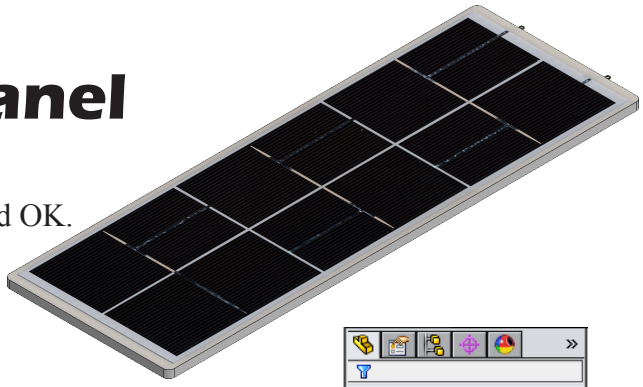
JSS

# Solar Panel



## A. Solar Panel Sketch.

Step 1. Click File Menu > New, click **Part Metric** and OK.

Step 2. Click **Top Plane** in the Feature Manager and click **Sketch** from the Context toolbar, **Fig. 1**.

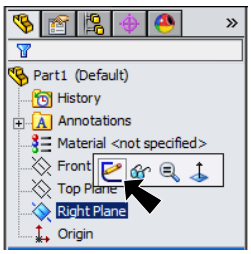



Fig. 1

Step 3. Click **Center Rectangle** **(S)** in the **Rectangle flyout** on the Sketch toolbar.

Step 4. Draw a rectangle starting at the Origin , **Fig. 2**.

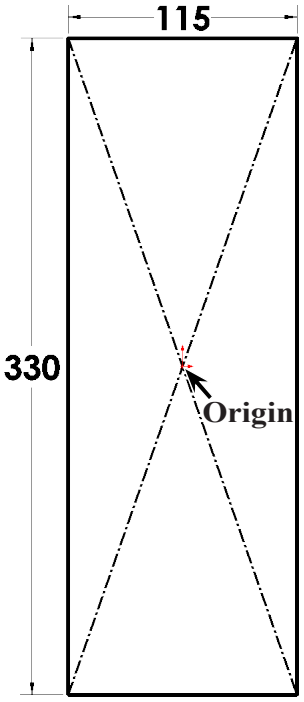



Fig. 2

Step 5. Click **Smart Dimension** **(S)** on the Sketch toolbar.

Step 6. Dimension **330 by 115**, **Fig. 2**.

Step 7. Click Zoom to Fit **(F)** on the View toolbar.

Step 8. Click **Sketch Fillet** on the Sketch toolbar.

Step 9. In the Sketch Fillet Property Manager set:

**Radius** **4**, **Fig. 3**
click **all 4 corners**, **Fig. 4**
click OK **twice** .

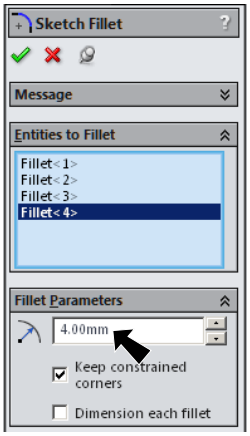



Fig. 3

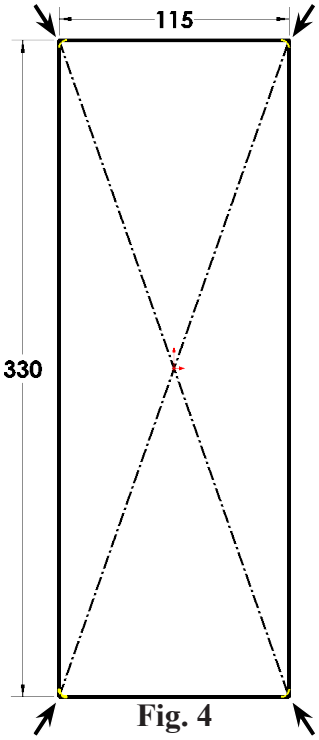



Fig. 4

## B. Save as "SOLAR PANEL".

Step 1. Click File Menu > Save As.

