

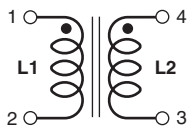
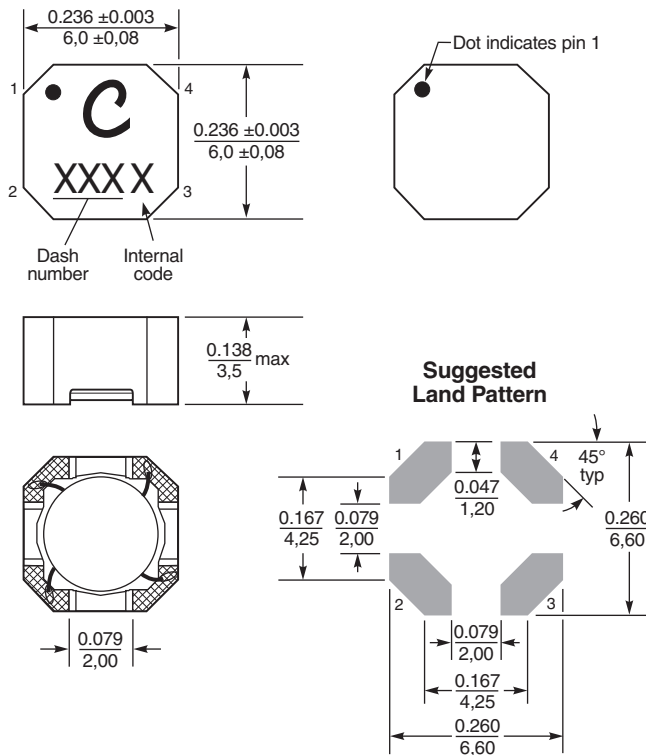
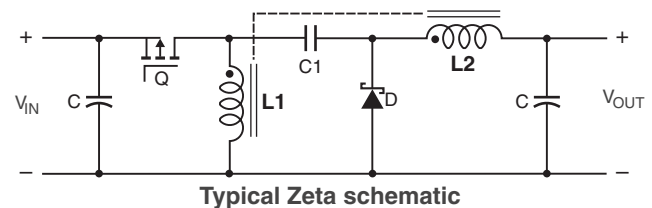
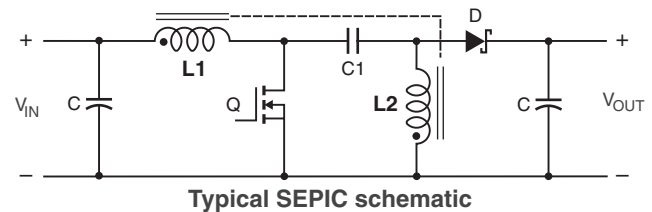
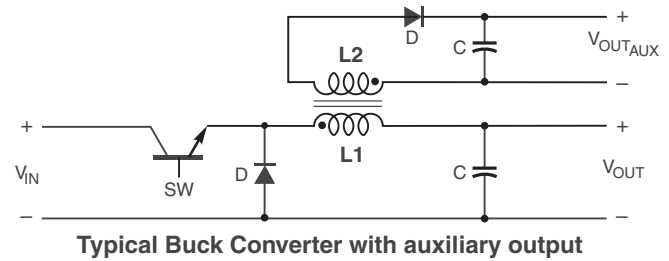
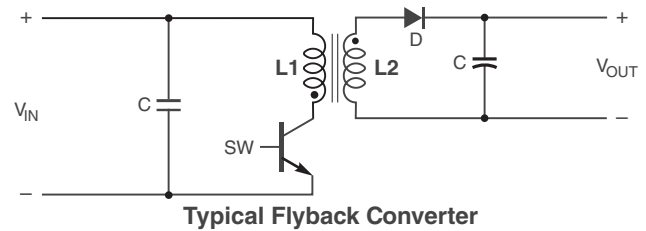
# Coupled Inductors for Critical Applications



Tight coupling ( $k \geq 0.97$ ) makes the ST512PJD series of coupled inductors ideal for use in a variety of circuits including flyback, multi-output buck, SEPIC and Zeta.

These coupled miniature shielded inductors are 3.5 mm high and 6.0 mm square. They provide high inductance, high efficiency and excellent current handling in low cost part.

They can be used as two single inductors connected in series or parallel, as a common mode choke or as a 1 : 1 transformer.



