

<b>FDI</b>	<b>ENGINEERING CHANGE ORDER</b>		<b>ECO NO: 09-012</b>
			<b>Page 1 of 3</b>
<b>TITLE</b>	<b>DWG NO.</b>	<b>CURRENT REV</b>	<b>NEW REV</b>
LCD Carrier 3-5		1.0	1.1

**BACKGROUND:**

As the LCD Carrier 3-5 REV 1 was sent to production, it was discovered that the Bill Of Materials calls for Tantalum capacitors at C10, C31, C34. However, there are no polarity markings on the REV 1 PCB.

Reason for change: 1. BOM calls for Tantalum Capacitors, but there are no polarity markings on the PCB		<b>Disposition/Affectivity</b>	
		Use as is	x
		Rework to ECO	
		Scrap & Rebuild	
		Record Change Only	
Prepared by:	JG	Date:	07/15/2009
Approved by:		Date:	
Approved by:		Date:	
Approved by:		Date:	

<b>FDI</b>	<b>ENGINEERING CHANGE ORDER</b>		<b>ECO NO: 09-012</b>
			Page 2 of 3
<b>TITLE</b>	<b>DWG NO.</b>	<b>CURRENT REV</b>	<b>NEW REV</b>
LCD Carrier 3-5		1.0	1.1

DESCRIPTION OF CHANGE:

1. The BOM will be corrected to include ceramic caps for future builds of REV 1 and for future hardware revisions.
2. To avoid production delays we will use the Tantalum caps on the first production lot of LCDC 3-5 REV1. Diagrams to indicate cap polarity are provided in Figures 1 thru 3.

