

Transmitter Coil

1. The Sonnet suites professional 17.56 program was utilized to design a rectangular coil measuring $10 \times 10 \text{ cm}^2$ with a thickness of 3.5mm, which was divided into 7 pieces with overlapping sections of 34mm at even positions (coil cell #2-#3, coil cell #4-#5, and coil cell #6-#7). A gap was also incorporated within the coil in the opposite direction to accommodate a capacitor with an 0805 size footprint. In addition, a gap was created in coil cell #1, close to the via but in the opposite direction of the coil, to allow for the soldering of an SMA connector as show in Fig.1.



FIGURE 1

2. Click File and select Export and select DXF.

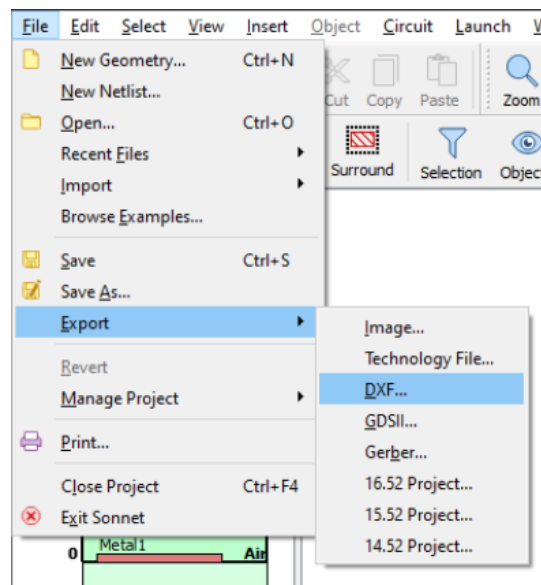


FIGURE 2

3. Setting via Options and change to manual then change size to 10 mm.

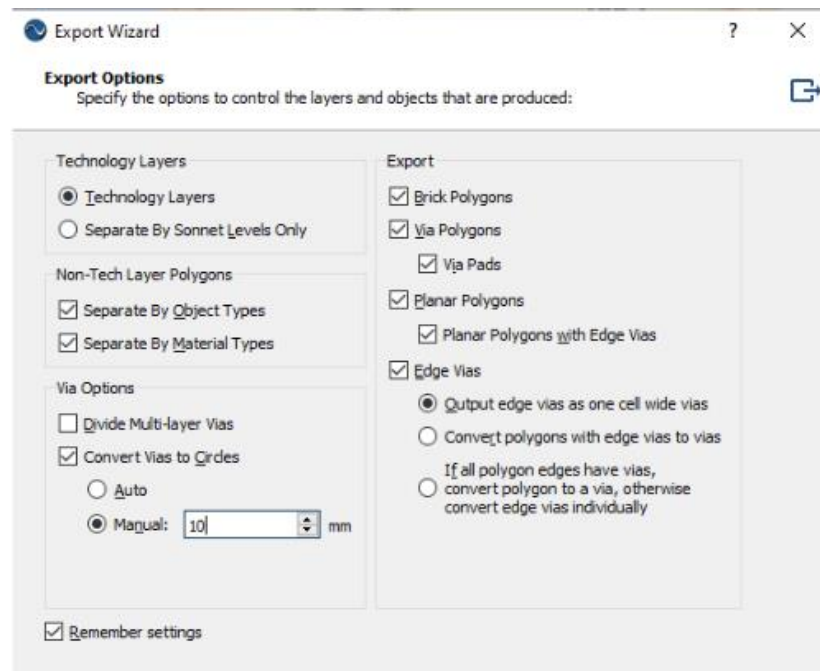


