

# NUF6105FCT1

## 6 Channel EMI Pi-Filter Array with ESD Protection

This device is a 6 channel EMI filter array for data lines. Greater than -35 dB attenuation is obtained at frequencies from 800 MHz to 2.2 GHz. It also offers ESD protection - clamping transients from static discharges to protect delicate data line circuitry.

### Features

- EMI Filtering and ESD Protection for Data Lines
- Integration of 30 Discretes Offers Cost and Space Savings
- Exceeds IEC61000-4-2 (Level 4) Specifications
- Low Profile Flip Chip Packaging
- MSL 1

### Typical Applications

- EMI Filtering and ESD Protection for Data Lines
- Cell Phones
- Handheld Portables
- Notebook Computers
- MP3 Players

### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

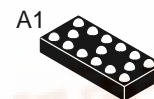
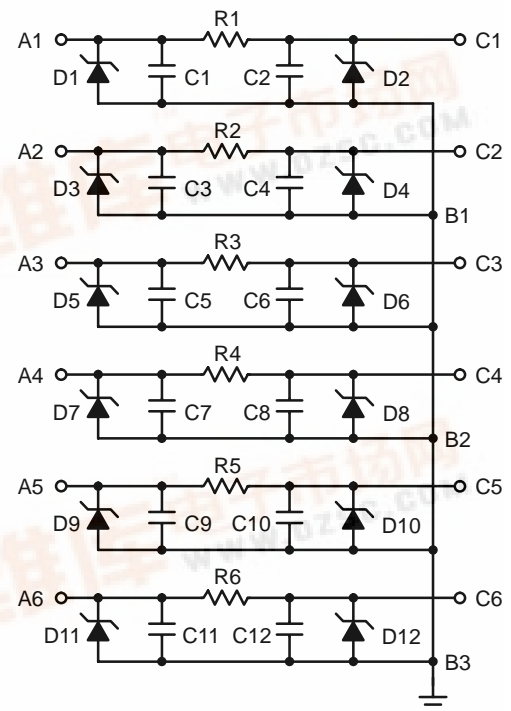
Rating	Symbol	Value	Unit
ESD Discharge IEC61000-4-2, - Air Discharge - Contact Discharge Human Body Model	$V_{PP}$	30 30 16	kV
DC Power per Resistor	$P_R$	100	mW
DC Power per Package	$P_T$	600	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Operating Temperature Range	$T_{op}$	-40 to +85	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^\circ\text{C}$



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### CIRCUIT DESCRIPTION



**FLIP CHIP  
CASE 499D  
PLASTIC**

### DEVICE MARKING

ON
NUF6105YYWW

NUF4105= Specific Device Code

YY = Year

WW = Work Week

### ORDERING INFORMATION

Device	Package	Shipping
NUF6105FCT1	Flip Chip	3000/Tape & Reel



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## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Symbol	Characteristic	Min	Typ	Max	Unit
V <sub>BR</sub>	I <sub>Z</sub> = 10 mA	6.0	7.0	8.0	V
I <sub>R</sub>	V <sub>RM</sub> = 3.3 V per line	-	-	0.1	μA
R <sub>I/O</sub>	I <sub>R</sub> = 20 mA	80	100	120	Ω
C <sub>line</sub>	V <sub>R</sub> = 2.5 V, f = 1 MHz (Note 1)	-	53	-	pF

1. Measured from Input/Output Pins to Ground

## TYPICAL PERFORMANCE CURVES

(T<sub>A</sub> = 25°C unless otherwise specified)

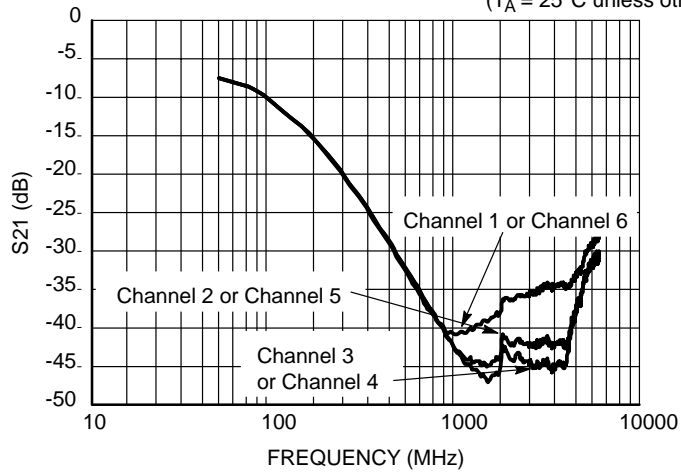


Figure 1. Insertion Loss Curve  
(S<sub>21</sub> Measurement)