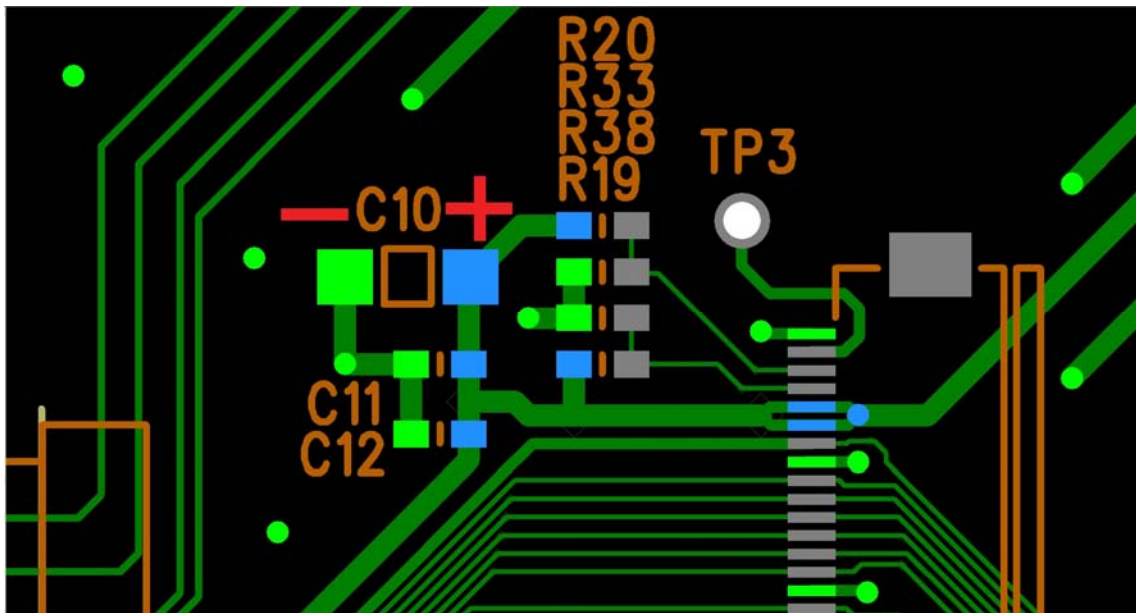


Figure 1 C10 Polarity

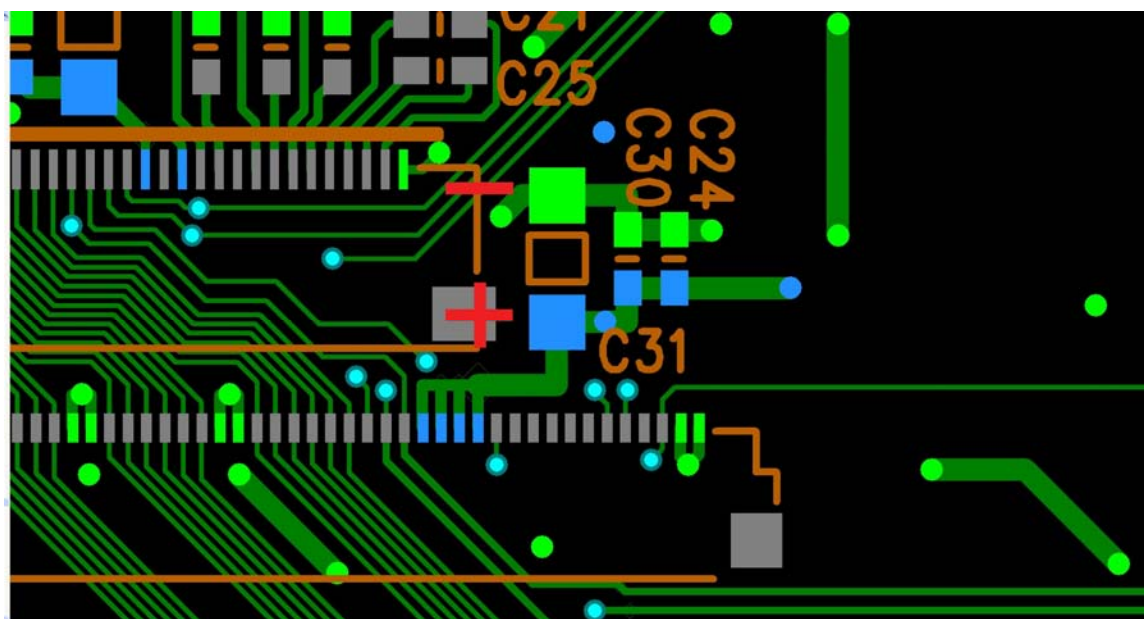


Figure 2 C31 Polarity

<b>FDI</b>	<b>ENGINEERING CHANGE ORDER</b>		<b>ECO NO: 09-012</b>
			<b>Page 3 of 3</b>
<b>TITLE</b>	<b>DWG NO.</b>	<b>CURRENT REV</b>	<b>NEW REV</b>
LCD Carrier 3-5		1.0	1.1

