



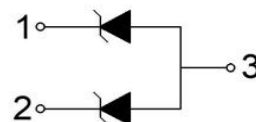
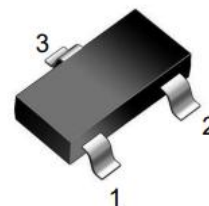
### 1. Features

- 2-pin lead-less package
- Junction capacitance (Max value: 200pF)
- Peak Pulse current (8/20μs) Max:25A
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- Low clamping voltage
- Low leakage current
- Working voltages:3.3V
- RoHS Compliant

### 2. Mechanical Data

- Case:Molded Plastic,SOT23.
- Epoxy:UL 94V-0 rate flame retardant.
- Terminals:Plated Leads Solderable per MIL-STD-750, Method-2026.
- Marking:3M2
- Marking:marked on body.

SOT23



### 3. Maximum Ratings

Electrical Characteristics Rating at 25°C ambient temperature unless otherwise specified.

| Characteristic                        | Symbol    | Value    | Unit |
|---------------------------------------|-----------|----------|------|
| Peak Pulse Power (tp=8/20μs waveform) | $P_{PP}$  | 350      | W    |
| Peak Pulse Current (8/20μs)           | $I_{PP}$  | 25       | A    |
| ESD per IEC 61000-4-2 (Air)           | $V_{ESD}$ | ±30      | KV   |
| ESD per IEC 61000-4-2 (Contact)       |           | ±30      |      |
| Junction Temperature                  | $T_j$     | -55~+125 | °C   |
| Storage Temperature                   | $T_{stg}$ | -55~+150 | °C   |

### 4. Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Characteristics           | Symbol    | Condition                                    | Min | TYP | Max | Unit |
|---------------------------|-----------|----------------------------------------------|-----|-----|-----|------|
| Reverse Working Voltage   | $V_{RWM}$ |                                              | -   | -   | 3.3 | V    |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_R = 1\text{mA}$                           | 5   | -   | 7   | V    |
| Reverse Leakage Current   | $I_R$     | $V_R = 3.3\text{V}$                          | -   | -   | 0.5 | uA   |
| Clamping voltage          | $V_C$     | $I_{PP} = 1\text{A}, T_P = 8/20\mu\text{s}$  | -   | -   | 8   | V    |
| Clamping voltage          | $V_C$     | $I_{PP} = 25\text{A}, T_P = 8/20\mu\text{s}$ | -   | -   | 14  | V    |
| Junction capacitance      | $C_J$     | $V_R = 0\text{V}, f = 1\text{MHz}$           | -   | -   | 200 | pF   |



