



## LP Series • Miniature Low Cost Toroidal Inductors

**LP Series surface mount** toroidal inductors are designed for use in applications where energy storage is required for maintenance of a highly stable inductance when a rapid change in load current occurs. These inductors are excellent for filtering high frequency signals while supporting a substantial DC current as well as for AC ripple, switch mode power supplies and for use with DC-DC Converters.

### Features

- Operating frequency to 1 MHz
- High energy storage with minimum saturation
- High stability from no load to full load
- Pick and place compatible while providing consistent and reliable surface coplanarity
- Gold plated terminal pads ensure excellent solderability
- Designed as 1:1 Coupled Inductor (Series or Parallel) or as 1:1 Isolation Transformer
- Manufactured in ISO-9001 approved facility
- Test voltage between windings: 500 Vrms
- Operating temperature range: -40°C to +85°C
- Test frequency: Inductance measured at 0.10VAC @ 10kHz



### Applications

DC-DC Converters • Common Mode Filter • Pulse Modulation  
Switching Regulators: Step-up, Step-down, Inverting or dual output  
Computer Note Books • Filtering Battery Powered Equipment  
Pulse Modulation

### Electrical Specifications at 25°C ambient

| Part Number  | Parallel Connected                   |                                  |          | Series Connected                     |                                  |          | Energy Storage (μJ) * | Dimensions Inches(Millimeters) |                 |                |                |                |                |                |
|--------------|--------------------------------------|----------------------------------|----------|--------------------------------------|----------------------------------|----------|-----------------------|--------------------------------|-----------------|----------------|----------------|----------------|----------------|----------------|
|              | Full Load Current (A <sub>DC</sub> ) | L <sub>O</sub> (μH) ±15% No Load | DCR mOhm | Full Load Current (A <sub>DC</sub> ) | L <sub>O</sub> (μH) ±15% No Load | DCR mOhm |                       |                                |                 |                |                |                |                |                |
|              | A                                    | B                                | C        | D                                    | E                                | F        |                       | H                              |                 |                |                |                |                |                |
| LP2-4.40-2.2 | 4.40                                 | 2.2                              | 7        | 2.20                                 | 8.8                              | 28       | 16.4                  | 0.354<br>(9.0)                 | 0.354<br>(9.0)  | 0.098<br>(2.5) | 0.098<br>(2.5) | 0.157<br>(4.0) | 0.157<br>(4.0) | 0.232<br>(5.9) |
| LP2-3.10-4.7 | 3.10                                 | 4.7                              | 13       | 1.55                                 | 18.8                             | 52       | 16.0                  |                                |                 |                |                |                |                |                |
| LP2-2.08-10  | 2.08                                 | 10                               | 28       | 1.04                                 | 40                               | 112      | 16.4                  |                                |                 |                |                |                |                |                |
| LP2-1.68-15  | 1.68                                 | 15                               | 52       | 0.84                                 | 60                               | 208      | 16.0                  |                                |                 |                |                |                |                |                |
| LP2-1.40-22  | 1.40                                 | 22                               | 70       | 0.70                                 | 88                               | 280      | 16.2                  |                                |                 |                |                |                |                |                |
| LP2-1.32-33  | 1.32                                 | 33                               | 83       | 0.66                                 | 132                              | 332      | 16.0                  |                                |                 |                |                |                |                |                |
| LP2-1.08-47  | 1.08                                 | 47                               | 139      | 0.54                                 | 188                              | 556      | 21.2                  |                                |                 |                |                |                |                |                |
| LP2-0.80-68  | 0.80                                 | 68                               | 241      | 0.40                                 | 272                              | 964      | 20.2                  |                                |                 |                |                |                |                |                |
| LP2-0.66-100 | 0.66                                 | 100                              | 295      | 0.33                                 | 400                              | 1180     | 15.8                  |                                |                 |                |                |                |                |                |
| LP2-0.54-150 | 0.54                                 | 150                              | 521      | 0.27                                 | 600                              | 2084     | 16.1                  |                                |                 |                |                |                |                |                |
| LP2-0.44-220 | 0.44                                 | 220                              | 784      | 0.22                                 | 880                              | 3136     | 15.8                  |                                |                 |                |                |                |                |                |
| LP2-0.36-330 | 0.36                                 | 330                              | 960      | 0.18                                 | 1320                             | 3840     | 15.8                  |                                |                 |                |                |                |                |                |
| LP3-6.64-2.2 | 6.64                                 | 2.2                              | 5        | 3.32                                 | 8.8                              | 20       | 31.7                  | 0.433<br>(11.0)                | 0.433<br>(11.0) | 0.098<br>(2.5) | 0.098<br>(2.5) | 0.236<br>(6.0) | 0.236<br>(6.0) | 0.248<br>(6.3) |
| LP3-4.46-4.7 | 4.46                                 | 4.7                              | 12       | 2.23                                 | 18.8                             | 48       | 32.2                  |                                |                 |                |                |                |                |                |
| LP3-3.00-10  | 3.00                                 | 10                               | 26       | 1.5                                  | 40                               | 104      | 32.8                  |                                |                 |                |                |                |                |                |
| LP3-2.42-15  | 2.42                                 | 15                               | 37       | 1.21                                 | 60                               | 148      | 31.8                  |                                |                 |                |                |                |                |                |
| LP3-2.00-22  | 2.00                                 | 22                               | 55       | 1.00                                 | 88                               | 220      | 32.7                  |                                |                 |                |                |                |                |                |
| LP3-1.62-33  | 1.62                                 | 33                               | 84       | 0.81                                 | 132                              | 336      | 32.1                  |                                |                 |                |                |                |                |                |
| LP3-1.34-47  | 1.34                                 | 47                               | 127      | 0.67                                 | 188                              | 508      | 32.3                  |                                |                 |                |                |                |                |                |
| LP3-1.12-68  | 1.12                                 | 68                               | 188      | 0.56                                 | 272                              | 752      | 32.4                  |                                |                 |                |                |                |                |                |
| LP3-0.94-100 | 0.94                                 | 100                              | 250      | 0.47                                 | 400                              | 1000     | 32.2                  |                                |                 |                |                |                |                |                |
| LP3-0.76-150 | 0.76                                 | 150                              | 346      | 0.38                                 | 600                              | 1384     | 31.8                  |                                |                 |                |                |                |                |                |
| LP3-0.62-220 | 0.62                                 | 220                              | 478      | 0.31                                 | 880                              | 1912     | 31.2                  |                                |                 |                |                |                |                |                |
| LP3-0.50-330 | 0.50                                 | 330                              | 671      | 0.25                                 | 1320                             | 2684     | 30.4                  |                                |                 |                |                |                |                |                |
| LP3-0.42-470 | 0.42                                 | 470                              | 1003     | 0.21                                 | 1880                             | 4012     | 30.5                  |                                |                 |                |                |                |                |                |
| LP3-0.36-680 | 0.36                                 | 680                              | 1500     | 0.18                                 | 2720                             | 6000     | 32.3                  |                                |                 |                |                |                |                |                |

