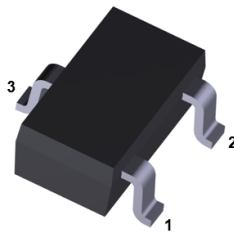
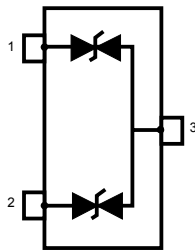



Automotive transient voltage suppressor (TVS) in SOT23-3L



SOT23-3L
(Jedec TO-236)



Features

- AEC-Q101 qualified 
- Dual-line ESD and EOS protection
- Bidirectional device
- Max. pulse power: 140 W (8/20 μ s)
- Low clamping factor V_{CL}/V_{BR}
- Low leakage current
- ECOPACK[®]2 compliant
- Complies with the standard ISO 10605 - C = 150 pF, R = 330 Ω
 - ± 13 kV (air discharge)
 - ± 13 kV (contact discharge)
- Complies with the standard ISO 10605 - C = 330 pF, R = 330 Ω
 - ± 10 kV (air discharge)
 - ± 10 kV (contact discharge)
- Complies with the standard ISO 10605 - C = 330 pF, R = 2 k Ω
 - ± 30 kV (air discharge)
 - ± 30 kV (contact discharge)
- Complies with the standard ISO 7637-3
 - Fast transient pulse 3a: $V_s = -150$ V
 - Fast transient pulse 3b: $V_s = +150$ V
 - Slow transient pulse 2a: $V_s = -85$ V
 - Slow transient pulse 2a: $V_s = +85$ V

Product status link

[ESDAVLC6-2BLY](#)

Product summary

| | |
|------------|---------------|
| Order code | ESDAVLC6-2BLY |
| Package | SOT23-3L |
| Packing | Tape and reel |

Application

- Automotive interfaces

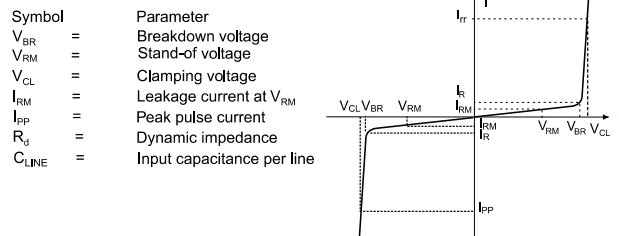
Description

The **ESDAVLC6-2BLY** is a dual-line Transil specifically designed for the protection of the automotive buses lines against electrostatic discharge (ESD). Thanks to its low capacitance, this product is compliant with all key interfaces in automotive applications.

1 Characteristics

Table 1. Absolute ratings ($T_{amb} = 25\text{ }^{\circ}\text{C}$)

| Symbol | Parameter | Value | Unit | |
|--|---|--|--------------------|----|
| V_{PP} | Peak pulse voltage | ISO 10605 - C = 150 pF, R = 330 Ω : | kV | |
| | | Contact discharge | | 13 |
| | | Air discharge | | 13 |
| | | ISO 10605 - C = 330 pF, R = 330 Ω : | | 10 |
| | | Contact discharge | | |
| | | Air discharge | | |
| ISO 10605 - C = 330 pF, R = 2 k Ω : | 30 | | | |
| Contact discharge | 30 | | | |
| Air discharge | 30 | | | |
| P_{PP} | Peak pulse power dissipation (8/20 μs) T_j initial = T_{amb} | 140 | W | |
| I_{PP} | Peak pulse current (8/20 μs) | 5.5 | A | |
| T_j | Operating junction temperature range | -55 to +150 | $^{\circ}\text{C}$ | |
| T_{stg} | Storage temperature range | -55 to +150 | $^{\circ}\text{C}$ | |

Figure 1. Electrical characteristics (definitions)

Table 2. Electrical characteristics (values, $T_{amb} = 25\text{ }^{\circ}\text{C}$)

| Symbol | Test conditions | Min. | Typ. | Max. | Unit |
|----------------------|--|------|------|------|----------------------------|
| V_{BR} | $I_R = 1\text{ mA}$ | 6 | | 10 | V |
| I_R | $V_{RM} = 5\text{ V}$ | | | 100 | nA |
| V_{CL} | At $I_{PP} = 1\text{ A}$ - 8/20 μs | | | 12 | V |
| | At $I_{PP} = 4\text{ A}$ - 8/20 μs | | | 17 | |
| $C_{I/O-GND}$ | $V_{I/O} = 0\text{ V}$, $f = 1\text{ MHz}$, $V_{OSC} = 30\text{ mV}$ | | 0.95 | 1.2 | pF |
| $\Delta C_{I/O-GND}$ | | | 0.01 | | |
| f_C | $S_{21} = -3\text{ dB}$ | | 3 | | GHz |
| $\alpha T^{(1)}$ | | | 9 | | $10^{-4}/^{\circ}\text{C}$ |

