

LIN-bus ESD protection diode
STAND-OFF VOLTAGE – 24 Volts
POWER DISSIPATION - 160 Watts
GENERAL DESCRIPTION


The AESD1LIN in a very small SOD323 Surface-Mounted Device (SMD) plastic package designed to protect one automotive Local Interconnect Network (LIN) bus line from the damage caused by Electro Static Discharge (ESD) and other transients.

FEATURES

- ESD protection of one automotive LIN-bus line
- Max. peak pulse power: $P_{pp}=160\text{ W}$ at $t_p = 8/20\text{ us}$.
- Low clamping voltage: $V_{CL} = 40\text{ V}$ at $I_{PP} = 1\text{ A}$
- Ultra low leakage current: $I_{RM} < 1\text{ nA}$
- ESD protection of up to 23 kV
- ISO10605 $>\pm 23\text{KV}$ (Contact mode)
- ISO10605 $>\pm 30\text{KV}$ (Air mode)
- IEC 61000-4-5 (surge); $I_{PP} = 3\text{ A}$ at $t_p = 8/20\text{ us}$.
- Qualified to AEC-Q101 Rev_D
- Automotive grade

MECHANICAL DATA

- Case material: "Green" molding compound UL flammability classification 94V-0 (No Br, Sb, Cl)
- Terminals: lead free plating
- Component in accordance to RoHs 2011/65/EU

APPLICATION

- LIN-bus protection
- Automotive applications

SOD323

SOD323		
DIM.	MIN.	MAX.
A	2.30	2.70
B	1.20	1.40
C	1.60	1.80
D	0.25	0.45
E	0.10	0.25
F	0.15	0.45
G	0.80	1.15
H	0.00	0.15

All dimension in millimeter


PIN ASSIGNMENT

1	Cathode 1
2	Cathode 2

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

ABSOLUTE RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power ($t_p = 8/20\text{us}$)	P_{pk}	160	W
Peak pulse current ($t_p = 8/20\text{us}$)	I_{pp}	3	A
Operating junction temperature range	T_J	175	°C
Soldering temperature, $t_{max} = 10\text{s}$	T_L	260	°C

ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP.	MAX	UNIT
Reverse standoff voltage	AESD1LIN (24 V)	V_{RWM}	--	--	24	V
Reverse leakage current	$V_{RWM}=24\text{ V}$	I_{RM}	--	--	50	nA
Breakdown voltage	AESD1LIN (24 V), $I_R=1\text{mA}$		25.4	28.8	30.3	V
Clamping Voltage	AESD1LIN (24 V)	V_C	$I_{pp}=1\text{A}$, $t_p=8/20\text{ us}$	--	40	V
			$I_{pp}=3\text{A}$, $t_p=8/20\text{ us}$	--	70	
Junction capacitance	$V_R = 0\text{ V}$; $f = 1\text{ MHz}$	C_d		13	17	pF
Electrostatic discharge voltage	ISO10605 330PF/2KΩ (contact mode)	V_{ESD}			23	kV

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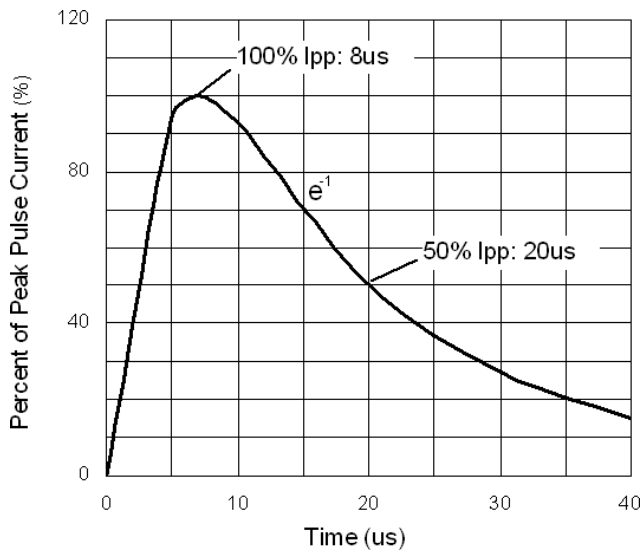


