SP1026 Series 15pF 30kV Bidirectional Discrete TVS

RoHS Pb GREEN

Pinout

Functional Block Diagram

Description

Zener diodes fabricated in a proprietary silicon avalanche technology protect each I/O pin to provide a high level of protection for electronic equipment that may experience destructive electrostatic discharges (ESD). These robust diodes can safely absorb repetitive ESD strikes at ±30kV (contact discharge, IEC 61000-4-2) without performance degradation. Additionally, each diode can safely dissipate 5A of 8/20µs surge current (IEC61000-4-5) with very low clamping voltages.

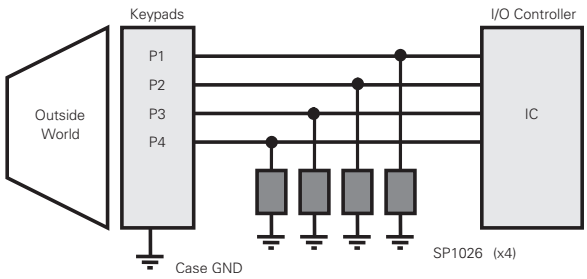
Features

- ESD, IEC61000-4-2, ±30kV contact, ±30kV air
- EFT, IEC61000-4-4, 40A (5/50ns)
- Lightning, IEC61000-4-5 2nd edition, 5A (8/20µs)
- Low leakage current of 0.5µA (MAX) at 5V
- Space efficient 0201 footprint)
- Halogen free, Lead free and RoHS compliant

Applications

- Mobile phones
- Smart phones
- Smart watches
- Tablets
- Portable navigation devices
- Portable medical devices

Application Example



Revision: 03/09/16

Absolute Maximum Ratings

Symbol	Parameter	Value	Units
I_{PP}	Peak Pulse Current (t_p=8/20µs)	5	A
T_{OP}	Operating Temperature	-40 to 125	°C
T_{STOR}	Storage Temperature	-55 to 150	°C

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

Thermal Information

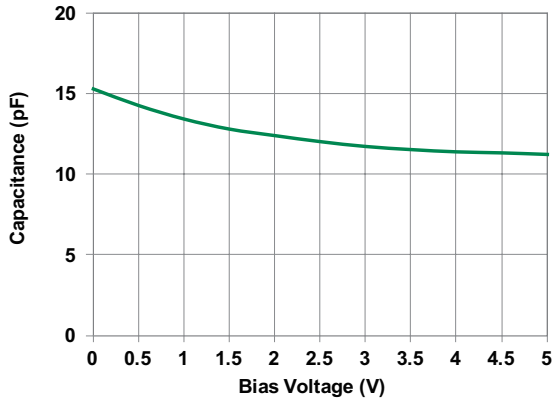
Parameter	Rating	Units
Storage Temperature Range	-55 to 150	°C
Maximum Junction Temperature	150	°C
Maximum Lead Temperature (Soldering 30s)	260	°C

Electrical Characteristics (T_{OP}=25°C)

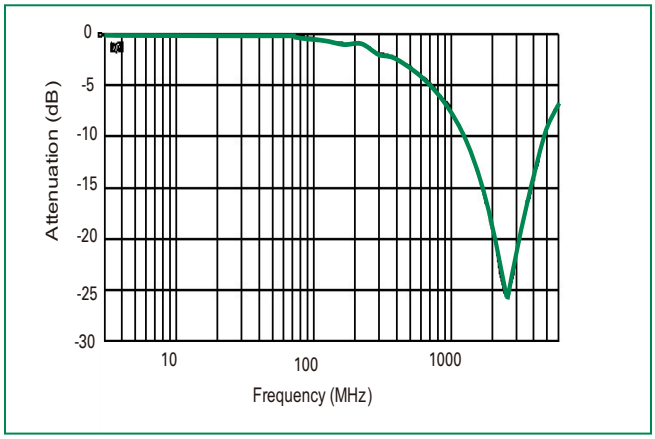
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Reverse Standoff Voltage	V_{RWM}				6.0	V
Breakdown Voltage	V_{BR}	I_R=1mA (Pin 1 to 2)		7.8		V
Leakage Current	I_{LEAK}	V_R=5V		0.1	0.5	µA
Clamp Voltage[1]	V_C	I_{pp}=1A, t_p=8/20µs (Pin 1 to 2)		12.0		V
		I_{pp}=2A, t_p=8/20µs (Pin 1 to 2)		13.4		V
Dynamic Resistance	R_{DYN}	$(V_{C2} - V_{C1}) / (I_{PP2} - I_{PP1})$		1.4		Ω
ESD Withstand Voltage[1]	V_{ESD}	IEC61000-4-2 (Contact Discharge)	±30			kV
		IEC61000-4-2 (Air Discharge)	±30			kV
Diode Capacitance[1]	C_D	Reverse Bias=0V		15		pF
		Reverse Bias=2.5V		12		pF

Note: [1] Parameter is guaranteed by design and/or device characterization.

