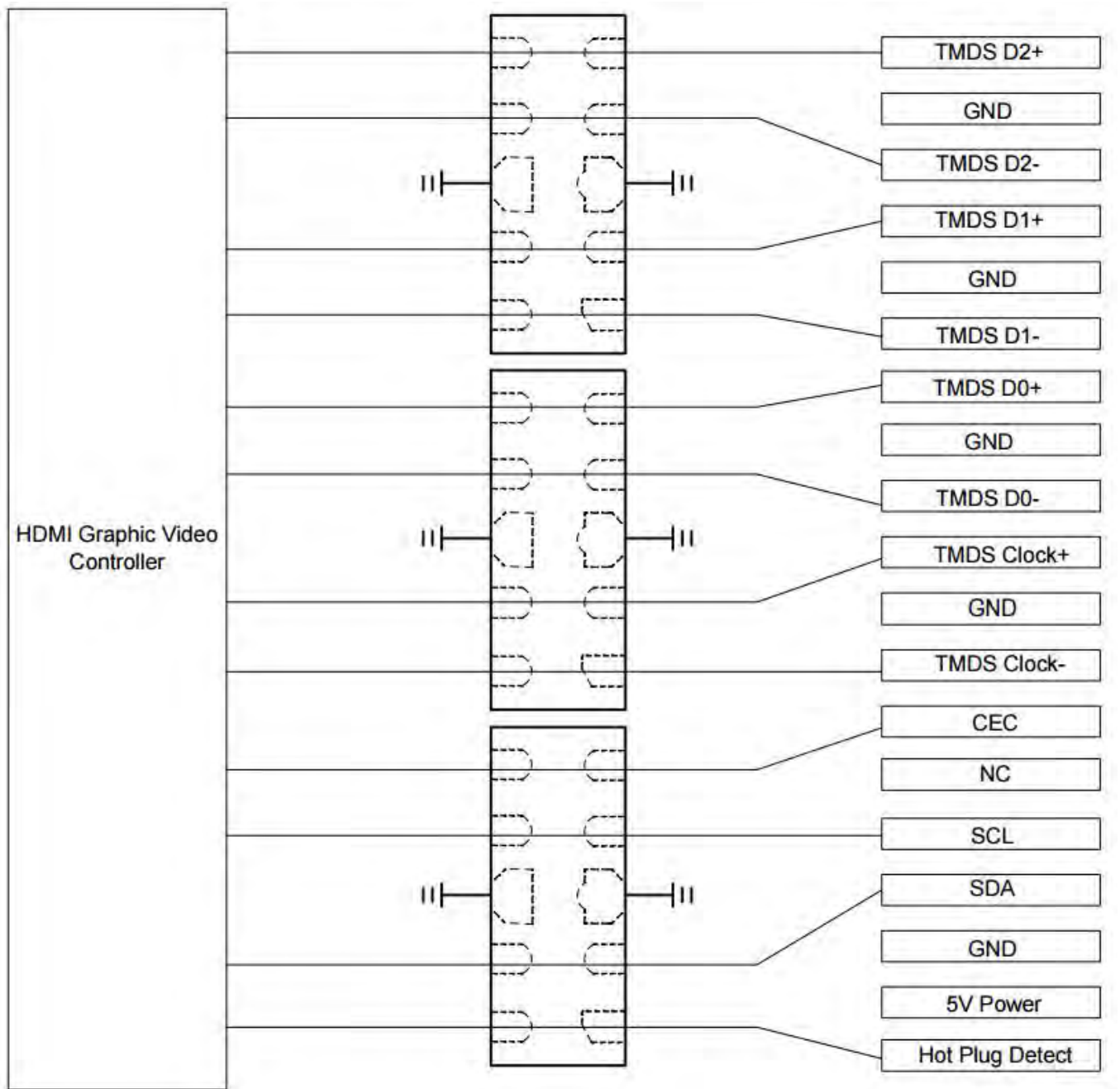
## PTN2510L08S5CA10 On USB 3.0 Port Application



