

## Product Summary

<b>V<sub>BR</sub> (min)</b>	<b>I<sub>PP</sub> (max)</b>	<b>C<sub>T</sub> (typ)</b>
26V	2A	6pF

## Features and Benefits

- One Channel of ESD Protection
- Sidewall Plating for Easy Optical Inspection
- Low Profile and Ultra-small Form Factor Minimizes PCB Footprint
- Provides ESD Protection per IEC 61000-4-2 Standard:  
Air ±20kV, Contact ±20kV
- Low Channel Input Capacitance to Prevent Data Degradation
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The D24V0L1B2LPSQ is suitable for automotive applications requiring specific change control and is AEC-Q101 qualified, is PPAP capable, and is manufactured in IATF16949:2016 certified facilities.**

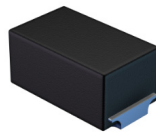
## Description and Applications

The D24V0L1B2LPSQ is a next generation ESD and surge protection device packaged in a low-profile, small form factor package that features sidewall plating for easy optical inspection. It is qualified to AEC-Q101, supported by a PPAP, and is ideal for protecting one data line in:

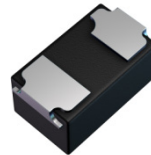
- Controller Area Networks (CAN)
- Local Interconnect Networks (LIN)
- FlexRay® Automotive Networks

## Mechanical Data

- Case: U-DFN1006-2/SWP with Sidewall Plating
- Case Material: Molded Plastic, "Green" Molding Compound.  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: 100% Sn (Tin)  
Solderable per MIL-STD-202, Method 208 @4
- Weight: 0.001 grams (Approximate)



Top View



Bottom View



Device Schematic

## Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D24V0L1B2LPSQ-7B	Automotive	SG	7	8	10,000/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 <http://www.diodes.com/products/packages.html>.

## Marking Information



SG = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	$P_{PP}$	90	W	8/20 $\mu\text{s}$ , Per Figure 3
Peak Pulse Current	$I_{PP}$	2	A	8/20 $\mu\text{s}$ , Per Figure 3
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	$\pm 20$	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	$V_{ESD\_Air}$	$\pm 20$	kV	IEC 61000-4-2 Standard

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	$P_D$	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	500	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	$V_{RWM}$	—	—	24	V	—
Channel Leakage Current (Note 6)	$I_{RM}$	—	—	100	nA	$V_{RWM} = 24\text{V}$
Clamping Voltage, Positive Transients	$V_{CL}$	—	—	42	V	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{S}$
		—	—	46	V	$I_{PP} = 2\text{A}, t_p = 8/20\mu\text{S}$
Breakdown Voltage	$V_{BR}$	26	—	32	V	$I_R = 1\text{mA}$
Channel Input Capacitance	$C_T$	—	6	10	pF	$V_R = 0\text{V}, f = 1\text{MHz}$

- Notes:
- Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
  - Short duration pulse test used to minimize self-heating effect.

