

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

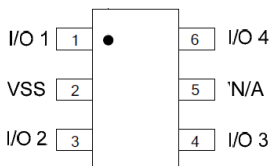
- Clamping Voltage: 8.8V at 10A 100ns, TLP 9V at 5.5A 8μs/20μs
- IEC 61000-4-2 (ESD): Air — ±16kV, Contact — ±14kV
- IEC 61000-4-5 (Lightning): ±5.5A (8/20μs)
- 4 Channels of ESD Protection
- Low Channel Input Capacitance of 0.55pF Typical
- TLP Dynamic Resistance: 0.3Ω
- **Totally Lead-Free & Fully 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@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

Mechanical Data

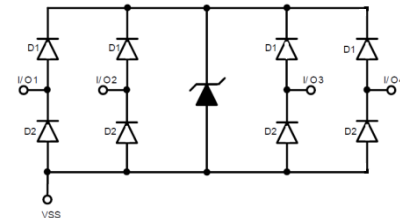
- Case: SOT26
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Schematic
- Terminals – Finish – Matte Tin Plated Leads; Solderable per MIL-STD-202, Method 208(63)
- Weight: 0.016 grams (Approximate)



Top View



Device Schematic



Circuit Schematic

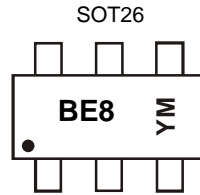
Ordering Information (Note 4)

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:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. 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.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. 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	—

