

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

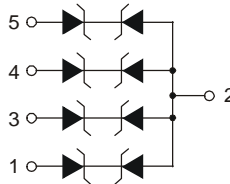
- Provides ESD Protection per IEC 61000-4-2 Standard:  
Air – ±30kV, Contact – ±30kV
- 4 Channels of Bi-directional ESD Protection
- Low Channel Input Capacitance
- Typically Used at Portable Electronics, Cellular Handsets and Communication Systems
- **Lead Free/RoHS Compliant (Note 1)**
- **“Green”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

**Mechanical Data**

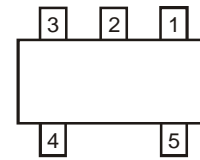
- Case: SOT553
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Copper leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Weight: 0.002 grams (approximate)

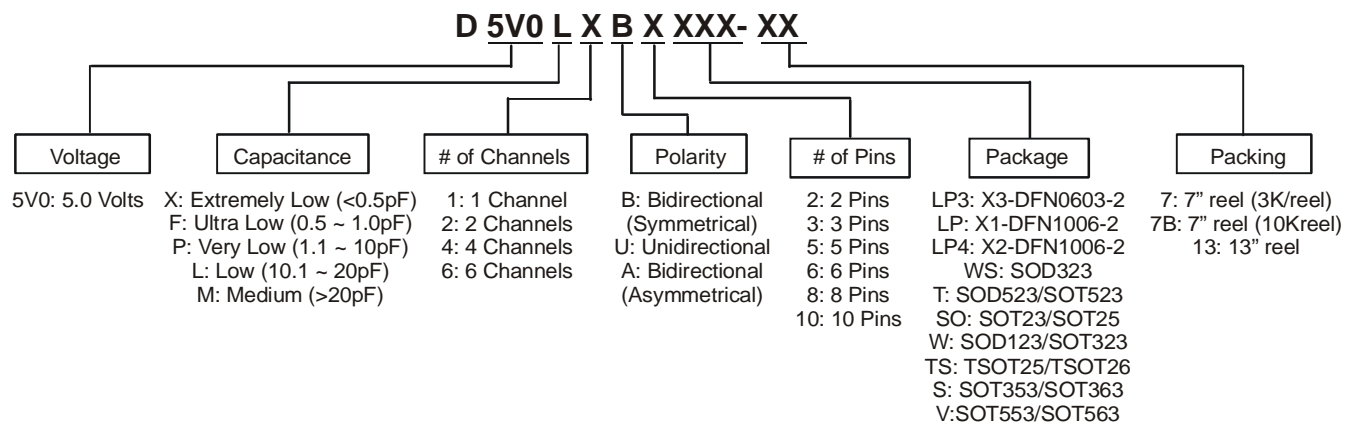


Top View



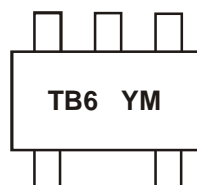
Device Schematic


 Top View  
Pin Configuration

**Ordering Information (Note 3)**


Part Number	Case	Packaging
D5V0L4B5V-7	SOT553	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**


TB6 = 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<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P <sub>PP</sub>	84	W	8/20μs, Per Fig. 2
Peak Pulse Current	I <sub>PP</sub>	6	A	8/20μs, Per Fig. 2
ESD Protection – Contact Discharge	V <sub>ESD_Contact</sub>	±30	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V <sub>ESD_Air</sub>	±30	kV	Standard IEC 61000-4-2

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P <sub>D</sub>	380	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	327	°C/W
Operating Junction Temperature Range	T <sub>J</sub>	-65 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +150	°C

