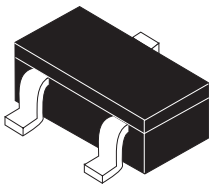
# ESDA25W

## DUAL TRANSIL™ ARRAY FOR ESD PROTECTION

Application Specific Discretes
A.S.D.™



**SOT323-3L**

### MAIN APPLICATIONS

Where transient overvoltage protection in ESD sensitive equipment is required, such as :

- Computers
- Printers
- Communication systems
- Wireline and wireless telephone sets.
- Set top boxes

### FEATURES

- 2 unidirectional TRANSIL™ functions.
- Breakdown voltage : $V_{BR}$ = 25V min.
- Low leakage current : < 1µA.
- Very low PCB space consuming : 4.2 $mm^2$ typically.

### DESCRIPTION

The ESDA25W is a 2-bit wide monolithic suppressor designed to protect components which are connected to data and transmission lines against ESD.

It clamps the voltage just above the logic level supply for positive transients, and to a diode drop below ground for negative transients.

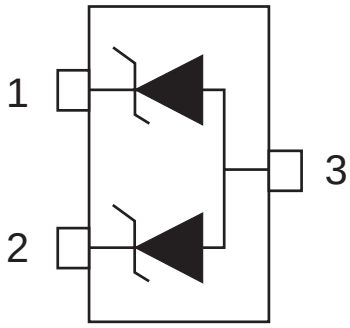
### BENEFITS

- High ESD protection level : up to 25 kV.
- High integration.
- Suitable for high density boards.

### COMPLIES WITH THE FOLLOWING STANDARDS :

- IEC61000-4-2 level 4
- MIL STD 883C-Method 3015-6 : class 3. (human body model)

### FUNCTIONAL DIAGRAM



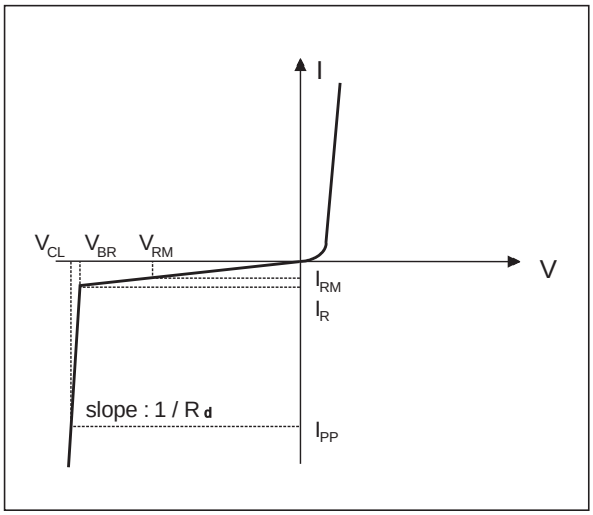
## ABSOLUTE MAXIMUM RATINGS ($T_{amb}$ = 25°C)

| Symbol | Parameter | Test conditions | Value | Unit |
|---|---|---|---|---|
| $V_{PP}$ | ESD discharge | MIL STD 883C - Method 3015-6<br>IEC61000-4-2, air discharge<br>IEC61000-4-2, contact discharge | 25<br>16<br>9 | kV |
| $P_{PP}$ | Peak pulse power (8/20 µs) | | 400 | W |
| $T_{op}$ | Operating temperature range | Note 1 | - 40 to + 85 | °C |
| $T_j$ | Junction temperature | | 150 | °C |
| $T_{stg}$ | Storage temperature range | | - 55 to + 150 | °C |
| $T_L$ | Lead solder temperature (10 secondes duration) | | 260 | °C |

**Note 1:** The evolution of the operating parameters versus temperature is given trough curves and αT parameter

## ELECTRICAL CHARACTERISTICS ($T_{amb}$ = 25°C)

| Symbol | Parameter |
|---|---|
| $V_{RM}$ | Stand-off voltage |
| $V_{BR}$ | Breakdown voltage |
| $V_{CL}$ | Clamping voltage |
| $I_{RM}$ | Leakage current |
| $I_{PP}$ | Peak pulse current |
| αT | Voltage temperature coefficient |
| C | Capacitance per line |
| Rd | Dynamic resistance |
| $V_F$ | Forward voltage drop |




| Types | $V_{BR}$ @ $I_R$ | | | $I_{RM}$ @ $V_{RM}$ | | Rd | αT | C | $V_F$ @ $I_F$ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | min. | max. | | max. | | typ. note 2 | max. note 3 | typ. 0V bias | max. | |
| | V | V | mA | µA | V | Ω | $10^{-4}$ / °C | pF | V | mA |
| ESDA25W | 25 | 30 | 1 | 1 | 24 | 1.1 | 10 | 65 | 1.2 | 10 |

