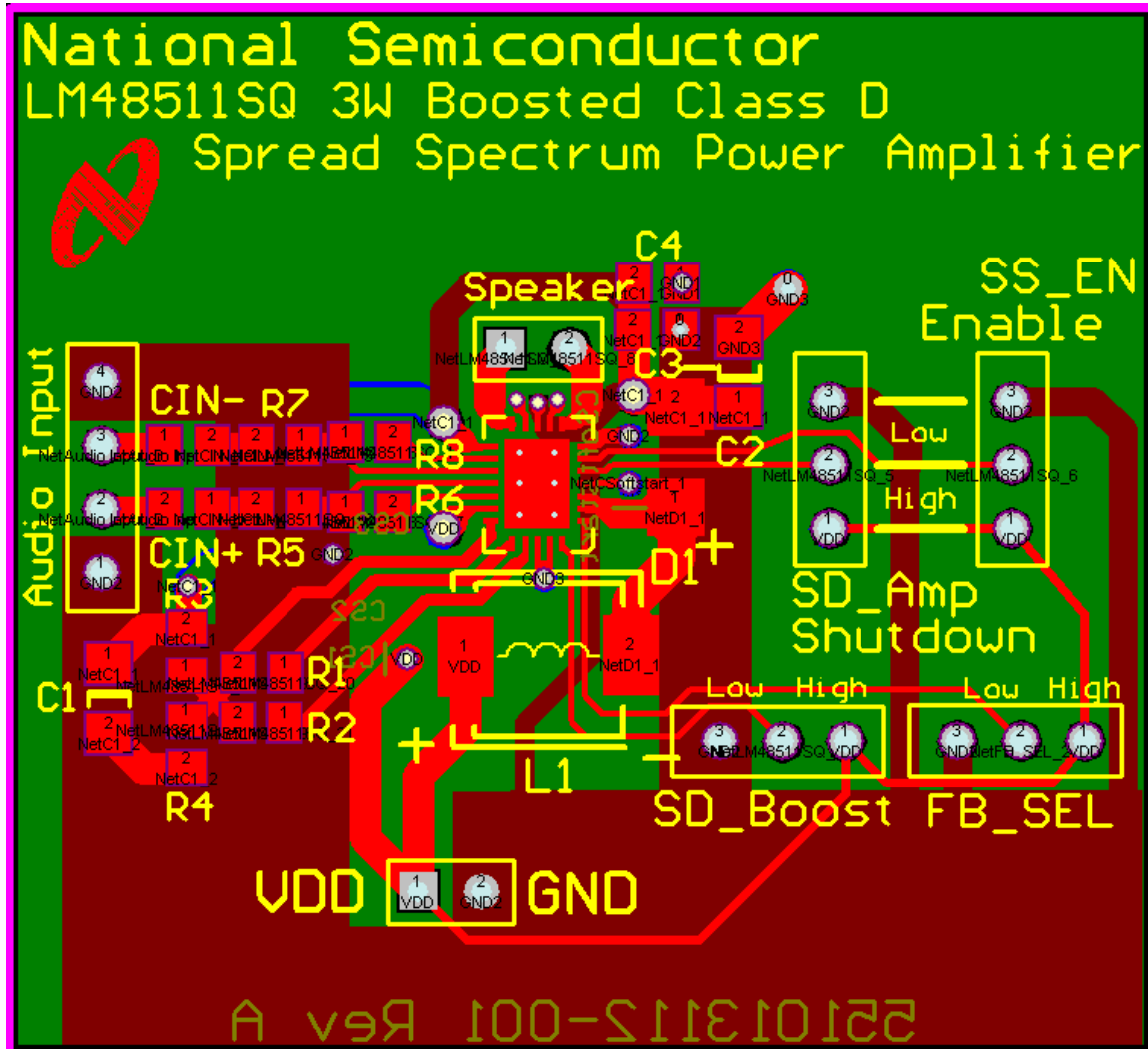


LM48511SQ Demo Board Description and Setup Instructions

Demo board label descriptions are included below.



Supply Voltage (V_{DD}):

The supply voltage operating range is from 3.0V to 5.5V, but the absolute maximum rating is 9V.

Audio Input:

The two center pins of the 4 pin connector on the left above are used as differential inputs into the LM48511, or two single-ended inputs when one center pin and an outer ground pin are paired.

