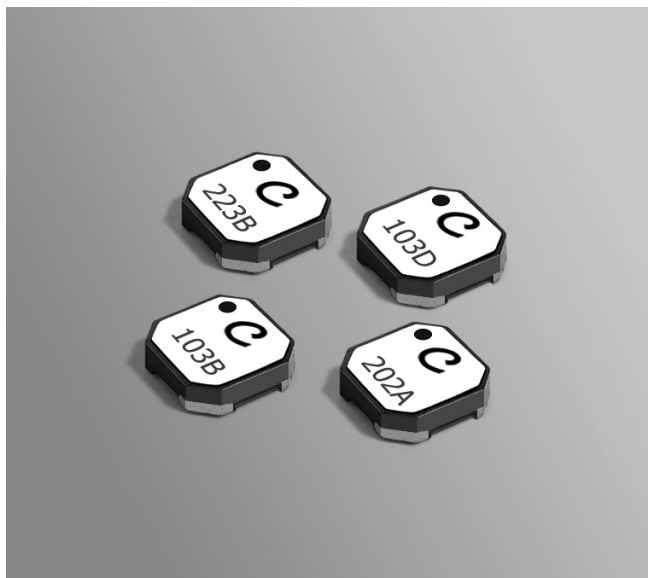




# Coupled Inductors – LPR4012

## 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  $I_{sat}$  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 applied to L1, at which the inductance drops the specified amount from its value without current.
  - Current applied to L1 that causes the specified temperature rise from 25°C ambient.
- Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



www.coilcraft.com

**US** +1-847-639-6400 sales@coilcraft.com  
**UK** +44-1236-730595 sales@coilcraft-europe.com  
**Taiwan** +886-2-2264 3646 sales@coilcraft.com.tw  
**China** +86-21-6218 8074 sales@coilcraft.com.cn  
**Singapore** +65-6484 8412 sales@coilcraft.com.sg

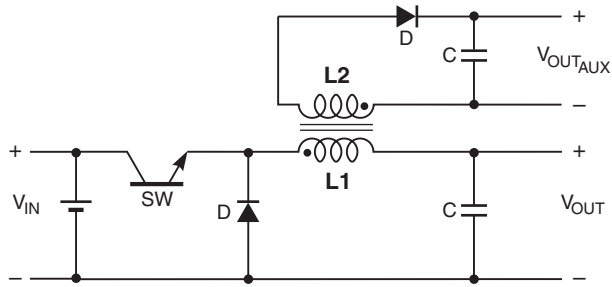
Document 713-1 Revised 04/18/14

© Coilcraft Inc. 2014

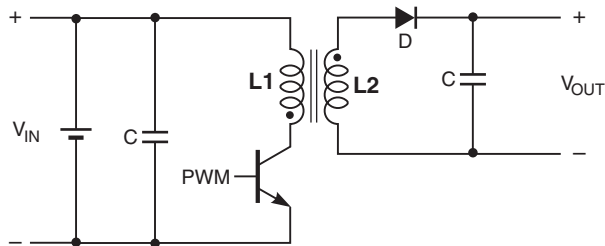
This product may not be used in medical or high risk applications without prior Coilcraft approval. Specification subject to change without notice. Please check web site for latest information.



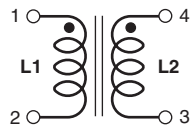
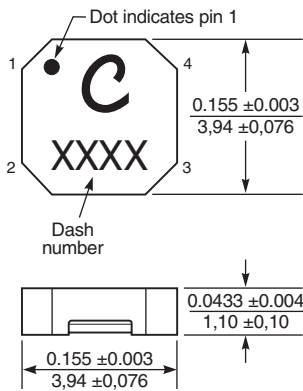
# Coupled Inductors – LPR4012 Series



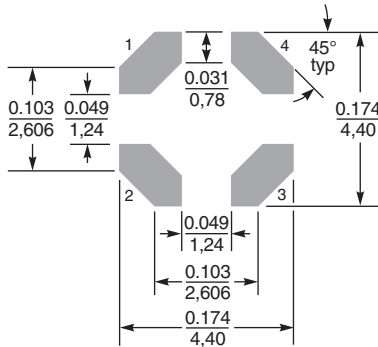
**Typical Buck Converter with auxiliary output**



**Typical Flyback Converter**



**Recommended Land Pattern**



Dimensions are in inches  
mm

**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, +85°C to +125°C with derated current

**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** Only pure water or alcohol recommended

## Current Derating

