



# XTHILO SERIES

## PLANAR INDUCTORS

**+150°C**

### ELECTRICAL SPECIFICATIONS

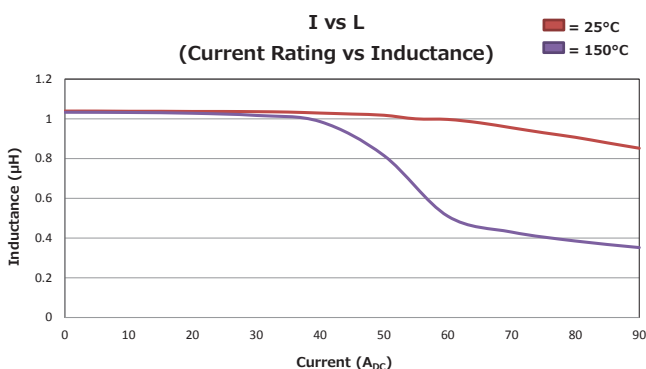
- **Operating Temperature:** -55°C to +150°C
- **Storage Temperature:** -60°C to +150°C
- **Temperature Rise @ 110°C:** < 40°C
- **Dielectric Withstanding Voltage:** 100 V<sub>RMS</sub>
- **Different electrical values available upon request**

### FEATURES

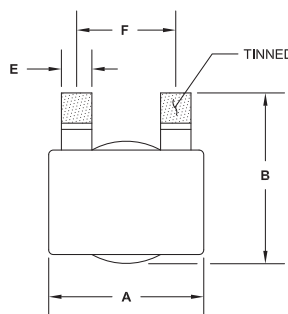
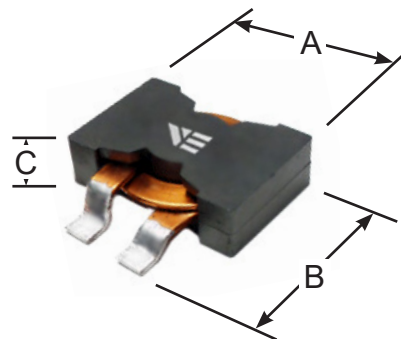
- **Compact** ideal for automatic placement
- **HIGH Power Density, LOW Profile**
- **LOW Power Losses, HIGH Efficiency**
- **Terminations:** Tin-lead or RoHS compliant
- **Co-planarity:** ± 0.006
- **High reliability**
- **Other termination finishes available**

### APPLICATIONS

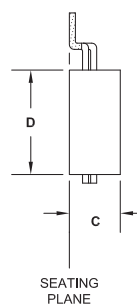
- High current inductor for POL
- High current low profile for power supplies
- Low resistance ideal for battery based systems
- Designed for use in harsh environments
- High current ideal for use with low voltage FPGA



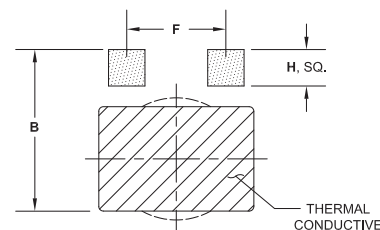
ALL DIMENSIONS: INCHES



TOP VIEW



SIDE VIEW



RECOMMENDED PAD LAYOUT

| Package      | A max | B* max | C max | D max | E (±.010) | F (±.030) | H ref. | Wt. ref. |
|--------------|-------|--------|-------|-------|-----------|-----------|--------|----------|
| XTHILO3225   | 1.30  | 1.45   | 1.00  | 0.89  | 0.236     | 0.453     | 0.275  | 90g      |
| XTHILO3220   | 1.30  | 1.45   | 0.83  | 0.89  | 0.236     | 0.453     | 0.275  | 70g      |
| XTHILO2518H  | 1.00  | 1.10   | 0.51  | 0.725 | 0.197     | 0.642     | 0.236  | 30g      |
| XTHILO2518   | 1.00  | 1.10   | 0.35  | 0.725 | 0.197     | 0.642     | 0.236  | 20g      |
| XTHILO1209AL | 0.49  | 0.55   | 0.22  | 0.365 | 0.071     | 0.300     | 0.085  | 3g       |
| XTHILO1209A  | 0.49  | 0.50   | 0.22  | 0.365 | 0.071     | 0.300     | 0.085  | 3g       |
| XTHILO1209B  | 0.49  | 0.50   | 0.285 | 0.365 | 0.071     | 0.300     | 0.085  | 3.5g     |
| XTHILO1209CL | 0.49  | 0.55   | 0.33  | 0.365 | 0.071     | 0.300     | 0.085  | 4g       |
| XTHILO1209C  | 0.49  | 0.50   | 0.33  | 0.365 | 0.071     | 0.300     | 0.085  | 4g       |
| XTHILO1005   | 0.40  | 0.50   | 0.19  | 0.320 | 0.071     | 0.220     | 0.085  | 2g       |
| XTHILO0906   | 0.38  | 0.40   | 0.20  | 0.200 | 0.071     | 0.170     | 0.085  | 1.5g     |

\*Dimension is based off design calculations and can be subjected to a minor modification.