**Note:** Talema style LP-1 has been discontinued and replaced with type LC-1, an encapsulated version. See the LC data sheet for electrical specifications and dimensions.

## LP Series • Miniature High Current Toroidal Inductors

### Electrical Specifications at 25°C

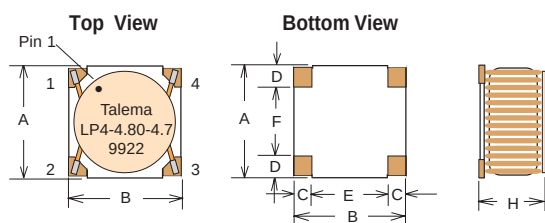
| Part Number   | Parallel Connected                   |                                  |          | Series Connected                     |                                  |          | Energy Storage (μJ) * | Dimensions<br>Inches(Millimeters) |              |             |             |             |             |             |
|---------------|--------------------------------------|----------------------------------|----------|--------------------------------------|----------------------------------|----------|-----------------------|-----------------------------------|--------------|-------------|-------------|-------------|-------------|-------------|
|               | Full Load Current (A <sub>DC</sub> ) | L <sub>O</sub> (μH) ±15% No Load | DCR mOhm | Full Load Current (A <sub>DC</sub> ) | L <sub>O</sub> (μH) ±15% No Load | DCR mOhm |                       |                                   |              |             |             |             |             |             |
|               | A                                    | B                                | C        | D                                    | E                                | F        |                       | H                                 |              |             |             |             |             |             |
| LP4-7.40-2.2  | 7.40                                 | 2.2                              | 5        | 3.70                                 | 8.8                              | 20       | 42.5                  | 0.472 (12.0)                      | 0.472 (12.0) | 0.118 (3.0) | 0.118 (3.0) | 0.236 (6.0) | 0.236 (6.0) | 0.248 (6.3) |
| LP4-4.80-4.7  | 4.80                                 | 4.7                              | 9        | 2.40                                 | 18.8                             | 36       | 43.2                  |                                   |              |             |             |             |             |             |
| LP4-3.36-10   | 3.36                                 | 10                               | 21       | 1.68                                 | 40                               | 84       | 43.2                  |                                   |              |             |             |             |             |             |
| LP4-2.80-15   | 2.80                                 | 15                               | 35       | 1.40                                 | 60                               | 140      | 43.2                  |                                   |              |             |             |             |             |             |
| LP4-2.30-22   | 2.30                                 | 22                               | 50       | 1.15                                 | 88                               | 200      | 43.6                  |                                   |              |             |             |             |             |             |
| LP4-1.86-33   | 1.86                                 | 33                               | 76       | 0.93                                 | 132                              | 304      | 43.9                  |                                   |              |             |             |             |             |             |
| LP4-1.56-47   | 1.56                                 | 47                               | 112      | 0.78                                 | 188                              | 448      | 43.1                  |                                   |              |             |             |             |             |             |
| LP4-1.32-68   | 1.32                                 | 68                               | 167      | 0.66                                 | 272                              | 668      | 43.4                  |                                   |              |             |             |             |             |             |
| LP4-1.06-100  | 1.08                                 | 100                              | 250      | 0.54                                 | 400                              | 1000     | 42.9                  |                                   |              |             |             |             |             |             |
| LP4-0.88-150  | 0.88                                 | 150                              | 307      | 0.44                                 | 600                              | 1228     | 42.8                  |                                   |              |             |             |             |             |             |
| LP4-0.72-220  | 0.72                                 | 220                              | 470      | 0.36                                 | 880                              | 1880     | 42.0                  |                                   |              |             |             |             |             |             |
| LP4-60-330    | 0.60                                 | 330                              | 657      | 0.30                                 | 1320                             | 2628     | 44.0                  |                                   |              |             |             |             |             |             |
| LP4-0.50-470  | 0.50                                 | 470                              | 900      | 0.25                                 | 1880                             | 3600     | 43.6                  |                                   |              |             |             |             |             |             |
