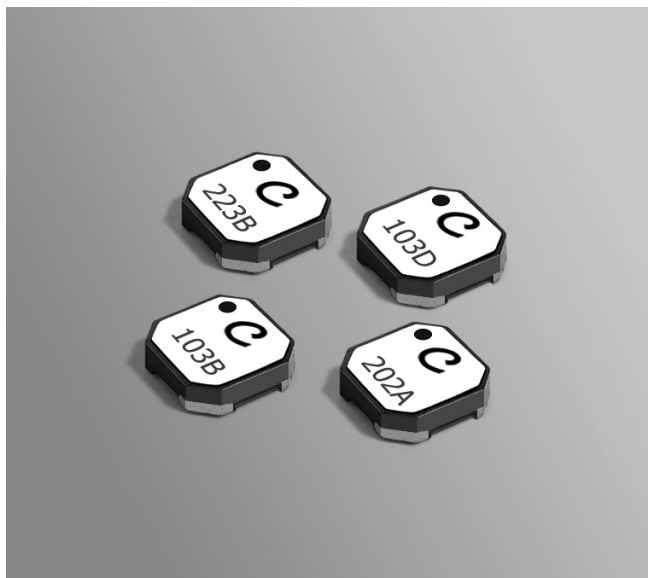




# Coupled Inductors - LPR4012

## For Step-Up, Resonant & Flyback Applications



The LPR4012 miniature shielded coupled inductors are only 1,1 mm high and 4 mm square. The excellent coupling coefficient ( $k = 0.95$ ) makes them ideal for use as flyback transformers in DC-DC converters or as coupled inductors in buck regulators to provide multiple outputs. The wide selection of turns ratios makes them suitable for a variety of voltage step-up and step-down applications. They can also be used in autotransformer applications.

The high Isat and low DCR ratings of these low profile parts provide high efficiency and excellent current handling in a rugged, low cost design.

Custom inductance values and turn ratios are available upon request.

Part number <sup>1</sup>	Primary (L1) inductance <sup>2</sup> ± 20% (µH)	Turns ratio	DCR max (Ohms)		SRF typ <sup>3</sup> (MHz)	Isat (A) <sup>4</sup>			Irms (A) <sup>5</sup>	
			L1	L2		10% drop	20% drop	30% drop	20°C rise	40°C rise
LPR4012-202AMR_	2.0	1:1.5	0.240	0.325	61.5	1.70	1.73	1.74	1.10	1.45
LPR4012-202BMR_	2.0	1:2	0.240	0.480	49.4	1.70	1.73	1.74	1.10	1.45
LPR4012-202DMR_	2.0	1:3	0.240	1.15	31.0	1.70	1.73	1.74	1.10	1.45
LPR4012-202LMR_	2.0	1:10	0.240	11.62	7.43	1.70	1.73	1.74	1.10	1.45
LPR4012-103BMR_	10.0	1:2	0.600	1.55	19.5	0.62	0.64	0.65	0.52	0.70
LPR4012-103DMR_	10.0	1:3	0.600	3.71	12.8	0.62	0.64	0.65	0.52	0.70
LPR4012-223BMR_	22.0	1:2	1.16	3.65	11.2	0.43	0.45	0.46	0.43	0.57
LPR4012-223DMR_	22.0	1:3	1.16	7.08	8.00	0.43	0.45	0.46	0.43	0.57

1. When ordering, please specify **termination** and **packaging** codes:

LPR4012-223XMRC

**Termination:** **R** = RoHS compliant matte tin over nickel over silver.  
Special order: **Q** = RoHS tin-silver-copper (95.5/4/0.5) or  
**P** = non-RoHS tin-lead (63/37).

**Packaging:** **C** = 7" machine-ready reel. EIA-481 embossed plastic tape (1000 parts per full reel).  
**B** = Less than full reel. In tape, but not machine ready. To have a leader and trailer added (\$25 charge), use code letter D instead.  
**D** = 13" machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (3500 parts per full reel).

