



NEW!

Coupled Inductors – MSD1278 Series

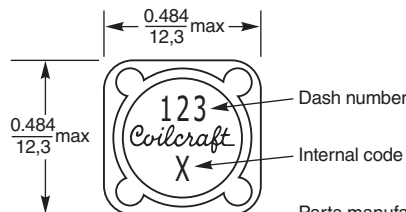
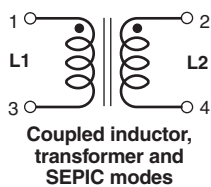


The MSD1278 series of coupled inductors provides high inductance, high efficiency and excellent current handling in a rugged, low cost part.

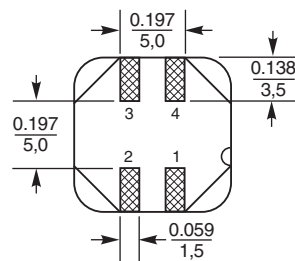
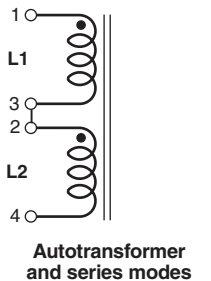
These inductors can be used as a coupled inductor, two single inductors connected in series or parallel, or as a 1:1 transformer. They offer magnetic shielding and 500 V winding-to-winding and winding-to-core isolation.

The MSD1278 inductors are ideal for use in SEPIC applications. In SEPIC topologies, the required inductance is halved for each winding, allowing selection of a part with lower DCR and higher current handling than comparable separate inductors. They are also well suited for use as a VRM inductors in high-current DC-DC converters and VRM/VRD controllers.

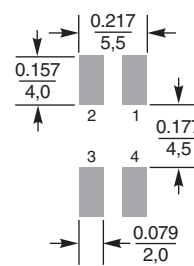
Coilcraft **Designer's Kit C400** contains samples of all values shown. To order, contact Coilcraft or purchase on-line at <http://order.coilcraft.com>.



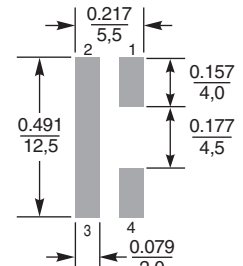
Parts manufactured prior to Sept. 2007 were marked with only the dash number.



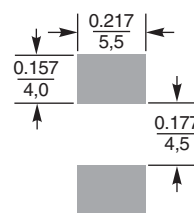
Dimensions are in $\frac{\text{inches}}{\text{mm}}$



Coupled inductor, transformer and SEPIC modes



Autotransformer and series modes



Parallel mode

Recommended Land Patterns

Weight: 3.7 – 4.4 g
Tape and reel: 500/13" reel 24 mm tape width
For packaging data see Tape and Reel Specifications section.



Specifications subject to change without notice.
Please check our website for latest information.

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Coupled Inductors - MSD1278 Series

