

## Product Summary

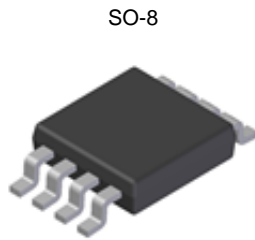
<b>VPT (Min)</b>	<b>I<sub>PP</sub> (Max)</b>	<b>C<sub>T</sub> (Typ)</b>
2.7V	80A	2.1pF

## Description

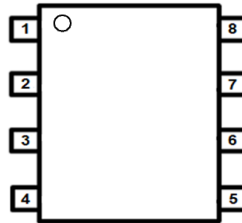
The DIODES™ D2V5F4U8MR of transient voltage suppressors are designed to protect low voltage. This has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (cable discharge events), and FET (fast electrical transients).

## Applications

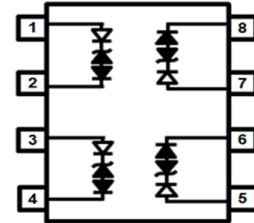
- 10/100 Ethernet
- WAN/LAN equipment
- Switching systems
- Desktops, servers, and notebooks
- Base stations



Top View



Top View  
Pin Configuration



Device Schematic

## Features

- Protects Two Line Pairs (Four Lines)
- Low Capacitance < 3pF for High-Speed Interfaces
- Low Operating and Clamping Voltages
- IEC 61000-4-2, Level 4 (ESD), <= ±15kV (Air); <= ±8kV (Contact)
- IEC 61000-4-5, Level 3 (Lightning), 48A (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 [contact us](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

## Mechanical Data

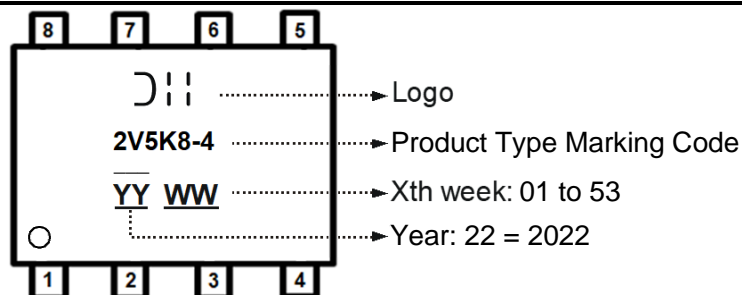
- Package: SO-8
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.08 grams (Approximate)

## Ordering Information (Note 4)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
D2V5F4U8MR-13	SO-8	2V5K8-4	13	12	2,500	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<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P <sub>PP</sub>	1000	W	8/20μs, per Figure 1
Peak Pulse Current	I <sub>PP</sub>	80	A	8/20μs, per Figure 1
ESD Protection – Contact Discharge	V <sub>ESD_Contact</sub>	±8	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V <sub>ESD_Air</sub>	±15	kV	IEC 61000-4-2 Standard

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P <sub>D</sub>	500	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	50.12	°C/W
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C
Soldering Temperature, t max = 10s	T <sub>L</sub>	+260	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V <sub>RWM</sub>	—	—	2.5	V	—
Channel Leakage Current (Note 6)	I <sub>RM</sub>	—	—	1	μA	V <sub>RWM</sub> = 2.5V
Punch Through Voltage	V <sub>PT</sub>	2.7	—	—	V	I <sub>PT</sub> = 2μA
Snap-Back Voltage	V <sub>SB</sub>	2.5	—	—		I <sub>SB</sub> = 50mA
Clamping Voltage, Positive Transients	V <sub>CL</sub>	—	—	5	V	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs, Figure 1
		—	—	17		I <sub>PP</sub> = 48A, t <sub>p</sub> = 8/20μs, Figure 1
		—	—	20		I <sub>PP</sub> = 80A, t <sub>p</sub> = 8/20μs, Figure 1
Channel Input Capacitance	C <sub>T</sub>	—	2.1	3	pF	V <sub>R</sub> = 0V, f = 1MHz, each line

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on our website at <http://www.diodes.com/package-outlines.html>.  
 6. Short duration pulse test used to minimize self-heating effect.

