

GENERAL

Coiltronics Low Cost Power Inductors are manufactured using low loss powdered iron cores. These toroidal inductors deliver stable electrical operating characteristics with low radiated fields for a wide range of user applications.

Low Cost Power Inductors are constructed to maximize inductor efficiency by minimizing copper losses. This ensures the lowest possible temperature rise at the maximum current rating.

These devices are available in vertical and horizontal self leaded and header mounted configurations. This offers the designer several mounting options for flexibility in today's high density electronic packages.

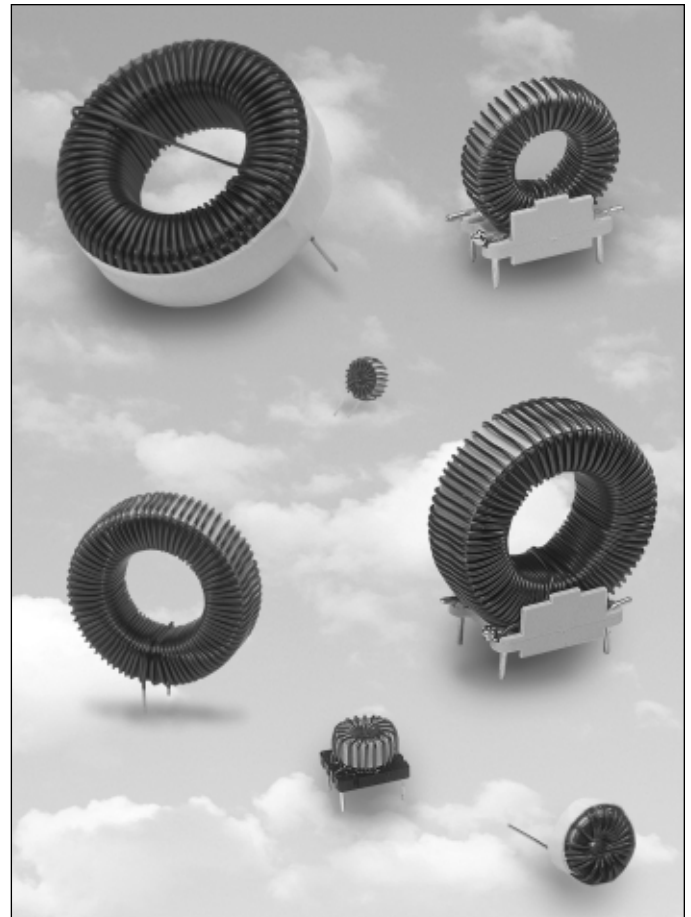
Low Cost Power Inductors are designed and manufactured in accordance with the highest standards for quality and reliability.

FEATURE - BENEFITS

- Powdered iron cores provide low cost solutions to power inductor applications.
- Available with vertical leads, horizontal leads, or header mounts.
- Inductance values range from 10 to 1000 μ H.
- Current values range from 1.5 to 31.5 Amps.
- Off-the-shelf availability.

ENVIRONMENTAL SPECIFICATIONS

- Storage Temperature Range:
-40°C to +105°C.
- Operating Ambient Temperature Range:
-40°C to +75°C
Range is application specific
- Meets UL 94V-O Flammability Standard



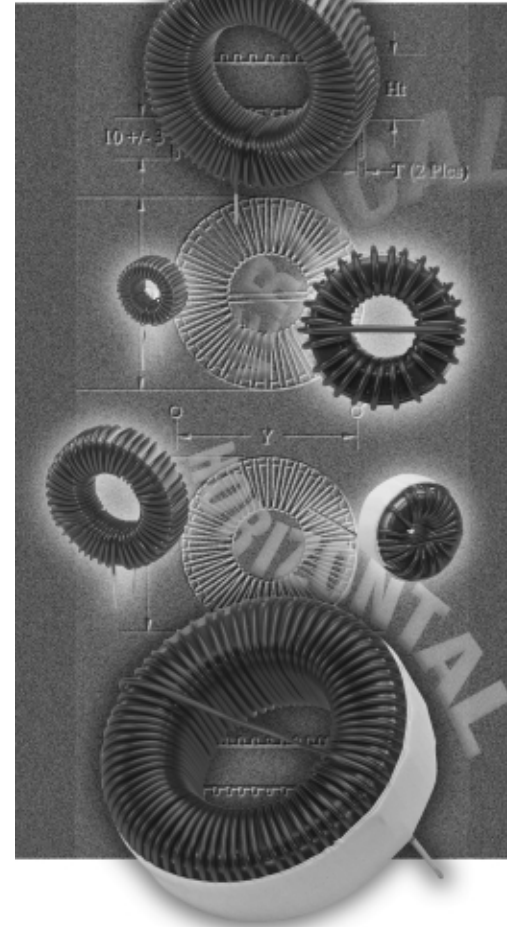
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MECHANICAL DIMENSIONS

