

Thin-Film Low Pass Filter



LP0402N Series Harmonic Lead-Free LGA Termination

RFAP TECHNOLOGY

The LP0402N Series Harmonic Low Pass Filter is based on the proprietary RFAP Thin-Film multilayer technology. The technology provides a miniature part with excellent high frequency performance and rugged construction for reliable automatic assembly.

The RFAP Harmonic Low Pass Filter is offered in a variety of frequency bands compatible with various types of high frequency wireless systems.

APPLICATIONS

- Wireless communications
- Wireless LAN's
- GPS
- WiMAX

LAND GRID ARRAY ADVANTAGES

- Inherent Low Profile
- Self Alignment during Reflow
- Excellent Solderability
- Low Parasitics
- Better Heat Dissipation

HOW TO ORDER

LP
T
Style

0402
T
Size

N
T
Type

XXXX
T
Frequency
MHz

X
T
Sub-Type

N
T
Termination
LGA
Lead Free

TR
T
Taped & Reeled

QUALITY INSPECTION

Finished parts are 100% tested for electrical parameters and visual characteristics. Each production lot is evaluated on a sample basis for:

- Static Humidity: 85°C, 85% RH, 160 hours
- Endurance: 125°C, IR, 4 hours

TERMINATION

Nickel/Lead-Free solder coating compatible with automatic soldering technologies: reflow, wave soldering, vapor phase and manual.

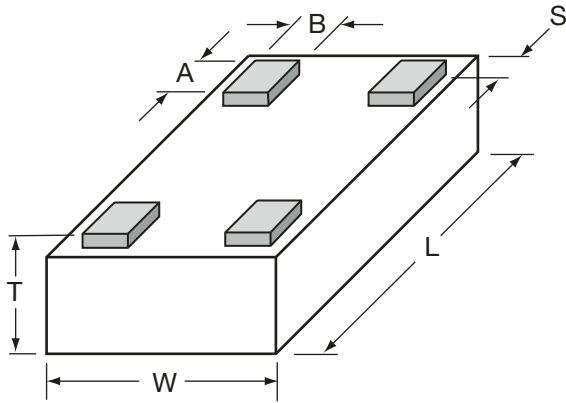


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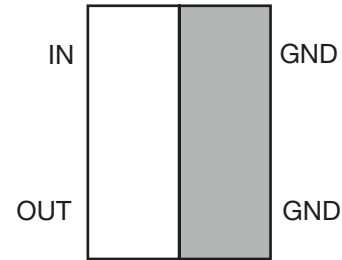
LP0402N Series Harmonic Lead-Free LGA Termination

DIMENSIONS: millimeters (inches) (Bottom View)

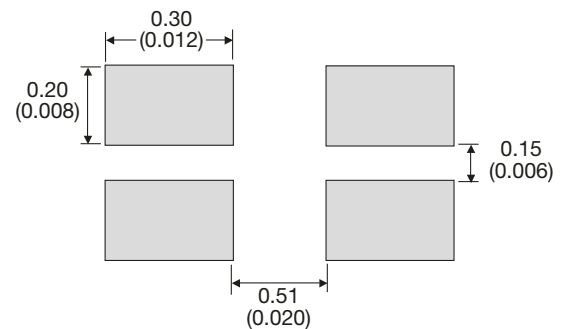


| | | | |
|---|----------------------------|---|----------------------------|
| L | 1.0±0.05 (0.040±0.002) | A | 0.20±0.06 (0.008±0.002) |
| W | 0.58±0.04 (0.023±0.002) | B | 0.18±0.05 (0.007±0.002) |
| T | 0.35±0.5 (0.014±0.002) | S | 0.05±0.05 (0.002±0.002) |

TERMINALS (Top View)



RECOMMENDED PAD LAYOUT (mm)



