

UNI-PAC™

18

I N D U C T O R S

GENERAL

UNI-PACs are surface mount inductors designed for use in applications requiring low inductance and high current in a miniature package. They can be used in DC/DC converters and as signal conditioning or filter inductors. Available standard inductance values range from 0.47 to 100 μ H. RMS current values range from 19.2 to 0.47 Amperes.

Because of their miniature size and rugged construction, UNI-PACs are ideally suited for products requiring higher power per millimeter of PCB space. Such applications include notebook computers, pagers, and a variety of battery powered equipment. Their versatility extends to use in DC/DC converters on all board level products from personal computers to industrial-level VME products.

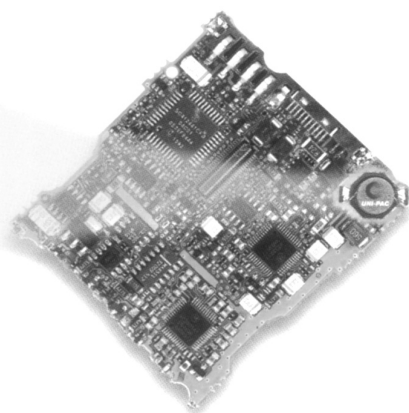
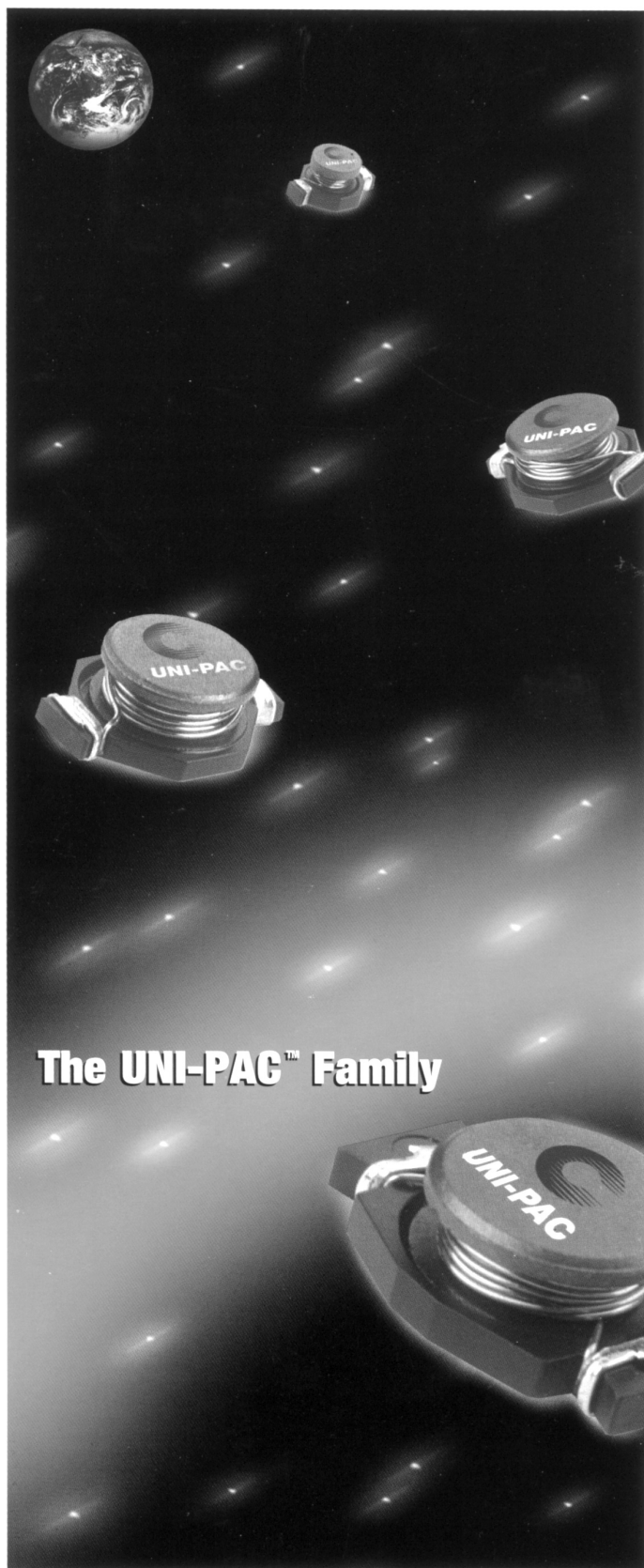
UNI-PACs are engineered for high volume production using automated surface mount technology. Their tape-and-reel packaging accommodates reliable pick-and-place manufacturing, and their construction permits normal exposure to infrared reflow soldering to +240°C.

In addition to the standard inductance values shown, modified UNI-PAC inductors are available to meet your exact high volume requirements.

