

Features

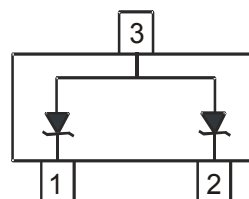
- Provides ESD Protection per IEC 61000-4-2 Standard:
Air – $\pm 30\text{kV}$, Contact – $\pm 30\text{kV}$
- 200W Peak Power Dissipation
- Typically Used to Protect LIN and CAN Transceiver from ESD and other Harmful Transient Voltage Events
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208③
- Weight: 0.009 grams (Approximate)



Top View



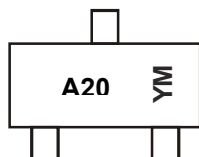
Device Schematic

Ordering Information (Note 4)

| Product | Compliance | Marking | Reel size(inches) | Tape width(mm) | Quantity per reel |
|---------------|------------|---------|-------------------|----------------|-------------------|
| DESD32VS2SO-7 | AEC-Q101 | A20 | 7 | 8 | 3,000/Tape & Reel |

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 - See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 - For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



A20 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: A = 2013)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|------|------|------|------|------|------|------|------|
| Code | A | B | C | D | E | F | G |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit | Conditions |
|------------------------------------|--------------------------|-------|------|-----------------------------|
| Peak Pulse Power Dissipation | P _{PP} | 200 | W | 8/20μs, Per in Figure 3 |
| Peak Pulse Current | I _{PP} | 4 | A | 8/20μs, Per in Figure 3 |
| ESD Protection – Contact Discharge | V _{ESD_Contact} | ±30 | kV | Standard IEC 61000-4-2 |
| ESD Protection – Air Discharge | V _{ESD_Air} | ±30 | kV | Standard IEC 61000-4-2 |
| ESD Protection – Human Body Model | V _{ESD_HBM} | ±16 | kV | MIL-STD-883 |
| Electrical Fast Transient Current | I _{EFT} | 80 | A | Standard IEC 61000-4-4(EFT) |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|------------------|-------------|------|
| Package Power Dissipation (Note 5) | P _D | 300 | mW |
| Thermal Resistance, Junction to Ambient (Note 5) | R _{ΘJA} | 417 | °C/W |
| Operating Junction Temperature Range | T _J | -65 to +150 | °C |
| Storage Temperature Range | T _{STG} | -65 to +150 | °C |

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|----------------------------------|------------------|-----|-----|-----|------|---|
| Reverse Working Voltage | V _{RWM} | — | — | 32 | V | — |
| Breakdown Voltage | V _{BR} | 34 | — | 40 | V | I _R = 1.0mA |
| Reverse Leakage Current (Note 6) | I _R | — | — | 100 | nA | V _{RWM} = 32V |
| Clamping Voltage (Note 7) | V _{CL} | — | — | 42 | V | I _{PP} = 1A, t _p = 8/20μs |
| | | — | — | 50 | V | I _{PP} = 4A, t _p = 8/20μs |
| Channel Input Capacitance | C _T | — | 36 | 42 | pF | V _{IN} = 0V, f = 1MHz, Pin 1 or Pin 2 to Pin 3 |
| | | — | 18 | 21 | pF | V _{IN} = 0V, f = 1MHz, between Pin 1 and Pin 2 |

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at <http://www.diodes.com>.
 6. Short duration pulse test used to minimize self-heating effect.
 7. Measured from pin 1 or pin 2 to pin 3; Non-repetitive current pulse per Figure 3.

