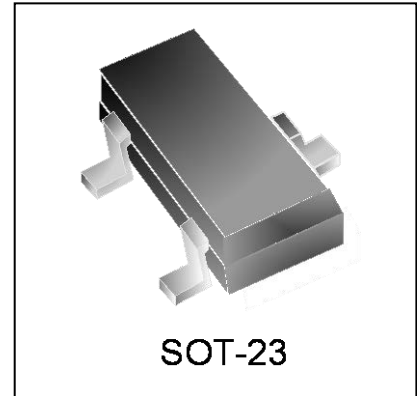




## Features

- 500 Watts peak pulse power ( $t_p=8/20\mu s$ )
- One device protects one unidirectional line
- Two devices protect two high-speed data line pairs
- 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)  $\pm 20kV$  (air),  $\pm 15kV$  (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 20A (8/20 $\mu s$ )

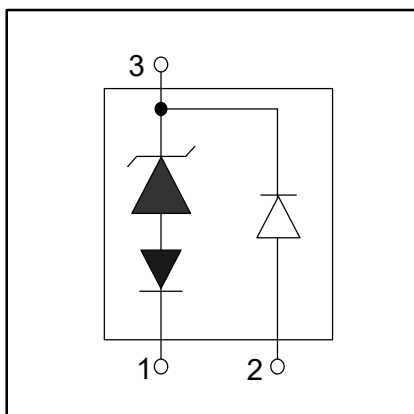
## Mechanical Characteristics

- JEDEC SOT-23 package
- Molding compound flammability rating: UL 94V-0
- Marking: Marking Code
- Packaging: Tape and Reel
- RoHS Compliant

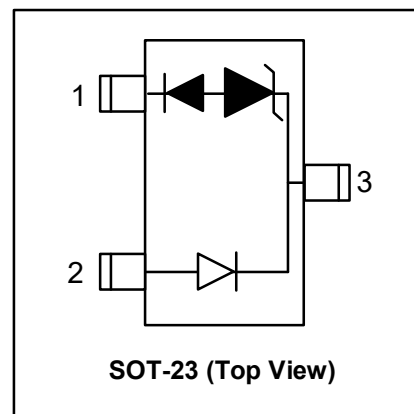
## Applications

- Switching Systems
- WAN/LAN Equipment
- Desktops, Servers, Notebooks & Handhelds
- T1/E1 secondary IC Side Protection
- Laser Diode Protection
- 10/100 Ethernet
- Base Stations

## Circuit Diagram



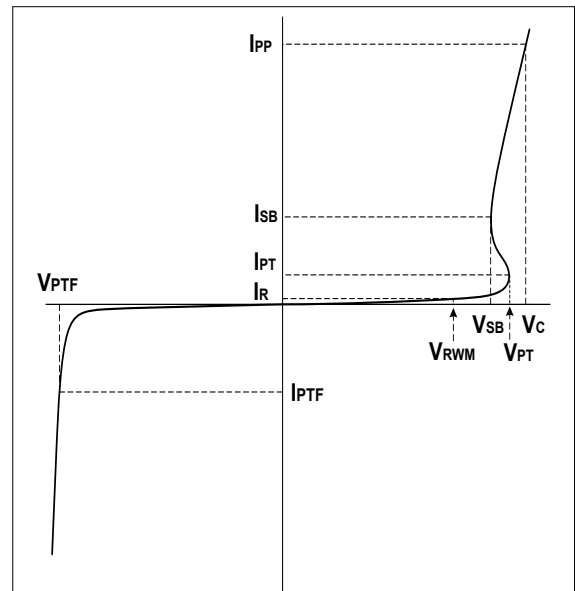
## Schematic & PIN Configuration



<b>Absolute Maximum Rating</b>			
Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p=8/20\mu s$ )	$P_{PP}$	500	Watts
Peak Pulse Current ( $t_p=8/20\mu s$ )	$I_{PP}$	20	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 $^{\circ}C$ )

Symbol	Parameter
$I_{PP}$	Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{PT}$	Punch-through Breakdown Voltage @ $I_{PT}$
$V_{SB}$	Snap-Back Voltage @ $I_{SB}$
$I_{SB}$	Snap-Back Current
$I_{PT}$	Punch-through Current
$V_{PTF}$	Forward Punch-through Breakdown Voltage @ $I_{PTF}$
$I_{PTF}$	Forward Test Current



