



**Electroluminescent Material Specialists**

## **Bandgap Tutorials:**

### **Using the Self-Adhesive Bandgap Connectors**

The document is to explain the application of the Bandgap Connector, the use and application of TMC Pads and the creation of connection sites for the Bandgap Connector.

In your Bandgap Connector bag will be 2 x Permanent Connectors and 10 x TMC pads. The TMC pads are 10mm x 5mm electrically conductive foam pads with conductive adhesive on both sides.

The TMC Pads are dual function, either being used to mask off the electrical connection site and/or being used to create temporary electrical connections.

#### **DEFINITIONS**

**“BANDGAP CONNECTOR”** – These are manufactured permanent connectors.

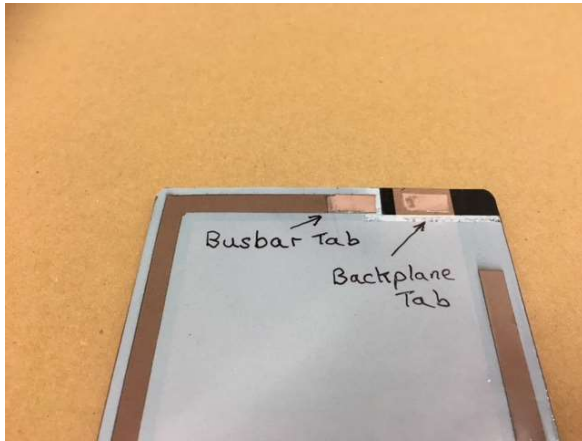


**“TMC PAD(s)”** – Temporary Masking and Connection Pad(s)



**“BACKPLANE TAB”** - The intended electrical connection site for the backplane.

**“BUSBAR TAB”** - The intended electrical connection site for the busbar

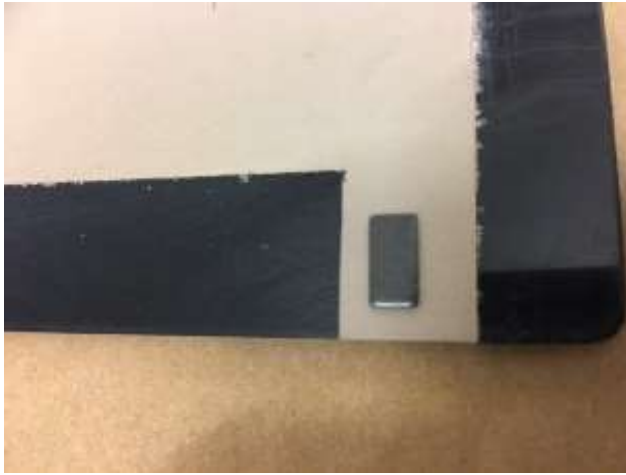


## **INSTRUCTIONS**

1) Create your backplane as normal, creating a “Backplane Tab” for making the electrical connection.

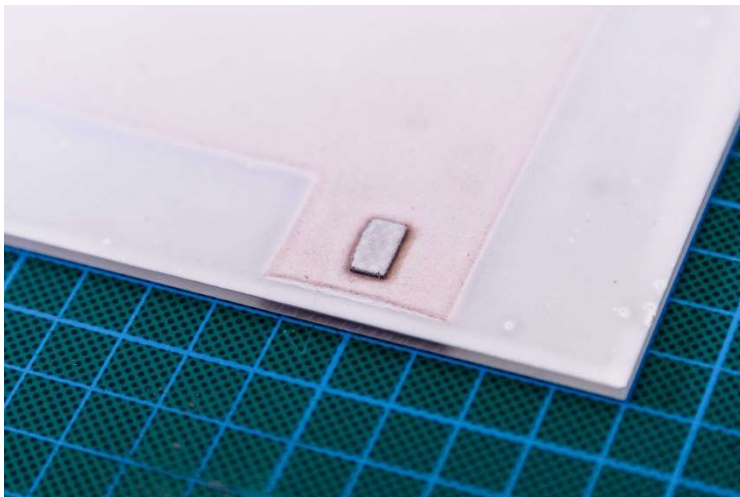


2) After removing backing tape, place a single TMC Pad onto the Backplane Tab, taking care to position the TMC Pad accurately, as this will also be the position of the Bandgap Connector when the panel is finished.



3) Lay down the dielectric material as normal, covering the TMC Pad.

4) Lay down the LumiColor material as normal, covering the TMC pad.



5) Remove the TMC Pad with tweezers, uncovering a 10mm x 5mm exposed area of the Backplane Tab.



6) Create your Busbar as normal, creating a Busbar Tab for making the second electrical connection.

7) At this point you will want to make two temporary electrical connections for the backplane and busbar, so that you are able to apply the LumiLor CTC (Conductive Top Coat) under power.

