Electro-static Discharge (ESD)

S0402ESD05C

Description

The S0402ESD05C 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, ±8kV contact discharge)without performance degradation.The back-to-back configuration provides symmetrical ESD protection for data lines when AC signals are present.

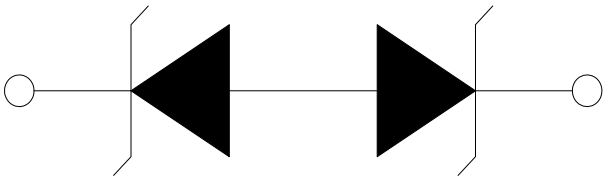
Features

- ESD,IEC61000-4-2, ±8kVcontact, ±15kV air
- EFT,IEC61000-4-4, 50A(5/50ns)
- Lightning,IEC61000-4-5, 15A(t_p=8/20μs)
- Low capacitance of 12pF(@V_R=0V)
- Low leakage current of 1μA at 5V
- Space efficient 0402 footprint

Applications

- Mobile phones
- Smart phones
- Camcorders
- PDA
- Digital cameras
- MP3/PMP
- Protable navigation devices
- Protable medical
- Point of sale terminals

Functional Block Diagram



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Absolute Maximum Ratings

Symbol	Parameter	Value	Units
I_{pp}	Peak current(t_p=8/20μs)	15.0	A
T_{op}	Operating Temperature	-40 to 85	℃
T_{stor}	Storage Temperature	-65 to 150	℃

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	-65 to 150	℃
Maximum Junction Temperature	150	℃
Maximum Lead Temperature(Soldering 20-40s)	260	℃

Electrical Characteristics(T_{op}=25℃)

parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Reverse Standoff Voltage	V_{RWM}				5.0	V
Breakdown Voltage	V_{BR}	I_R=1mA	7.5	8	9.5	V
Leakage Current	L_{LEAK}	V_R=5V with 1 pin at GND			1	μA
Clamp Voltage[1]	V_C	I_{pp}=1A,t_p=8/20μs,FWD		11.6		V
		I_{pp}=2A,t_p=8/20μs,FWD		14.8		V
		I_{pp}=15A,t_p=8/20μs,FWD		25.6		V
ESD Withstand Voltage[1]	V_{ESD}	IEC61000-4-2(Contact)	±8			kV
		IEC61000-4-2(Air)	±15			kV
Diode Capacitance[1]	C_D	Reverse Bias=0V		12.0	15.0	pF
		Reverse Bias=2.0V		11.5		pF

