

Product Summary

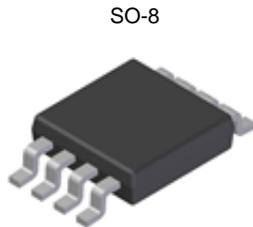
V_{PT} (Min)	I_{PP} (Max)	C_T (Typ)
2.7V	100A	5pF

Description

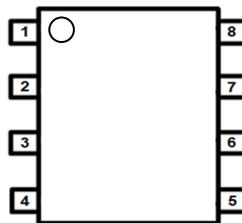
The D2V5L4U8MR transient voltage suppressor is designed to protect components which are connected to high-speed data and telecommunication lines from voltage surges caused by lighting, electrostatic discharge (ESD), and electrical fast transients (EFT).

Applications

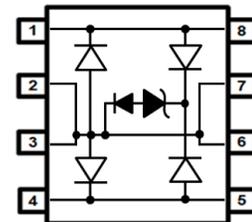
- 10/100/1000 Ethernet
- ISDN interfaces
- Integrated magnetics



Top View



Top View
Pin Configuration



Device Schematic

Features

- Protects Two Line Pairs
- Low Operating and Clamping Voltages
- IEC 61000-4-2, Level 4 (ESD), ±30kV (Air); ±30kV (Contact)
- IEC 61000-4-5, Level 4 (Lightning), 100A (8/20µs)
- **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-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability.**
<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

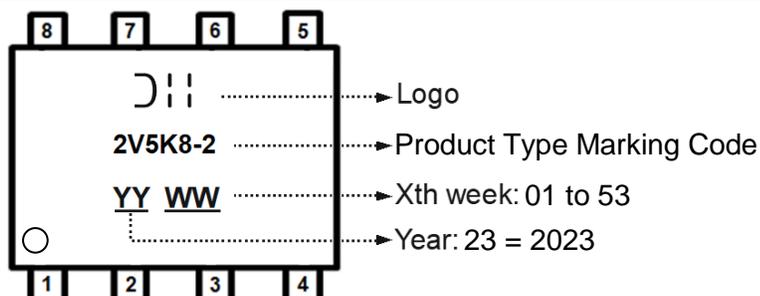
- Package: SO-8
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.08 grams (Approximate)

Ordering Information (Note 4)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
D2V5L4U8MR-13	SO-8	2V5K8-2	13	12	2500	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/>.

Marking Information



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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P _{PP}	2400	W	8/20μs, per Figure 1
Peak Pulse Current	I _{PP}	100	A	8/20μs, per Figure 1
ESD Protection – Contact Discharge	V _{ESD_Contact}	±30	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V _{ESD_Air}	±30	kV	IEC 61000-4-2 Standard

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P _D	500	mW
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	300	°C/W
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C
Soldering Temperature, t max = 10s	T _L	+260	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V _{RWM}	—	—	2.5	V	—
Channel Leakage Current (Note 6)	I _{RM}	—	—	1	μA	V _{RWM} = 2.5V
Punch Through Voltage	V _{PT}	2.7	—	—	V	I _{PT} = 2μA
Snap-Back Voltage	V _{SB}	2.5	—	—		I _{SB} = 50mA
Clamping Voltage, Positive Transients	V _{CL}	—	—	11.5	V	I _{PP} = 50A, t _p = 8/20μs, Any Line to GND
		—	—	16		I _{PP} = 100A, t _p = 8/20μs, Any Line to GND
		—	—	15		I _{PP} = 50A, t _p = 8/20μs, Line to Line
		—	—	24		I _{PP} = 100A, t _p = 8/20μs, Line to Line
Channel Input Capacitance	C _T	—	5	12	pF	V _R = 0V, f = 1MHz, Any Line to GND
		—	2.5	6		V _R = 0V, f = 1MHz, Line to Line

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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
 6. Short duration pulse test used to minimize self-heating effect.

