TVP5160 PCB Layout Guidelines

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- A High-K printed circuit board having a minimum of 4 layers is recommended for best thermal transfer and performance.
- A split GND plane is recommended to provide isolation between the analog inputs and digital outputs.
- Place the TVP5160 as close as possible to the video input jacks.
- Anti-alias filters terminated with 75 ohms are recommended for each video input for the best quality. Use 0.1µF AC-coupling capacitors prior to the TVP5160 video input pins.
- Try to maintain a video input trace impedance of 75 Ω.
- Ensure that power bus/plane routing is adequate to handle current requirements of the device. Linear regulators are preferred for the analog power supplies.
- Use adequate power supply filtering. If analog and digital supplies share a common regulator, filter each node separately.
- All device 0.1µF decoupling capacitors should be placed near the power and GND pins of the device.
- Keep reasonable clearances between the 14.31818-MHz crystal/associated circuitry and adjacent video and digital trace routing. Placing a cutout in the ground plane and ground fill layers around the 14.31818-MHz crystal and associated circuitry will help isolate the crystal input.
- All video input traces should have a minimum clearance of ten times the trace width between each other and other adjacent traces to minimize potential crosstalk between inputs.
- SDA/SCL traces should be routed together and have a minimum clearance of ten times the trace width from any adjacent traces.
- Maintain good trace length matching of digital video output traces and clock. Length matching tolerance will depend on setup/hold time margins of the receiving device.
- Use 10-Ω to 22-Ω series termination resistors on the clock and data lines for best signal quality and noise reduction. Place the resistors as close as possible to the TVP5160 output pins.
- All high-speed signals should be routed over solid power/ground planes and not routed over power/ground splits. Route signals over their associated power/ground plane where possible.
- Use ground fills on the top and bottom of the board for additional signal isolation.
- Connect the TVP5160 exposed thermal pad to the digital ground plane. Use an array of thermal vias to connect the thermal land to the internal GND plane.
- See Figure 1 for the recommended GND split.

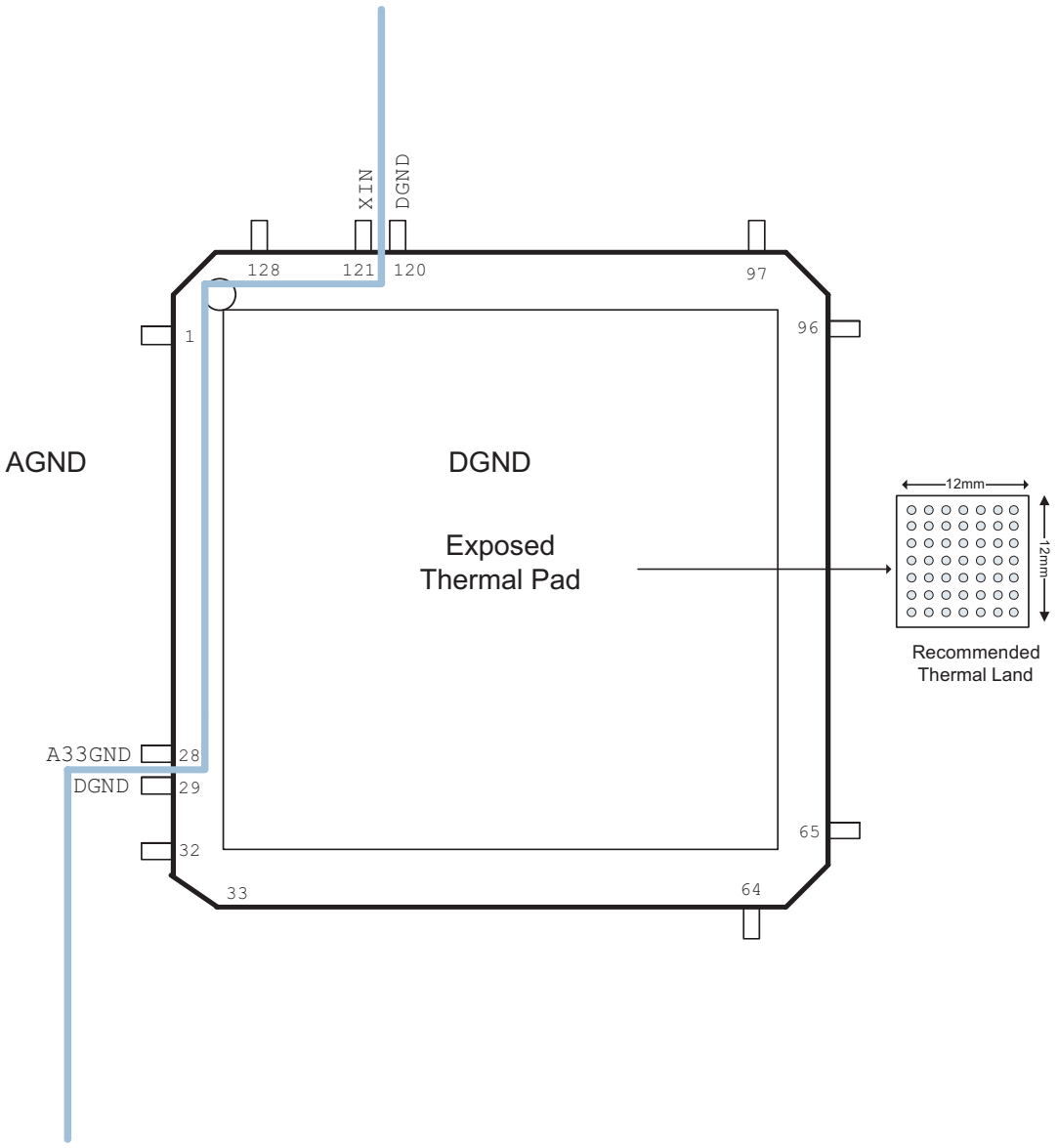

Figure 1. Recommended Split Between Ground Planes

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