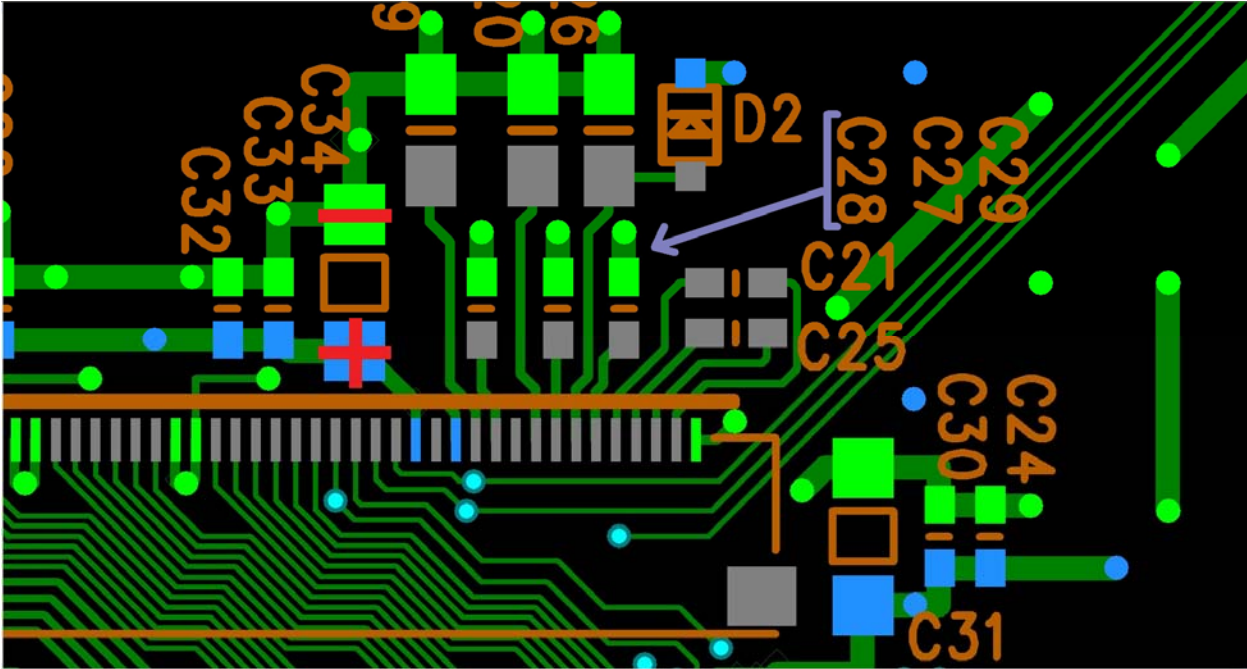


Figure 3 C34 Polarity

<b>FDI</b>	<b>ENGINEERING CHANGE ORDER</b>		<b>ECO NO: 09-013</b>
			<b>Page 1 of 4</b>
<b>TITLE</b>	<b>DWG NO.</b>	<b>CURRENT REV</b>	<b>NEW REV</b>
LCD Carrier 3-5		1.1	1.2

**BACKGROUND:**

NOTE: This rework is only required to support the Okaya 3.5" 320 x 240 LCD (Okaya PN: RH320240T-3X5WP-A)

When the initial hardware design was done, it was assumed that an internal pull down would be sufficient termination for the SHUT pin of the Okaya 3.5" LCD, and the pin was left not connected. However, during software driver development, it was discovered that the LCD must see a falling edge on this signal during startup. The LCDPWR signal was selected for this task since its purpose of controlling backlight power was obsoleted on the LCDC 3-5 which uses PWM for backlight control.

Software driver development for the 3.5" Okaya also uncovered a schematic error on the SPI bus. Although, SPI is properly terminated at the LCD and at the main 50-pin connector back to ARM Carrier, an error existed in the connection between the two schematic pages that effectively connected MISO to SDI (Serial Data In) of the LCD. This obviously should have been connected to MOSI.

Reason for change: 1. Add signal to control SHUT pin on Okaya 3.5" 2. Correct error on SPI bus		<b>Disposition/Affectivity</b>	
		Use as is	
		Rework to ECO	x
		Scrap & Rebuild	
		Record Change Only	
Prepared by:	JG	Date:	07/15/2009
Approved by:		Date:	
Approved by:		Date:	
Approved by:		Date:	

<b>FDI</b>	<b>ENGINEERING CHANGE ORDER</b>		<b>ECO NO: 09-013</b>
			<b>Page 2 of 4</b>
<b>TITLE</b>	<b>DWG NO.</b>	<b>CURRENT REV</b>	<b>NEW REV</b>
LCD Carrier 3-5		1.1	1.2

DESCRIPTION OF CHANGE:

1. Cut EXT\_MISO trace between J4.45 and J10.50. The cut is made on the TOP side of the PCB. Figure 1 shows the general area of the cut and Figure 2 shows a detail of the cut.

