

Low Profile Shielded SMD Chip Power Inductor



ASPI-0315FS Series

Request Samples



Check Inventory



3.0 x 3.0 x 1.5mm
RoHS/RoHS II Compliant
MSL Level = 1

Features

- Small size and low profile: 1.5mm
- Small DCR and high rated current
- High reliability to mechanical stress
- Magnetically shielded by magnetic powder molding
- Suitable for RoHS reflow profile

Applications

- Mobile phones
- MP3 & 4 and other portable communication equipment
- Digital cameras

Electrical Specifications

| Part Number ASPI-0315FS- Inductance Code | Inductance | Inductance Tolerance | DC Resistance | | Saturation Current | Temperature Rise Current | Self- Resonant Frequency |
|--|------------|-------------------------|---------------|------|-----------------------|-----------------------------|--------------------------------|
| | | | Max | Typ | | | |
| Units | μH | % | mΩ | mΩ | A | A | MHz |
| Symbol | L | M, N | DCR | | Isat | Irms | SRF |
| ASPI-0315FS-R50 | 0.5 | N | 39 | 30 | 3.90 | 2.60 | 162 |
| ASPI-0315FS-1R0 | 1.0 | N | 39 | 30 | 2.32 | 2.35 | 150 |
| ASPI-0315FS-1R2 | 1.2 | N | 52 | 40 | 2.21 | 1.95 | 110 |
| ASPI-0315FS-1R5 | 1.5 | N | 65 | 50 | 2.3 | 1.70 | 100 |
| ASPI-0315FS-1R8 | 1.8 | N | 65 | 50 | 1.75 | 1.70 | 92 |
| ASPI-0315FS-2R2 | 2.2 | N | 78 | 60 | 1.60 | 1.60 | 86 |
| ASPI-0315FS-2R7 | 2.7 | N | 98 | 75 | 1.52 | 1.43 | 64 |
| ASPI-0315FS-3R3 | 3.3 | M | 104 | 80 | 1.32 | 1.36 | 68 |
| ASPI-0315FS-3R6 | 3.6 | M | 137 | 105 | 1.28 | 1.20 | 59 |
| ASPI-0315FS-3R9 | 3.9 | M | 137 | 105 | 1.20 | 1.20 | 47 |
| ASPI-0315FS-4R3 | 4.3 | M | 150 | 115 | 1.20 | 1.14 | 53 |
| ASPI-0315FS-4R7 | 4.7 | M | 163 | 125 | 1.10 | 1.09 | 46 |
| ASPI-0315FS-5R1 | 5.1 | M | 173 | 133 | 1.00 | 1.05 | 49 |
| ASPI-0315FS-6R2 | 6.2 | M | 254 | 195 | 1.00 | 0.86 | 46 |
| ASPI-0315FS-6R8 | 6.8 | M | 260 | 200 | 0.85 | 0.85 | 39 |
| ASPI-0315FS-100 | 10 | M | 325 | 250 | 0.72 | 0.77 | 41 |
| ASPI-0315FS-120 | 12 | M | 416 | 320 | 0.70 | 0.68 | 32 |
| ASPI-0315FS-150 | 15 | M | 455 | 350 | 0.66 | 0.65 | 30 |
| ASPI-0315FS-180 | 18 | M | 559 | 430 | 0.56 | 0.59 | 23 |
| ASPI-0315FS-220 | 22 | M | 598 | 460 | 0.52 | 0.57 | 23 |
| ASPI-0315FS-270 | 27 | M | 949 | 730 | 0.48 | 0.45 | 22 |
| ASPI-0315FS-330 | 33 | M | 1066 | 820 | 0.44 | 0.43 | 20 |
| ASPI-0315FS-390 | 39 | M | 1294 | 995 | 0.41 | 0.39 | 14 |
| ASPI-0315FS-430 | 43 | M | 1378 | 1060 | 0.37 | 0.37 | 16 |
| ASPI-0315FS-470 | 47 | M | 1625 | 1250 | 0.35 | 0.35 | 14 |
| ASPI-0315FS-560 | 56 | M | 1664 | 1280 | 0.33 | 0.34 | 13 |
| ASPI-0315FS-620 | 62 | M | 2093 | 1610 | 0.30 | 0.30 | 13 |
| ASPI-0315FS-680 | 68 | M | 3510 | 2700 | 0.28 | 0.23 | 11 |
| ASPI-0315FS-101 | 100 | M | 4043 | 3110 | 0.23 | 0.21 | 7.2 |
| ASPI-0315FS-151 | 150 | M | 4940 | 3800 | 0.18 | 0.19 | 4.5 |