FIGURE 3

4. Click file select import DXF

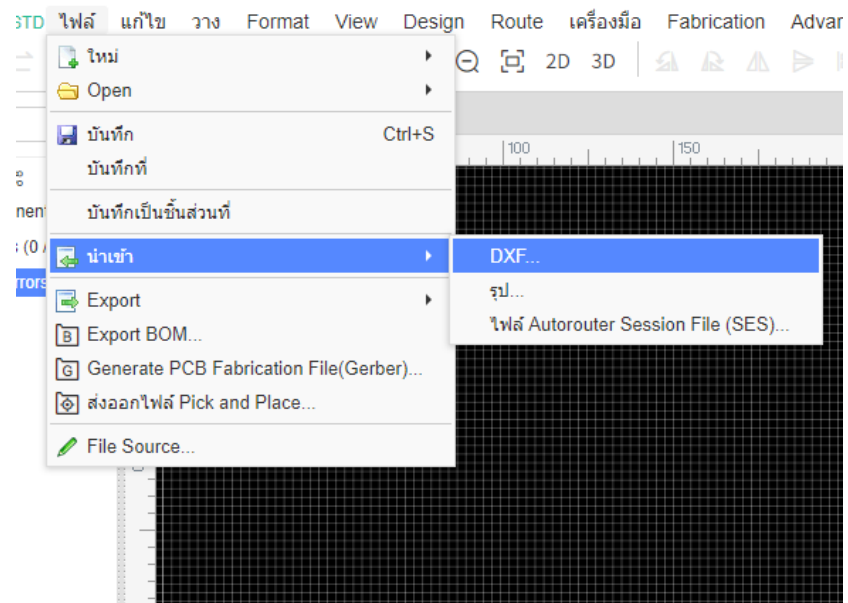


FIGURE 4

5. Select file to import to easyEDA.

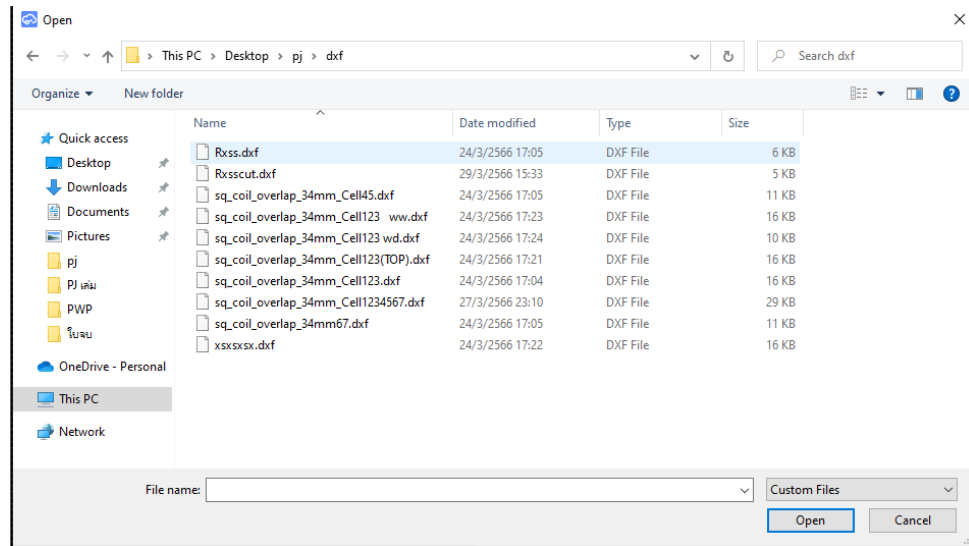


FIGURE 5

6. After designing a rectangular coil with Sonnet suites professional 17.56 program as show in Fig.6, the coil was exported to EasyEDA program for further processing. In EasyEDA, the coil was covered with a solder mask by setting a solid region to cover all the coil. In addition, the coil was divided into 7 cells, with coil cell #1, #2, #5, and #6 placed on the top layer and coil cell #3, #4, and #7 placed on the bottom layer. This was achieved by utilizing the layer setting functions in EasyEDA.

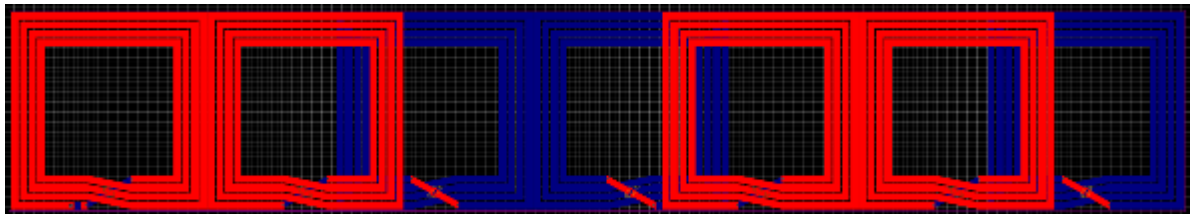


FIGURE 6

- Put 2 footprints of capacitor 0805 size and create pad and gap for SMA connector as show in Fig.7.