### CUSTOM DESIGNS & MODIFICATIONS:

Other electrical configurations and performance characteristics are available in various sizes and package types

**XTHILO SERIES**



| Vanguard P/N          | Inductance<br>ref.<br>(uH) | DCR<br>max<br>(mOhms) | Saturation<br>Current*<br>(A <sub>DC</sub> ) | Max Current<br>Rating**<br>(A <sub>RMS</sub> ) |
|-----------------------|----------------------------|-----------------------|----------------------------------------------|------------------------------------------------|
| XTHILO3225-8R2*-*-*   | 8.2                        | 2.2                   | 45                                           | 42                                             |
| XTHILO3225-10R*-*-*   | 10                         | 2.2                   | 40                                           | 42                                             |
| XTHILO3225-12R*-*-*   | 12                         | 2.2                   | 35                                           | 42                                             |
| XTHILO3225-15R*-*-*   | 15                         | 2.2                   | 30                                           | 42                                             |
| XTHILO3220-6R8*-*-*   | 6.8                        | 4.5                   | 48                                           | 40                                             |
| XTHILO3220-8R2*-*-*   | 8.2                        | 4.5                   | 42                                           | 40                                             |
| XTHILO3220-10R*-*-*   | 10                         | 4.5                   | 36                                           | 40                                             |
| XTHILO3220-12R*-*-*   | 12                         | 4.5                   | 30                                           | 40                                             |
| XTHILO2518H-3R3*-*-*  | 3.3                        | 1.4                   | 40                                           | 36                                             |
| XTHILO2518H-3R9*-*-*  | 3.9                        | 1.4                   | 36                                           | 36                                             |
| XTHILO2518H-4R7*-*-*  | 4.7                        | 1.4                   | 32                                           | 36                                             |
| XTHILO2518H-5R6*-*-*  | 5.6                        | 1.4                   | 28                                           | 36                                             |
| XTHILO2518-R68*-*-*   | 0.68                       | 0.80                  | 70                                           | 48                                             |
| XTHILO2518-R82*-*-*   | 0.82                       | 0.80                  | 65                                           | 48                                             |
| XTHILO2518-1R*-*-*    | 1                          | 0.80                  | 60                                           | 48                                             |
| XTHILO2518-1R2*-*-*   | 1.2                        | 0.80                  | 55                                           | 48                                             |
| XTHILO2518-1R5*-*-*   | 1.5                        | 0.80                  | 50                                           | 48                                             |
| XTHILO2518-1R8*-*-*   | 1.8                        | 1.4                   | 50                                           | 35                                             |
| XTHILO2518-2R2*-*-*   | 2.2                        | 1.4                   | 44                                           | 35                                             |
| XTHILO2518-3R3*-*-*   | 3.3                        | 3.0                   | 35                                           | 24                                             |
| XTHILO2518-4R7*-*-*   | 4.7                        | 3.0                   | 30                                           | 24                                             |
| XTHILO2518-5R6*-*-*   | 5.6                        | 3.0                   | 26                                           | 24                                             |
| XTHILO2518-6R8*-*-*   | 6.8                        | 6.3                   | 28                                           | 16                                             |
| XTHILO2518-8R2*-*-*   | 8.2                        | 6.3                   | 24                                           | 16                                             |
| XTHILO2518-10R*-*-*   | 10                         | 6.3                   | 20                                           | 16                                             |
| XTHILO2518-12R*-*-*   | 12                         | 6.3                   | 16                                           | 16                                             |
| XTHILO2518-15R*-*-*   | 15                         | 6.3                   | 13                                           | 16                                             |
| XTHILO2518-18R*-*-*   | 18                         | 6.3                   | 11                                           | 16                                             |
| XTHILO2518-20R*-*-*   | 20                         | 6.3                   | 10                                           | 16                                             |
| XTHILO1209AL-R22*-*-* | 0.22                       | 1.10                  | 60                                           | 15                                             |
| XTHILO1209AL-R33*-*-* | 0.33                       | 1.10                  | 52                                           | 15                                             |
| XTHILO1209AL-R47*-*-* | 0.47                       | 1.10                  | 34                                           | 15                                             |
| XTHILO1209AL-R56*-*-* | 0.56                       | 1.10                  | 30                                           | 15                                             |
| XTHILO1209AL-R68*-*-* | 0.68                       | 1.10                  | 24                                           | 15                                             |
| XTHILO1209AL-R82*-*-* | 0.82                       | 1.10                  | 18                                           | 15                                             |
| XTHILO1209AL-1R*-*-*  | 1                          | 1.10                  | 15                                           | 15                                             |
| XTHILO1209A-1R5*-*-*  | 1.5                        | 2.10                  | 16                                           | 10                                             |
| XTHILO1209A-1R8*-*-*  | 1.8                        | 2.10                  | 13                                           | 10                                             |
| XTHILO1209A-2R2*-*-*  | 2.2                        | 2.10                  | 10                                           | 10                                             |