Part number ¹	Leads connected in parallel					Leads connected in series				
	Inductance ^{2,3} (μ H)	DCR max ⁴ (Ohms)	SRF typ ⁵ (MHz)	Isat ⁶ (A)	I _{rms} ⁷ (A)	Inductance ³ (μ H)	DCR max ⁸ (Ohms)	SRF typ ⁵ (MHz)	Isat ⁶ (A)	I _{rms} ⁷ (A)
MSD1278-472ML_	4.7 \pm 20%	0.019	32.0	14.9	7.4	18.8 \pm 25%	0.076	12.0	7.7	3.6
MSD1278-562ML_	5.6 \pm 20%	0.023	25.0	13.4	7.2	22.4 \pm 25%	0.092	10.4	6.6	3.5
MSD1278-682ML_	6.8 \pm 20%	0.024	24.0	13.1	6.9	27.2 \pm 25%	0.096	9.5	6.4	3.4
MSD1278-822ML_	8.2 \pm 20%	0.025	18.0	10.8	6.6	32.8 \pm 25%	0.100	7.2	5.6	3.3
MSD1278-103ML_	10 \pm 20%	0.029	16.5	10.5	6.2	40 \pm 25%	0.116	6.6	5.4	3.2
MSD1278-123ML_	12 \pm 20%	0.031	14.5	9.6	6.0	48 \pm 25%	0.124	5.4	4.8	2.9
MSD1278-153ML_	15 \pm 20%	0.036	11.8	9.1	5.8	60 \pm 25%	0.144	5.0	4.3	2.7
MSD1278-183ML_	18 \pm 20%	0.040	10.5	8.0	5.5	72 \pm 25%	0.158	3.8	3.9	2.5
MSD1278-223ML_	22 \pm 20%	0.048	9.0	6.8	5.2	88 \pm 25%	0.190	3.4	3.5	2.2
MSD1278-273ML_	27 \pm 20%	0.060	8.4	6.5	4.7	108 \pm 25%	0.240	3.2	3.4	2.0
MSD1278-333ML_	33 \pm 20%	0.075	7.6	5.6	4.2	132 \pm 25%	0.300	3.0	3.1	1.7
MSD1278-393ML_	39 \pm 20%	0.080	6.5	5.5	3.6	156 \pm 25%	0.320	2.6	2.8	1.6
MSD1278-473ML_	47 \pm 20%	0.090	6.0	5.2	3.0	188 \pm 25%	0.360	2.1	2.6	1.5
MSD1278-563ML_	56 \pm 20%	0.095	5.6	4.5	2.8	224 \pm 25%	0.380	2.0	2.4	1.4
MSD1278-683ML_	68 \pm 20%	0.105	5.0	4.1	2.6	272 \pm 25%	0.420	1.6	2.1	1.3
MSD1278-823ML_	82 \pm 20%	0.140	4.1	3.8	2.3	328 \pm 25%	0.560	1.3	1.9	1.2
MSD1278-104ML_	100 \pm 20%	0.150	3.6	3.4	2.0	400 \pm 25%	0.600	1.1	1.7	1.1
MSD1278-124KL_	120 \pm 10%	0.205	3.2	3.2	1.9	480 \pm 25%	0.820	1.0	1.6	1.0
MSD1278-154KL_	150 \pm 10%	0.230	3.0	2.8	1.8	600 \pm 25%	0.920	0.82	1.4	0.89
MSD1278-184KL_	180 \pm 10%	0.255	2.7	2.5	1.7	720 \pm 25%	1.02	0.70	1.3	0.84
MSD1278-224KL_	220 \pm 10%	0.345	2.5	2.3	1.6	880 \pm 25%	1.38	0.64	1.1	0.75
MSD1278-274KL_	270 \pm 10%	0.450	2.1	2.1	1.5	1080 \pm 25%	1.80	0.55	1.0	0.71
MSD1278-334KL_	330 \pm 10%	0.510	2.0	1.9	1.3	1320 \pm 25%	2.04	0.47	0.92	0.62
MSD1278-394KL_	390 \pm 10%	0.560	1.8	1.7	1.1	1560 \pm 25%	2.24	0.41	0.84	0.53
MSD1278-474KL_	470 \pm 10%	0.765	1.6	1.6	0.87	1880 \pm 25%	3.06	0.36	0.80	0.43
MSD1278-564KL_	560 \pm 10%	0.845	1.5	1.5	0.83	2240 \pm 25%	3.38	0.31	0.73	0.40
MSD1278-684KL_	680 \pm 10%	1.145	1.4	1.3	0.76	2720 \pm 25%	4.58	0.30	0.63	0.36
MSD1278-824KL_	820 \pm 10%	1.275	1.3	1.2	0.69	3280 \pm 25%	5.10	0.24	0.58	0.33
MSD1278-105KL_	1000 \pm 10%	1.415	1.1	1.1	0.60	4000 \pm 25%	5.66	0.20	0.56	0.30

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

MSD1278-105KL D

Termination: L = RoHS compliant matte tin over nickel over phos bronze
Special order: T = RoHS tin-silver-copper (95.5/4/0.5) or S = non-RoHS tin-lead (63/37).

