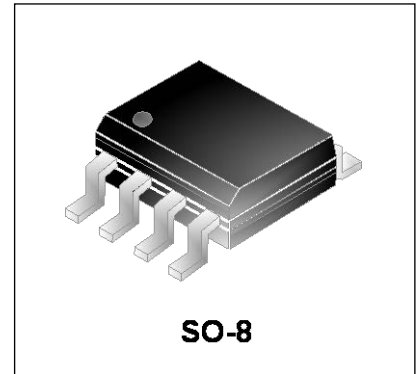




Features

- 550 Watts peak pulse power ($t_p=8/20\mu s$)
- Protects Two Line Pairs (Four lines)
- Low capacitance
- Low leakage current
- Low operating and clamping voltage
- Solid-state Punch through Avalanche TVS process technology



IEC Compatibility (EN61000-4)

- IEC 61000-4-2 (ESD) $\pm 15kV$ (air), $\pm 8kV$ (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 22A (8/20 μs)

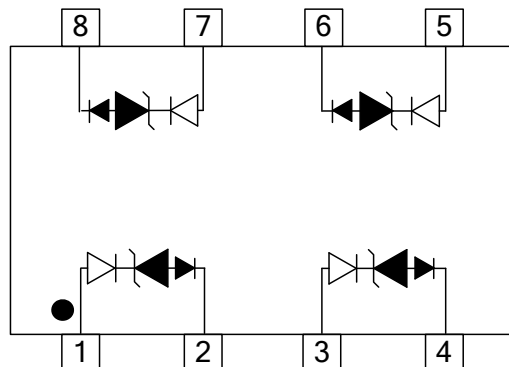
Mechanical Characteristics

- JEDEC SO-8 package
- Molding compound flammability rating: UL 94V-0
- Marking: Marking Code
- Packaging: Tape and Reel
- RoHS Compliant

Applications

- Switching Systems
- WAN/LAN Equipment
- Desktops, Servers, Notebooks & Handhelds
- 10/100, 1000M Ethernet
- Base Stations
- Audio/Video Inputs

Schematic & PIN Configuration

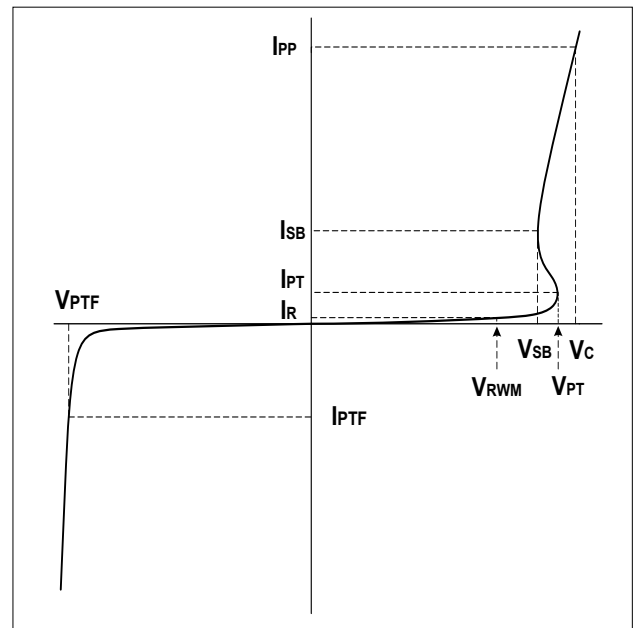


SO-8 (Top View)

Absolute Maximum Rating			
Rating	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu s$) see Figure1 & Figure2	P_{PP}	550	Watts
Peak Pulse Current ($t_p=8/20\mu s$)	I_{PP}	22	A
Lead Soldering Temperature	T_L	260(10sec)	$^{\circ}C$
Operating Temperature	T_J	-55 to + 125	$^{\circ}C$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}C$

Electrical Parameters (T=25°C)

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_{PT}	Punch-through Breakdown Voltage @ I_T
V_{SB}	Snap-Back Voltage @ I_{SB}
I_{SB}	Snap-Back Current
I_{PT}	Test Current
V_{PTF}	Forward Punch-through Breakdown Voltage @ I_F
I_{PTF}	Forward Test Current



Electrical Characteristics(T=25°C)

DW2.8-4LVUB-S						
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}	See Note1			2.8	V
Punch-through Voltage	V_{PT}	$I_{PT}=2\mu A$, See Note1	3.0			V
Reverse Leakage Current	I_R	$V_{RWM}=2.8V$ See Note1			1	μA
Snap-Back Voltage	V_{SB}	$I_{SB}=50mA$, See Note1		2.8		V

