

# Coupled Inductor – JA4590-AL



- Developed for Texas Instruments TPS40210 Current Mode Boost Controller.
- 1 : 1 coupled inductor with a coupling coefficient >0.95.
- Can be used as a transformer or as an inductor in SEPIC and Zeta applications.

**Core material** Ferrite

**Terminations** RoHS compliant matte tin over nickel over phos bronze.

**Weight** 10.8 g

**Ambient temperature** –40°C to +85°C with Irms 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** 500 Vrms

**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)

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**

38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332

**Packaging** 175/13" reel; Plastic tape: 32 mm wide, 0.5 mm thick, 24 mm pocket spacing, 14.3 mm pocket depth

**PCB washing** Tested with pure water or alcohol only. For other solvents, see Doc787\_PCB\_Washing.pdf.

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>±10% (µH) | DCR max <sup>3</sup><br>(Ohms) | SRF typ <sup>4</sup><br>(MHz) | Leakage inductance <sup>5</sup><br>max (µH) | Isat <sup>6</sup><br>(A) | Irms (A)                   |                          |
|--------------------------|--------------------------------------|--------------------------------|-------------------------------|---|--------------------------|----------------------------|--------------------------|
|                          |                                      |                                |                               |   |                          | both windings <sup>7</sup> | one winding <sup>8</sup> |
| JA4590-AL_               | 22                                   | 0.028                          | 8.0                           | 0.30  | 7.8                      | 4.20                       | 5.94                     |

1. When ordering, please specify **packaging** code:

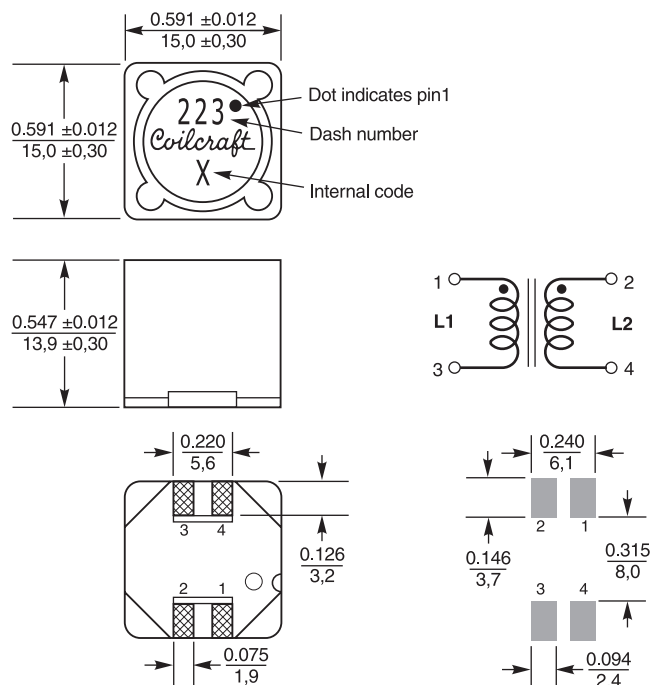
**JA4590-ALD**

**Packaging:** **D** = 13" machine-ready reel. EIA-481 embossed plastic tape (175 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.

- Inductance shown for each winding, measured at 100 kHz, 0.1 Vrms, 0 Adc on an Agilent/HP 4284A LCR meter or equivalent. When leads are connected in parallel, inductance is the same value. When leads are connected in series, inductance is four times the value.
- DCR is for each winding. When leads are connected in parallel, DCR is half the value. When leads are connected in series, DCR is twice the value.
- SRF measured using an Agilent/HP 4191A or equivalent. When leads are connected in parallel, SRF is the same value.
- Leakage inductance is for one winding.
- DC current, at which the inductance drops 20% (typ) from its value without current. It is the sum of the current flowing in both windings.
- Equal current when applied to each winding simultaneously that causes a 40°C temperature rise from 25°C ambient.
- Maximum current when applied to one winding that causes a 40°C temperature rise from 25°C ambient.

Refer to Doc 639 "Selecting Coupled Inductors for SEPIC Applications."  
Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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

**Recommended Land Pattern**