Speaker (Audio Output):

The differential output for an 8Ω or 4Ω speaker.

SD_Amp:

If SD_Amp is set LOW, the independent internal audio amplifier is disabled, and when set HIGH the amplifier is enabled.

SS_EN Enable:

If SS_EN Enable is set LOW, the spread spectrum function is disabled, and when set HIGH the spread spectrum is enabled.

SD_Boost:

If SD_Boost is set low, the independent regulator is disabled, and when set HIGH, the regulator is enabled.

FB_SEL:

When LOW (FB_SEL0), the regulator output voltage is as follows:

$$PV1 = V_{FB} \left(1 + \frac{25.5k\Omega}{4.87k\Omega} \right), \text{ where } V_{FB} = 1.23V$$

When HIGH (FB_SEL1), the regulator output voltage is as follows:

$$PV1 = V_{FB} \left(1 + \frac{25.5k\Omega}{9.31k\Omega} \right), \text{ where } V_{FB} = 1.23V$$

Layout Helpful Hints:

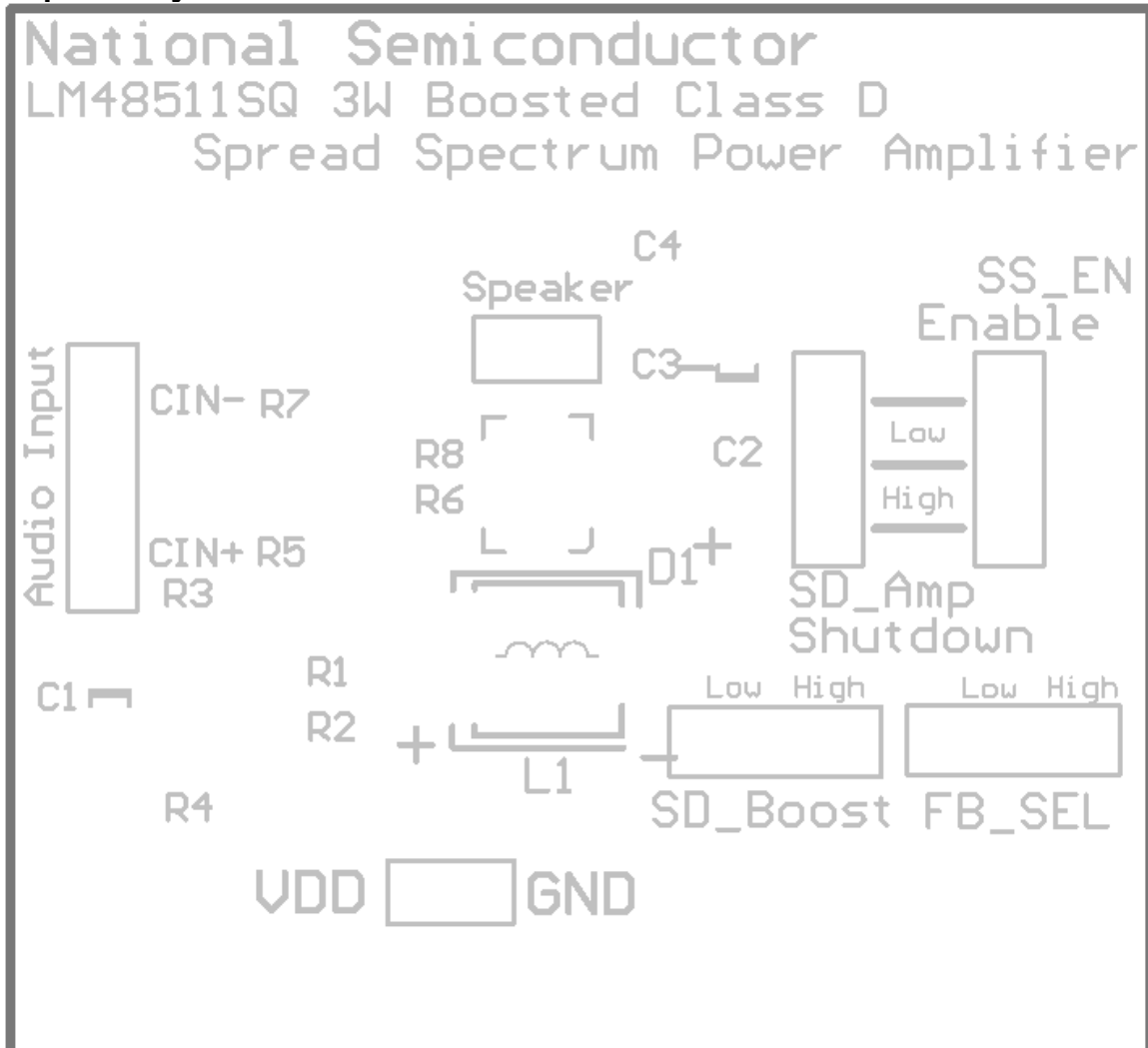
1. Avoid routing traces under the inductor.
2. Use three separate grounds that eventually connect to one point:
 - a. Signal or quiet ground (GND2).
 - b. Ground for the LM48511 device (GND1)
 - c. SW (GND3)(switch ground)
 - i. The trace for the switch ground carries the heaviest current (3A) and therefore is the noisiest. Make this trace as wide and short as possible and keep at a distance from the quiet ground and device ground. Give distance priority to the quiet ground.