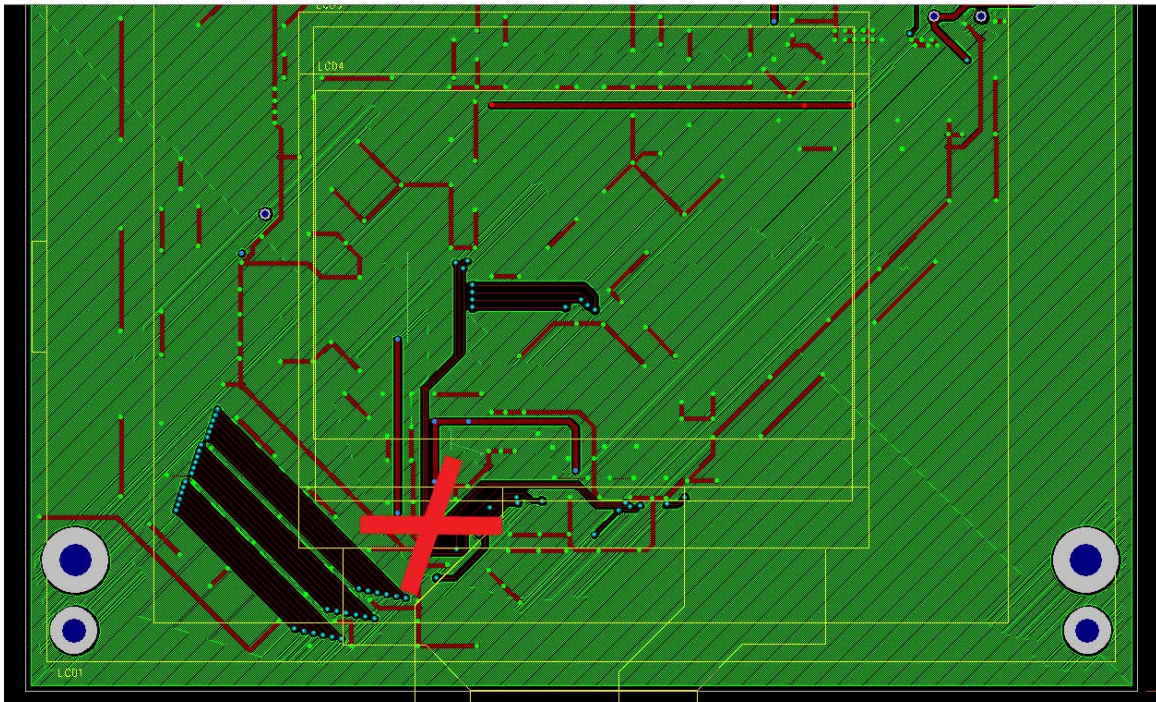


Figure 1 General Area of Cut (LCDC 3-5 REV1 TOP Side)