Packaging: D = 13" machine-ready reel. EIA-481 embossed plastic tape (500 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 coupled inductor and for two inductors connected in parallel.
- Inductance is measured at 100 kHz, 0.1 Vrms, 0 Adc on an Agilent/HP 4284A LC meter or equivalent.
- DCR is for both windings connected in parallel. DCR for each winding is twice the value.
- SRF measured using an Agilent/HP 4191A or equivalent.
- DC current at which the inductance drops 30% (typ) from its value without current.
- Current that causes a 40°C temperature rise from 25°C ambient.
- DCR is for both windings.
- Ambient temperature range:** -40°C to +85°C with I_{rms} current
+85°C to +125°C with derated current
- Storage temperature range:** Component: -55°C to +125°C
Packaging: -55°C to +80°C
- Resistance to soldering heat:** Three reflows at >217°C for 90 seconds (+260°C \pm 5°C for 20 – 40 seconds), allowing parts to cool to room temperature between.
- Electrical specifications at 25°C.

See Qualification Standards section for environmental and test data.

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

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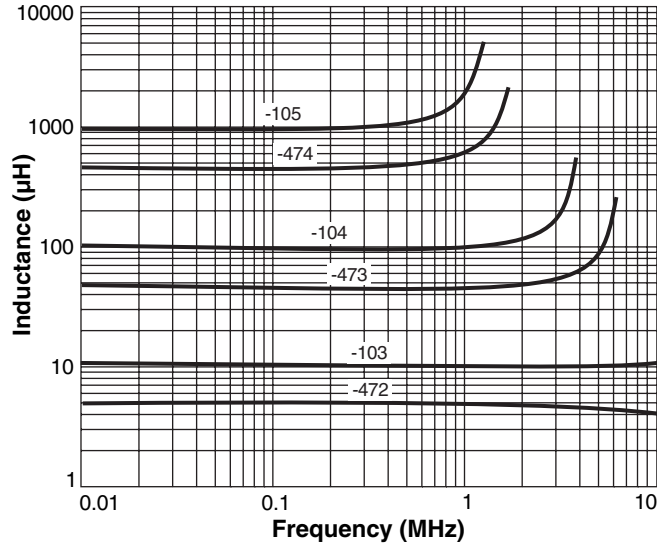


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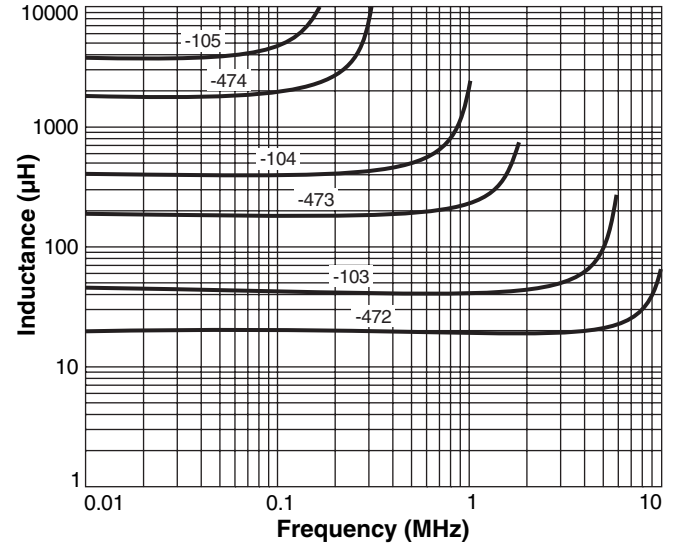
Coupled Inductors - MSD1278 Series