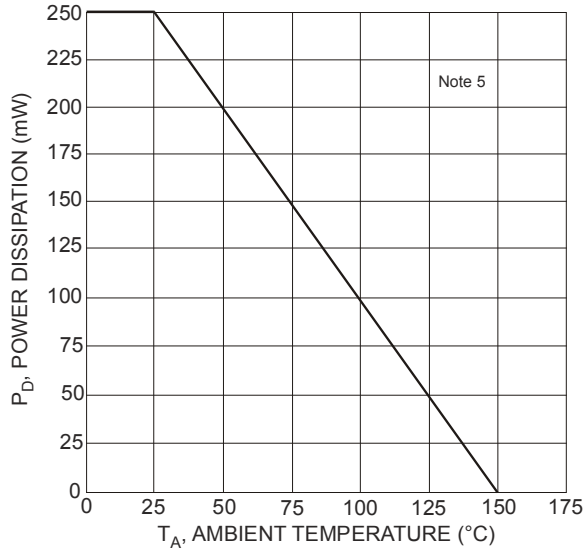


Figure 1 Power Derating Curve

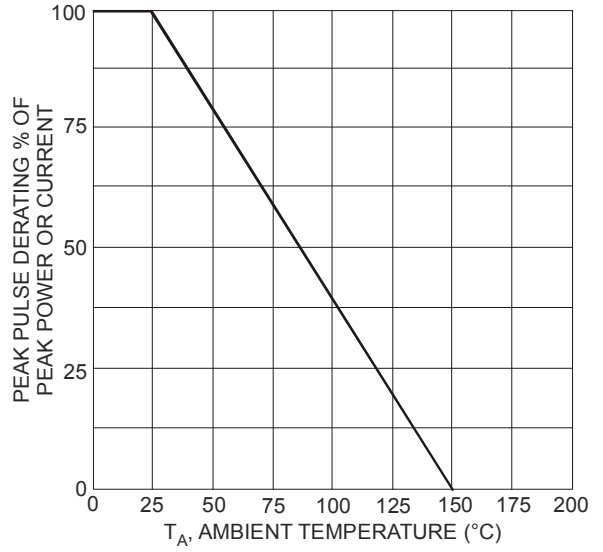


Figure 2 Pulse Derating Curve

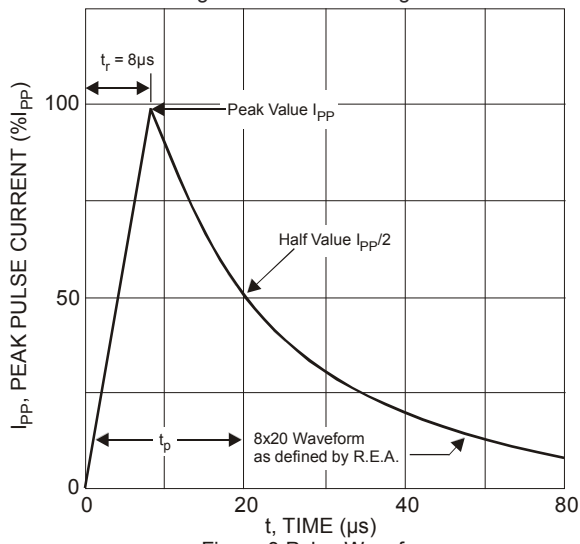


Figure 3 Pulse Waveform

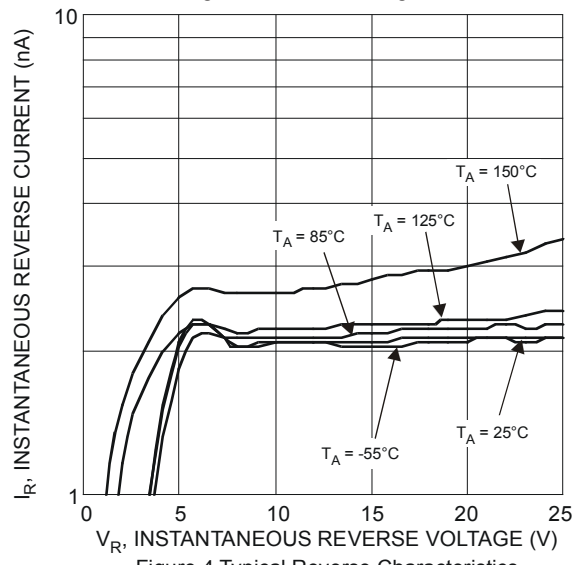


Figure 4 Typical Reverse Characteristics

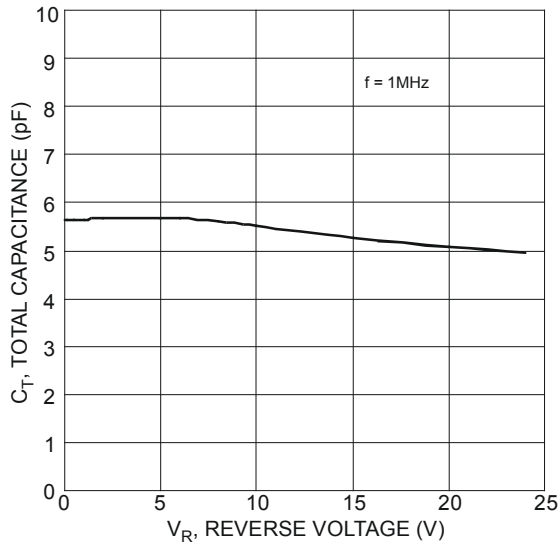
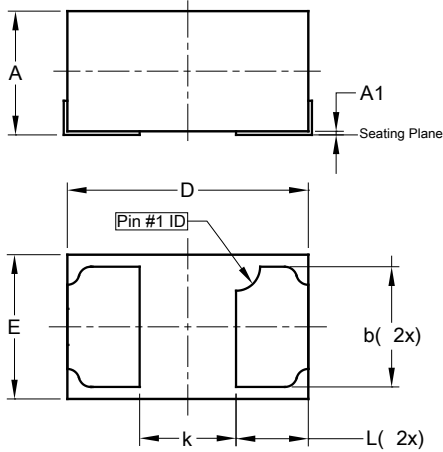


Figure 5 Typical Capacitance

## Package Outline Dimensions

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

U-DFN1006-2 (SWP)

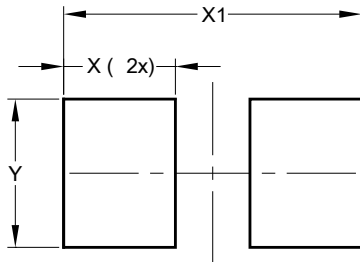


U-DFN1006-2/SWP			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.0	0.05	0.03
b	0.45	0.55	0.50
c	0.55 REF		
D	0.95	1.05	1.00
E	0.55	0.65	0.60
h	0.17 REF		
k	0.37 REF		
L	0.25	0.35	0.30
All Dimensions in mm			

## Suggested Pad Layout

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

U-DFN1006-2 (SWP)



Dimensions	Value (in mm)
X	0.45
X1	1.20
Y	0.60

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