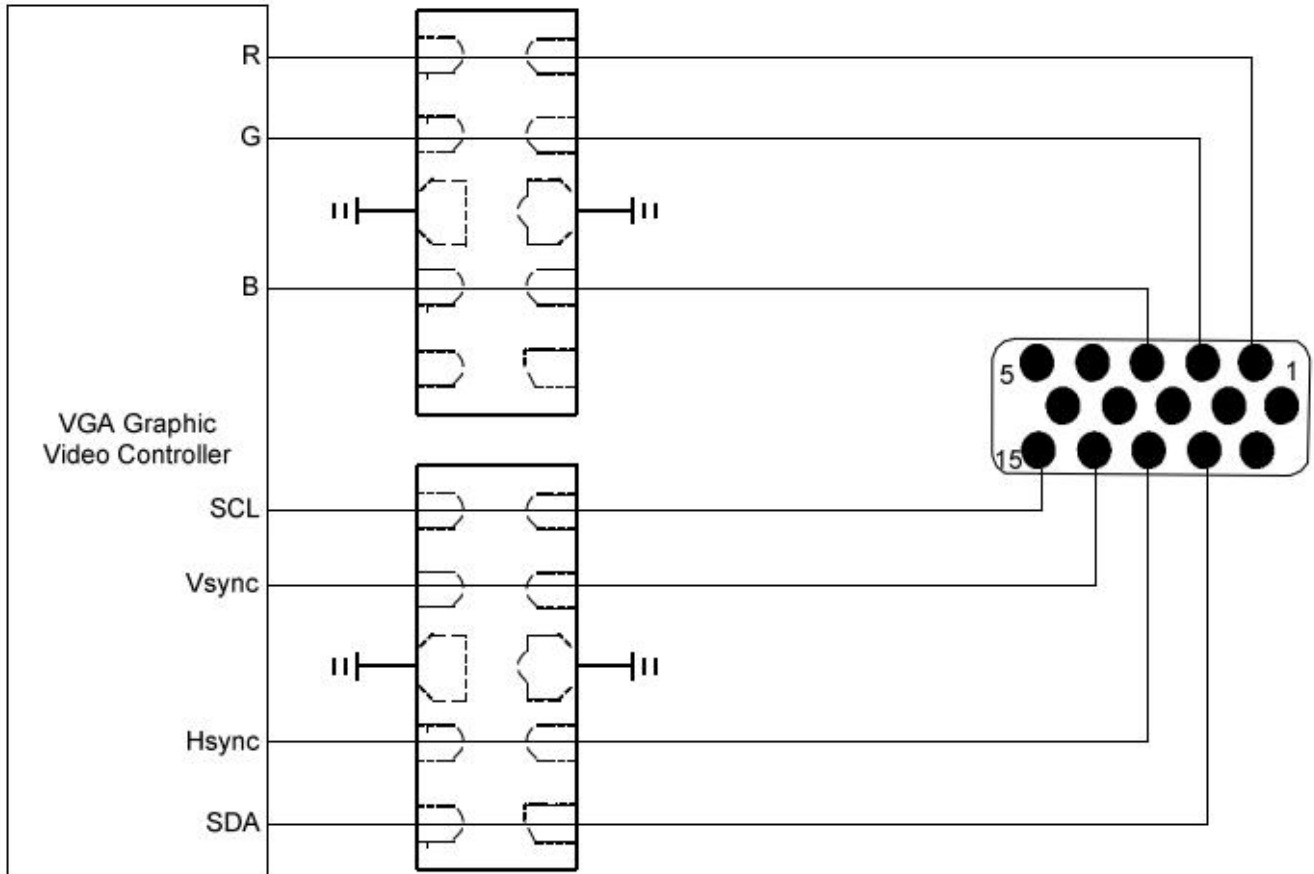
**PTN2510L08S5CA10 On DVI Port Application**



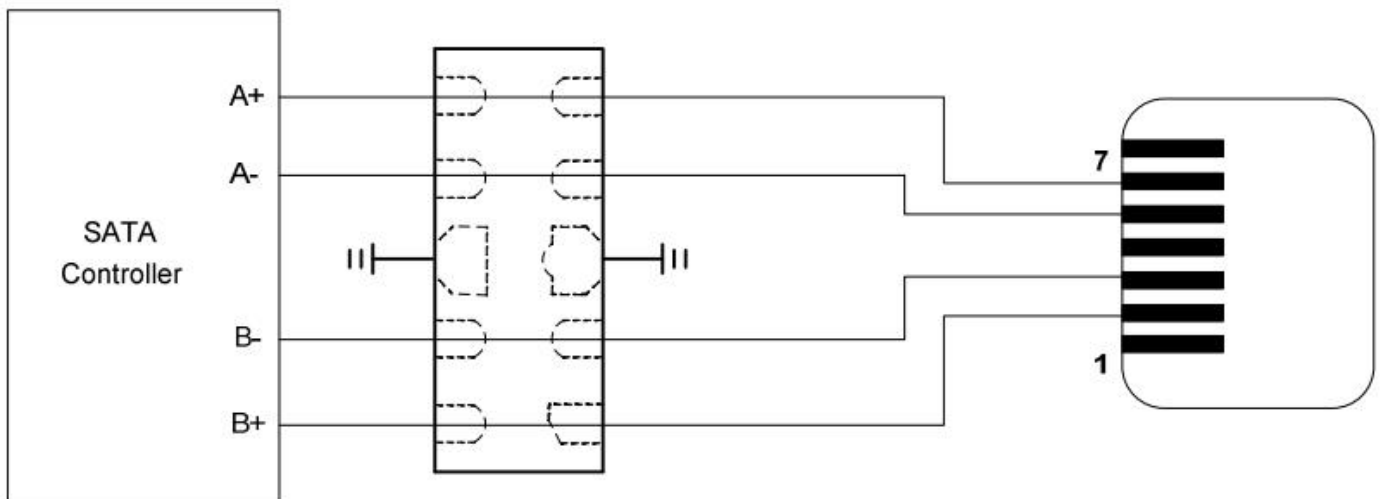
**PTN2510L08S5CA10 On HDMI Port Application**