FEATURE - BENEFITS

- Miniature Surface Mount Design
- Inductance Range from 0.47 μ H to 100 μ H
- Current Range from 19.2 Amps to .47 Amps
- Maximum Power Density
- Supplied in Tape-and-Reel Packaging for Pick-and-Place Utilization
- Modified Standard Products are Available

The UNI-PAC™ Family



UNI-PAC™

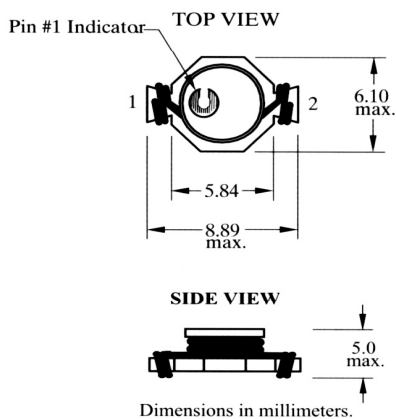
UNI-PAC 1B FAMILY TABLE

Part Number	Inductance μH (rated)	OCL ⁽¹⁾ $\mu\text{H} \pm 20\%$	I _{RMS} ⁽²⁾ Amperes	I _{SAT} ⁽³⁾ Amperes	DCR ⁽⁴⁾ Ohms max.
UP1B-R47	0.47	0.569	6.0	7.7	0.0097
*UP1B-1R0	1.0	1.20	4.4	5.3	0.0177
UP1B-1R5	1.5	1.61	4.2	4.5	0.0200
*UP1B-2R2	2.2	2.62	3.1	3.5	0.0363
UP1B-3R3	3.3	3.79	2.9	3.0	0.0428
*UP1B-4R7	4.7	5.15	2.2	2.6	0.0544
UP1B-6R8	6.8	6.87	1.7	2.2	0.0897
*UP1B-100	10.0	11.00	1.5	1.9	0.1107
*UP1B-150	15.0	16.00	1.2	1.5	0.1747
*UP1B-220	22.0	23.50	1.0	1.2	0.2541
*UP1B-330	33.0	36.00	0.82	0.99	0.3670
*UP1B-470	47.0	48.50	0.72	0.87	0.4740
UP1B-680	68.0	73.52	0.58	0.67	0.7320
UP1B-101	100.0	112.67	0.47	0.53	1.109

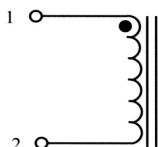
Notes: (1) Open Circuit Inductance Test Parameters: 100KHz, .250Vrms, 0.0Adc.
(2) RMS current for an approximate ΔT of 40°C. at an ambient temperature of 85°C.
(3) Peak current for approximately 30% rolloff.
(4) DCR limits 20°C.

*BOLD are available from stock.

MECHANICAL DIAGRAM



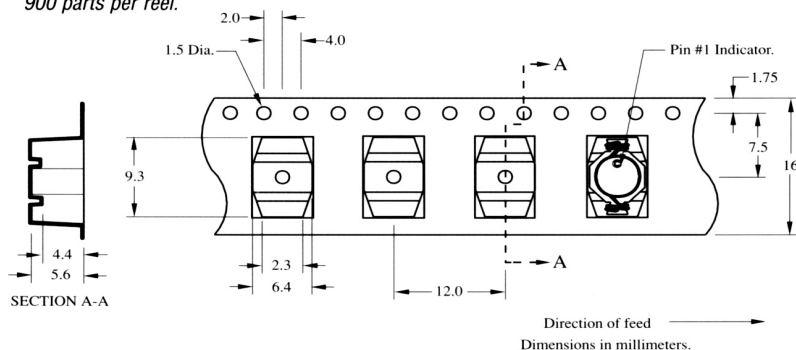
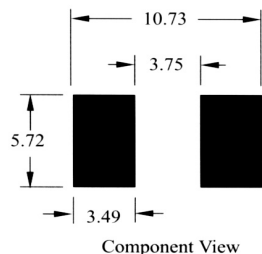
CONNECTION DIAGRAM



PACKAGING INFORMATION

Parts are packaged on 13" reels.
900 parts per reel.