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Working Voltage	V <sub>RWM</sub>	-	-	5.0	V	-
Breakdown Voltage	V <sub>BR</sub>	6	7	8	V	I <sub>R</sub> = 1.0mA
Reverse Leakage Current (Note 6)	I <sub>R</sub>	-	10	100	nA	V <sub>RWM</sub> = 5V
Clamping Voltage (Note 4)	V <sub>CL</sub>	-	7.0	9.0	V	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs
		-	8.7	10.7	V	I <sub>PP</sub> = 3A, t <sub>p</sub> = 8/20μs
		-	10.5	12.0	V	I <sub>PP</sub> = 5A, t <sub>p</sub> = 8/20μs
		-	11.5	14.0	V	I <sub>PP</sub> = 6A, t <sub>p</sub> = 8/20μs
Differential Resistance	R <sub>DIF</sub>	-	0.2	-	Ω	I <sub>R</sub> = 1.0A, t <sub>p</sub> = 8/20μs
Channel Input Capacitance	C <sub>T</sub>	-	15	20	pF	V <sub>IN</sub> = 0V, f = 1MHz (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.

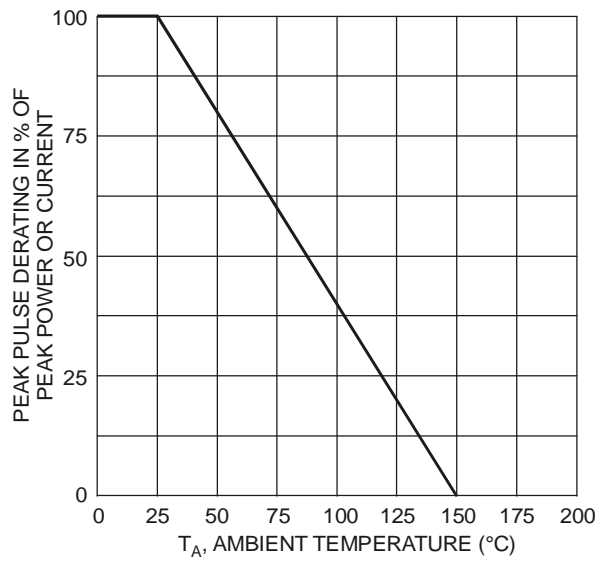


Fig. 1 Pulse Derating Curve

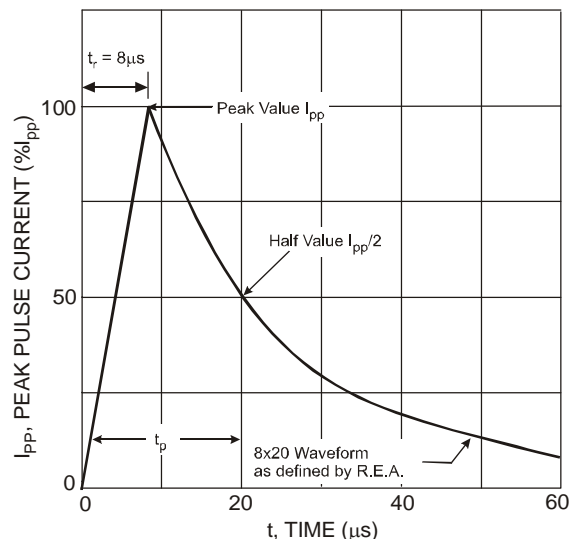


Fig. 2 Pulse Waveform

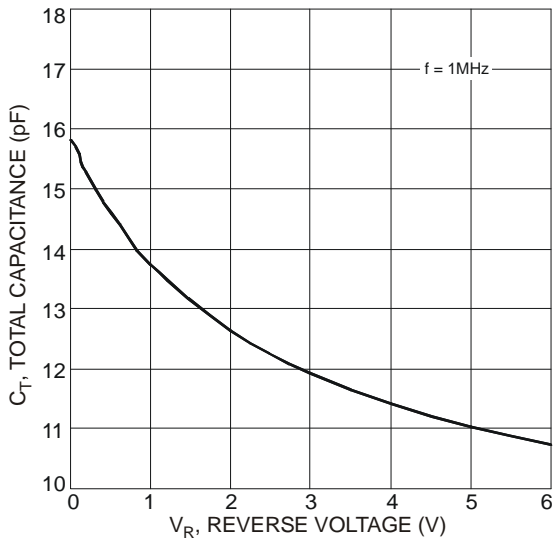


Fig. 3 Typical Total Capacitance vs. Reverse Voltage

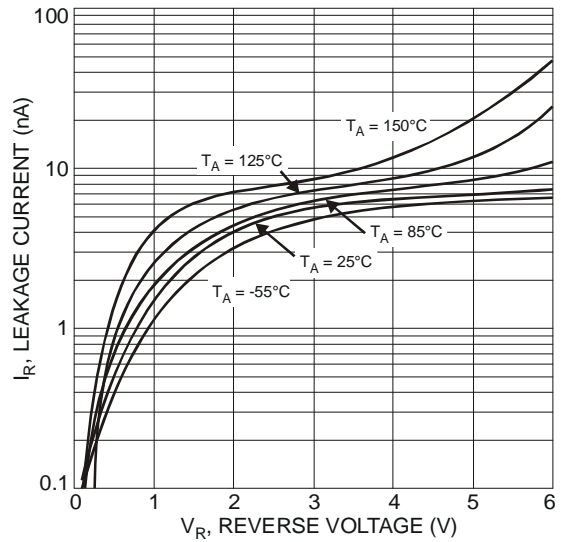
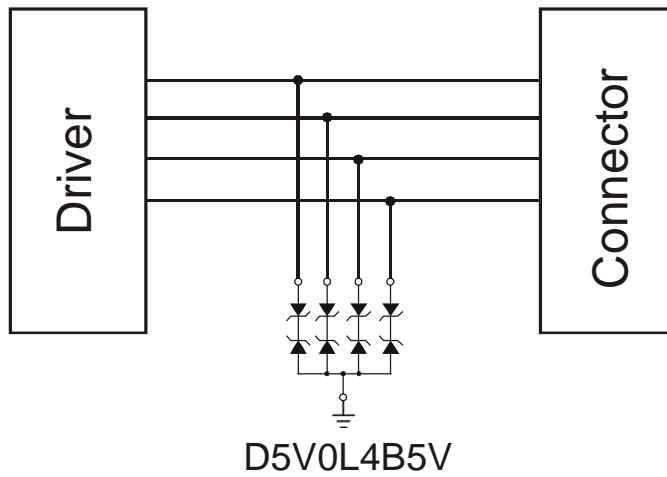
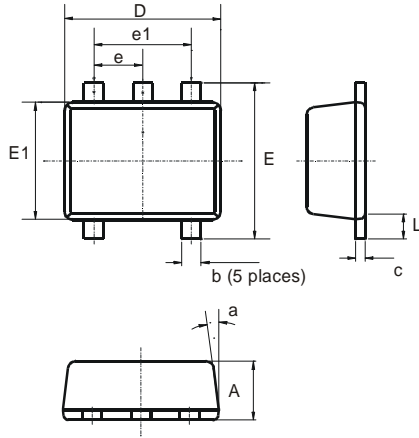


Fig. 4 Typical Reverse Characteristics

## Typical Applications

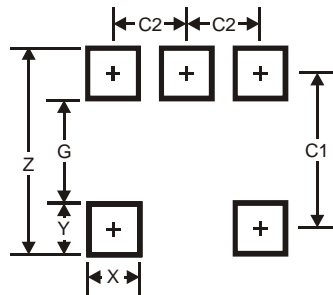


**Package Outline Dimensions**



SOT553			
Dim	Min	Max	Typ
A	0.55	0.60	0.60
c	0.10	0.18	0.15
D	1.50	1.70	1.60
E	1.55	1.70	1.60
E1	1.10	1.25	1.20
L	0.10	0.30	0.20
b	0.15	0.30	0.20
e	0.50 Typ		
e1	1.00 Typ		
a	6°	8°	7°
All Dimensions in mm			

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5

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