

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: Class3
- IEC 61000-4-2, level 4 (ESD), >15KV(air); >8KV(contact)
- Ultra small SMD plastic packages
- Qualified to AEC-Q101 Rev. C

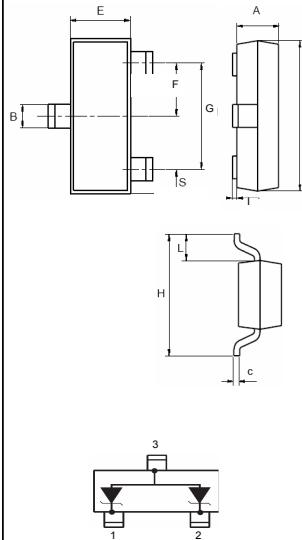
APPLICATION

- 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 2011/65/EU

SOT23

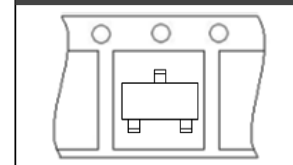


SOT23		
DIM.	MIN.	MAX.
A	0.89	1.05
B	0.30	0.51
C	0.085	0.18
D	2.75	3.04
E	1.20	1.60
F	0.85	1.05
G	1.70	2.10
H	2.10	2.75
I	0.0	0.1
L	0.6 typ.	
S	0.35	0.65

