

Features

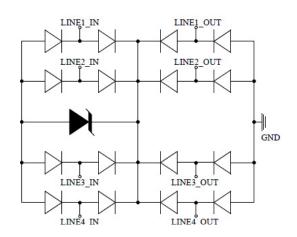
■ Transient protection for high-speed data lines

IEC 61000-4-2 (ESD) ±30kV (Air)

±30kV (Contact)

IEC 61000-4-4 (EFT) 40A (5/50 ns) IEC 61000-4-5 (Surge) 40A (8/20μs)

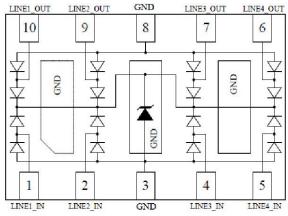
- Package optimized for high-speed lines
- Provides protection for two line pairs
- Low capacitance: 3.75pF @ 0V (MAX)
- Low leakage current: 0.1µA @ VRWM (Typical)
- Low operating and clamping voltag
- Each I/O pin can withstand over 1000 ESD strikes for ±8kV contact discharge



DFN3.0*2.0 10L

Applications

- 10/100/1000M Ethernet Ports
- WAN/LAN Equipment
- Desktops, Servers and Notebooks
- Cellular Phones
- Switching Systems
- Audio/Video Inputs



Schematic Diagram

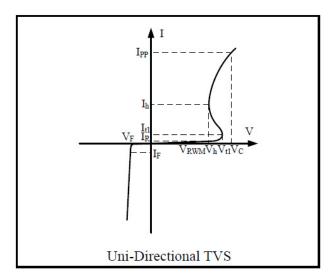
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter		Symbol	Value	Units
IEC 61000-4-2 ESD Voltage	Air Model	\/	±30	kV
-	Contact Model	V _{ESD}	±30	
Peak Pulse Power (t _p = 8/20μs)		P _{PP}	1000	W
Peak Pulse Current		I _{PP}	40	Α
Operating Temperature		T _{OPT}	-55 to +125	°C
Storage Temperature		T _{STG}	-55 to +150	



Electrical Parameter (T=25°C)

Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V _{RWM}
V _{t1}	Trigger Voltage
I _{t1}	Trigger Current @ Vt1
V_h	Holding Voltage
I _h	Holding Current @ V _h
Vc	Clamping Voltage @ IPP
Ірр	Maximum Peak Pulse Current
C _{ESD}	Parasitic Capacitance



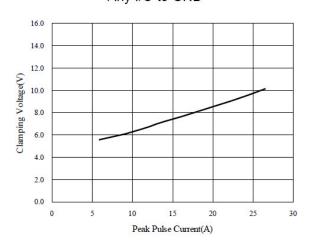
Electrical Characteristics (T_A=25°C unless otherwise specified)

Symbol	Test Condition	Minimum	Typical	Maximum	Units
V _{RWM}	-	-	-	2.5	V
I _R	V _{RWM} = 2.5V	-	5	500	nA
I _R	V _{RWM} = 2.5V, Ta=100℃	-	20	-	nA
V _{t1}	I _{t1} = 1μA	3.0	3.7	4.5	٧
V _h	I _h = 1mA	3.0	-	4.0	٧
Vc	Any I/O to Ground $I_{PP} = 1A, t_p = 8/20\mu s$	-	-	4.5	٧
Vc	Any I/O to Ground $I_{PP} = 10A, t_p = 8/20\mu s$	-	-	7.5	٧
Vc	Any I/O to Ground $I_{PP} = 25A, t_p = 8/20\mu s$	-	-	12.0	٧
Vc	Line-to-Line / Line-to-GND, two I/O Pins connected together on each line I_{PP} = 40A, t_p = 8/20 μ s	-	-	20.0	٧
C _{ESD}	Between I/O Pins and Ground $V_R = 0V$, $f = 1MHz$	-	3.8	5.0	pF
C _{ESD}	Between I/O Pins $V_R = 0V$, $f = 1MHz$	-	1.7	2.5	pF



