

Description

- Low loss, powdered iron cores with stable electrical operating characteristics maximize inductor efficiency by minimizing copper losses
- Available in vertical and horizontal self leaded and header mounted configurations
- Inductance values range from 10uH to 1000uH
- Current values range from 1.5 to 29.5 Amps
- Meets UL 94V-0 flammability standard
- RoHS compliant (-R option)

Applications

- Filters
- Buck and boost switches
- Chokes

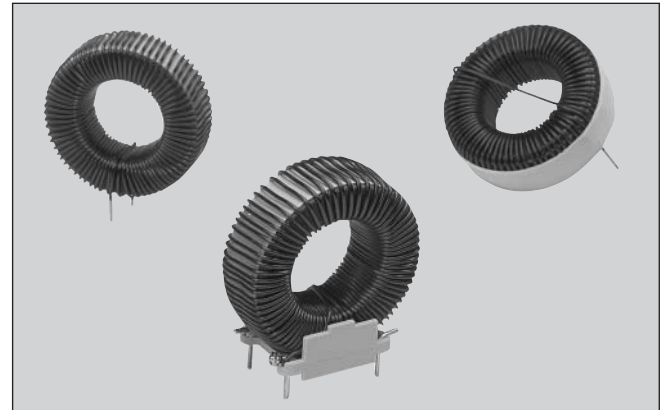
Environmental Data

- Storage temperature range: -40C to 105C
- Operating ambient temperature range: -40C to +75C (range is application specific)

Family Table

| Vertical Part Number | Horizontal Part Number | Header Mounted Part Number | Inductance μH (rated) | OCL ⁽¹⁾ μH +/- 20% | I _{DC} ⁽²⁾ Amperes | I _{SAT} ⁽³⁾ Amperes | Volt- μSec ⁽⁴⁾ $\mu\text{V}\mu\text{S}$ | 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 ($\mu\text{V}\mu\text{S}$) across the inductor. This value represents the $\mu\text{V}\mu\text{S}$ 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.



Packaging

- Supplied in bulk packaging

| OPTION CODE | |
|-------------|------------------------|
| Option Code | Description |
| -R | RoHS compliant version |

Mechanical Diagrams

| 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 |

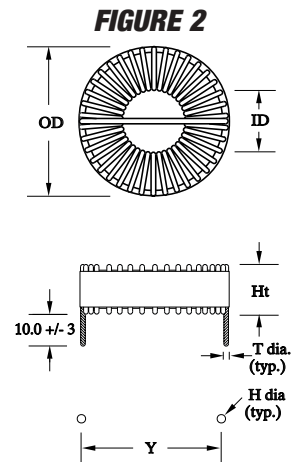
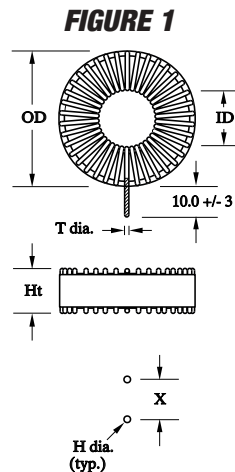
Note: All dimensions are in millimeters.



**VERTICAL
SELF LEADED
MOUNT**



**HORIZONTAL
SELF LEADED
MOUNT**



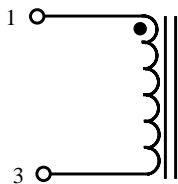
Drawings are not to scale.

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

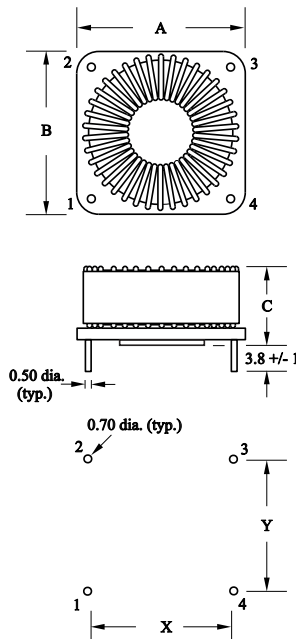


FIGURE 4

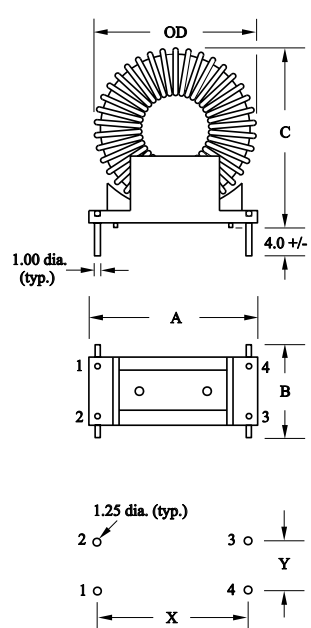
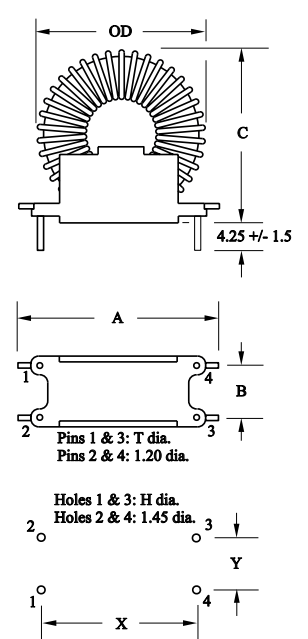
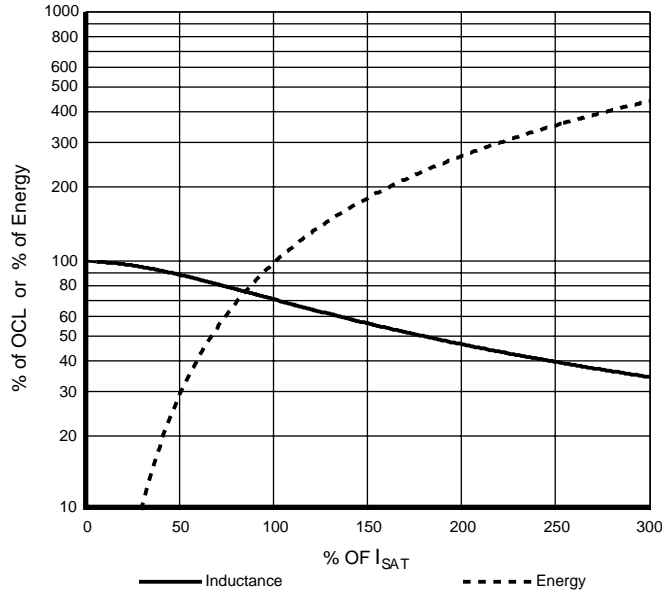


FIGURE 5



Drawings are not to scale.

Typical Inductance and Energy vs DC Current



Winding Loss Derating with Core Loss

