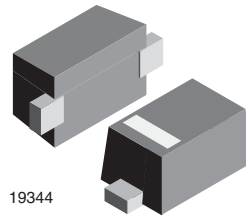


Single ESD Protection Diode in SOD-523



FEATURES

- Single-line ESD protection
- Low leakage current
- ESD immunity acc. IEC 61000-4-2
± 8 kV contact discharge
± 15 kV air discharge
- e3 - Sn
- Material categorization:
for definitions of compliance please see
www.vishay.com/doc?99912



MARKING (example only)



Bar = cathode marking
X = date code
Y = type code (see table below)

DESIGN SUPPORT TOOLS

[click logo to get started](#)



| ORDERING INFORMATION | | | |
|----------------------|-----------------|--|------------------------|
| DEVICE NAME | ORDERING CODE | TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL) | MINIMUM ORDER QUANTITY |
| VESD01-02V | VESD01-02V-G-08 | 3000 | 3000 |
| VESD03-02V | VESD03-02V-G-08 | 3000 | 3000 |
| VESD05-02V | VESD05-02V-G-08 | 3000 | 3000 |
| VESD08-02V | VESD08-02V-G-08 | 3000 | 3000 |
| VESD12-02V | VESD12-02V-G-08 | 3000 | 3000 |

| PACKAGE DATA | | | | | | |
|--------------|--------------|-----------|--------|---|--------------------------------------|------------------------------|
| DEVICE NAME | PACKAGE NAME | TYPE CODE | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
| VESD01-02V | SOD-523 | .V | 1.4 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | Peak temperature max. 260 °C |
| VESD03-02V | SOD-523 | .B | 1.4 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | Peak temperature max. 260 °C |
| VESD05-02V | SOD-523 | .C | 1.4 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | Peak temperature max. 260 °C |
| VESD08-02V | SOD-523 | .D | 1.4 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | Peak temperature max. 260 °C |
| VESD12-02V | SOD-523 | .E | 1.4 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | Peak temperature max. 260 °C |



| ABSOLUTE MAXIMUM RATINGS VESD01-02V | | | | |
|-------------------------------------|---|------------------|-------------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | VALUE | UNIT |
| Peak pulse current | Acc. IEC 61000-4-5, 8/20 μs/single shot | I _{PPM} | 7 | A |
| Peak pulse power | Acc. IEC 61000-4-5, 8/20 μs/single shot | P _{PP} | 63 | W |
| ESD immunity | Contact discharge acc. IEC 61000-4-2; 10 pulses | V _{ESD} | ± 8 | kV |
| | Air discharge acc. IEC 61000-4-2; 10 pulses | | ± 15 | kV |
| Operating temperature | Junction temperature | T _J | -40 to +125 | °C |
| Storage temperature | | T _{stg} | -55 to +150 | °C |

| ABSOLUTE MAXIMUM RATINGS VESD03-02V | | | | |
|-------------------------------------|---|------------------|-------------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | VALUE | UNIT |
| Peak pulse current | Acc. IEC 61000-4-5, 8/20 μs/single shot | I _{PPM} | 9 | A |
| Peak pulse power | Acc. IEC 61000-4-5, 8/20 μs/single shot | P _{PP} | 108 | W |
| ESD immunity | Contact discharge acc. IEC 61000-4-2; 10 pulses | V _{ESD} | ± 8 | kV |
| | Air discharge acc. IEC 61000-4-2; 10 pulses | | ± 15 | kV |
| Operating temperature | Junction temperature | T _J | -40 to +125 | °C |
| Storage temperature | | T _{stg} | -55 to +150 | °C |

