

**LIN-bus ESD protection diode**
**STAND-OFF VOLTAGE – 15 / 24 Volts**  
**POWER DISSIPATION - 160 Watts**
**GENERAL DESCRIPTION**


The AESD1LIN2WCB2 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**

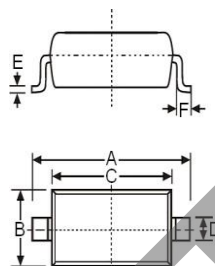
- ESD protection of one automotive LIN-bus line
- Max. peak pulse power:  $P_{pp}=160\text{ W}$  at  $t_p = 8/20\text{ us}$
- Low clamping voltage:  $V_{CL} = 40\text{ V}$  at  $I_{PP} = 1\text{ A}$
- Ultra low leakage current:  $I_{RM} < 20\text{ nA}$
- ESD protection of up to 23 kV
- ISO 10605  $>\pm 23\text{KV}$ (Contact / Air mode)
- IEC 61000-4-5 (surge);  $I_{PP} = 3\text{ A}$  at  $t_p = 8/20\text{ us}$
- Qualified to AEC-Q101 qualified
- 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

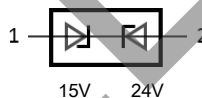
**APPLICATION**

- 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 (15 V)                         | $V_{RWM}$ | --  | --   | 15   | V    |   |
|                                 | AESD1LIN (24 V)                         |           | --  | --   | 24   |      |   |
| Reverse leakage current         | $V_{RWM}=15\text{ V}$                   | $I_{RM}$  | --  | --   | 50   | nA   |   |
|                                 | $V_{RWM}=24\text{ V}$                   |           | --  | --   | 50   |      |   |
| Breakdown voltage               | AESD1LIN (15 V), $I_R=1\text{mA}$       | $V_{BR}$  | 17.1                                      | 18.9 | 20.3 | V    |   |
|                                 | AESD1LIN (24 V), $I_R=1\text{mA}$       |           | 25.4                                      | 28.8 | 30.3 |      |   |
| Clamping Voltage                | AESD1LIN (15 V)                         | $V_C$     | $I_{pp}=1\text{A}$ , $t_p=8/20\text{ us}$ | --   | --   | 25   | V |
|                                 |   |           | $I_{pp}=5\text{A}$ , $t_p=8/20\text{ us}$ | --   | --   | 44   |   |
|                                 | AESD1LIN (24 V)                         |           | $I_{pp}=1\text{A}$ , $t_p=8/20\text{ us}$ | --   | --   | 40   |   |
|                                 |   |           | $I_{pp}=3\text{A}$ , $t_p=8/20\text{ us}$ | --   | --   | 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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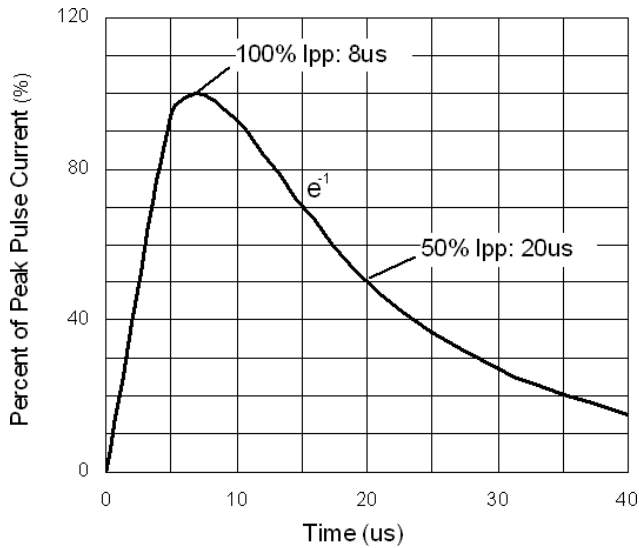


Figure 1. 8/20 us pulse waveform according to IEC 61000-4-5

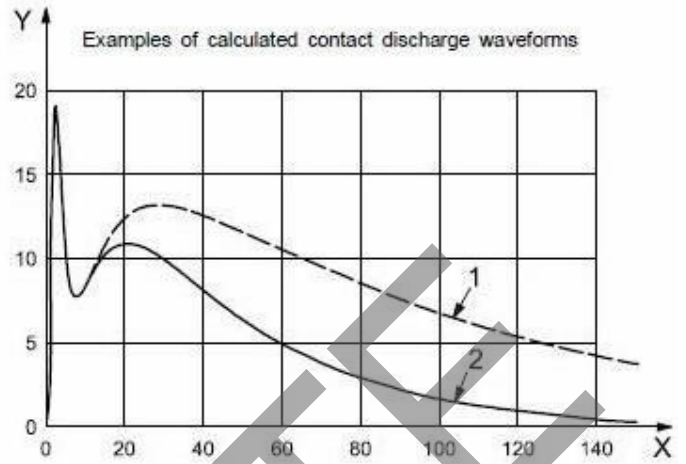


Figure 2. ESD pulse waveform according to ISO 10605  
X : Time(ns) / Y : Current(A)  
1 : 330pf/330Ω / 2 : 150pf 330Ω