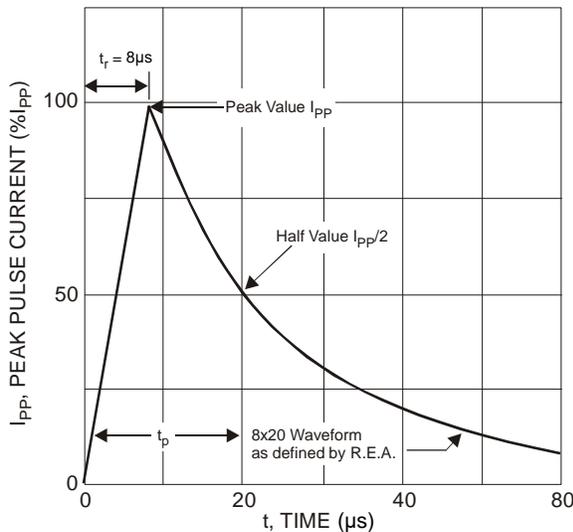


Figure 1. Pulse Waveform

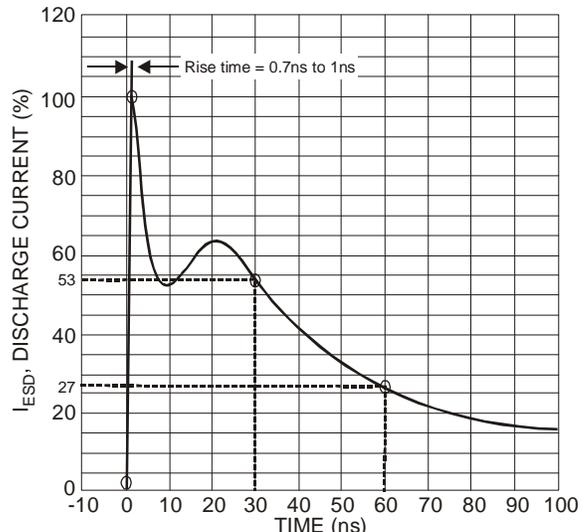


Figure 2. ESD Discharge Current Waveform IEC 61000-4-2 (330Ω/150pF)