Vertical and Horizontal Self Leaded Mounting Options								
Vertical P/N See Figure 1	Horizontal P/N See Figure 2	OD (max)	ID (typ)	Ht (max)	X (typ)	Y (typ)	T (typ)	H (typ)
CTX10-1-52	CTX10-1-52LP	8.6	0.0	4.7	3.8	7.3	0.42	0.67
CTX20-1-52	CTX20-1-52LP	9.1	0.0	6.7	5.6	7.4	0.37	0.62
CTX50-1-52	CTX50-1-52LP	16.2	4.2	9.0	7.5	13.7	0.58	0.83
CTX100-1-52	CTX100-1-52LP	15.5	4.2	12.4	10.7	13.7	0.58	0.83
CTX150-1-52	CTX150-1-52LP	20.7	6.6	9.4	7.8	18.8	0.52	0.77
CTX250-1-52	CTX250-1-52LP	20.9	6.0	13.0	11.0	18.8	0.52	0.77
CTX500-1-52	CTX500-1-52LP	24.0	9.0	15.3	14.0	21.2	0.52	0.77
CTX750-1-52	CTX750-1-52LP	29.8	11.7	17.4	15.6	28.2	0.52	0.77
CTX1000-1-52	CTX1000-1-52LP	29.8	11.7	17.1	15.5	28.0	0.46	0.71
CTX10-2-52	CTX10-2-52LP	12.7	0.0	7.8	6.3	11.0	0.71	0.96
CTX20-2-52	CTX20-2-52LP	12.5	0.0	7.5	6.3	11.0	0.58	0.83
CTX50-2-52	CTX50-2-52LP	21.6	6.1	13.6	11.0	19.5	0.89	1.14
CTX100-2-52	CTX100-2-52LP	24.0	8.8	16.6	13.9	21.8	0.89	1.14
CTX150-2-52	CTX150-2-52LP	30.6	11.2	11.4	9.3	28.5	0.80	1.05
CTX250-2-52	CTX250-2-52LP	31.2	9.1	19.0	15.7	28.5	0.89	1.14
CTX500-2-52	CTX500-2-52LP	36.7	11.7	14.8	12.5	34.5	0.71	0.96
CTX750-2-52	CTX750-2-52LP	43.3	19.9	18.2	15.8	41.5	0.80	1.05
CTX10-5-52	CTX10-5-52LP	22.2	5.4	13.9	11.5	19.9	1.11	1.36
CTX20-5-52	CTX20-5-52LP	24.5	8.8	16.6	14.5	22.0	0.89	1.14
CTX50-5-52	CTX50-5-52LP	32.3	10.1	18.9	16.5	28.8	1.11	1.36
CTX100-5-52	CTX100-5-52LP	37.8	11.2	16.8	13.6	35.5	1.24	1.49
CTX150-5-52	CTX150-5-52LP	46.4	18.8	19.8	16.8	43.4	1.24	1.49
CTX250-5-52	CTX250-5-52LP	53.7	18.8	24.3	20.1	49.4	1.38	1.63
CTX10-7-52	CTX10-7-52LP	25.7	6.5	18.0	16.0	22.4	1.38	1.63
CTX20-7-52	CTX20-7-52LP	32.4	8.5	19.8	16.8	29.2	1.38	1.63
CTX50-7-52	CTX50-7-52LP	39.0	10.8	16.8	13.9	35.7	1.38	1.63
CTX100-7-52	CTX100-7-52LP	48.5	17.1	21.8	17.2	43.4	1.73	1.98
CTX150-7-52	CTX150-7-52LP	54.5	17.1	25.4	21.2	50.9	1.73	1.98
CTX10-10-52	CTX10-10-52LP	34.0	7.0	21.4	17.0	29.6	1.73	1.98
CTX20-10-52	CTX20-10-52LP	40.5	9.0	18.0	14.3	35.2	1.73	1.98
CTX50-10-52	CTX50-10-52LP	47.5	17.1	21.3	17.5	42.8	1.73	1.98
CTX100-10-52	CTX100-10-52LP	57.0	15.0	27.5	21.3	50.6	2.15	2.45
CTX10-16-52	CTX10-16-52LP	50.3	13.0	24.0	18.6	43.0	2.41	2.70
CTX20-16-52	CTX20-16-52LP	59.0	13.0	28.0	23.0	50.7	2.69	2.99