 1. V_{BR} at $T_j = V_{BR}$ at $25\text{ }^{\circ}\text{C} \times (1 + \alpha T \times (T_j - 25))$

1.1 Characteristics (curves)

Figure 2. Leakage current versus junction temperature

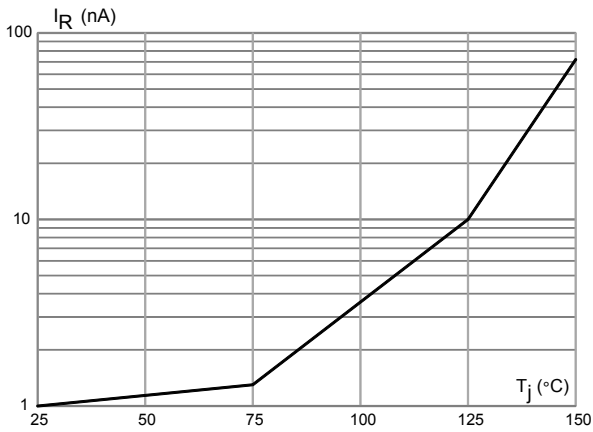


Figure 3. Junction capacitance versus reverse applied voltage

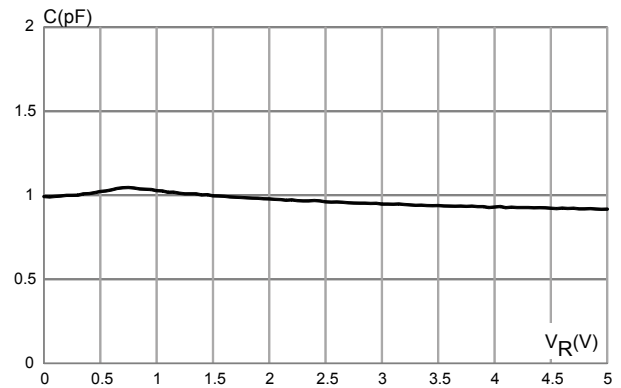


Figure 4. ESD response to ISO10605-C = 150 pF, R = 330 Ω (+8 kV contact discharge)



Figure 5. ESD response to ISO10605-C = 150 pF, R = 330 Ω (-8 kV contact discharge)



Figure 6. TLP

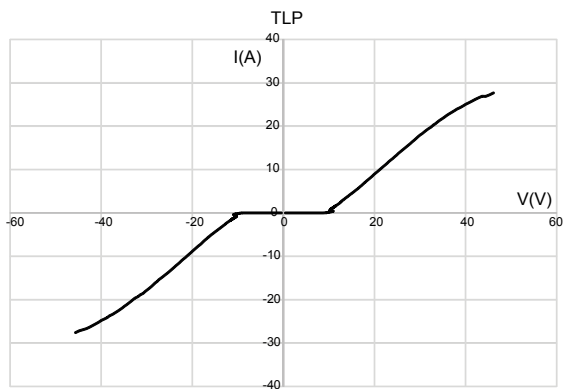


Figure 7. S₂₁ attenuation

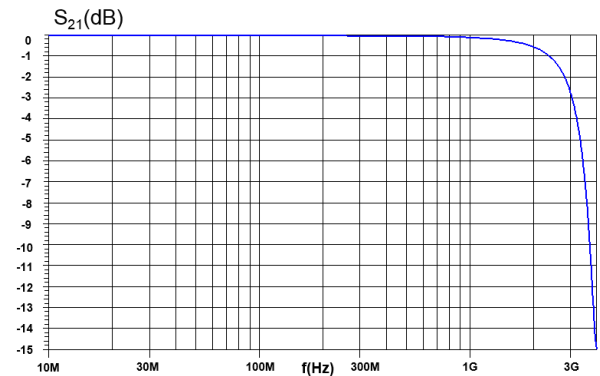


Figure 8. Fast transient pulse 3a ($U_s = -150\text{ V}$)

