

## Features

- Fast Switching Speed: Maximum of 50ns
- High Reverse Breakdown Voltage Rating: 350V
- Low Reverse Current: Maximum of 100nA when  $V_R = 240V$  at Room Temperature
- Surface Mount Package Ideally Suited for Automated Insertion
- New Cutting-Edge Process Technology Used
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**
- The DHVSD3004ASQ, DHVSD3004CSQ, and DHVSD3004SSQ are suitable for automotive applications requiring specific change control; these parts are AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.

<https://www.diodes.com/quality/product-definitions/>

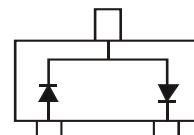
## Mechanical Data

- Package: SOT23
- Package 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 208 (e3)
- Polarity: See Diagram
- Weight: 0.008 grams (Approximate)

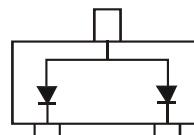
SOT23



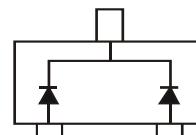
Top View



DHVSD3004SSQ Marking: JAE



DHVSD3004ASQ Marking: JAD



DHVSD3004CSQ Marking: JAC

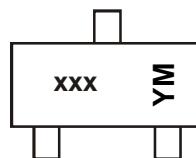
## Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
DHVSD3004ASQ-7	SOT23	3,000	Tape & Reel
DHVSD3004CSQ-7	SOT23	3,000	Tape & Reel
DHVSD3004SSQ-7	SOT23	3,000	Tape & Reel
DHVSD3004SSQ-13	SOT23	10,000	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/>.

## Marking Information



XXX = Product Type Marking Code

JAE = DHVSD3004SSQ

JAD = DHVSD3004ASQ

JAC = DHVSD3004CSQ

YM = Date Code Marking; A bar on top of the 'Y' denotes Assembly &amp; Test Site

Y = Year (ex: L = 2024)

M = Month (ex: 9 = September)

### Date Code Key

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	K	L	M	N	P	R	S	T	U	V	W	X
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** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	350	V
Working Peak Reverse Voltage DC Blocking Voltage	$V_{RW\text{M}}$ $V_R$	300	V
Forward Continuous Current (Note 5)	$I_F$	225	mA
Peak Repetitive Forward Current (Note 5)	$I_{F\text{RM}}$	625	mA
Non-Repetitive Peak Forward Surge Current @ $t = 1.0\mu\text{s}$ @ $t = 10\text{ms}$ @ $t = 1.0\text{s}$	$I_{F\text{SM}}$	4.0 1.0 0.5	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	$P_D$	325	mW
Thermal Resistance Junction to Ambient Air (Note 5)	$R_{\theta\text{JA}}$	385	°C/W
Operating and Storage Temperature Range	$T_J, T_{\text{STG}}$	-55 to +150	°C

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	350	—	—	V	$I_R = 150\mu\text{A}$
Forward Voltage	$V_F$	—	—	0.87 0.995 1.15	V	$I_F = 20\text{mA}$ $I_F = 100\text{mA}$ $I_F = 200\text{mA}$
Reverse Current (Note 6)	$I_R$	—	—	100 35	nA μA	$V_R = 240\text{V}$ $V_R = 240\text{V}, T_J = +150^\circ\text{C}$
Total Capacitance	$C_T$	—	—	5.0	pF	$V_R = 0\text{V}, f = 1.0\text{MHz}$
Reverse Recovery Time	$t_{RR}$	—	—	50	ns	$I_F = I_R = 10\text{mA}$ , $I_{RR} = 0.1 \times I_R, R_L = 100\Omega$

Notes: 5. Part mounted on FR-4 substrate with pad dimensions 1 inch x 1 inch, 2oz copper PC board.  
6. Short duration pulse test used to minimize self-heating effect.