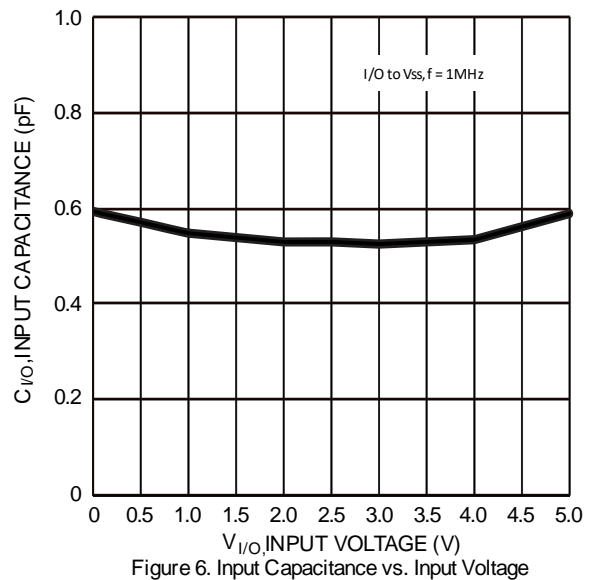
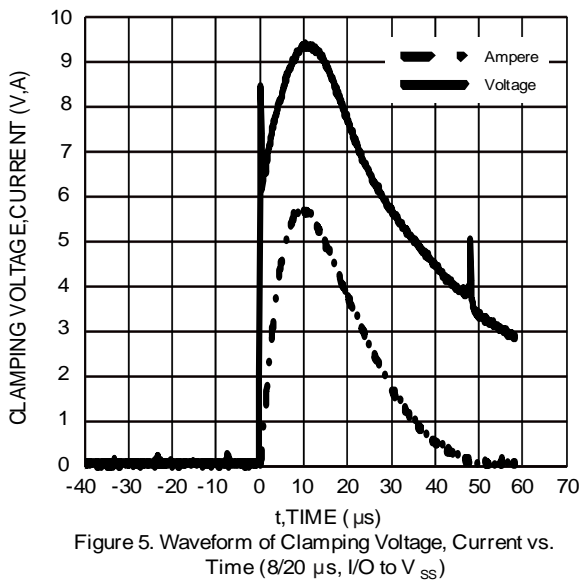
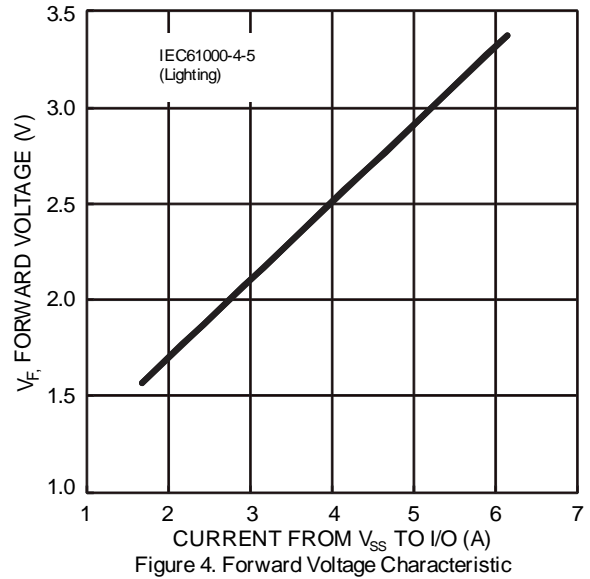
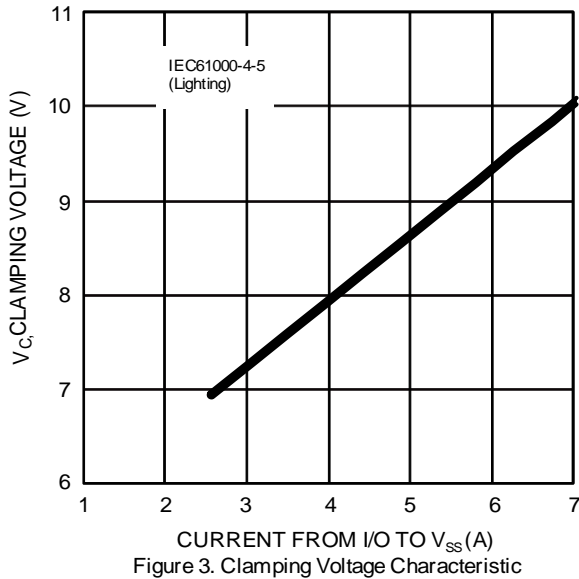
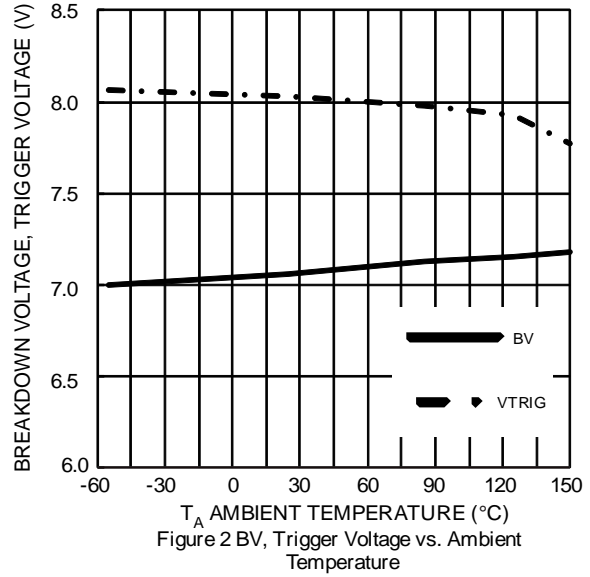
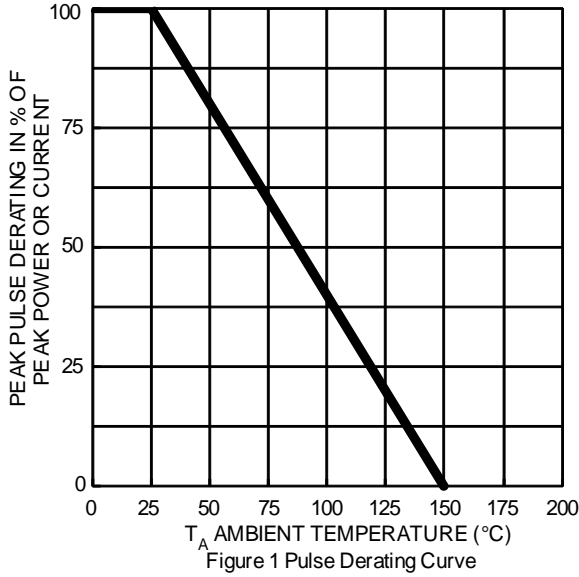
Thermal Characteristics

