

## Chip Inductors for Power Applications

Our 1212FPS, 1616FPS, 242408FPS and 242418FPS series of semi-shielded chip size power inductors are designed with a high flux density ferrite core, having a small footprint of either 3x3, 4x4 or 6x6 mm as well as a flat profile. The inductance range covers 0.47 $\mu$ H to 1000 $\mu$ H, rated current up to 6.5A. The FPS inductors are magnetically shielded by using a ferrite-epoxy resin.

With our new 242418FP wire-wound chip size power inductor series FASTRON offers an inductance range from 1.2 $\mu$ H up to 1000 $\mu$ H and a max 5A rated current. Both the inductor families (unshielded FP as well as semi-shielded FPS series) have lead free pre-tinned terminals and provide good solderability. Of course all of our FP and FPS chip size inductors are RoHS compliant.

**Applications** Major applications for our FP and FPS inductor series are power applications (e.g. AC/DC and DC/DC converters) of small size with cost efficiency as one of the critical factors. The parts are used in stationary - as well as in handheld systems and portable devices, e.g. for driving LED backlight for tablet displays.

### Technical Data

|                                       |                                                                                                                                                                                                                                                             |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L – Value (rated inductance)          | Measured with E4980AL Precision LCR meter or equivalent at frequency f <sub>L</sub> , 25°C ambient                                                                                                                                                          |
| SRF (min)                             | Measured with E4991B Impedance Analyzer or equivalent at 25°C ambient                                                                                                                                                                                       |
| DCR (max)                             | Measured at 25°C ambient                                                                                                                                                                                                                                    |
| Rated DC Current : I <sub>rms</sub>   | Max permissible DC Current that causes a 40°C typ. component temperature rise from 25°C ambient.                                                                                                                                                            |
| Saturation Current : I <sub>sat</sub> | For FPS, max permissible DC bias at 25°C ambient that causes inductance drop 30% (typ.) relating to open circuit inductance.<br>For FP, max permissible DC bias at 25°C ambient that causes inductance drop 10% (typ.) relating to open circuit inductance. |
| Operating Temperature                 | -40°C to +125°C (including component self-heating): FPS<br>-40°C to +150°C (including component self-heating): FP                                                                                                                                           |
| Moisture Sensitivity Levels (MSL)     | MSL Level 1, indicating unlimited floor life at $\leq 30^{\circ}\text{C}$ / 85% relative humidity                                                                                                                                                           |
| Surface Finishing                     | Flat top for perfect pick and place assembly                                                                                                                                                                                                                |
| Pad Metallization                     | Tin as top layer                                                                                                                                                                                                                                            |
| Wire Termination                      | Spot welding covered with tin layer                                                                                                                                                                                                                         |
| Recommended Soldering Method          | <a href="#">Reflow</a>                                                                                                                                                                                                                                      |

**Ordering Code** Example: 1212FPS-1R0X-01

**1212**    **FPS**    -    **1R0**    **X**    -    **YY**    ➔    **1212FPS-1R0M-01**  
(Case Size) (Core Type) (Inductance Value) (Tolerance) (Packaging Code)

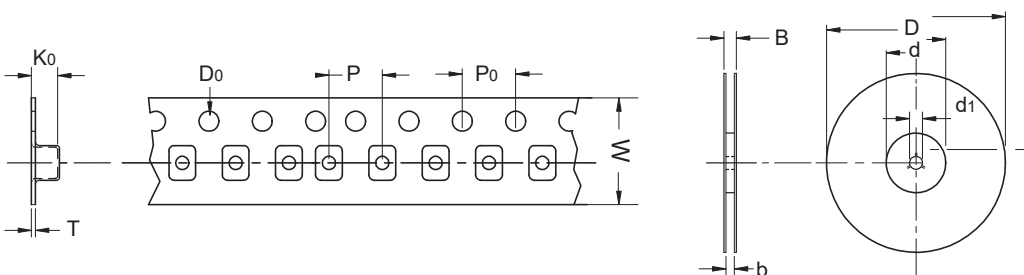
Case Sizes    - 1212, 1616, 242408, 242418

Core Type    - FPS, FP (Ferrite)

Tolerances    - M (20%), N (30%)

Packaging Code - 01 (Taped / Reel)

### Packaging Specification Schematic



| Type   | D   | D0   | d    | d1   | B    | b    | W  | P  | P0 | K0   | T    |
|--------|-----|------|------|------|------|------|----|----|----|------|------|
| 1212   | 180 | 1.55 | 50   | 13   | 12.5 | 8.4  | 8  | 4  | 4  | 1.60 | 0.25 |
| 1616   | 330 | 1.50 | 99.5 | 13.5 | 17.2 | 12.6 | 12 | 8  | 4  | 1.90 | 0.30 |
| 242408 | 330 | 1.60 | 100  | 13.5 | 17.6 | 13.0 | 12 | 8  | 4  | 2.40 | 0.30 |
| 242418 | 330 | 1.50 | 99.5 | 13.5 | 21.0 | 16.6 | 16 | 12 | 4  | 4.70 | 0.40 |