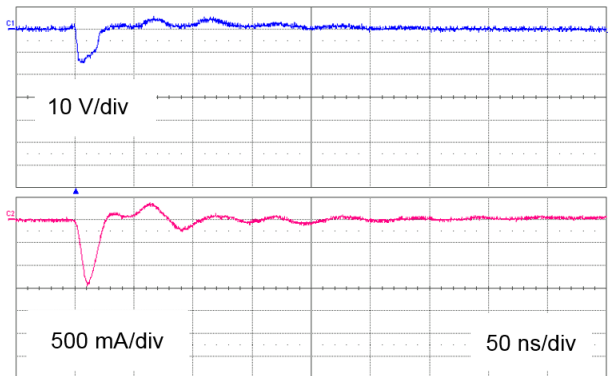


Figure 9. Fast transient pulse 3b ($U_s = +150\text{ V}$)

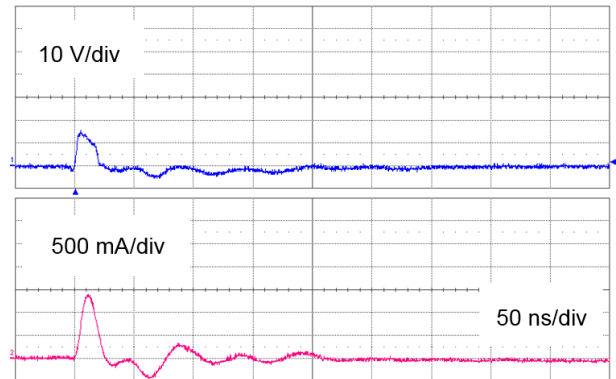


Figure 10. Slow transient pulse 2a ($U_s = -85\text{ V}$)

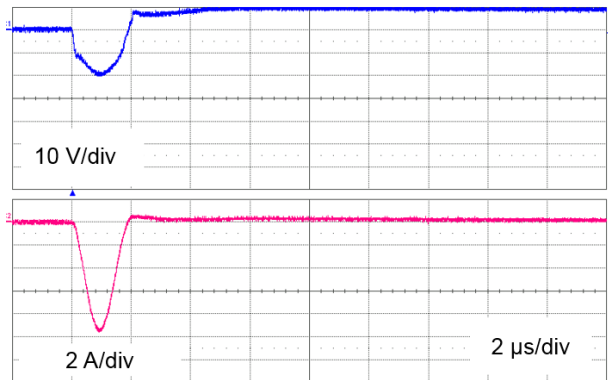
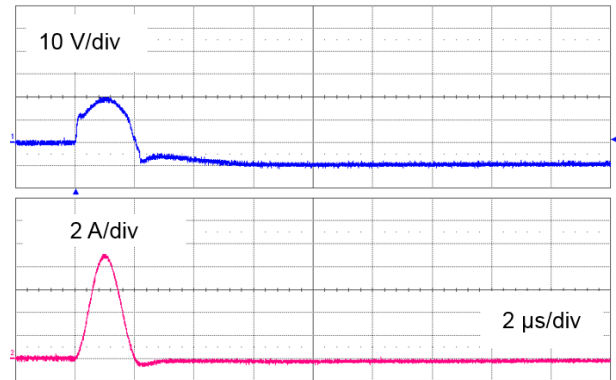


Figure 11. Slow transient pulse 2a ($U_s = +85\text{ V}$)



2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of **ECOPACK®** packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK® is an ST trademark.

