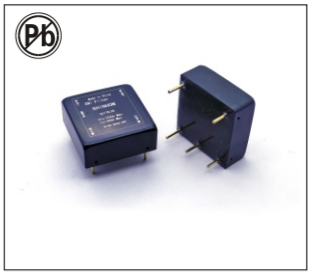
DLF75L05 FILTER MODULE



DLF75L05 filter module is designed to reduce the conducted common mode and differential mode noise on input or output lines of high frequency switching power supplies and has a maximum current rating of 5A.

This filter module possesses outstanding electrical and thermal performance, as well as extremely high reliability under highly stressful operating conditions.

FEATURES:

- ROHS Compliant
- Small size: 25.4mm x 25.4mm x 10.2mm
- Industry standard footprint and pin–out
- Optimized for use with high frequency board mounted DC/DC converters
- Printed–circuit board mountable
- ISO 9001, TL 9000, ISO 14001, QS 9000, OHSAS 18001 certified manufacturing facility

APPLICATIONS:

- Common mode and differential mode filtering of power supply dc input and output line
- Computer application
- Communications equipment

SPECIFICATIONS:

GENERAL SPECIFICATIONS		OUTPUT SPECIFICATIONS		
Input voltage, continuous	0~75V Typ.	Output current	Ta=75℃, no airflow	5A
Input voltage, transient	100V Typ.	Output current	Ta=85℃, no airflow	4A
Operation case temperature	–40℃ ~ +120℃ Typ.	Common–mode Insertion Loss	50Ω circuit, 500 kHz (Typ)	43dB
Storage temperature	–55℃ ~ +125℃ Typ.	Differential–mode Insertion Loss	50Ω circuit, 500 kHz (Typ)	45dB
Size	25.4X25.4X10.2mm			

ELECTRICAL CHARACTERISTICS CURVES:

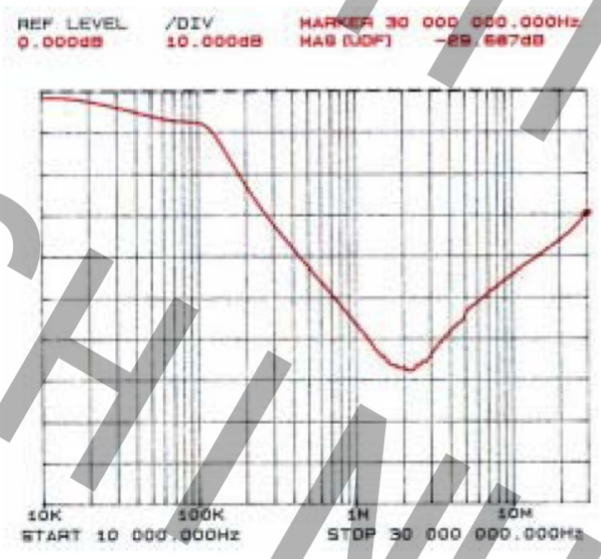


Figure 1: Typical common–mode insertion loss in a 50Ω circuit

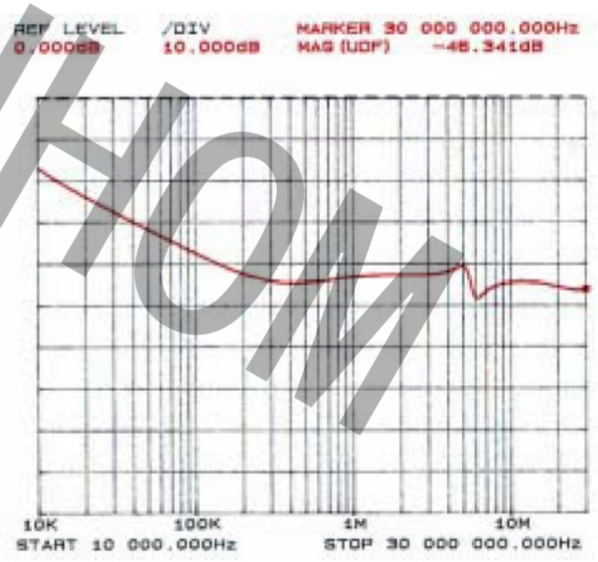


Figure 2: Typical differential–mode insertion loss in a 50Ω circuit

INTERNAL SCHEMATICS:

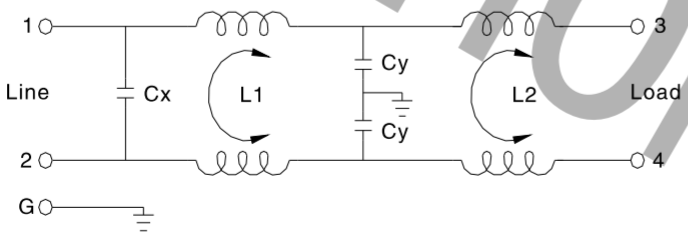


Figure 3: Internal schematics

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THERMAL CONSIDERATIONS

Thermal management is an important part of the system design. To ensure proper, reliable operation, sufficient cooling of the power module is needed over the entire temperature range of the module. Convection cooling is usually the dominant mode of heat transfer.