## FASTRON's Component Key Characteristics



Approved according to AEC-Q200



Approved according to AEC-Q200 with High Temperature



Suitable for High Temperature



Part is RoHS conform and Halogen free



Mechanical Shock and Vibration Proof



Designed for High Q-values



Exceptionally High Q-values



Optimized for High Currents



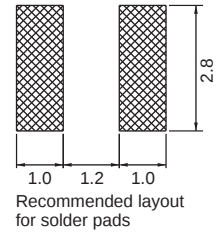
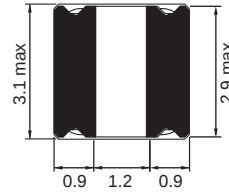
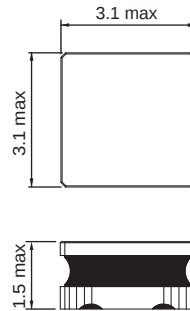
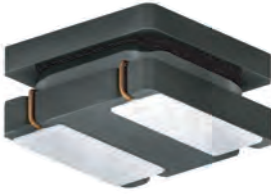
Optimized for High Voltages

# 1212 FPS

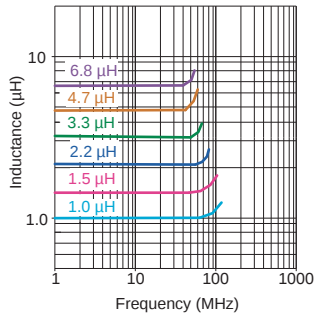


Semi-shielded

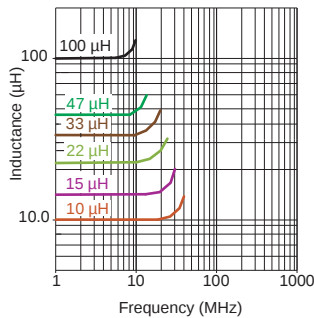
Engineer's Kit: EK-1212FPS-X



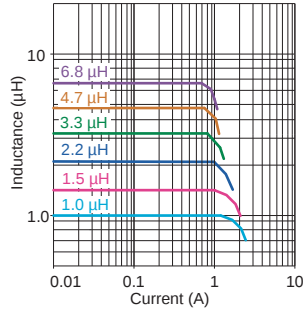
Typical Ls vs Frequency (f)



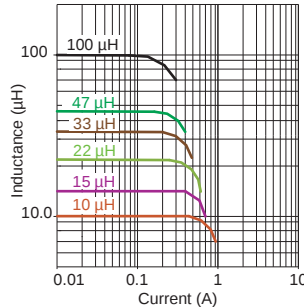
Typical Ls vs Frequency (f)



Typical Ls vs Current (I)



Typical Ls vs Current (I)



| Part No         | Inductance | f <sub>L</sub><br>(MHz) | Tol<br>± (%) | SRF<br>min<br>(MHz) | DCR (Ω) |       | Rated DC Current (A) |      |                  |      |
|-----------------|------------|-------------------------|--------------|---------------------|---------|-------|----------------------|------|------------------|------|
|                 | L (μH)     |                         |              |                     | typ     | max   | I <sub>sat</sub>     |      | I <sub>rms</sub> |      |
| 1212FPS-1R0X-01 | 1.0        | 1 @ 0.1 V               | 20,30        | 145                 | 0.040   | 0.048 | 2.35                 | 2.10 | 2.35             | 2.10 |
| 1212FPS-1R5X-01 | 1.5        | 1 @ 0.1 V               | 20,30        | 130                 | 0.055   | 0.066 | 2.00                 | 1.80 | 2.10             | 1.90 |
| 1212FPS-2R2X-01 | 2.2        | 1 @ 0.1 V               | 20,30        | 90                  | 0.060   | 0.072 | 1.65                 | 1.48 | 1.80             | 1.60 |
| 1212FPS-3R3X-01 | 3.3        | 1 @ 0.1 V               | 20,30        | 75                  | 0.093   | 0.112 | 1.40                 | 1.21 | 1.60             | 1.45 |
| 1212FPS-4R7X-01 | 4.7        | 1 @ 0.1 V               | 20,30        | 65                  | 0.113   | 0.136 | 1.20                 | 1.08 | 1.40             | 1.25 |
| 1212FPS-6R8X-01 | 6.8        | 1 @ 0.1 V               | 20,30        | 50                  | 0.176   | 0.211 | 1.05                 | 0.90 | 1.10             | 0.90 |
| 1212FPS-100X-01 | 10         | 1 @ 0.1 V               | 20,30        | 45                  | 0.234   | 0.276 | 0.88                 | 0.75 | 1.00             | 0.87 |
| 1212FPS-150X-01 | 15         | 1 @ 0.1 V               | 20,30        | 33                  | 0.352   | 0.422 | 0.68                 | 0.58 | 0.80             | 0.65 |
| 1212FPS-220X-01 | 22         | 1 @ 0.1 V               | 20,30        | 28                  | 0.510   | 0.622 | 0.58                 | 0.47 | 0.60             | 0.55 |
| 1212FPS-330X-01 | 33         | 1 @ 0.1 V               | 20,30        | 22                  | 0.799   | 0.959 | 0.46                 | 0.39 | 0.50             | 0.45 |
| 1212FPS-470X-01 | 47         | 1 @ 0.1 V               | 20,30        | 18                  | 1.172   | 1.406 | 0.38                 | 0.32 | 0.45             | 0.40 |
| 1212FPS-101X-01 | 100        | 1 @ 0.1 V               | 20,30        | 11                  | 2.433   | 2.920 | 0.27                 | 0.23 | 0.29             | 0.25 |

Core Material: Ferrite

Revision date: 11 Mar 2022

SPQ: Taped / Reel 2000 [-01]

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