Step 2. Key-in **SOLAR PANEL** for filename and press ENTER.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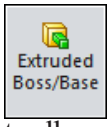
## C. Extrude.

Step 1. Click **Features** Features on the Command Manager toolbar.

Step 2. Click **Extruded Boss/Base** 

on the Features toolbar.

Step 3. In the Property Manager set:
under Direction 1, **Fig. 5**

End Condition **Mid Plane**

**Depth**

**5.5**

click OK .

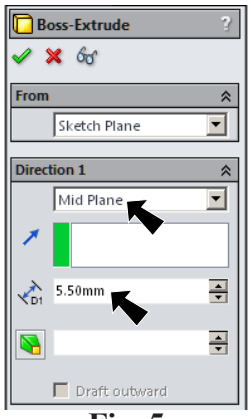


**Fig. 5**

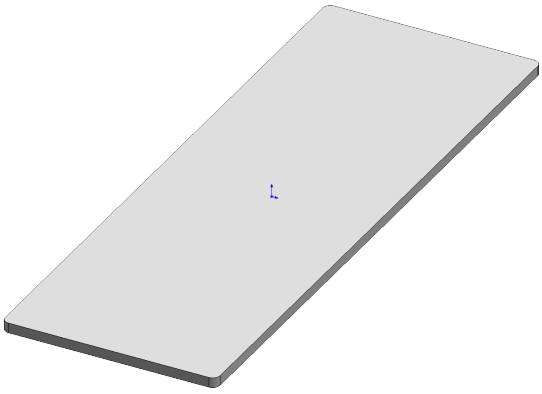


**Fig. 6**

## D. Terminal.

Step 1. Click **Top Plane** in the Feature Manager and click **Sketch** from the Context toolbar, **Fig. 7**.

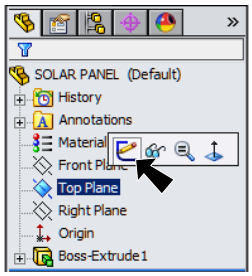


**Fig. 7**

Step 2. Click **Normal To** on the Standard Views toolbar. (**Ctrl-8**)

Step 3. Click **Centerline** (**S**) in the **Line flyout** on the Sketch toolbar.

Step 4. Draw a **vertical centerline** up from the Origin , **Fig. 8**.

Step 5. Click **Corner Rectangle** (**S**) on the Sketch toolbar.

Step 6. Draw a rectangle on **top edge left side of the centerline**, **Fig. 9**.

Step 7. Zoom in on **top left at rectangle**, **Fig. 9**. To zoom, place the cursor over the area and spin the wheel on mouse back. While spinning the wheel keep cursor on the area.

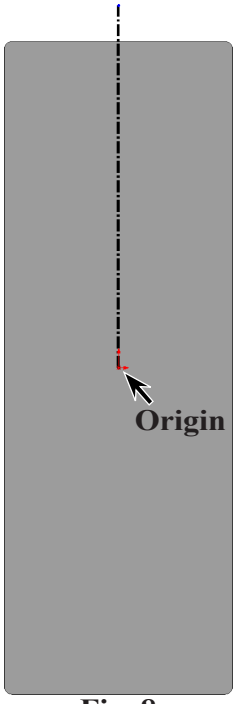


**Fig. 8**

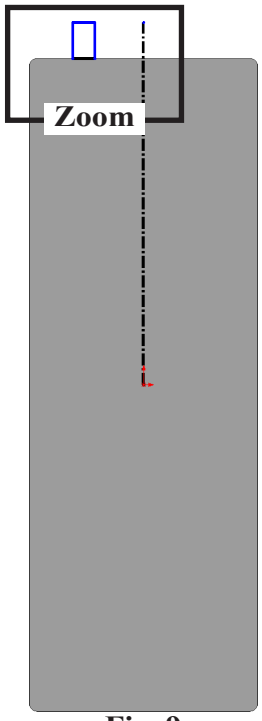


**Fig. 9**

Step 8. Click **Circle** (**S**) on the Sketch toolbar.

