

DUAL ESD PROTECTION DIODES

STAND-OFF VOLTAGE - **5 ~24** Volts
POWER DISSIPATION - **300** WATTS

GENERAL DESCRIPTION

- The L30ESD5V0C3-2~L30ESD24VC3-2 are a dual voltage suppressor designed to protect components which are connected to data and transmission lines against Electro Static Discharge (ESD).
- It clamps the voltage just above the logic level supply for positive transients , and to a diode drop below ground for negative transients.
- It can work as bi-directional suppressor by connecting only pin 1 to 2.

FEATURES

- 2 Unidirectional ESD protection.
- Max. peak pulse power : Ppp = 300W at tp = 8/20 us
- Ultra low leakage current : IRM < 1uA @ VBR
- ESD protection > 25KV per MIL-STD-883C, Method 3015-6: Class 3.
- IEC 61000-4-2, level 4 (ESD),>15KV(air) ;>8KV(contact) .
- Ultra small SMD plastic packages

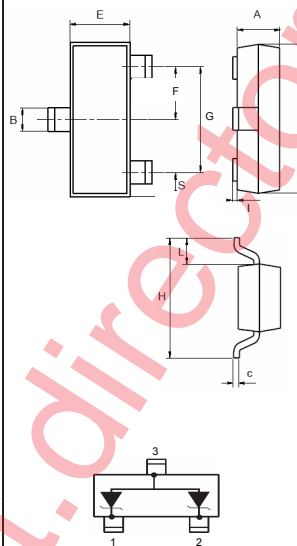
APPLICATION

- Computers and peripherals
- Communication system
- Portable electronics
- Cellular handsets and accessories.

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

SOT23

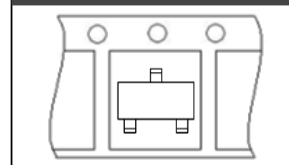


SOT23		
DIM.	MIN.	MAX.
A	0.89	1.20
B	0.30	0.51
C	0.085	0.18
D	2.75	3.04
E	1.20	1.60
F	0.85	1.05
G	1.70	2.10
H	2.10	2.75
I	0.0	0.1
L	0.6 typ.	
S	0.35	0.65

All Dimensions in millimeter

PIN ASSIGNMENT	
1,2	Cathode
3	Ground

Marking & Orientation



Marking: L30ESD5V0C3-2, XX XX: LT E5
L30ESD12VC3-2, XXX XX: VCC YM
L30ESD24VC3-2, XXX XX: VCO YM

MAXIMUM RATINGS (Tj= 25°C unless otherwise noticed)

Rating	Symbol	Value	Unit
Peak pulse Power (8/20us Waveform)	PPPM	300	W
Operating Junction Temperature Range	TJ	-55 to + 125	°C
Storage Temperature Range	Tstg	-55 to + 150	°C
Soldering Temperature, t max = 10s	TL	260	°C

ELECTRICAL CHARACTERISTICS (T_j= 25°C unless otherwise noticed)

L30ESD5V0C3-2

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse standoff voltage	V _{DRM}	---	---	---	5	V
Reverse leakage current	I _{RM}	V _{DRM} = 5V	---	---	1	uA
Peak pulse Current	I _{pp}	t _p = 8/20us	---	---	17	A
Breakdown voltage	V _{BR}	I _R = 1 mA	6.4	---	7.2	V
Diode capacitance	C _J	V _R = 0 V , f = 1MHz	---	156	160	pF
Clamping Voltage	V _{CL}	I _{pp} = 1 A, t _p = 8/20us	---	---	9.8	V
Clamping Voltage	V _{CL}	I _{pp} = 15 A, t _p = 8/20us	---	---	20	V

