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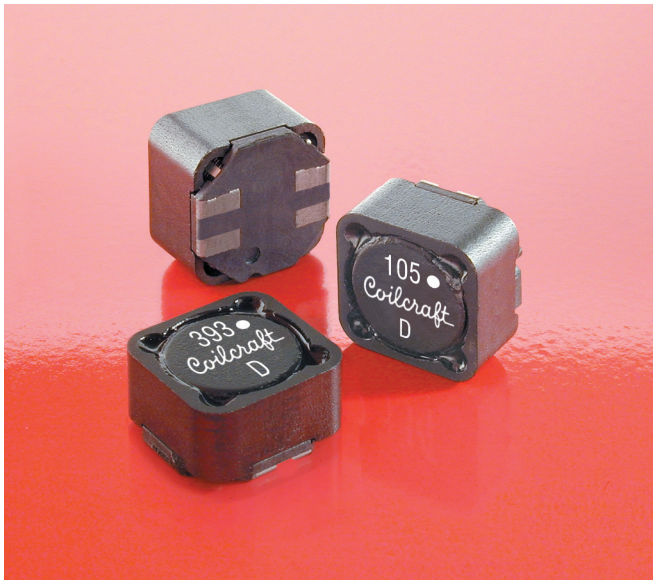
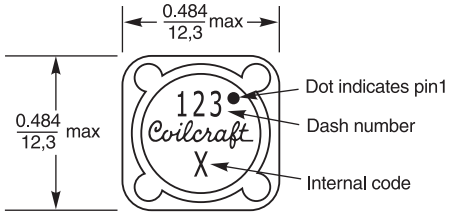
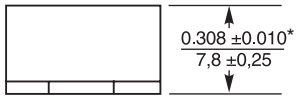
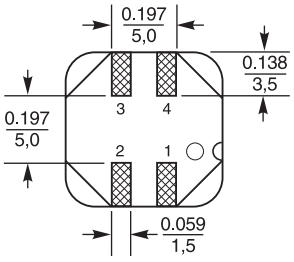
High Reliability Coupled Inductors ST612PND



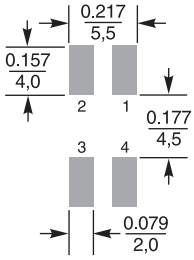
- Materials allow for –55°C storage
- Tight coupling (k ≥ 0.98) and 500 V isolation
- High inductance and high efficiency
- Excellent current handling.
- Ideal for use in a variety of circuits including flyback, multi-output buck, SEPIC and Zeta.
- Can also be used as two single inductors connected in series or parallel or as a common mode choke



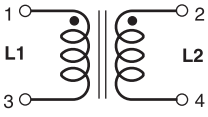




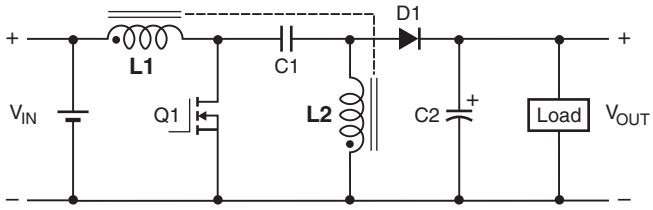
Suggested Land Pattern



* For optional tin-lead terminations, dimension is for the mounted part. Dimension before mounting can be an additional 0.012 inch (0,3 mm).



Dimensions are in inches / mm



Typical SEPIC schematic
Refer to Application Note, Document 639, "Selecting Coupled Inductors for SEPIC Applications"

Core material Ferrite

Core and winding loss Go to online calculator

Terminations Matte tin over nickel over phos bronze.

Weight: 3.8 g – 4.6 g

Ambient temperature –40°C to +125°C with Irms current

Maximum part temperature +165°C (ambient + temp rise).

