"L" Series Open Face Piezo Transducers

Part # 40LR10 (621063, 625604), part # 40LT10 (621997, 626998)

**Specification**

**40LR10**
Transmitter

**40LT10**
Receiver

**Center Frequency**
40.0±1.0Khz

**Bandwidth** (±6dB)

<table>
<thead>
<tr>
<th>Transmitter</th>
<th>Receiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5Khz</td>
<td>3.0Khz</td>
</tr>
</tbody>
</table>

**Transmitting Sound Pressure Level**
at 40.0Khz; 0dB re 0.0002µbar per 10Vrms at 30cm

**Receiving Sensitivity**
at 40.0Khz 0dB = 1 volt/µbar

**Capacitance** at 1Khz ±20%

1900 pF

**Max. Driving Voltage** (cont.)

10Vrms

**Total Beam Angle** -6dB

72° typical

**Operation Temperature**

-30 to 80°C

**Storage Temperature**

-40 to 85°C

All specification taken typical at 25°C
Closer frequently tolerance can be supplied upon request.

**Dimensions:** Dimensions are in mm

**Impedance/Phase Angle vs. Frequency**

Tested under 1Vrms Oscillation Level

<table>
<thead>
<tr>
<th>40LR10 Impedance</th>
<th>40LR10 Phase</th>
<th>40LT10 Impedance</th>
<th>40LT10 Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sensitivity/Sound Pressure Level**

Tested under 10Vrms @30cm

**Beam Angle:** Tested at 40.0Khz frequency
"L" Series  Open Face Piezo Transducers

40LR10 Receiver

Sensitivity Variation vs. Loaded Resistor

Center Frequency Shift vs. Loaded Resistor

Sensitivity Variation vs. Temperature

Center Frequency Shift vs. Temperature

40LT10 Transmitter

SPL Variation vs. Driving Voltage

Center Frequency Shift vs. Driving Voltage

SPL Variation vs. Temperature

Center Frequency Shift vs. Temperature
"L" Series Open Face Piezo Transducers

Part # 40LR12, part # 40LT12

Specification

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>40LR12</td>
<td>Transmitter</td>
<td>Center Frequency: 40.0 ± 1.0 KHz</td>
</tr>
<tr>
<td>40LT12</td>
<td>Receiver</td>
<td>Bandwidth: (-6dB) 40LT12 2.0 KHz, 40LR12 2.0 KHz</td>
</tr>
<tr>
<td></td>
<td>Transmitting Sound Pressure Level</td>
<td>115 dB min.</td>
</tr>
<tr>
<td></td>
<td>at 40.0 KHz; 0 dB re 0.0002 µbar per 10 Vrms at 30 cm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Receiving Sensitivity</td>
<td>-67 dB min.</td>
</tr>
<tr>
<td></td>
<td>at 40.0 KHz 0 dB = 1 volt/µbar</td>
<td>Capacitance at 1 KHz: ±20%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Max. Driving Voltage (cont.): 20 Vrms</td>
</tr>
<tr>
<td></td>
<td>Total Beam Angle -6dB</td>
<td>Operation Temperature: -30 to 80°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Storage Temperature: -40 to 85°C</td>
</tr>
</tbody>
</table>

All specifications taken typical at 25°C
Closer frequently tolerance can be supplied upon request.

Dimensions: dimensions are in mm

Impedance/Phase Angle vs. Frequency
Tested under 1 Vrms Oscillation Level

Sensitivity/Sound Pressure Level
Tested under 10 Vrms @30 cm

Beam Angle: Tested at 40.0 KHz frequency
"L" Series Open Face Piezo Transducers

40LR12 Receiver 40LT12 Transmitter

Sensitivity Variation vs. Loaded Resistor

Center Frequency Shift vs. Loaded Resistor

Sensitivity Variation vs. Temperature

Center Frequency Shift vs. Temperature

SPL Variation vs. Driving Voltage

Center Frequency Shift vs. Driving Voltage

SPL Variation vs. Temperature

Center Frequency Shift vs. Temperature

Sensitivity Variation vs. Temperature

Center Frequency Shift vs. Temperature
"L" Series Open Face Piezo Transducer

Part # 40LR16 (621128) Part # 40LT16 (621126)

**Specification**

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
<th>Center Frequency</th>
<th>Bandwidth (-6dB)</th>
<th>Transmitting Sound Pressure Level at 40.0Khz</th>
<th>Receiving Sensitivity at 40.0Khz</th>
<th>Capacitance at 1Khz</th>
<th>Max. Driving Voltage (cont.)</th>
<th>Total Beam Angle</th>
<th>Operation Temperature</th>
<th>Storage Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>40LT16</td>
<td>Transmitter</td>
<td>40.0±1.0Khz</td>
<td>2.0Khz</td>
<td>120dB min.</td>
<td>-65dB min.</td>
<td>±20%</td>
<td>20Vrms</td>
<td>55° typical</td>
<td>-30 to 80°C</td>
<td>-40 to 85°C</td>
</tr>
<tr>
<td>40LR16</td>
<td>Receiver</td>
<td></td>
<td>2.5Khz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Dimensions:** dimensions are in mm

**Impedance/Phase Angle vs. Frequency**
Tested under 1Vrms Oscillation Level
40LR16 Impedance
40LR16 Phase
40LT16 Impedance
40LT16 Phase

**Sensitivity/Sound Pressure Level**
Tested under 10Vrms @30cm

**Beam Angle:** Tested at 40.0Khz frequency
"L" Series | Open Face Piezo Transducers
---|---
40LR16 Receiver | 40LT16 Transmitter

**Sensitivity Variation vs. Loaded Resistor**

-80 \( \text{Sensitivity (dB)} \) vs. 1K, 3.9K, 10K, 39K, 100K, 390K Loaded Resistor (Ohm)

**Center Frequency Shift vs. Loaded Resistor**

-3.0 \( \text{Fc Variation %} \) vs. 1K, 3.9K, 10K, 39K, 100K, 390K Loaded Resistor (Ohm)

**Sensitivity Variation vs. Temperature**

-80 \( \text{Sensitivity (dB)} \) vs. -40, -30, -20, -10, 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100 Temperature (Degree C)

**Center Frequency Shift vs. Temperature**

-3.0 \( \text{Fc Variation %} \) vs. -40, -30, -20, -10, 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100 Temperature (Degree C)

**SPL Variation vs. Driving Voltage**

125 \( \text{SPL (dB)} \) vs. 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30 Vrms

**Center Frequency Shift vs. Driving Voltage**

0.0 \( \text{Fc Variation %} \) vs. 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30 Vrms
The piezo-based "L" Series transducers offer the design engineer a unique blend of size and acoustical performance when developing an ultrasonic sensor.

This line of transducers is specifically intended for operation in air at ultrasonic frequencies and consists of transmitter/receiver pairs. All use screen mesh open face construction housed in a metal case. The key features: Wide selection and increased sensitivity for non-hostile environments.

"L" Series transducers are non-inventory items. For ordering information please contact Polaroid OEM Components Group 781-386-3965