### Electrical Characteristics(T=25 $^{\circ}C$ )

<b>DW2.8LVU-S</b>						
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	$V_{RWM}$	Pin 3 to 1 or Pin 2 to 1			2.8	V
Punch-through Voltage	$V_{PT}$	$I_{PT}=2\mu A$ , Pin 3 to 1	3.0			V
Snap-Back Voltage	$V_{SB}$	$I_{SB}=50mA$ , Pin 3 to 1	2.8			V
Reverse Leakage Current	$I_R$	$V_{RWM}=2.8V$ Pin 3 to 1 or Pin 2 to 1			1	$\mu A$
Clamping Voltage ( Note1)	$V_C$	$I_{PP}=2A$ , $t_p=8/20\mu s$ Pin3 to 1			6.0	V

## Electrical Characteristics (Cont)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Clamping Voltage	$V_C$	$I_{PP}=5A$ , $t_p=8/20\mu s$ Pin3 to 1			9.0	V
Clamping Voltage	$V_C$	$I_{PP}=20A$ , $t_p=8/20\mu s$ Pin3 to 1			22	V
Clamping Voltage	$V_C$	$I_{PP}=5A$ , $t_p=8/20\mu s$ Pin2 to 1			10	V
Clamping Voltage	$V_C$	$I_{PP}=20A$ , $t_p=8/20\mu s$ Pin2 to 1			25	V
Junction Capacitance (Note2)	$C_j$	Pin3 to Pin 1&2 (Pin 1 and 2 tied together) $V_R = 0V$ , $f = 1MHz$		20	50	pF
Junction Capacitance	$C_j$	Pin 2 to 1 (Pin 3 NC) $V_R = 0V$ , $f = 1MHz$		3	6	pF
<b>Steer Diode</b>						
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 10\mu A$ Pin 3 to 2	40			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 2.8V$ Pin 3 to 2			1	$\mu A$
Forward Voltage (Note3)	$V_F$	$I_F = 10mA$ Pin2 to 3			2	V

### NOTES:

1. The 8/20 $\mu s$  test pulse wave is shown in figure3, and the clamping voltage vs.  $I_{PP}$  is shown in figure4.
2. The Junction Capacitance vs. Reverse Voltage is shown in figure5.
3. The Forward Voltage vs. Forward Current for Steer diode is shown in figure6.

## Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

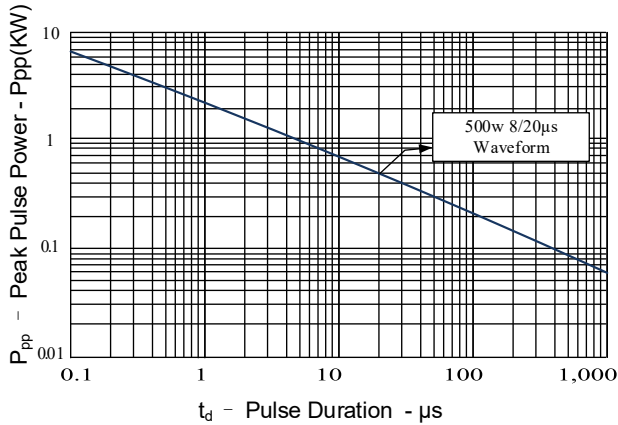


Figure 2: Power Derating Curve

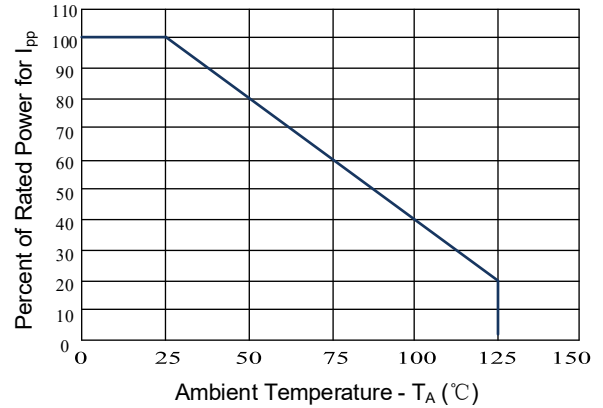


Figure3: Pulse Waveform

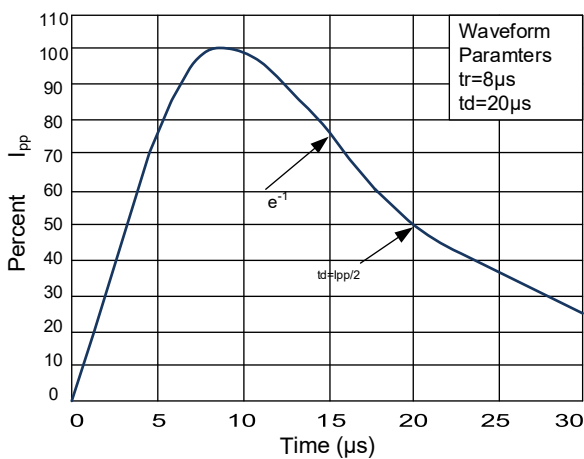


Figure 4: Clamping Voltage vs. Peak Pulse Current

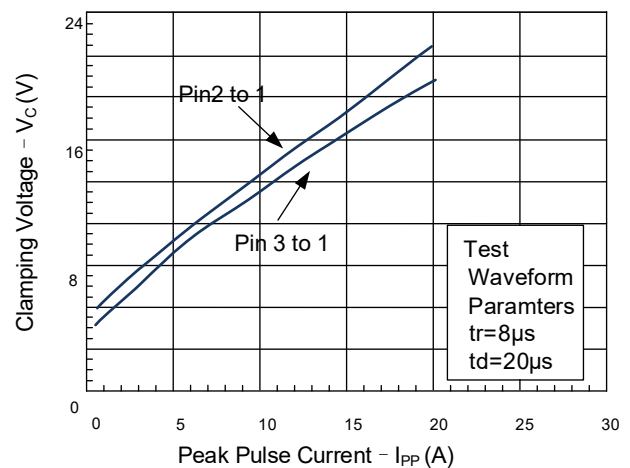


Figure 5: Capacitance vs. Reverse Voltage

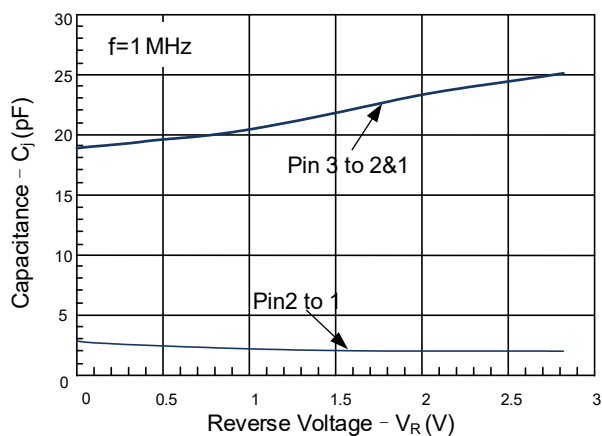
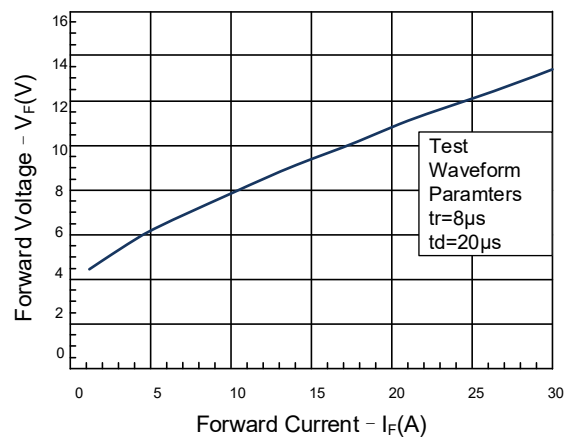


Figure 6: Forward Voltage vs. Forward Current



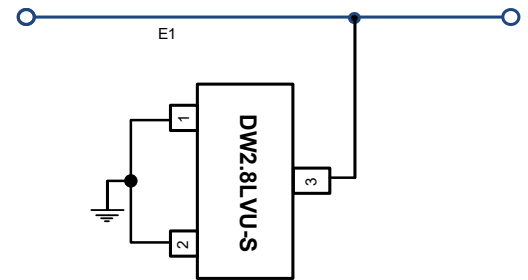
## Application Information

The DW2.8LVU-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

One DW2.8LVU-S provides one line of unidirectional protection in a common-mode configuration. Pins 3 is connected to Line1

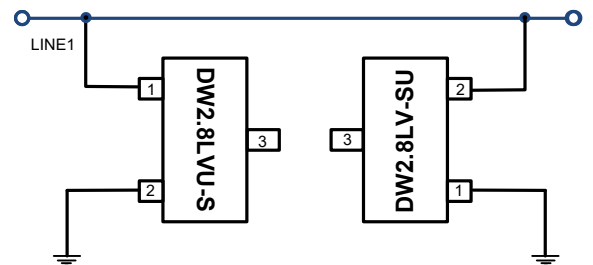
- Pin 1 and 2 are connected to ground
- Pin 3 to Pin 1 clamp the positive transient
- Pin 2 to pin 3 clamp the negative transient



### Bidirectional Common-mode Protection

Two DW2.8LVU-S devices provide one line of bidirectional protection in a common-mode configuration.