2.1 SOT23-3L package information

Figure 12. SOT23-3L package outline

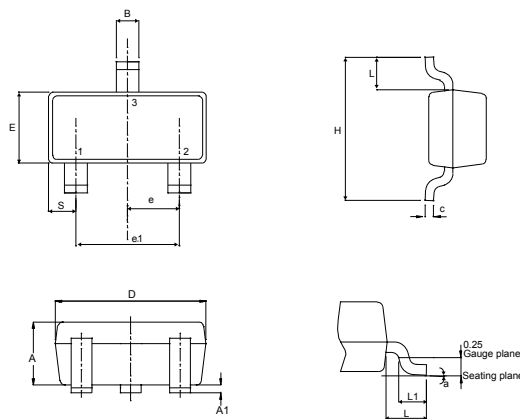


Table 3. SOT23-3L package mechanical data

| Ref. | Dimensions | | | | | |
|------|-------------|------|------|-----------------------|--------|--------|
| | Millimeters | | | Inches ⁽¹⁾ | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 0.89 | | 1.40 | 0.0350 | | 0.0551 |
| A1 | 0.00 | | 0.10 | 0.0000 | | 0.0039 |
| B | 0.30 | | 0.51 | 0.0118 | | 0.0201 |
| C | 0.085 | | 0.18 | 0.0033 | | 0.0071 |
| D | 2.75 | | 3.04 | 0.1083 | | 0.1197 |
| e | 0.85 | | 1.05 | 0.0335 | | 0.0413 |
| e1 | 1.70 | | 2.10 | 0.0669 | | 0.0827 |
| E | 1.20 | | 1.75 | 0.0472 | | 0.0689 |
| H | 2.10 | | 3.00 | 0.0827 | | 0.1181 |
| L | | 0.60 | | | 0.0236 | |
| S | 0.35 | | 0.65 | 0.0138 | | 0.256 |
| L1 | 0.25 | | 0.55 | 0.0098 | | 0.0217 |
| a | 0° | | 8° | 0° | | 8° |

1. Dimension in inches are given for reference only.

Figure 13. SOT23-3L marking

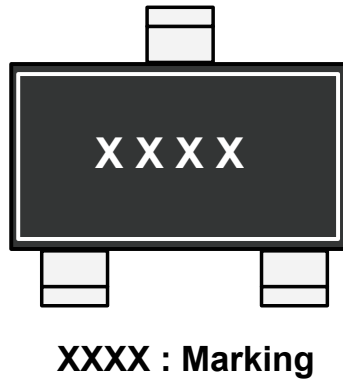


Figure 14. SOT23-3L footprint in mm (inches)

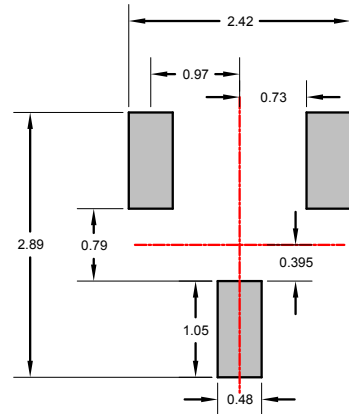
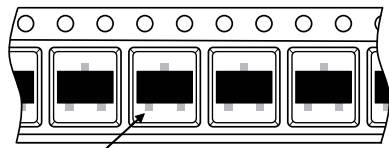


Figure 15. Package orientation in reel



Pin 1 located according to EIA-481

Note: Pocket dimensions are not on scale
Pocket shape may vary depending on package

Figure 16. Tape and reel orientation

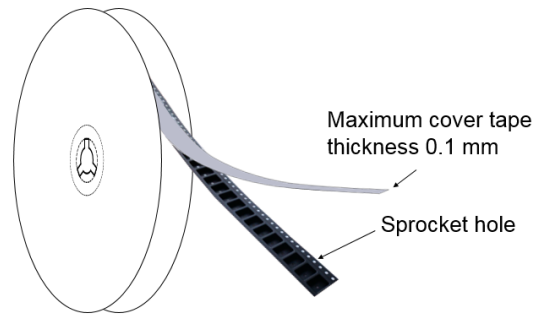


Figure 17. 7" reel dimension values

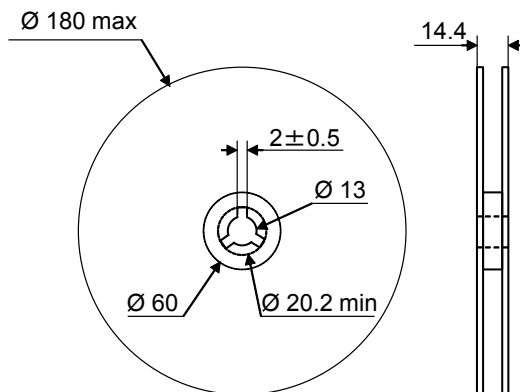


Figure 18. Inner box dimension values

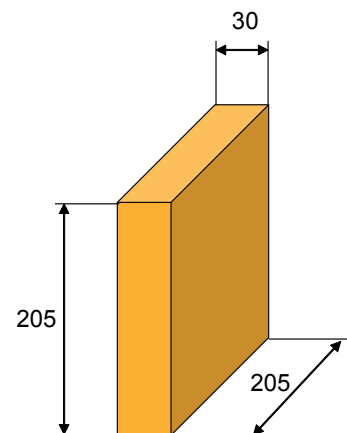
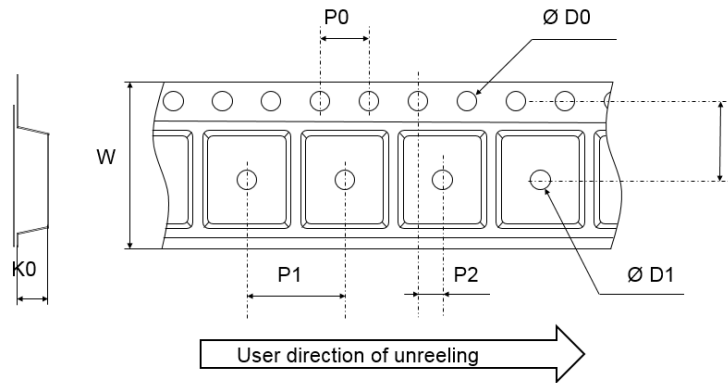