Note: All dimensions are in millimeters.



**VERTICAL
SELF LEADED
MOUNT**

**HORIZONTAL
SELF LEADED
MOUNT**

FIGURE 1

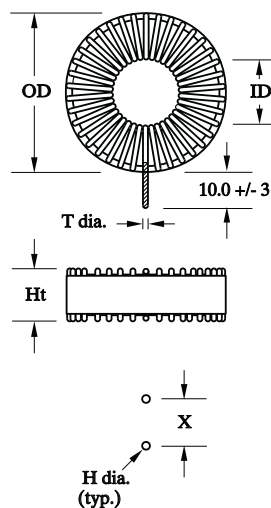
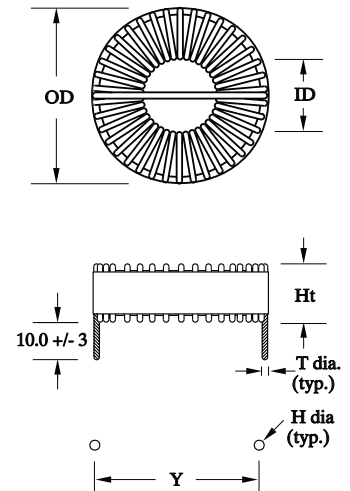


FIGURE 2



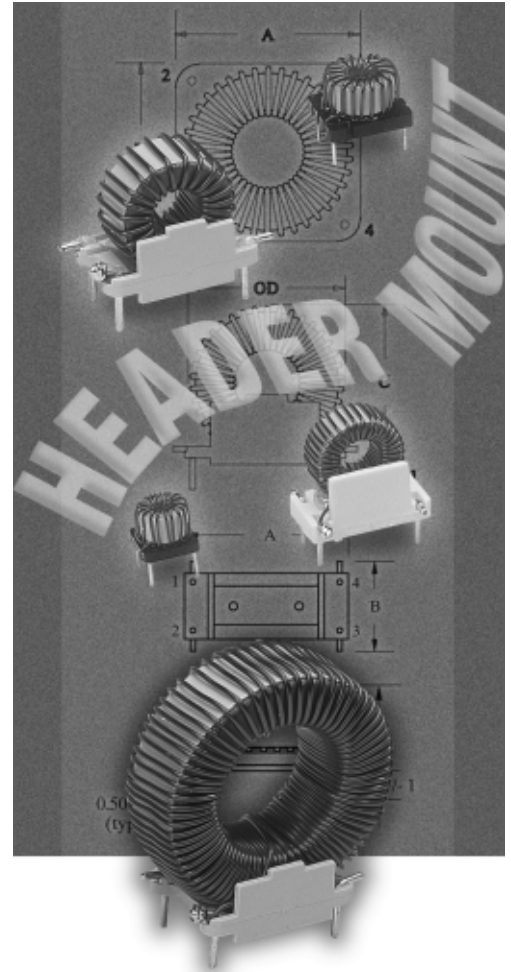
Drawings are not to scale.