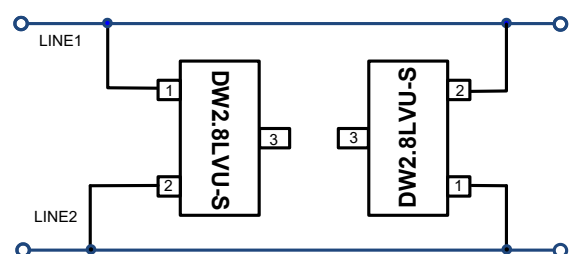
- Pin 1 of first and Pin 2 of second is connected to Line1
- Pin 2 of first and Pin 1 of second is connected to ground
- Pin 3 of both is not connected



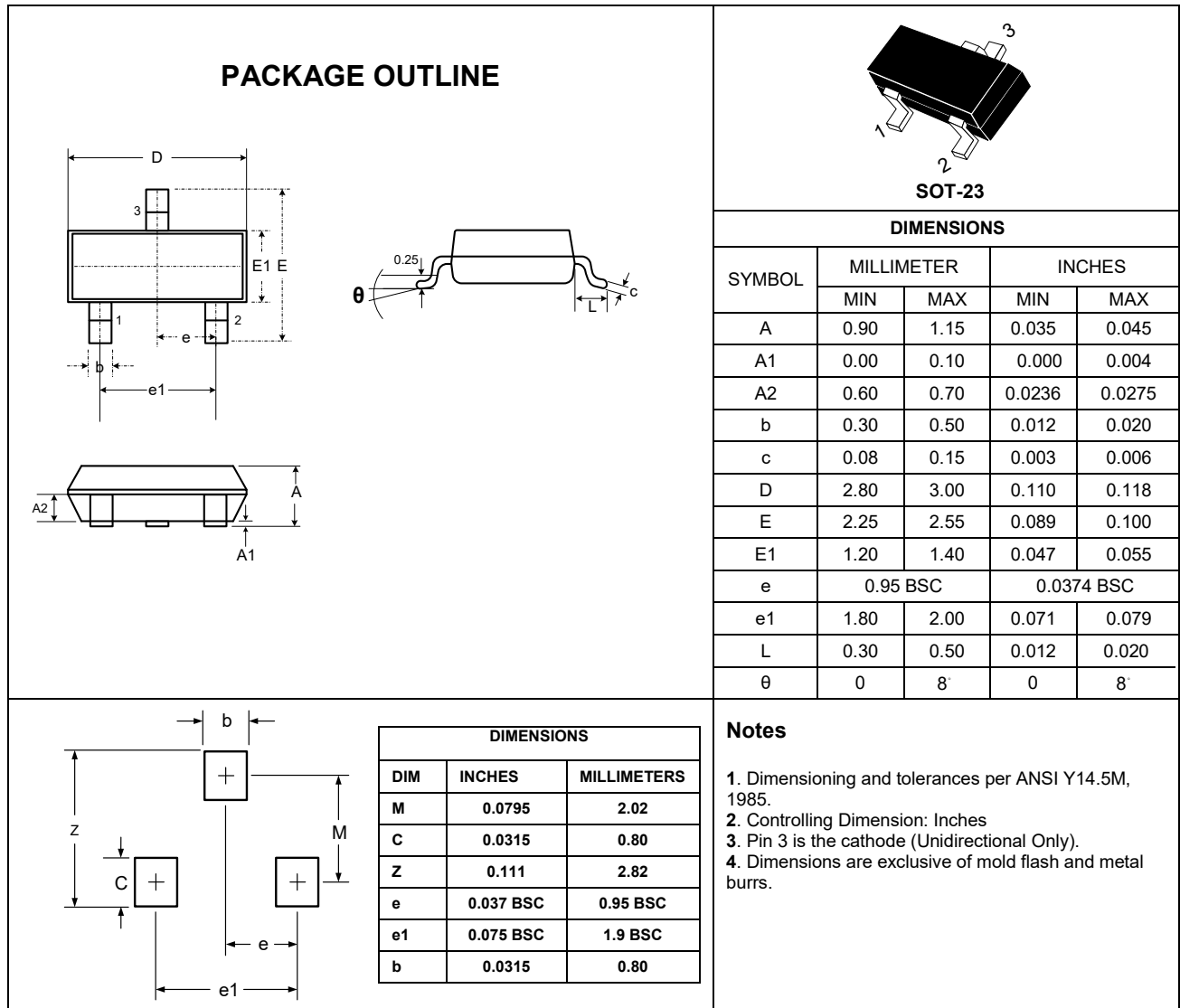
### Bidirectional Differential-mode Protection

Two DW2.8LVU-S devices provide two lines of bidirectional protection in a differential-mode configuration.

- Pin 1 of first and Pin 2 of second is connected to Line1
- Pin 2 of first and Pin 1 of second is connected to Line2
- Pin 3 of both devices is not connected



## Outline Drawing – SOT-23



## Marking Codes

Part Number	DW2.8LVU-S
Marking Code	U2.8

## Package Information

Qty: 3k/Reel