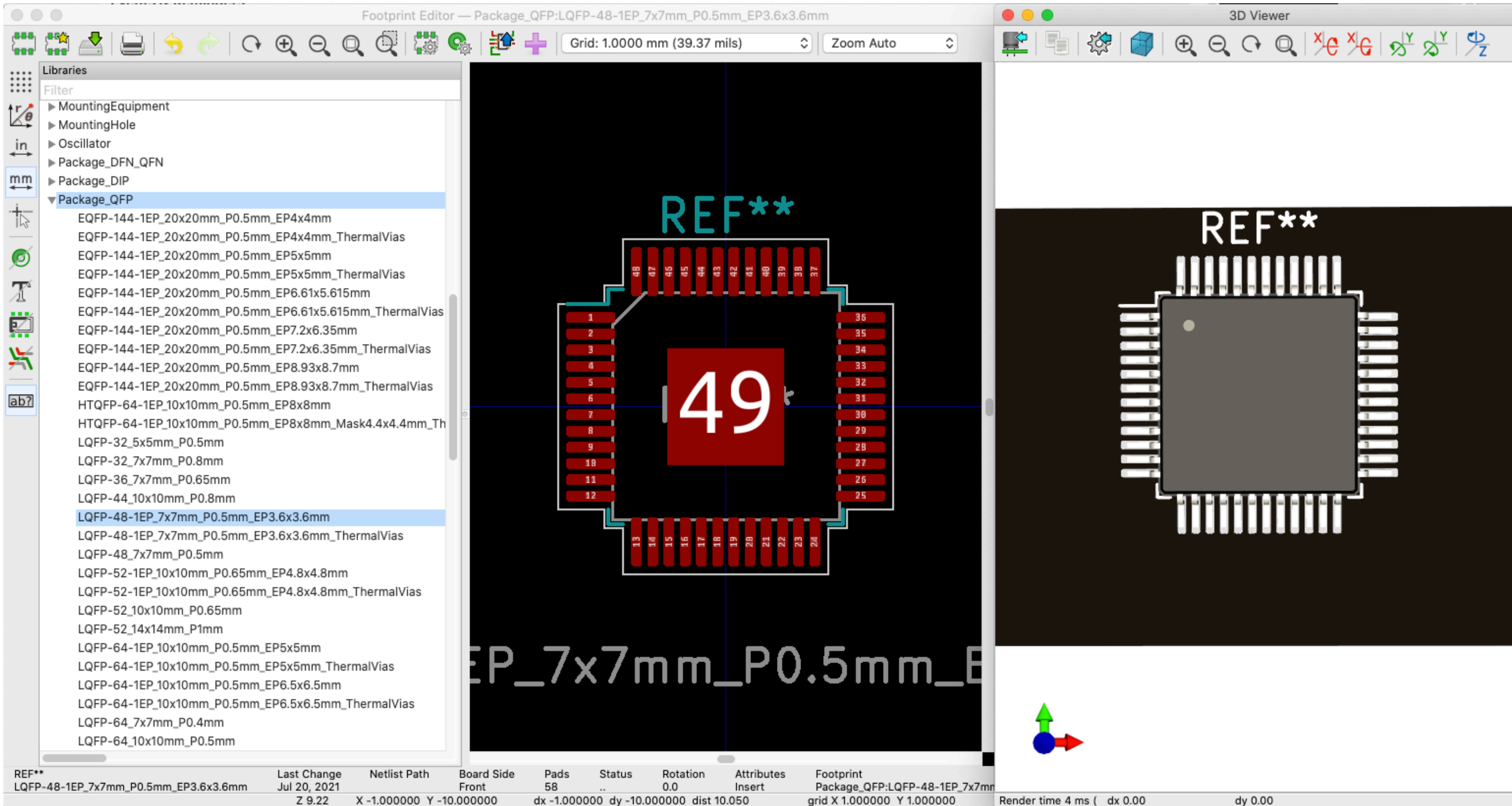


PCB封装的构建及3D模型的使用

FastBond之KiCad设计PCB (5)

