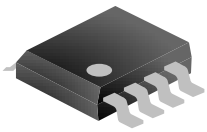
7-Channel Low Capacitance ESD Protection Diode Array

General Description

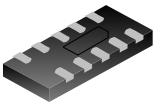
The GG1065 is a 7-channel ultra low capacitance rail clamp ESD protection diode array. Each channel consists of a pair of ESD diodes that steer positive or negative ESD current to either the positive or negative rail. A Zener diode is integrated into the array between the positive and negative supply rails.

In a typical application, the negative rail pin (assigned as GND) is connected with system ground. The Positive ESD current is steered to the ground through an ESD diode and Zener diode and the positive ESD voltage is clamped to the Zener voltage.

The GG1065 is ideal to protect high speed data lines.



MSOP-8-185-0.65



DFN-10-4.1x2x0.5-0.80

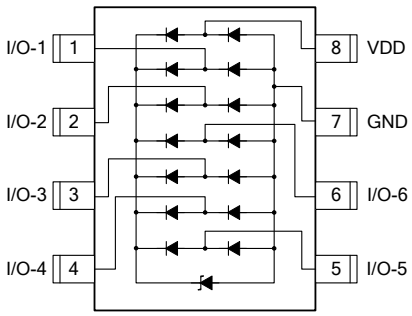
Features

- 7 channels of ESD protection
- Provides ESD protection to IEC61000-4-2 level 4
  - ±15kV air discharge
  - ±8kV contact discharge
- Channel I/O to GND capacitance: 0.4pF(Max)
- Channel I/O to I/O capacitance: 0.25pF(Max)
- Low clamping voltage
- Improved zener structure
- MSOP-8-185-0.65/DFN-10-4.1x2x0.5-0.80 package
- 5V Low operating voltage
- RoHS compliant

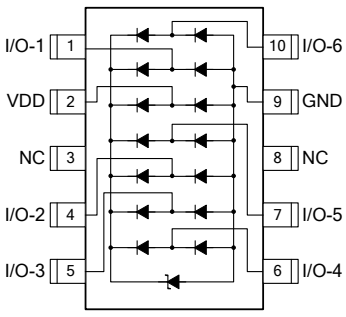
Applications

- HDMI / DVI ports
- 10M / 100M / 1G Ethernet
- USB 3.0 interface
- VGA interface
- Set-top box
- Flat panel Monitors / TVs

Pin Configuration



MSOP-8-185-0.65
(Top view)



DFN-10-4.1x2x0.5-0.80
(Top view)

Absolute Maximum Ratings

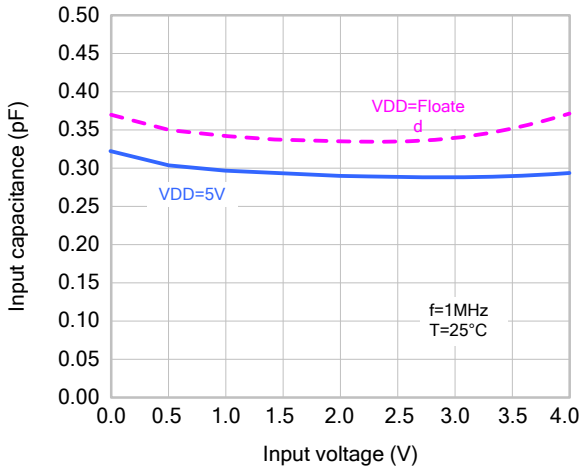
Characteristics		Symbol	Rating	Unit
Peak Pulse Power(8/20μs)		P_{PP}	150	W
Peak Pulse Current(8/20μs)		I_{PP}	5	A
Maximum ESD Capability	IEC 61000-4-2(Air)	V_{ESD1}	±15kV	kV
	IEC 61000-4-2(Contact)	V_{ESD2}	±8kV	kV
Operating Temperature Range		Topr	-55 ~ +125	°C
Storage Temperature Range		Tstg	-55 ~ +150	°C

Electrical Characteristics (Tamb=25°C)