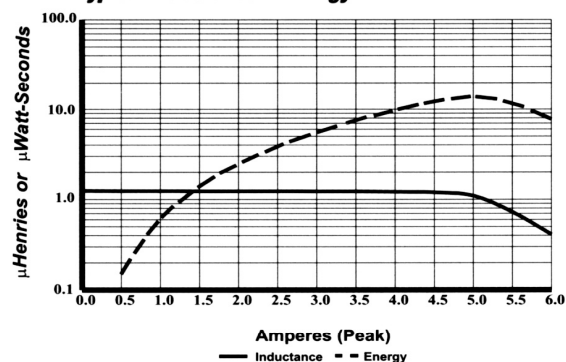
PCB PAD LAYOUT



ACTUAL SIZE
UNI-PAC 1B

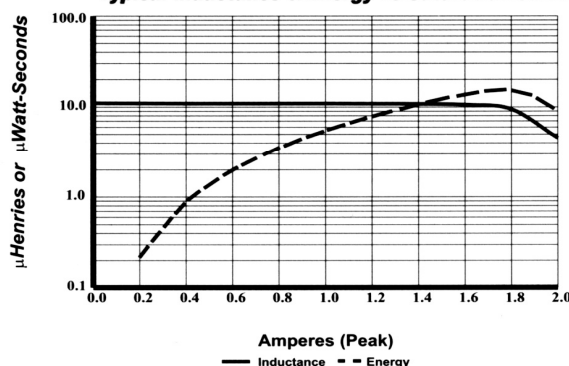
UP1B-1R0

Typical Inductance & Energy vs Saturation Current



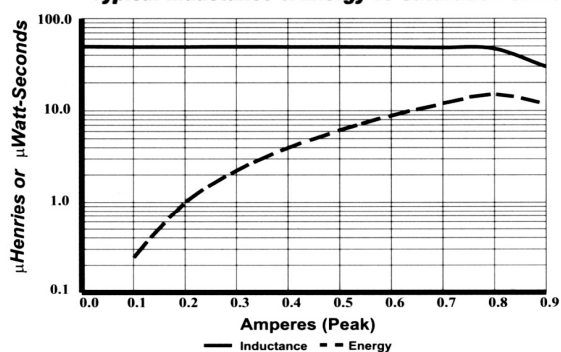
UP1B-100

Typical Inductance & Energy vs Saturation Current



UP1B-470

Typical Inductance & Energy vs Saturation Current



UNI-PAC™

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I N D U C T O R S

UNI-PAC 2B FAMILY TABLE

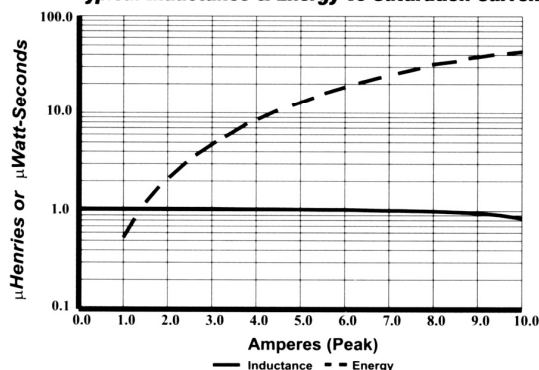
Part Number	Inductance μ H (rated)	OCL ⁽¹⁾ μ H $\pm$ 20%	I _{RMS} ⁽²⁾ Amperes	I _{SAT} ⁽³⁾ Amperes	DCR ⁽⁴⁾ Ohms max.
UP2B-R47	0.47	0.595	10.6	11.4	0.0049
*UP2B-1R0	1.0	1.00	9.3	9.9	0.0065
UP2B-1R5	1.5	1.46	8.3	7.9	0.0081
*UP2B-2R2	2.2	2.39	7.2	6.1	0.0107
UP2B-3R3	3.3	3.23	6.5	5.1	0.0128
*UP2B-4R7	4.7	4.77	5.5	4.2	0.0165
UP2B-6R8	6.8	6.63	5.0	3.6	0.0202
*UP2B-100	10.0	9.73	4.3	3.3	0.0267
*UP2B-150	15.0	15.43	3.5	2.4	0.0410
*UP2B-220	22.0	22.50	2.8	2.0	0.0617
*UP2B-330	33.0	33.13	2.1	1.7	0.0917
*UP2B-470	47.0	48.65	1.7	1.4	0.1388
UP2B-680	68.0	68.17	1.5	1.2	0.1787
UP2B-101	100.0	102.60	1.2	0.95	0.2707

Notes: (1) Open Circuit Inductance Test Parameters: 100KHz, .250Vrms, 0.0Adc.
 (2) RMS current for an approximate ΔT of 40°C. at an ambient temperature of 85°C.
 (3) Peak current for approximately 10% rolloff.
 (4) DCR limits 20°C.