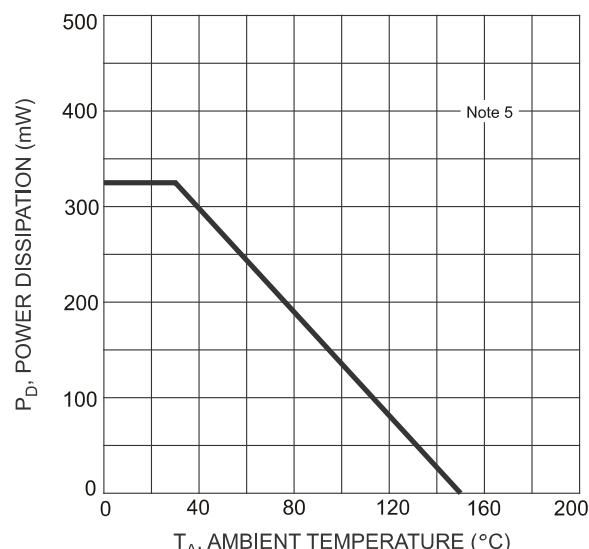


Figure 1 Power Derating Curve, Total Package

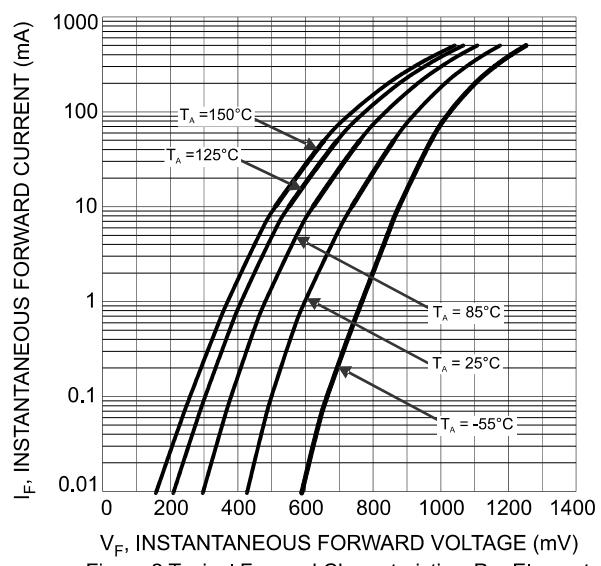


Figure 2 Typical Forward Characteristics, Per Element

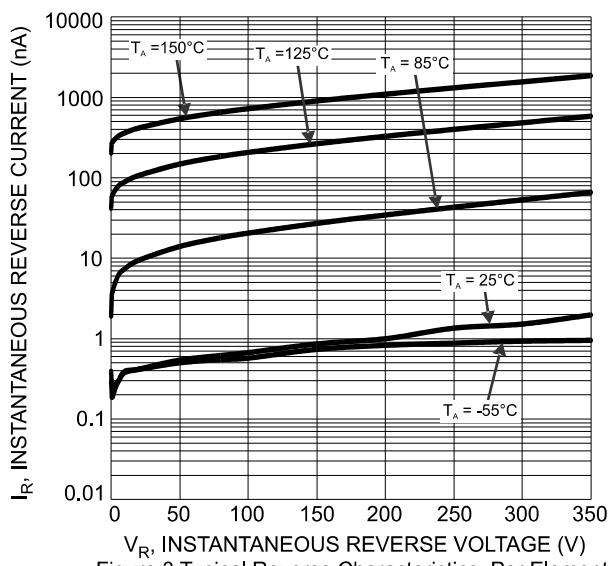


Figure 3 Typical Reverse Characteristics, Per Element

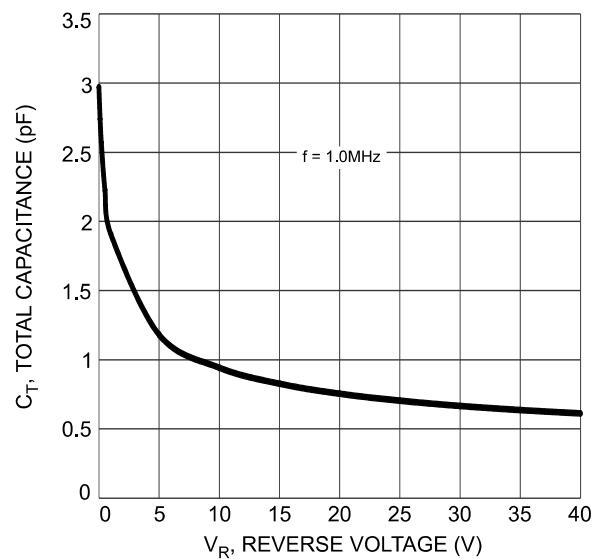
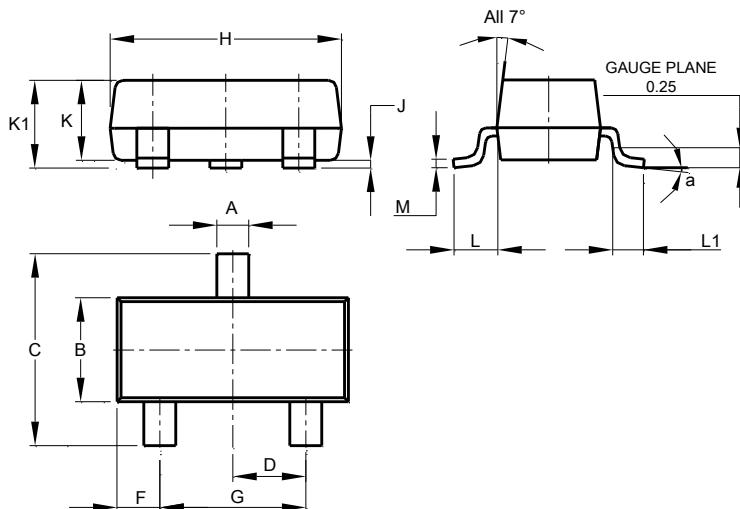


Figure 4 Typical Total Capacitance, Per Element

## Package Outline Dimensions

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

SOT23



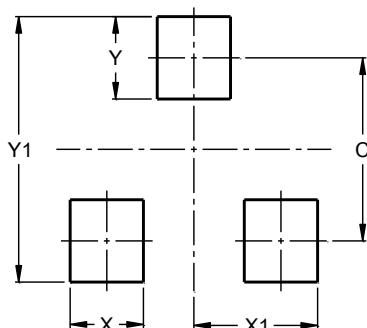
SOT23			
Dim	Min	Max	Typ
<b>A</b>	0.37	0.51	0.40
<b>B</b>	1.20	1.40	1.30
<b>C</b>	2.30	2.50	2.40
<b>D</b>	0.89	1.03	0.915
<b>F</b>	0.45	0.60	0.535
<b>G</b>	1.78	2.05	1.83
<b>H</b>	2.80	3.00	2.90
<b>J</b>	0.013	0.10	0.05
<b>K</b>	0.890	1.00	0.975
<b>K1</b>	0.903	1.10	1.025
<b>L</b>	0.45	0.61	0.55
<b>L1</b>	0.25	0.55	0.40
<b>M</b>	0.085	0.150	0.110
<b>a</b>	0°	8°	--

All Dimensions in mm

## Suggested Pad Layout

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

SOT23



Dimensions	Value (in mm)
<b>C</b>	2.0
<b>X</b>	0.8
<b>X1</b>	1.35
<b>Y</b>	0.9
<b>Y1</b>	2.9

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