Reference:

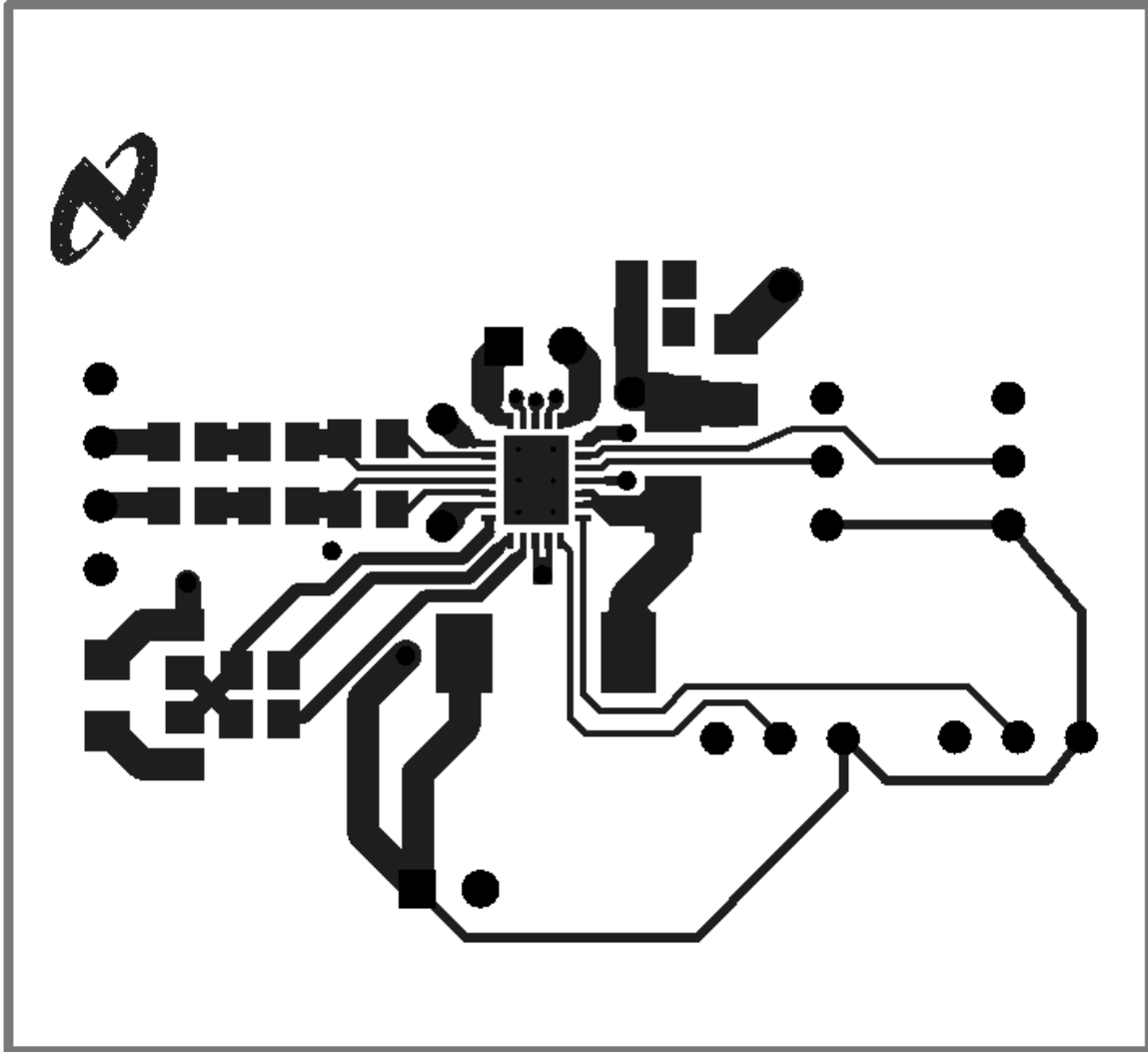
LM48511 Datasheet (www.national.com)