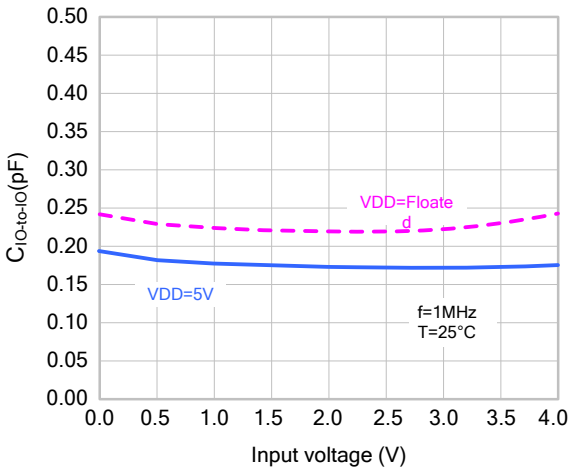
Characteristics	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}	Any I/O pin to GND	--	--	5	V
Reverse Breakdown Voltage	V_{BR}	I_t =1mA; Any I/O pin to GND	6	--	--	V
Reverse Leakage Current	I_R	V_{RWM} =5V, T=25°C; Any I/O pin to GND	--	--	1	μA
Positive Clamping Voltage	V_{C1}	I_{PP}=1A, t_P=8/20μs; Positive pulse; Any I/O pin to GND	--	8.5	12.0	V
Negative Clamping Voltage	V_{C2}	I_{PP}=1A, t_P=8/20μS; Negative pulse; Any I/O pin to GND	--	1.8	--	V
Junction Capacitance Between Channel	C_{J1}	V_R=0V, f=1MHz; Between I/O pins	--	0.2	0.25	pF
Junction Capacitance Between I/O And GND	C_{J2}	V_R=0V, f=1MHz; Any I/O pin to GND	--	--	0.4	pF

Typical Characteristics

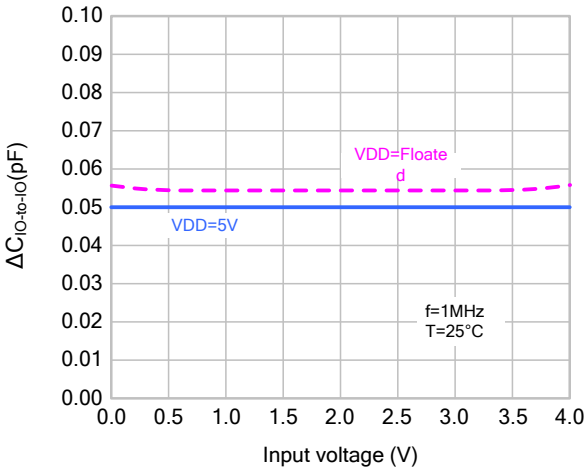
Typical curve of C_{IN} following V_{IN}



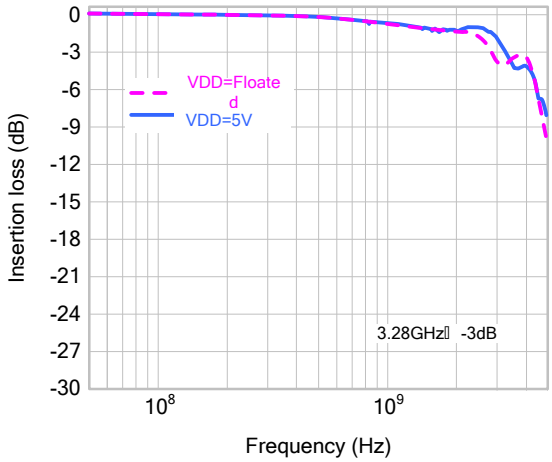
Typical curve of $C_{IO\text{-}to\text{-}IO}$ following V_{IN}



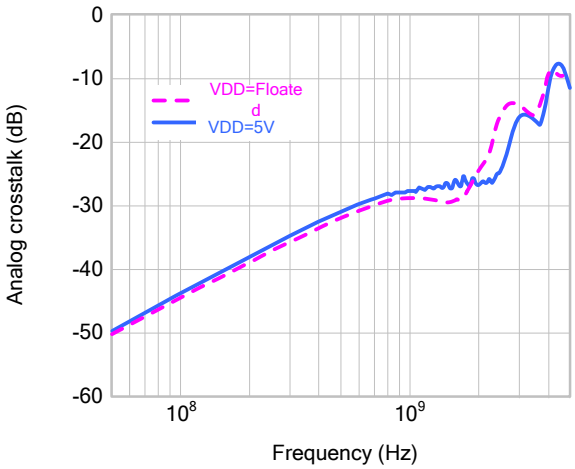
Typical curve of $\Delta C_{IO\text{-}to\text{-}IO}$ following V_{IN}



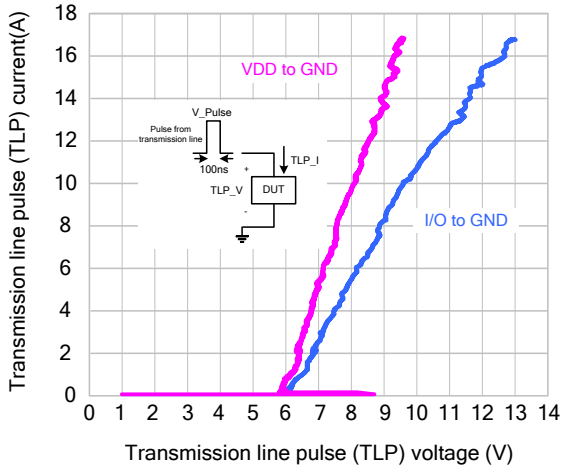
Insertion loss S21(I/O-to-GND)