Figure 19. Tape outline



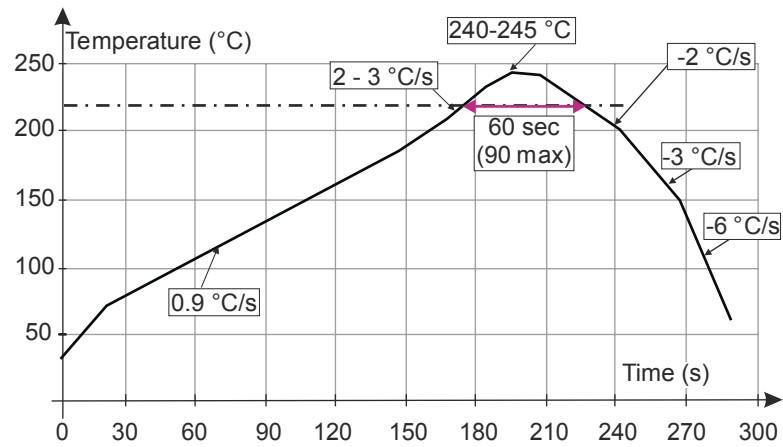
Note: Pocket dimensions are not on scale
Pocket shape may vary depending on package

Table 4. Tape dimension values

| Ref. | Dimensions | | |
|------|-------------|------|------|
| | Millimeters | | |
| | Min. | Typ. | Max. |
| D0 | 1.45 | 1.5 | 1.6 |
| D1 | 1 | | |
| F | 3.45 | 3.5 | 3.55 |
| K0 | 1.3 | 1.4 | 1.5 |
| P0 | 3.9 | 4.0 | 4.1 |
| P1 | 3.9 | 4.0 | 4.1 |
| P2 | 1.95 | 2.0 | 2.05 |
| W | 7.9 | 8 | 8.3 |

2.3 Reflow profile

Figure 20. ST ECOPACK® recommended soldering reflow profile for PCB mounting



Note: Minimize air convection currents in the reflow oven to avoid component movement. Maximum soldering profile corresponds to the latest IPC/JEDEC J-STD-020.

3 Ordering information

Figure 21. Ordering information scheme

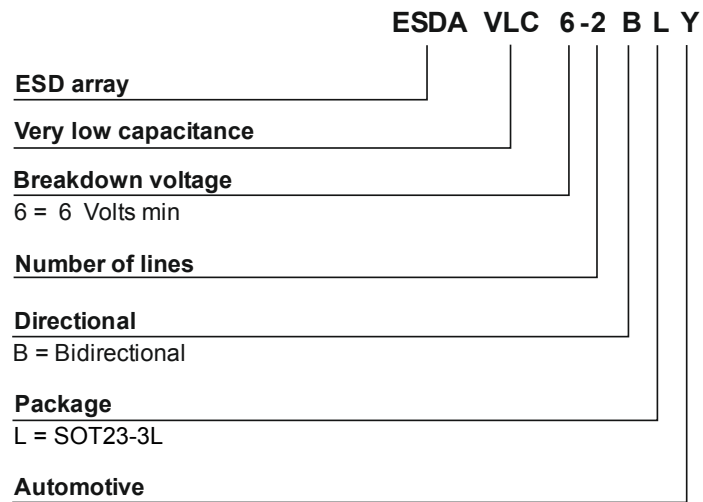


Table 5. Ordering information

| Order code | Marking | Package | Weight | Base qty. | Delivery mode |
|---------------|---------|----------|--------|-----------|---------------|
| ESDAVLC6-2BLY | C06Y | SOT23-3L | 10 mg | 3000 | Tape and reel |

Revision history

Table 6. Document revision history

| Date | Version | Changes |
|-------------|---------|--|
| 28-Sep-2018 | 1 | Initial release. |
| 18-Oct-2018 | 2 | Updated Table 2. Electrical characteristics (values, $T_{amb} = 25\text{ °C}$). |

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