Figure 1. 8/20 us pulse waveform according to IEC 61000-4-5

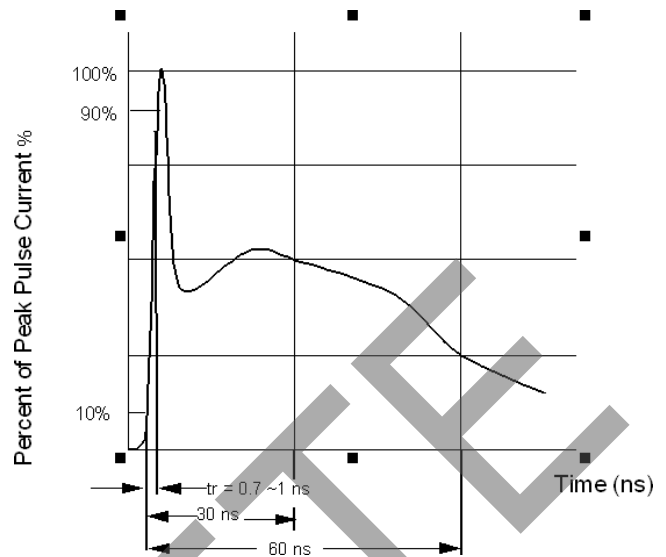


Figure 2. ESD pulse waveform according to IEC 61000-4-2

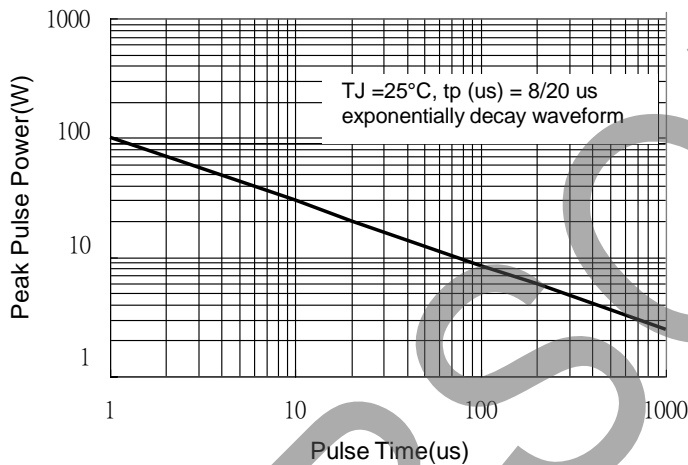


Figure 3. Power Dissipation versus Pulse Time

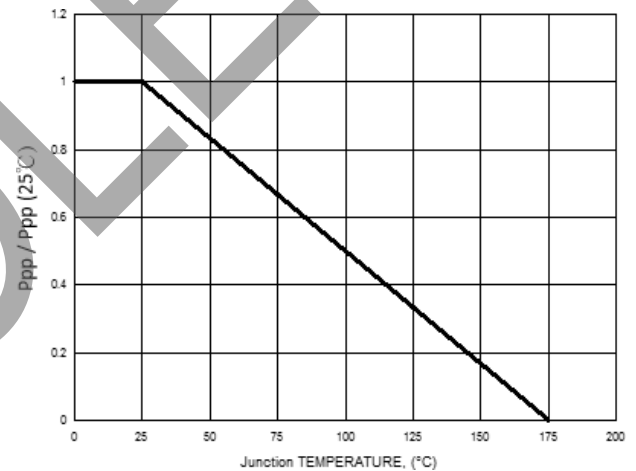


Figure 4. Peak pulse power versus TJ

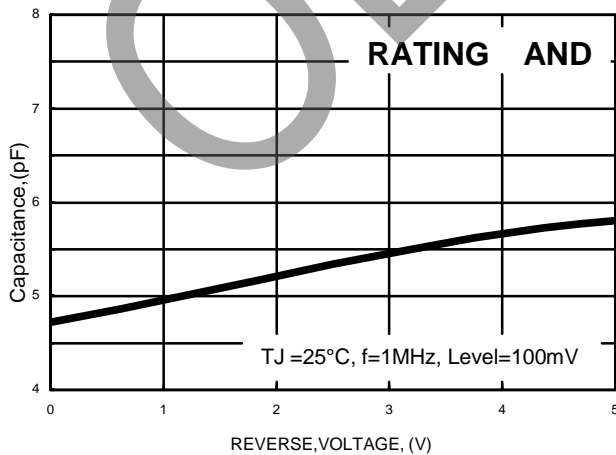


Figure 5. Typical Junction Capacitance

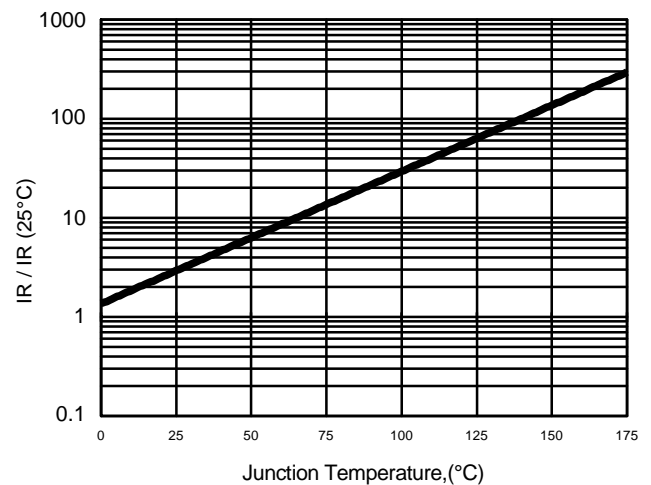


Figure 6. Reverse Leakage Current versus TJ

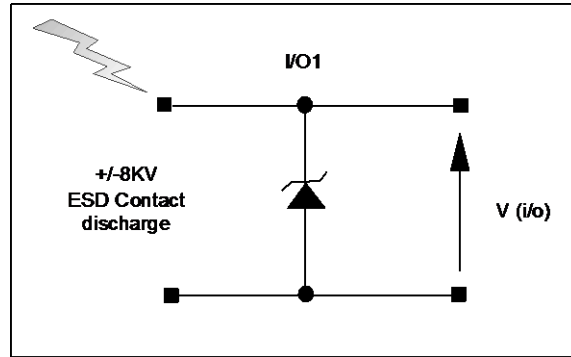


Figure 7. ESD Test Configuration

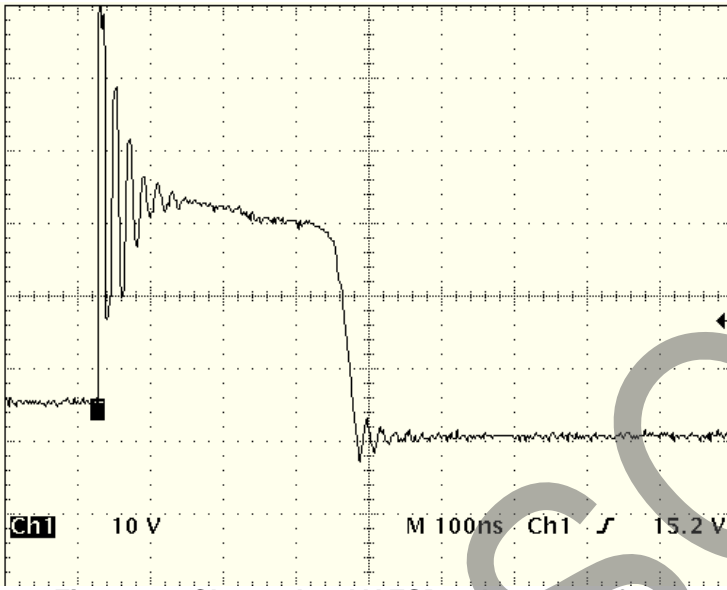


Figure 8. Clamped +1 kV ESD voltage waveform

