

**4 CHANNEL LOW CAPACITANCE BI-DIRECTIONAL TVS ARRAY**
**Features**

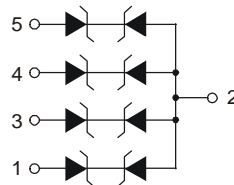
- Provides ESD Protection per IEC 61000-4-2 Standard: Air – ±30kV, Contact – ±30kV
- 4 Channels of Bi-directional ESD Protection
- Low Channel Input Capacitance
- Typically Used at Portable Electronics, Cellular Handsets and Communication Systems
- **Lead Free/RoHS Compliant (Note 1)**
- **“Green” Device (Note 2)**

**Mechanical Data**

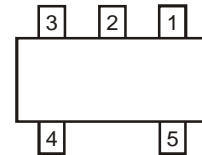
- Case: SOT25
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Copper leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Weight: 0.016 grams (approximate)

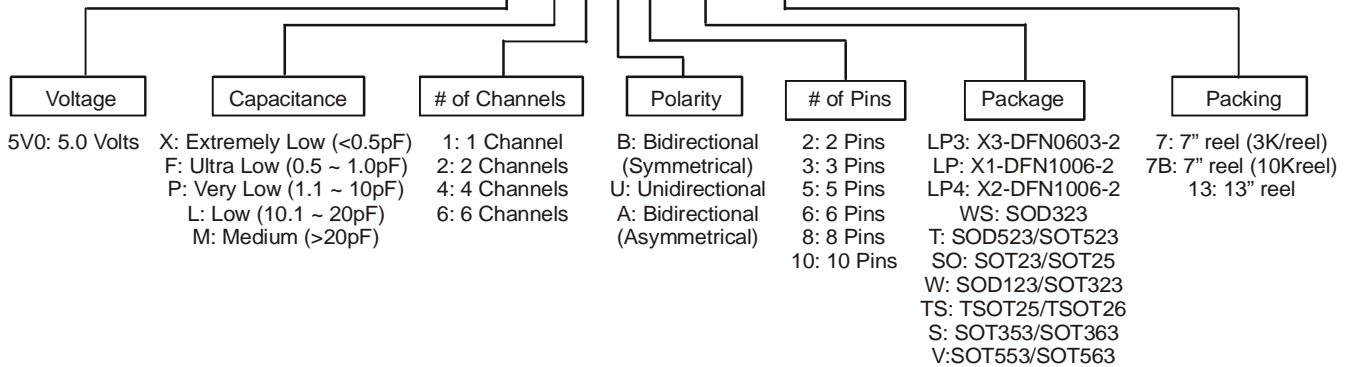


Top View



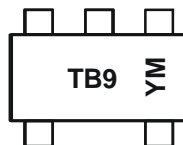
Device Schematic


 Top View  
Pin Configuration

**Ordering Information (Note 3)**
**D 5V0 L X B X XXX- XX**


Part Number	Case	Packaging
D5V0L4B5SO-7	SOT25	3000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. No purposely added lead. Halogen and Antimony free.
  2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
  3. For packaging details, go to our website at <http://www.diodes.com>.

**Marking Information**


TB9 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: Z = 2012)  
 M = Month (ex: 9 = September)

## Date Code Key

Year	2011	2012	2013	2014	2015	2016	2017
Code	Y	Z	A	B	C	D	E

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	Conditions
Peak Pulse Power Dissipation	$P_{PP}$	84	W	8/20 $\mu\text{s}$ , Per Fig. 2
Peak Pulse Current	$I_{PP}$	6	A	8/20 $\mu\text{s}$ , Per Fig. 2
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	$\pm 30$	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	$V_{ESD\_Air}$	$\pm 30$	kV	Standard IEC 61000-4-2