### 5. Rating And Characteristic Curves

Fig.1 Power rating derating curve

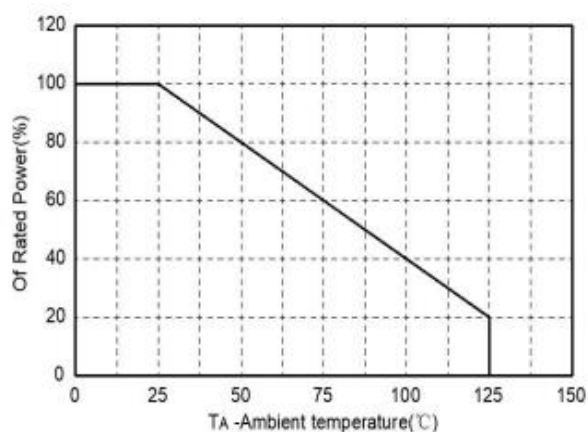


Fig.2 pulse Waveform

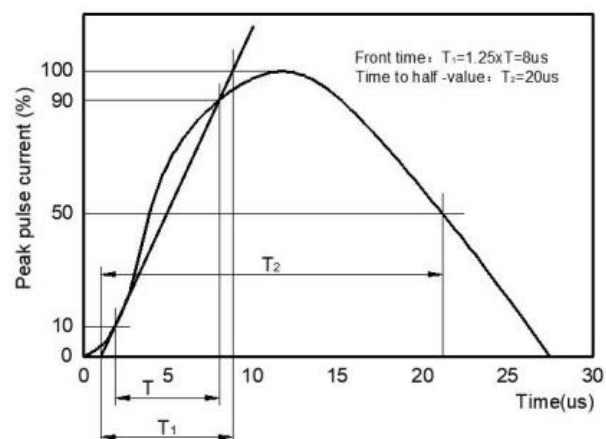


Fig.3 Capacitance between terminals characteristics

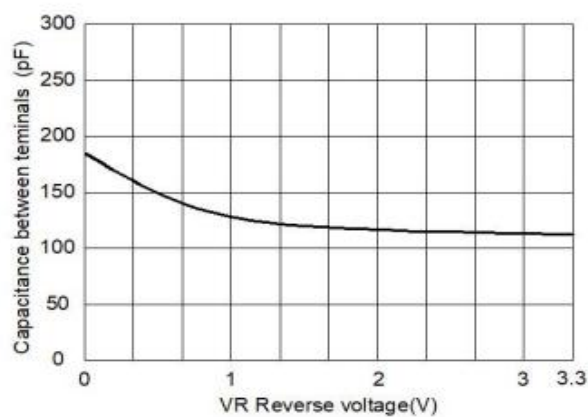
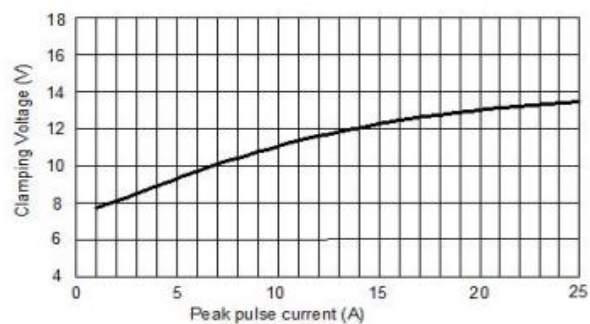
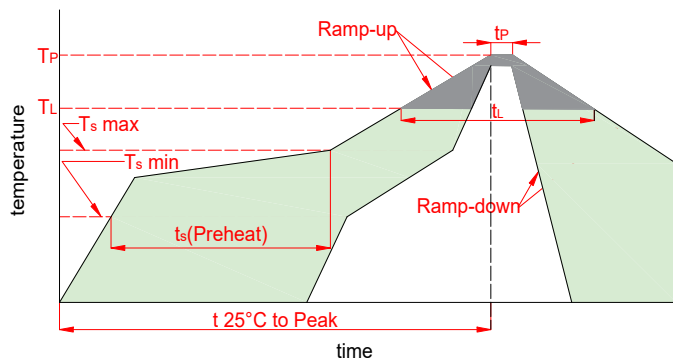


Fig.4 Clamping Voltage vs. Peak Pulse Current



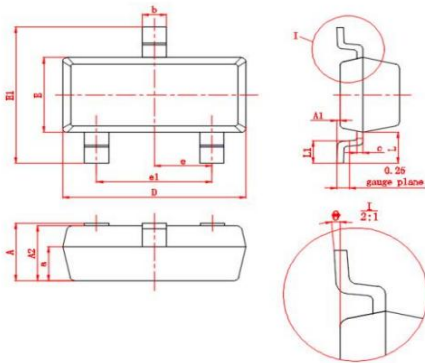


### 6. Soldering Parameters

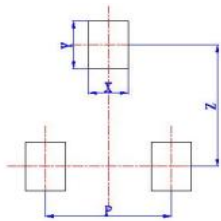


| Reflow Condition                                   |                           | Lead-free               |
|----------------------------------------------------|---------------------------|-------------------------|
| Pre Heat                                           | Temp. min( $T_s$ (min))   | 150°C                   |
|                                                    | Temp. max( $T_s$ (min))   | 200°C                   |
|                                                    | Time(min to max)( $t_s$ ) | 60~120s                 |
| Aver. ramp up rate(Liquidus Temp.)( $T_L$ )to peak |                           | 3°C/s max               |
| $T_s$ (max) to $T_L$ -Ramp-up Rate                 |                           | 3°C/s max               |
| Reflow                                             | Temp. ( $T_L$ )(Liquidus) | 217°C                   |
|                                                    | Temp. ( $t_L$ )(Liquidus) | 60~150s                 |
| Peak Temp. ( $T_P$ )                               |                           | 260 <sup>+0/-5</sup> °C |
| Time within actual peak Temp. ( $t_p$ )            |                           | 30s max                 |
| Ramp-down Rate                                     |                           | 6°C/s max               |
| Time 25°C to peak Tempe. ( $T_p$ )                 |                           | 8 minutes max           |
| Do not exceed                                      |                           | 260°C                   |

### 7. Dimensions



Mounting PAD Layout



| Symbol | Inches |       | Millimeters |      |
|--------|--------|-------|-------------|------|
|        | Min    | Max   | Min         | Max  |
| A      | 0.035  | 0.045 | 0.90        | 1.15 |
| A1     | 0.000  | 0.004 | 0.00        | 0.10 |
| A2     | 0.035  | 0.039 | 0.90        | 1.00 |
| a      | 0.024  |       | 0.60        |      |
| D      | 0.110  | 0.118 | 2.80        | 3.00 |
| E      | 0.047  | 0.055 | 1.20        | 1.40 |
| E1     | 0.089  | 0.100 | 2.25        | 2.55 |
| e      | 0.037  |       | 0.95        |      |
| e1     | 0.071  | 0.079 | 1.80        | 2.00 |
| b      | 0.012  | 0.020 | 0.30        | 0.50 |
| c      | 0.003  | 0.006 | 0.08        | 0.15 |
| L      | 0.022  |       | 0.55        |      |
| L1     | 0.012  | 0.020 | 0.30        | 0.50 |
| θ      | 0°     | 8°    | 0°          | 8°   |
| c      | 0.024  |       | 0.60        |      |
| c      | 0.031  |       | 0.80        |      |
| c      | 0.080  |       | 2.02        |      |
| c      | 0.075  |       | 1.90        |      |

### 8. Part Marking System

Cathode Band



### 9. Package Information

| Package | Part Number  | Marking Code | Quantity(pcs) |
|---------|--------------|--------------|---------------|
| SOT23   | ESDHLC3V301E | 3M2          | 3000          |



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