**note 2** : Square pulse Ipp = 15A, tp=2.5µs.
**note 3** : $\Delta V_{BR} = \alpha T^* (T_{amb} - 25°C) * V_{BR}$ (25°C)

**Fig. 1:** Peak pulse power dissipation versus initial junction temperature

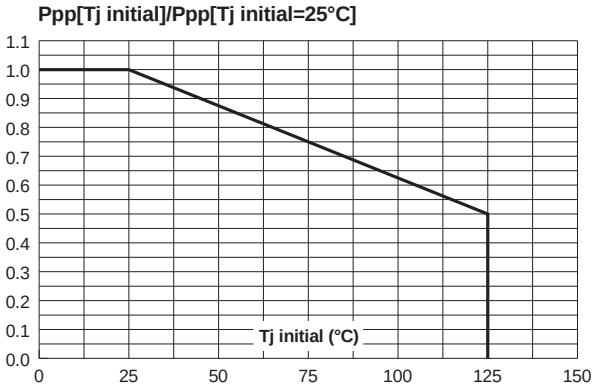



**Fig. 2:** Peak pulse power versus exponential pulse duration (Tj initial = 25 °C)

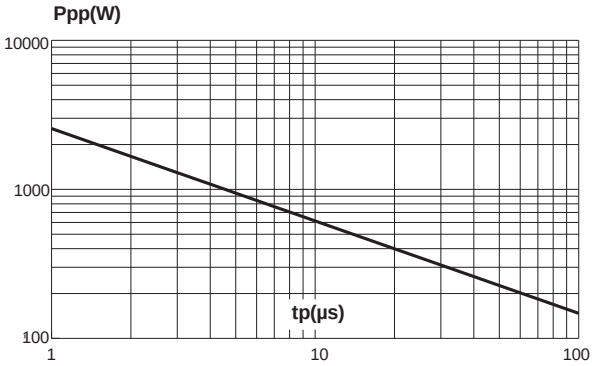



**Fig. 3:** Clamping voltage versus peak pulse current (Tj initial = 25 °C).
Rectangular waveform tp = 2.5 µs.

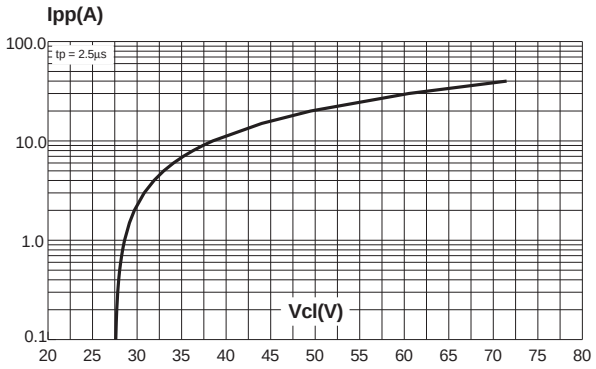



**Fig. 4:** Capacitance versus reverse applied voltage (typical values).

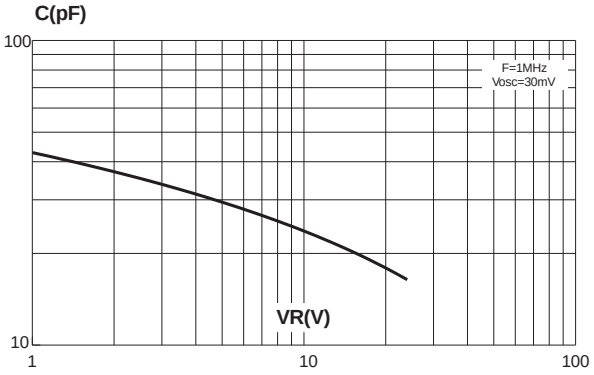



**Fig. 5:** Relative variation of leakage current versus junction temperature (typical values).

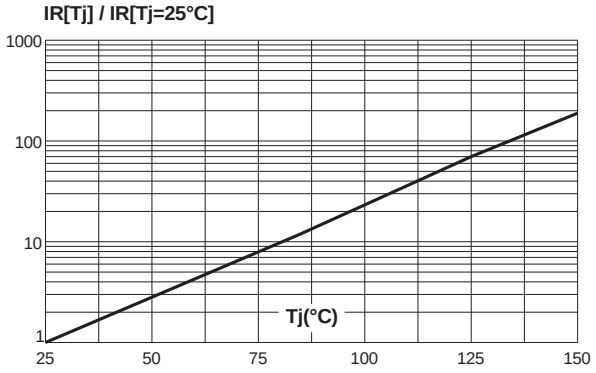
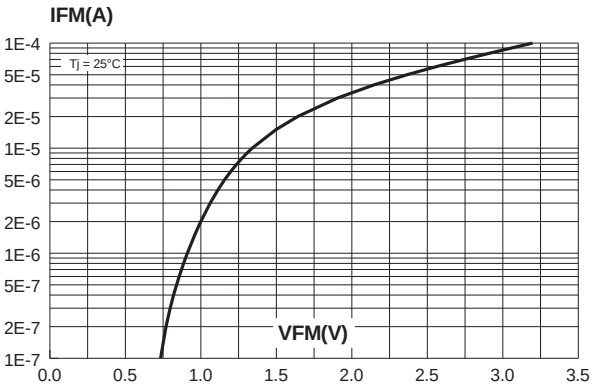
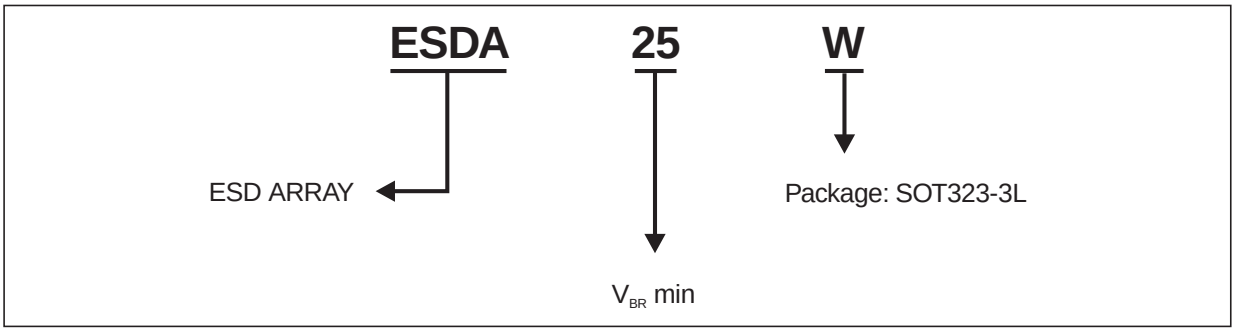



**Fig. 6:** Peak forward voltage drop versus peak forward current (typical values).



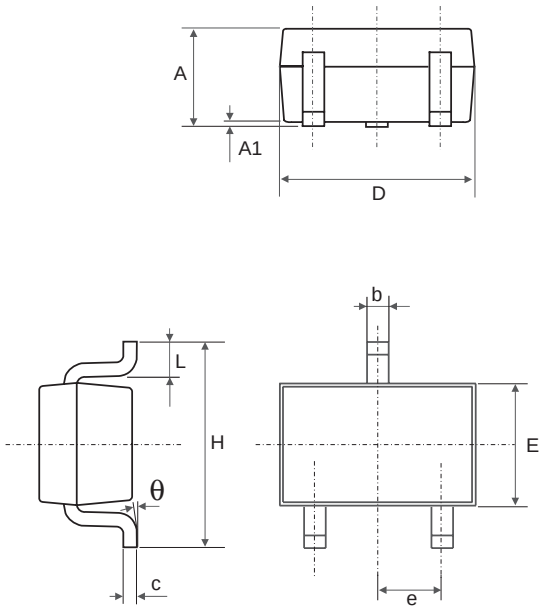