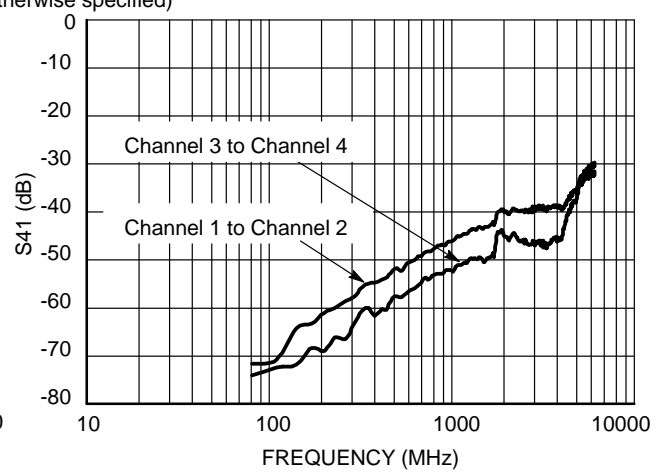


Figure 2. Analog Crosstalk Curve  
(S<sub>41</sub> Measurement)

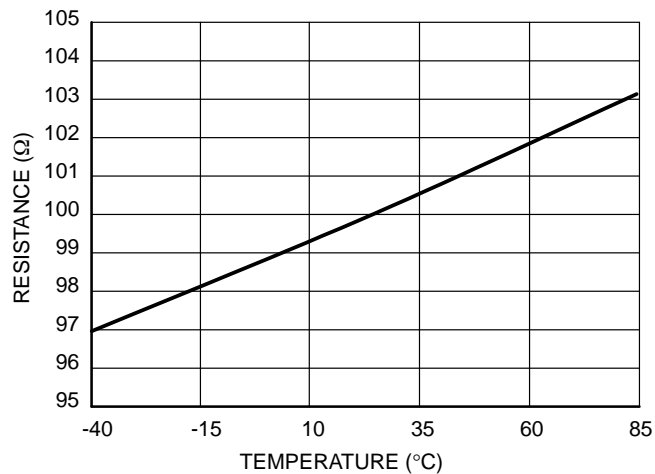


Figure 3. Resistance Over Temperature

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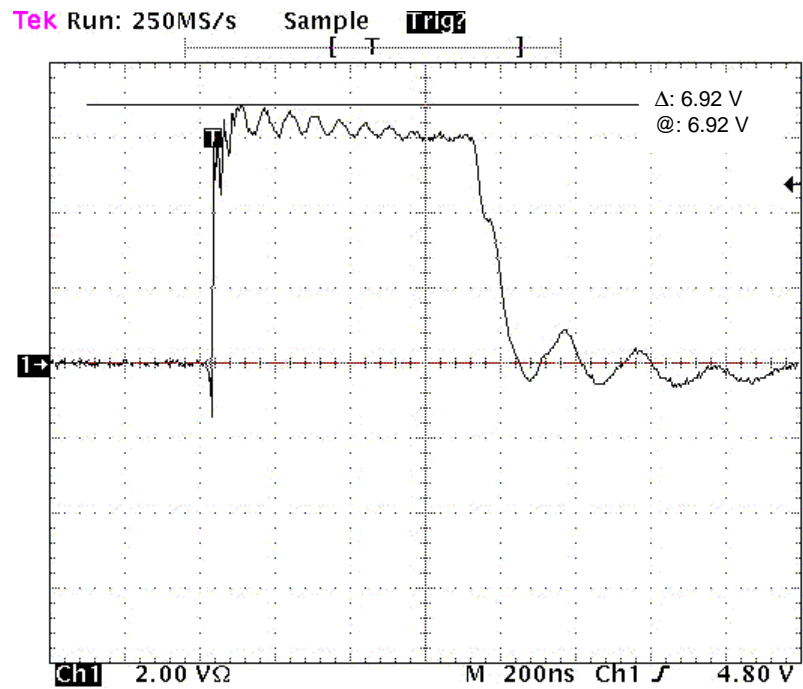


Figure 4. ESD Scope Trace Human Body Model (-8 kV)

