

## SMP1005-01WTG TVS Arrays

### Description

The SMP1005 includes back-to-back Zener diodes fabricated in a proprietary silicon avalanche technology to provide protection for electronic equipment that may experience destructive electrostatic discharges (ESD). These robust diodes can safely absorb repetitive ESD strikes above the maximum level specified in the IEC61000-4-2 international standard (Level 4,  $\pm 8\text{kV}$  contact discharge) without performance degradation. The back-to-back configuration provides symmetrical ESD protection for data lines when AC signals are present.

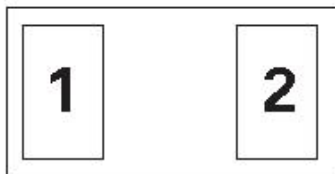
### Features

- ESD protection in accordance with:  
IEC 61000-4-2 (ESD)  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact)  
IEC 61000-4-5 (lightning) 10A (8/20 $\mu\text{s}$ )  
IEC 61000-4-4 (EFT) 40A (5/50ns)
- Low capacitance of 30 pF @ VR=0V
- Low leakage current of 0.1 $\mu\text{A}$  at 5V
- Industries smallest ESD footprint available(0201)

### Applications

- Mobile Phones
- Smart Phones
- Camcorders
- PDA
- Digital cameras
- MP3/PMP
- Portable navigation devices
- Portable Medical
- Point of sale terminals

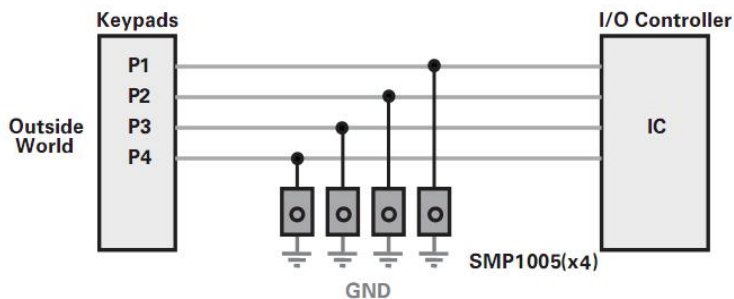
### Pinout



### Functional Block Diagram



### Application Example



## Ordering Information

Device	Package	Marking	Min. Order Qty.
SMP1005-01WTG	0201 Flipship	●	10000

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

## Absolute Maximum Ratings @T<sub>A</sub>=25°C unless otherwise specified

Parameter	Symbol	Value	Units
Peak Pulse Current (tp=8/20μs)	I <sub>PP</sub>	10.0	A
Operating Temperature	T <sub>OP</sub>	-40 to + 125	°C
Storage Temperature	T <sub>STOR</sub>	-60 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