***BOLD** are available from stock.

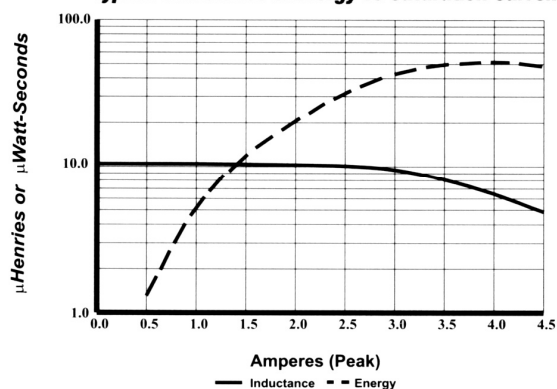
UP2B-1R0

Typical Inductance & Energy vs Saturation Current



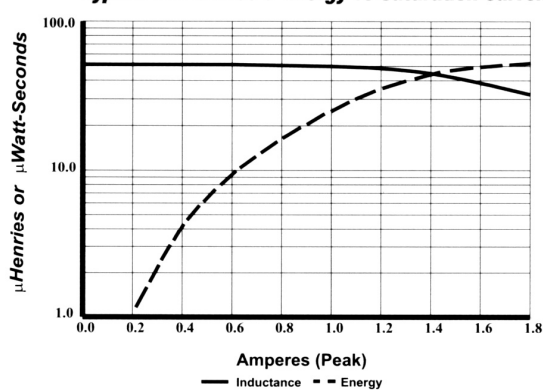
UP2B-100

Typical Inductance & Energy vs Saturation Current



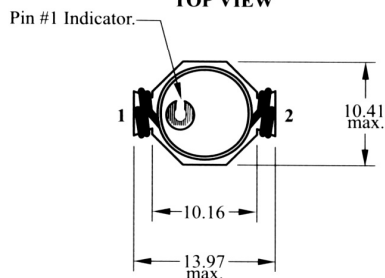
UP2B-470

Typical Inductance & Energy vs Saturation Current

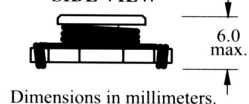


MECHANICAL DIAGRAM

TOP VIEW

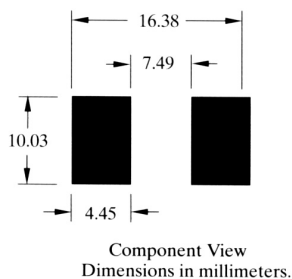


SIDE VIEW



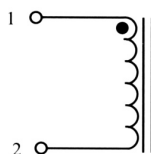
Dimensions in millimeters.

PCB PAD LAYOUT



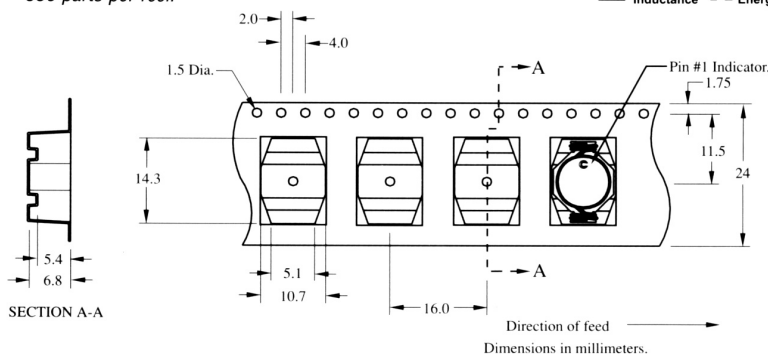
Component View
Dimensions in millimeters.

CONNECTION DIAGRAM



PACKAGING INFORMATION

Parts are packaged on 13" reels.
550 parts per reel.



ACTUAL SIZE
UNI-PAC 2B

UNI-PAC™

UNI-PAC 3B FAMILY TABLE

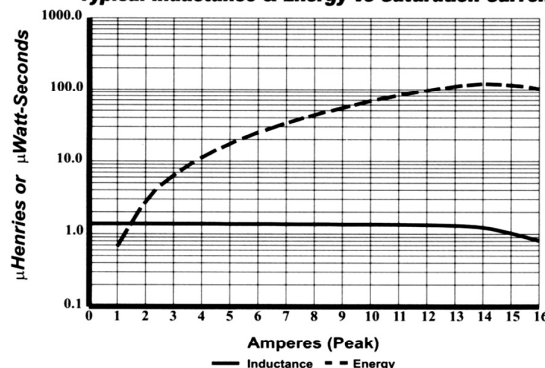
Part Number	Inductance μH (rated)	OCL ⁽¹⁾ $\mu\text{H} \pm 20\%$	I _{RMS} ⁽²⁾ Amperes	I _{SAT} ⁽³⁾ Amperes	DCR ⁽⁴⁾ Ohms max.
UP3B-R47	0.47	0.452	16.0	25.1	0.0021
*UP3B-1R0	1.0	1.34	12.5	15.3	0.0034
UP3B-1R5	1.5	2.08	10.0	12.0	0.0053
*UP3B-2R2	2.2	3.01	9.2	10.2	0.0074
UP3B-3R3	3.3	3.96	8.0	9.3	0.0083
*UP3B-4R7	4.7	5.00	6.5	7.7	0.0114
UP3B-6R8	6.8	7.70	5.8	6.2	0.0183
*UP3B-100	10.0	11.00	4.3	5.2	0.0261
*UP3B-150	15.0	16.38	3.9	4.3	0.0317
*UP3B-220	22.0	23.93	3.1	3.7	0.0491
*UP3B-330	33.0	33.85	2.4	3.0	0.0688
*UP3B-470	47.0	51.00	1.9	2.4	0.1082
UP3B-680	68.0	69.50	1.6	2.0	0.1558
UP3B-101	100.0	101.40	1.4	1.8	0.2053

Notes: (1) Open Circuit Inductance Test Parameters: 100KHz, .250Vrms, 0.0Adc.
(2) RMS current for an approximate ΔT of 40°C. at an ambient temperature of 85°C.
(3) Peak current for approximately 30% rolloff.
(4) DCR limits 20°C.