Storage temperature Component: –55C to +165°C. Tape and reel packaging: –55°C to +80°C

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)

Winding-to-winding and winding-to-core isolation 500 Vrms

Enhanced crush-resistant packaging 500/13″ reel; Plastic tape: 24 mm wide, 0.4 mm thick, 16 mm pocket spacing, 8.1 mm pocket depth

Coilcraft CPS
CRITICAL PRODUCTS & SERVICES

1102 Silver Lake Road
Cary, IL 60013
Phone 800-981-0363

Fax 847-639-1508
Email cps@coilcraft.com
www.coilcraft-cps.com

Document ST704-1 Revised 05/03/23

ST612PND Series (1278)

Part number[1]	Inductance[2] (µH)	DCR max[3] (Ohms)	SRF (MHz)[4] min	SRF (MHz)[4] typ	Coupling coefficient typ	Leakage L typ (µH)	Isat (A)[5] 10% drop	Isat (A)[5] 20% drop	Isat (A)[5] 30% drop	Irms (A) both windings[6]	Irms (A) one winding[7]
ST612PND472MLZ	4.7 ±20%	0.040	26.0	33.0	0.98	0.22	13.90	15.20	16.36	3.16	4.47
ST612PND562MLZ	5.6 ±20%	0.046	24.0	30.0	0.98	0.23	13.38	14.86	15.74	2.87	4.06
ST612PND682MLZ	6.8 ±20%	0.048	18.0	23.0	0.98	0.22	12.10	13.56	14.20	2.81	3.98
ST612PND822MLZ	8.2 ±20%	0.055	16.0	20.0	0.98	0.34	10.30	11.52	12.20	2.76	3.90
ST612PND103MLZ	10 ±20%	0.058	14.0	17.0	0.98	0.34	8.80	10.00	10.66	2.56	3.62
ST612PND123MLZ	12 ±20%	0.062	12.0	15.0	0.98	0.36	8.20	9.18	9.74	2.48	3.50
ST612PND153MLZ	15 ±20%	0.072	10.0	13.0	0.99	0.41	7.40	8.36	9.03	2.30	3.25
ST612PND183MLZ	18 ±20%	0.080	9.6	12.0	0.99	0.37	6.50	7.38	7.86	2.18	3.08
ST612PND223MLZ	22 ±20%	0.096	8.8	11.0	0.99	0.41	6.00	6.80	7.26	1.99	2.81
ST612PND273MLZ	27 ±20%	0.120	8.0	10.0	0.99	0.43	5.80	6.56	7.02	1.78	2.52
ST612PND333MLZ	33 ±20%	0.150	7.6	9.5	0.99	0.56	5.50	6.10	6.52	1.59	2.25
ST612PND393MLZ	39 ±20%	0.161	6.8	8.5	0.99	0.64	4.70	5.26	5.60	1.54	2.18
ST612PND473MLZ	47 ±20%	0.180	6.0	7.5	0.99	0.70	3.70	4.34	4.60	1.45	2.05
ST612PND563MLZ	56 ±20%	0.190	5.6	7.0	0.99	0.76	3.60	4.18	4.50	1.41	2.00
ST612PND683MLZ	68 ±20%	0.210	5.2	6.5	0.99	0.88	3.50	4.04	4.32	1.35	1.90
ST612PND823MLZ	82 ±20%	0.280	4.0	5.0	0.99	0.85	3.30	3.72	4.02	1.16	1.65
ST612PND104MLZ	100 ±20%	0.300	3.6	4.5	>0.99	0.90	2.80	3.24	3.46	1.13	1.59
ST612PND124KLZ	120 ±10%	0.410	3.4	4.3	0.99	1.31	2.60	2.94	3.16	0.96	1.36
ST612PND154KLZ	150 ±10%	0.460	3.3	4.1	>0.99	1.46	2.20	2.54	2.70	0.91	1.29
ST612PND184KLZ	180 ±10%	0.510	3.2	4.0	>0.99	0.93	2.10	2.42	2.58	0.86	1.22
ST612PND224KLZ	220 ±10%	0.690	2.7	3.4	>0.99	1.54	1.90	2.16	2.28	0.74	1.05
ST612PND274KLZ	270 ±10%	0.900	2.5	3.1	>0.99	1.17	1.70	1.94	2.10	0.65	0.92
ST612PND334KLZ	330 ±10%	1.02	2.3	2.9	0.99	4.14	1.50	1.70	1.84	0.61	0.86
ST612PND394KLZ	390 ±10%	1.12	2.2	2.7	>0.99	1.64	1.40	1.60	1.70	0.58	0.82
ST612PND474KLZ	470 ±10%	1.53	1.8	2.2	>0.99	1.25	1.30	1.50	1.60	0.50	0.70
ST612PND564KLZ	560 ±10%	1.69	1.6	2.0	>0.99	2.68	1.20	1.34	1.46	0.47	0.67
ST612PND684KLZ	680 ±10%	2.29	1.4	1.7	>0.99	2.11	1.00	1.08	1.22	0.41	0.58
ST612PND824KLZ	820 ±10%	2.55	1.1	1.4	>0.99	2.39	0.900	1.04	1.18	0.39	0.55
ST612PND105KLZ	1000 ±10%	2.87	1.0	1.3	>0.99	4.28	0.850	0.95	1.05	0.37	0.52