Electrical Characteristics (Cont.)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Clamping Voltage (Note1)	V_C	$I_{PP}=2A$, $t_p=8/20\mu s$ See Note1			6	V
Clamping Voltage	V_C	$I_{PP}=5A$, $t_p=8/20\mu s$ See Note1			9.5	V
Clamping Voltage	V_C	$I_{PP}=22A$, $t_p=8/20\mu s$ See Note1			25	V
Junction Capacitance	C_j	$V_R = 0V$, $f = 1MHz$ See Note1		1.6	2.0	pF
Steer Diodes						
Reverse Breakdown Voltage	V_{BR}	$I_T = 10\mu A$ See Note4	80			V
Reverse Leakage Current	I_R	$V_{RWM} = 2.8V$ See Note4			1	μA
Forward Voltage (Note3)	V_F	$I_F=1A$ See Note5			2	V

NOTES:

1. Device measured between pin 1 to 2, pin 3 to 4, pin 5 to 6 and pin 7 to 8.
2. The 8/20 μs test pulse wave is shown in figure3, and the clamping voltage vs. I_{PP} is shown in figure4 .
3. The Junction Capacitance vs. Reverse Voltage is shown in figure5.
4. Each Steer Diode integrated in the DW2.8-4LVUB-S reversely connected with a TVS Diode in series
5. The Forward Voltage vs. Forward Current for Steer diode is shown in figure6.