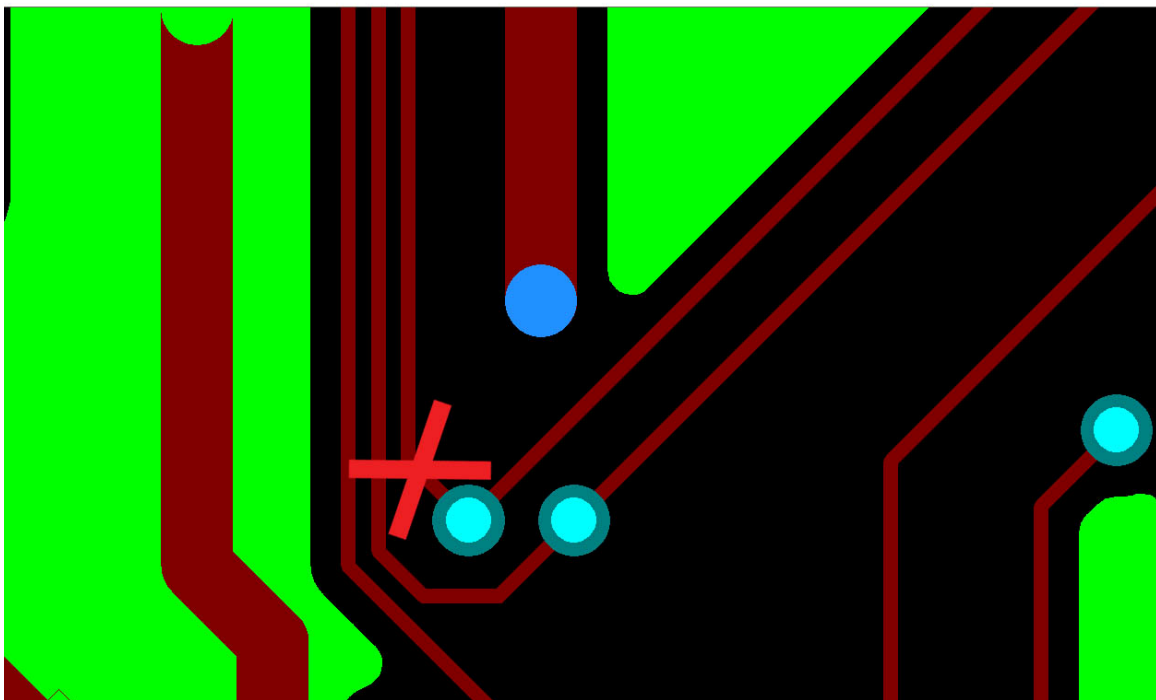
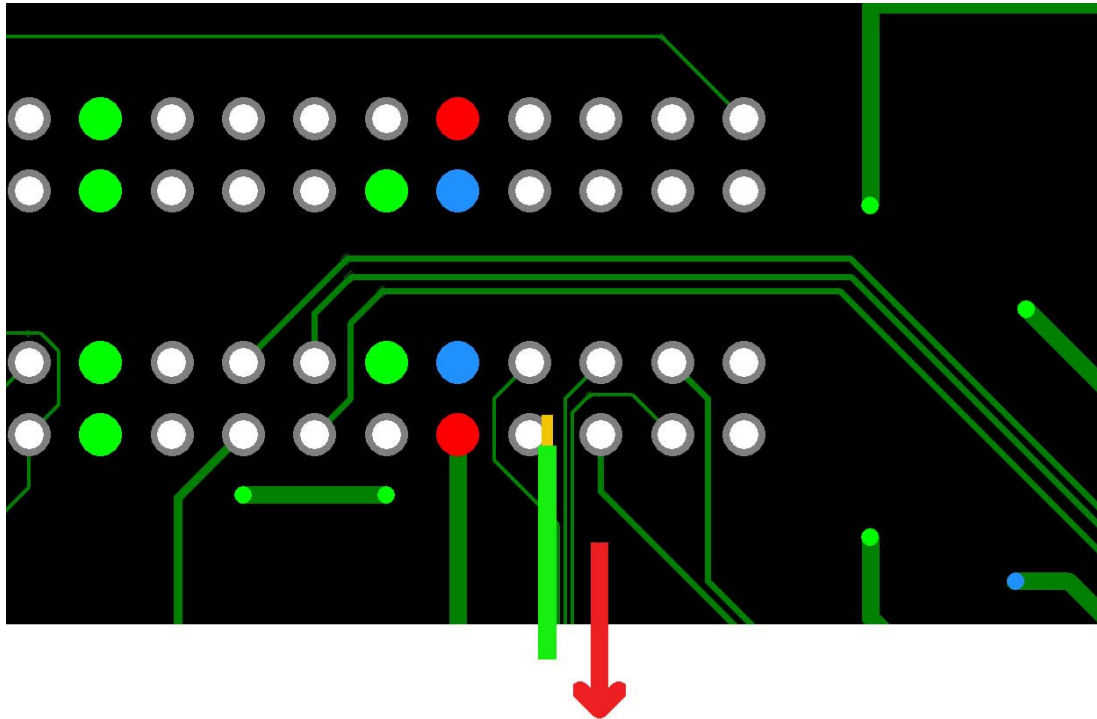