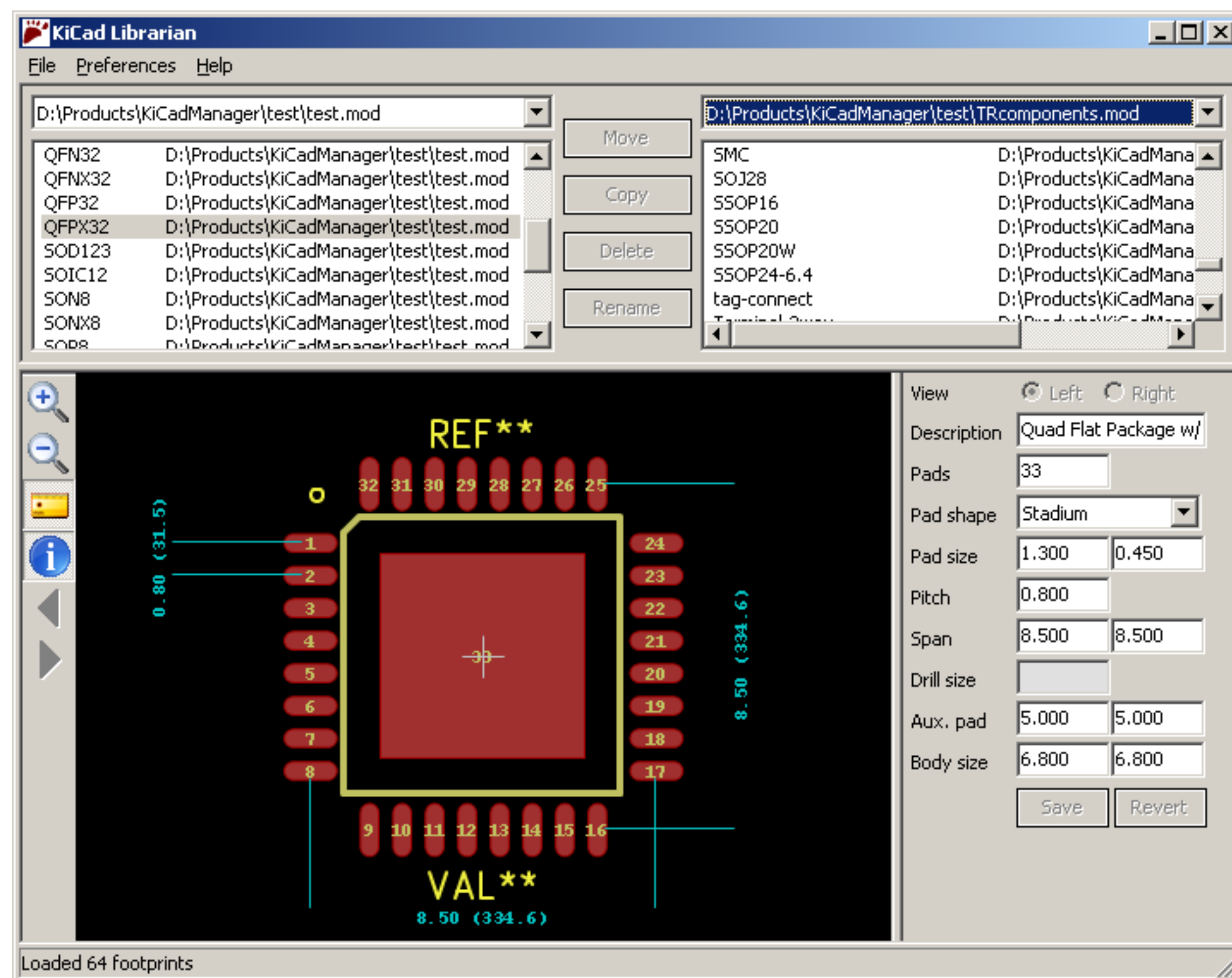
元器件封装的构成三元素



- 焊盘（形状、位置、编号）
- 外形轮廓
- 丝印标注
- 3D模型（STEP）

重要的事情再说一遍 - 建库要仔细!

