Through Hole Data Line EMI Filters

These filters are designed to virtually eliminate conducted EMI in data line applications. They provide exceptional common mode noise reduction from 5 MHz to 300 MHz while passing signal line data frequencies below 200 MHz with minimal attenuation.

These low resistance filters feature excellent electrical isolation, environmental stability and low cost. Optional covers make them auto insertable. They also meet IEC 695-2-2 needle flame test requirements. There are 8, 4, 3 and 2-line versions with DC current capacity of 100 mA (DLF x000 series) or 500 mA (DLF x500 series).

Coilcraft Designer's Kit D303 contains four samples of all values shown plus samples of our PDLF and CCDLF surface mount filters. To order, contact Coilcraft or visit http://order.coilcraft.com.

<table>
<thead>
<tr>
<th>Part number</th>
<th>Lines</th>
<th>Common mode peak impedance (kOhms)</th>
<th>Cutoff frequency (MHz)</th>
<th>Inductance (µH)</th>
<th>DCR max (mOhms)</th>
<th>Isolation (Vrms)</th>
<th>Current max (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLF 8000L¹</td>
<td>8</td>
<td>2.03 @ 8.3 MHz</td>
<td>200</td>
<td>28</td>
<td>100</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>DLF 8500L¹</td>
<td>8</td>
<td>0.60 @ 40 MHz</td>
<td>60</td>
<td>25</td>
<td>45</td>
<td>300</td>
<td>500</td>
</tr>
<tr>
<td>DLF 4000L</td>
<td>4</td>
<td>2.13 @ 12 MHz</td>
<td>390</td>
<td>28</td>
<td>100</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>DLF 4500L</td>
<td>4</td>
<td>1.62 @ 14 MHz</td>
<td>730</td>
<td>24</td>
<td>45</td>
<td>300</td>
<td>500</td>
</tr>
<tr>
<td>DLF 3000L¹</td>
<td>3</td>
<td>1.98 @ 13 MHz</td>
<td>650</td>
<td>28</td>
<td>100</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>DLF 3500L</td>
<td>3</td>
<td>1.45 @ 15 MHz</td>
<td>670</td>
<td>24</td>
<td>45</td>
<td>300</td>
<td>500</td>
</tr>
<tr>
<td>DLF 2000L¹</td>
<td>2</td>
<td>2.03 @ 14 MHz</td>
<td>660</td>
<td>28</td>
<td>100</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>DLF 2500L¹</td>
<td>2</td>
<td>1.55 @ 14 MHz</td>
<td>610</td>
<td>24</td>
<td>45</td>
<td>300</td>
<td>500</td>
</tr>
</tbody>
</table>

1. For optional cover add “C” to part number just before the “L”: e.g. DLF 8000CL. Not available on 3500, 4000 and 4500 parts.
2. Frequency at which the differential mode attenuation equals −3 dB
3. Inductance is per winding.
4. DCR is specified per winding.
5. Winding to winding isolation (hipot) tested for one minute.
6. Operating temperature range −40°C to +85°C.
7. Electrical specifications at 25°C.

Core material: Ferrite
Terminations: Tin-silver over tin over phosph bronze
Ambient temperature: −40°C to +85°C
Storage temperature: Component: −40°C to +85°C. Tape and reel 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)
Failures in Time (FIT) / Mean Time Between Failures (MTBF): 60 per billion hours / 16,666,667 hours, calculated per Telcordia SR-332
PCB washing: Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCBt_Washing.pdf.

<table>
<thead>
<tr>
<th>Part number</th>
<th>Weight typ (g)</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLF 2000L</td>
<td>0.74</td>
<td>75 per tube</td>
</tr>
<tr>
<td>DLF 2000CL</td>
<td>1.32</td>
<td>64 per tube</td>
</tr>
<tr>
<td>DLF 2500L</td>
<td>0.78</td>
<td>75 per tube</td>
</tr>
<tr>
<td>DLF 2500CL</td>
<td>1.36</td>
<td>64 per tube</td>
</tr>
<tr>
<td>DLF 3000L</td>
<td>0.83</td>
<td>75 per tube</td>
</tr>
<tr>
<td>DLF 3000CL</td>
<td>1.41</td>
<td>64 per tube</td>
</tr>
<tr>
<td>DLF 3500L</td>
<td>0.91</td>
<td>75 per tube</td>
</tr>
<tr>
<td>DLF 4000L</td>
<td>0.95</td>
<td>55 per tube</td>
</tr>
<tr>
<td>DLF 4500L</td>
<td>1.09</td>
<td>55 per tube</td>
</tr>
<tr>
<td>DLF 8000L</td>
<td>1.56</td>
<td>27 per tube</td>
</tr>
<tr>
<td>DLF 8000CL</td>
<td>2.70</td>
<td>25 per tube</td>
</tr>
<tr>
<td>DLF 8500L</td>
<td>2.22</td>
<td>27 per tube</td>
</tr>
<tr>
<td>DLF 8500CL</td>
<td>3.36</td>
<td>25 per tube</td>
</tr>
</tbody>
</table>
Through Hole Data Line EMI Filters

Without Optional Cover

Recommended PC Board Layouts

Dimensions are in inches

Schematics

Note: Polarity marking is for reference only. Parts may be inserted into the circuit with polarity reversed without affecting performance.

With Optional Cover

Recommended PC Board Layouts

Dimensions are in inches

Schematics

Note: Polarity marking is for reference only. Parts may be inserted into the circuit with polarity reversed without affecting performance.
Through Hole Data Line EMI Filters

Typical Attenuation (Ref: 50 Ohms)

- DLF2000
- DLF3000
- DLF4000
- DLF8000

Common mode
Differential mode

Specification subject to change without notice. Please check website for latest information.
Through Hole Data Line EMI Filters

Typical Impedance vs Frequency

Impedance (Ohms) vs Frequency (MHz)

- DLF2000
- DLF3000
- DLF4000
- DLF8000

Common mode
Differential mode

10,000 1000 100 10 1.00 0.1 0.1 1.0 10

Impedance (Ohms)
Frequency (MHz)

DLF2500
DLF4500
DLF8500
DLF3500

Common mode
Differential mode

10,000 1000 100 10 1.00 0.1 0.1 1.0 10

Impedance (Ohms)
Frequency (MHz)