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

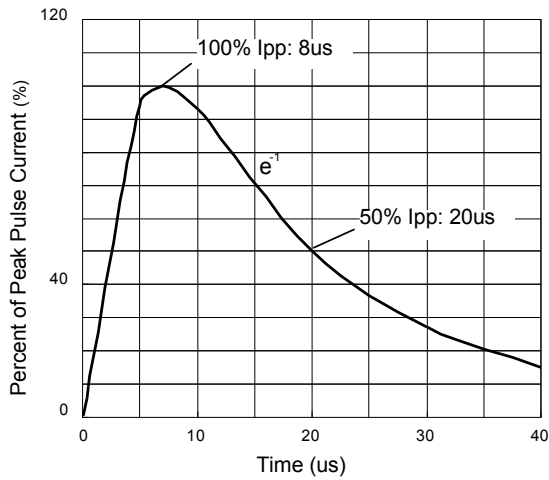


Figure 1. 8/20 us pulse waveform according to IEC 61000-4-5

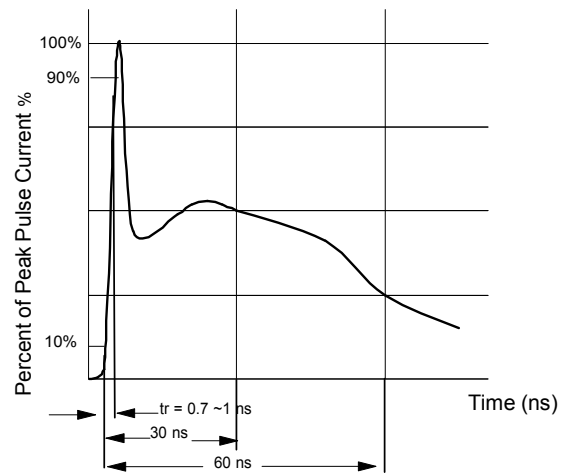


Figure 2. ESD pulse waveform according to IEC 61000-4-2

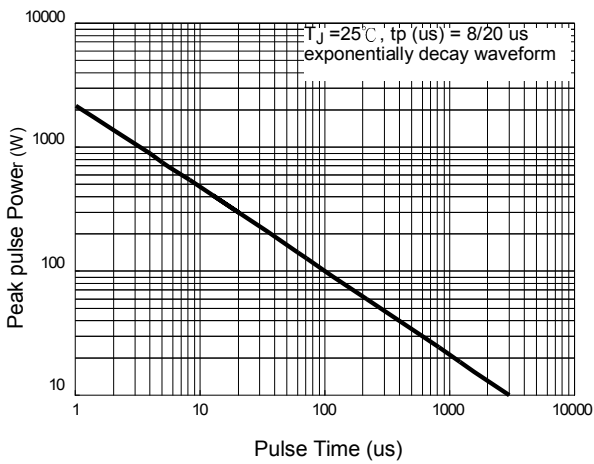


Figure 3. Power Dissipation versus Pulse Time

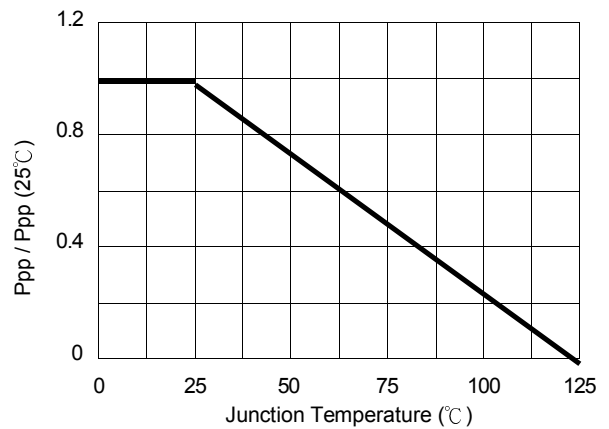


Figure 4. Peak pulse power versus TJ

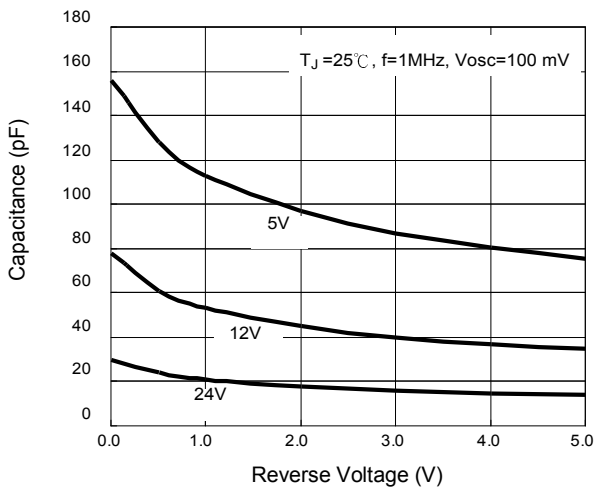


Figure 5. Typical Junction Capacitance

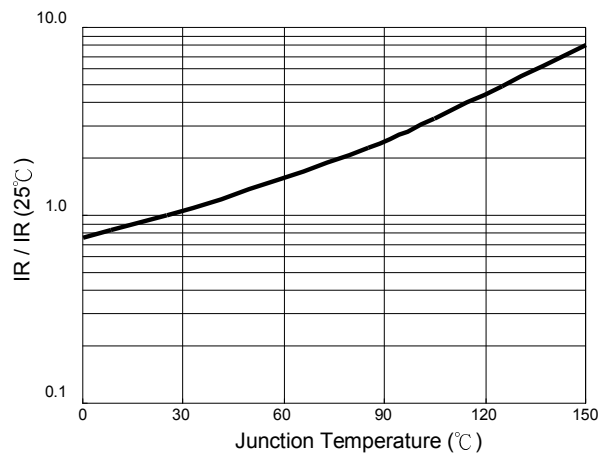


Figure 6. Reverse Leakage Current versus TJ

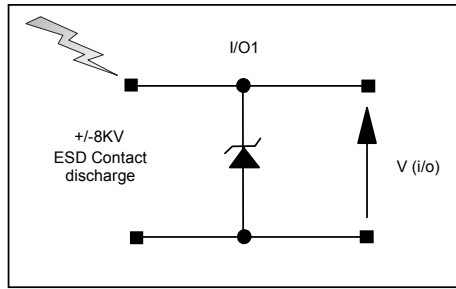