***BOLD** are available from stock.

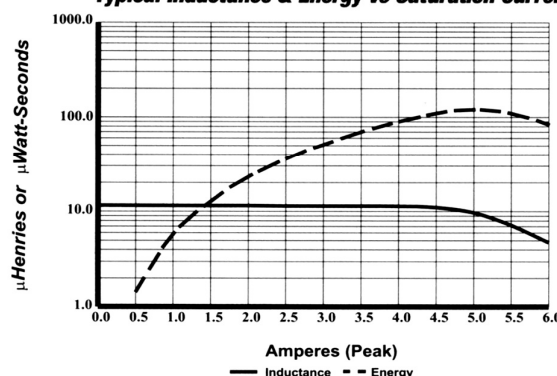
UP3B-1R0

Typical Inductance & Energy vs Saturation Current



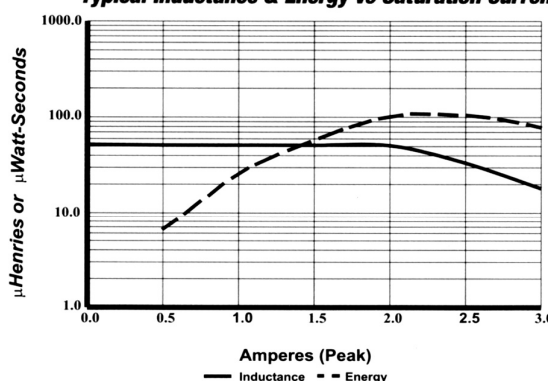
UP3B-100

Typical Inductance & Energy vs Saturation Current



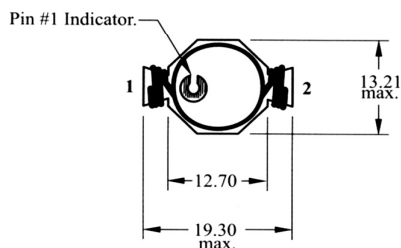
UP3B-470

Typical Inductance & Energy vs Saturation Current

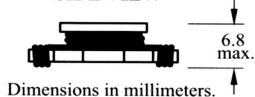


MECHANICAL DIAGRAM

TOP VIEW

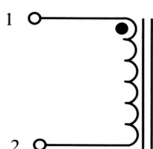


SIDE VIEW



Dimensions in millimeters.

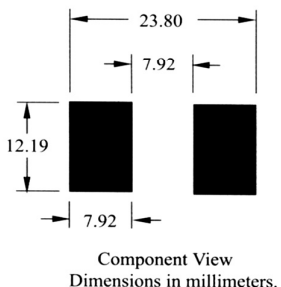
CONNECTION DIAGRAM



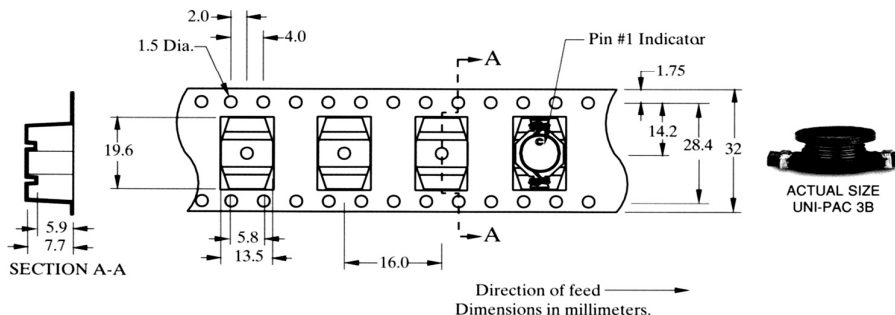
PACKAGING INFORMATION

Parts are packaged on 13" reels.
450 parts per reel.

PCB PAD LAYOUT



Component View
Dimensions in millimeters.



ACTUAL SIZE
UNI-PAC 3B

UNI-PAC™

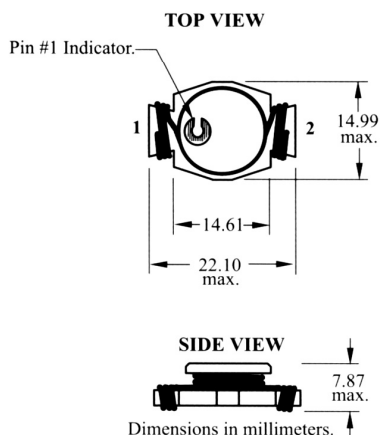
UNI-PAC 4B FAMILY TABLE

Part Number	Inductance μ H (rated)	OCL ⁽¹⁾ μ H $\pm$ 20%	I _{RMS} ⁽²⁾ Amperes	I _{SAT} ⁽³⁾ Amperes	DCR ⁽⁴⁾ Ohms max.
UP4B-R47	0.47	0.473	19.2	51.7	0.0019
*UP4B-1R0	1.0	0.916	17.3	37.3	0.0023
UP4B-1R5	1.5	1.52	13.4	28.9	0.0039
*UP4B-2R2	2.2	2.27	12.0	23.7	0.0048
UP4B-3R3	3.3	3.14	11.0	20.2	0.0057
*UP4B-4R7	4.7	5.34	8.6	15.6	0.0093
UP4B-6R8	6.8	6.66	8.3	14.1	0.0100
*UP4B-100	10.0	9.77	6.8	11.5	0.0150
*UP4B-150	15.0	15.61	5.5	9.1	0.0230
*UP4B-220	22.0	22.61	4.5	7.6	0.0340
*UP4B-330	33.0	34.30	3.7	6.1	0.0520
*UP4B-470	47.0	48.10	3.1	5.2	0.0740
UP4B-680	68.0	69.14	2.4	4.3	0.1200
UP4B-101	100.0	99.42	2.0	3.6	0.1700

