

Product Summary

| VBR (Min) | IPP (Max) | C _{I/O} (Typ) |
|-----------|-----------|------------------------|
| 6V | 5.5A | 0.55pF |

Description

The DT1240V3-04SO is a high-performance device suitable for protecting four high speed I/Os. These devices are assembled in SOT26 package and have high ESD surge capability and low capacitance.

Applications

Typically used at high-speed ports such as USB 2.0, IEEE1394 (Firewire[®], iLink), Serial ATA, DVI[™], HDMI[™], PCI[™].

Features

- Clamping Voltage: 8.8V at 10A 100ns, TLP
9V at 5.5A 8μs/20μs
- IEC 61000-4-2 (ESD): Air — ±16kV, Contact — ±14kV
- IEC 61000-4-5 (Lightning): ±5.5A (8/20μs)
- 4 Channels of ESD Protection
- Low Channel Input Capacitance of 0.55pF Typical
- TLP Dynamic Resistance: 0.3Ω
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact_us) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

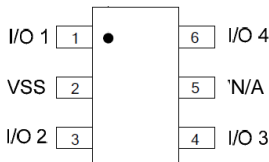
Mechanical Data

- Case: SOT26
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Schematic
- Terminals – Finish – Matte Tin Plated Leads; Solderable per MIL-STD-202, Method 208E3
- Weight: 0.016 grams (Approximate)

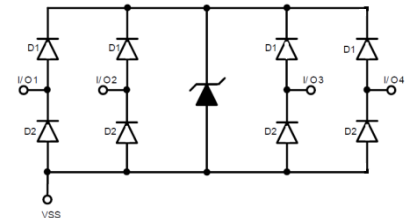
SOT26



Top View



Device Schematic



Circuit Schematic

Ordering Information (Note 4)

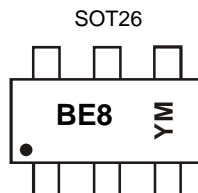
| Part Number | Compliance | Marking | Reel Size (inches) | Tape Width (mm) | Quantity per Reel |
|-----------------|------------|---------|--------------------|-----------------|-------------------|
| DT1240V3-04SO-7 | Standard | BE8 | 7 | 8 | 3,000/Tape & Reel |

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 - See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

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Marking Information



BE8 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: 1 = 2021)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2015 | ... | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|------|------|-----|------|------|------|------|------|------|------|------|------|------|
| Code | C | ... | I | J | K | L | M | N | O | P | R | S |

| 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 Current, per IEC 61000-4-5 | I _{PP} | 5.5 | A | I/O to V _{SS} , 8/20μs |
| Peak Pulse Power, per IEC 61000-4-5 | P _{PP} | 60 | W | I/O to V _{SS} , 8/20μs |
| ESD Protection – Contact Discharge, per IEC 61000-4-2 | V _{ESD_CONTACT} | ±14 | kV | I/O to V _{SS} |
| ESD Protection – Air Discharge, per IEC 61000-4-2 | V _{ESD_AIR} | ±16 | kV | I/O to V _{SS} |
| Operating Temperature | T _{OP} | -55 to +85 | °C | — |
| Storage Temperature | T _{STG} | -55 to +150 | °C | — |