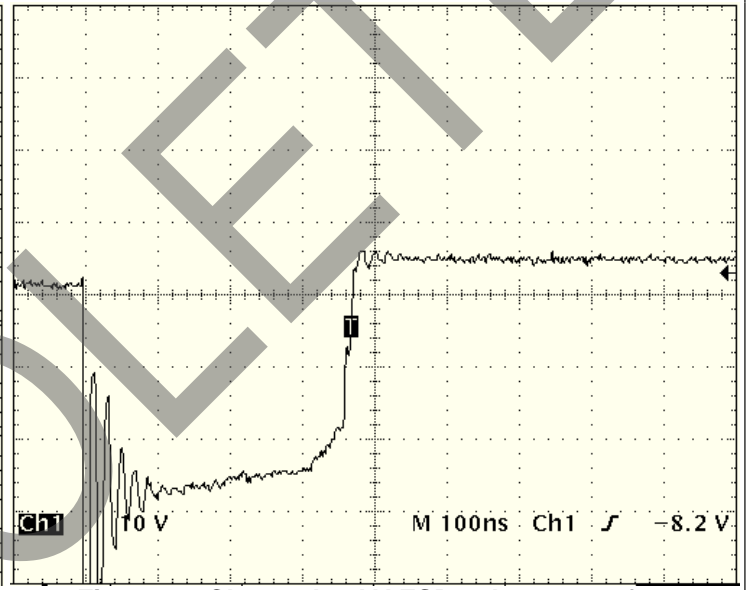
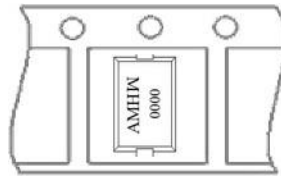


Figure 9. Clamped -1 kV ESD voltage waveform

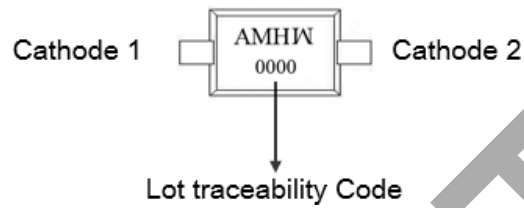
OBsolete

APPLICATION INFORMATION AESD1LIN24VCB2

Marking and Orientation :



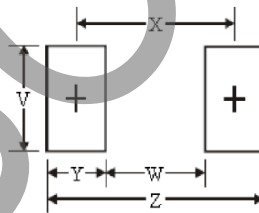
Marking information :



Packaging Information :

DEVICE	Q'TY/REEL (PCS)	REEL DIA. (INCH)	Q'TY/BOX (PCS)	Q'TY/CARTON (PCS)
AESD1LIN24VCB2	3000	7	45000	90K/180K

AESD1LIN24VCB2 Soldering Pad Layout :



Dim.	Millimeters	Inches
Z	3.05	0.120
X	2.15	0.084
W	1.25	0.049
Y	0.90	0.035
V	0.70	0.027

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