

# Notches in ground planes for multi-power multi-channel board

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All,

I am designing a multi-channel board and I have individual linear regulators for each channel running off a common switcher.

Now, my concern is that due to the split power planes, which are like thin fingers running through the board, I will cause potential differences based on the current in different channels, especially, because I have a common ground plane. Now, I was thinking my choices are:

1) Split the ground plane as well, so I would have thin finger like power and ground plane separated by narrow notch but connected at the linear regulator end and at the input end. (All the channels are w.r.t common ground plane.)

The trouble is, that I have common (to all channels) control lines running across my planes (though separated by 2 layers) and even if I isolate the grounds, some noise is bound to take the signal lines.

2) Keep split power planes, but add a narrow slice ground plane between the power plane 'fingers' in between them on the same layer as the power planes.

3) Keep 1, but put connections between ground planes at regular intervals.

Anyone have thoughts on this. The voltages are +5 or less and it is all analog..there are digital lines and a digital section, but they come into the analog area through an isolator.

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