Step 9. Draw **two circles from Midpoint of left line of rectangle**. Draw one circle coincident to the endpoint of rectangle, **Fig. 10**.

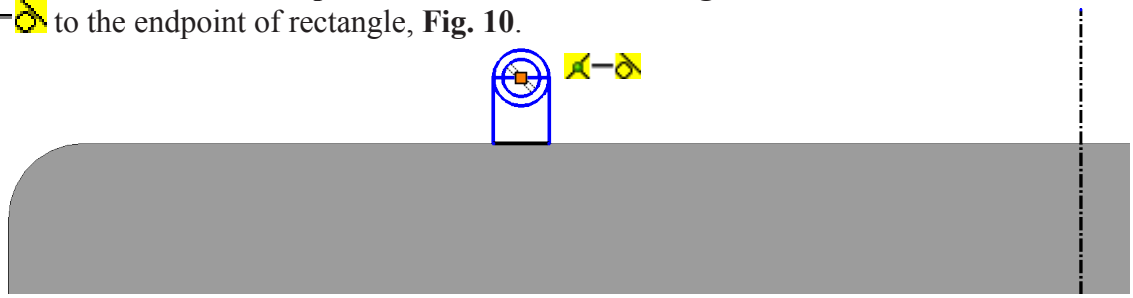


**Fig. 10**

Step 10. Click **Smart Dimension** (**S**) on the Sketch toolbar.

Step 11. Add dimensions, **Fig. 11**.

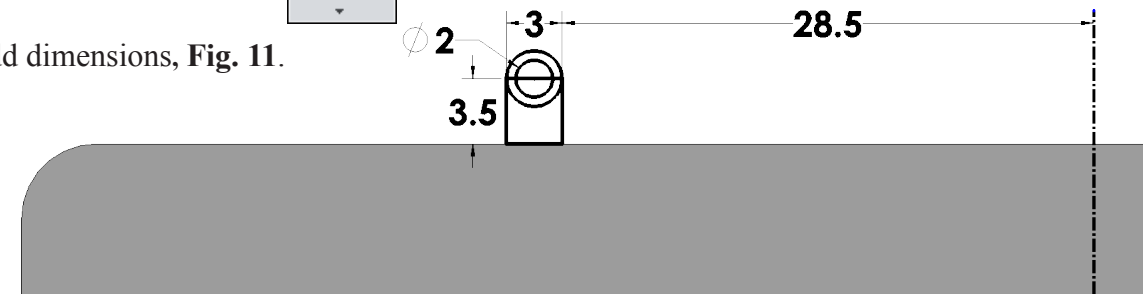



**Fig. 11**

Step 12. Click **Features** on the Command Manager toolbar.

Step 13. Click **Extruded Boss/Base** on the Features toolbar.

Step 14. In the Boss Extrude Property Manager set:

under Direction 1, **Fig. 12**

End Condition **Mid Plane**

**Depth** **.5**

under Selected Contours

click **contours between circles** and **contour below circle**, **Fig. 13**

click OK .