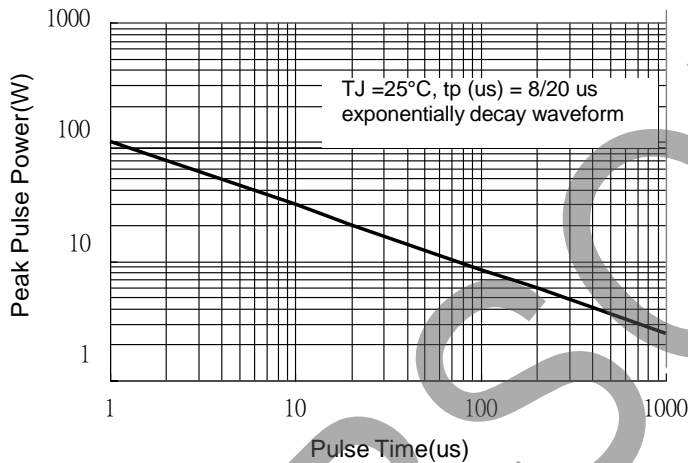


Figure 3. Power Dissipation versus Pulse Time

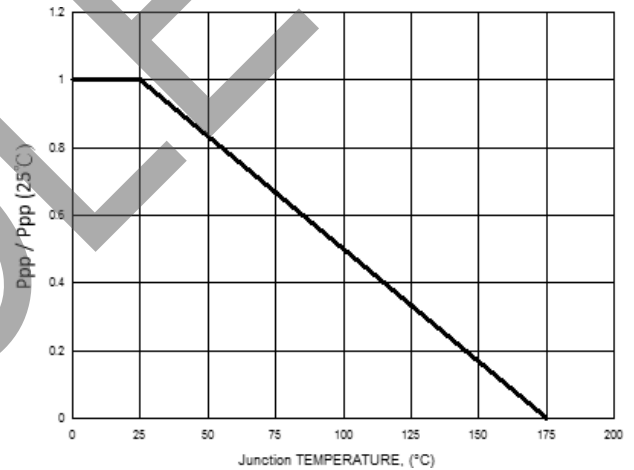


Figure 4. Peak pulse power versus TJ

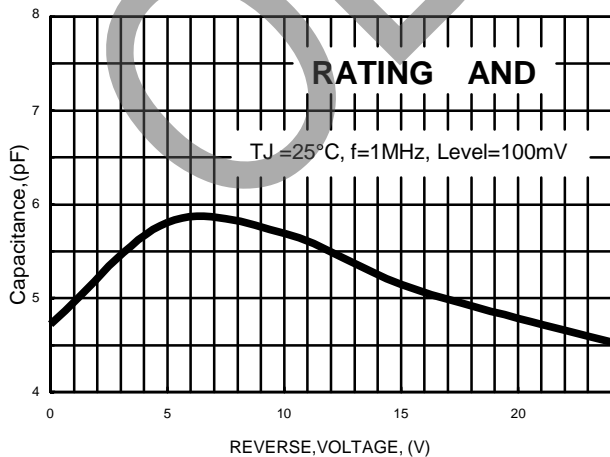


Figure 5. Typical Junction Capacitance (24V to 15V)