| ABSOLUTE MAXIMUM RATINGS VESD05-02V | | | | |
|-------------------------------------|---|------------------|-------------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | VALUE | UNIT |
| Peak pulse current | Acc. IEC 61000-4-5, 8/20 μs/single shot | I _{PPM} | 6 | A |
| Peak pulse power | Acc. IEC 61000-4-5, 8/20 μs/single shot | P _{PP} | 120 | W |
| ESD immunity | Contact discharge acc. IEC 61000-4-2; 10 pulses | V _{ESD} | ± 8 | kV |
| | Air discharge acc. IEC 61000-4-2; 10 pulses | | ± 15 | kV |
| Operating temperature | Junction temperature | T _J | -40 to +125 | °C |
| Storage temperature | | T _{stg} | -55 to +150 | °C |

| ABSOLUTE MAXIMUM RATINGS VESD08-02V | | | | |
|-------------------------------------|---|------------------|-------------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | VALUE | UNIT |
| Peak pulse current | Acc. IEC 61000-4-5, 8/20 μs/single shot | I _{PPM} | 4 | A |
| Peak pulse power | Acc. IEC 61000-4-5, 8/20 μs/single shot | P _{PP} | 120 | W |
| ESD immunity | Contact discharge acc. IEC 61000-4-2; 10 pulses | V _{ESD} | ± 8 | kV |
| | Air discharge acc. IEC 61000-4-2; 10 pulses | | ± 15 | kV |
| Operating temperature | Junction temperature | T _J | -40 to +125 | °C |
| Storage temperature | | T _{stg} | -55 to +150 | °C |

| ABSOLUTE MAXIMUM RATINGS VESD12-02V | | | | |
|-------------------------------------|---|------------------|-------------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | VALUE | UNIT |
| Peak pulse current | Acc. IEC 61000-4-5, 8/20 μs/single shot | I _{PPM} | 2 | A |
| Peak pulse power | Acc. IEC 61000-4-5, 8/20 μs/single shot | P _{PP} | 25 | W |
| ESD immunity | Contact discharge acc. IEC 61000-4-2; 10 pulses | V _{ESD} | ± 8 | kV |
| | Air discharge acc. IEC 61000-4-2; 10 pulses | | ± 15 | kV |
| Operating temperature | Junction temperature | T _J | -40 to +125 | °C |
| Storage temperature | | T _{stg} | -55 to +150 | °C |

**ELECTRICAL CHARACTERISTICS VESD01-02V**(T_{amb} = 25 °C, unless otherwise specified)

| PARAMETER | TEST CONDITIONS/REMARKS | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|---------------------------|--|----------------------|------|------|------|-------|
| Protection paths | Number of lines which can be protected | N _{channel} | - | - | 1 | lines |
| Reverse stand-off voltage | Max. reverse working voltage | V _{RWM} | - | - | 1 | V |
| Reverse voltage | at I _R = 100 μA | V _R | 1 | - | - | V |
| Reverse current | at V _R = 1 V | I _R | - | - | 100 | μA |
| Reverse breakdown voltage | at I _R = 1 mA | V _{BR} | 1.5 | - | - | V |
| Reverse clamping voltage | at I _{PP} (see fig. 1) | V _C | - | 9 | - | V |
| Capacitance | at V _R = 0 V; f = 1 MHz | C _D | - | 180 | - | pF |

ELECTRICAL CHARACTERISTICS VESD03-02V(T_{amb} = 25 °C, unless otherwise specified)

| PARAMETER | TEST CONDITIONS/REMARKS | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|---------------------------|--|----------------------|------|------|------|-------|
| Protection paths | Number of lines which can be protected | N _{channel} | - | - | 1 | lines |
| Reverse stand-off voltage | Max. reverse working voltage | V _{RWM} | - | - | 3 | V |
| Reverse voltage | at I _R = 20 μA | V _R | 3 | - | - | V |
| Reverse current | at V _R = 3 V | I _R | - | - | 20 | μA |
| Reverse breakdown voltage | at I _R = 1 mA | V _{BR} | 4 | - | - | V |
| Reverse clamping voltage | at I _{PP} (see fig. 1) | V _C | - | 12 | - | V |
| Capacitance | at V _R = 0 V; f = 1 MHz | C _D | - | 110 | - | pF |