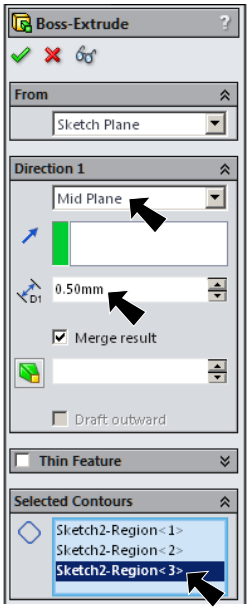



**Fig. 12**

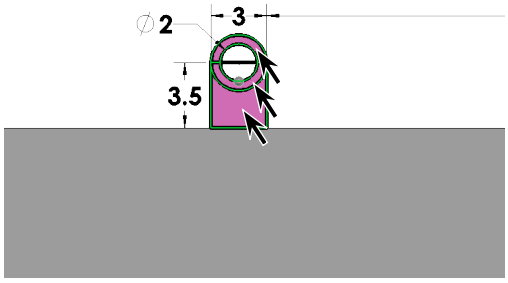



**Fig. 13**

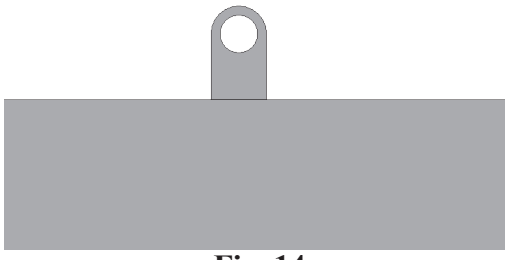


**Fig. 14**

Step 15. Save. Use **Ctrl-S**.

## E. Mirror to Right Plane.

Step 1. Click Zoom to Fit (**F**) on the View toolbar.

Step 2. Click **Right Plane** and **Boss-Extrude2** in the Feature Manager to select both the plane and feature, **Fig. 15**.

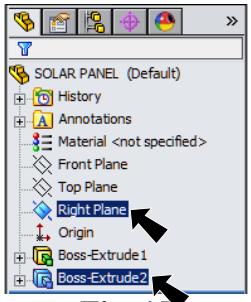


**Fig. 15**

Step 3. Click **Mirror** on the Features toolbar.

Step 4. In the Mirror Property Manager set:

under Mirror Face/Plane, **Fig. 16**
**Right Plane should be selected**

under Feature to Mirror
**Boss-Extrude2** should be selected, **Fig. 17**

click OK .

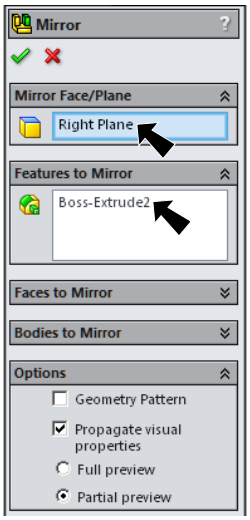


**Fig. 16**

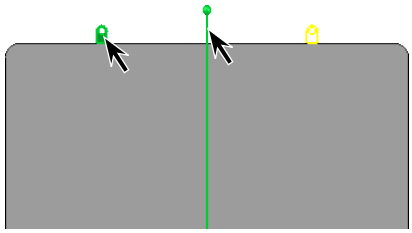


**Fig. 17**

**Fig. 18**

Step 5. Save. Use **Ctrl-S**.

## F. Mate Reference 1.

Step 1. Rotate view to view **terminals from rear**, hold down middle mouse button (wheel) and drag to rotate view, **Fig. 19**.

Step 2. Zoom in on a **terminal**, **Fig. 19**. To zoom, place the cursor over the area and spin the wheel on mouse back. While spinning the wheel keep cursor on the area.

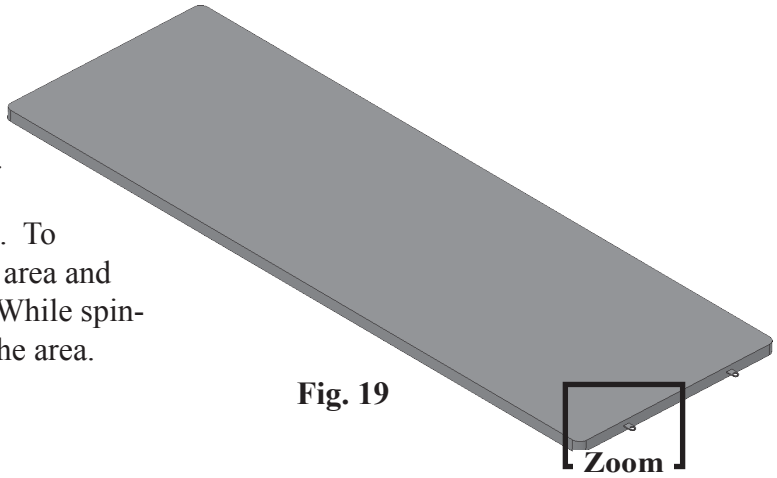
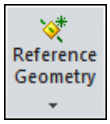


**Fig. 19**

Step 3. Click a **cylindrical edge of a terminal** to select it, **Fig. 20**.