L30ESD12VC3-2

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse standoff voltage	V _{DRM}	---	---	---	12	V
Reverse leakage current	I _{RM}	V _{DRM} = 12 V	---	---	1	uA
Peak pulse Current	I _{pp}	t _p = 8/20us	---	---	12	A
Breakdown voltage	V _{BR}	I _R = 1 mA	14.2	---	15.8	V
Diode capacitance	C _J	V _R = 0 V , f = 1MHz	---	78	100	pF
Clamping Voltage	V _{CL}	I _{pp} = 1 A, t _p = 8/20us	---	---	19	V
Clamping Voltage	V _{CL}	I _{pp} = 12 A, t _p = 8/20us	---	---	25	V

L30ESD24VC3-2

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse standoff voltage	V _{DRM}	---	---	---	24	V
Reverse leakage current	I _{RM}	V _{DRM} = 24V	---	---	1	uA
Peak pulse Current	I _{pp}	t _p = 8/20us	---	---	4	A
Breakdown voltage	V _{BR}	I _R = 1 mA	26.7	---	29.6	V
Diode capacitance	C _J	V _R = 0 V , f = 1MHz	---	30	60	pF
Clamping Voltage	V _{CL}	I _{pp} = 1 A, t _p = 8/20us	---	---	36	V
Clamping Voltage	V _{CL}	I _{pp} = 4 A, t _p = 8/20us	---	---	43	V