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

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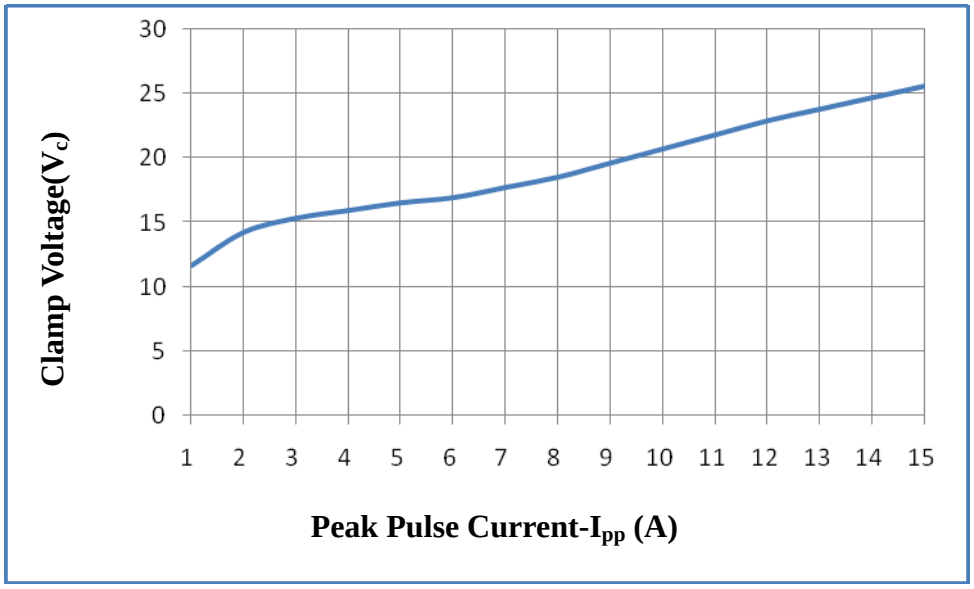
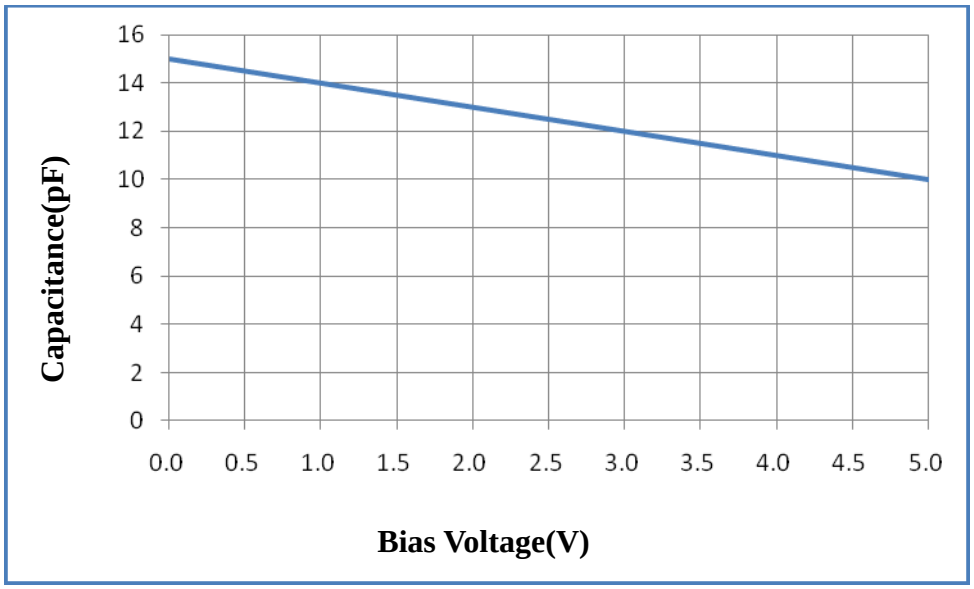
Clamping Voltage vs. I_{pp}



Capacitance vs. Reverse Bias



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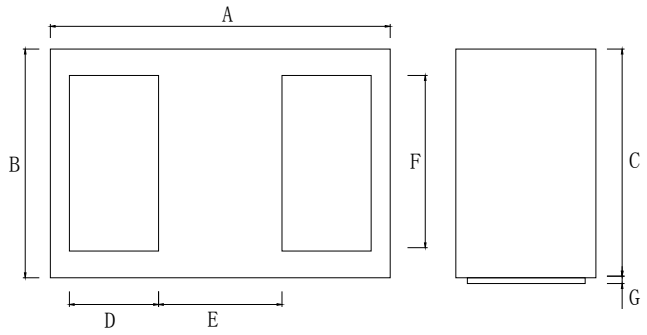
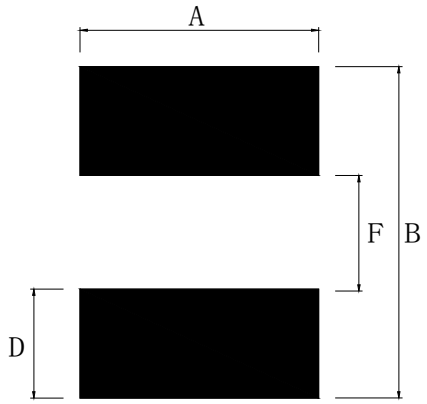
Package Dimensions-0402 Flipchip



Symbol	0402 Filpchip					
	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	0.980	1.000	1.020	0.038	0.039	0.040
B	0.580	0.600	0.620	0.023	0.024	0.0244
C	0.205	0.225	0.245	0.008	0.009	0.010
D	0.255	0.275	0.295	0.010	0.011	0.012
E	0.230	0.250	0.270	0.009	0.010	0.011
F	0.500	0.520	0.540	0.019	0.020	0.021
G	0.005	0.010	0.015	0.0002	0.0004	0.0006

Pad Design



Pad Design		
Symbol	Millimeters	Inches
A	0.60	0.024
B	1.00	0.039
D	0.35	0.014
F	0.30	0.012

Part Marking System and Ordering information

Part number	Package	Marking	Min.Order Qty.（PCS）
S0402ESD05C	0402 Flipchip	-	10,000

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