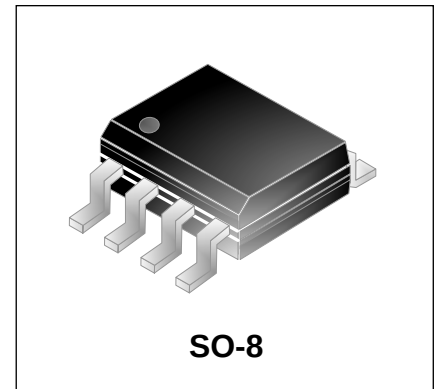


Features

- 840 Watts peak pulse power ($t_p=8/20\mu s$)
- 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) $\pm 30kV$ (air), $\pm 30kV$ (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 38A (8/20 μs)



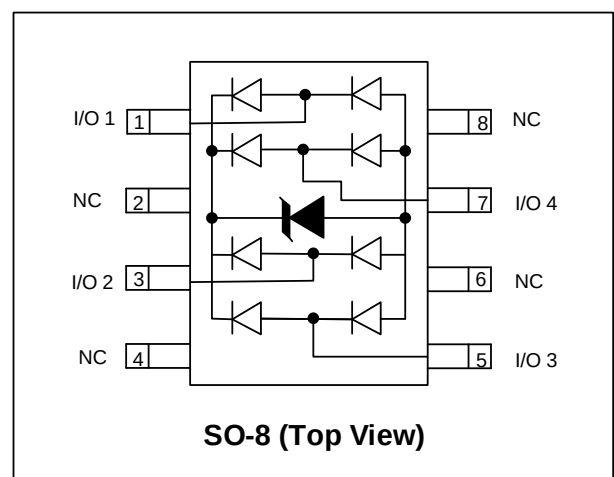
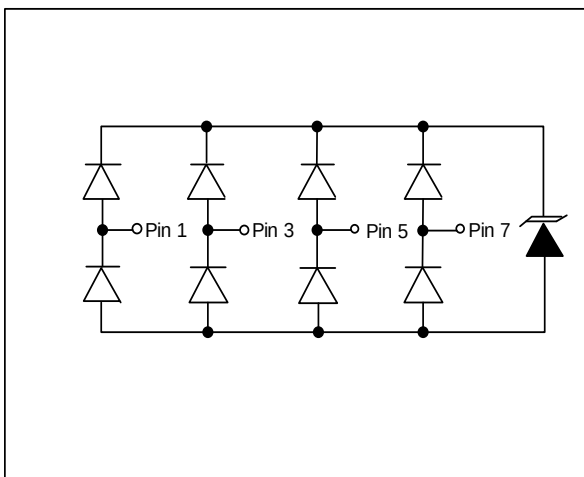
Mechanical Characteristics

- JEDEC SO-8 package
- Marking: Marking Code
- Packaging: Tape and Reel
- RoHS Compliant

Applications

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

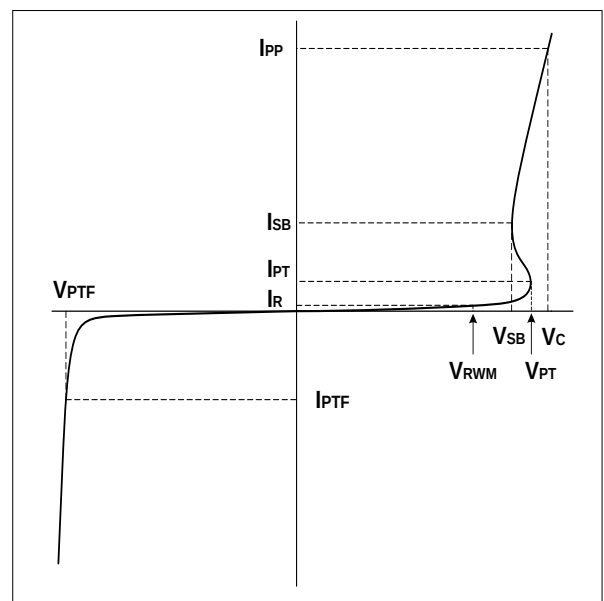
Schematic & PIN Configuration



Absolute Maximum Rating			
Rating	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu s$)	P_{PP}	840	Watts
Peak Pulse Current ($t_p=8/20\mu s$)	I_{PP}	38	A
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}	Reverse Stand-Off Voltage
I_R	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

WS2.8-4LVU						
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				2.8	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	3		7	V
Reverse Leakage Current	I_R	$V_{RWM}=2.8V$, $T=25^{\circ}C$			200	nA
Clamping Voltage	V_C	$I_{PP}=38A$, $t_p=8/20\mu s$		19	22	V
Dynamic Resistance ^{1,2}	R_{DYN}	$TLP=0.2/100ns$		0.32		Ω
ESD Clamping Voltage ¹	V_C	$I_{PP} = 4A$, $t_p = 0.2/100ns$ (TLP)		9.5		V
ESD Clamping Voltage ¹	V_C	$I_{PP} = 16A$, $t_p = 0.2/100ns$ (TLP)		13.6		V
Junction Capacitance	C_j	$V_R = 0V$, $f = 1MHz$		2	4	pF

Notes : 1、TLP Setting : $t_p=100ns$, $t_r=0.2ns$, I_{TLP} and V_{TLP} sample window: $t_1=70ns$ to $t_2=90ns$.