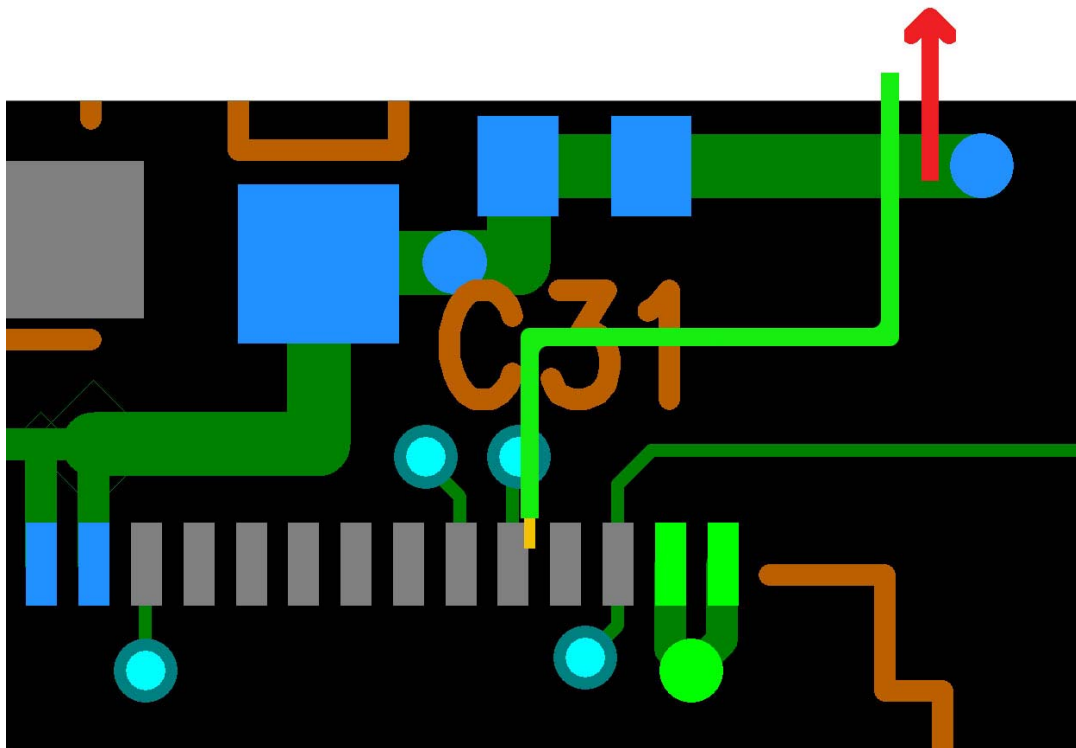
Figure 2 Detail Zoom of Cut (LCDC 3-5 REV1 TOP Side)

<b>FDI</b>	<b>ENGINEERING CHANGE ORDER</b>		<b>ECO NO: 09-013</b>
			<b>Page 3 of 4</b>
<b>TITLE</b>	<b>DWG NO.</b>	<b>CURRENT REV</b>	<b>NEW REV</b>
LCD Carrier 3-5		1.1	1.2

2. Add a 30 AWG Solid rework wire between J4.44 and J10.50. On the J10 side, you can connect at the adjacent via if it is easier to do so. Figure 3 shows a detail of the connection at J4 and Figure 4 illustrates the connection at J10.



**Figure 3** Rework Wire Connection at J4.44



**Figure 4** Rework Wire Connection at J10.50

<b>FDI</b>	<b>ENGINEERING CHANGE ORDER</b>		<b>ECO NO: 09-013</b>
			Page 4 of 4
<b>TITLE</b>	<b>DWG NO.</b>	<b>CURRENT REV</b>	<b>NEW REV</b>
LCD Carrier 3-5		1.1	1.2

3. Add a 30 AWG Solid rework wire between J4.33 and J10.48. Figure 5 shows a detail of the connection at J4 and Figure 6 illustrates the connection at J10.