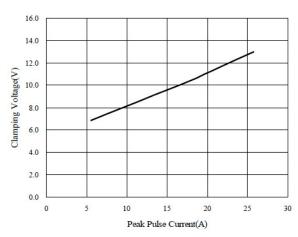
Typical Characteristic Curve

Clamping Voltage V_c vs. Current I_{PP} Any I/O to GND

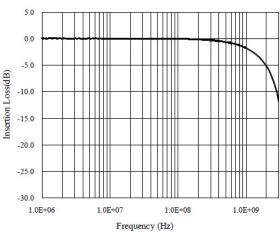


Clamping Voltage V_C vs. Current I_{PP}

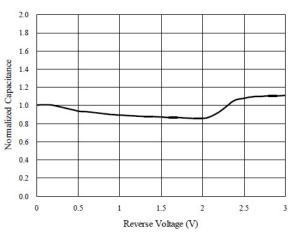
Line-to-Line, Two I/O Pins Connected Together



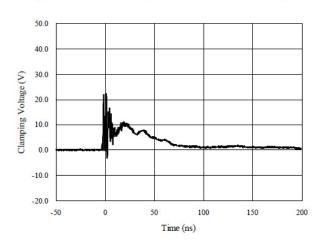
Insertion Loss S21



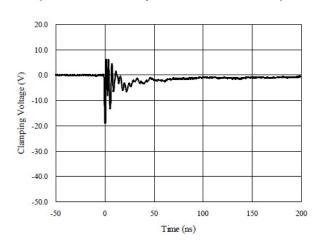
Normalized Capacitance vs. Voltage



ESD Clamping of I/O to GND (+8kV Contact per IEC 61000-4-2)



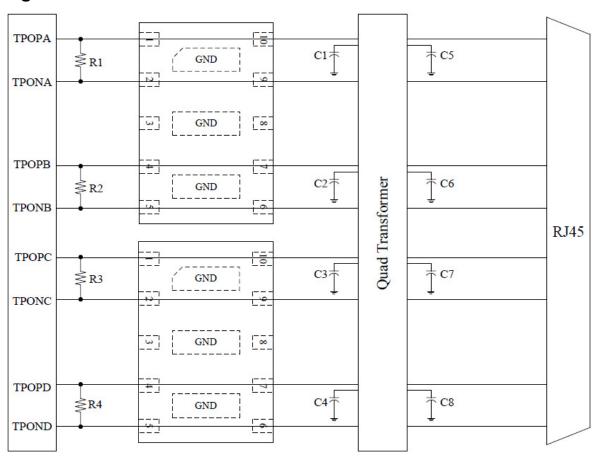
ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)



Application Information

Electronic equipment is susceptible to damage caused by a variety of sources, including Electrostatic Discharge (ESD), Electrical Fast Transients (EFT) and Lightning strikes. The SPESLC2V5D3020-10U was designed to protect the sensitive equipment from damage which may be induced by such transient events. This product can be configured in different connections to meet the requirement of common-mode and differential-mode as follows:

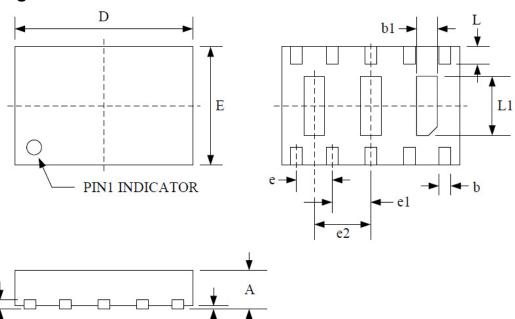
Gigabit Ethernet Protection



NOTE: Please connect pin3, Pin8 and all GND Tabs of SPESLC2V5D3020-10U to the ground plane of the systems.



Package Outline Dimensions



Symbol	Dimensions (mm)			Dimensions (Inches)			
	Minimum	Typical	Maximum	Minimum	Typical	Maximum	
A	0.500	0.600	0.650	0.020	0.024	0.026	
A1	0.000	0.030	0.050	0.000	0.001	0.002	
A3	0.15 REF			0.006 REF			
b	0.150	0.200	0.250	0.006	0.008	0.010	
b1	0.250	0.350	0.450	0.010	0.014	0.018	
D	2.900	3.000	3.100	0.114	0.118	0.122	
Е	1.900	2.000	2.100	0.075	0.079	0.083	
e	0.600 BSC			0.024 BSC			
e1	0.650 BSC			0.026 BSC			
e2	0.950 BSC		0.037				
L	0.250	0.300	0.350	0.010	0.012	0.014	
L1	0.950	1.000	1.050	0.037	0.039	0.041	