



# Shielded Power Inductor

For NSC LM315x  
SIMPLE SWITCHER®



| Part number <sup>1</sup> | Inductance <sup>2</sup><br>±20% (µH) | DCR ±8%<br>(mOhm) | SRF typ <sup>3</sup><br>(MHz) | Isat <sup>4</sup><br>(A) | Irms <sup>5</sup><br>(A) |
|--------------------------|--------------------------------------|-------------------|-------------------------------|--------------------------|--------------------------|
| HA3778-AL_               | 1.65                                 | 2.53              | 55                            | 17                       | 20                       |

1. When ordering, please specify **termination** and **packaging** codes:

**HA3778-ALC**

**Termination:** L = RoHS compliant tin-silver over copper.

**Special order:** T = RoHS tin-silver-copper (95.5/4/0.5) or S = non-RoHS tin-lead (63/37).

**Packaging:** C = 7" machine-ready reel. EIA-481 embossed plastic tape (100 parts per full reel).

B = Less than full reel. In tape, but not machine ready. To have a leader and trailer added (\$25 charge), use code letter C instead.

D = 13" machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (500 parts per full reel).

2. Inductance measured at 500 kHz, 0.1 Vrms, 0 Adc using a Coilcraft SMD-A fixture in an Agilent/HP 4284A LCR meter or equivalent.

3. SRF measured on an Agilent/HP 8753ES.

4. DC current at which the inductance drops 30% (typ) from its value without current.

5. Current that causes a 40°C temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.

6. Electrical specifications at 25°C.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

- Designed specifically for National Semiconductor LM315x SIMPLE SWITCHER® Controllers for applications with output current up to 12 A.
- L1 on NSC Demonstration Board LM3152-3.3
- Soft saturation makes it ideal for use in multi-phase VRM/VRD regulators and high current/high frequency DC/DC converters.
- Flat wire construction for low DCR
- The materials used eliminate all thermal aging issues

**Core material** Powdered iron

**Terminations** RoHS compliant tin-silver over copper. Other terminations available at additional cost.

**Weight** 3.44 g

**Ambient temperature** -40°C to +85°C with Irms current

**Maximum part temperature** +125°C (ambient + temp rise).

**Storage temperature** Component: -40°C to +125°C.

Packaging: -40°C to +80°C

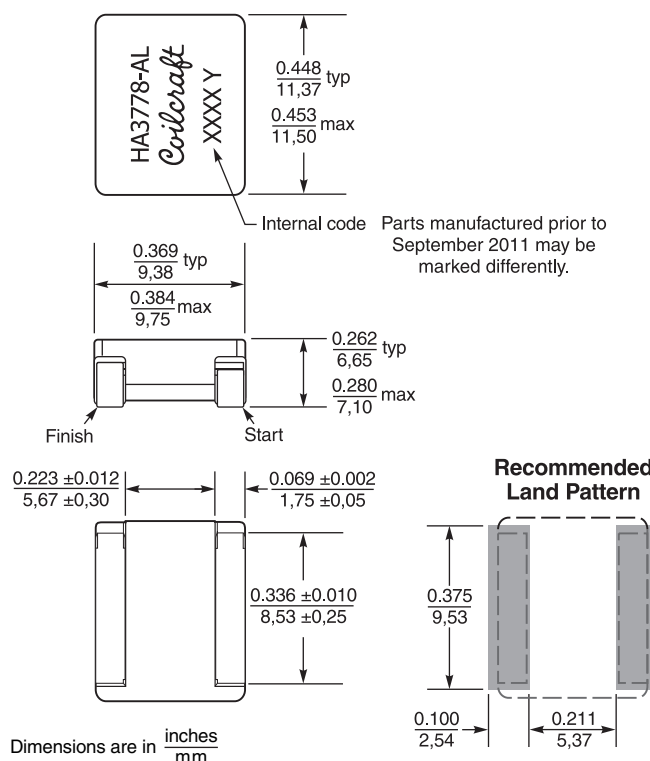
**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**Mean Time Between Failures (MTBF)** 26,315,789 hours

**Packaging** 100/7" reel; 500/13" reel Plastic tape: 24 mm wide, 0.4 mm thick, 16 mm pocket spacing, 7.5 mm pocket depth

**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787\\_PCB\\_Washing.pdf](#).



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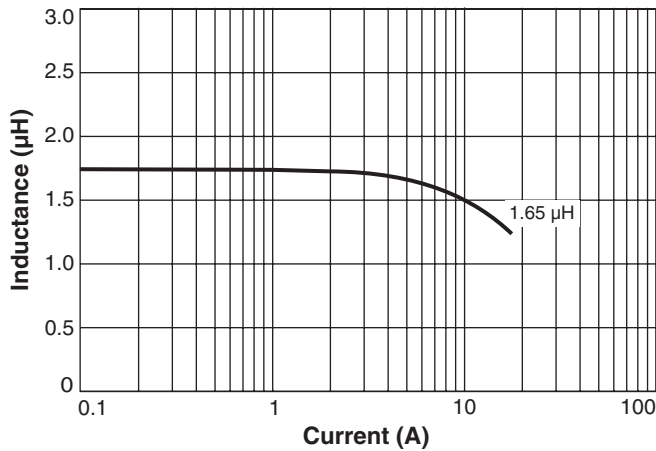
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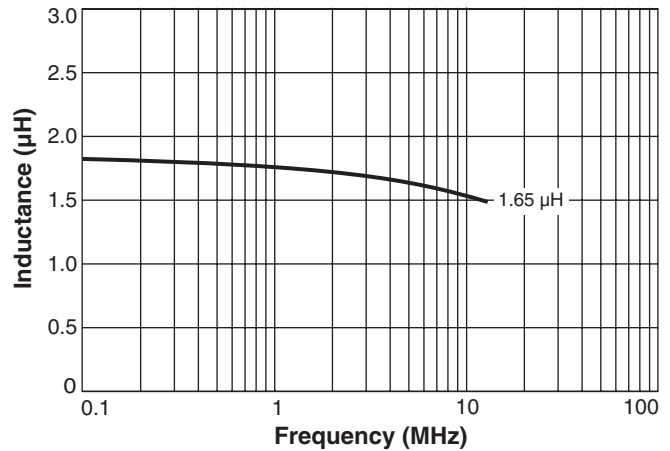


# Shielded Power Inductor – HA3778-AL

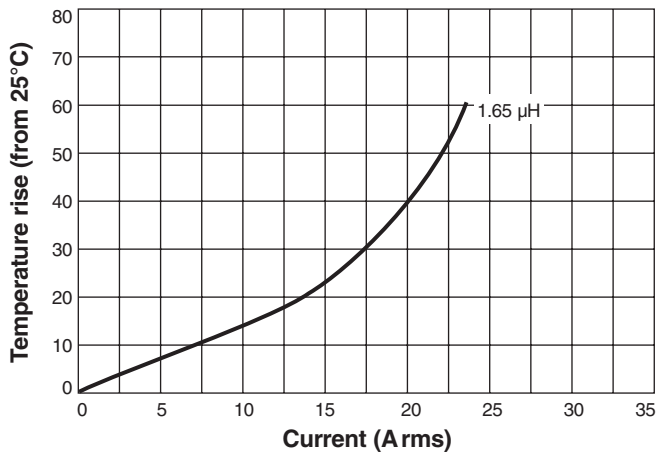
## Inductance vs Current



## Inductance vs Frequency



## Temperature Rise vs Current



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