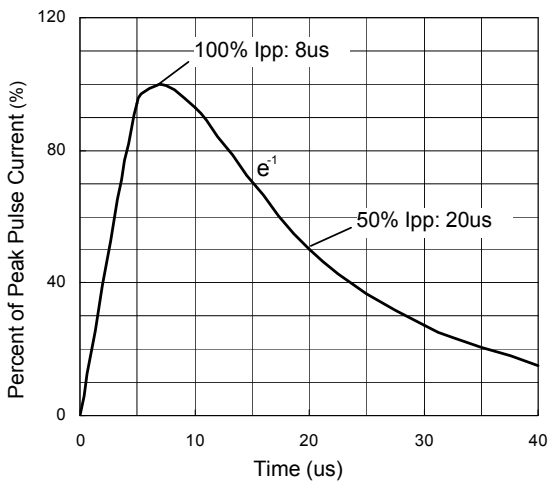


Figure 1. 8/20 us pulse waveform according to IEC 61000-4-5

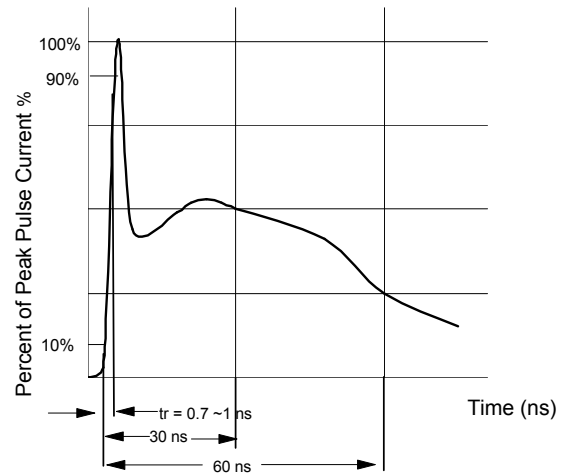


Figure 2. ESD pulse waveform according to IEC 61000-4-2

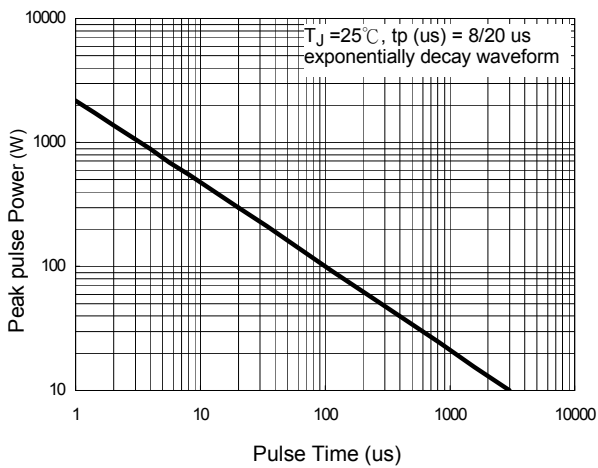


Figure 3. Power Dissipation versus Pulse Time

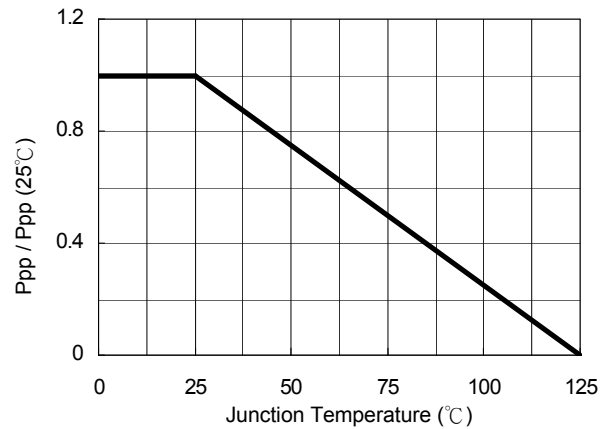


Figure 4. Peak pulse power versus T_J

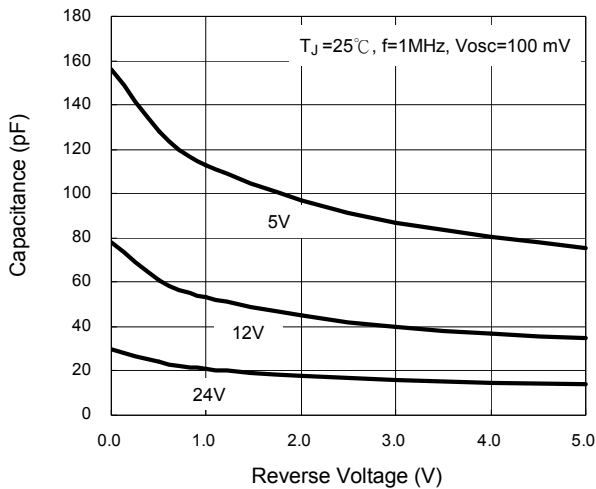


Figure 5. Typical Junction Capacitance

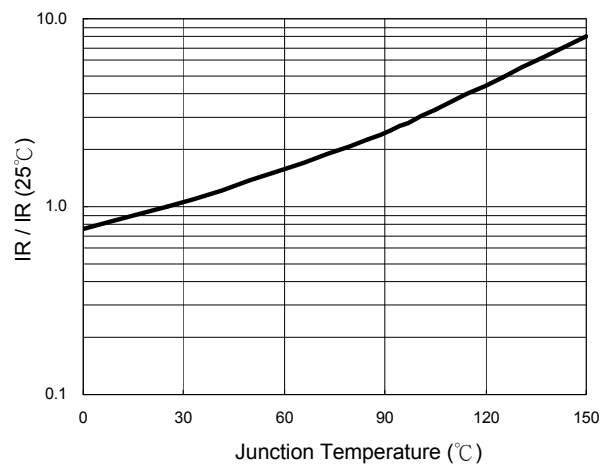


Figure 6. Reverse Leakage Current versus T_J

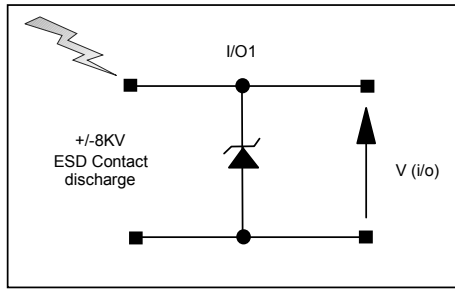


Figure 7. ESD Test Configuration