Typical L vs Frequency

Leads connected in parallel

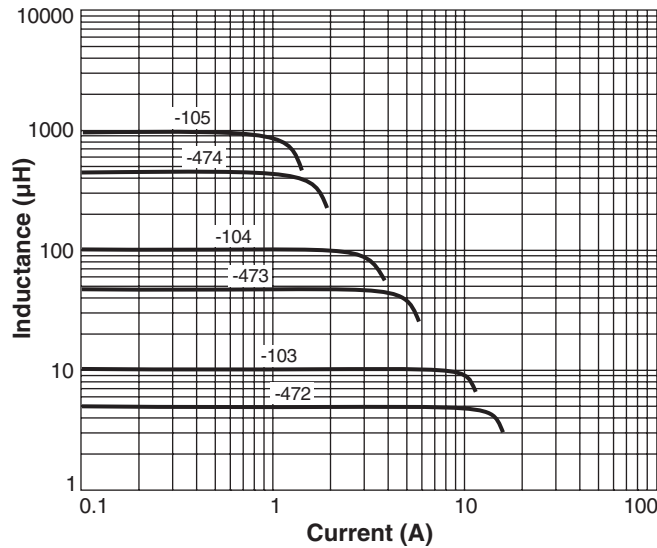


Leads connected in series

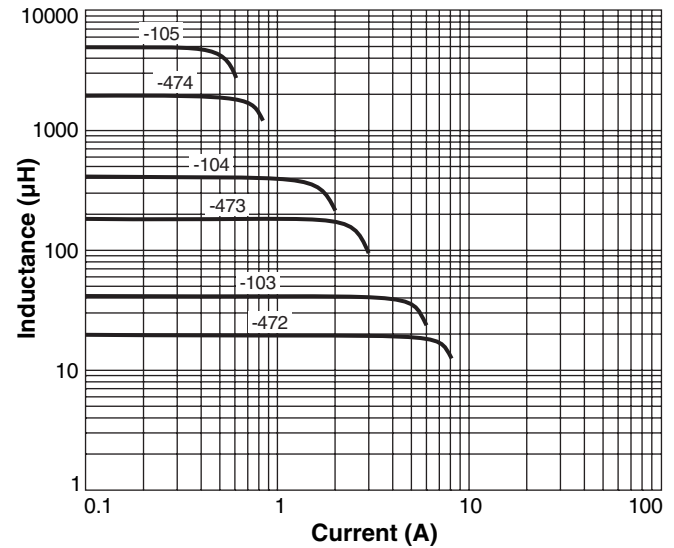


Typical L vs Current

Leads connected in parallel



Leads connected in series



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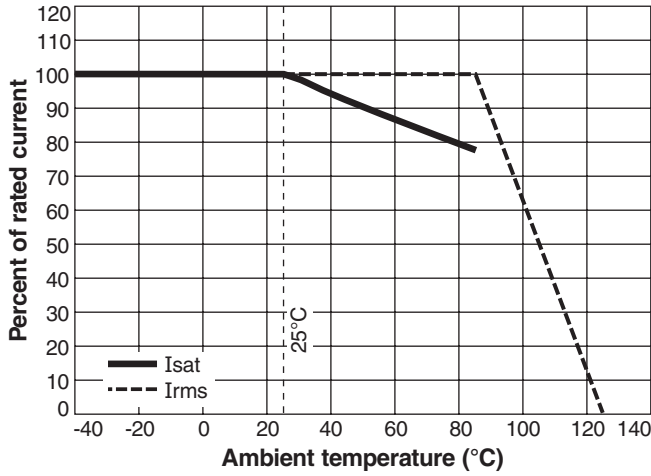


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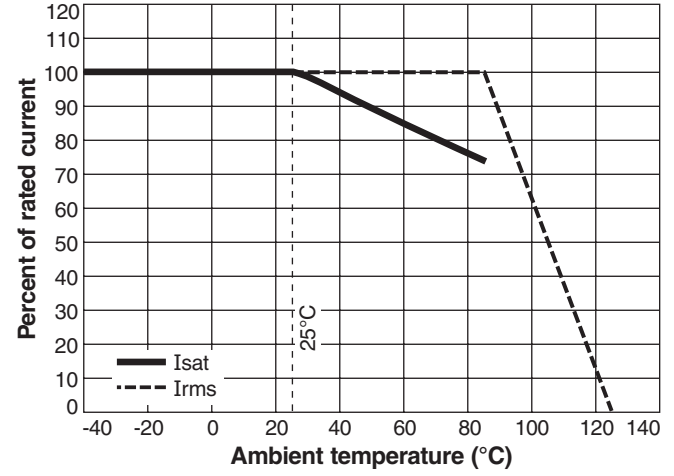
Coupled Inductors - MSD1278 Series

Typical Isat Derating

Leads connected in parallel



Leads connected in series



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