ELECTRICAL CHARACTERISTICS VESD05-02V(T_{amb} = 25 °C, unless otherwise specified)

| PARAMETER | TEST CONDITIONS/REMARKS | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|---------------------------|--|----------------------|------|------|------|-------|
| Protection paths | Number of lines which can be protected | N _{channel} | - | - | 1 | lines |
| Reverse stand-off voltage | Max. reverse working voltage | V _{RWM} | - | - | 5 | V |
| Reverse voltage | at I _R = 0.1 μA | V _R | 5 | - | - | V |
| Reverse current | at V _R = 5 V | I _R | - | - | 0.1 | μA |
| Reverse breakdown voltage | at I _R = 1 mA | V _{BR} | 6.5 | - | - | V |
| Reverse clamping voltage | at I _{PP} (see fig. 1) | V _C | - | 20 | - | V |
| Capacitance | at V _R = 0 V; f = 1 MHz | C _D | - | 55 | - | pF |

ELECTRICAL CHARACTERISTICS VESD08-02V(T_{amb} = 25 °C, unless otherwise specified)

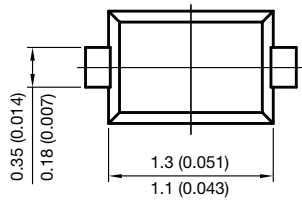
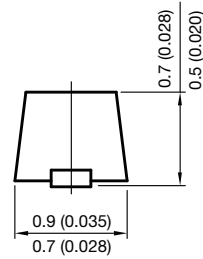
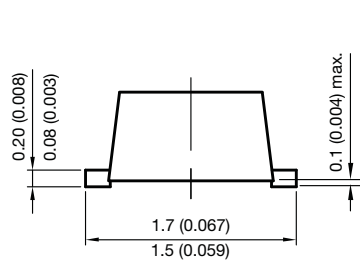
| PARAMETER | TEST CONDITIONS/REMARKS | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|---------------------------|--|----------------------|------|------|------|-------|
| Protection paths | Number of lines which can be protected | N _{channel} | - | - | 1 | lines |
| Reverse stand-off voltage | Max. reverse working voltage | V _{RWM} | - | - | 8 | V |
| Reverse voltage | at I _R = 0.1 μA | V _R | 8 | - | - | V |
| Reverse current | at V _R = 8 V | I _R | - | - | 0.1 | μA |
| Reverse breakdown voltage | at I _R = 1 mA | V _{BR} | 9 | - | - | V |
| Reverse clamping voltage | at I _{PP} (see fig. 1) | V _C | - | 30 | - | V |
| Capacitance | at V _R = 0 V; f = 1 MHz | C _D | - | 35 | - | pF |

ELECTRICAL CHARACTERISTICS VESD12-02V(T_{amb} = 25 °C, unless otherwise specified)

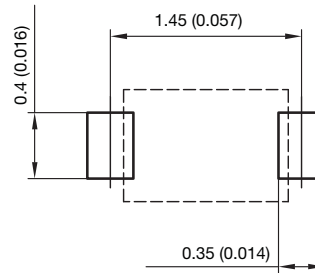
| PARAMETER | TEST CONDITIONS/REMARKS | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|---------------------------|--|----------------------|------|------|------|-------|
| Protection paths | Number of lines which can be protected | N _{channel} | - | - | 1 | lines |
| Reverse stand-off voltage | Max. reverse working voltage | V _{RWM} | - | - | 12 | V |
| Reverse voltage | at I _R = 0.1 μA | V _R | 12 | - | - | V |
| Reverse current | at V _R = 12 V | I _R | - | - | 0.1 | μA |
| Reverse breakdown voltage | at I _R = 1 mA | V _{BR} | 14 | - | - | V |
| Reverse clamping voltage | at I _{PP} (see fig. 1) | V _C | - | 25 | - | V |
| Capacitance | at V _R = 0 V; f = 1 MHz | C _D | - | 30 | - | pF |



PACKAGE DIMENSIONS in millimeters (Inches): **SOD-523**



foot print recommendation:



Document no.: S8-V-3880.02-001 (4)

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16864



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