Step 4. Click **Reference Geometry** 

on the Features toolbar and **Mate Reference** from the menu.

Step 5. In the Mate Reference Manager:
under **Primary** Reference Entity,
**Fig. 21**
the edge should be selected

under **Secondary** Reference Entity

click in Entity box
and click **side face of terminal**, **Fig. 22**

**Mate Reference Type**
**Parallel**

click OK .

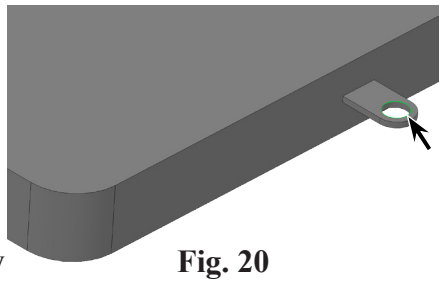


**Fig. 20**

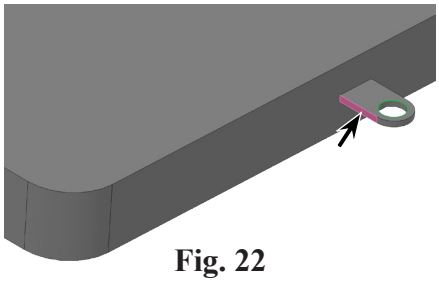


**Fig. 22**

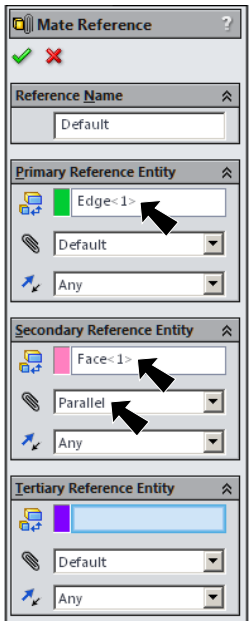


**Fig. 21**

## G. Mate Reference 2.

Step 1. Pan over to the **other terminal**, **Fig. 23**. To **pan**, hold down **Ctrl key** and drag with middle mouse button (wheel).

Step 2. Click **cylindrical edge of the other terminal** to select it, **Fig. 24**.

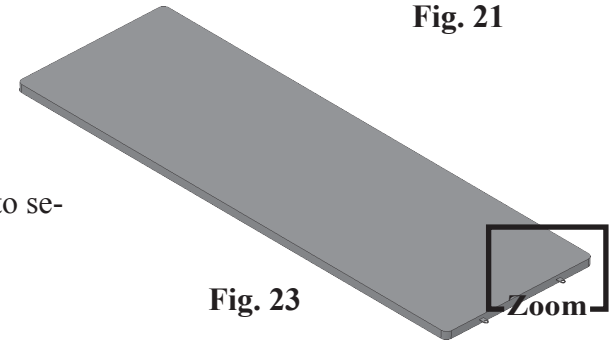
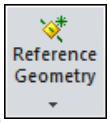


**Fig. 23**

Step 3. Click **Reference Geometry** 

on the Features toolbar and **Mate Reference** from the menu.

Step 4. In the Mate Reference Manager:
under **Primary** Reference Entity,
**Fig. 25**
the edge should be selected

under **Secondary** Reference Entity

click in Entity box
and click **side face of terminal**, **Fig. 26**

**Mate Reference Type**
**Parallel**

click OK .