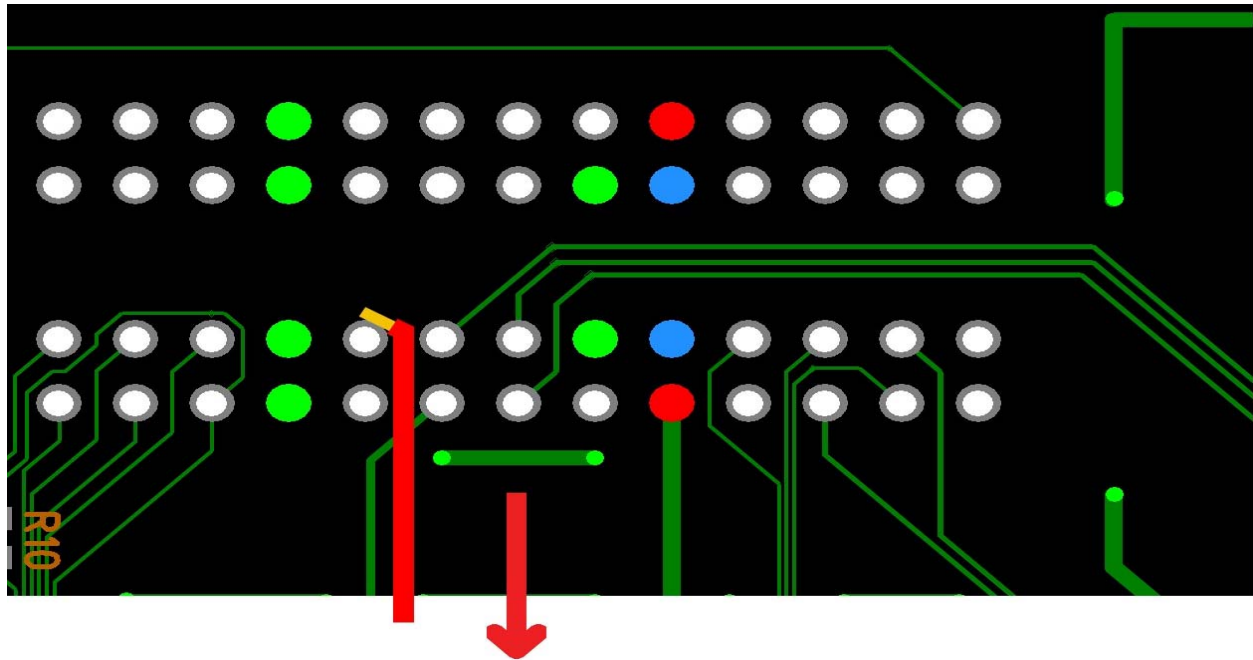


Figure 5 Rework Wire Connection at J4.33

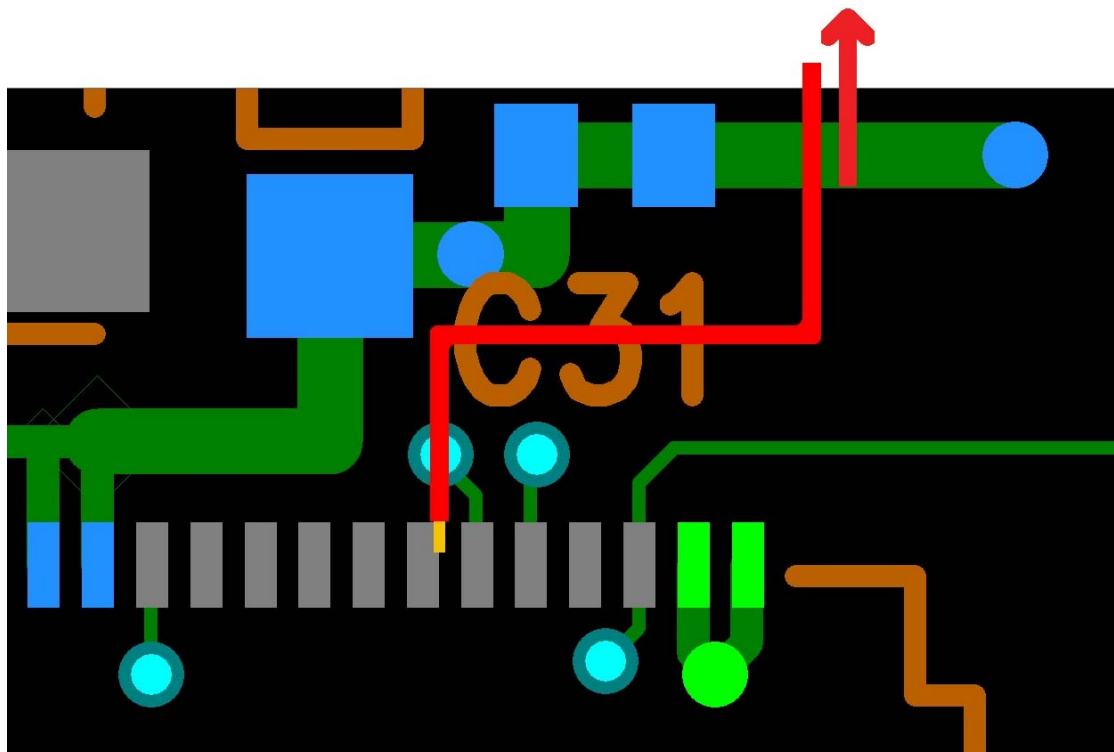


Figure 6 Rework Wire Connection at J10.48