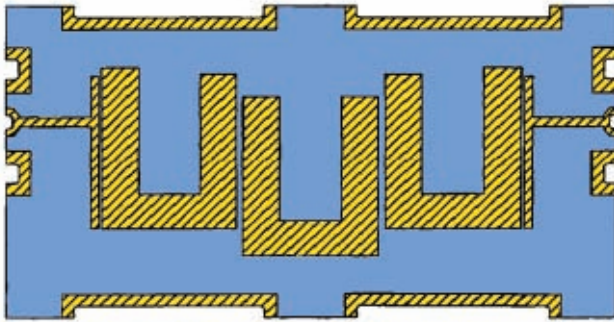


# DLI Surface Mount Filters Mounting Recommendations

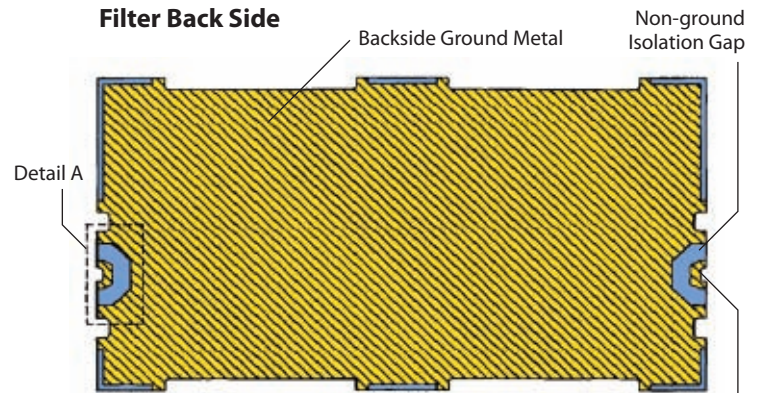


## Typical SMT Filter Layout

Filter Top Side

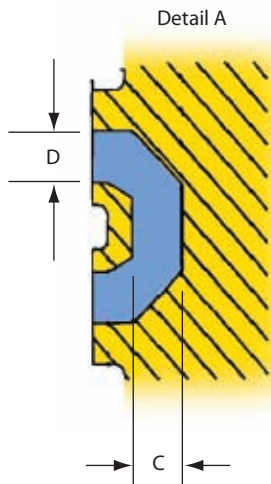


Filter Back Side

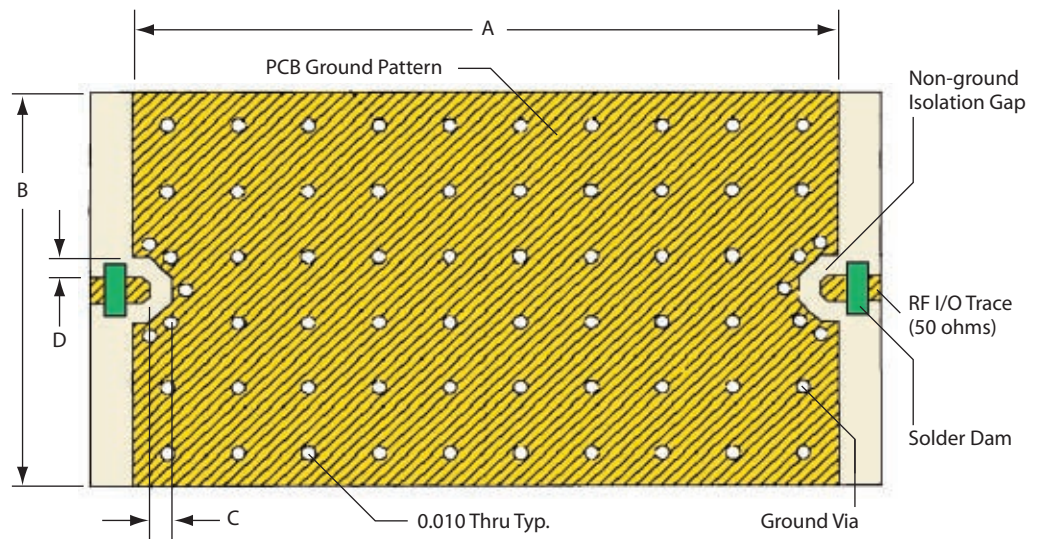


I/O realized through a castellated via that mates directly to I/O pad on top of PCB for RF connector

Filter RF I/O Detail  
(Filter Back Side)