Analog crosstalk



Transmission line pulse (TLP)

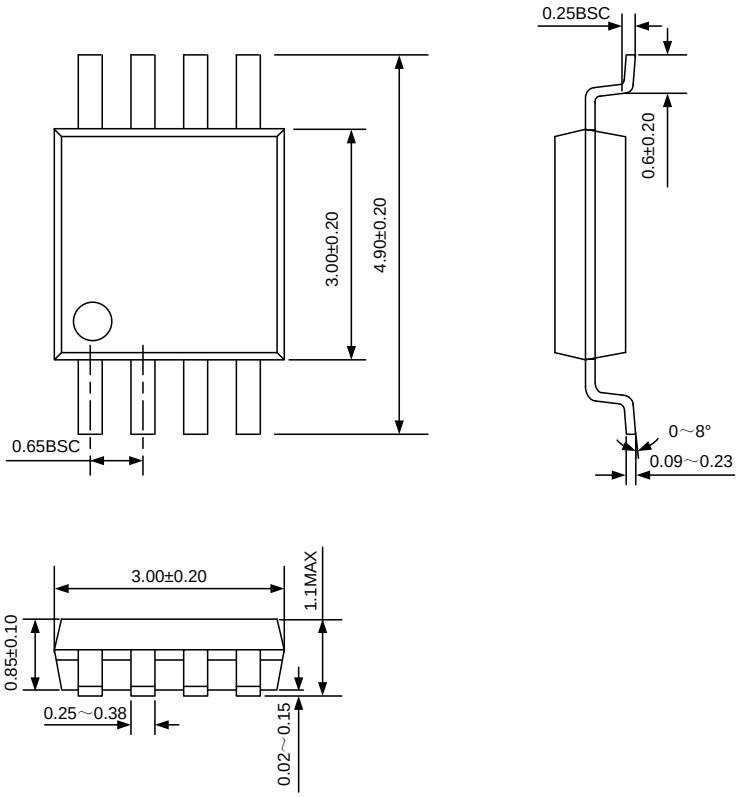


Ordering Information

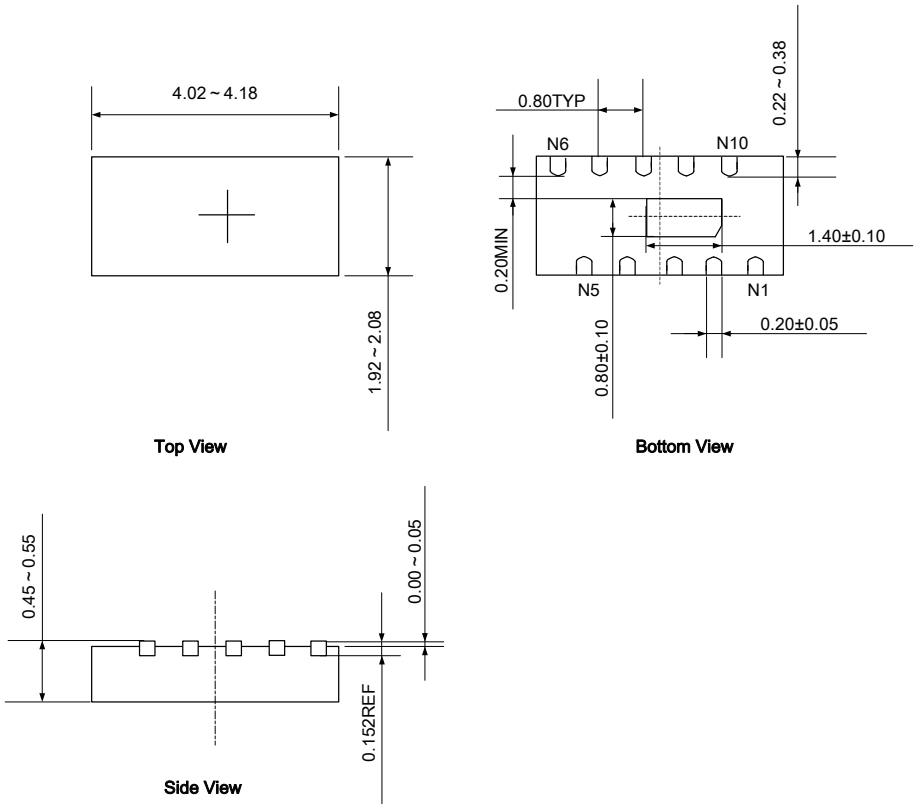
Part No	Package	Marking	Material	Packing
GG1065L8GTR	MSOP-8-185-0.65	1065	Halogen free	Tape&Reel
GG1065P1GTR	DFN-10-4.1x2x0.5-0.80	65P	Halogen free	Tape&Reel

Package Outline

MSOP-8-185-0.65 **UNIT: mm**



DFN-10-4.1x2x0.5-0.80 **UNIT: mm**



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