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

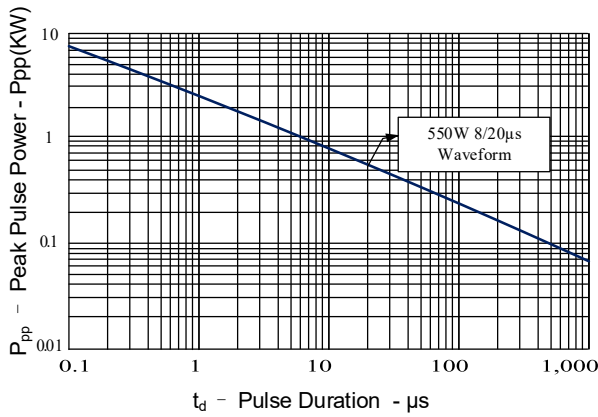


Figure 2: Power Derating Curve

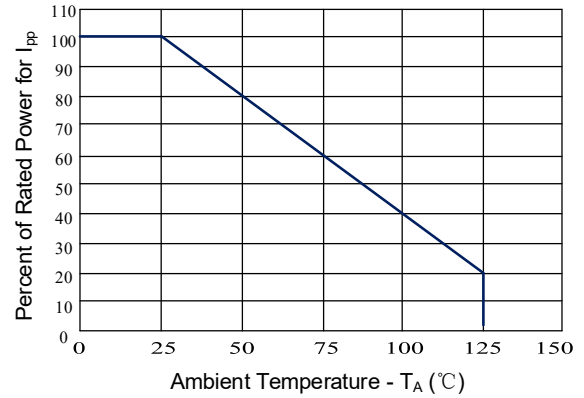


Figure3: Pulse Waveform

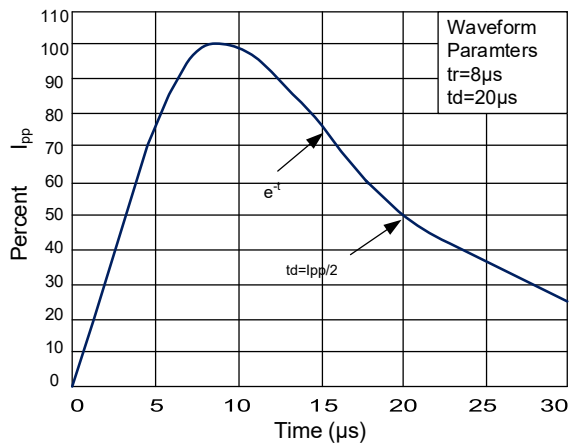


Figure 4: Clamping Voltage vs. Peak Pulse Current

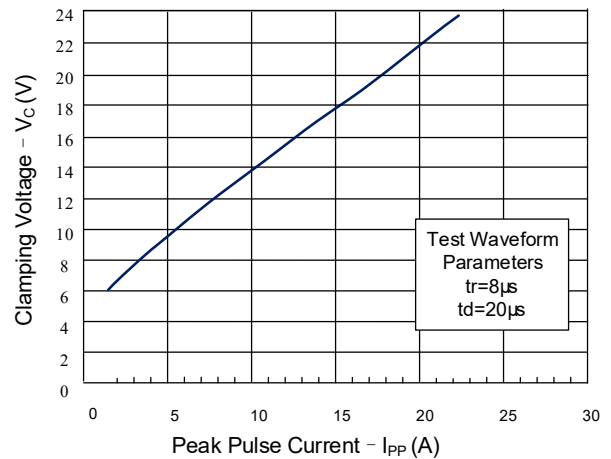


Figure 5: Capacitance vs. Reverse Voltage

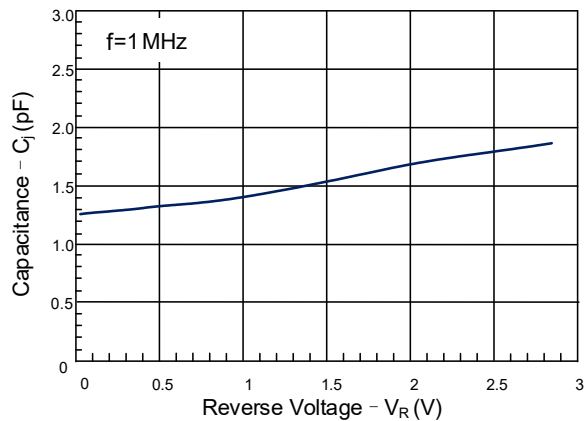
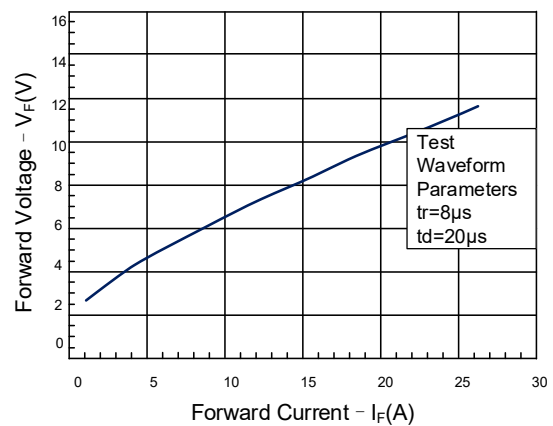


Figure 6: Forward Voltage vs. Forward Current



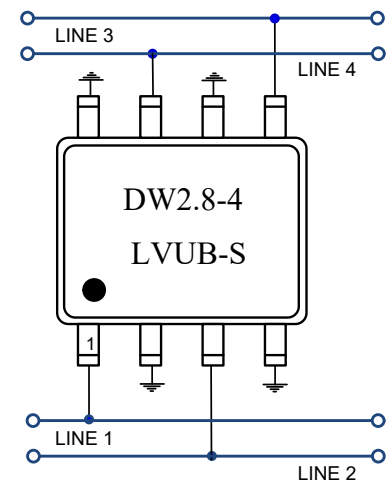
Application Information

The DW2.8-4LVUB-S is designed to providing protection for electronic equipment that is susceptible to damage caused by Electrostatic Discharge (ESD), Electrical Fast Transients (EFT) and tertiary lightning effects. This product is offered in a unidirectional configuration and provides both common-mode and differential-mode protection.

Unidirectional Common-mode Protection

The DW2.8-4LVUB-S protects four lines in a common-mode configuration.

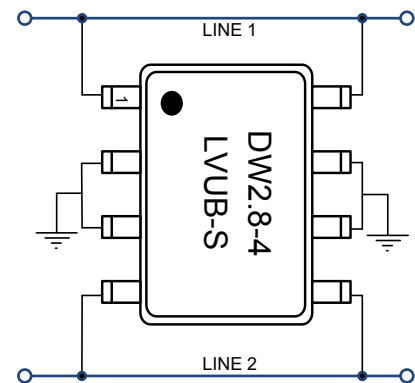
- Pin 1 is connected to Line1.
- Pin 3 is connected to Line2
- Pin 5 is connected to Line3.
- Pin 7 is connected to Line4
- Other Pins are connected to ground.



Bidirectional Common-mode Protection

The DW2.8-4LVUB-S device provide two lines of bidirectional protection in a common-mode configuration.

