

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.

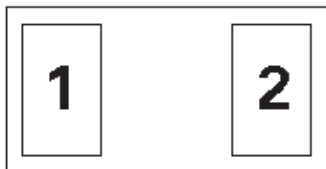
Features

- 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 μs)
IEC 61000-4-4 (EFT) 40A (5/50ns)
- Low capacitance of 30 pF @ VR=0V
- Low leakage current of 0.1 μA 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

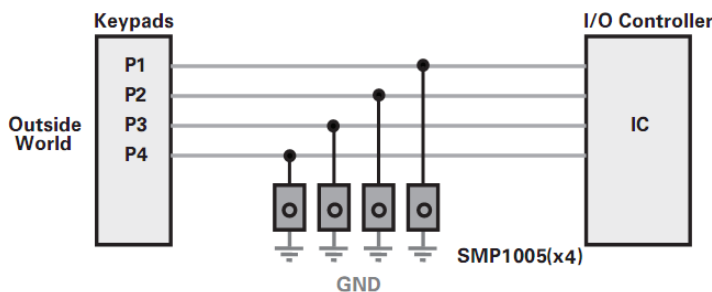
Pinout



Functional Block Diagram



Application Example



Technical Data
Data Sheet N1769 Rev.-

Green Products

Ordering Information:

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

Absolute Maximum Ratings:

Parameter	Symbol	Value	Unit
Peak Pulse Current (tp=8/20μs)	I _{PP}	10.0	A
Operating Temperature	T _{OP}	-40 to + 125	°C
Storage Temperature	T _{STOR}	-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:

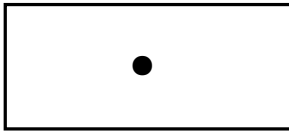
Parameter	Value	Unit
Storage Temperature Range	-55 to + 150	°C
Maximum Junction Temperature	150	°C
Maximum Lead Temperature (Soldering 20-40s)	260	°C

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

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

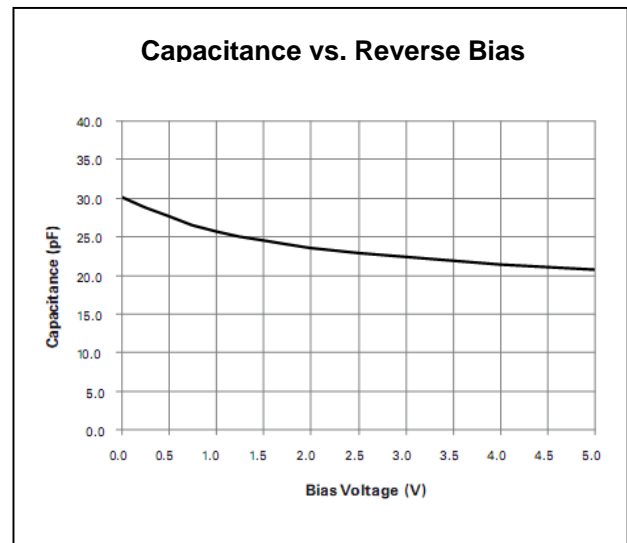
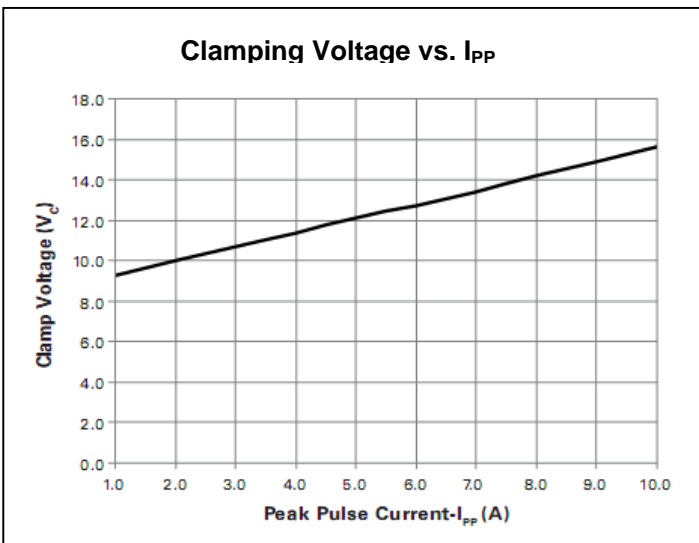
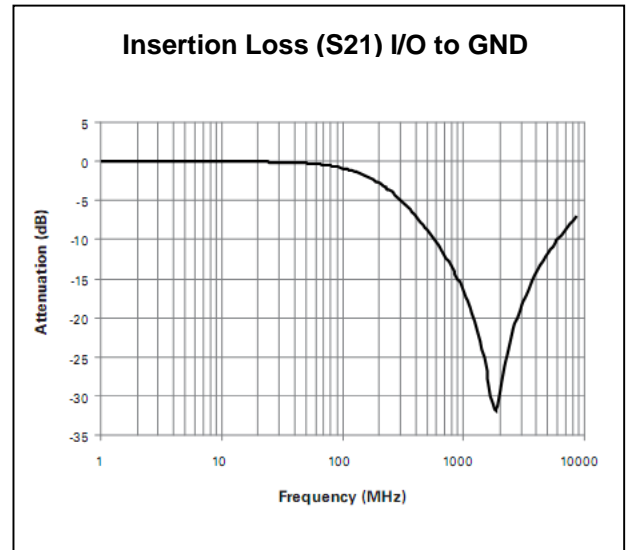
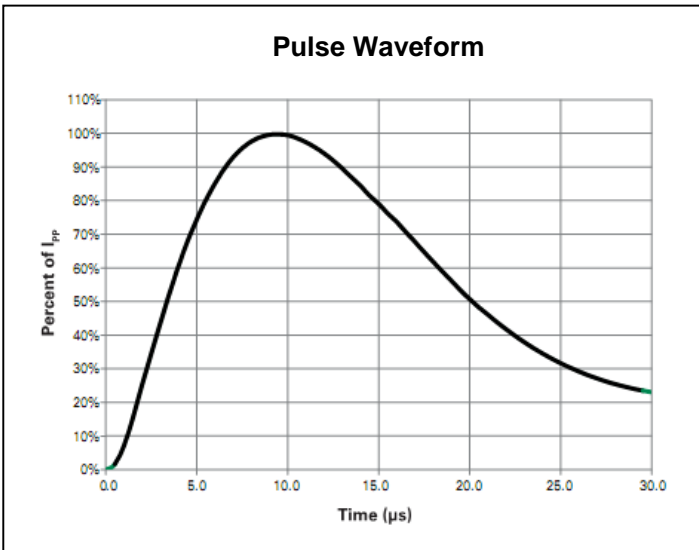
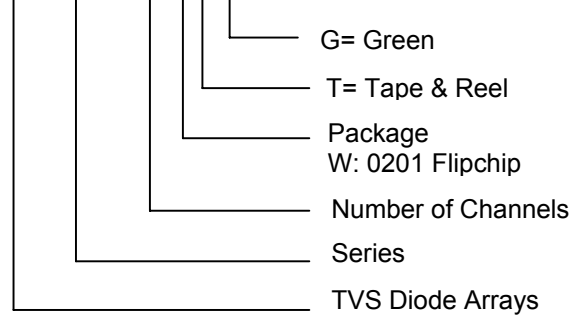
Note: 1. Parameter is guaranteed by design and/or device characterization.