MECHANICAL DIMENSIONS

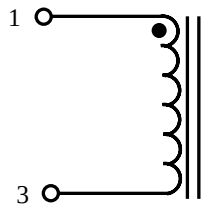
Header Mounted Option

Header Mounted Part Number	See Figure #	OD (max)	A (max)	B (max)	C (max)	X (typ)	Y (typ)	T (typ)	H (typ)
CTX10-1-52M	3	8.6	9.4	9.4	6.9	6.5	6.5	—	—
CTX20-1-52M	3	9.1	9.4	9.4	9.0	6.5	6.5	—	—
CTX50-1-52M	4	16.2	19.6	16.1	20.0	15.3	6.4	—	—
CTX100-1-52M	4	15.5	19.6	16.1	19.7	15.3	6.4	—	—
CTX150-1-52M	4	20.7	19.6	16.1	24.2	15.3	6.4	—	—
CTX250-1-52M	5	20.9	31.0	16.0	22.5	20.3	10.2	1.20	1.45
CTX500-1-52M	5	24.0	35.4	21.7	25.0	23.0	15.4	1.20	1.45
CTX750-1-52M	5	29.8	35.4	21.7	31.6	23.0	15.4	1.20	1.45
CTX1000-1-52M	5	29.8	35.4	21.7	31.2	23.0	15.4	1.20	1.45
CTX10-2-52M	3	12.7	13.6	11.4	11.7	10.8	7.5	—	—
CTX20-2-52M	3	12.5	13.6	11.4	11.4	10.8	7.5	—	—
CTX50-2-52M	5	21.6	31.0	16.0	23.5	20.3	10.2	1.20	1.45
CTX100-2-52M	5	24.0	35.4	21.7	26.0	23.0	15.4	1.20	1.45
CTX150-2-52M	5	30.6	31.0	16.0	32.5	20.3	10.2	1.20	1.45
CTX250-2-52M	5	31.2	35.4	21.7	33.4	23.0	15.4	1.20	1.45
CTX500-2-52M	5	36.7	31.0	16.0	38.4	20.3	10.2	1.20	1.45
CTX750-2-52M	5	43.3	35.4	21.7	45.4	23.0	15.4	1.20	1.45
CTX10-5-52M	5	22.2	31.0	16.0	22.7	20.3	10.2	1.20	1.45
CTX20-5-52M	5	24.5	35.4	21.7	25.5	23.0	15.4	1.20	1.45
CTX50-5-52M	5	32.3	35.4	21.7	33.7	23.0	15.4	1.11	1.36
CTX100-5-52M	5	37.8	35.4	21.7	40.2	23.0	15.4	1.24	1.49
CTX150-5-52M	5	46.4	35.4	21.7	47.0	23.0	15.4	1.24	1.49
CTX10-7-52M	5	25.7	35.4	21.7	26.7	23.0	15.4	1.38	1.63
CTX20-7-52M	5	32.4	35.4	21.7	34.2	23.0	15.4	1.38	1.63
CTX50-7-52M	5	39.0	35.4	21.7	40.3	23.0	15.4	1.38	1.63

Note: All dimensions are in millimeters.