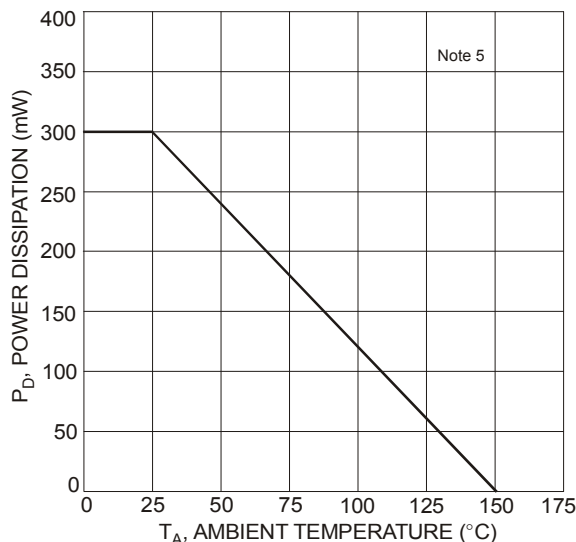


Figure 1 Power Derating Curve

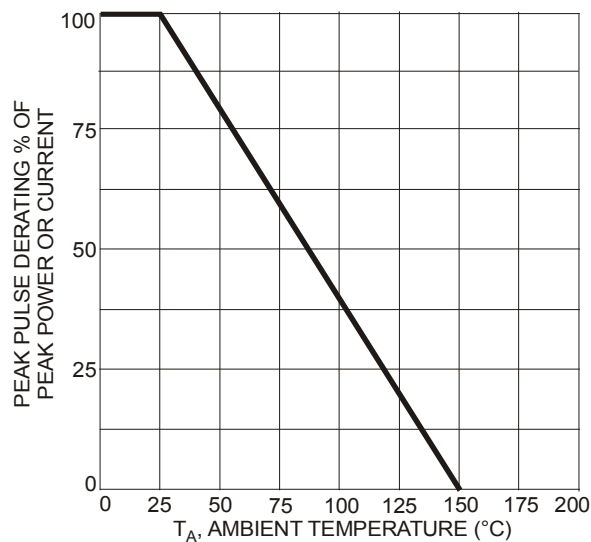


Figure 2 Pulse Derating Curve

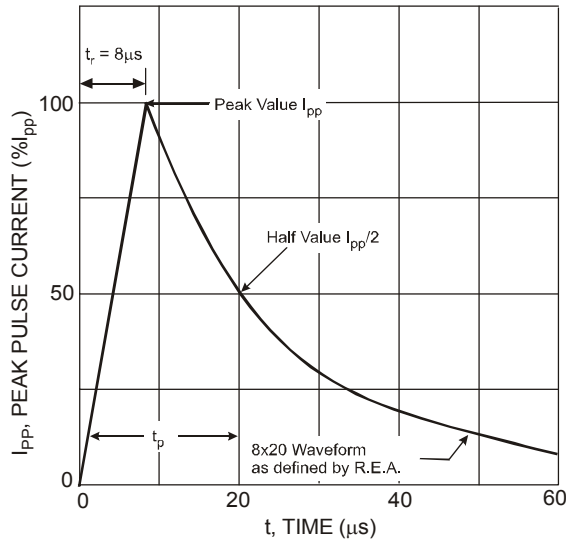


Figure 3 Typical 8 x 20µs Pulse Waveform

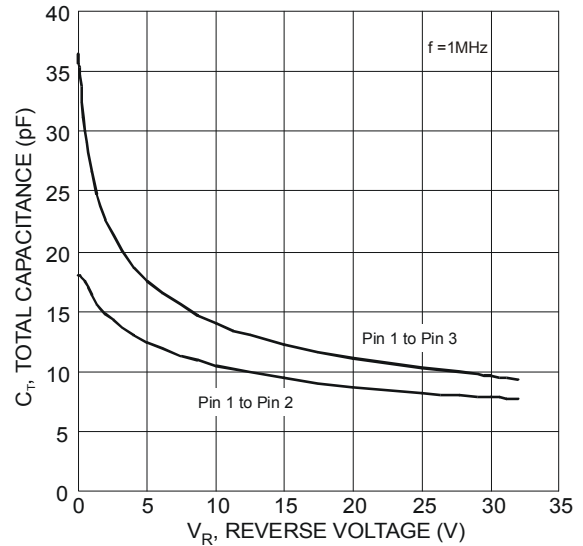


Figure 4 Typical Total Capacitance vs. Reverse Voltage

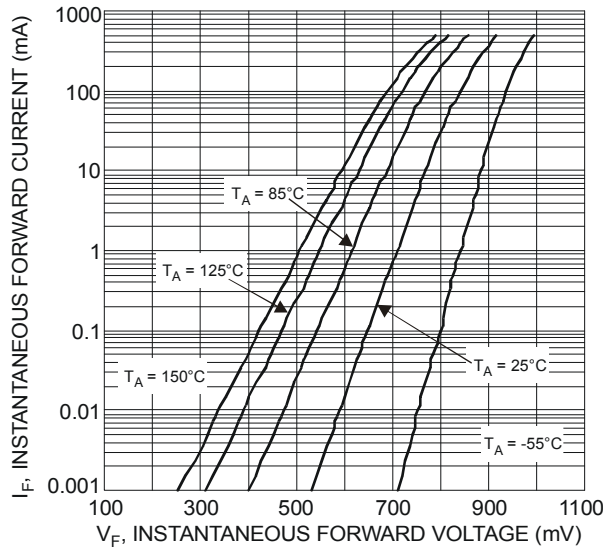


Figure 5 Typical Forward Characteristics

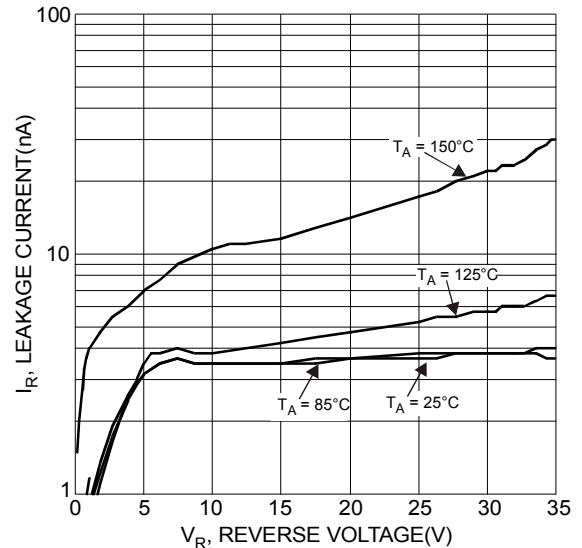
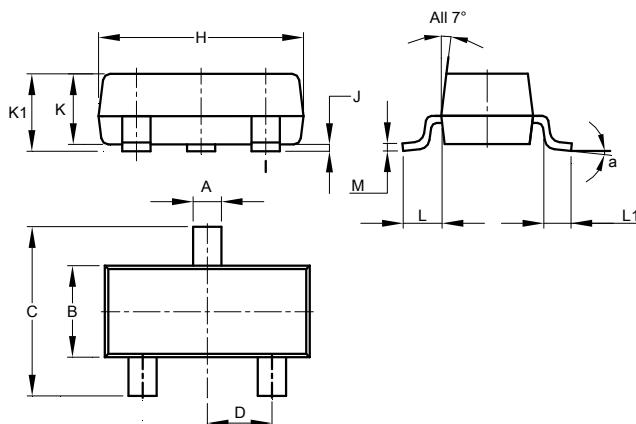


Figure 6 Typical Reverse Characteristics

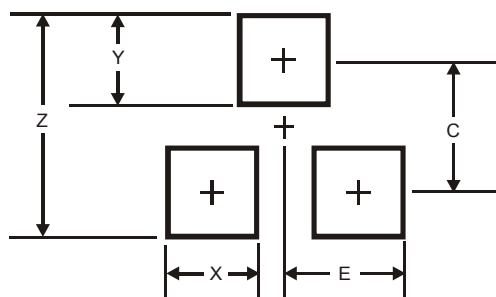
Package Outline Dimensions

 Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.


| SOT23 | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | 0.37 | 0.51 | 0.40 |
| B | 1.20 | 1.40 | 1.30 |
| C | 2.30 | 2.50 | 2.40 |
| D | 0.89 | 1.03 | 0.915 |
| F | 0.45 | 0.60 | 0.535 |
| G | 1.78 | 2.05 | 1.83 |
| H | 2.80 | 3.00 | 2.90 |
| J | 0.013 | 0.10 | 0.05 |
| K | 0.890 | 1.00 | 0.975 |
| K1 | 0.903 | 1.10 | 1.025 |
| L | 0.45 | 0.61 | 0.55 |
| L1 | 0.25 | 0.55 | 0.40 |
| M | 0.085 | 0.150 | 0.110 |
| a | 8° | | |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 2.9 |
| X | 0.8 |
| Y | 0.9 |
| C | 2.0 |
| E | 1.35 |

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