NEW PRODUCT

Product Summary

$V_{BR\ (min)}$	$I_{PP\ (max)}$	$C_{T\ (typ)}$
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)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

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 side wall plating for easy optical inspection. It is qualified to AECQ101, supported by a PPAP and is ideal for protecting one data line in:

- Controller Area Networks (CAN)
- Local Interconnect Networks (LIN)
- Flexray Automotive Networks

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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: NiPdAu over Copper Leadframe.
  Solderable per MIL-STD-202, Method 208 e4
- 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) compliant.
2. 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.
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. Automotive products are AEC-Q10x qualified and are PPAP capable. Automotive, AEC-Q10x and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information

SG = Product Type Marking Code

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

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

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 6)	P_D	250	mW
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	500	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V_{RWM}	—	—	24	V	—
Channel Leakage Current (Note 7)	I_{RM}	—	—	100	nA	V_{RWM} = 24V
Clamping Voltage, Positive Transients	V_{CL}	—	—	42	V	I_{PP} = 1A, t_p = 8/20µS
		—	—	46	V	I_{PP} = 2A, t_p = 8/20µS
Breakdown Voltage	V_{BR}	26	—	32	V	I_R = 1mA
Channel Input Capacitance	C_T	—	6	10	pF	V_R = 0V, f = 1MHz

Notes: 6. 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.
7. Short duration pulse test used to minimize self-heating effect.

