Thin-Film Low Pass Filter
LP0603 Lead-Free LGA Type

GENERAL DESCRIPTION
The LP0603 ITF (Integrated Thin Film) Lead-Free LGA Low Pass Filter is based on thin-film multilayer technology. The technology provides a miniature part with excellent high frequency performance and rugged construction for reliable automatic assembly.
The ITF Low Pass Filters are offered in a variety of frequency bands compatible with various types of high frequency wireless systems.

FEATURES
• Miniature Size: 0603
• Frequency Range: 900MHz-5.5GHz
• Characteristic Impedance: 50 Ohm
• Operating/Storage Temperature: -40°C to +85°C
• Power Rating: 3W Continuous
• Low Profile
• Rugged Construction
• Lead Free
• Taped and Reeled

APPLICATIONS
• Mobile communications
• Satellite TV receivers
• GPS
• Vehicle location systems
• Wireless LANs
• RFID

LAND GRID ARRAY ADVANTAGES
• Inherent Low Profile
• Self Alignment during Reflow
• Excellent Solderability
• Low Parasitics
• Better Heat Dissipation

FINAL 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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**DIMENSIONS:** millimeters (inches)
(Bottom View)

![DIMENSIONS Diagram]

**TERMINALS AND ORIENTATION IN TAPE**
(Top View)

![TERMINALS Diagram]

**RECOMMENDED PAD LAYOUT (mm)**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>1.6±0.1 (0.063±0.004)</td>
</tr>
<tr>
<td>W</td>
<td>0.84±0.1 (0.033±0.004)</td>
</tr>
<tr>
<td>T</td>
<td>0.60±0.1 (0.024±0.004)</td>
</tr>
<tr>
<td>A</td>
<td>0.25±0.05 (0.010±0.002)</td>
</tr>
<tr>
<td>B</td>
<td>0.20±0.05 (0.008±0.002)</td>
</tr>
<tr>
<td>S</td>
<td>0.05±0.05 (0.002±0.002)</td>
</tr>
</tbody>
</table>

**ELECTRICAL CHARACTERISTICS**
(Guaranteed over –40°C to +85°C Operating Temperature Range)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>LP0603A0902ANTR</td>
<td>890-915</td>
<td>0.35 typ (0.5 max)</td>
<td>1.4</td>
<td>25 @ 2xF0</td>
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<td>935-960</td>
<td>0.35 typ (0.5 max)</td>
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<tr>
<td>LP0603A1747ANTR</td>
<td>1710-1785</td>
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<td>25 @ 2xF0</td>
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<tr>
<td>LP0603A1842ANTR</td>
<td>1805-1880</td>
<td>0.3 typ (0.5 max)</td>
<td>1.4</td>
<td>27 @ 2xF0</td>
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<tr>
<td>LP0603A1880ANTR</td>
<td>1840-1920</td>
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<td>2110-2170</td>
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<tr>
<td>LP0603A2442ANTR</td>
<td>2412-2472</td>
<td>0.3 typ (0.5 max)</td>
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<tr>
<td>LP0603N3500ANTR</td>
<td>3400-3600</td>
<td>-0.3 typ. (0.5 max.)</td>
<td>1.4</td>
<td>30 @ 2xF0</td>
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<tr>
<td>LP0603N5200ANTR</td>
<td>5050-5350</td>
<td>-0.2 typ. (0.5 max.)</td>
<td>1.4</td>
<td>30 @ 2xF0</td>
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<tr>
<td>LP0603N5500ANTR</td>
<td>5350-5650</td>
<td>-0.2 typ. (0.5 max.)</td>
<td>1.4</td>
<td>30 @ 2xF0</td>
</tr>
</tbody>
</table>

NOTE: Additional Frequencies Available Upon Request
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LP0603A0902ANTR

LP0603A0947ANTR

LP0603A1747ANTR

LP0603A1842ANTR

LP0603A1880ANTR

LP0603A1950ANTR
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LP0603A2140ANTR

LP0603A2442ANTR

LP0603N3500ANTR

LP0603N5200ANTR

LP0603N5500ANTR
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.

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).