Dual Inductors for Class D

- Dual inductors for use in Class D output filters
- A single shielded package contains both coils.
- Very low magnetic coupling
- AEC-Q200 Grade 1 qualified
- SMT (HA4158-EL) and through-hole (JA4575-BL) versions
- HA4158-BL and JA4575-AL not recommended for new designs
- Designed for low distortion and the best sound quality

Core material: Ferrite
Terminations: RoHS compliant tin-silver (96.5/3.5) over copper.
Weight: 5.0 g
Ambient temperature: −40°C to +125°C with Irms current
Maximum part temperature: +165°C (ambient + temp rise)
Storage temperature: Component: −40°C to +165°C.
Tape and reel packaging: −40°C to +80°C
Resistance to soldering heat: Max three 40 second refows at +260°C, parts cooled to room temperature between cycles
Moisture Sensitivity Level (MSL): 1 (unlimited floor life at <30°C / 85% relative humidity)
Failures in Time (FIT) / Mean Time Between Failures (MTBF): 38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332
PCB washing: Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf

1. When ordering, please specify **packaging** code:
   - HA4158-EL D = 13'' machine-ready reel. EIA-481 embossed plastic tape.
   - B = Less than full reel. In tape, but not machine ready. To have a leader and trailer added ($25 charge), use code letter D instead.

2. Maximum power into specified load that causes less than a 40°C temperature rise. Measured at 1 kHz with a 14.4 Vdc supply for the 2-Ohm load and a 21 Vdc supply for the 4-Ohm load. Refer to Output Power table for typical output conditions. Tested using the TASS414A Evaluation Board from Texas Instruments.

3. Inductance measured at 100 kHz, 1.0 Vrms, 0 Adc using an Agilent/HP 4294A impedance analyzer.

4. DCR is for each winding, measured on a micro-ohmmeter.

5. SRF measured using Agilent/HP 8753D network analyzer.

6. Total harmonic distortion + noise measured at 20 W into a 2-Ohm or 4-Ohm load at 1 kHz with a 21 Vdc supply.

7. DC current (typical) at which the inductance drops the specified amount from its value without current.

8. Current applied to both windings at the same time that causes the specified temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.


### Output Power

<table>
<thead>
<tr>
<th>Power typ (W)</th>
<th>Temperature rise from 25°C (°C)</th>
<th>Load</th>
<th>THD+N (%)</th>
<th>Test condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>10.0</td>
<td>4 Ohm</td>
<td>1%</td>
<td>1 kHz, 14.4 Vdc</td>
</tr>
<tr>
<td>26</td>
<td>10.2</td>
<td>4 Ohm</td>
<td>10%</td>
<td>1 kHz, 14.4 Vdc</td>
</tr>
<tr>
<td>46</td>
<td>21.8</td>
<td>4 Ohm</td>
<td>1%</td>
<td>1 kHz, 21 Vdc</td>
</tr>
<tr>
<td>56</td>
<td>22.8</td>
<td>4 Ohm</td>
<td>10%</td>
<td>1 kHz, 21 Vdc</td>
</tr>
<tr>
<td>36</td>
<td>27.8</td>
<td>2 Ohm</td>
<td>1%</td>
<td>1 kHz, 14.4 Vdc</td>
</tr>
<tr>
<td>44</td>
<td>25.1</td>
<td>2 Ohm</td>
<td>10%</td>
<td>1 kHz, 14.4 Vdc</td>
</tr>
</tbody>
</table>
**Class D Dual Inductors**

**L vs Current**

![Inductance vs Current Graph]

**ESR vs Frequency**

![ESR vs Frequency Graph]

**HA4158-EL (SMT version)**

![HA4158-EL SMT Version Diagram]

**JA4575-BL (Through-hole version)**

![JA4575-BL Through-hole Version Diagram]

**Packaging**

- **HA4158-EL (SMT version):** 400/13” reel, Plastic tape: 24 mm wide, 0.5 mm thick, 16 mm pocket spacing, 10.8 mm pocket depth
- **JA4575-BL (Through-hole version):** 250/13” reel, Plastic tape: 24 mm wide, 0.5 mm thick, 20 mm pocket spacing, 13.84 mm pocket depth

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**Recommended Land Pattern**

- HA4158-EL: 0.043 ±0.01, 0.325 ±0.008, 8.26 ±0.20
- JA4575-BL: 0.024 ±0.003, 0.026 ±0.008, 6.71 ±0.2

**Recommended PC Board Layout**

- HA4158-EL: 0.466 ±0.003, 10.75 ±0.20
- JA4575-BL: 0.466 ±0.003, 10.75 ±0.20

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**Dimensions are in inches (mm)**

- HA4158-EL: 0.423 ±0.003, 10.75 ±0.20
- JA4575-BL: 0.423 ±0.003, 10.75 ±0.20

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**Parts manufactured prior to December 2011 may be marked differently.**