

Please refer to the Google Doc version if possible:

<https://docs.google.com/document/d/1vNnC9ifGPp2p4NB-CMYa7VNW0V9QAhQonp9LnxyBmqo>

Footprints:

All footprints must have the following:

- Either through hole or top layer pads (or a combination of both and in rare cases bottom layer pads). Components that exist solely on the bottom side of the PCB should still be designed as top layer components to prevent mirroring issues when imported to a PCB.
- The reference point set to an intelligent place within the component outline (usually the center). This is the point that the component will be rotated around.
- A silkscreen outline (or similar) to show component placement. This must not overlap any pads.
- One or more pin 1 indicators. This can be in silkscreen or a different shaped pad in copper.
- Any relevant keepouts.
- Any reference lines associated with the part should be placed on the Mechanical 5 layer.
- For large SMD pads care should be taken on the design of the solder paste apertures.
- Footprints that have an associated component to be placed must have the following:
 - A courtyard line around the component (0.05mm line on appropriate layer).
 - The reference point marked in the courtyard layer (1mm cross with 0.1mm line thickness)
 - A 3D model of the component on the top 3D Body layer.

Mechanical Layers:

Mechanical Layers in excess of the following should be numbered backwards from Mechanical Layer 32.

Mechanical Layer	Function	Description	Outputs to Gerbers
Mechanical 1	Board Outline	PCB outline which can be used to define the board shape.	Yes

Mechanical 2	Fab Notes	Dimensions and Manufacturing Notes to accompany production	Yes (if Present)
Mechanical 3	Case Body	3D Bodys or lines for casing and other external interfaces (optional)	No
Mechanical 4	Rigid PCB Outline	The outline of rigid PCB section for a rigid-flex design	Yes (if Present)
Mechanical 5	Guides	Reference lines and guides used for design (optional)	No
Mechanical 6	Panel Outline	Outline of Panel for panelised designs (optional)	Yes (if Present)
Mechanical 7 (pair Mechanical 8)	Designator Top	Reserved for top when designators cannot be placed on the silkscreen (hidden)	No
Mechanical 8 (pair Mechanical 7)	Designator Bottom	Reserved for when designators cannot be placed on the silkscreen (hidden)	No
Mechanical 9	Flex PCB Outline	The outline of flex PCB section for a rigid-flex design	Yes (if Present)
Mechanical 10	NC Routing	Defines required routing to be performed on a PCB and/or panel (optional)	Yes (if Present)
Mechanical 11 (pair Mechanical 12)	Laser Etch Top	Defines features to be laser etched on the top of the board	No
Mechanical 12 (pair Mechanical 11)	Laser Etch Bottom	Defines features to be laser etched on the bottom of the board	No
Mechanical 13 (pair Mechanical	Component Top	Top layer component outlines and 3D bodies	No

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Mechanical 14 (pair Mechanical 13)	Component Bottom	Bottom layer component outlines and 3D bodies	No
Mechanical 15 (pair Mechanical 16)	Courtyard Top	Top layer component courtyard	No
Mechanical 16 (pair Mechanical 15)	Courtyard Bottom	Bottom layer component courtyard	No
Mechanical 17 (pair Mechanical 18)	Coating Top	Top layer conformal coating mask (coat everything not present) (optional)	No
Mechanical 18 (pair Mechanical 17)	Coating Bottom	Bottom layer conformal coating mask (coat everything not present) (optional)	No
Mechanical 19	Title Block	Title Block for drawing outputs	No
Mechanical 20	Title Block Flipped	Mirrored title block for reversed drawing outputs	No