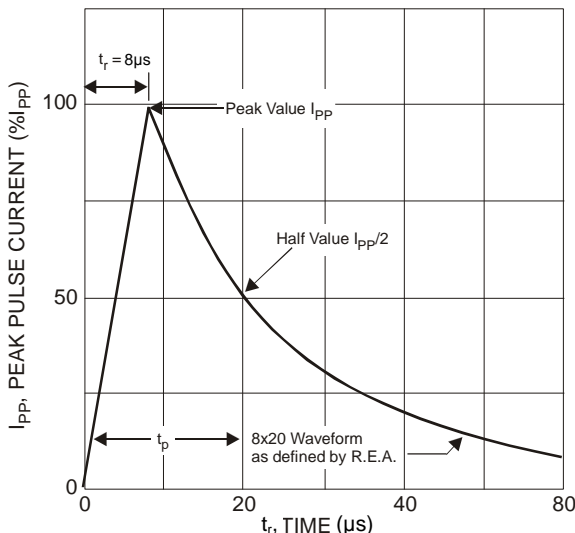


Figure 1. Pulse Waveform

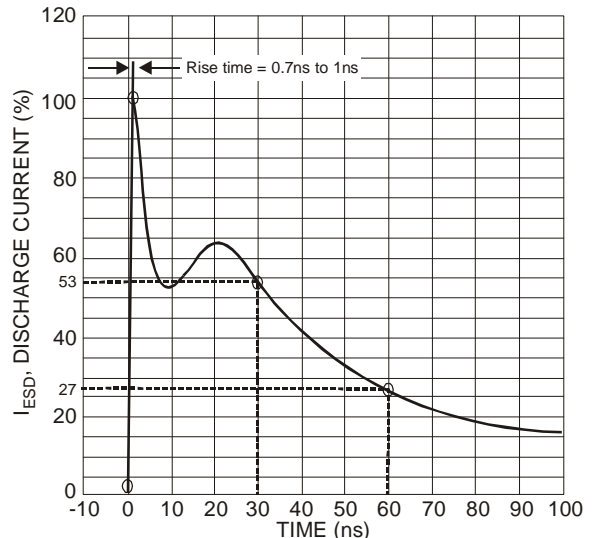


Figure 2. ESD Discharge Current Wave Form  
IEC 61000-4-2 (330Ω/150pF)

