LITE-ON SEMICONDUCTOR

# L15ESDxVE2



## ESD PROTECTION DIODE

**STAND-OFF VOLTAGE – 12 to 24 Volts**
**POWER DISSIPATION - 150 Watts**

### GENERAL DESCRIPTION

The L15ESDxVE2 is designed to protect sensitive semiconductor components from damage or upset due to Elector Static Discharge (ESD).

### FEATURES

- Uni-directional ESD protection of one line.
- Max. peak pulse power: Ppp=150W at tp = 8/20 us.
- ESD protection >25KV per MIL-STD-883C, method 3015-6 ; class 3.
- IEC 61000-4-2, level 4 (ESD) ; > ±27KV (air) ; ±27KV (contact).

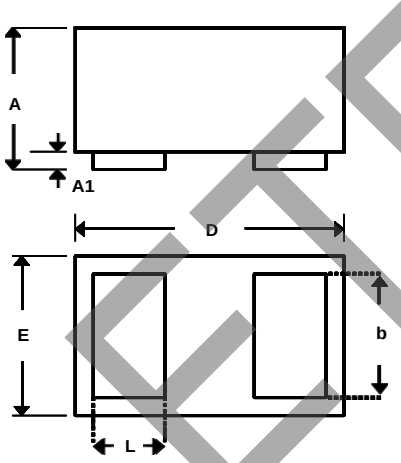
### APPLICATION

- Computers and peripherals
- Communication system
- Audio & video equipment
- High-speed data lines
- Parallel ports

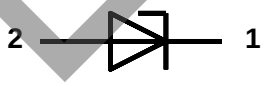
### MECHANICAL DATA

- Case Material: “Green” molding compound UL flammability classification 94V-0 (No Br, Sb, Cl),
- Component in accordance to RoHs 2011/65/EU
- Dimension = DFN, 1.00 mm (L)* 0.6 mm (W)

### SOD-882




| SOD-882 | | |
|---|---|---|
| DIM. | MIN. | MAX. |
| A | 0.47 | 0.53 |
| A1 | 0.00 | 0.05 |
| b | 0.25 | 0.55 |
| D | 0.95 | 1.075 |
| E | 0.55 | 0.675 |
| L | 0.20 | 0.45 |
| All dimension in millimeter | | |




| PIN ASSIGNMENT | |
|---|---|
| 1 | Cathode |
| 2 | Anode |

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

### MAXIMUM RATINGS

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Peak pulse power (8/20us waveform) | $P_{PPM}$ | 150 | W |
| Peak pulse current (8/20us waveform) | $I_{PP}$ | 6 | A |
| Operating junction temperature range | $T_J$ | -55 to +125 | °C |
| Storage temperature range | $T_{STG}$ | -55 to +150 | °C |
| Soldering temperature, t max = 10s | $T_L$ | 260 | °C |

REV. 12, Jul.-2016, KSIR29

## ELECTRICAL CHARACTERISTICS

### L15ESD12VE2

| PARAMETER | TEST CONDITIONS | SYMBOL | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|
| Reverse standoff voltage | -- | $V_{RWM}$ | -- | -- | 12 | V |
| Reverse leakage current | $V_{DRM}$ = 12V | $I_{RM}$ | -- | -- | 50 | nA |
| Breakdown voltage | $I_R$ = 1 mA | $V_{BR}$ | 14.2 | -- | 15.8 | V |
| Junction capacitance | $V_R$ = 0 V, f = 1MHz, | $C_J$ | -- | 45 | 75 | pF |
| Clamping voltage | $I_{PP}$ = 6 A (8/20 uS) | $V_{CL}$ | -- | -- | 25 | V |

### L15ESD24VE2

| PARAMETER | TEST CONDITIONS | SYMBOL | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|
| Reverse standoff voltage | -- | $V_{RWM}$ | -- | -- | 24 | V |
| Reverse leakage current | $V_{DRM}$ = 24V | $I_{RM}$ | -- | -- | 50 | nA |
| Breakdown voltage | $I_R$ = 1 mA | $V_{BR}$ | 26.5 | -- | 29.5 | V |
| Junction capacitance | $V_R$ = 0 V, f = 1 MHz, | $C_J$ | -- | 25 | 50 | pF |
| Clamping voltage | $I_{PP}$ = 3 A (8/20 us) | $V_{CL}$ | -- | -- | 50 | V |