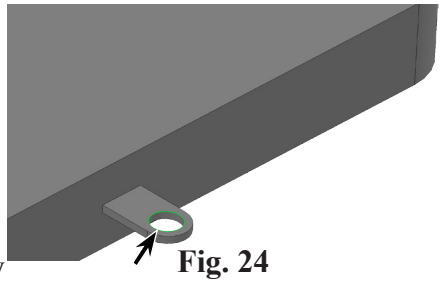


**Fig. 24**

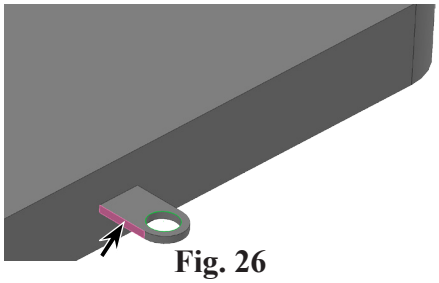


**Fig. 26**

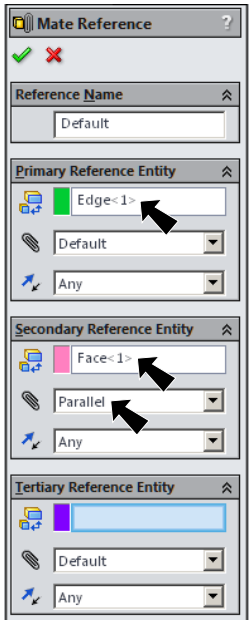


**Fig. 25**

## H. Appearances.

Step 1. Zoom out to **view both terminals**, **Fig. 27**. To **zoom**, hold down **Shift key** and drag with middle mouse button (wheel). To **pan**, hold down **Ctrl key** and drag with middle mouse button (wheel).

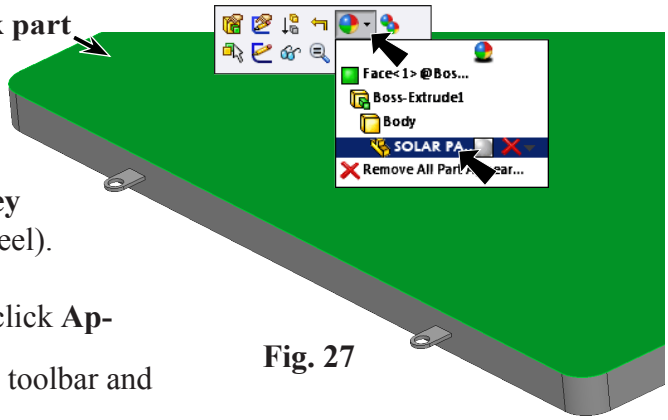



**Fig. 27**

Step 2. Click the Solar Panel to select the part, click **Appearances Callout** on the Context toolbar and click **Solar Panel**, **Fig. 27**.

Step 3. In the Appearances Property Manager:
under Color, **Fig. 28**
click **White** swatch
click **Keep Visible** and OK, **Fig. 28**. The Push Pin on allows selection of another appearance.

