

**ESD PROTECTION DEVICE**

STAND-OFF VOLTAGE – **12.0** Volts  
POWER DISSIPATION – **500WATTS**

**GENERAL DESCRIPTION**

The L50ESDL12VH4-2 has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltages caused by ESD (electrostatic discharge), EFT (electrical fast transients), and lightning.

**FEATURES**

- Protects two I/O lines
- Max. peak pulse power : P<sub>pp</sub> = 500W at t<sub>p</sub> = 8/20 us.
- Low Capacitance : 8pF Typical
- Low clamping voltage
- IEC 61000-4-2, level 4 ( ESD ), > ±15KV ( air ) ; > ±8KV ( contact ).
- IEC 61000-4-5 (Lightning) 0.5kV, 12A (8/20µs)

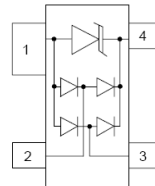
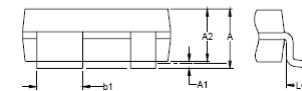
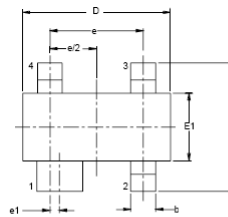
**APPLICATION**

- ADSL
- Industrial Electronics
- RS-422 Interfaces
- Portable Electronics
- Microcontroller Input Protection
- WAN/LAN Equipment

**MECHANICAL DATA**

- Case Material: "Green" molding compound UL flammability classification 94V-0 (No Br,Sb, Cl)
- Terminals: Lead Free Plating (Matte Tin Finish), solderable per J-STD-002 and JESD22-B/02.
- Moisture Sensitivity: Leve 1 per J-STD-020C
- Component in accordance to RoHs 2002/95/EC

**SOT-143**

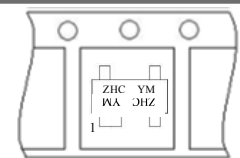


SOT-143		
DIM.	MIN.	MAX.
A	0.80	1.22
A1	0.013	0.15
A2	0.75	1.07
b	0.30	0.51
b1	0.76	0.94
D	2.80	3.04
E	2.10	2.64
E1	1.20	1.4
e	1.92 BSC	
e1	0.20 BSC	
L	0.40	0.60

All Dimensions in millimeter

PIN ASSIGNMENT	
1	Ground
2, 3	Input Line
4	Vcc

**Marking & Orientation**

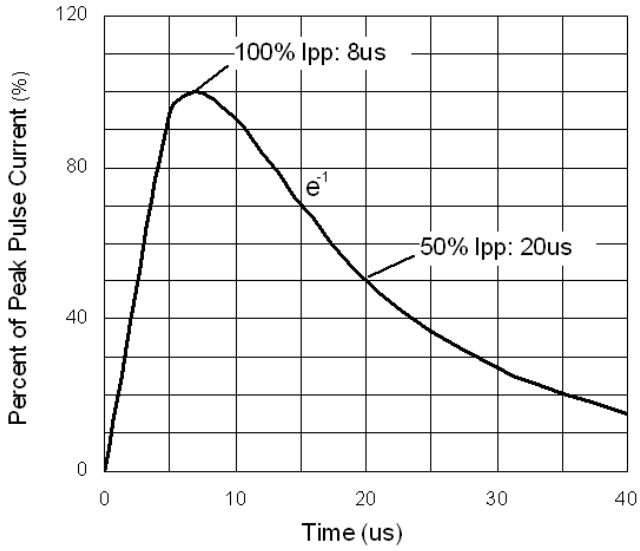


**MAXIMUM RATINGS (T<sub>j</sub>= 25°C unless otherwise noticed)**

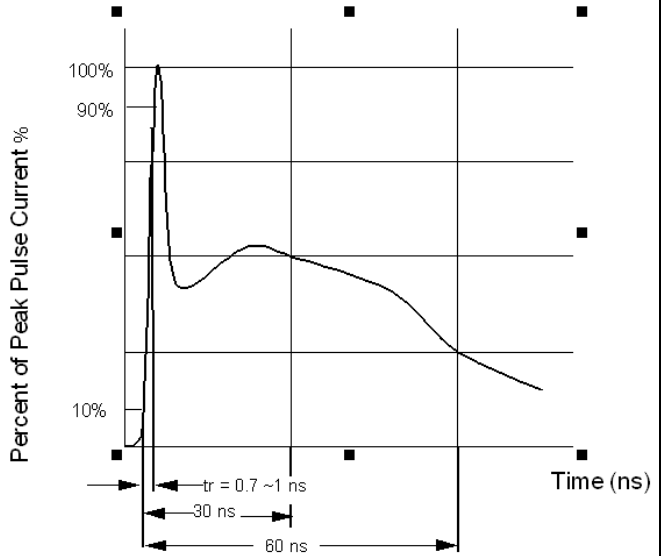
Rating	Symbol	Value	Unit
Peak Pulse Power (t <sub>p</sub> = 8/20us)	P <sub>pk</sub>	500 (Max)	W
Peak Pulse Current (t <sub>p</sub> = 8/20us)	I <sub>pp</sub>	16	A
Operating Junction Temperature Range	T <sub>J</sub>	-55 to + 125	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to + 150	°C
Soldering Temperature, t max = 10s	T <sub>L</sub>	260	°C