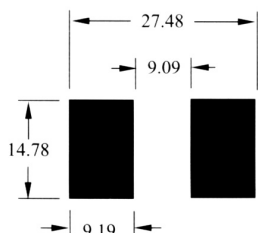
Notes: (1) Open Circuit Inductance Test Parameters: 100KHz, .250Vrms, 0.0Adc.
(2) RMS current for an approximate ΔT of 40°C. at an ambient temperature of 85°C.
(3) Peak current for approximately 30% rolloff.
(4) DCR limits 20°C.

***BOLD** are available from stock.

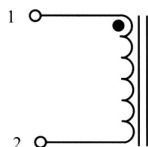
MECHANICAL DIAGRAM



PCB PAD LAYOUT

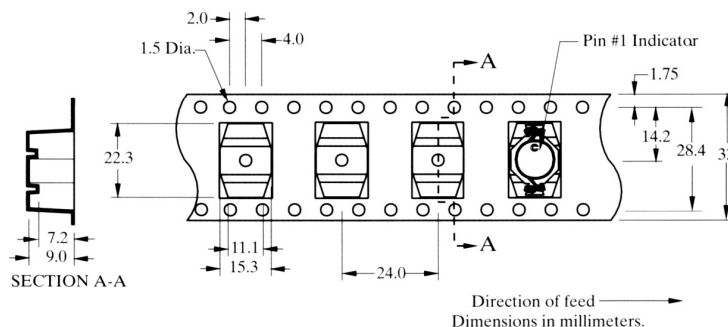


CONNECTION DIAGRAM



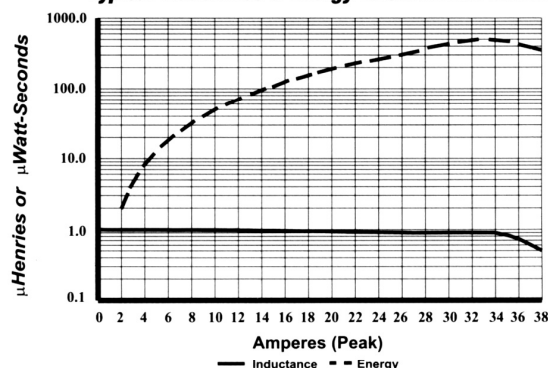
PACKAGING INFORMATION

Parts are packaged on 13" reels.
275 parts per reel.