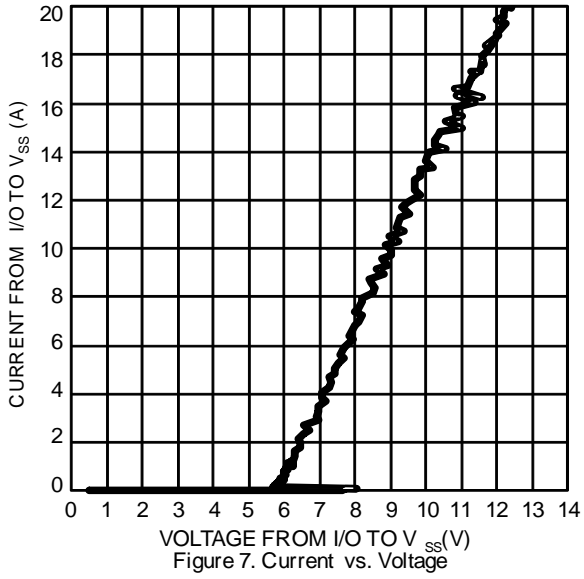
Characteristic	Symbol	Value	Unit
Power Dissipation Typical (Note 5)	P _D	300	mW
Thermal Resistance, Junction to Ambient Typical (Note 5)	R _{θJA}	417	°C/W

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:
- 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>.
 - Clamping voltage value is based on an 8 x 20μs peak pulse current (I_{PP}) waveform.

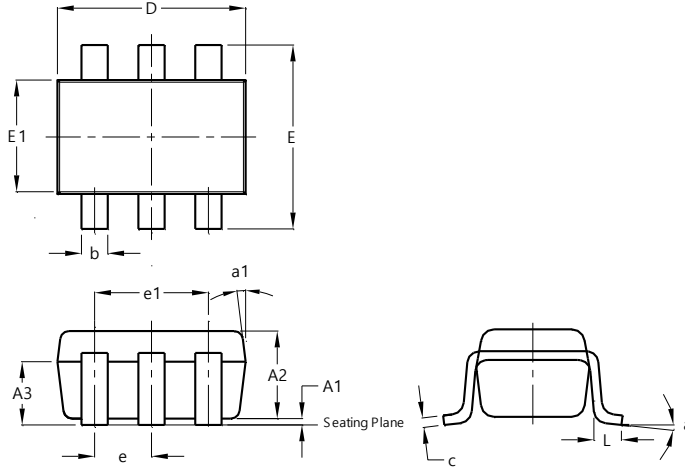




Package Outline Dimensions

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

SOT26

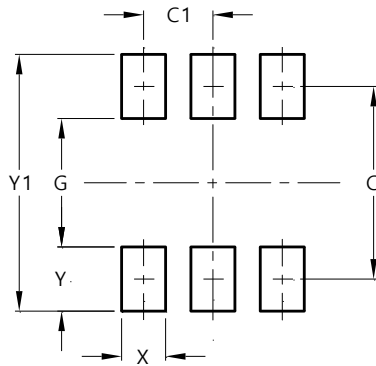


SOT26			
Dim	Min	Max	Typ
A1	0.013	0.10	0.05
A2	1.00	1.30	1.10
A3	0.70	0.80	0.75
b	0.35	0.50	0.38
c	0.10	0.20	0.15
D	2.90	3.10	3.00
e	-	-	0.95
e1	-	-	1.90
E	2.70	3.00	2.80
E1	1.50	1.70	1.60
L	0.35	0.55	0.40
a	-	-	8°
a1	-	-	7°
All Dimensions in mm			

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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