**ELECTRICAL CHARACTERISTICS (T<sub>j</sub>= 25°C unless otherwise noticed)**

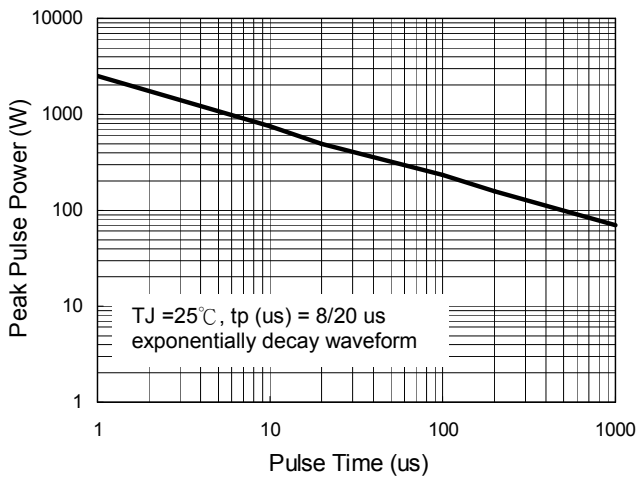
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse standoff voltage	V <sub>RWM</sub>		---	---	12	V
Breakdown voltage	V <sub>BR</sub>	I <sub>R</sub> = 1 mA	13.3	---	---	V
Reverse leakage current	I <sub>RM</sub>	V <sub>DRM</sub> = 12V	---	---	1	uA
Clamping Voltage	V <sub>C</sub>	I <sub>pp</sub> = 5A, t <sub>p</sub> = 8/20µs	---	---	24	V
		I <sub>pp</sub> = 16A, t <sub>p</sub> = 8/20µs	---	---	31	
Junction Capacitance	C <sub>J</sub>	Between I/O pins and Ground V <sub>R</sub> = 0V, f = 1MHz	---	8	10	pF
		Between I/O pins V <sub>R</sub> = 0V, f = 1MHz	---	4	5	



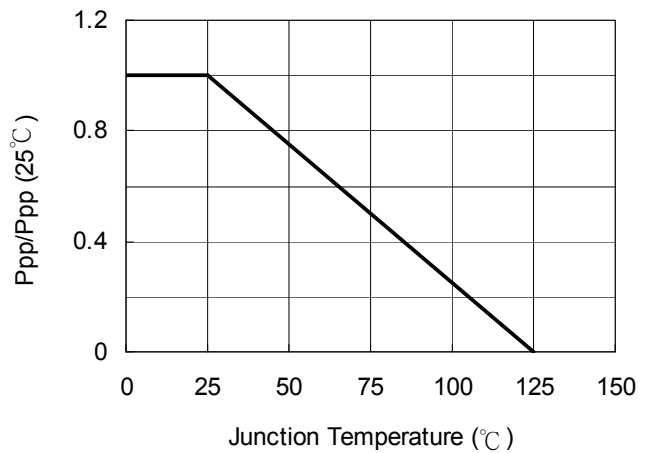
**Figure 1. 8/20 us pulse waveform according to IEC 61000-4-5**



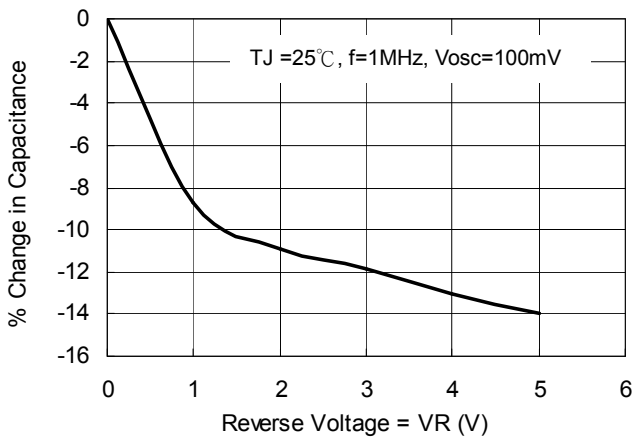
**Figure 2. ESD pulse waveform according to IEC 61000-4-2**