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Test Conditions

1. Inductance is measured using a WK3260B LCR meter or equivalent.
2. DCR is measured using HIOKI 3540 or equivalent.
3. Isat: Based on inductance change ($\Delta L/L_0: \leq -30\%$)
4. Irms: Based on temperature rise ($\Delta T: 40^\circ\text{C TYP.}$)
5. SRF: Agilent E4991A+16197 or equivalent.
6. Test Freq: 100KHz, 1Vrms

Operating Temperature

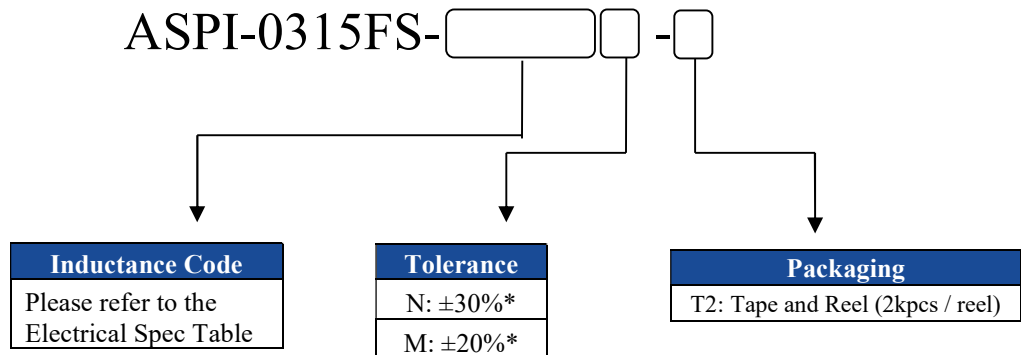
-40°C to +125°C (Including self-generated heat)

Storage Temperature of Component Removed from Packaging

-10°C to +40°C, RH 70% Max

ASPI-0315FS is **RoHS/RoHS II Compliant and Pb free**

Part Identification



*N for L = 0.5 ~ 2.7 μH

*M for L = 3.3 ~ 150 μH

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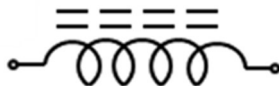
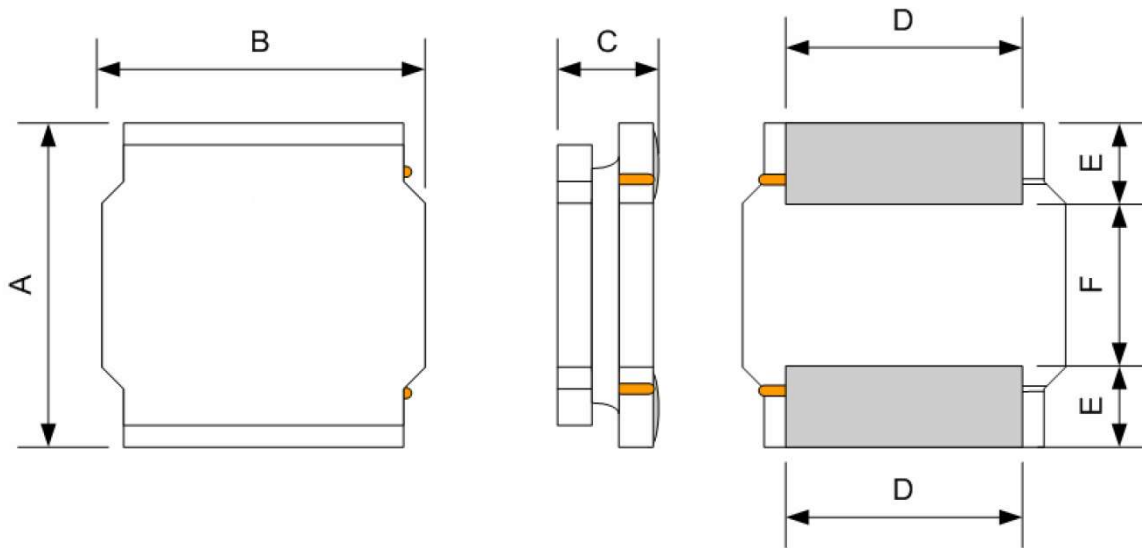


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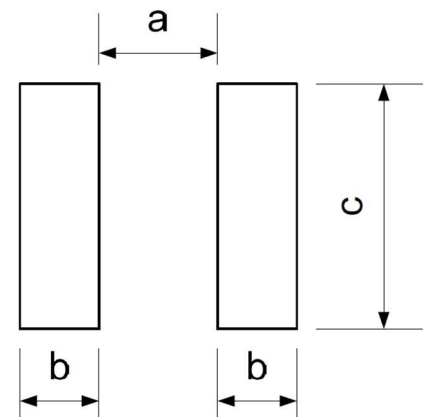
3.0 x 3.0 x 1.5mm
RoHS/RoHS II Compliant
MSL Level = 1