2、Dynamic resistance calculated from $I_{PP}=4A$ to $I_{PP}=16A$ using "Best Fit"

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

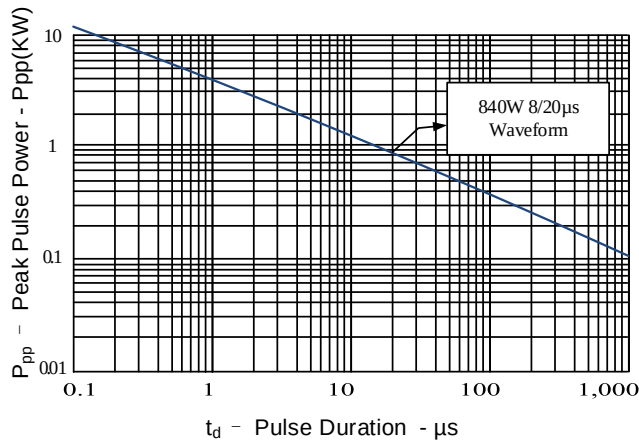


Figure 2: Power Derating Curve

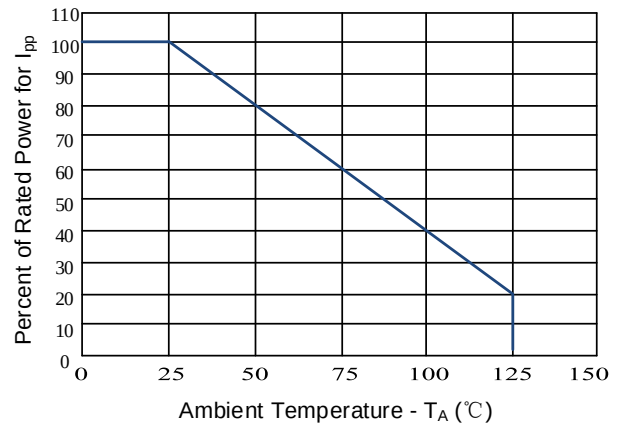


Figure 3: Clamping Voltage vs. Peak Pulse Current

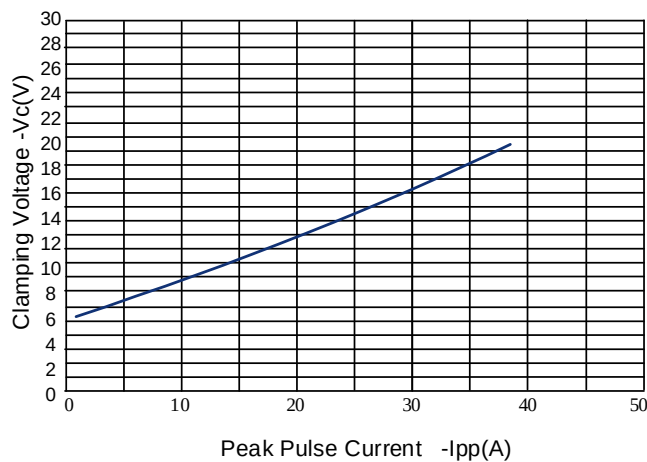


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

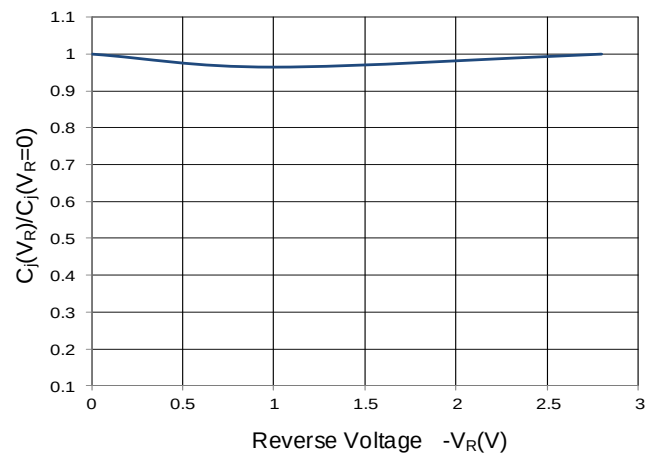


Figure 5: TLP Positive I-V Curve

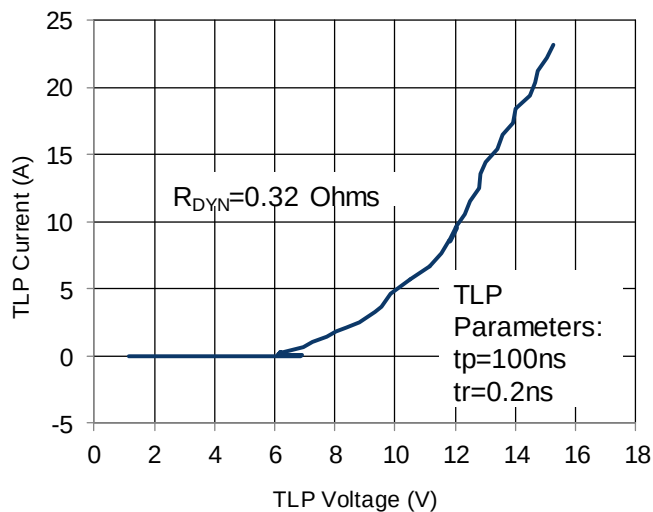
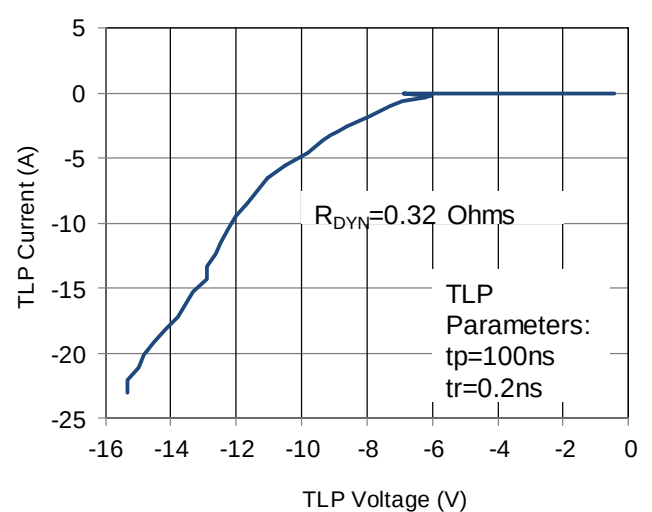
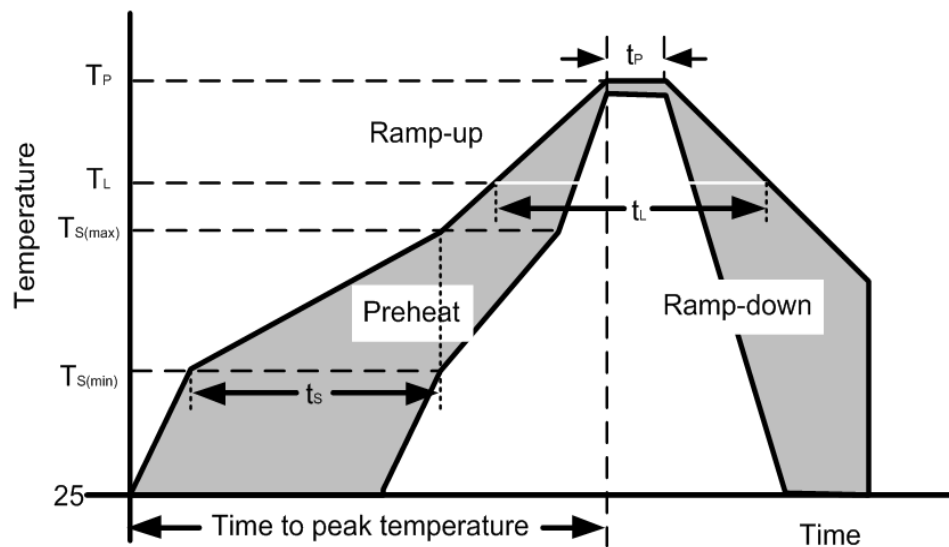


Figure 6: TLP Negative I-V Curve

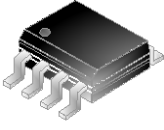


Soldering Parameters

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 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
$T_{S(max)}$ to T_L —Ramp-up Rate		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260+0/-5 °C
Time within actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C



Outline Drawing – SO-8

PACKAGE OUTLINE		 SO-8					
		DIMENSIONS					