Demo Board Layout Layers

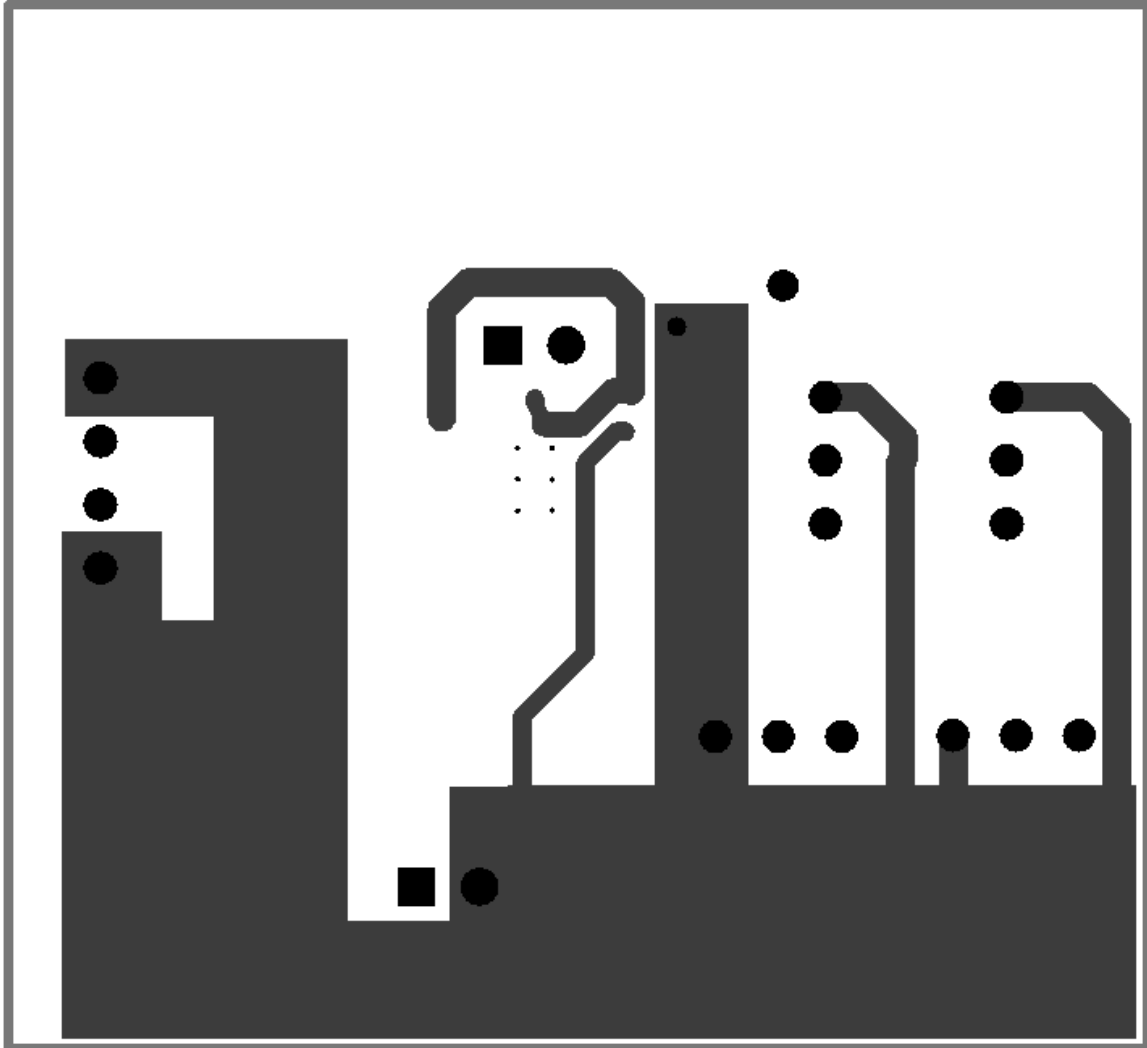