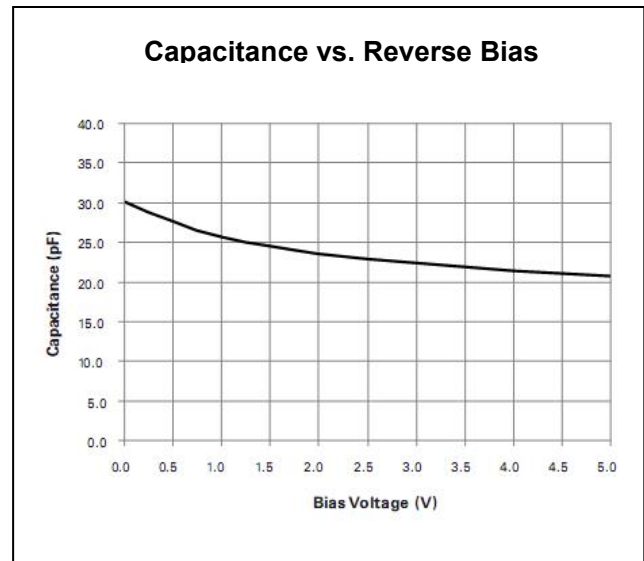
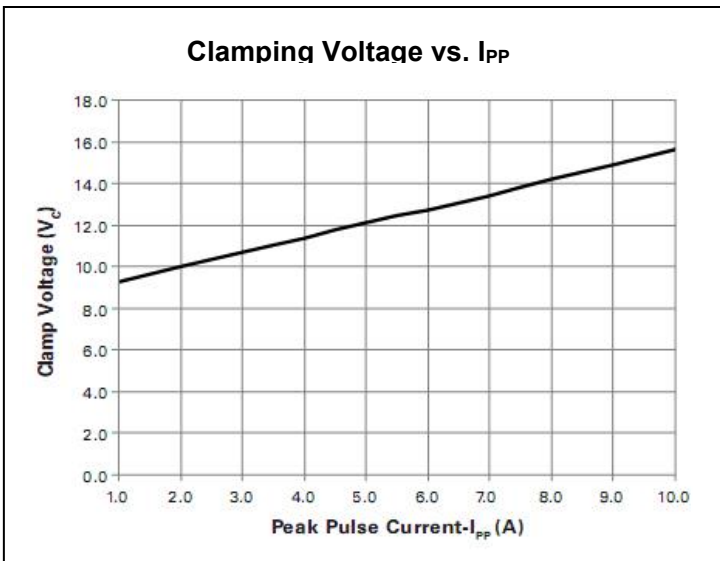
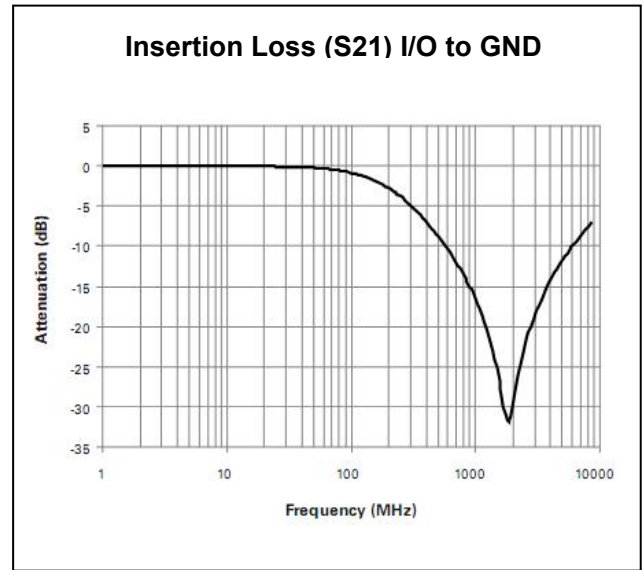
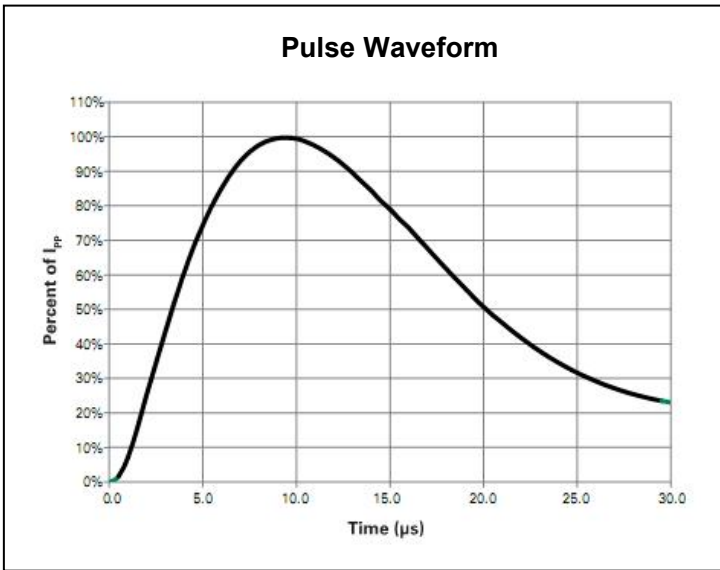
Parameter	Value	Units
Storage Temperature Range	-55 to + 150	°C
Maximum Junction Temperature	150	°C
Maximum Lead Temperature (Soldering 20-40s)	260	°C

## Electrical Characteristics (T<sub>OP</sub>=25°C)

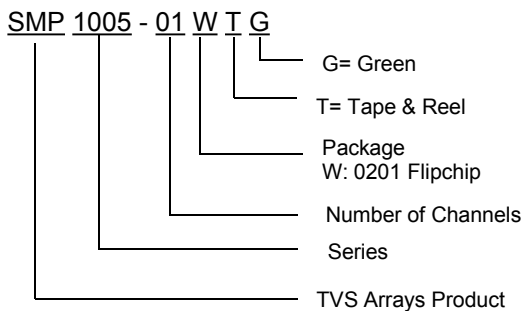
Characteristics	Symbol	Condition	Min.	Typ.	Max.	Units
Reverse Stand-Off Voltage	V <sub>RWM</sub>	-	-	-	6.0	V
Breakdown Voltage	V <sub>BR</sub>	I <sub>R</sub> = 1mA	-	8.5	9.5	V
Reverse Leakage Current	I <sub>LEAK</sub>	V <sub>R</sub> = 5V with 1pin at GND	-	0.1	0.5	μA
Clamping Voltage <sup>1</sup>	V <sub>C</sub>	I <sub>PP</sub> = 1A, tp=8/20μs, Fwd	-	9.3	-	V
		I <sub>PP</sub> = 2A, tp=8/20μs, Fwd	-	10.0	-	V
		I <sub>PP</sub> = 10A, tp=8/20μs, Fwd	-	15.6	-	V
ESD With stand Voltage <sup>1</sup>	V <sub>ESD</sub>	IEC61000-4-2 (Contact Discharge)	±30	-	-	kV
		IEC61000-4-2 (Air Discharge)	±30	-	-	kV
Dynamic Resistance	R <sub>DYN</sub>	(V <sub>C2</sub> -V <sub>C1</sub> )/(I <sub>PP2</sub> -I <sub>PP1</sub> )	-	0.28	-	Ω
Junction Capacitance <sup>1</sup>	C <sub>D</sub>	Reverse Bias=0V	-	30	-	pF
		Reverse Bias=2.5V	-	23	-	pF