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	$P_D$	300	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Operating Junction Temperature Range	$T_J$	-65 to +150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-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 Working Voltage	$V_{RWM}$	-	-	5.0	V	-
Breakdown Voltage	$V_{BR}$	6	7	8	V	$I_R = 1.0\text{mA}$
Reverse Leakage Current (Note 6)	$I_R$	-	10	100	nA	$V_{RWM} = 5\text{V}$
Clamping Voltage (Note 4)	$V_{CL}$	-	7.0	9.0	V	$I_{PP} = 1\text{A}$ , $t_p = 8/20\mu\text{s}$
		-	8.7	10.7	V	$I_{PP} = 3\text{A}$ , $t_p = 8/20\mu\text{s}$
		-	10.5	12.0	V	$I_{PP} = 5\text{A}$ , $t_p = 8/20\mu\text{s}$
		-	11.5	14.0	V	$I_{PP} = 6\text{A}$ , $t_p = 8/20\mu\text{s}$
Differential Resistance	$R_{DIF}$	-	0.2	-	$\Omega$	$I_R = 1.0\text{A}$ , $t_p = 8/20\mu\text{s}$
Channel Input Capacitance	$C_T$	-	15	20	pF	$V_{IN} = 0\text{V}$ , $f = 1\text{MHz}$ (Channel to Pin 2)

- Notes:
4. Measured from channel to pin 2; Non-repetitive current pulse per Fig. 2.
  5. 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>.
  6. Short duration pulse test used to minimize self-heating effect