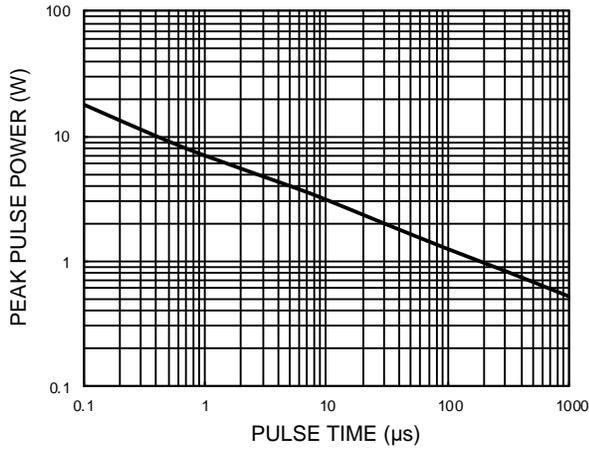


Figure 3. Power Dissipation vs. Pulse Time

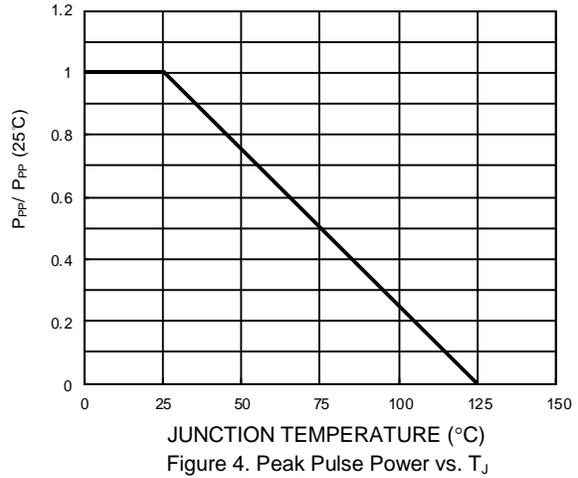


Figure 4. Peak Pulse Power vs. T_j

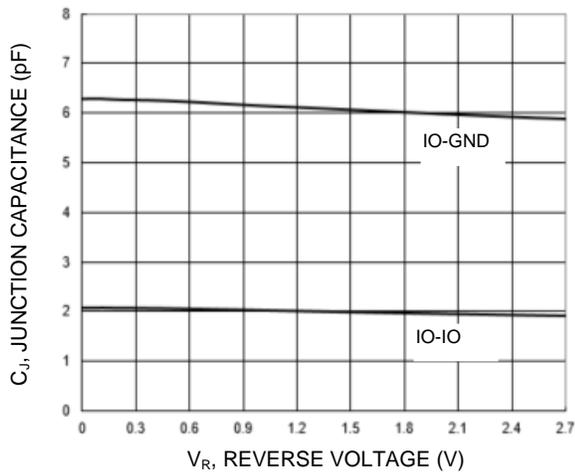


Figure 5. Typical Junction Capacitance

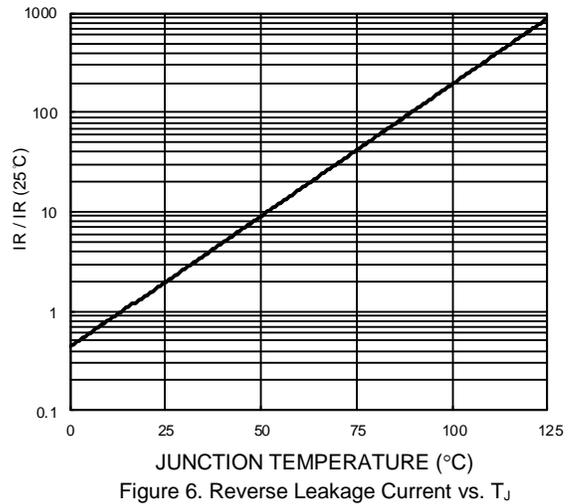


Figure 6. Reverse Leakage Current vs. T_j

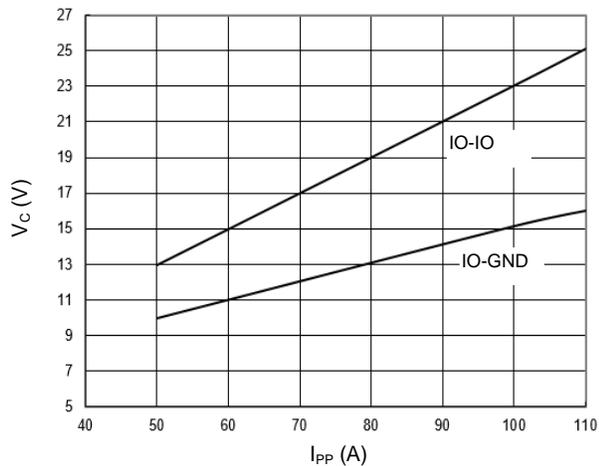


Figure 7. Clamping Voltage Characteristics ($t_p = 8/20\mu s$)

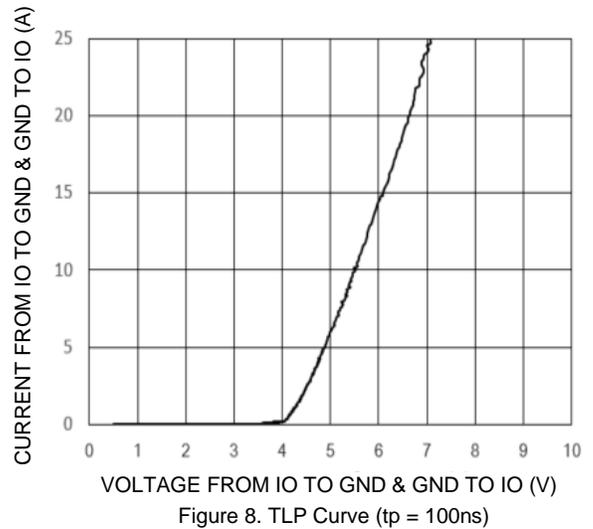
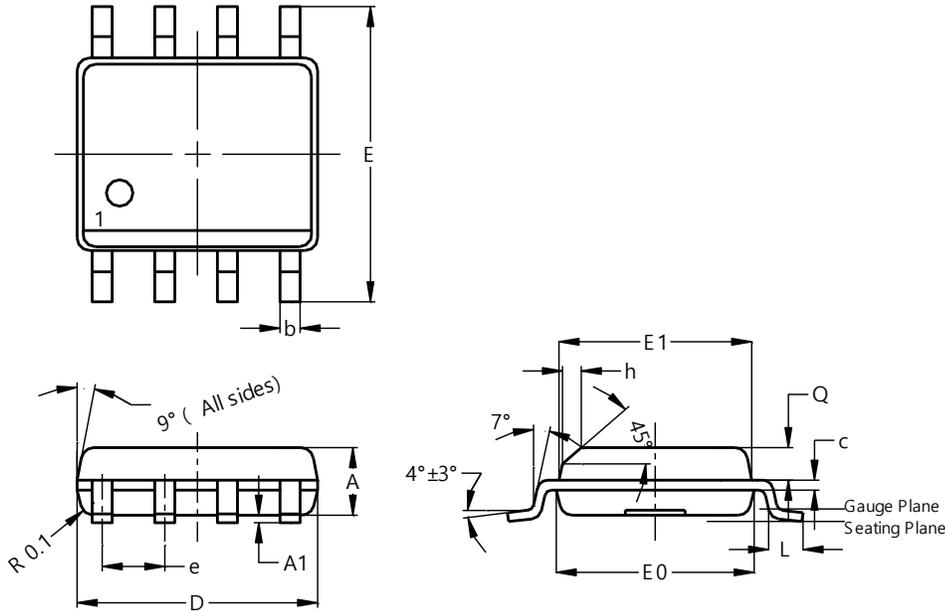


Figure 8. TLP Curve ($t_p = 100ns$)

Package Outline Dimensions

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

SO-8

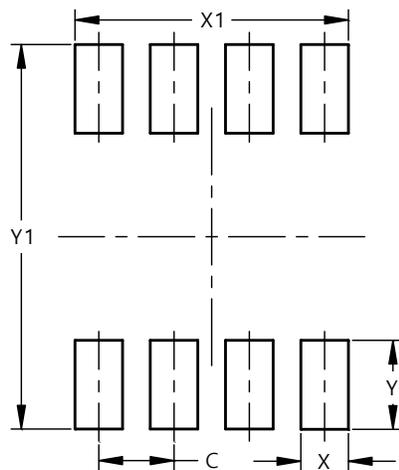


SO-8			
Dim	Min	Max	Typ
A	1.40	1.50	1.45
A1	0.10	0.20	0.15
b	0.30	0.50	0.40
c	0.15	0.25	0.20
D	4.85	4.95	4.90
E	5.90	6.10	6.00
E1	3.80	3.90	3.85
E0	3.85	3.95	3.90
e	--	--	1.27
h	-	--	0.35
L	0.62	0.82	0.72
Q	0.60	0.70	0.65
All Dimensions in mm			

Suggested Pad Layout

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

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Dimensions	Value (in mm)
C	1.27
X	0.802
X1	4.612
Y	1.505
Y1	6.50

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