CONNECTION DIAGRAM



HEADER MOUNT

FIGURE 3

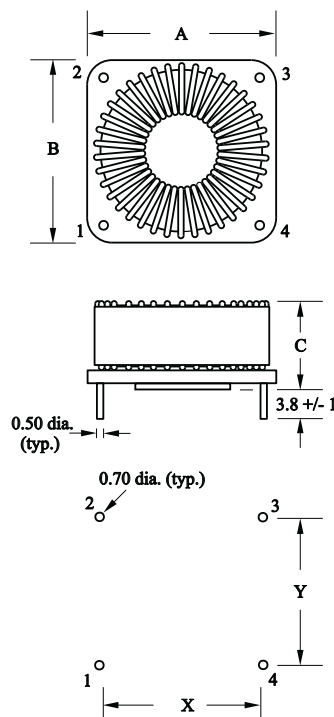


FIGURE 4

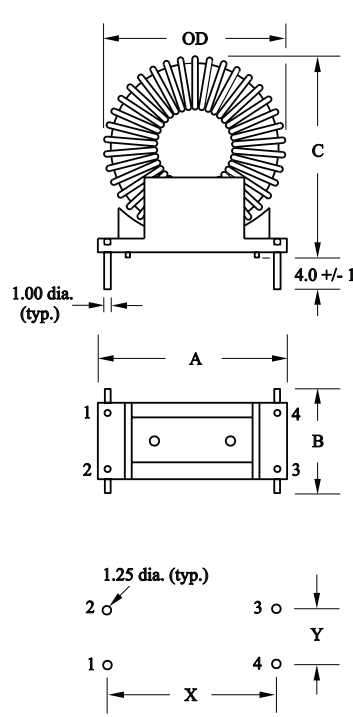
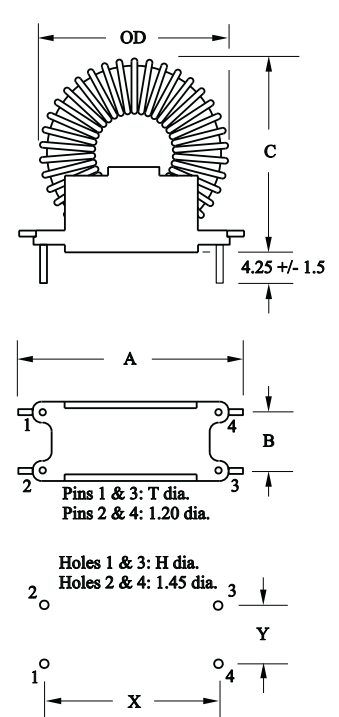


FIGURE 5



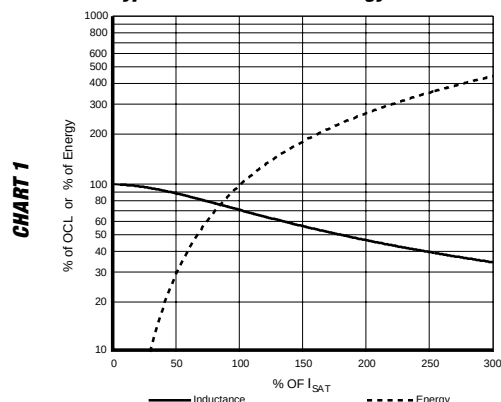
Drawings are not to scale.