- Inductance is measured at 100 kHz, 0.1 Vrms, 0 A dc on an Agilent/HP 4284A LCR meter or equivalent.
- SRF measured using an Agilent/HP 4191A or equivalent. When leads are connected in parallel, SRF is the same value.
- DC current at 25°C applied to L1 that causes the specified inductance drop from its value without current.
- Current applied to L1 that causes the specified temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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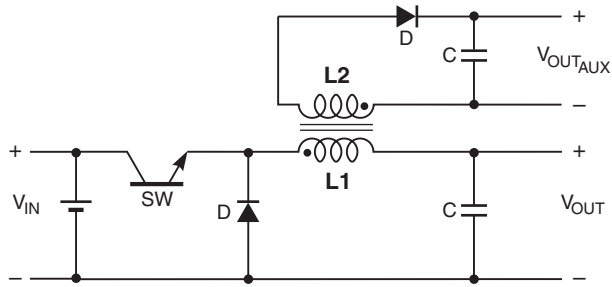
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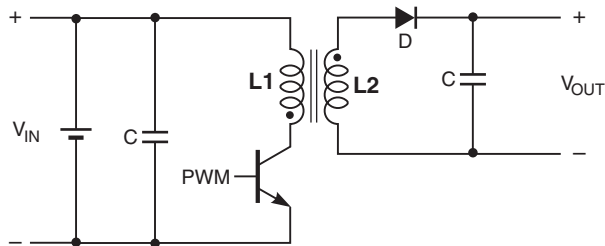
This product may not be used in medical or high risk applications without prior Coilcraft approval. Specification subject to change without notice. Please check web site for latest information.



# Coupled Inductors – LPR4012 Series



**Typical Buck Converter with auxiliary output**



**Typical Flyback Converter**

**Core material** Ferrite

**Weight** 54 – 64 mg

**Terminations** RoHS compliant matte tin over nickel over silver. Other terminations available at additional cost.

**Ambient temperature** –40°C to +85°C with I<sub>rms</sub> current

**Maximum part temperature** +125°C (ambient + temp rise)

**Storage temperature** Component: –40°C to +125°C.

Tape and reel packaging: –40°C to +80°C

**Winding to winding isolation** 100 V

**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

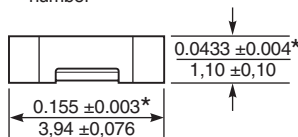
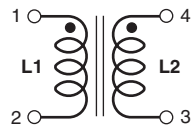
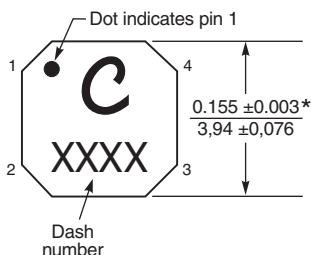
**Mean Time Between Failures (MTBF)** 26,315,789 hours

**Failures in Time (FIT)** 38 per one billion hours

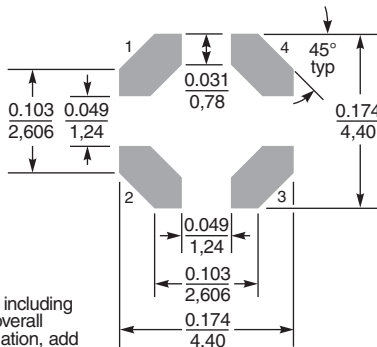
**Packaging** 1000/7" reel; 3500/13" reel Plastic tape: 12 mm wide, 0.25 mm thick, 8 mm pocket spacing, 1.32 mm pocket depth

**Recommended pick and place nozzle** OD: 4 mm; ID: ≤ 2 mm

**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787\\_PCB\\_Washing.pdf](#).



**Recommended Land Pattern**



\* Dimensions are of the case not including the termination. For maximum overall dimensions including the termination, add 0.005 in / 0,13 mm. For optional tin-lead and tin-silver-copper terminations, dimensions are for the mounted part. Dimensions before mounting can be an additional 0.005 inch / 0,13 mm).

Dimensions are in  $\frac{\text{inches}}{\text{mm}}$



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