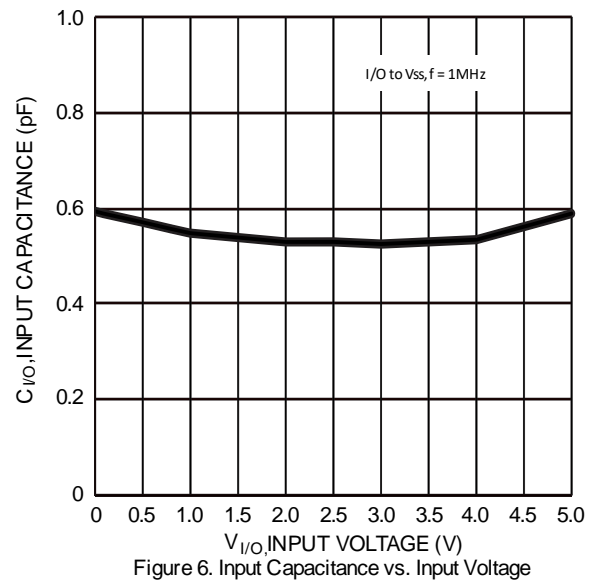
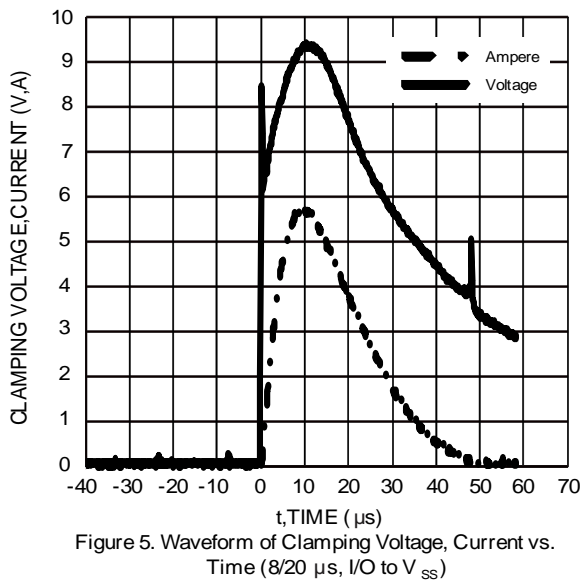
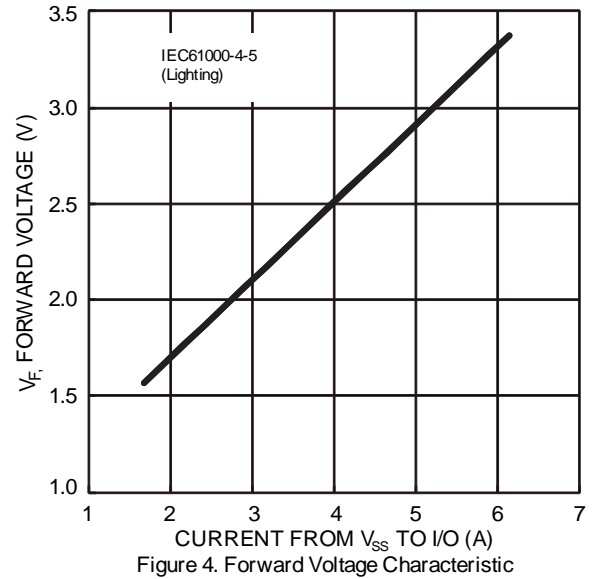
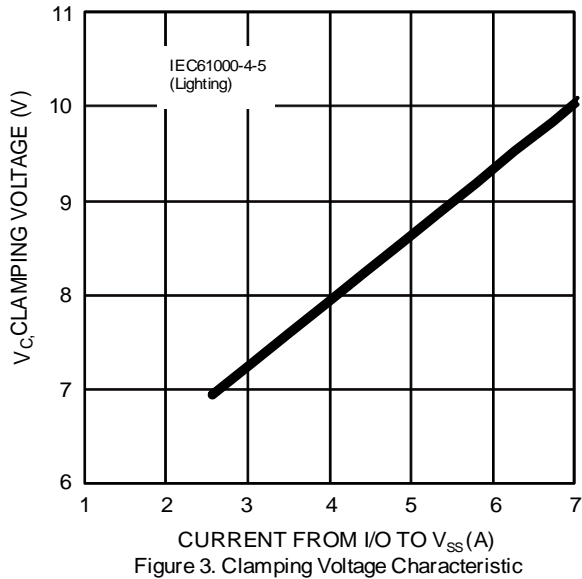
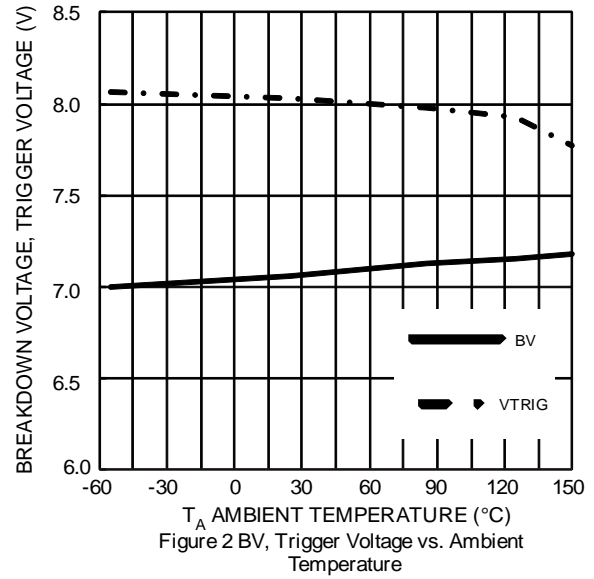
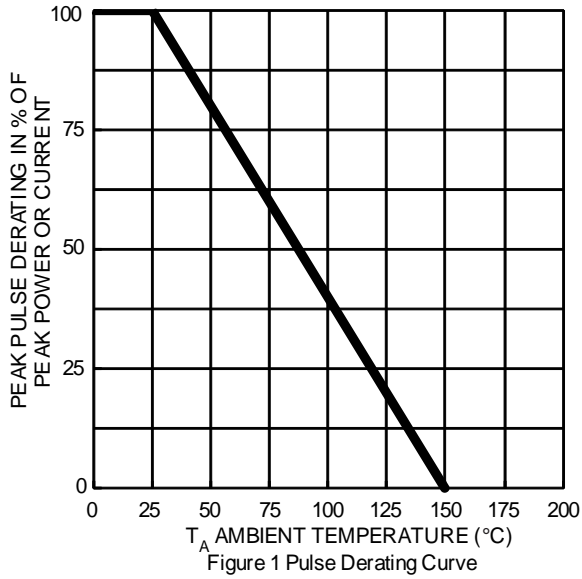
Thermal Characteristics