Capacitance vs. Reverse Bias

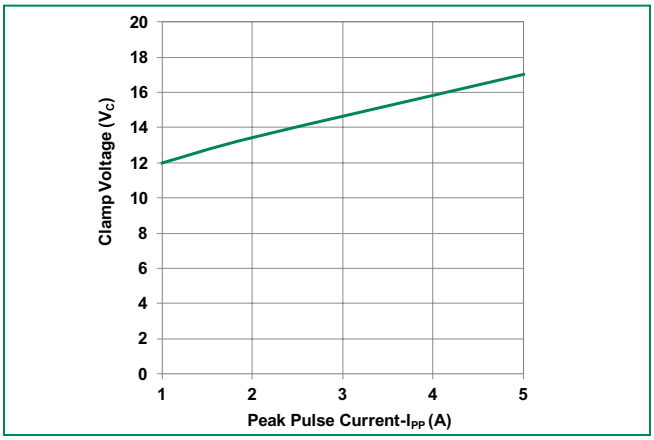


Insertion Loss (S21) I/O to GND

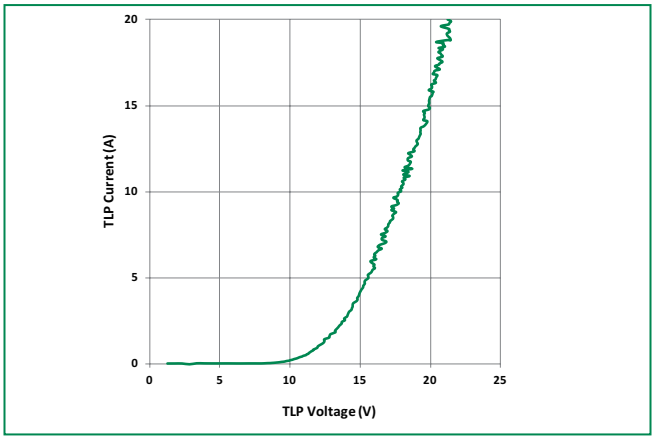


Revision: 03/09/16

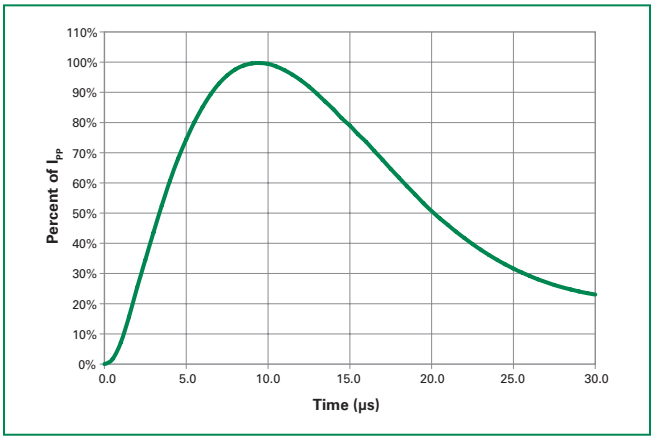
Clamping Voltage vs. I_{PP}



Transmission Line Pulsing(TLP) Plot

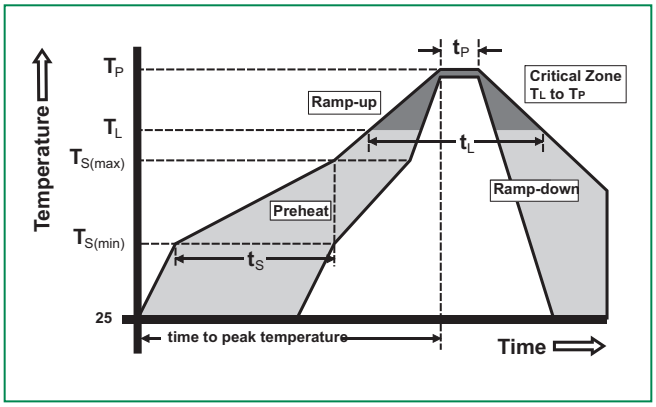


8/20µS Pulse Waveform



Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus) Temp (T_L) to peak		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		$260^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.