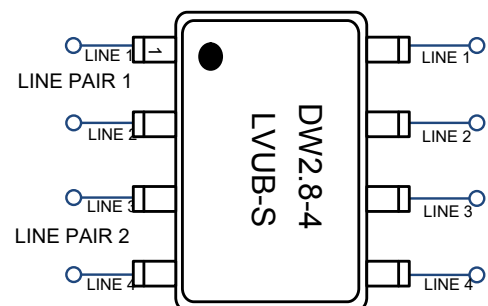
- Pin1 & Pin8 are connected to Line1
- Pin4 & Pin5 are connected to Line2
- Other Pins are connected to ground.



Bidirectional Differential-mode Protection

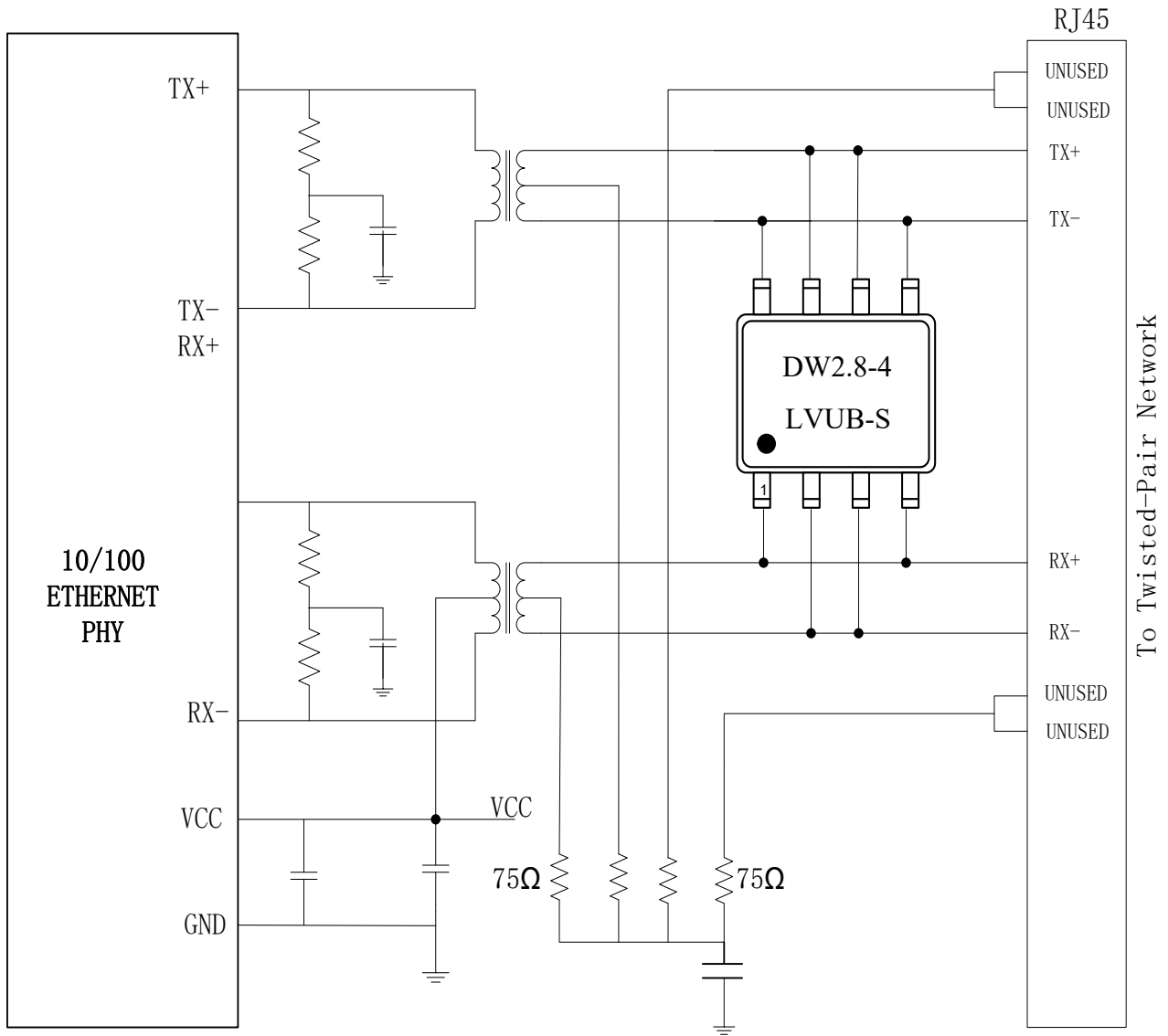
The DW2.8-4LVUB-S device provide four lines of bidirectional protection in a differential-mode configuration.