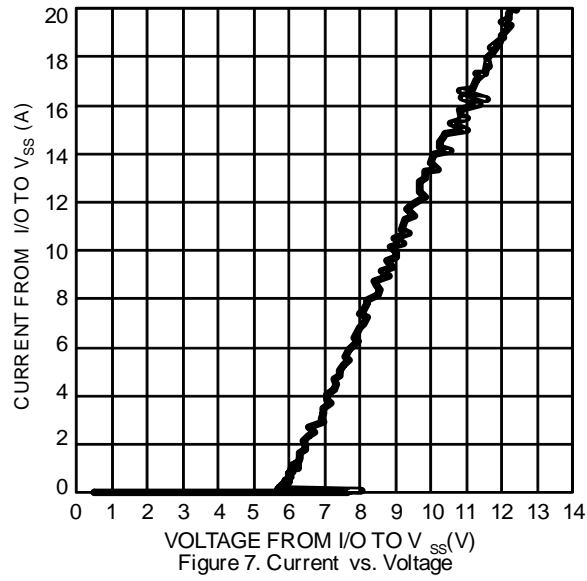
| Characteristic | Symbol | Value | Unit |
|--|------------------|-------|------|
| Power Dissipation Typical (Note 5) | P _D | 300 | mW |
| Thermal Resistance, Junction to Ambient Typical (Note 5) | R _{θJA} | 417 | °C/W |