PCB Pattern Recommendations

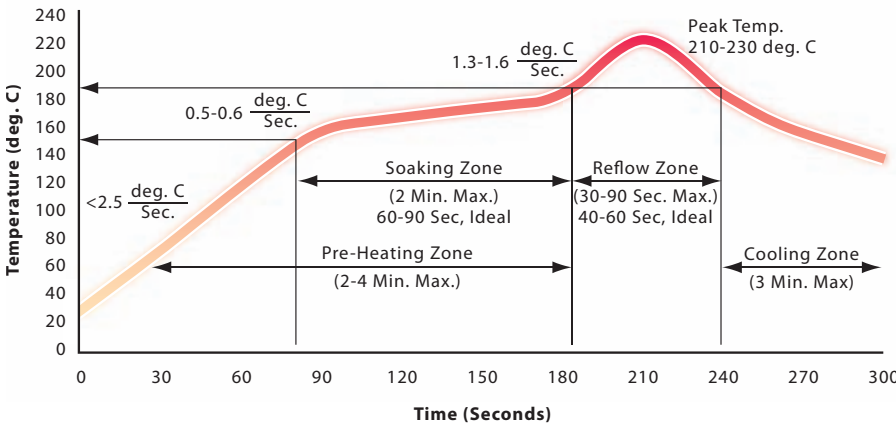


**Comments for PCB layout:**

- 1) Ground Pattern Length (Dimension A) can be 2-3 mils longer than filter length.
- 2) Ground Pattern Width (Dimension B) can be 2-3 mils wider than filter width.
- 3) Dimensions C and D on Filter RF I/O detail and PCB pattern should closely match. The dimensions of C and D on the PCB pattern can be slightly larger to account for component alignment tolerance (ground metal can be pulled back from RF I/O trace).
- 4) Ground via diameter and spacing should be set so as not to create any resonances at the frequency of operation.

# DLI Surface Mount Filters Mounting Recommendations

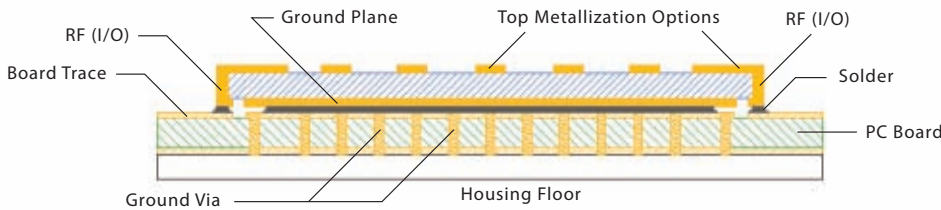
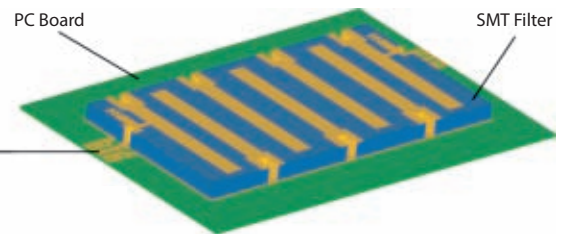
## DLI recommended solder reflow profile for filter attachment to PWB for typical SN63 solder



### Comments on solder attach and component handling:

- 1) Contact of a soldering iron directly to the ceramic filter may crack component due to thermal shock.
- 2) If using a hot plate for reflow, do not place board and filter directly on plate. The use of an alumina or stainless steel slab directly on the hot plate will slow the rate of heat hitting the mounting assembly.
- 3) Plastic tipped tweezers or a vacuum pick-up tool are recommended for handling the components. Extra care should be taken not to scratch the filter or metal pattern.
- 4) Solder paste is typically applied by stencil. Typical solder joint thickness of 2 - 3 mils is recommended. Plugged ground vias in the PWB will improve attachment consistency.
- 5) Thin, unmounted circuit boards are prone to warpage during reflow. This can cause solder attach defects and cracking of filters during handling or subsequent housing installation.

## Additional Graphics and Information



Typical SM Filter Metal Scheme:	Typical SM Filter CTE:	Typical RF layer PCB Thickness	Typical PCB Dielectric Constant
3-6 micro inches of gold over 50 micro inches of nickel over 100 micro inches of gold over 300 Angstroms of tungsten	9.6 PPM/ $^{\circ}$ C to 9.9PPM/ $^{\circ}$ C	8 to 12 mils	3.0 to 3.8



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