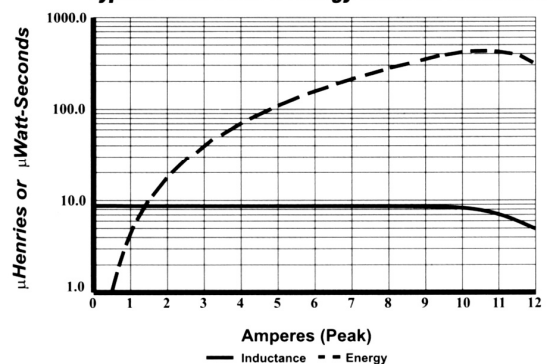
UP4B-1R0

Typical Inductance & Energy vs Saturation Current



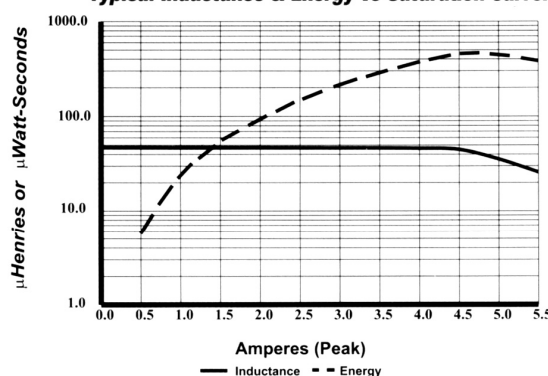
UP4B-100

Typical Inductance & Energy vs Saturation Current



UP4B-470

Typical Inductance & Energy vs Saturation Current



18
INDUCTORS

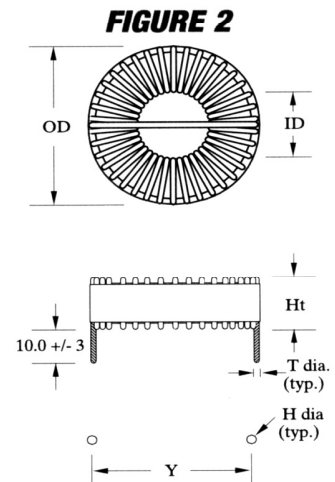
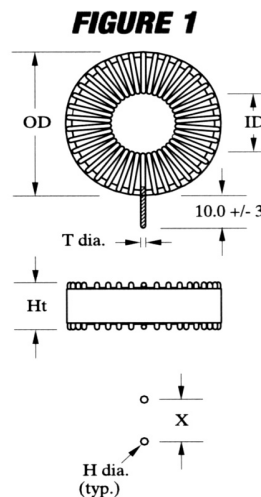
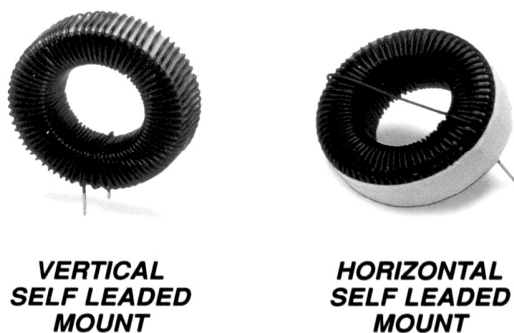
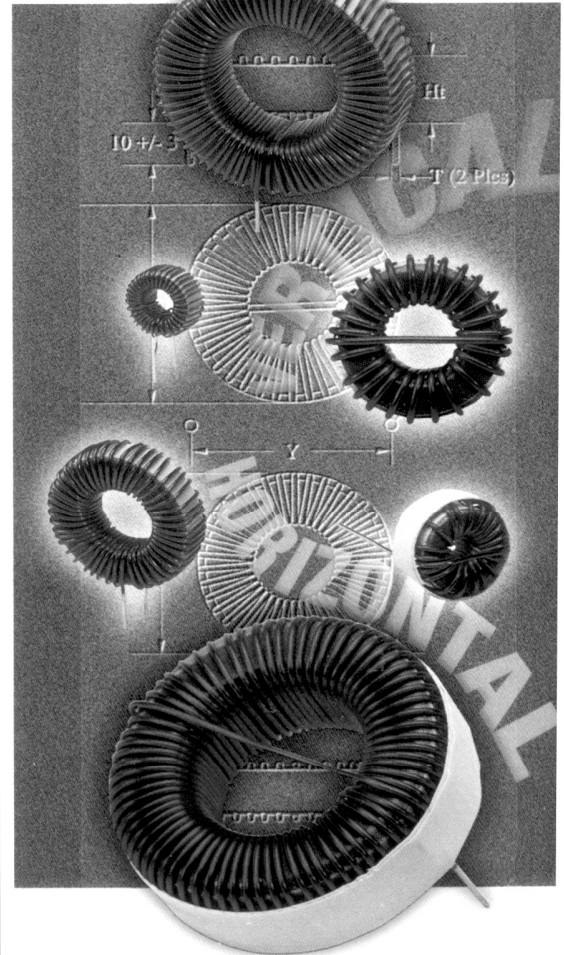
LOW COST **LCPI** POWER INDUCTORS

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	57.3	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.

* BOLD are available from stock.



Drawings are not to scale.

LOW COST POWER INDUCTORS

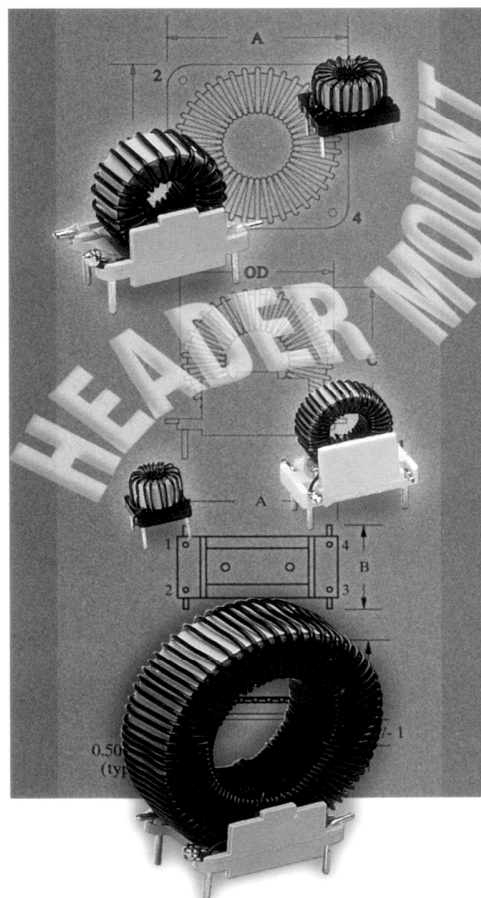
LCPI 18

MECHANICAL DIMENSIONS

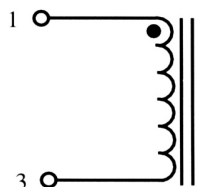
Header Mounted Option									
Header Mounted Part Number	See Figure #	OD (max)	A (max)	B (max)	C (max)	X (typ)	Y (typ)	T (typ)	H (typ)
CTX10-1-52M	3	8.6	9.4	9.4	6.9	6.5	6.5	—	—
*CTX20-1-52M	3	9.1	9.4	9.4	9.0	6.5	6.5	—	—
*CTX50-1-52M	4	16.2	19.6	16.1	20.0	15.3	6.4	—	—
*CTX100-1-52M	4	15.5	19.6	16.1	19.7	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	44.3	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.