Top Overlay



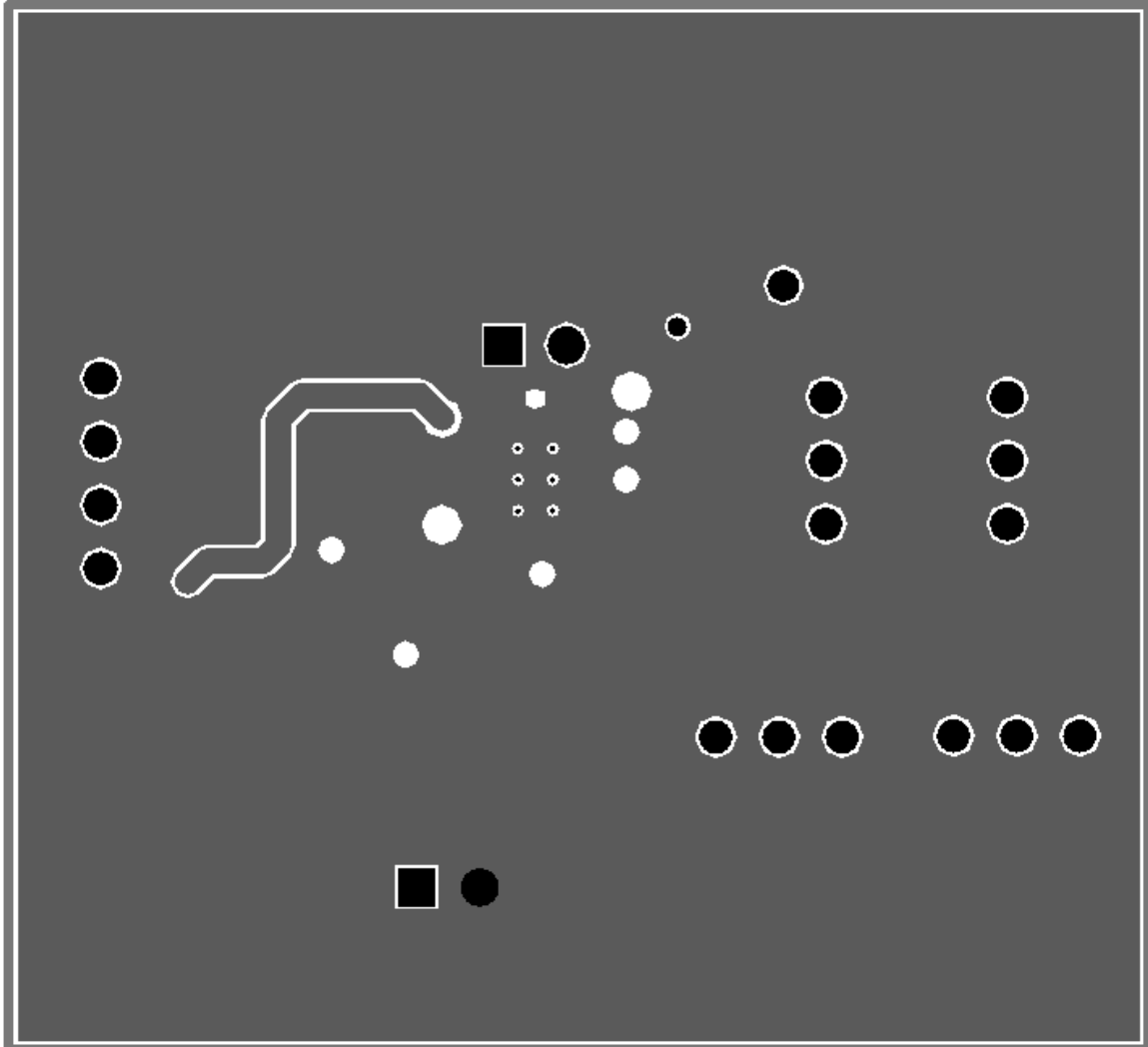
Top Layer (metal)