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

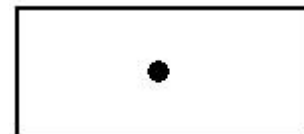
**Ratings and Characteristics Curves**



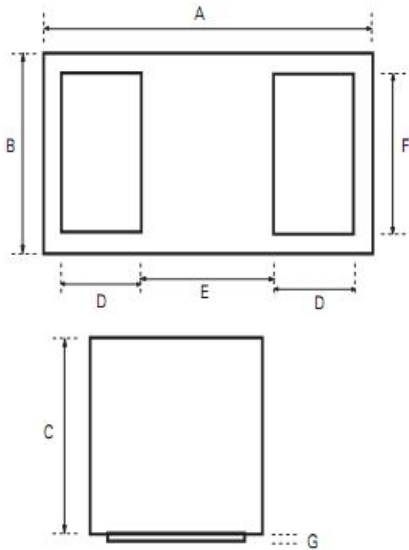
**Part Name Information**



**Marking Diagram**

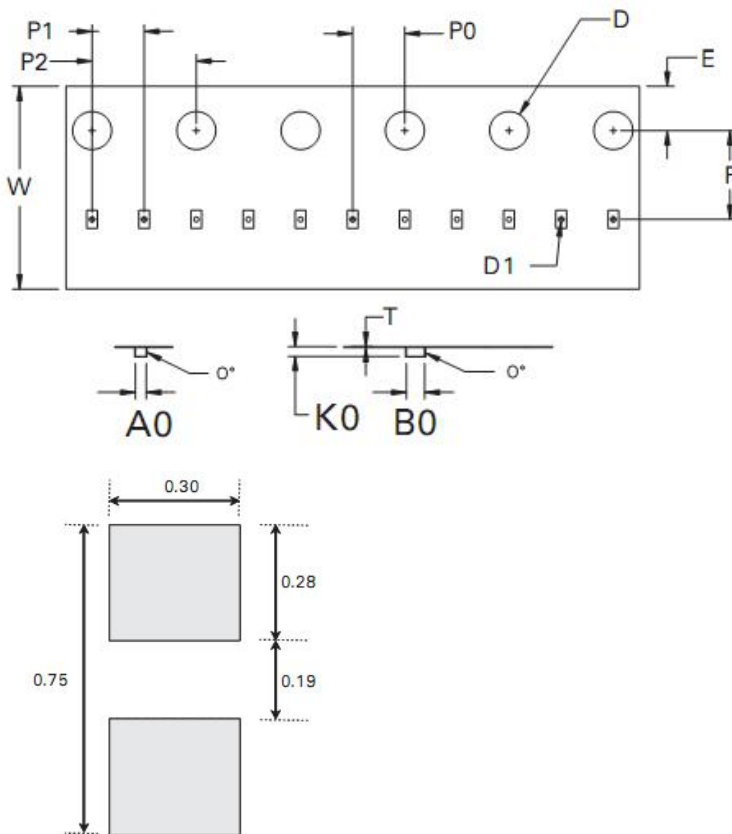


**Mechanical Dimensions 0201 Flipchip**



Symbol	0201 Flipchip					
	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
<b>A</b>	0.595	0.620	0.645	0.0234	0.0244	0.0254
<b>B</b>	0.295	0.320	0.345	0.0116	0.0126	0.0136
<b>C</b>	0.245	0.275	0.305	0.0096	0.0108	0.0120
<b>D</b>	0.145	0.150	0.155	0.0057	0.0059	0.0061
<b>E</b>	0.245	0.250	0.255	0.0096	0.0098	0.0100
<b>F</b>	0.245	0.250	0.255	0.0096	0.0098	0.0100
<b>G</b>	0.005	0.010	0.015	0.0002	0.0004	0.0006

**Embossed Carrier Tape Specification 0201 Flipchip**



Symbol	Millimeters
<b>A0</b>	0.41+/-0.03
<b>B0</b>	0.70+/-0.03
<b>D</b>	$\Phi$ 1.50 + 0.10
<b>D1</b>	$\Phi$ 0.20 +/- 0.05
<b>E</b>	1.75+/-0.10
<b>F</b>	3.50+/-0.05
<b>K0</b>	0.38+/-0.03
<b>P0</b>	2.00+/-0.05
<b>P1</b>	2.00+/-0.05
<b>P2</b>	4.00+/-0.10
<b>W</b>	8.00+0.30/-0.10
<b>T</b>	0.23+/-0.02

Recommended Solder Pad Footprint



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