# ST512PJD Series Coupled Inductors

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>±20% (µH) | DCR<br>max <sup>3</sup><br>(Ohms) | SRF<br>typ <sup>4</sup><br>(MHz) | Coupling<br>coefficient<br>typ | Leakage <sup>5</sup><br>L typ<br>(µH) | Isat (A) <sup>6</sup> |             |             | Irms (A)                      |                             |
|--------------------------|--------------------------------------|-----------------------------------|----------------------------------|--------------------------------|---------------------------------------|-----------------------|-------------|-------------|-------------------------------|-----------------------------|
|                          |                                      |                                   |                                  |                                |                                       | 10%<br>drop           | 20%<br>drop | 30%<br>drop | both<br>windings <sup>7</sup> | one<br>winding <sup>8</sup> |
| ST512PJD682MLZ           | 6.8                                  | 0.120                             | 31                               | 0.99                           | 0.10                                  | 2.80                  | 3.00        | 3.12        | 1.40                          | 1.98                        |
| ST512PJD103MLZ           | 10                                   | 0.157                             | 26                               | 0.99                           | 0.12                                  | 2.50                  | 2.70        | 2.80        | 1.30                          | 1.83                        |
| ST512PJD223MLZ           | 22                                   | 0.300                             | 15                               | >0.99                          | 0.15                                  | 1.50                  | 1.67        | 1.73        | 0.85                          | 1.20                        |
| ST512PJD473MLZ           | 47                                   | 0.620                             | 9.7                              | >0.99                          | 0.21                                  | 0.90                  | 0.98        | 0.99        | 0.60                          | 0.85                        |
| ST512PJD104MLZ           | 100                                  | 1.20                              | 7.0                              | >0.99                          | 0.45                                  | 0.46                  | 0.50        | 0.51        | 0.40                          | 0.57                        |
| ST512PJD474MLZ           | 470                                  | 3.50                              | 3.0                              | >0.99                          | 0.61                                  | 0.18                  | 0.22        | 0.23        | 0.25                          | 0.35                        |
| ST512PJD105MLZ           | 1000                                 | 7.00                              | 1.9                              | >0.99                          | 1.05                                  | 0.12                  | 0.14        | 0.15        | 0.15                          | 0.21                        |
| ST512PJD155MLZ           | 1500                                 | 10.8                              | 1.5                              | >0.99                          | 1.70                                  | 0.10                  | 0.12        | 0.13        | 0.14                          | 0.20                        |
| ST512PJD205MLZ           | 2000                                 | 16.0                              | 1.3                              | >0.99                          | 2.10                                  | 0.08                  | 0.11        | 0.12        | 0.11                          | 0.16                        |

1. When ordering, please specify **termination** and **screening** code:

**ST512PJD105MLZ**

**Termination:** L = RoHS compliant silver-palladium-platinum-glass frit.

P = Tin-lead (63/37) over tin over nickel.

R = Matte tin over nickel over silver.

Special order: T = RoHS tin-silver-copper (95.5/4/0.5)  
or S = non-RoHS tin-lead (63/37).

**Screening:** Z = Unscreened

Y = Unscreened (SLDC Option A)

W = Unscreened (SLDC Option B)

H = Group A screening per Coilcraft CPSA-10001

G = Coilcraft CP-SA-10001 Group A (SLDC Option A)

D = Coilcraft CP-SA-10001 Group A (SLDC Option B)

- 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 L1 and is measured with L2 shorted.
- DC current, at which the inductance drops the specified amount 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. See temperature rise calculation.
- Maximum current when applied to one winding that causes a 40°C temperature rise from 25°C ambient. See temperature rise calculation.
- Electrical specifications at 25°C.

## Coupled Inductor Core and Winding Loss Calculator

This web-based utility allows you to enter frequency, peak-to-peak (ripple) current, and Irms current to predict temperature rise and overall losses, including core loss. [Go to online calculator.](#)

**Core material** Ferrite

**Weight** 400 – 480 mg

**Terminations** RoHS compliant, halogen free silver-palladium-platinum-glass frit. Other terminations available at additional cost.

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

**Maximum part temperature** +125°C

**Storage temperature** Component: –55°C to +125°C.

Tape and reel packaging: –55°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)

**Packaging** 750 per 7" reel Plastic tape: 12 mm wide, 0.32 mm thick, 8 mm pocket spacing, 3.1 mm pocket depth

**Recommended pick and place nozzle** OD: 5 mm; ID: ≤ 2.5 mm



CRITICAL PRODUCTS & SERVICES

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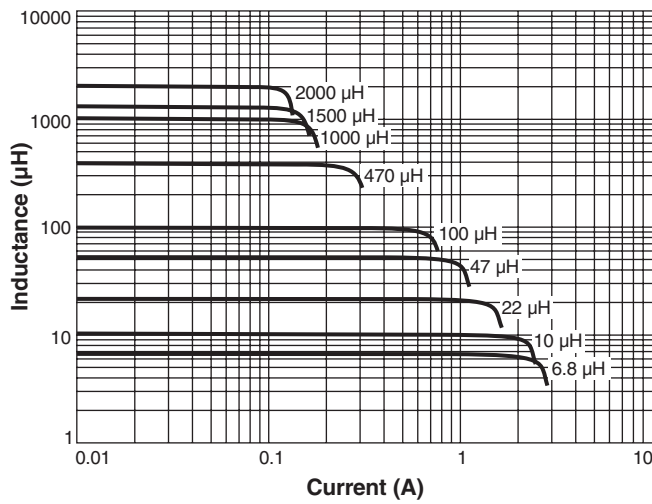
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This product may not be used in medical or high risk applications without prior Coilcraft approval. Specifications subject to change without notice. Please check our web site for latest information.

# ST512PJD Series Coupled Inductors

## L vs Current



## L vs Frequency