- Pin1 & Pin8 is connected to Line1
- Pin2 & Pin7 is connected to Line2
- Pin3 & Pin6 is connected to Line3
- Pin4 & Pin5 is connected to Line4
- Line1&Line2 compose Line Pair1 ,Line3&Line4 compose Line Pair2





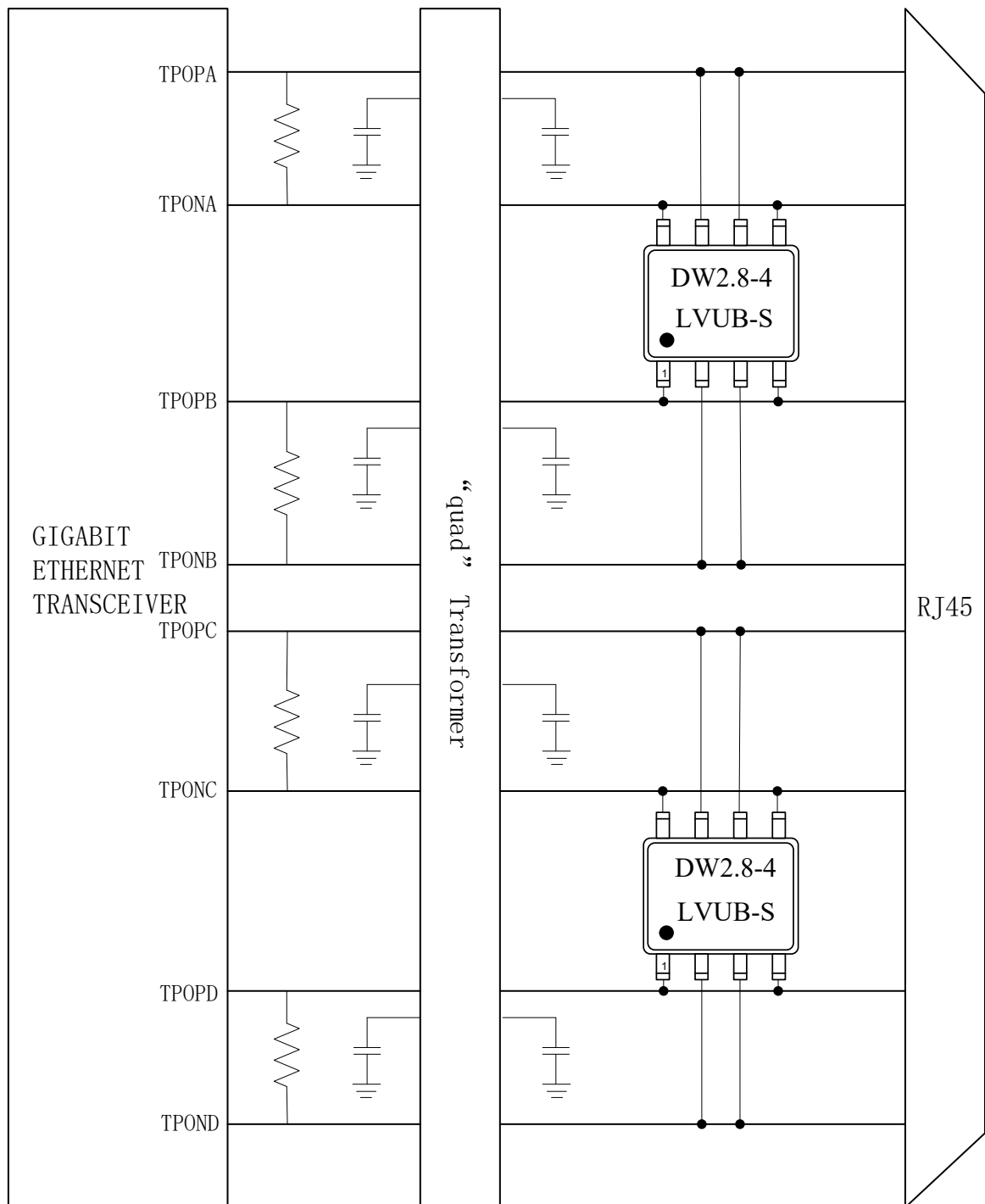
Main Application



10/100 Ethernet Protection Circuit

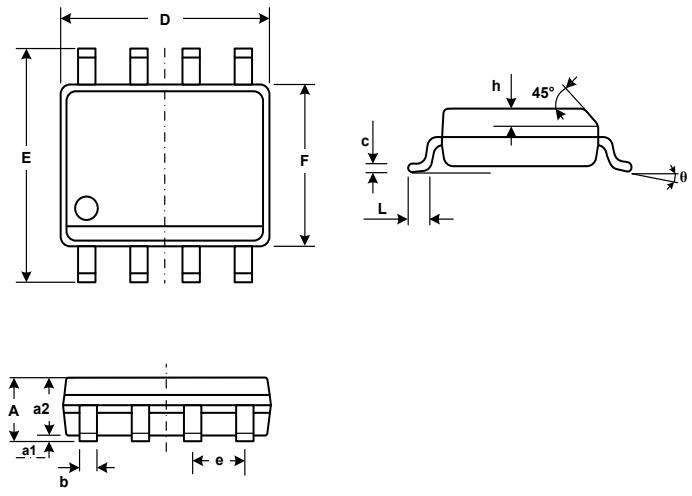
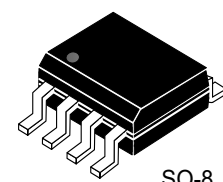
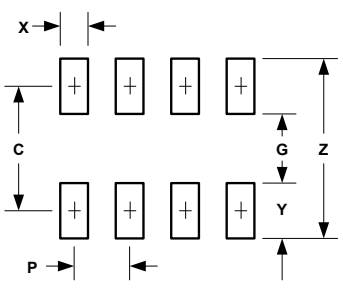


Main Application (Cont)

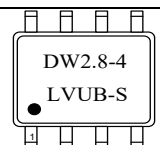


Gigabit Ethernet Protection Circuit

Outline Drawing – SO-8

PACKAGE OUTLINE		DIMENSIONS																																																																								
																																																																										
		<table border="1"> <thead> <tr> <th rowspan="2">SYMBOL</th> <th colspan="2">INCHES</th> <th colspan="2">MILIMETER</th> </tr> <tr> <th>MIN</th> <th>MAX</th> <th>MIN</th> <th>MAX</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>0.053</td> <td>0.069</td> <td>1.35</td> <td>1.75</td> </tr> <tr> <td>a1</td> <td>0.004</td> <td>0.010</td> <td>0.10</td> <td>0.25</td> </tr> <tr> <td>a2</td> <td>0.053</td> <td>0.061</td> <td>1.35</td> <td>1.55</td> </tr> <tr> <td>D</td> <td>0.185</td> <td>0.200</td> <td>4.70</td> <td>5.10</td> </tr> <tr> <td>F</td> <td>0.150</td> <td>0.157</td> <td>3.80</td> <td>4.00</td> </tr> <tr> <td>E</td> <td>0.228</td> <td>0.244</td> <td>5.80</td> <td>6.20</td> </tr> <tr> <td>b</td> <td>0.013</td> <td>0.020</td> <td>0.33</td> <td>0.51</td> </tr> <tr> <td>e</td> <td colspan="2">0.050BSC</td> <td colspan="2">1.27BSC</td> </tr> <tr> <td>h</td> <td>0.010</td> <td>0.020</td> <td>0.25</td> <td>0.50</td> </tr> <tr> <td>c</td> <td>0.007</td> <td>0.010</td> <td>0.17</td> <td>0.25</td> </tr> <tr> <td>L</td> <td>0.016</td> <td>0.050</td> <td>0.40</td> <td>1.27</td> </tr> <tr> <td>θ</td> <td>0°</td> <td>8°</td> <td>0°</td> <td>8°</td> </tr> </tbody> </table>				SYMBOL	INCHES		MILIMETER		MIN	MAX	MIN	MAX	A	0.053	0.069	1.35	1.75	a1	0.004	0.010	0.10	0.25	a2	0.053	0.061	1.35	1.55	D	0.185	0.200	4.70	5.10	F	0.150	0.157	3.80	4.00	E	0.228	0.244	5.80	6.20	b	0.013	0.020	0.33	0.51	e	0.050BSC		1.27BSC		h	0.010	0.020	0.25	0.50	c	0.007	0.010	0.17	0.25	L	0.016	0.050	0.40	1.27	θ	0°	8°	0°	8°
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Marking Codes

Part Number	DW2.8-4LVUB-S
Marking Code	

Package Information

Qty: 2.5k/Reel