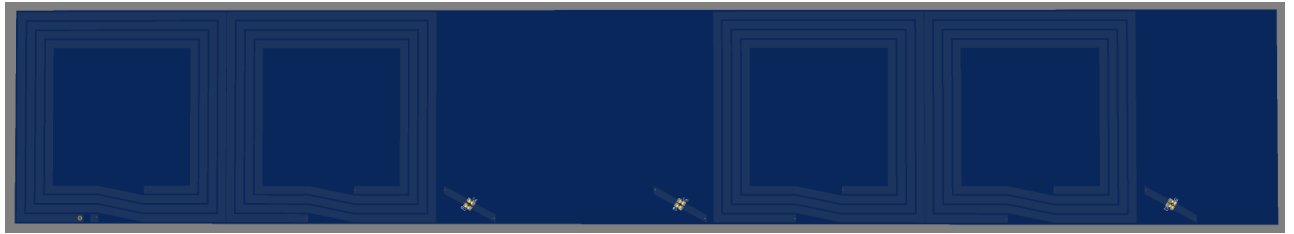


FIGURE 7

- Open solder mask at a gap that is created for solder SMA connector as show in Fig.8.



FIGURE 8

Receiver Coil

- The Sonnet suites professional 17.56 program was utilized to design a rectangular coil with a thickness of 2.5mm, custom-fitted to the Tamiya toy car. The coil design included a gap in the bottom layer to allow for the addition of both an SMA connector and a capacitor as show in Fig.9.