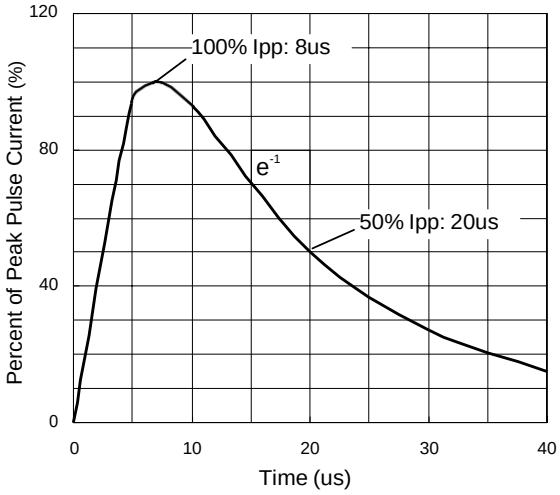



**Figure 1. 8/20 us pulse waveform according to IEC 61000-4-5**

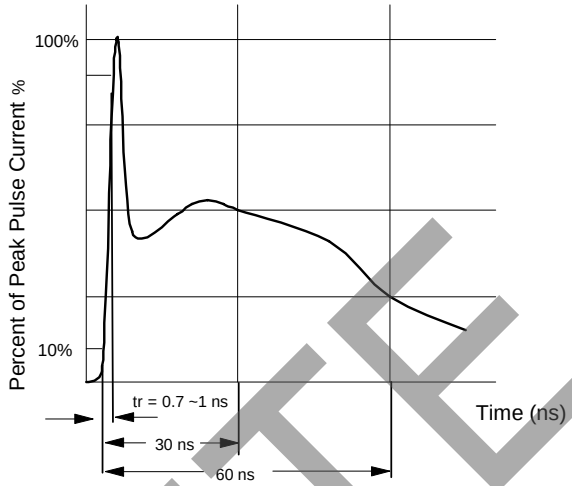



**Figure 2. ESD pulse waveform according to IEC 61000-4-2**

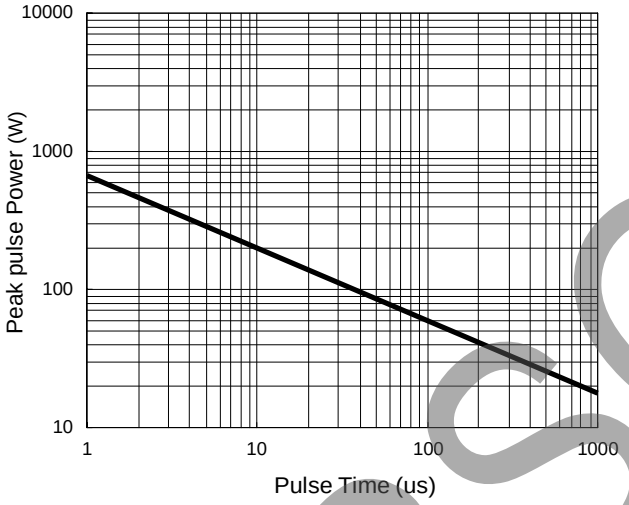



**Figure 3. Power Dissipation versus Pulse Time**

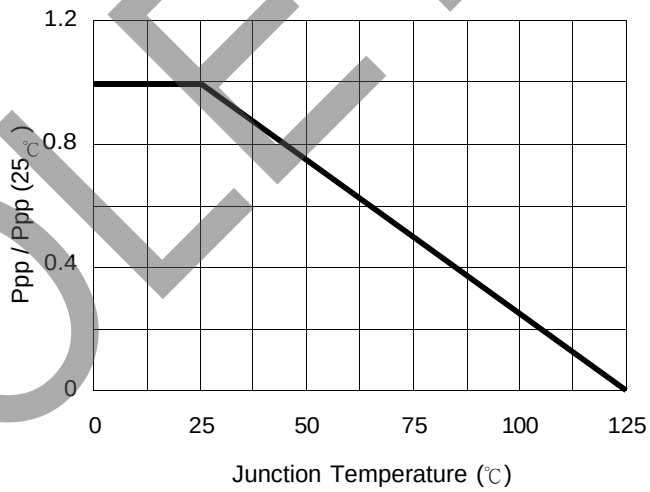



**Figure 4. Peak pulse power versus TJ**

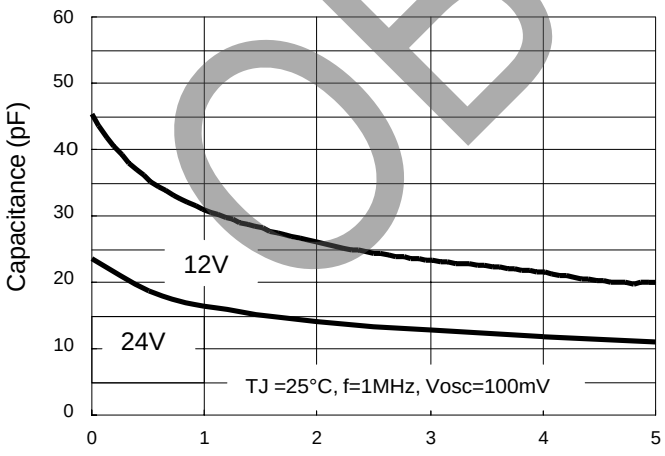



**Figure 5. Typical Junction Capacitance**

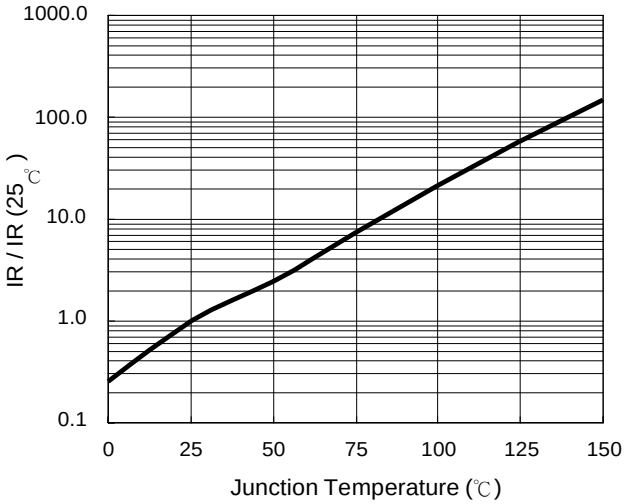