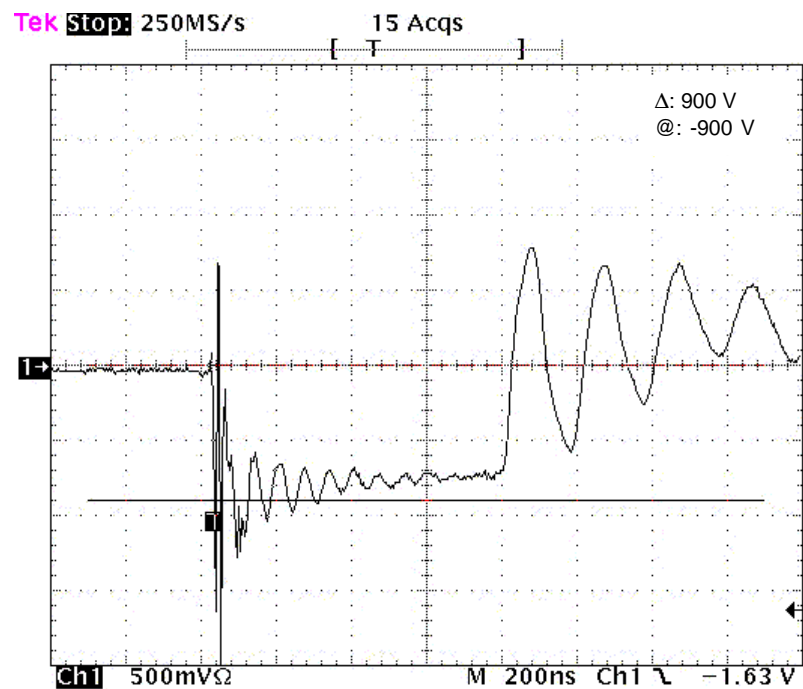
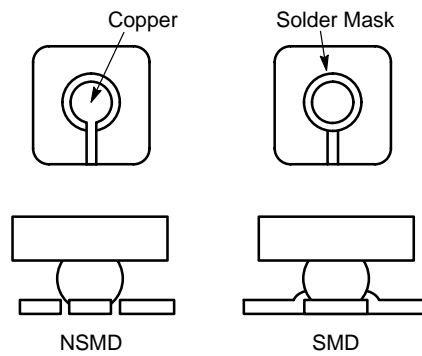


Figure 5. ESD Scope Trace Human Body Model (+8 kV)

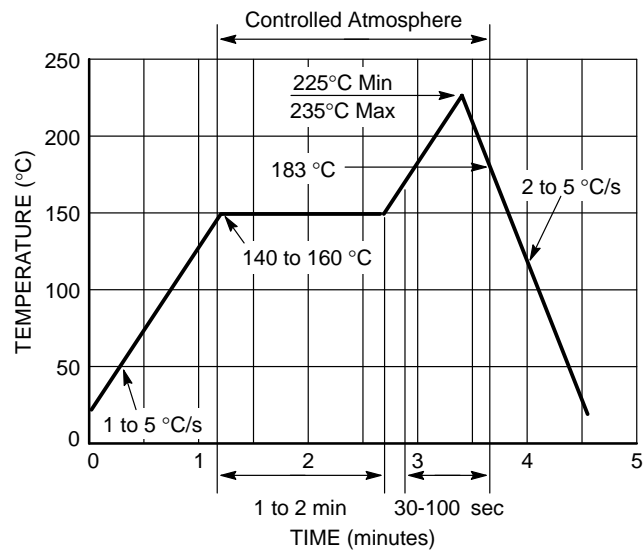
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## Printed Circuit Board Recommendations

Parameter	500 $\mu\text{m}$ Pitch 300 $\mu\text{m}$ Solder Ball
PCB Pad Size	250 $\mu\text{m}$ +25 -0
Pad Shape	Round
Pad Type	NSMD
Solder Mask Opening	350 $\mu\text{m}$ $\pm$ 25
Solder Stencil Thickness	125 $\mu\text{m}$
Stencil Aperture	250 x 250 $\mu\text{m}$ sq.
Solder Flux Ratio	50/50
Solder Paste Type	No Clean Type 3 or Finer
Trace Finish	OSP Cu
Trace Width	150 $\mu\text{m}$ Max




**Figure 6. Solder Mask versus Non-Solder Mask Definition**



**Figure 7. Solder Reflow Profile**



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