### PTN2510L08S5CA10 On VGA Port Application

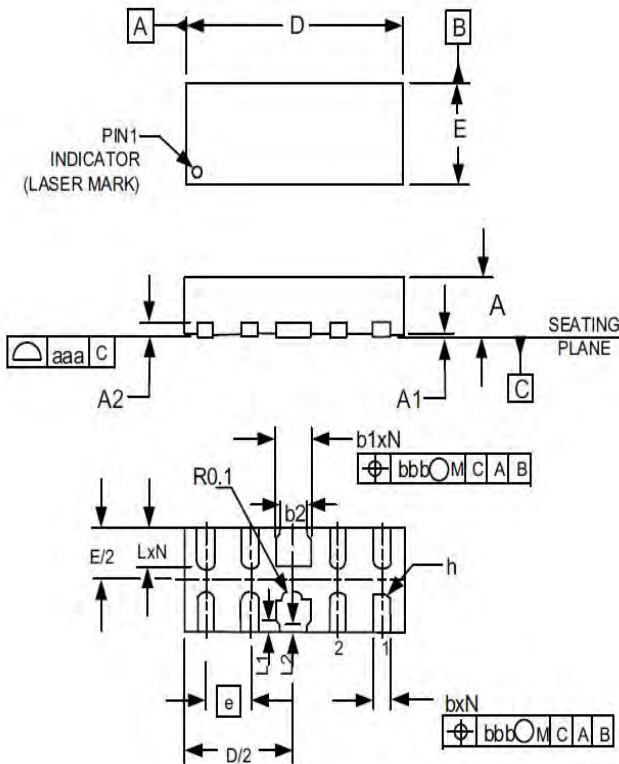


### PTN2510L08S5CA10 On SATA Port Application



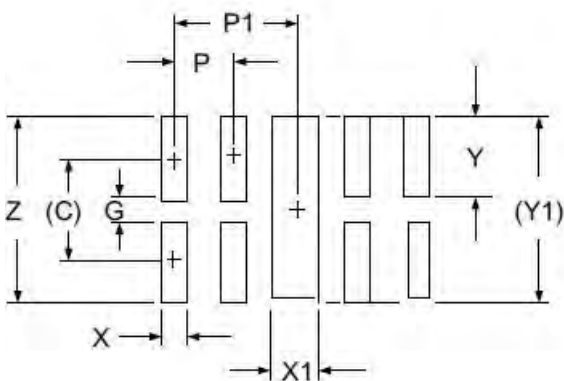


## Package Mechanical Data



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.450	0.500	0.550	0.017	0.020	0.022
A1	0.000	0.001	0.002	0.000	0.020	0.050
A2	(0.150)			(0.006)		
b	0.100	0.200	0.250	0.006	0.008	0.010
b1	0.350	0.400	0.450	0.014	0.016	0.018
b2	0.200	0.250	0.450	0.005	0.010	0.018
D	2.450	2.500	2.550	0.096	0.098	0.100
E	0.950	1.000	1.050	0.037	0.039	0.041
e	0.500 BSC			0.020 BSC		
L	0.350	0.400	0.450	0.014	0.016	0.018
L1	0.000	0.075	0.100	0.000	0.003	0.004
L2	0.000	0.050	0.050	0.000	0.002	0.003
h	0.000	0.120	0.150	0.000	0.005	0.006
h	0.070	0.120	0.170	0.003	0.005	0.007
N	8.000			8.000		
aaa	0.080			0.003		
bbb	0.100			0.004		

## Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	(0.875)	(0.034)
G	0.200	0.008
P	0.500	0.020
P1	1.000	0.039
X	0.250	0.010
X1	0.450	0.018
Y	0.675	0.027
Y1	(1.550)	(0.061)
Z	1.550	0.061

## Ordering information

Order code	Package	Base qty	Delivery mode
PTN2510L08S5CA10	DFN2510	3k	Tape and reel