Mechanical Specifications



No Polarity

Recommended Land Pattern



| A | B | C | D | E | F | a Typ. | b Typ. | c Typ. |
|-------------|-------------|------------|--------------|--------------|-------------|--------|--------|--------|
| 3.0 ±0.2 | 3.0 ±0.2 | 1.5 Max | 2.50 ±0.2 | 0.75 ±0.2 | 1.5 ±0.2 | 1.5 | 0.8 | 2.7 |

Dimension: mm

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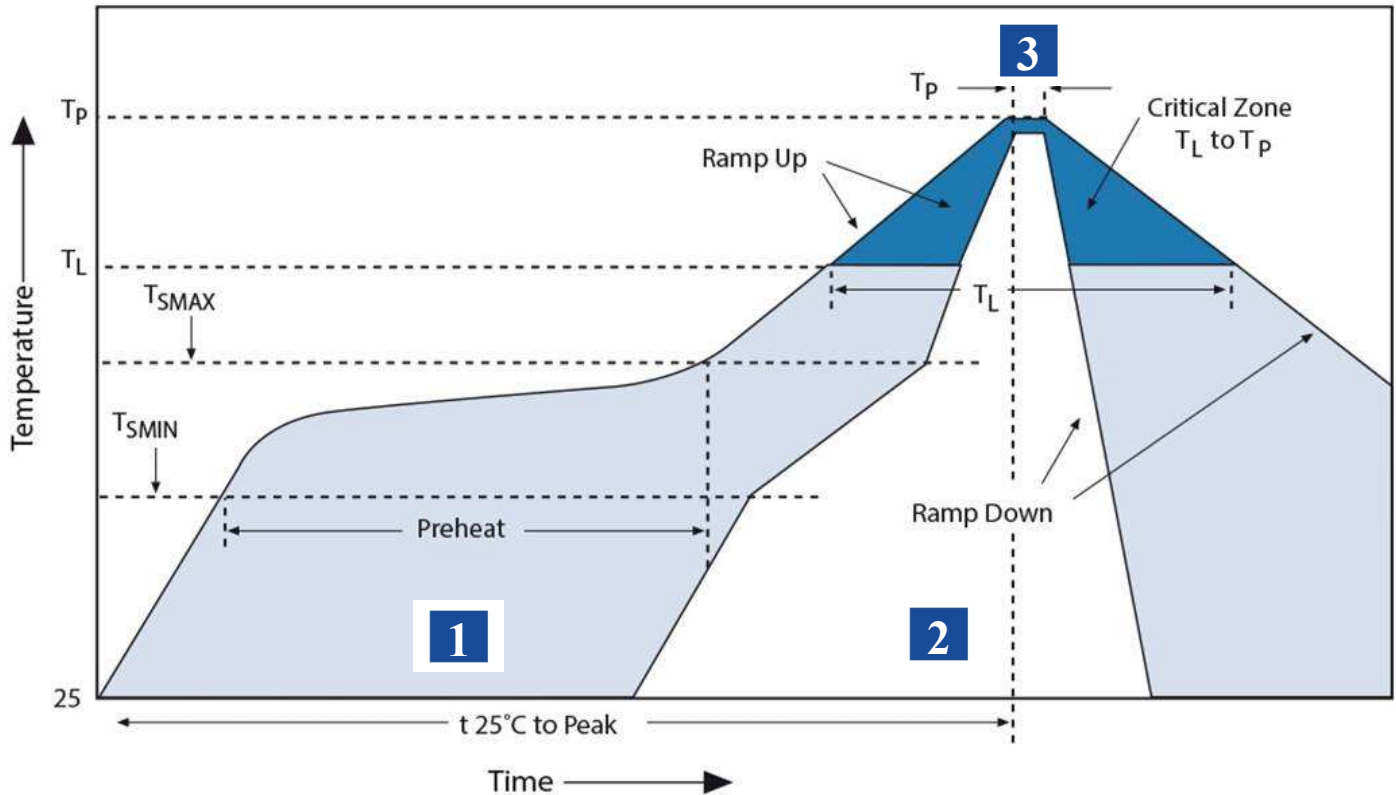


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RoHS/RoHS II Compliant
MSL Level = 1

Reflow Profile



| Zone | Description | Temperature | Times |
|------|-------------|---|---------------|
| 1 | Preheat | $T_{SMIN} \sim T_{SMAX}$ 150°C ~ 200°C | 60 ~ 120 sec. |
| 2 | Reflow | T_L 217°C | 60 ~ 90 sec. |
| 3 | Peak heat | T_P 260°C | 10 sec. MAX |