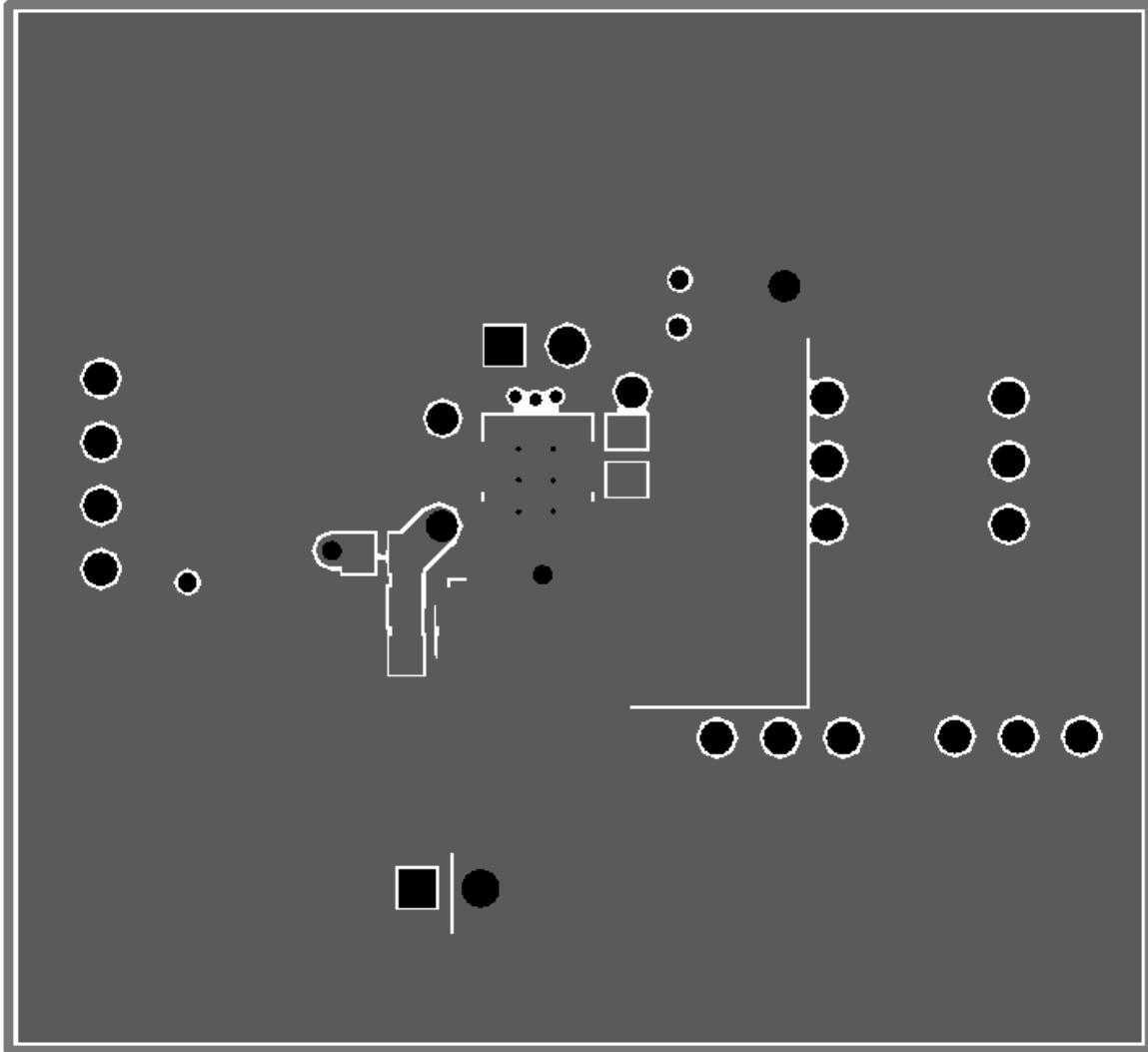
MidLayer1 (metal)



Midlayer2 (metal)



Bottom Layer (metal)



Bottom Overlay