Inductance measured at 10 kHz, 1.0 V<sub>RMS</sub>

\* Inductance drop &lt; 30% at specified Saturation Current

\*\* Temperature rise &lt; 40°C at Rating Current

**CUSTOM DESIGNS & MODIFICATIONS:**

Other electrical configurations and performance characteristics are available in various sizes and package types

**XTHILO SERIES**



| Vanguard P/N        | Inductance<br>ref.<br>(uH) | DCR<br>max<br>(mOhms) | Saturation<br>Current*<br>(A <sub>DC</sub> ) | Max Current<br>Rating**<br>(A <sub>RMS</sub> ) |
|---------------------|----------------------------|-----------------------|----------------------------------------------|------------------------------------------------|
| XTHILO1209A-3R3*-*  | 3.3                        | 5.40                  | 12                                           | 6                                              |
| XTHILO1209A-4R7*-*  | 4.7                        | 5.40                  | 8                                            | 6                                              |
| XTHILO1209A-5R6*-*  | 5.6                        | 5.40                  | 7                                            | 6                                              |
| XTHILO1209A-6R8*-*  | 6.8                        | 5.40                  | 6                                            | 6                                              |
| XTHILO1209A-8R2*-*  | 8.2                        | 9.60                  | 6                                            | 5                                              |
| XTHILO1209A-10R*-*  | 10                         | 9.60                  | 5                                            | 5                                              |
| XTHILO1209B-8R2*-*  | 8.2                        | 9.5                   | 8                                            | 6                                              |
| XTHILO1209B-10R*-*  | 10                         | 9.5                   | 7                                            | 6                                              |
| XTHILO1209B-12R*-*  | 12                         | 9.5                   | 6                                            | 6                                              |
| XTHILO1209B-15R*-*  | 15                         | 9.5                   | 5                                            | 6                                              |
| XTHILO1209B-18R*-*  | 18                         | 9.5                   | 4                                            | 6                                              |
| XTHILO1209CL-R10*-* | 0.10                       | 0.45                  | 75                                           | 40                                             |
| XTHILO1209CL-R15*-* | 0.15                       | 0.45                  | 72                                           | 40                                             |
| XTHILO1209CL-R18*-* | 0.18                       | 0.45                  | 70                                           | 40                                             |
| XTHILO1209CL-R22*-* | 0.22                       | 0.45                  | 60                                           | 40                                             |
| XTHILO1209CL-R33*-* | 0.33                       | 0.45                  | 40                                           | 40                                             |
| XTHILO1209C-R47*-*  | 0.47                       | 1.40                  | 44                                           | 20                                             |
| XTHILO1209C-R56*-*  | 0.56                       | 1.40                  | 40                                           | 20                                             |
| XTHILO1209C-R68*-*  | 0.68                       | 1.40                  | 38                                           | 20                                             |
| XTHILO1209C-R82*-*  | 0.82                       | 1.40                  | 35                                           | 20                                             |
| XTHILO1209C-1R*-*   | 1                          | 1.40                  | 30                                           | 20                                             |
| XTHILO1209C-1R2*-*  | 1.2                        | 1.40                  | 20                                           | 20                                             |
| XTHILO1209C-1R5*-*  | 1.5                        | 2.43                  | 24                                           | 14                                             |
| XTHILO1209C-1R8*-*  | 1.8                        | 2.43                  | 18                                           | 14                                             |
| XTHILO1209C-2R2*-*  | 2.2                        | 2.43                  | 16                                           | 14                                             |
| XTHILO1209C-3R3*-*  | 3.3                        | 2.43                  | 12                                           | 14                                             |
| XTHILO1209C-4R7*-*  | 4.7                        | 4.09                  | 11                                           | 10                                             |
| XTHILO1209C-5R6*-*  | 5.6                        | 4.09                  | 10                                           | 10                                             |
| XTHILO1209C-6R8*-*  | 6.8                        | 6.44                  | 10                                           | 8                                              |
| XTHILO1209C-8R2*-*  | 8.2                        | 6.44                  | 8                                            | 8                                              |
| XTHILO1209C-10R*-*  | 10                         | 6.44                  | 7                                            | 8                                              |
| XTHILO1005-R33*-*   | 0.33                       | 0.82                  | 20                                           | 14                                             |
| XTHILO1005-R47*-*   | 0.47                       | 0.82                  | 16                                           | 14                                             |
| XTHILO1005-R56*-*   | 0.56                       | 0.82                  | 15                                           | 14                                             |
| XTHILO1005-R68*-*   | 0.68                       | 0.82                  | 13                                           | 14                                             |
| XTHILO1005-R82*-*   | 0.82                       | 0.82                  | 10                                           | 14                                             |
| XTHILO1005-1R*-*    | 1                          | 3.04                  | 12                                           | 8                                              |
| XTHILO1005-1R5*-*   | 1.5                        | 3.04                  | 9                                            | 8                                              |
| XTHILO1005-1R8*-*   | 1.8                        | 3.04                  | 7                                            | 8                                              |