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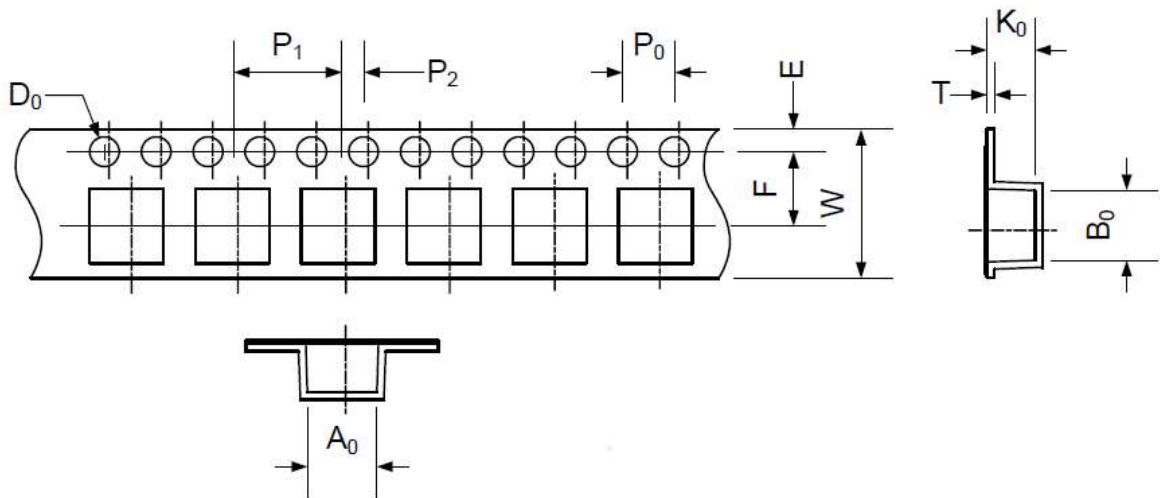
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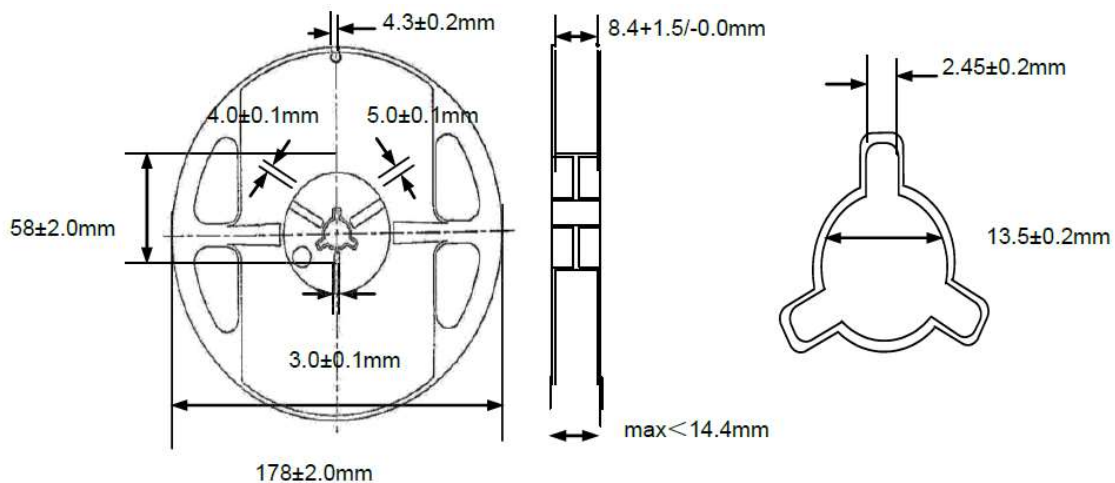
Packaging

T2: 2,000pcs / reel



| A ₀ | B ₀ | W | E | F | P ₀ | P ₁ | P ₂ | D ₀ | T | K ₀ |
|----------------|----------------|------|------|-------|----------------|----------------|----------------|----------------|-------|----------------|
| 3.3 | 3.3 | 8.0 | 1.75 | 3.5 | 4.0 | 4.0 | 2.0 | 1.5 | 0.25 | 1.6 |
| ±0.1 | ±0.1 | ±0.3 | ±0.1 | ±0.05 | ±0.1 | ±0.1 | ±0.1 | +0.1/-0.0 | ±0.03 | ±0.1 |

Dimension: mm



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5101 Hidden Creek Ln Spicewood TX 78669
 Phone: 512-371-6159 | Fax: 512-351-8858
 For terms and conditions of sales, please visit:
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are ready for shipment. Any unpaid due amounts will be subject to interest at one decimal five percent (1.5%) per month, or, if less, the maximum rate allowed by law.

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