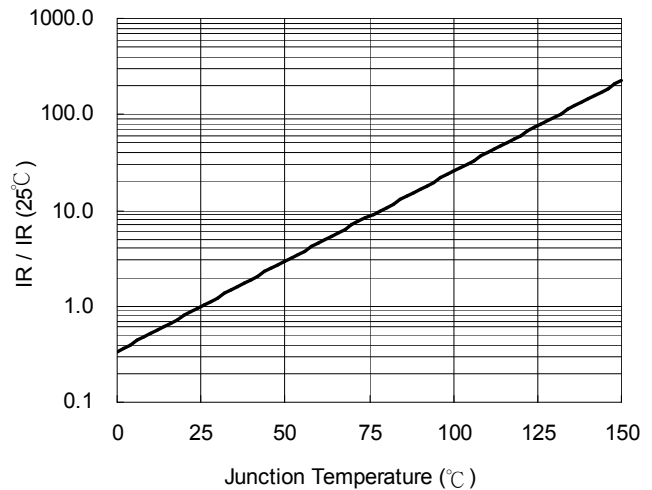
**Figure 3. Power Dissipation versus Pulse Time**



**Figure 4. Peak pulse power versus TJ**



**Figure 5. Capacitance versus Reverse Voltage**



**Figure 6. Reverse Leakage Current versus TJ**

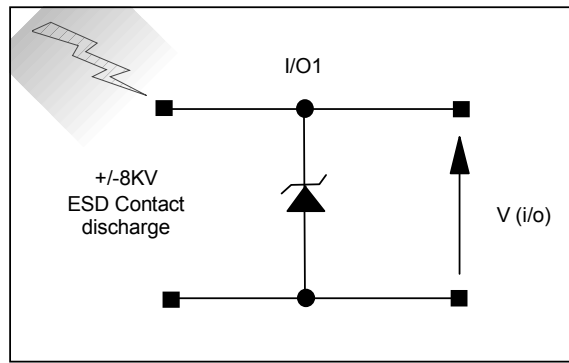


Figure 7. ESD Test Configuration

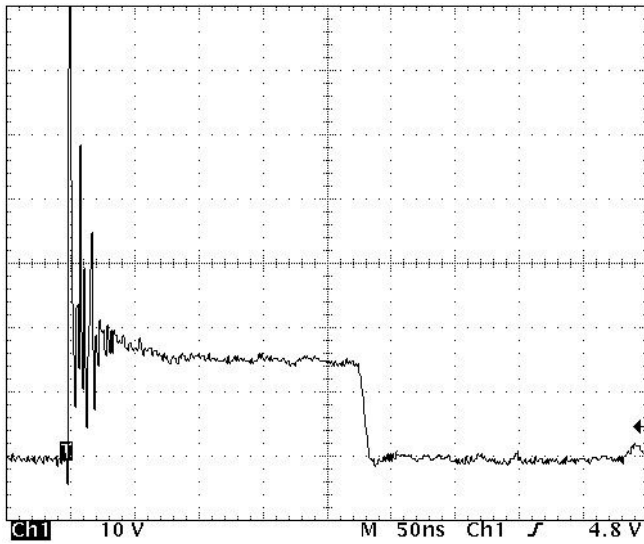


Figure 8. Clamped +8 kV ESD voltage waveform

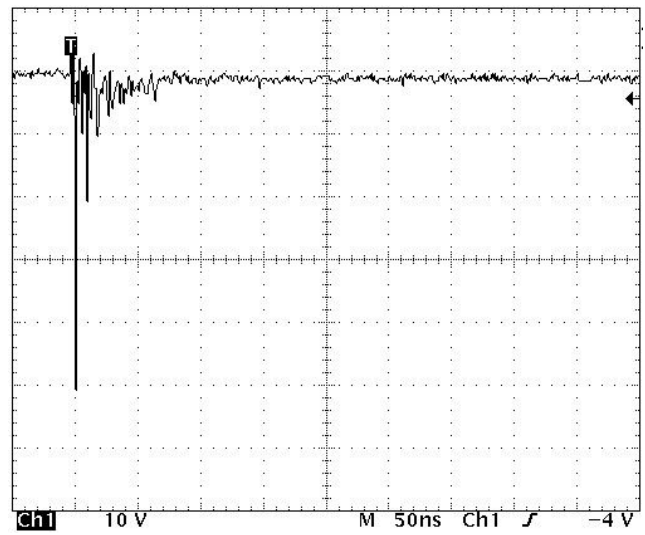


Figure 9. Clamped -8 kV ESD voltage waveform

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