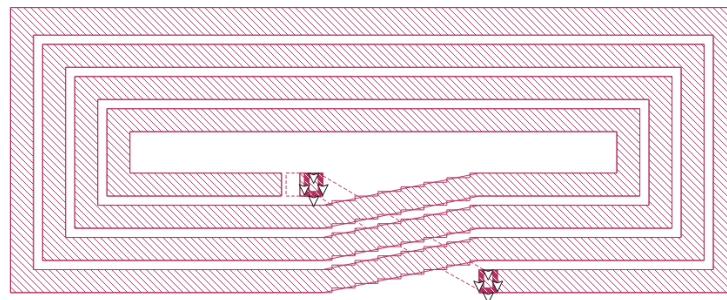


FIGURE 9

2. Export to EASYEDA program to generate solid region and create via and set layer of coil as show in Fig.10.

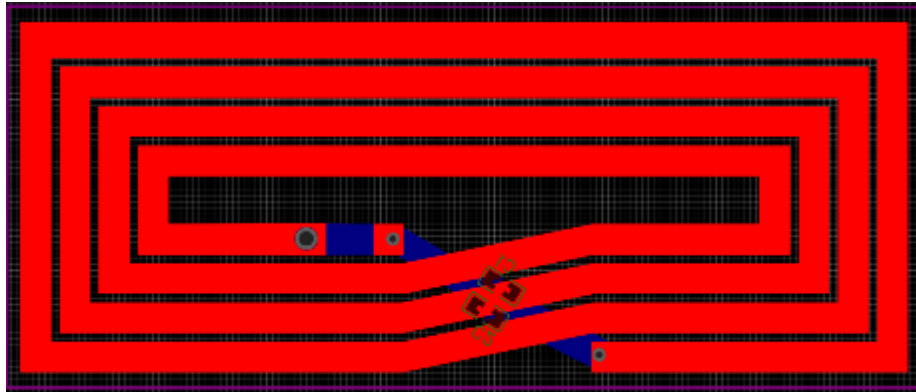


FIGURE 10

3. Put 2 footprints of capacitor 0805 size and create pad and gap for SMA connector as show in Fig.11.

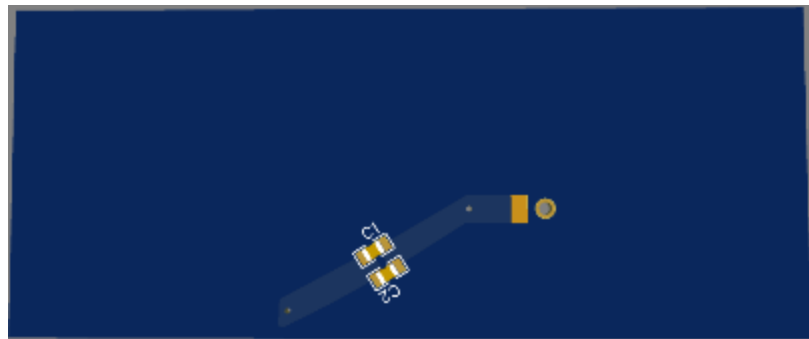
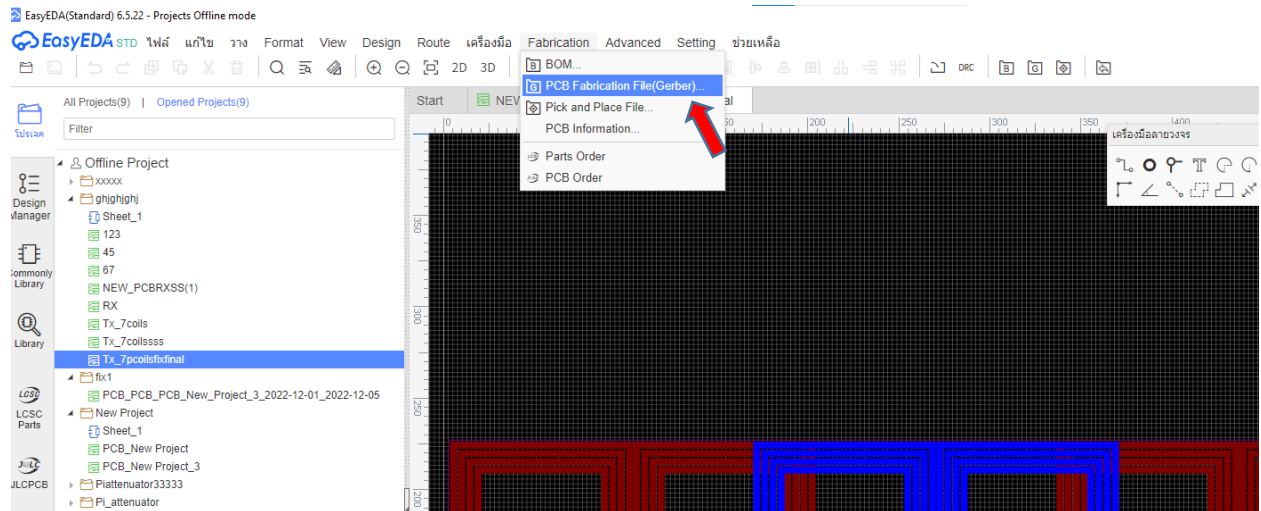