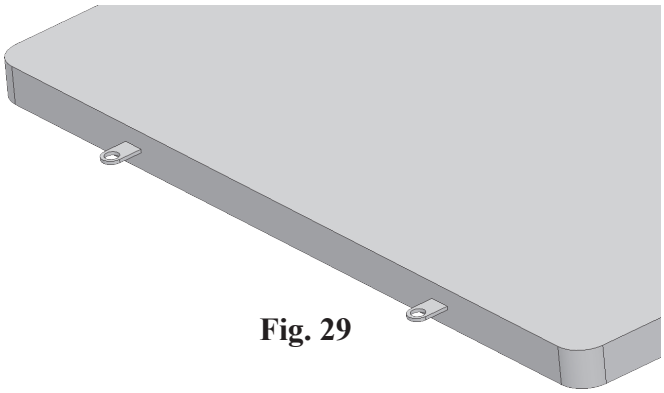


**Fig. 29**

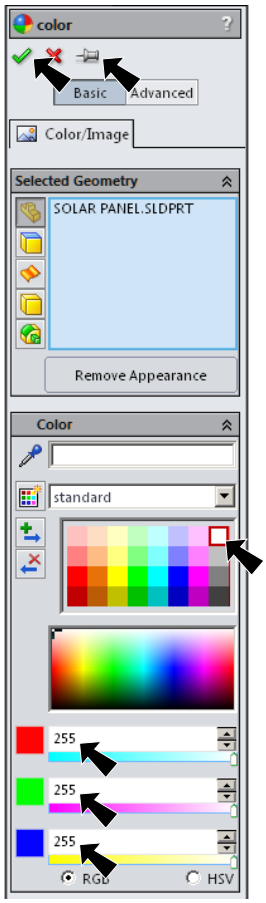



**Fig. 28**

Step 4. Over at the Task pane, click the Appearances Task tab , expand **Metal**, click **Brass** and in the lower pane select **polished brass**, **Fig. 30**.

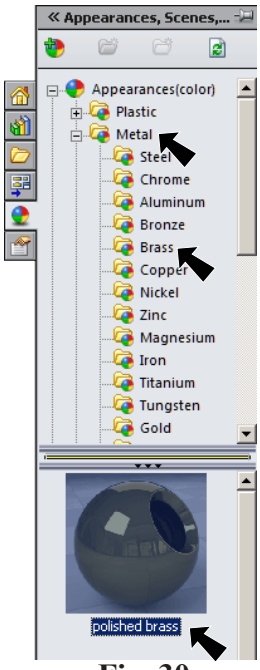



Fig. 30

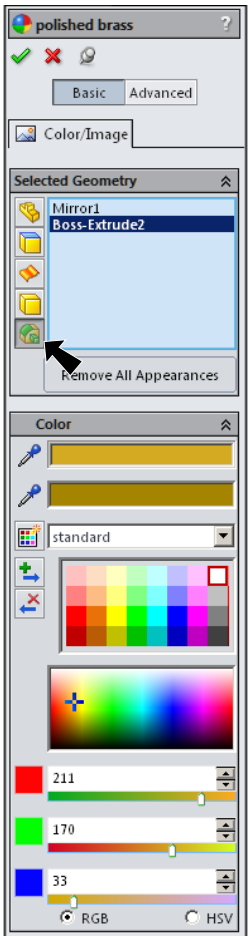



Fig. 31

Step 5. In the Appearances Property Manager, under Selected Geometry, **Fig. 31**

click **Select Features**

click **both terminals**, **Fig. 32**

click OK and then click Cancel .

Step 6. Save. Use **Ctrl-S**.

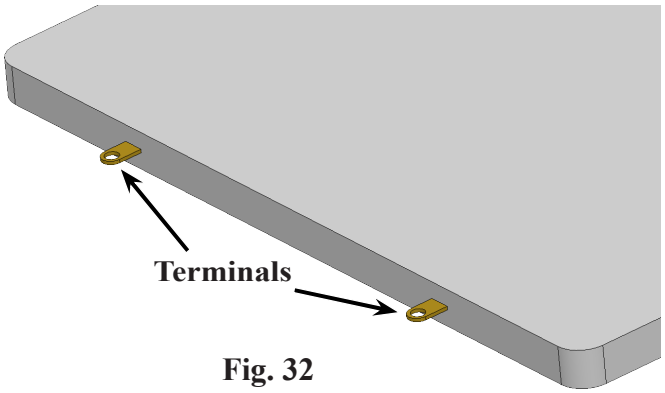



Fig. 32

## I. Decal.

Step 1. Click **Top** on the Standard Views toolbar. (**Ctrl-5**)

Step 2. Click PhotoView 360 Menu > Edit Decal.

Step 3. In the Decals Property Manager Image tab:
under Decal Preview, **Fig. 33**
click **Browse** and **My Documents** buttons
open **solar-made-panel.jpg**

Step 4. Click the **Mapping tab**

at the top of the Decals Property Manager, **Fig. 34**
under Selected Geometry

**unselect all except Select Faces**
click **top face**, **Fig. 35**

under Mapping
**Projection**

under Size/Orientation
check **Fit height to selection**

click OK .