ELECTRICAL CHARACTERISTICS

(Guaranteed over -40°C to $+85^{\circ}\text{C}$ Operating Temperature Range)

| P/N | Frequency Band [MHz] | I. Loss [dB] | R. Loss [dB] | Attenuation @ $2x F_0$ [dB] | Attenuation @ $3x F_0$ [dB] |
|-----------------|----------------------|---------------------|--------------|-----------------------------|-----------------------------|
| LP0402N2442ANTR | 2400-2484 | 0.35 typ 0.5 max | 20 | 30 | 17 |
| LP0402N2690ANTR | 2640-2740 | 0.35 typ 0.5 max | 20 | 30 | 20 |
| LP0402N3500ANTR | 3400-3600 | 0.3 typ 0.5 max | 19 | 30 | 20 |
| LP0402N5200ANTR | 5500-5350 | 0.2 typ 0.5 max | 19 | 30 | 20 |
| LP0402N5500ANTR | 5350-5650 | 0.2 typ 0.5 max | 15 | 30 | - |
| LP0402N5800ANTR | 5600-6000 | 0.2 typ 0.5 max | 16 | 25 | - |

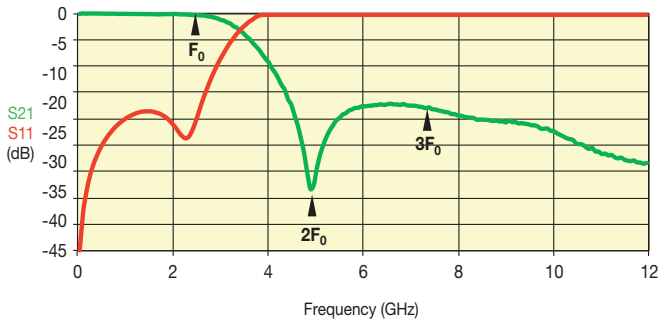
NOTE: Additional Frequencies Available Upon Request

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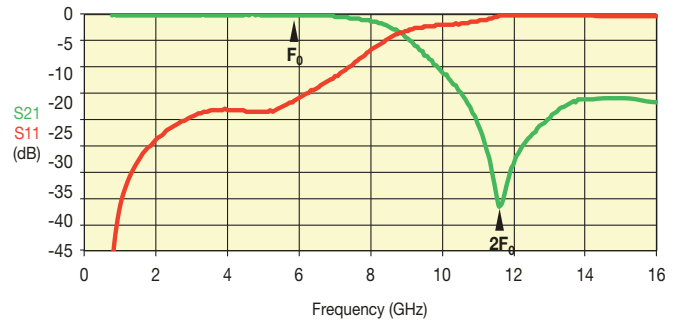