**Figure 6. Reverse Leakage Current versus TJ**

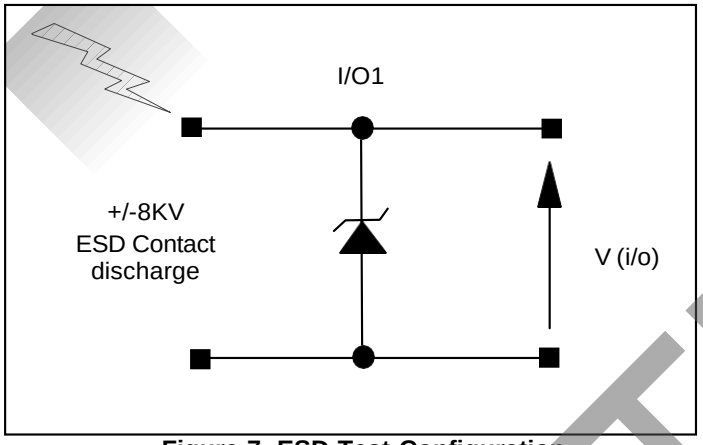



**Figure 7. ESD Test Configuration**

**L15ESD12VE2**

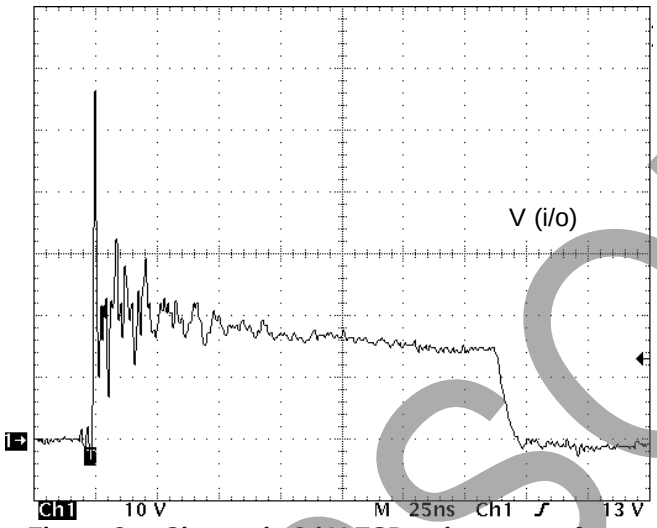



**Figure 8. Clamped +8 kV ESD voltage waveform**

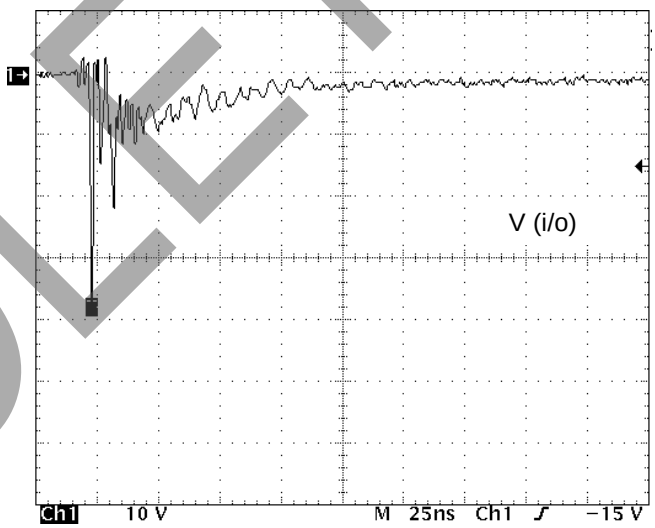



**Figure 9. Clamped -8 kV ESD voltage waveform**

**L15ESD24VE2**

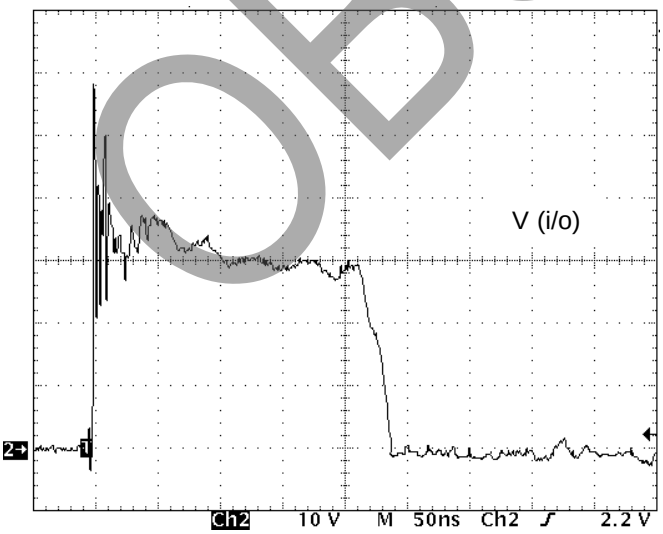



**Figure 11. Clamped +8 kV ESD voltage waveform**

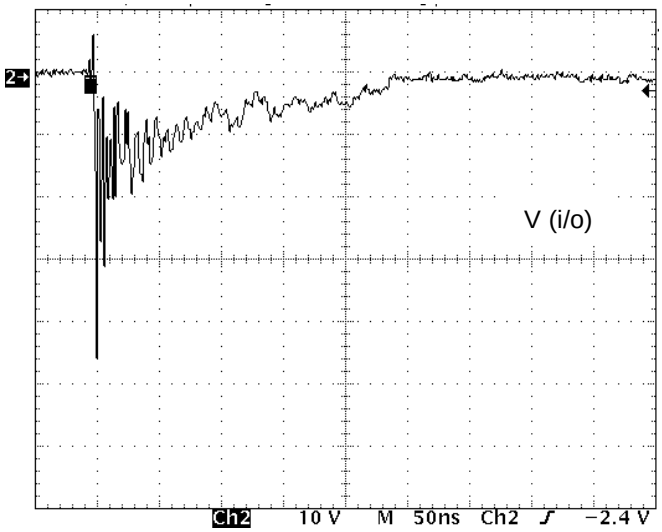
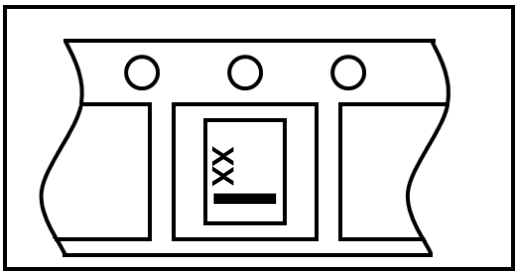