FIGURE 11

Order a PCB

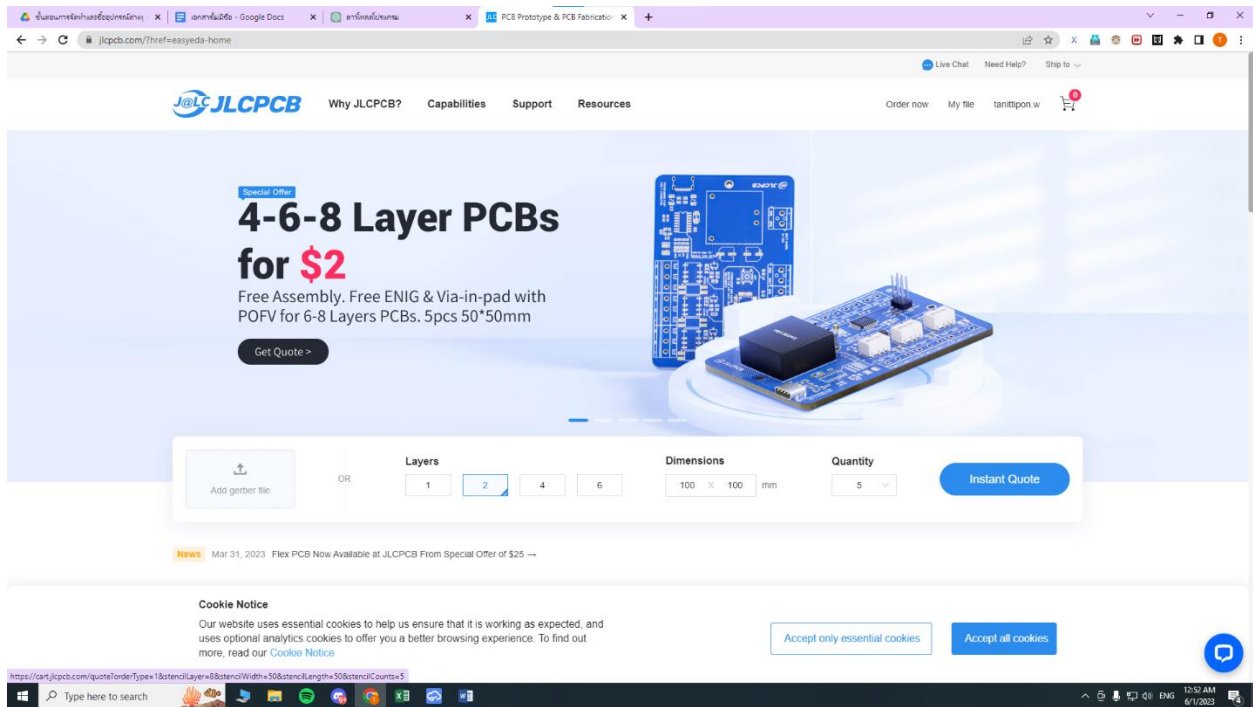
1. Click PCB Fabrication



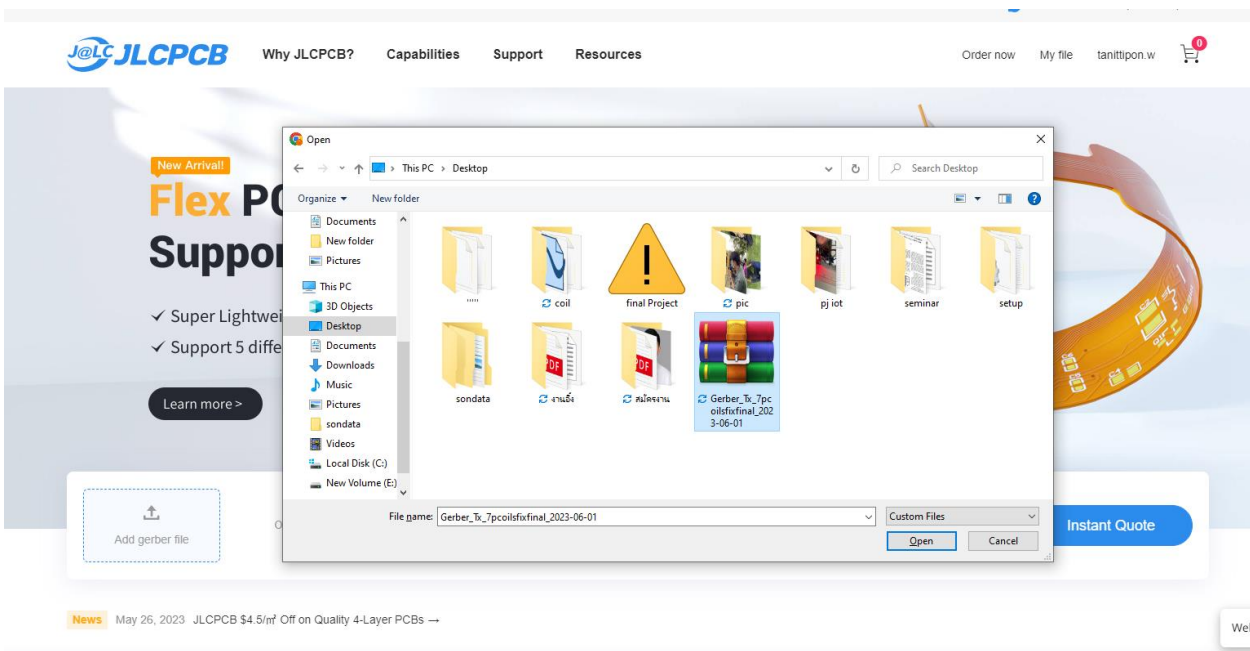