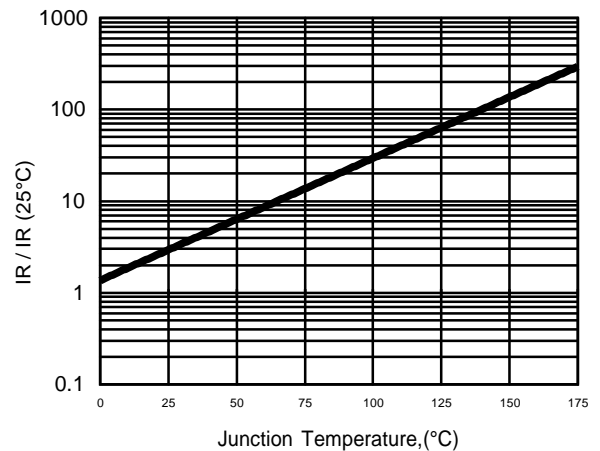
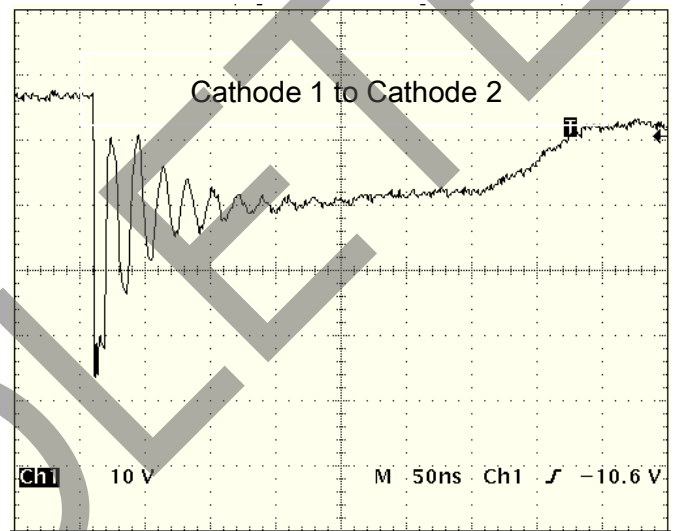
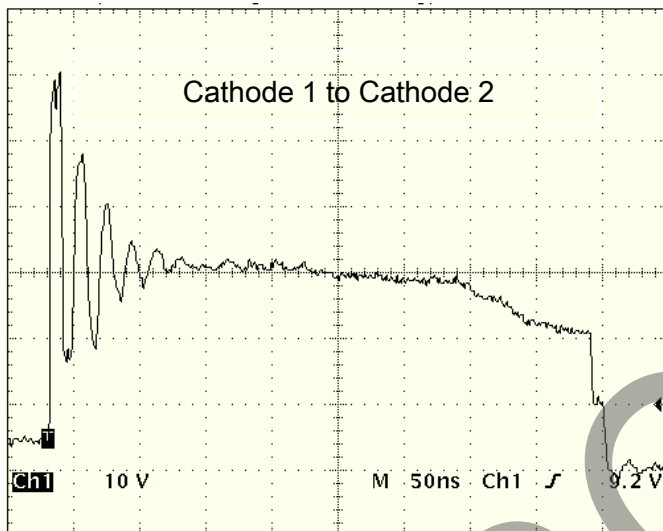
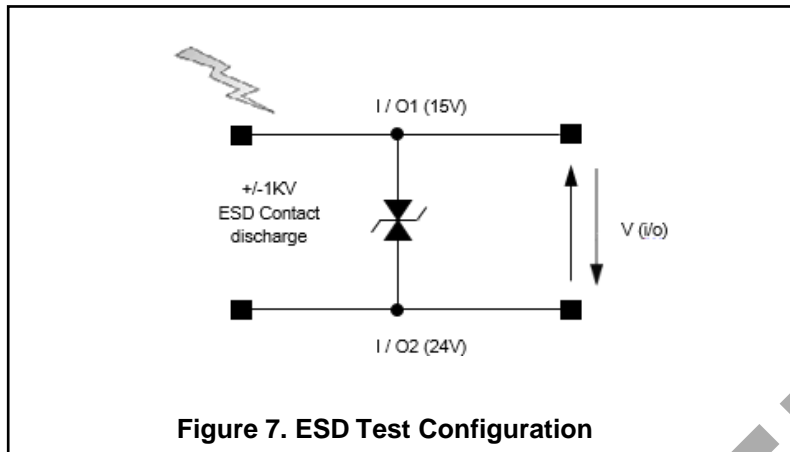


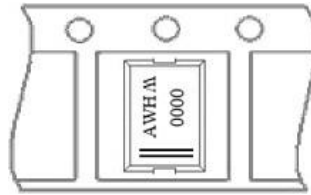
Figure 6. Reverse Leakage Current versus TJ

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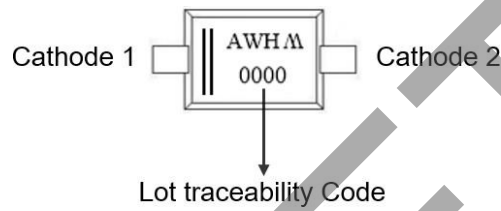


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Marking and Orientation :



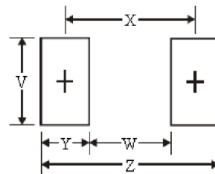
Marking information :



Packaging Information :

| DEVICE        | Q'TY/REEL<br>(PCS) | REEL DIA.<br>(INCH) | Q'TY/BOX<br>(PCS) | Q'TY/CARTON<br>(PCS) |
|---------------|--------------------|---------------------|-------------------|----------------------|
| AESD1LIN2WCB2 | 3000               | 7                   | 45000             | 90K/180K             |

SLP2510P8 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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