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

   ST612PND105KLZ

   Termination: **L** = Matte tin over nickel over phos bronze.
   S = Tin-lead (63/37) over tin over nickel over phos bronze

   Screening: **Z** = Unscreened
   Y = Unscreened (SLDC Option A)
   W = Unscreened (SLDC Option B)
   H = Group A screening per Coilcraft CP-SA-10001
   G = Coilcraft CP-SA-10001 Group A (SLDC Option A)
   D = Coilcraft CP-SA-10001 Group A (SLDC Option B)
   All screening performed to the document's latest revision
   Custom screening also available

2. 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.
3. 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.
4. SRF measured using an Agilent/HP 4191A or equivalent. When leads are connected in parallel, SRF is the same value.
5. DC current at 25°C that causes the specified inductance drop from its value without current. It is the sum of the current flowing in both windings.
6. Equal current when applied to each winding simultaneously that causes a 40°C temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.
7. Maximum current when applied to one winding that causes a 40°C temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.
8. Electrical specifications at 25°C.

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

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.

Coilcraft CPS
CRITICAL PRODUCTS & SERVICES

1102 Silver Lake Road
Cary, IL 60013
Phone 800-981-0363

Fax 847-639-1508
Email cps@coilcraft.com
www.coilcraft-cps.com

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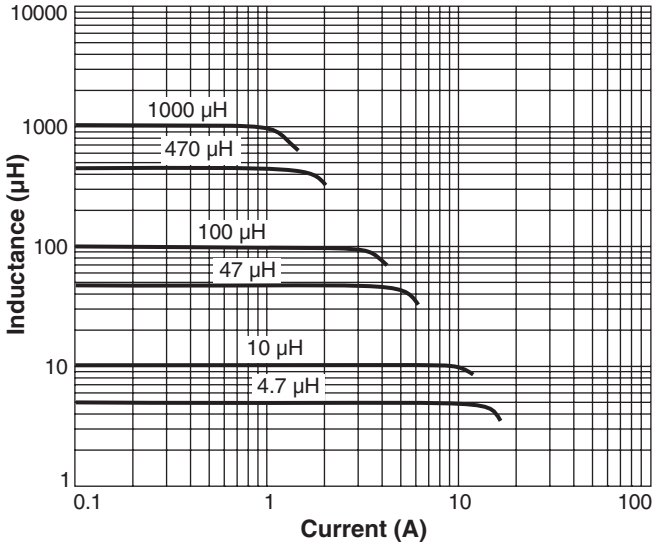
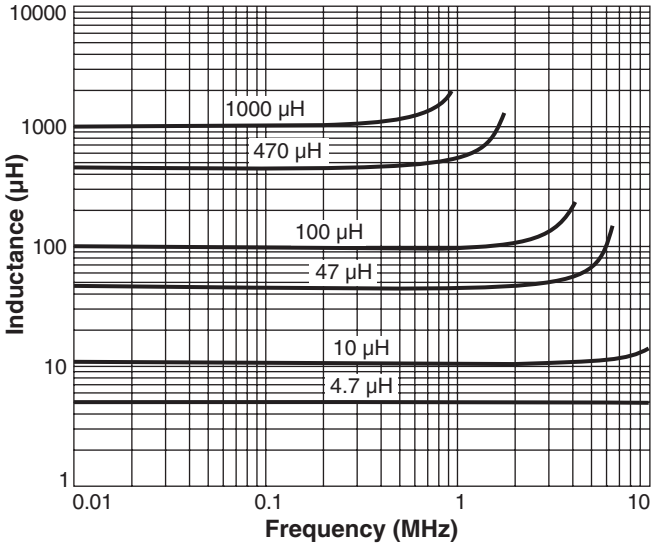
ST612PND Series (1278)

Typical L vs Current



Typical L vs Frequency



Coilcraft CPS
CRITICAL PRODUCTS & SERVICES

1102 Silver Lake Road
Cary, IL 60013
Phone 800-981-0363

Fax 847-639-1508
Email cps@coilcraft.com
www.coilcraft-cps.com

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