TVS Diode Arrays (SPA® Diodes)

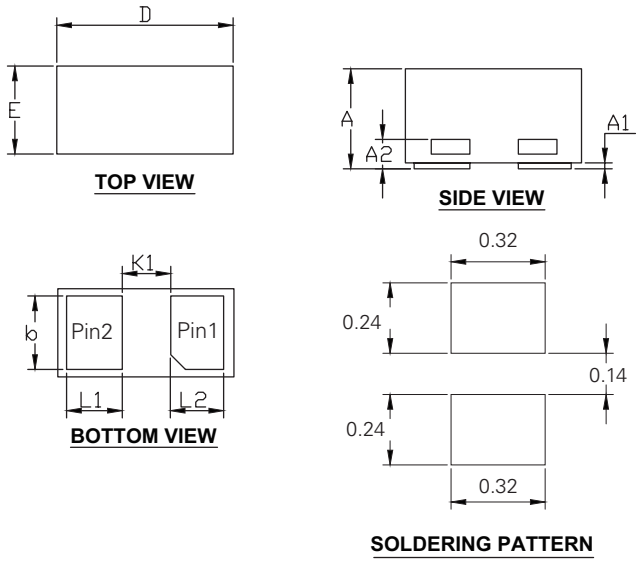
General Purpose ESD Protection - SP1026 Series

Product Characteristics

Lead Plating	Matte Tin or Pre-Plated Frame
Lead Material	Copper Alloy
Lead Coplanarity	0.004 inches(0.102mm)
Substrate material	Silicon
Body Material	Molded Epoxy
Flammability	UL 94 V-0

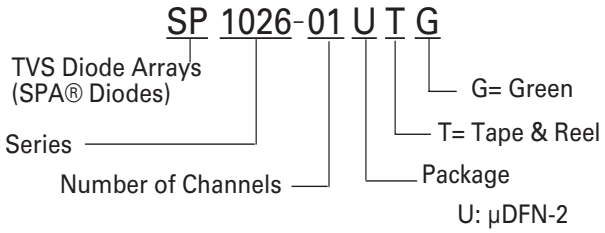
Notes :
1. All dimensions are in millimeters
2. Dimensions include solder plating.
3. Dimensions are exclusive of mold flash & metal burr.
4. Blo is facing up for mold and facing down for trim/form, i.e. reverse trim/form.
5. Package surface matte finish VDI 11-13.

Package Dimensions — µDFN-2 (0201)



Package	µDFN-2 (0201)			
JEDEC	MO-236			
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.23	0.33	0.009	0.013
A1	0.00	0.05	0.000	0.002
A2	0.10 REF		0.004 REF	
b	0.18	0.30	0.007	0.012
D	0.55	0.65	0.022	0.026
E	0.25	0.35	0.010	0.014
L1	0.12	0.24	0.005	0.009
L2	0.12	0.23	0.005	0.009
K1	0.165 REF		0.006 REF	

Part Numbering System



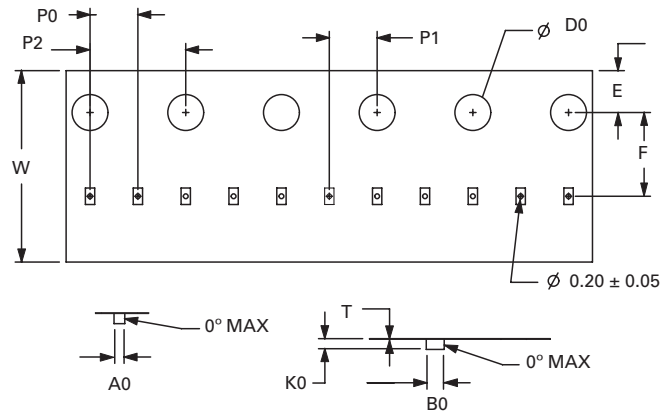
Ordering Information

Part Number	Package	Marking	Min. Order Qty.
SP1026-01UTG	µDFN-2	▮ ▮	15000

Part Marking System

Revision: 03/09/16

Embossed Carrier Tape & Reel Specification — µDFN-2



Symbol	Millimetres		Inches	
	Min	Max	Min	Max
A0	0.33	0.40	0.013	0.016
B0	0.63	0.70	0.025	0.028
D0	1.40	1.60	0.055	0.063
E	1.65	1.85	0.065	0.073
F	3.45	3.55	0.136	0.140
K0	0.30	0.39	0.012	0.015
P0	1.90	2.10	0.075	0.083
P1	1.95	2.05	0.077	0.081
P2	3.90	4.10	0.154	0.161
T	0.13	0.25	0.005	0.010
W	7.90	8.30	0.311	0.327

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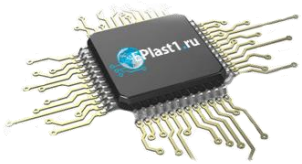
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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