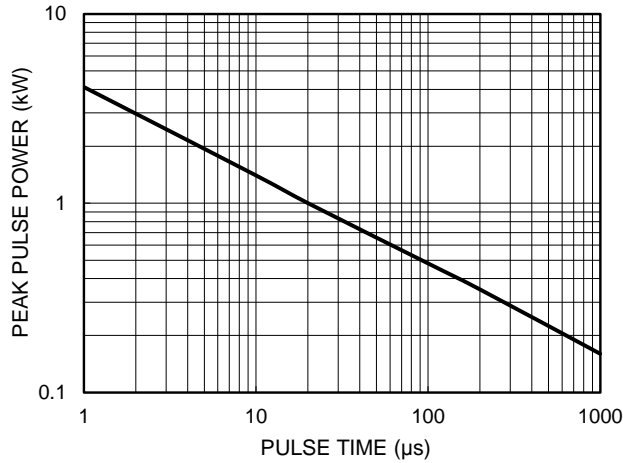


Figure 3. Power Dissipation vs. Pulse Time

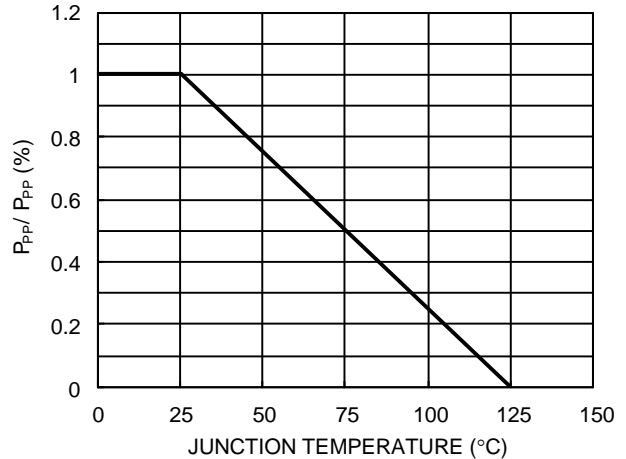


Figure 4. Peak Pulse Power vs. T<sub>j</sub>

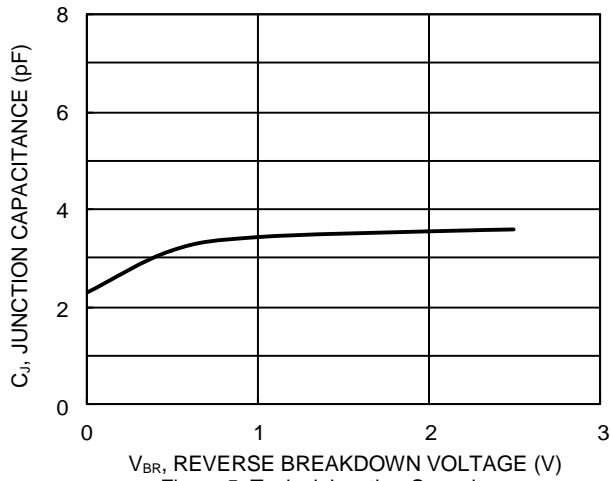


Figure 5. Typical Junction Capacitance

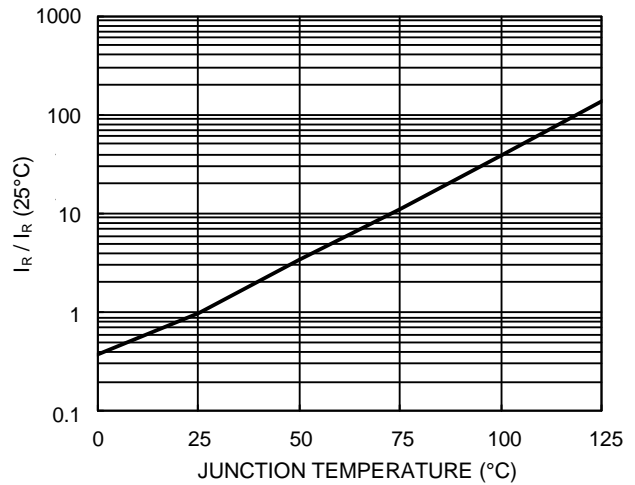


Figure 6. Reverse Leakage Current vs. T<sub>j</sub>

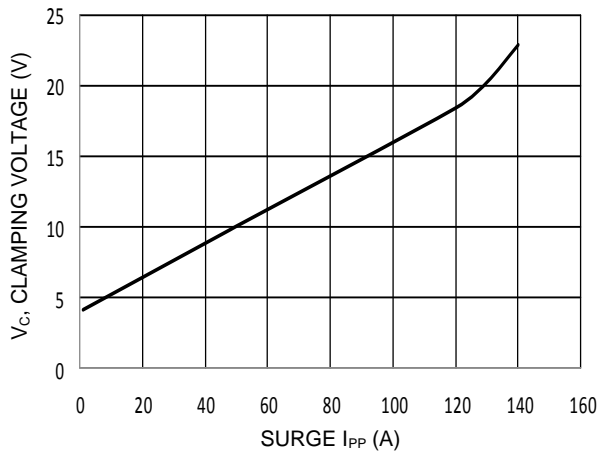


Figure 7. Clamping Voltage Characteristics (tp = 8/20μs)