LOW COST POWER INDUCTOR FAMILY TABLE

Vertical Part Number	Horizontal Part Number	Header Mounted Part Number	Inductance μH (rated)	OCL ⁽¹⁾ $\mu\text{H} \pm 20\%$	I _{DC} ⁽²⁾ Amperes	I _{SAT} ⁽³⁾ Amperes	Volt- μSec ⁽⁴⁾ μVs	Energy ⁽⁵⁾ μJ	DCR (Ω) ⁽⁶⁾ max
CTX10-1-52	CTX10-1-52LP	CTX10-1-52M	10	10.14	2.4	2.1	5.4	15	0.0481
CTX20-1-52	CTX20-1-52LP	CTX20-1-52M	20	20.22	1.8	2.2	7.8	36	0.0829
CTX50-1-52	CTX50-1-52LP	CTX50-1-52M	50	50.29	2.6	2.7	16.3	130	0.0715
CTX100-1-52	CTX100-1-52LP	CTX100-1-52M	100	100.40	2.5	2.4	27.5	197	0.1060
CTX150-1-52	CTX150-1-52LP	CTX150-1-52M	150	151.70	2.1	2.3	35.7	283	0.1620
CTX250-1-52	CTX250-1-52LP	CTX250-1-52M	250	250.90	1.9	2.2	47.8	421	0.2210
CTX500-1-52	CTX500-1-52LP	CTX500-1-52M	500	505.00	1.7	1.9	77.9	645	0.3610
CTX750-1-52	CTX750-1-52LP	CTX750-1-52M	750	754.40	1.8	2.4	114.3	1530	0.4340
CTX1000-1-52	CTX1000-1-52LP	CTX1000-1-52M	1000	1004.00	1.5	2.1	131.9	1530	0.6380
CTX10-2-52	CTX10-2-52LP	CTX10-2-52M	10	9.60	4.7	4.5	6.6	68	0.0183
CTX20-2-52	CTX20-2-52LP	CTX20-2-52M	20	19.60	3.2	3.2	9.4	69	0.0392
CTX50-2-52	CTX50-2-52LP	CTX50-2-52M	50	50.00	4.9	4.9	21.3	420	0.0326
CTX100-2-52	CTX100-2-52LP	CTX100-2-52M	100	101.70	4.4	4.3	35.0	643	0.0534
CTX150-2-52	CTX150-2-52LP	CTX150-2-52M	150	148.00	4.3	4.0	47.6	829	0.0719
CTX250-2-52	CTX250-2-52LP	CTX250-2-52M	250	251.10	4.2	4.2	66.0	1540	0.0833
CTX500-2-52	CTX500-2-52LP	CTX500-2-52M	500	499.40	3.1	3.3	104.0	1890	0.1830
CTX750-2-52	CTX750-2-52LP	CTX750-2-52M	750	749.30	3.4	3.4	147.3	2960	0.2080
CTX10-5-52	CTX10-5-52LP	CTX10-5-52M	10	9.68	8.7	11.1	9.4	417	0.0104
CTX20-5-52	CTX20-5-52LP	CTX20-5-52M	20	21.25	7.8	9.3	16.0	643	0.0260
CTX50-5-52	CTX50-5-52LP	CTX50-5-52M	50	49.60	7.6	9.4	29.3	1530	0.0248
CTX100-5-52	CTX100-5-52LP	CTX100-5-52M	100	97.20	8.2	7.5	45.7	1890	0.0267
CTX150-5-52	CTX150-5-52LP	CTX150-5-52M	150	150.60	7.7	7.5	66.0	2960	0.0401
CTX250-5-52	CTX250-5-52LP	CTX250-5-52M	250	254.40	9.2	8.1	102.4	5860	0.0400
CTX10-7-52	CTX10-7-52LP	CTX10-7-52M	10	10.04	11.4	13.5	11.0	640	0.0080
CTX20-7-52	CTX20-7-52LP	CTX20-7-52M	20	20.96	11.4	14.5	19.1	1540	0.0110
CTX50-7-52	CTX50-7-52LP	CTX50-7-52M	50	52.27	10.5	10.2	33.5	1900	0.0163
CTX100-7-52	CTX100-7-52LP	CTX100-7-52M	100	101.40	12.0	9.1	54.2	2960	0.0167
CTX150-7-52	CTX150-7-52LP	CTX150-7-52M	150	152.80	12.8	10.5	79.3	5900	0.0204
CTX10-10-52	CTX10-10-52LP	CTX10-10-52M	10	10.04	16.9	20.9	13.2	1530	0.0051
CTX20-10-52	CTX20-10-52LP	CTX20-10-52M	20	21.17	16.0	16.0	21.3	1900	0.0070
CTX50-10-52	CTX50-10-52LP	CTX50-10-52M	50	52.37	13.9	12.7	38.9	2960	0.0124
CTX100-10-52	CTX100-10-52LP	CTX100-10-52M	100	99.38	17.6	13.0	64.0	5880	0.0109
CTX10-16-52	CTX10-16-52LP	CTX10-16-52M	10	9.90	27.3	29.3	16.9	2970	0.0032
CTX20-16-52	CTX20-16-52LP	CTX20-16-52M	20	19.24	31.5	29.5	28.1	5860	0.0034

Notes: (1) Open circuit inductance test parameters: 100kHz, 0.250Vrms, 0 Adc.
(2) DC current for an approximate ΔT of 30°C at 75°C Ambient with no core loss. See Chart 2 for derating of I_{DC} with core loss.
(3) Peak current for an approximate 30% roll-off in OCL. For other current levels see Chart 1.
(4) Applied Volt-Time product (μVs) across the inductor. This value represents the μVs at 100kHz necessary to generate a core loss equal to 10% of the total losses for 30°C rise. For other frequencies and operating levels see Chart 2. (Note: skin effect losses not included.)
(5) Energy storage (μJ) at I_{SAT}. For other current levels see Chart 1.
(6) Maximum D.C. resistance at 20°C.

Typical Inductance and Energy vs DC Current



Winding Loss Derating with Core Loss