8) Remove backing from a TMC Pad and stick carefully on the 10mm x 5mm exposed Backplane Tab. Splay the wires of your connection wire and place on top of the TMC Pad. Take a second TMC Pad and place that on top of the connector wire that is on top of the first TMC pad. You now have the connector wire sandwiched between two TMC pads, which is stuck to the Backplane Tab. \*



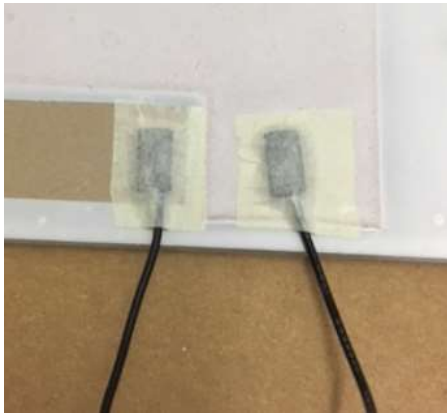
9) Repeat this process for the Busbar Tab, carefully positioning the TMC Pad as this will be the position of the final Bandgap Connector.

Prior to applying CTC the panel will look like this with Temporary Connectors. \*



***\*Please note that the TMC pads are conductive and will give an electric shock if touched when the panel is powered up.***

10) Prior to applying the LumiLor CTC, as shown under, you need to mask off both temporary connections sites with masking tape, to ensure that a minimum area of 5mm around the temporary connection sites is free of and uncontaminated by the CTC. \*\*



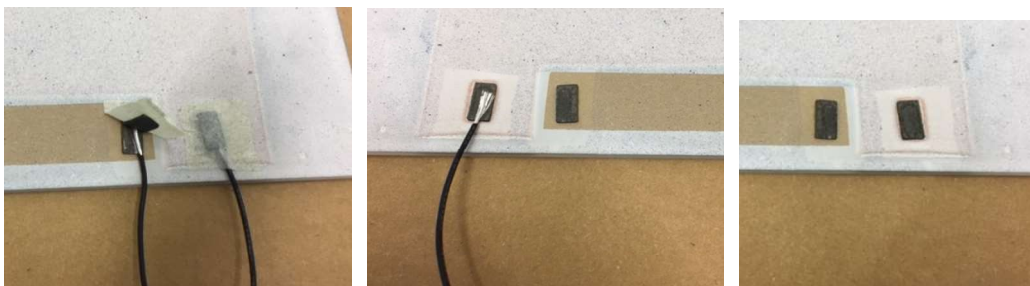
**\*\* If the CTC comes into contact with the Backplane Tab or Backplane Temporary Connectors, the panel will short circuit and fail to light.**

11) Connect the temporary connectors to a power source to enable you to apply the CTC under power.

12) Apply CTC as normal.



13) In preparation for applying the encapsulating clear coat layer, remove the top TMC pad and the wire from both the Backplane and Busbar temporary connectors, leaving a TMC pad in place on both the Backplane Tab and Busbar Tab to act as masking. Should both TMC pads come off, simply reposition a TMC pad onto the tab.



14) Apply encapsulating clear coat. When the clear coat is “tack dry”, but still soft, remove the TMC pads from both the Backplane Tab and the Busbar Tab with tweezers. You will see that this leaves a 10mm x 5mm exposed area to both the Backplane and Busbar Tabs. Allow the Clear coat to fully dry.



### **IMPORTANT**

*Whenever using high build materials such as Clear Coats, Lacquers or 2K solid colours it is important that TMC pads are removed by tweezers when the coating material is still soft or “tack dry”. Trying to remove TMC pads when these coating materials have fully dried, may lead to cracking and/or delamination.*

15) You will now proceed to applying black out and or top coat colours. When using “Non-High Solids” paints and or basecoats for black out and/or top coats, it is OK to leave the TMC pads in place as masking whilst these materials dry, as these layers will not crack or delaminate.



16) For each layer of Clear Coat, Lacquer or 2K High Solids applied, remember to remove the TMC pad when the coating is still soft or “tack dry”. At any time, you can attach temporary connectors to the exposed Backplane Tab and Busbar Tab to test and/or light up the panel. (*please forgive the poor quality of the clear coat, it is out of a rattle can, but it still shows how there is a direct connection to the tabs.*)



17) After the final coat has been applied to the panel, you will be left with a panel with two 10mm x 5mm indentations that expose the Backplane and Busbar Tabs. These are where the permanent connectors are attached.



18) The permanent connectors have guide lines on them to allow you to correctly position them over the exposed Backplane and Busbar tabs. When you are comfortable, remove both backing tapes from the connector, position correctly and then press down into position to make a firm connection to the panel. The inner pad is conductive and connects top the exposed conductive tabs. The out adhesive pads are not conductive but make a very strong connection to the clearcoat finish.



*Again, apologies for poor quality of the clear coat in these pictures, we will provide better quality pictures in due course.*

Additional packs of 50 TMC pads are available for purchase allowing you to make as many temporary masking or connectors as desired.