Figure 7. ESD Test Configuration

L30ESD5V0C3-2

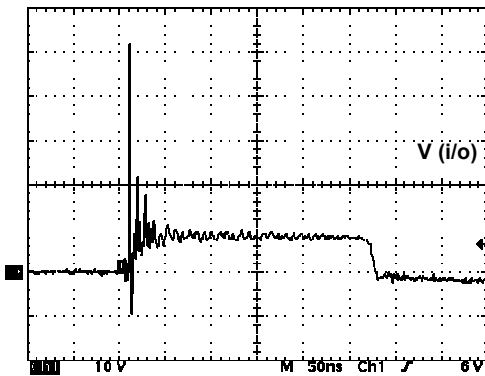


Figure 8. Clamped +8 kV ESD voltage waveform

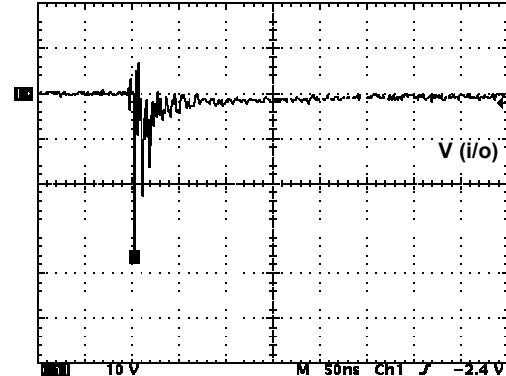


Figure 9. Clamped -8 kV ESD voltage waveform

L30ESD12VC3-2

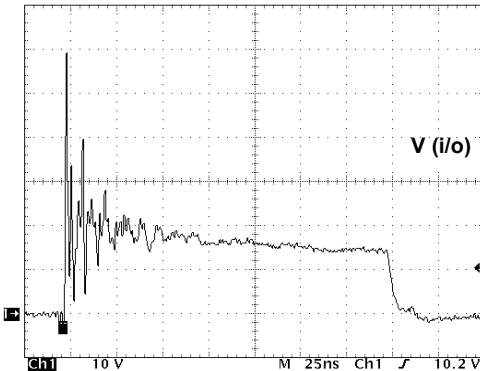


Figure 10. Clamped +8 kV ESD voltage waveform

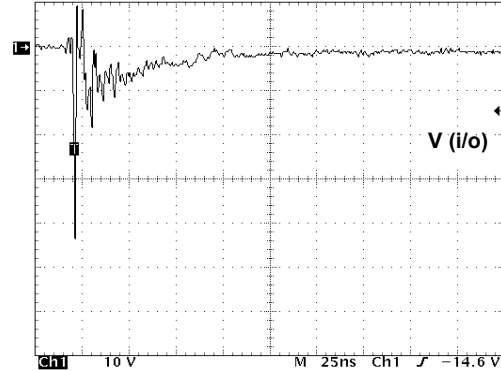


Figure 11. Clamped -8 kV ESD voltage waveform

L30ESD24VC3-2

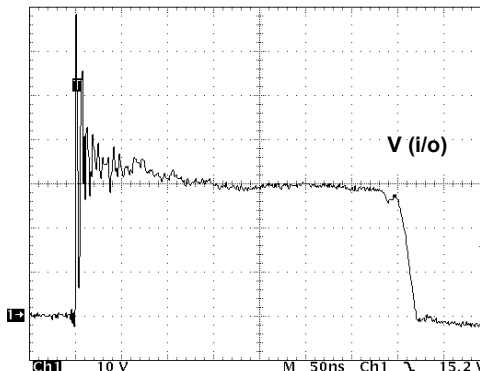


Figure 12. Clamped +8 kV ESD voltage waveform

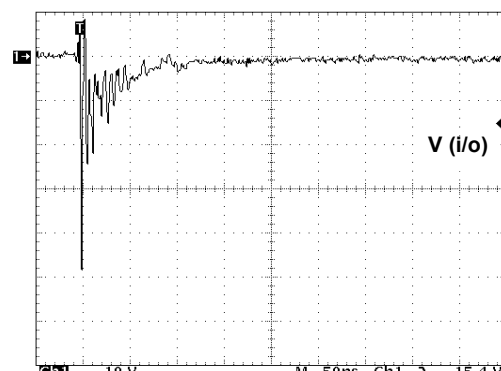


Figure 13. Clamped -8 kV ESD voltage waveform

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