

**Application Alert for PI3PCIE2612-A on  
DisplayPort AUX/DDC Switching Applications**

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## 1. Background

PI3PICE2612-A was found to greatly attenuate AUX- signal in DisplayPort AUX/DDC switching applications when signal passed through PI3PCIE2612-A. This document explains the cause and the avoidance of this issue.

## 2. Application Scenario

Figure 1a shows the correct application scenario for using PI3PCIE2612-A to switch two AUX signals while Figure 1b shows the wrong one. The common mode voltage of AUX+ and AUX- is at about 0.3V and 3.0V respectively. If AUX signal needs to pass through PI3PCIE2612-A with these common mode voltages, DC block capacitor is needed to block these common mode voltages. Otherwise, 3.0V common mode voltage on AUX- will cause RON of PCIE2612-A to increase to more than 50ohm. This high RON will greatly attenuate the AUX- signal. Application scenario in Figure 1a enables the uses DC blocking capacitor to block the common mode voltages while application scenario in Figure 1b can not. It is because one of the inputs is a signal with AUX or DDC.

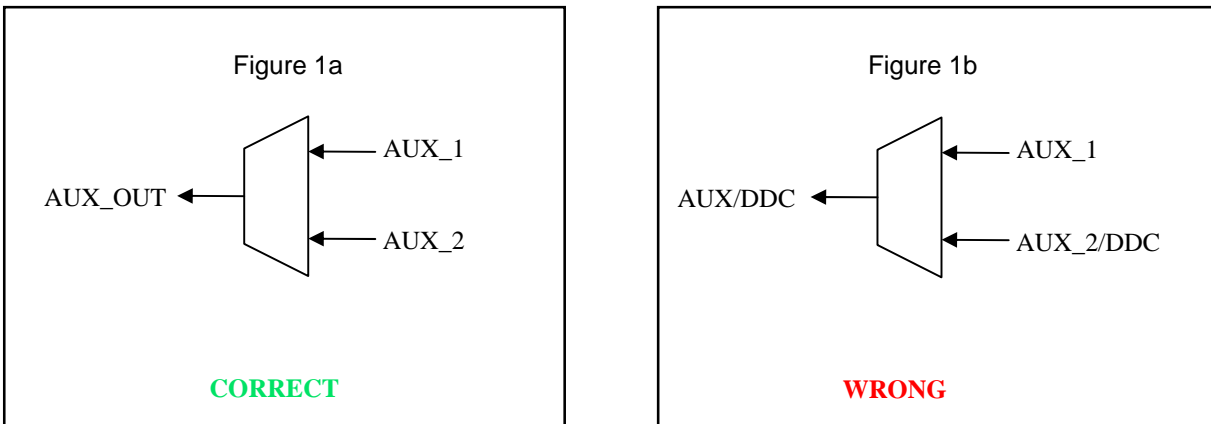


Figure 1: Application Scenario

## 3. Recommendation

If the application scenario is as illustrated in Figure 1b, it is recommended to use either PI3VDP612 or PI3VDP612-A. The RON of these two devices is about 13ohm at 3.0V common mode voltage, which is much less than that of PI3PCIE2612-A. Figure 2 shows the RON versus input voltage comparing to that of PI3PCIE2612-A and PI3VDP612-A.

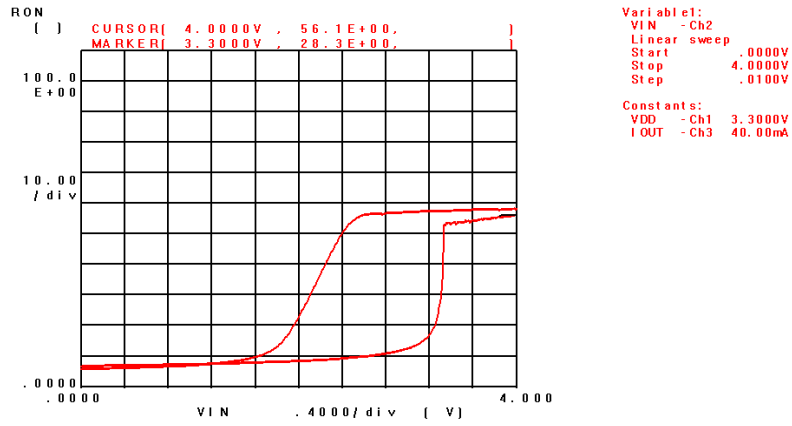


Figure 2: RON versus input voltage comparison