* BOLD are available from stock.



CONNECTION DIAGRAM



HEADER MOUNT

FIGURE 3

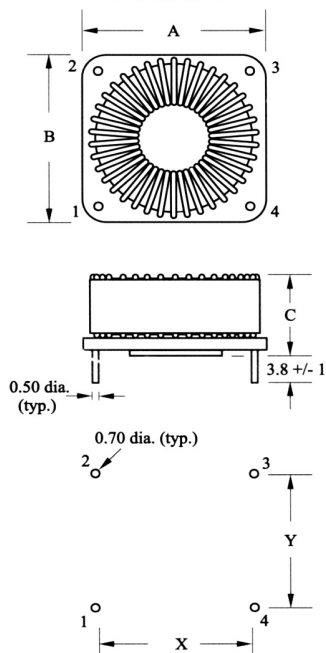


FIGURE 4

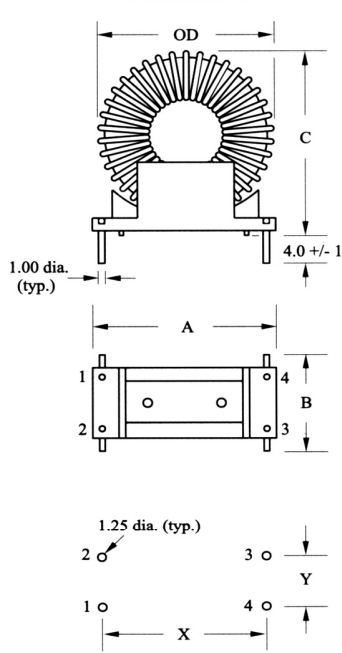
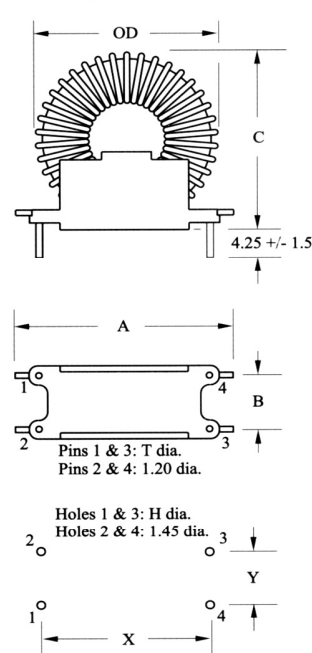


FIGURE 5



Drawings are not to scale.

LCPI

LOW COST POWER INDUCTORS

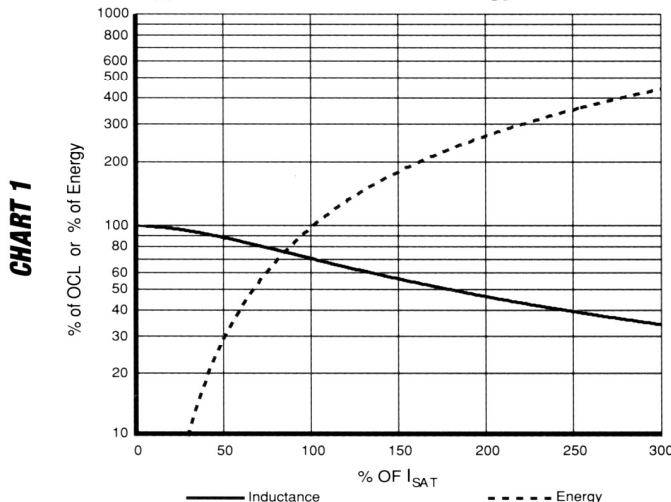
LOW COST POWER INDUCTOR FAMILY TABLE

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⁾ V μS	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		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		100	101.40	12.0	9.1	54.2	2960	0.0167
CTX150-7-52	CTX150-7-52LP		150	152.80	12.8	10.5	79.3	5900	0.0204
CTX10-10-52	CTX10-10-52LP		10	10.04	16.9	20.9	13.2	1530	0.0051
CTX20-10-52	CTX20-10-52LP		20	21.17	16.0	16.0	21.3	1900	0.0070
CTX50-10-52	CTX50-10-52LP		50	52.37	13.9	12.7	38.9	2960	0.0124
CTX100-10-52	CTX100-10-52LP		100	99.38	17.6	13.0	64.0	5880	0.0109
CTX10-16-52	CTX10-16-52LP		10	9.90	27.3	29.3	16.9	2970	0.0032
CTX20-16-52	CTX20-16-52LP		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 (V μS) across the inductor. This value represents the V μS 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.

* BOLD are available from stock.

Typical Inductance and Energy vs DC Current



I_{DC} Derating with Core Loss