L30ESD5V0C3-2

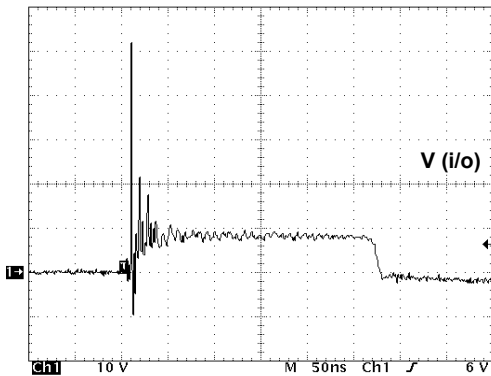


Figure 8. Clamped +8 kV ESD voltage waveform

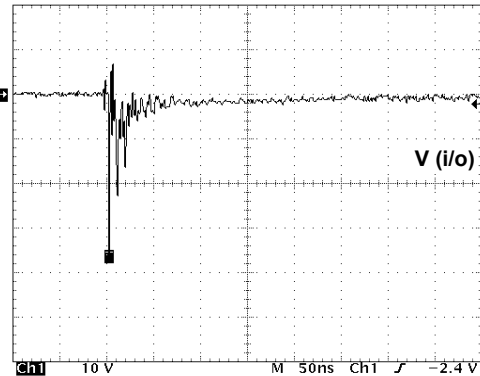


Figure 9. Clamped -8 kV ESD voltage waveform

L30ESD12VC3-2

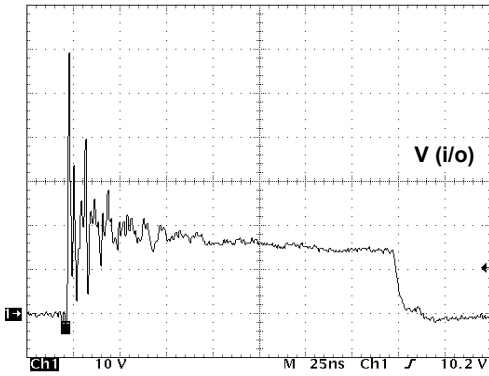


Figure 10. Clamped +8 kV ESD voltage waveform

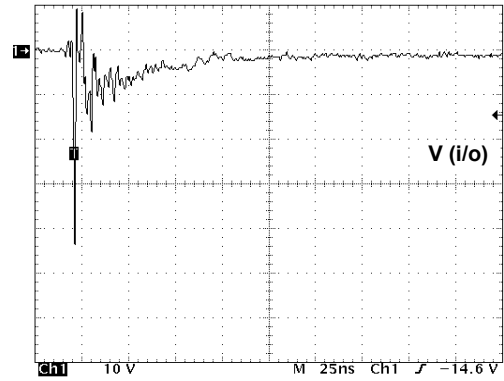


Figure 11. Clamped -8 kV ESD voltage waveform

L30ESD24VC3-2

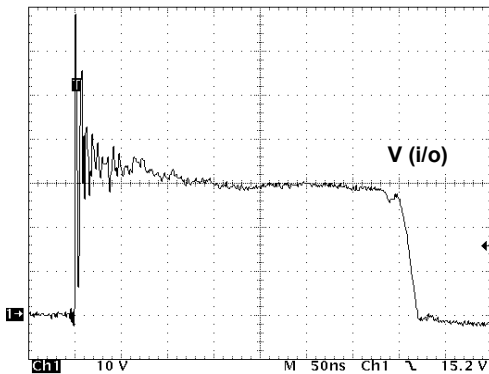


Figure 12. Clamped +8 kV ESD voltage waveform

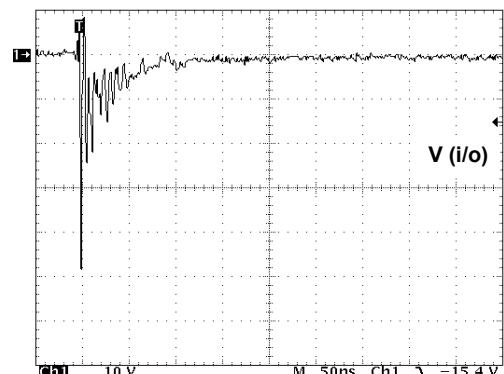


Figure 13. Clamped -8 kV ESD voltage waveform

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