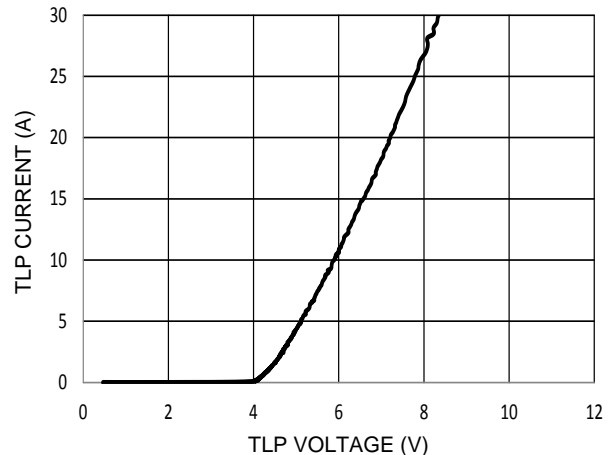
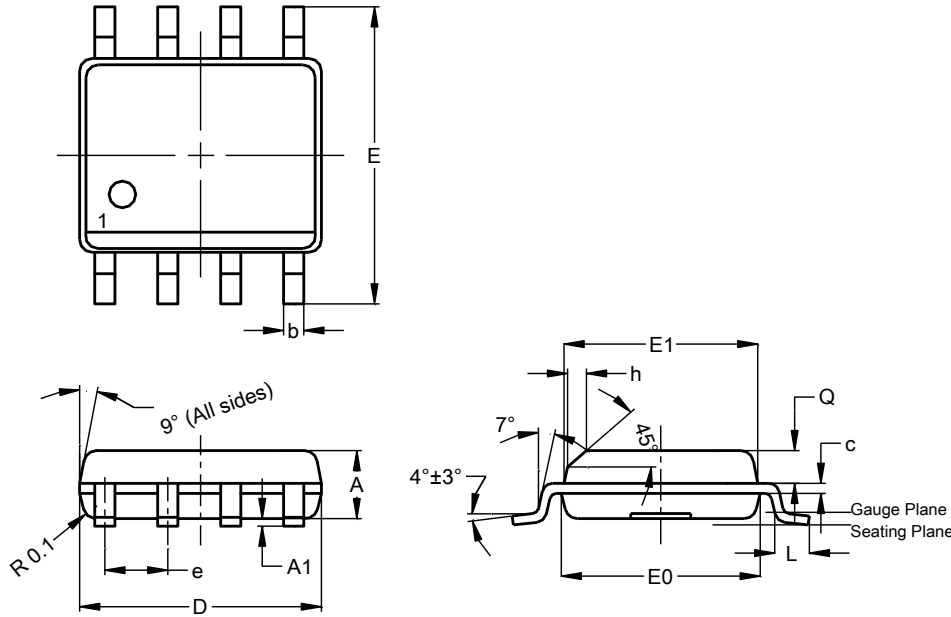


Figure 8. TLP Curve (tp = 100ns)

**Package Outline Dimensions**

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

SO-8

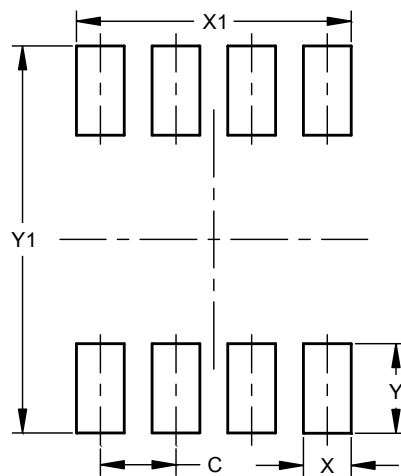


SO-8			
Dim	Min	Max	Typ
A	1.40	1.50	1.45
A1	0.10	0.20	0.15
b	0.30	0.50	0.40
c	0.15	0.25	0.20
D	4.85	4.95	4.90
E	5.90	6.10	6.00
E1	3.80	3.90	3.85
E0	3.85	3.95	3.90
e	--	--	1.27
h	-	--	0.35
L	0.62	0.82	0.72
Q	0.60	0.70	0.65
All Dimensions in mm			

**Suggested Pad Layout**

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

SO-8



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

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