Symbol		INCHES			MILLIMETERS		
		MIN	NOM	MAX	MIN	NOM	MAX
A		0.053	-	0.069	1.35	-	1.75
A1		0.000	-	0.010	0.00	-	0.25
A2		0.049	-	0.065	1.25	-	1.65
b		0.012	-	0.020	0.31	-	0.51
c		0.007	-	0.010	0.17	-	0.25
D		0.185	0.193	0.201	4.70	4.90	5.10
E1		0.150	0.154	0.162	3.80	3.90	4.10
E		0.228	0.236	0.244	5.80	6.00	6.20
e		0.050 BSC			1.27 BSC		
L		0.016	-	0.050	0.40	-	1.27
θ		0°	-	8°	0°	-	8°
N		8			8		

DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	(.205)	(5.20)
G	.118	3.00
P	.050	1.27
X	.024	0.60
Y	.087	2.20
Z	.291	7.40

Notes:
Controlling Dimension: Millimeter.

Marking Codes

Part Number	WS2.8-4LVU
Marking Code	WS2.8-4LVU

Package Information

Qty: 2.5k/Reel

CONTACT INFORMATION

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For additional information, please contact your local Sales Representative.

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Specifications are subject to change without notice.
 The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
 Users should verify actual device performance in their specific applications.