Hence, the choice of equipment to characterize the thermal performance of the power module is a wind tunnel.

Thermal Testing Setup:

Delta's filter modules are characterized in heated vertical wind tunnels that simulate the thermal environments encountered in most electronics equipment. This type of equipment commonly uses vertically mounted circuit cards in cabinet racks in which the power modules are mounted.

The following figure shows the wind tunnel characterization setup. The filter module is mounted on a test PWB and is vertically positioned within the wind tunnel. The space between the neigh boring PWB and the top of the power module is 6.35mm.

Thermal Derating:

Heat can be removed by increasing airflow over the module. Figure 4 shows maximum output is a function of ambient temperature and airflow rate. To enhance system reliability, the power module should always be operated be low the maximum operating temperature. If the temperature exceeds the maximum module temperature, reliability of the unit may be affected.

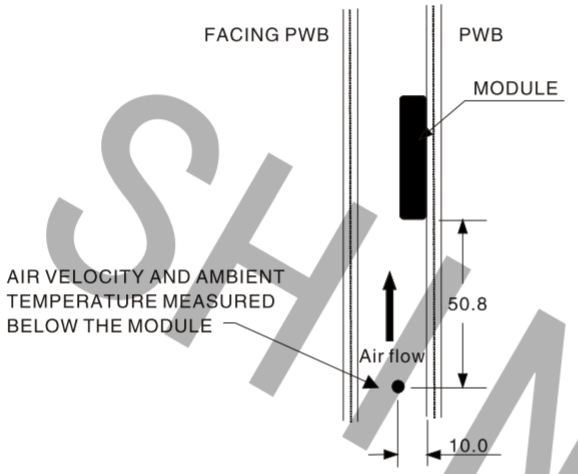


Figure 4: Wind Tunnel Test Setup Figure Dimensions are in millimeters

THERMAL CURVES

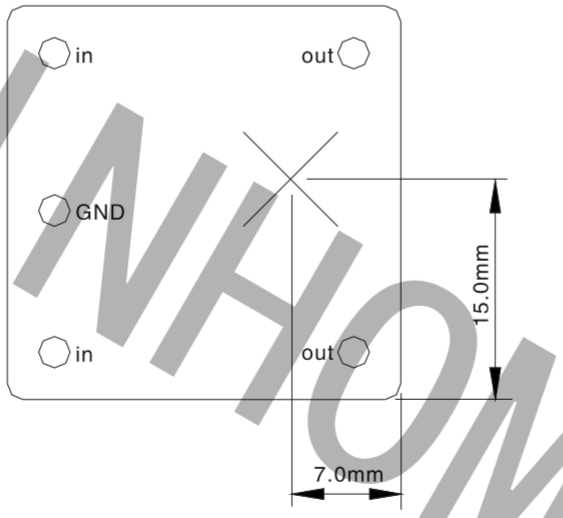


Figure 5: Temperature measurement location

The allowed maximum hot spot temperature is defined at 120℃

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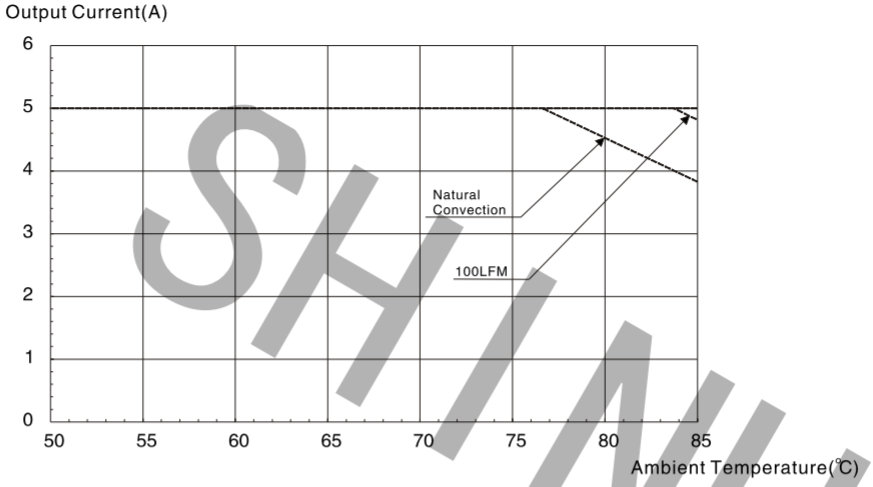
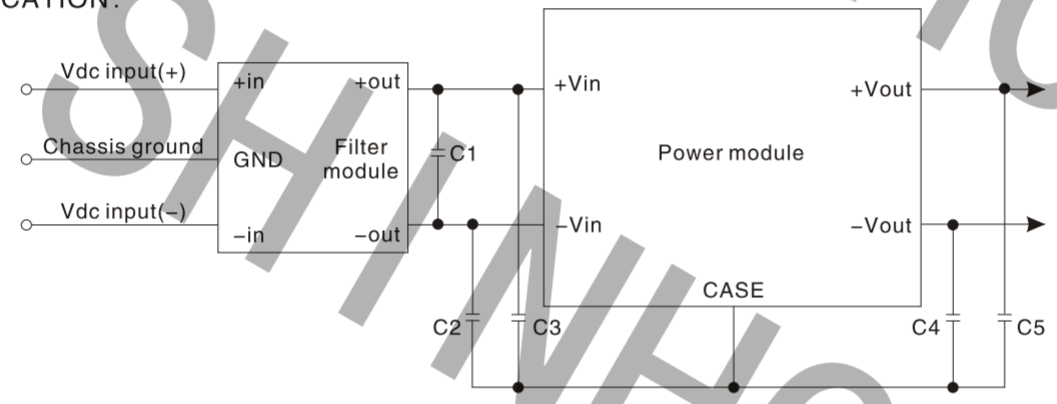


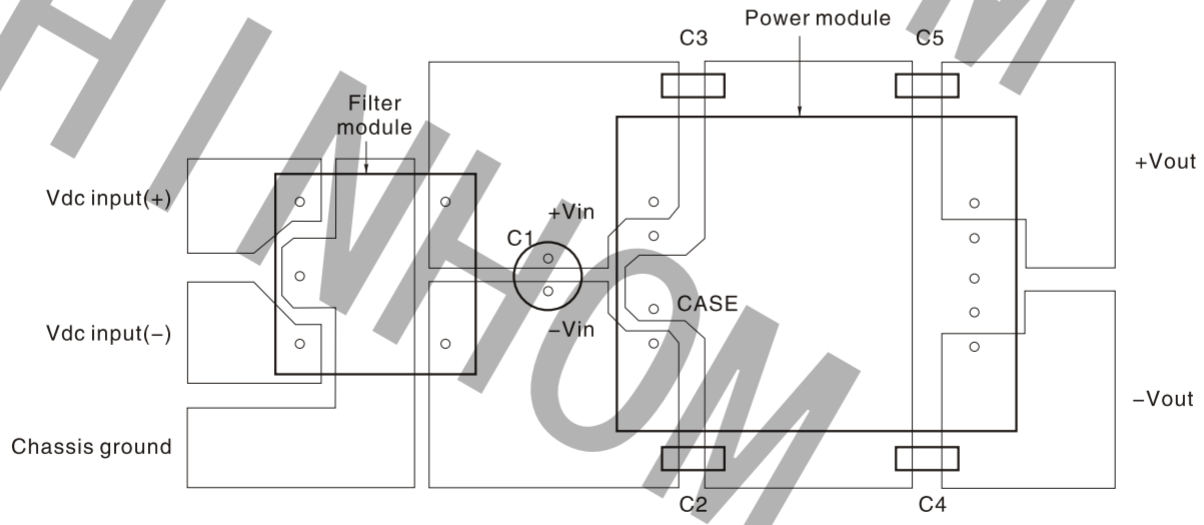
Figure 6: Output Current vs. Ambient Temperature and Air Velocity @ Vin = 48V (Either Orientation)

APPLICATION:



Note: C2 through C5 can be 0.01 μ F to o.1 μ F. Select the voltage rating to meet input–to–output isolation requirements.
C1 should be the recommended value indicated in the power module data sheet.

Figure 7. Recommended schematic when used as the input filter to a high–frequency dc–to–dc converter

