Shielded Power Inductor

For NSC LM315x
SIMPLE SWITCHER®

• 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.

<table>
<thead>
<tr>
<th>Part number¹</th>
<th>Inductance² (µH) ±20%</th>
<th>DCR (mOhm) ±8%</th>
<th>SRF typ³ (MHz)</th>
<th>Isat (A)</th>
<th>Irms (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HA3778-AL_</td>
<td>1.65</td>
<td>2.53</td>
<td>55</td>
<td>17</td>
<td>20</td>
</tr>
</tbody>
</table>

1. When ordering, please specify termination and packaging codes:
   - HA3778-ALC

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.

Dimensions are in inches

Recommended Land Pattern

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Shielded Power Inductor – HA3778-AL

Inductance vs Current

![Inductance vs Current Graph]

Inductance vs Frequency

![Inductance vs Frequency Graph]

Temperature Rise vs Current

![Temperature Rise vs Current Graph]