LP0402N Series Harmonic Lead-Free LGA Termination

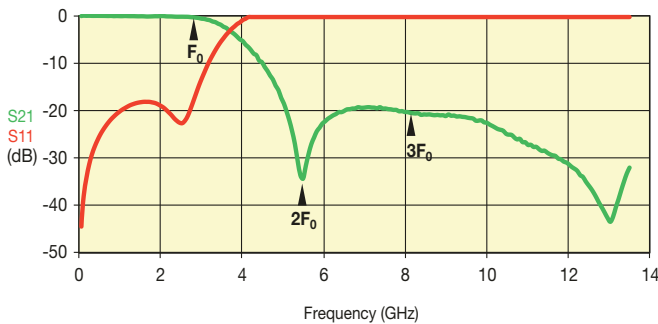
LP0402N2442ANTR



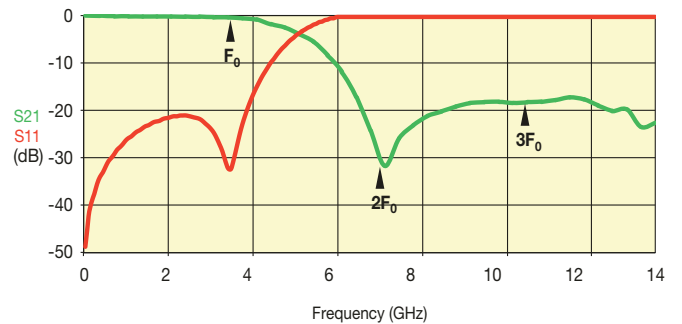
LP0402N5800ANTR



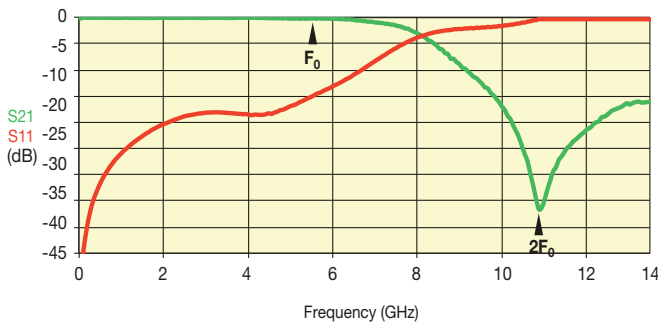
LP0402N2690ANTR



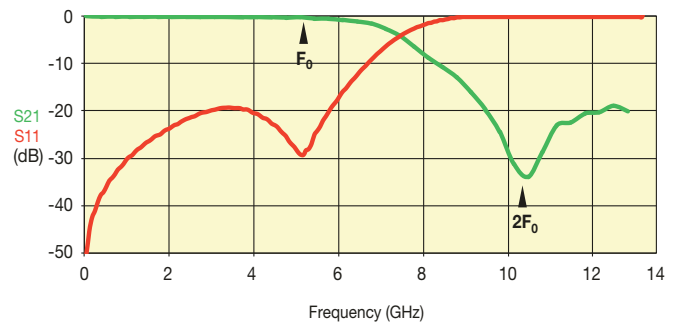
LP0402N3500ANTR



LP0402N5500ANTR



LP0402N5200ANTR



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Thin-Film Low Pass Filter



LP0402N Series Harmonic Lead-Free LGA Termination Test Jig

TEST JIG FOR LP0402 LOW PASS FILTER

GENERAL DESCRIPTION

These jigs are designed for testing the LP0603 LGA Low Pass Filters using a Vector Network Analyzer.

They consist of a dielectric substrate, having 50Ω microstrips as conducting lines and a bottom ground plane located at a distance of 0.127mm from the microstrips.

The substrate used is Neltec's NH9338ST0127C1BC (or similar).

The connectors are SMA type (female), 'Johnson Components Inc.' Product P/N: 142-0701-841 (or similar).

Both a measurement jig and a calibration jig are provided.

The calibration jig is designed for a full 2-port calibration, and consists of an open line, short line and through line. LOAD calibration can be done by a 50Ω SMA termination.

MEASUREMENT PROCEDURE

Follow the VNA's instruction manual and use the [calibration jig](#) to perform a full 2-Port calibration in the required bandwidths.

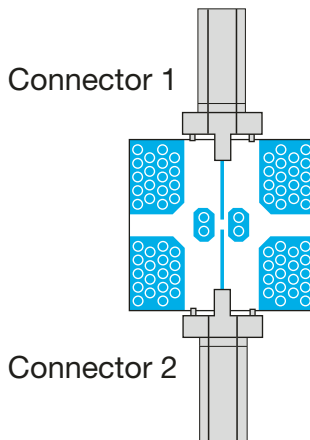
Solder the filter to the [measurement jig](#) as follows:

Input (Filter) ➔ Connector 1 (Jig) GND (Filter) ➔ GND (Jig)

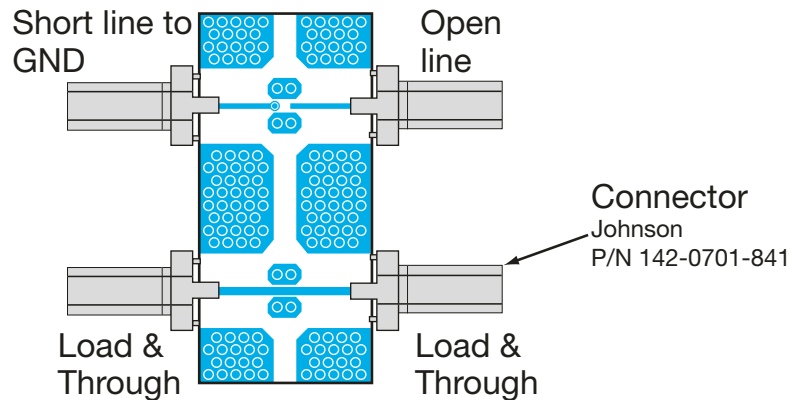
Output (Filter) ➔ Connector 2 (Jig) GND (Filter) ➔ GND (Jig)

Set the VNA to the relevant frequency band. Connect the VNA using a 10dB attenuator on the jig terminal connected to port 2 (using an RF cable).

Measurement



Calibration Jig



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