2. Click generate gerber



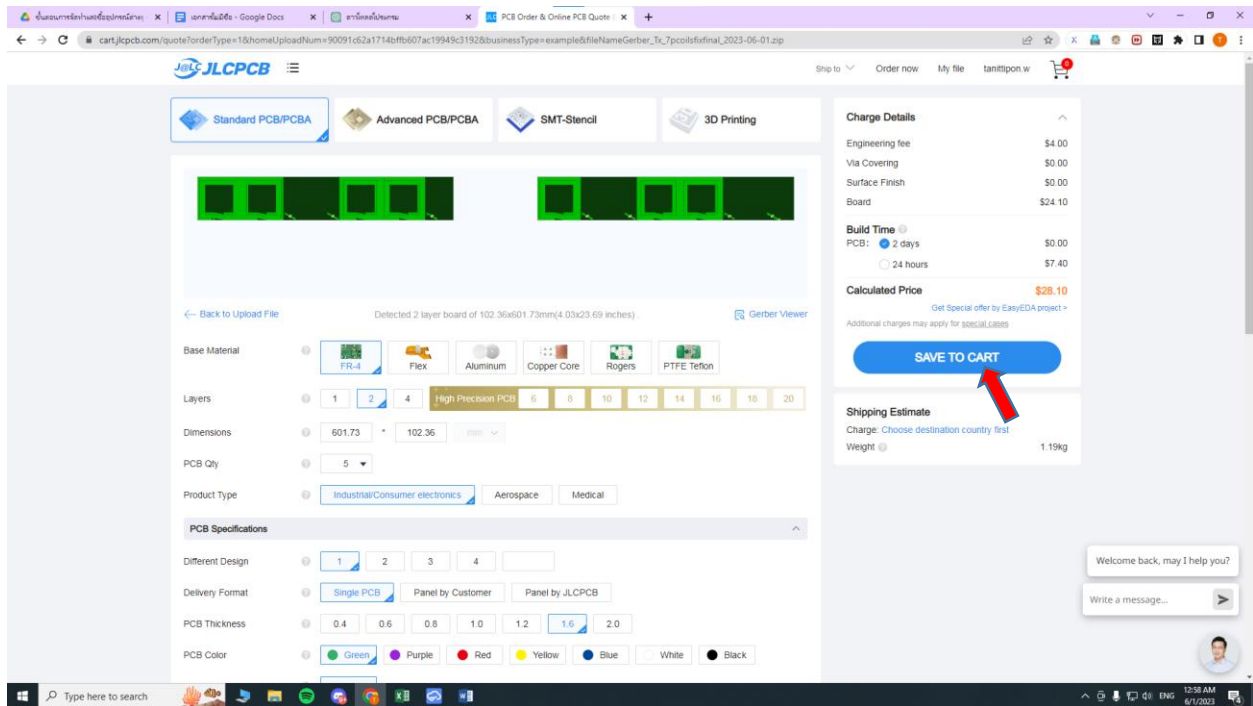
3. Open this link: <https://jlcpcb.com/?href=easyeda-home>