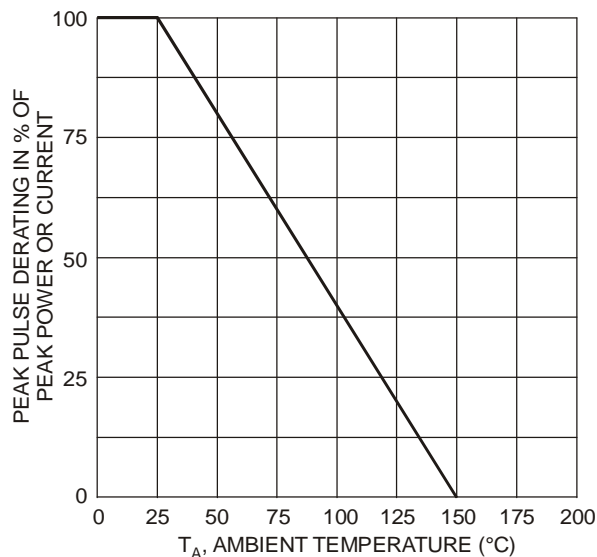


Fig. 1 Pulse Derating Curve

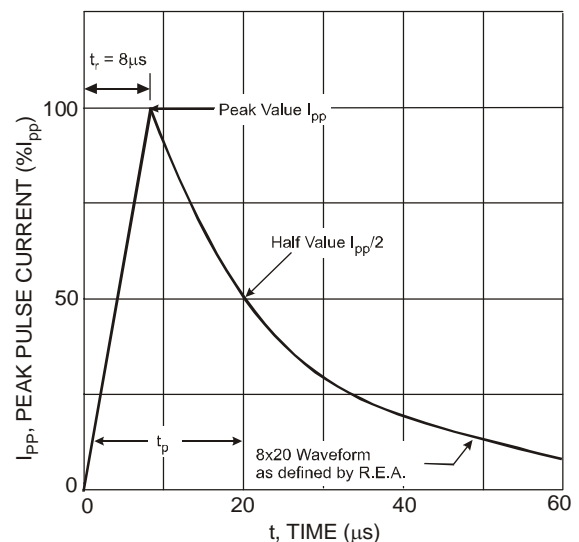


Fig. 2 Pulse Waveform

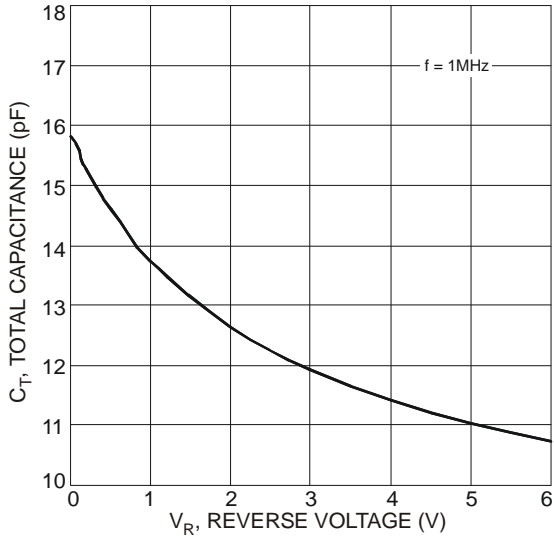


Fig. 3 Typical Total Capacitance vs. Reverse Voltage

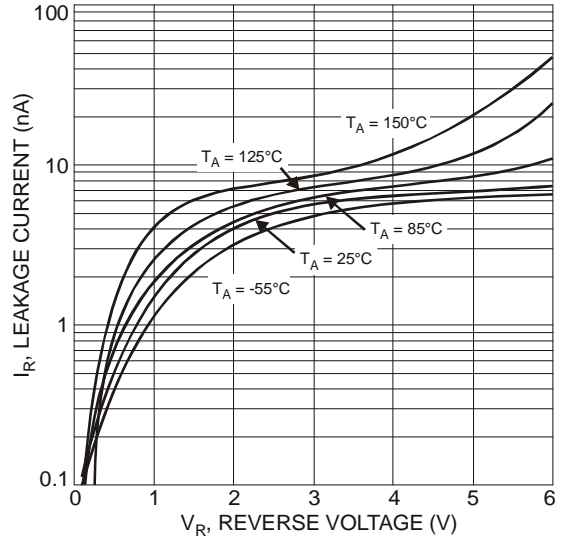
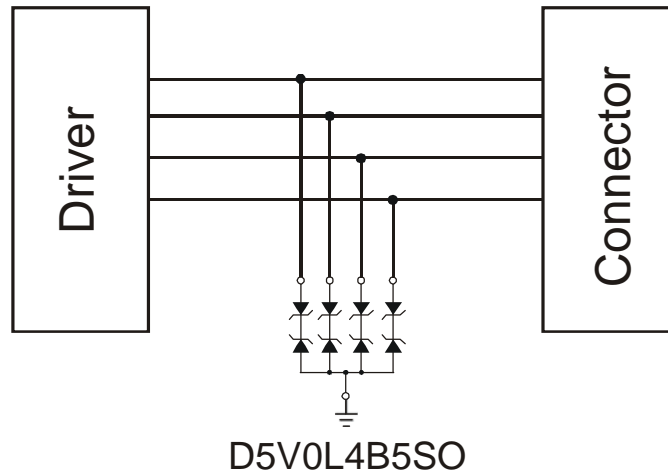
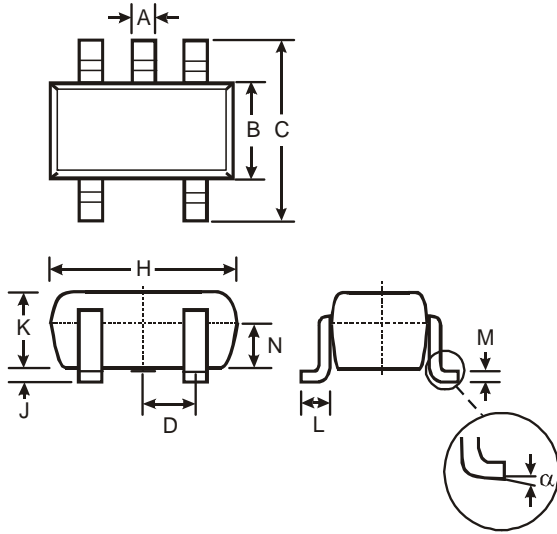


Fig. 4 Typical Reverse Characteristics

**Typical Applications**

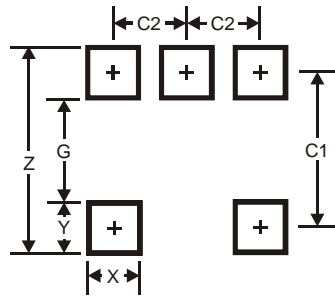


**Package Outline Dimensions**



SOT25			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	—	—	0.95
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
N	0.70	0.80	0.75
α	0°	8°	—
All Dimensions in mm			

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	3.20
G	1.60
X	0.55
Y	0.80
C1	2.40
C2	0.95

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