Marking Diagram

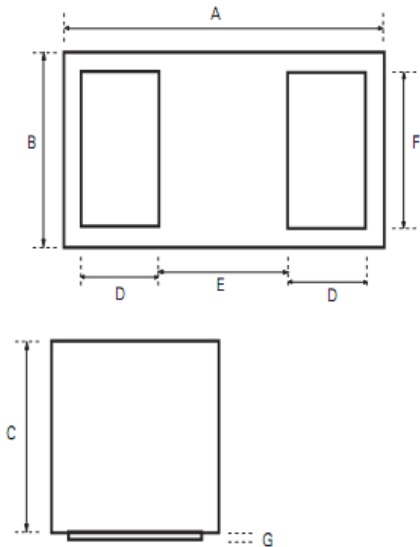


Part Name Information

SMP 1005 - 01 W T G

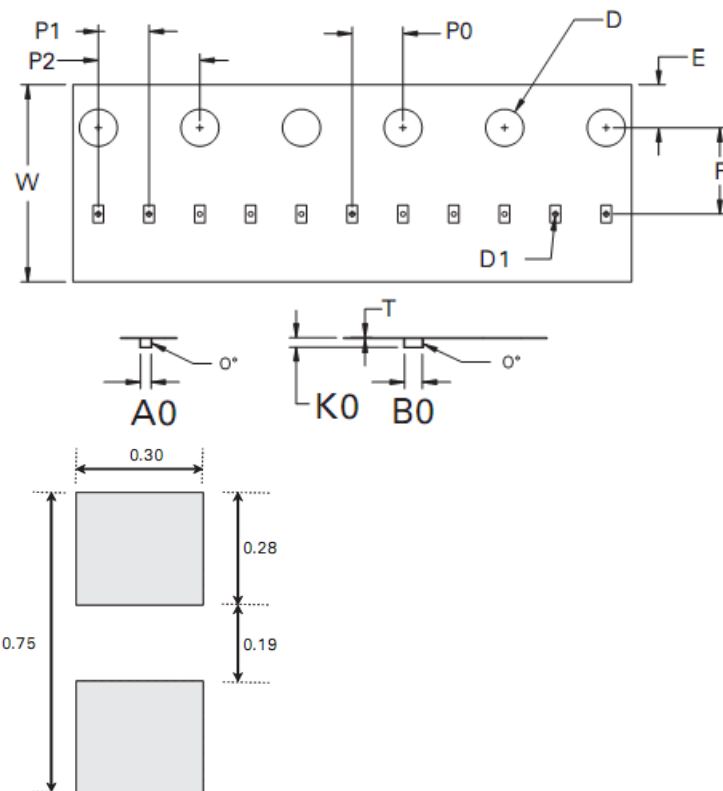


Mechanical Dimensions (In mm/Inches):



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

Embossed Carrier Tape & Reel Specification — 0201 Flipchip



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

Recommended Solder Pad Footprint

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