**Figure 12. Clamped -8 kV ESD voltage waveform**

## Marking and Orientation :

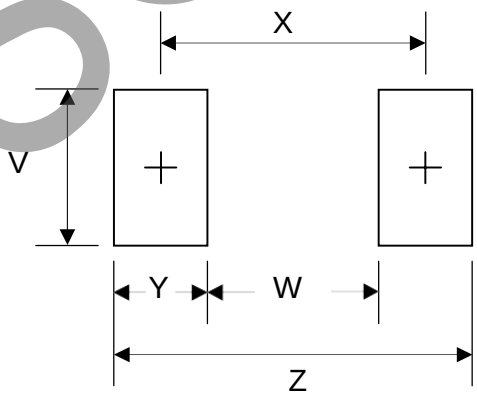



Marking: L15ESD12VE2, XX: MC
L15ESD24VE2, XX: MO

## Packaging Information :

| DEVICE | Q'TY/REEL (PCS) | REEL DIA. (INCH) | Q'TY/BOX (PCS) | Q'TY/CARTON (PCS) |
|---|---|---|---|---|
| L15ESD12VE2<br>L15ESD24VE2 | 10K | 7 | 150K | 300K |

## SOD-882 Soldering Pad Layout :




| Dim. | Millimeters | Inches |
|---|---|---|
| Z | 1.30 | 0.051 |
| X | 0.75 | 0.029 |
| W | 0.20 | 0.007 |
| Y | 0.55 | 0.021 |
| V | 0.80 | 0.031 |

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