| LP4-0.40-680  | 0.40                                 | 680                              | 1355     | 0.20                                 | 2720                             | 5420     | 40.2                  |                                   |              |             |             |             |             |             |
| LP4-0.34-1000 | 0.34                                 | 1000                             | 2042     | 0.17                                 | 4000                             | 8168     | 42.5                  |                                   |              |             |             |             |             |             |
| LP5-6.40-4.7  | 6.40                                 | 4.7                              | 7        | 3.20                                 | 18.8                             | 28       | 73.9                  | 0.472 (12.0)                      | 0.472 (12.0) | 0.118 (3.0) | 0.118 (3.0) | 0.236 (6.0) | 0.236 (6.0) | 0.327 (8.3) |
| LP5-4.50-10   | 4.50                                 | 10                               | 16       | 2.25                                 | 40                               | 64       | 71.6                  |                                   |              |             |             |             |             |             |
| LP5-3.50-15   | 3.50                                 | 15                               | 28       | 1.75                                 | 60                               | 112      | 71.6                  |                                   |              |             |             |             |             |             |
| LP5-3.00-22   | 3.00                                 | 22                               | 38       | 1.50                                 | 88                               | 152      | 71.6                  |                                   |              |             |             |             |             |             |
| LP5-2.44-33   | 2.44                                 | 33                               | 52       | 1.22                                 | 1.32                             | 2.08     | 72.6                  |                                   |              |             |             |             |             |             |
| LP5-2.04-47   | 2.04                                 | 47                               | 72       | 1.02                                 | 188                              | 288      | 72.1                  |                                   |              |             |             |             |             |             |
| LP5-1.70-68   | 1.70                                 | 68                               | 86       | 0.85                                 | 272                              | 344      | 71.3                  |                                   |              |             |             |             |             |             |
| LP5-1.40-100  | 1.40                                 | 100                              | 128      | 0.70                                 | 400                              | 512      | 71.6                  |                                   |              |             |             |             |             |             |
| LP5-1.16-150  | 1.16                                 | 150                              | 218      | 0.58                                 | 600                              | 872      | 73.4                  |                                   |              |             |             |             |             |             |
| LP5-0.94-220  | 0.94                                 | 220                              | 298      | 0.47                                 | 880                              | 1192     | 71.5                  |                                   |              |             |             |             |             |             |
| LP5-0.78-330  | 0.78                                 | 330                              | 451      | 0.39                                 | 1320                             | 1804     | 73.8                  |                                   |              |             |             |             |             |             |
| LP5-0.64-470  | 0.64                                 | 470                              | 604      | 0.32                                 | 1880                             | 2416     | 70.9                  |                                   |              |             |             |             |             |             |
| LP5-0.54-680  | 0.54                                 | 680                              | 934      | 0.27                                 | 2720                             | 3736     | 73.2                  |                                   |              |             |             |             |             |             |
| LP5-0.44-1000 | 0.44                                 | 1000                             | 1629     | 0.22                                 | 4000                             | 6516     | 71.4                  |                                   |              |             |             |             |             |             |
| LP5-0.36-1500 | 0.36                                 | 1500                             | 2483     | 0.18                                 | 6000                             | 9932     | 71.6                  |                                   |              |             |             |             |             |             |
| LP5-0.30-2200 | 0.30                                 | 2200                             | 3773     | 0.15                                 | 8800                             | 15092    | 72.9                  |                                   |              |             |             |             |             |             |