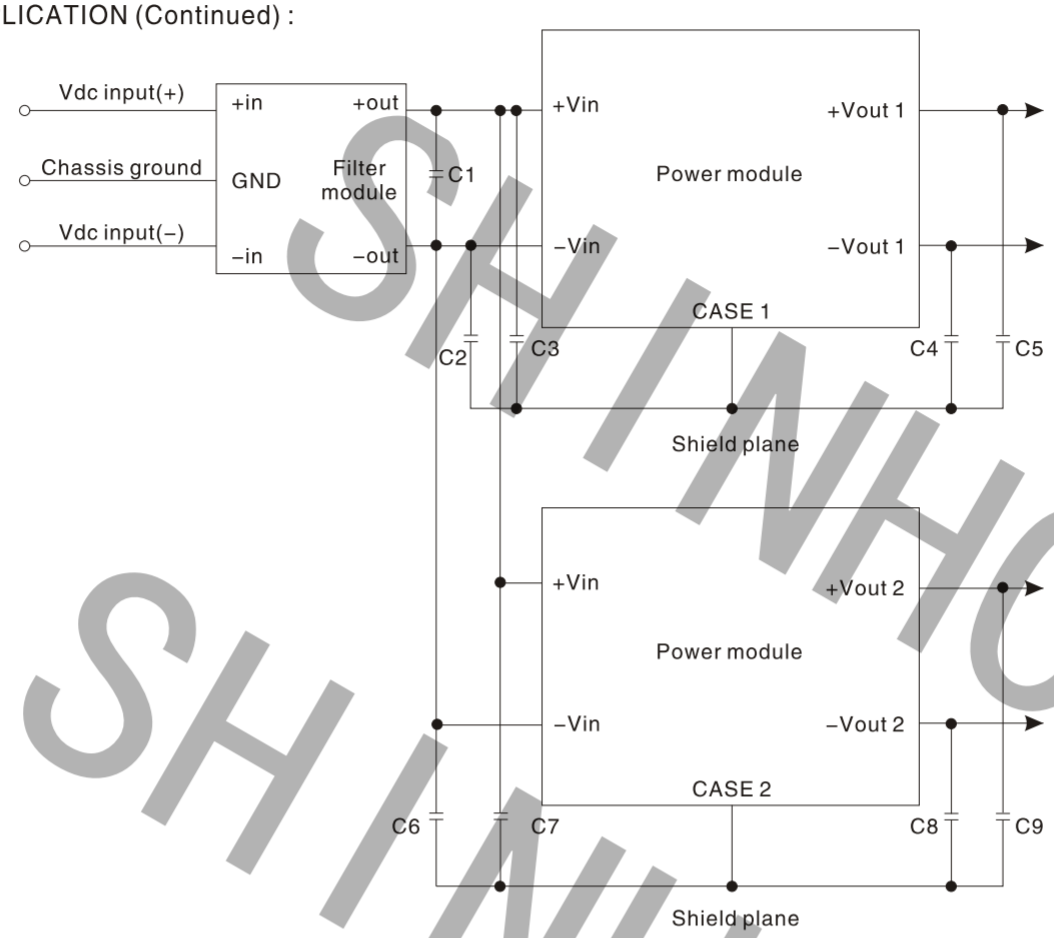


Note: Vdc input(+) and Vdc input(–) planes should overlay each other, as should the Vi(+) and Vi(–) planes, as should the Vout(+) and Vout(–) planes. Avoid routing signals or planes under the power module or the filter module. Ensure all connections are low impedance.

Figure 8. Recommended layout when used as the input filter to a high–frequency dc–to–dc converter

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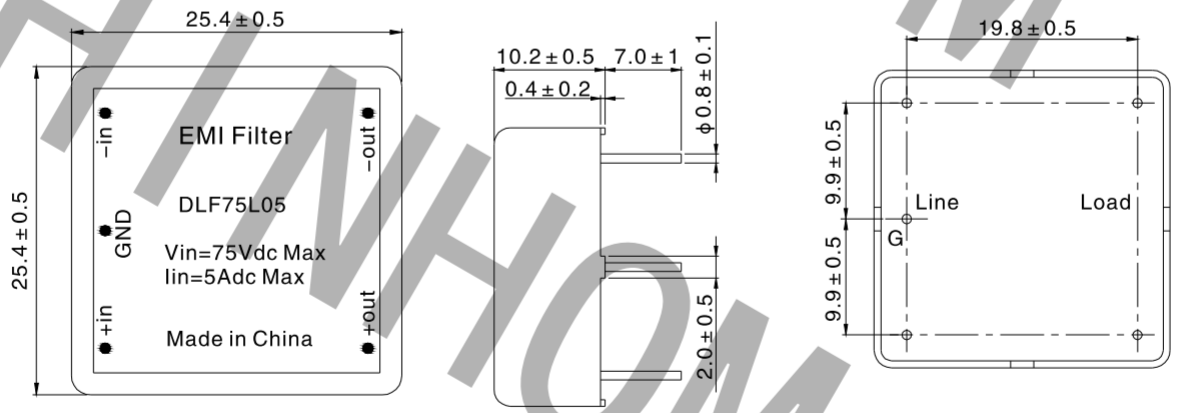
APPLICATION (Continued) :



Note: : C2 through C5 and C6 through C9 can be 0.01 μ F to 0.1 μ F. Select the voltage rating to meet input–to–output isolation requirements. C1 should be the recommended value indicated in the power module datasheet.

Figure 9. Recommended schematic of filter module with two power modules

MECHANICAL DRAWING:



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