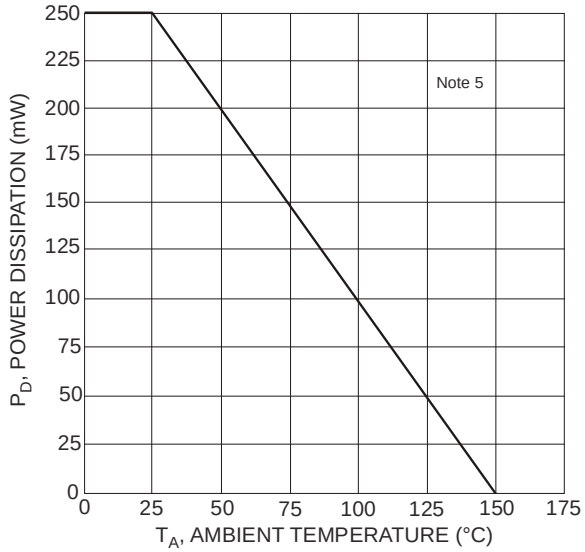


Figure 1 Power Derating Curve

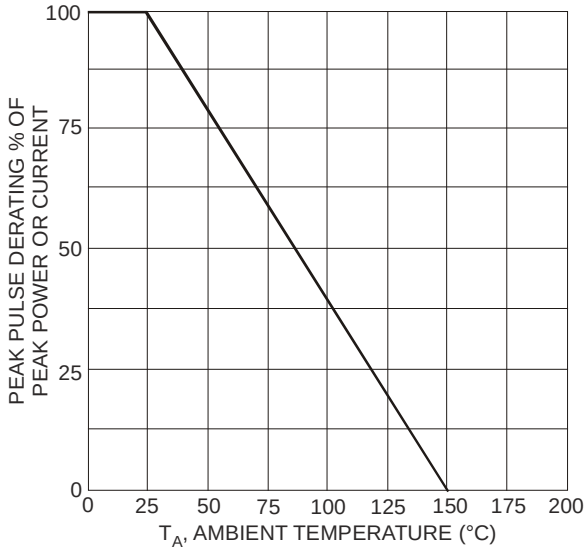


Figure 2 Pulse Derating Curve

NEW PRODUCT

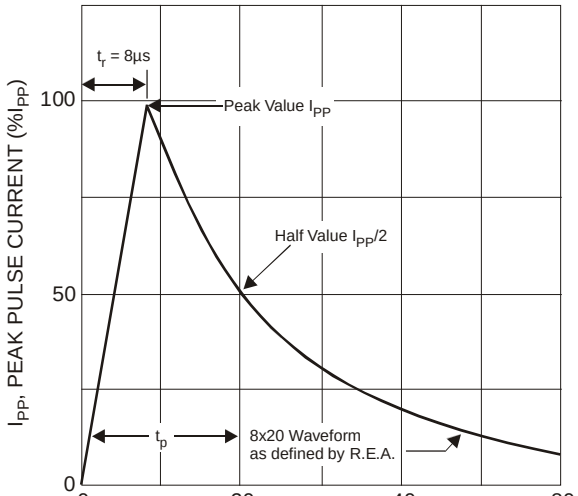


Figure 3 Pulse Waveform

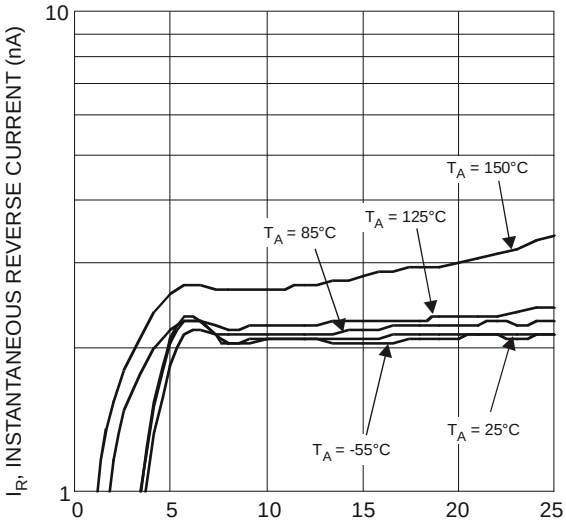


Figure 4 Typical Reverse Characteristics

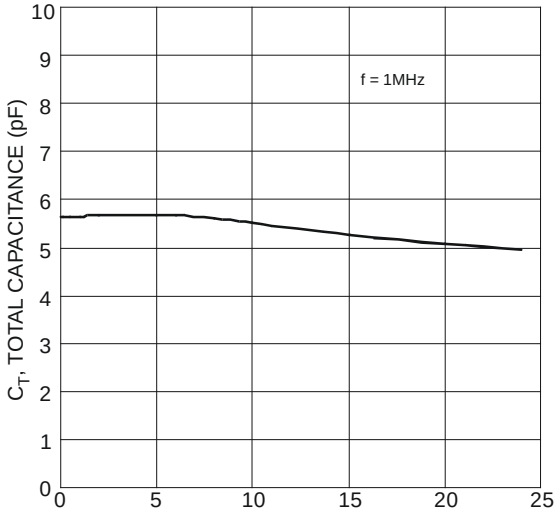
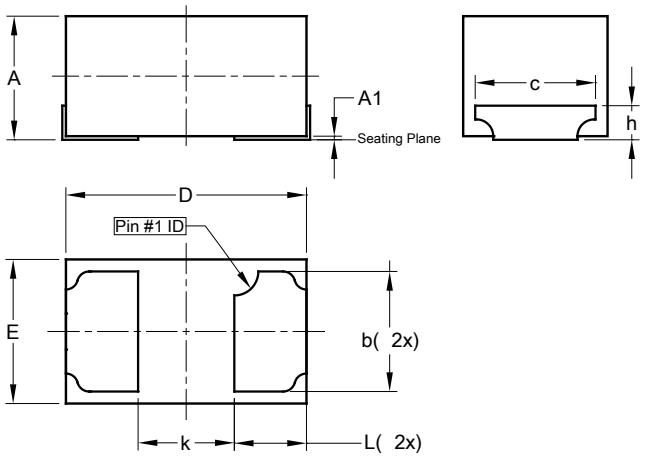


Figure 5 Typical Capacitance

Package Outline Dimensions

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



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			

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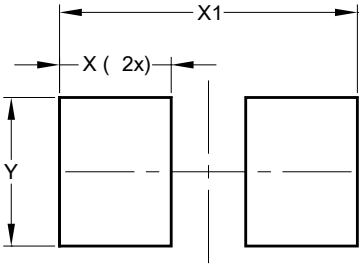
Suggested Pad Layout

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



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

Mouser Electronics

Authorized Distributor

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Diodes Incorporated:
D24V0L1B2LPSQ-7B