Talema's engineering staff can assist in the design of other inductance values and sizes.

#### Notes:

1. L(μH): Inductance is tested at 10mV and 10 kHz.
2. The μJoule rating ( $\frac{1}{2}LI^2$ ) is the ability of the inductor to store energy.

#### Dimensions



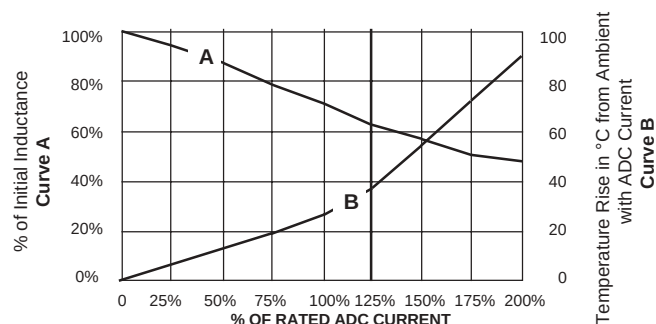
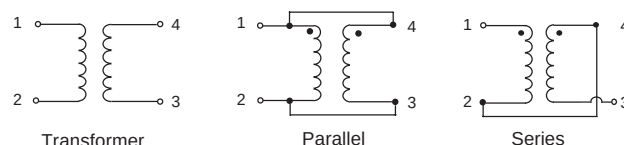
| Pad Dimensions |      |      |     |     |  |
|----------------|------|------|-----|-----|--|
| Type           | A    | B    | C   | D   |  |
| LP2            | 10.0 | 9.0  | 3.0 | 3.0 |  |
| LP3            | 12.0 | 11.0 | 3.0 | 3.0 |  |
| LP4 & 5        | 13.0 | 12.0 | 3.5 | 3.5 |  |

Dimensions: Inches (Millimeters)

Tolerance: ±0.010 (0.25) unless specified otherwise

Surface Coplanarity will be <0.004(0.10)

#### Schematic



Germany: Int.+49 89 - 841 00 - 0 • Ireland: Int.+35 374 - 954 8666 • Czech Rep: Int.+420 37-744 9303 • India: Int.+91 427 - 244 1325

<http://www.talema-nuvotem.com>

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