Inductance measured at 10 kHz, 1.0 V<sub>RMS</sub>

\* Inductance drop < 30% at specified Saturation Current

\*\* Temperature rise < 40°C at Rating Current

## CUSTOM DESIGNS & MODIFICATIONS:

Other electrical configurations and performance characteristics are available in various sizes and package types

## XTHILO SERIES





| Vanguard P/N        | Inductance<br>ref.<br>(uH) | DCR<br>max<br>(mOhms) | Saturation<br>Current**<br>(A <sub>DC</sub> ) | Max Current<br>Rating**<br>(A <sub>RMS</sub> ) |
|---------------------|----------------------------|-----------------------|-----------------------------------------------|------------------------------------------------|
| XTHILO1005-2R2*-*-* | 2.2                        | 3.04                  | 7                                             | 8                                              |
| XTHILO1005-3R3*-*-* | 3.3                        | 3.04                  | 5                                             | 8                                              |
| XTHILO1005-4R7*-*-* | 4.7                        | 6.22                  | 4.5                                           | 4                                              |
| XTHILO1005-5R6*-*-* | 5.6                        | 6.22                  | 3.5                                           | 4                                              |
| XTHILO1005-6R8*-*-* | 6.8                        | 6.22                  | 3                                             | 4                                              |
| XTHILO1005-8R2*-*-* | 8.2                        | 6.22                  | 2.5                                           | 4                                              |
| XTHILO1005-10R*-*-* | 10                         | 6.22                  | 2                                             | 4                                              |
| XTHILO0906-R33*-*-* | 0.33                       | 1.8                   | 20                                            | 12                                             |
| XTHILO0906-R47*-*-* | 0.47                       | 1.8                   | 18                                            | 12                                             |
| XTHILO0906-R56*-*-* | 0.56                       | 1.8                   | 16                                            | 12                                             |
| XTHILO0906-R68*-*-* | 0.68                       | 1.8                   | 14                                            | 12                                             |
| XTHILO0906-R82*-*-* | 0.82                       | 1.8                   | 12                                            | 12                                             |
| XTHILO0906-1R*-*-*  | 1                          | 3.5                   | 14                                            | 8                                              |
| XTHILO0906-1R5*-*-* | 1.5                        | 3.5                   | 9                                             | 8                                              |
| XTHILO0906-1R8*-*-* | 1.8                        | 3.5                   | 8                                             | 8                                              |
| XTHILO0906-2R2*-*-* | 2.2                        | 6.0                   | 8                                             | 6                                              |
| XTHILO0906-3R3*-*-* | 3.3                        | 6.0                   | 6                                             | 6                                              |
| XTHILO0906-4R7*-*-* | 4.7                        | 8.8                   | 5                                             | 4                                              |
| XTHILO0906-5R6*-*-* | 5.6                        | 8.8                   | 4                                             | 4                                              |
| XTHILO0906-6R8*-*-* | 6.8                        | 8.8                   | 3.2                                           | 4                                              |
| XTHILO0906-8R2*-*-* | 8.2                        | 8.8                   | 2.8                                           | 4                                              |
| XTHILO0906-10R*-*-* | 10                         | 8.8                   | 2.4                                           | 4                                              |

Inductance measured at 10 kHz, 1.0 V<sub>RMS</sub>

\* Inductance drop < 30% at specified Saturation Current

\*\* Temperature rise < 40°C at Rating Current

## VE PART NUMBER STRUCTURE KEY

EXAMPLE: XTHILO2518-R68S-T

### INDUCTANCE (uH)

Examples:  
R68 = 0.68uH  
6R8 = 6.8uH  
18R = 18uH

R = Decimal Point

### TERMINATION

|   |      |
|---|------|
| S | SnPb |
| R | RoHS |

### PACKAGING ( Default Bulk )

|   |               |
|---|---------------|
| B | Bulk          |
| T | Tape and Reel |

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