Step 5. Save. Use **Ctrl-S**.

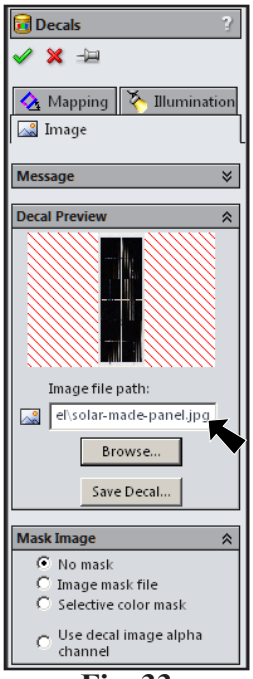



Fig. 33

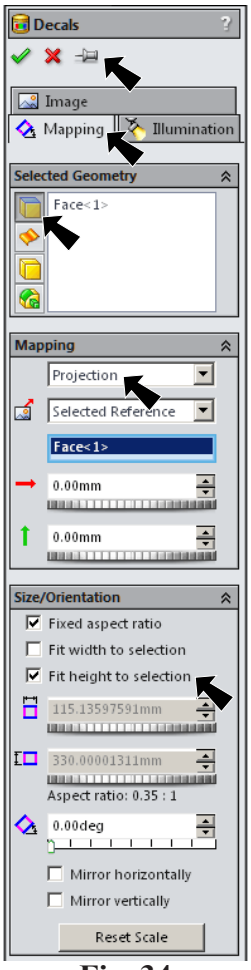



Fig. 34

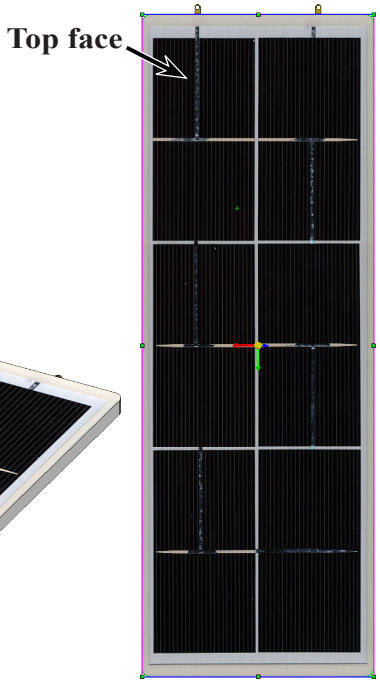



Fig. 35

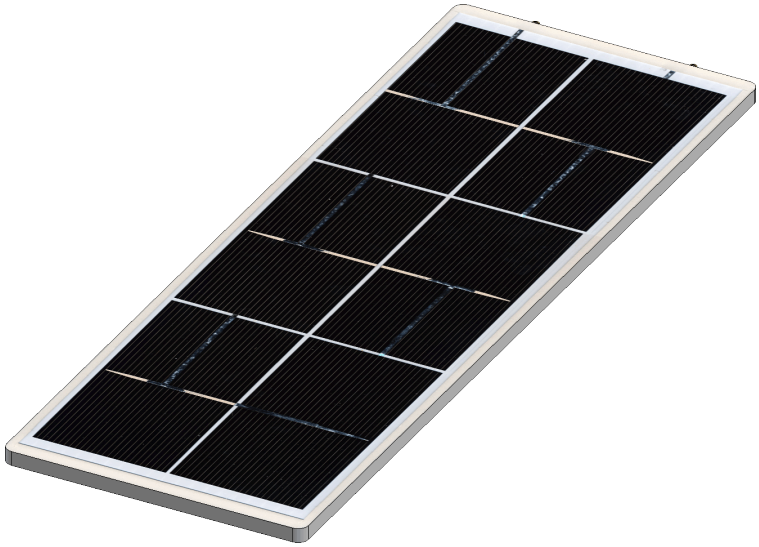


Fig. 36