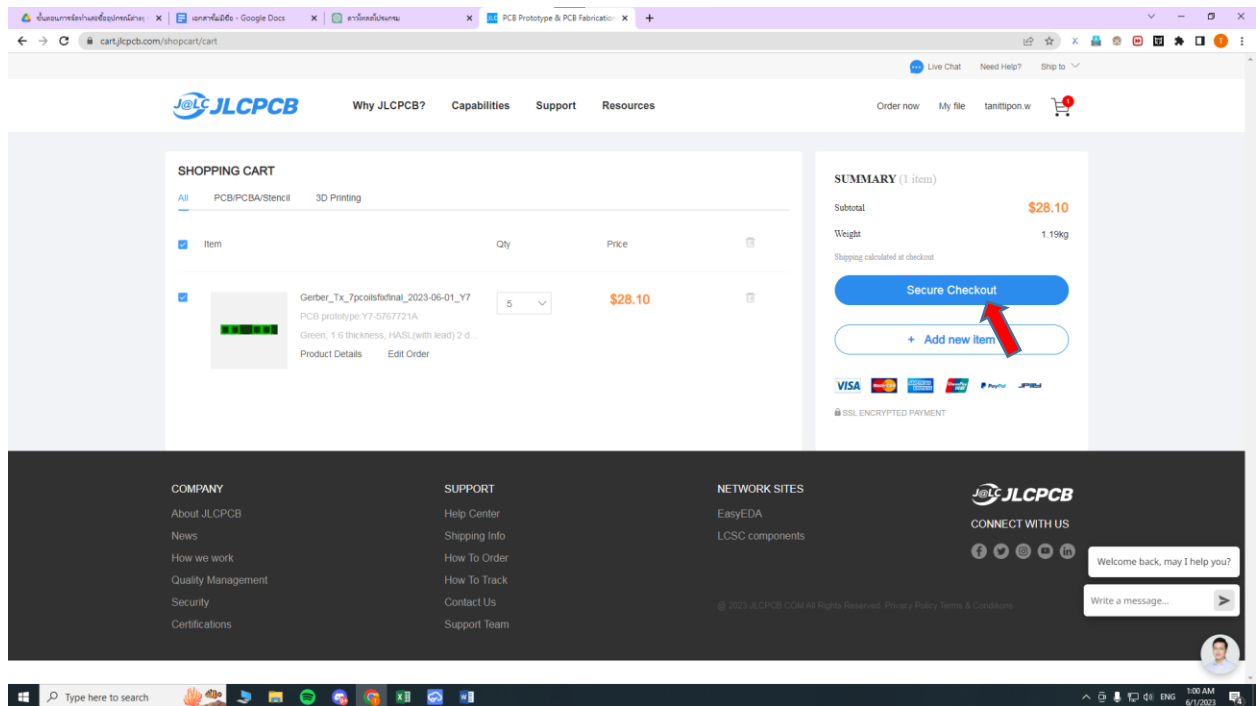
4. Upload your file



5. Click save to cart



6. Click checkout



7. Fill in the shipping and payment details and wait for the confirmation email.

The screenshot shows the JLCPCB checkout page with the following elements:

- Browser Tabs:** Includes tabs for Google Docs, Thai text, and "PCB Prototype & PCB Fabrication".
- Address Bar:** Shows the URL "cart.jlpcb.com/payMethodHasSmt=0&shoppingCartAccessIdList=5b2ae4526ed146978874e1ef48efec9c".
- Page Header:** JLCPCB logo and "SSL SECURED CHECKOUT Your Information is Protected".
- 1. Shipping Address:**
 - Shipping Information:** A redacted address field with a "Default" button and a link to "+Add new shipping address".
 - Billing Information:** Radio buttons for "Same as shipping address" (selected) and "Add new billing address".
 - Buttons: "Back to Cart" and "Continue".
- 2. Shipping Method:** A section for selecting a shipping method.
- 3. Submit Order:** A section for submitting the order.
- 4. Payment:** A section for selecting a payment method.
- SUMMARY:**

SUMMARY	
Merchandise Total	\$28.10
Shipping	\$34.79
Grand Total:	\$62.89
- Footer:** Includes a help link, copyright notice "© JLCPCB.COM All Rights Reserved", and links to "Privacy Policy" and "Terms & Conditions".
- Chat Widget:** A floating chat box with the text "Welcome back, may I help you?" and a "Write a message..." input field.
- Taskbar:** Shows the Windows taskbar with the search bar and various application icons.