## ORDER CODE




| Ordering type | Marking | Package | Weight | Base qty | Delivery mode |
|---|---|---|---|---|---|
| ESDA25W | E25 | SOT323-3L | 5.4 mg. | 3000 | Tape & reel |

## PACKAGE MECHANICAL DATA

SOT323-3L




| REF. | DIMENSIONS | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 0.8 | | 1.1 | 0.031 | | 0.043 |
| A1 | 0.0 | | 0.1 | 0.0 | | 0.004 |
| b | 0.25 | | 0.4 | 0.010 | | 0.016 |
| c | 0.1 | | 0.26 | 0.004 | | 0.010 |
| D | 1.8 | 2.0 | 2.2 | 0.071 | 0.079 | 0.086 |
| E | 1.15 | 1.25 | 1.35 | 0.045 | 0.049 | 0.053 |
| e | | 0.65 | | | 0.026 | |
| H | 1.8 | 2.1 | 2.4 | 0.071 | 0.083 | 0.094 |
| L | 0.1 | 0.2 | 0.3 | 0.004 | 0.008 | 0.012 |
| θ | 0 | | 30° | 0 | | 30° |

| Mechanical specifications | |
|---|---|
| Lead plating | Tin-lead |
| Lead plating thickness | 5µm min.<br>25 µm max. |
| Lead material | Sn / Pb<br>(70% to 90% Sn) |
| Body material | Molded epoxy |
| Epoxy meets | UL94,V0 |