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

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|-----------------------------------|--|------|-------|------|------|--|
| Reverse Working Voltage | V _{RWM} | — | — | 3.3 | V | — |
| Reverse Current | I _R | — | — | 0.5 | μA | V _R = 3.3V, I/O to V _{SS} |
| Reverse Breakdown Voltage | V _{BR} | 6 | — | — | V | I _R = 1mA, I/O to V _{SS} |
| Forward Clamping Voltage | V _F | -1.0 | -0.85 | — | V | I _F = -15mA, I/O to V _{SS} |
| Reverse Clamping Voltage (Note 6) | V _C | — | 9 | 11 | V | I _{PP} = 5.5A, I/O to V _{SS} , 8/20μs |
| Trigger Voltage | V _{TRIG} | — | — | 9.5 | V | — |
| ESD Clamping Voltage | V _{ESD} | — | 8.8 | — | V | TLP, 10A, t _P = 100ns, I/O to V _{SS} |
| Dynamic Reverse Resistance | R _{DIF-R} | — | 0.3 | — | Ω | TLP, 10A, t _P = 100ns, I/O to V _{SS} |
| Dynamic Forward Resistance | R _{DIF-F} | — | 0.25 | — | Ω | TLP, 10A, t _P = 100ns, V _{SS} to I/O |
| Channel Input Capacitance | C _{I/O} | — | 0.55 | 0.65 | pF | V _{I/O} = 2.5V, V _{SS} = 0V, f = 1MHz |
| Delta C _{I/O} | C _{I/OMAX} -C _{I/OMIN} | — | 0.04 | — | pF | C _{I/OMAX} -C _{I/OMIN} |

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 6. Clamping voltage value is based on an 8 x 20μs peak pulse current (I_{PP}) waveform.

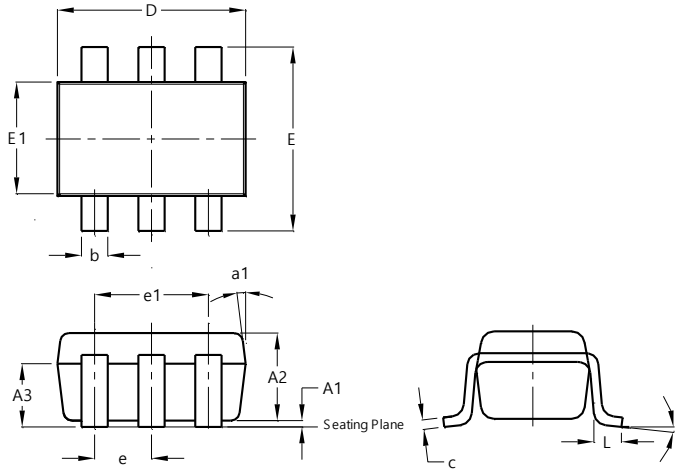




Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT26

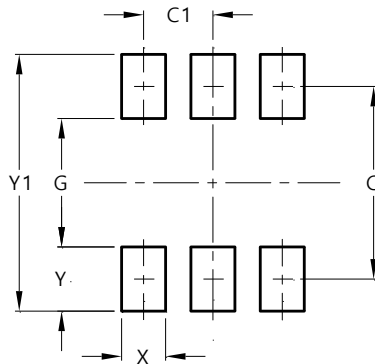


| SOT26 | | | |
|----------------------|-------|------|------|
| Dim | Min | Max | Typ |
| A1 | 0.013 | 0.10 | 0.05 |
| A2 | 1.00 | 1.30 | 1.10 |
| A3 | 0.70 | 0.80 | 0.75 |
| b | 0.35 | 0.50 | 0.38 |
| c | 0.10 | 0.20 | 0.15 |
| D | 2.90 | 3.10 | 3.00 |
| e | - | - | 0.95 |
| e1 | - | - | 1.90 |
| E | 2.70 | 3.00 | 2.80 |
| E1 | 1.50 | 1.70 | 1.60 |
| L | 0.35 | 0.55 | 0.40 |
| a | - | - | 8° |
| a1 | - | - | 7° |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT26



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 2.40 |
| C1 | 0.95 |
| G | 1.60 |
| X | 0.55 |
| Y | 0.80 |
| Y1 | 3.20 |

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