- 严格参照元器件数据手册中的封装规格来建
- 与原理图要严格对应 - 封装的命名、管脚的编号
- 适合焊接、生产
- 打印出来跟实物对比验证



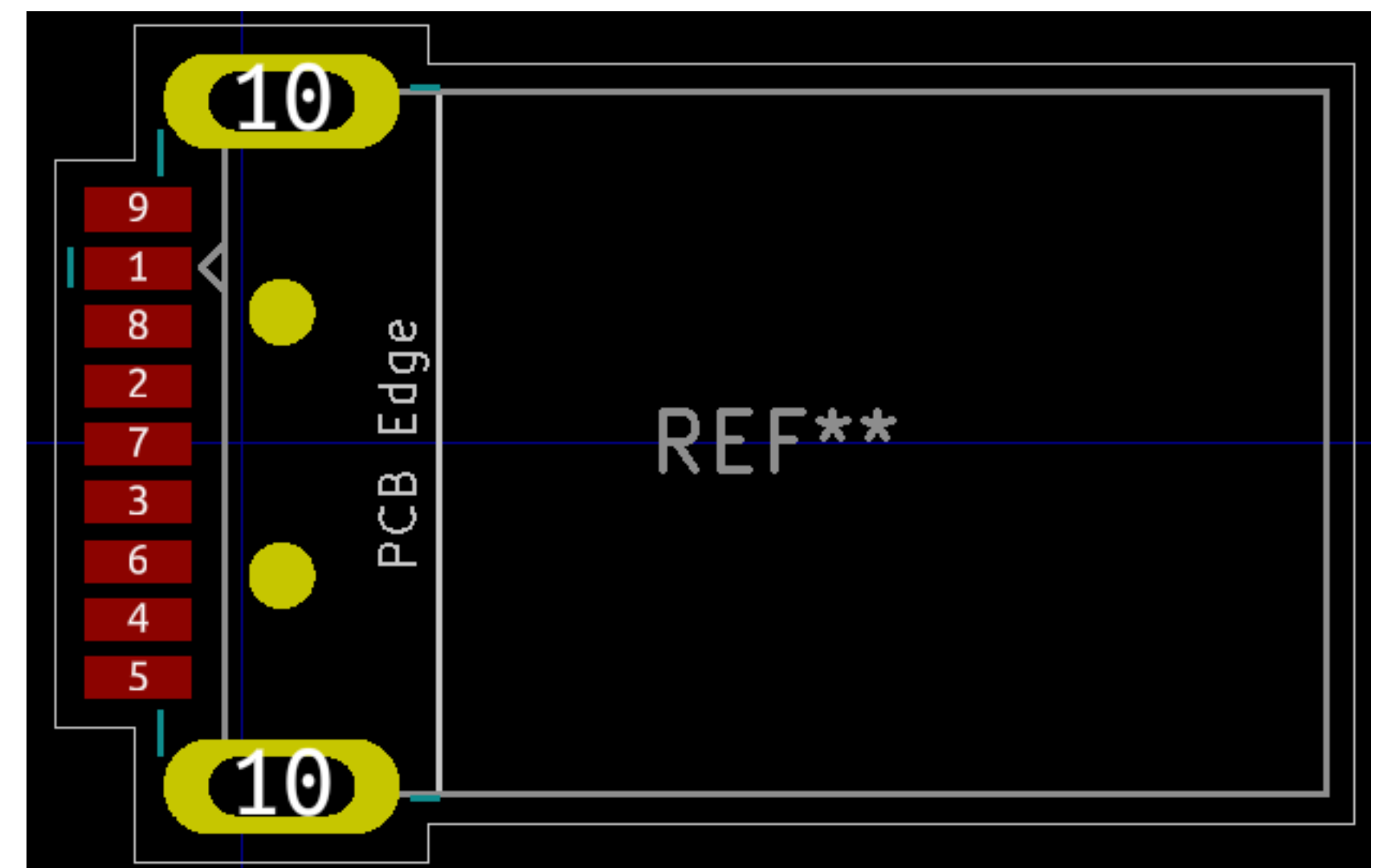
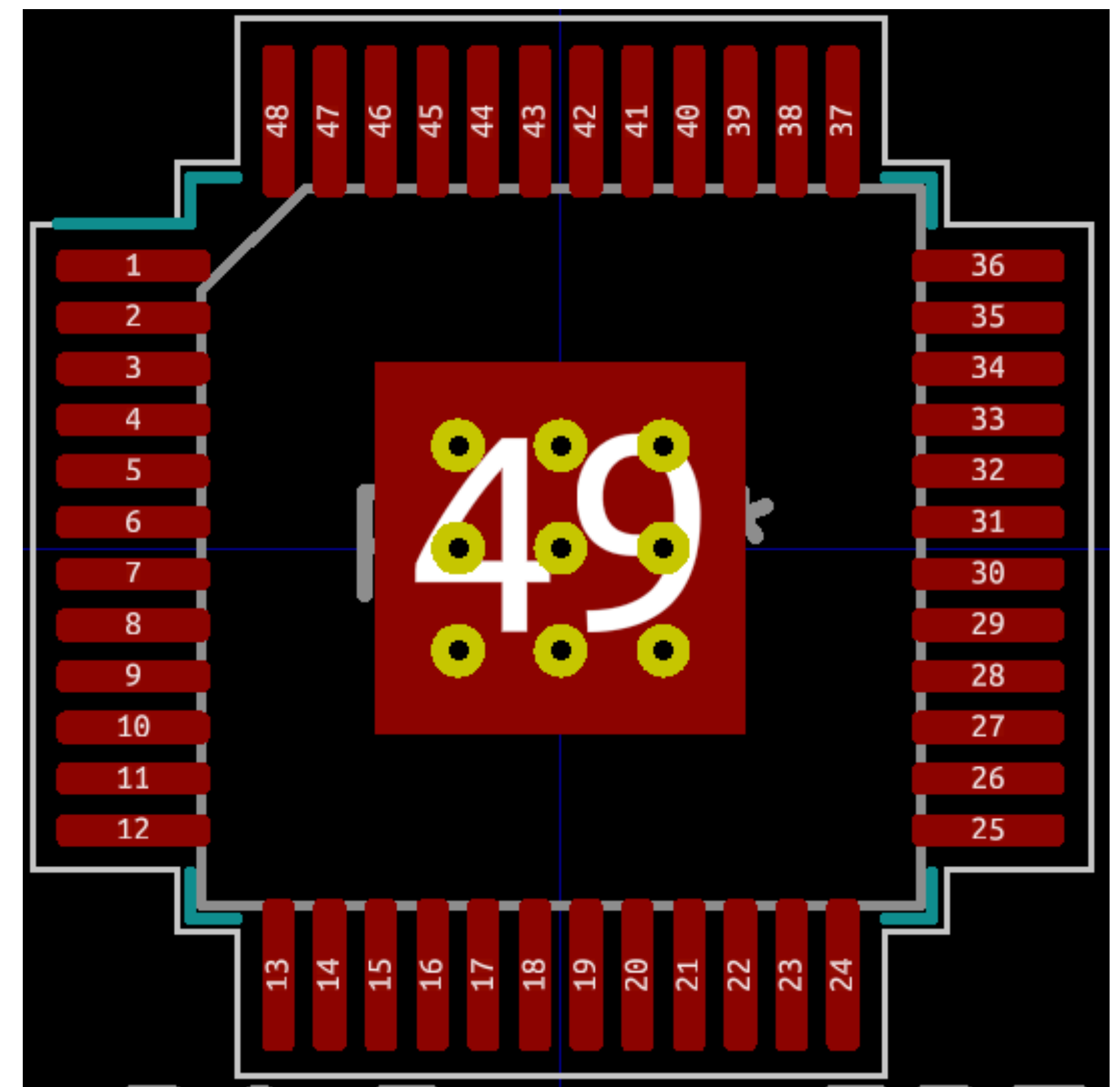
PCB封装库的来源

- KiCad工具自带的标准库（安装选装或官网下载）
- 现有参考设计源图中提取
- 半导体原厂（TI、ADI等）设计文件下载
- 第三方网站下载 - Ultra Librarian、SnapEDA、Datasheet5
- 自己创建

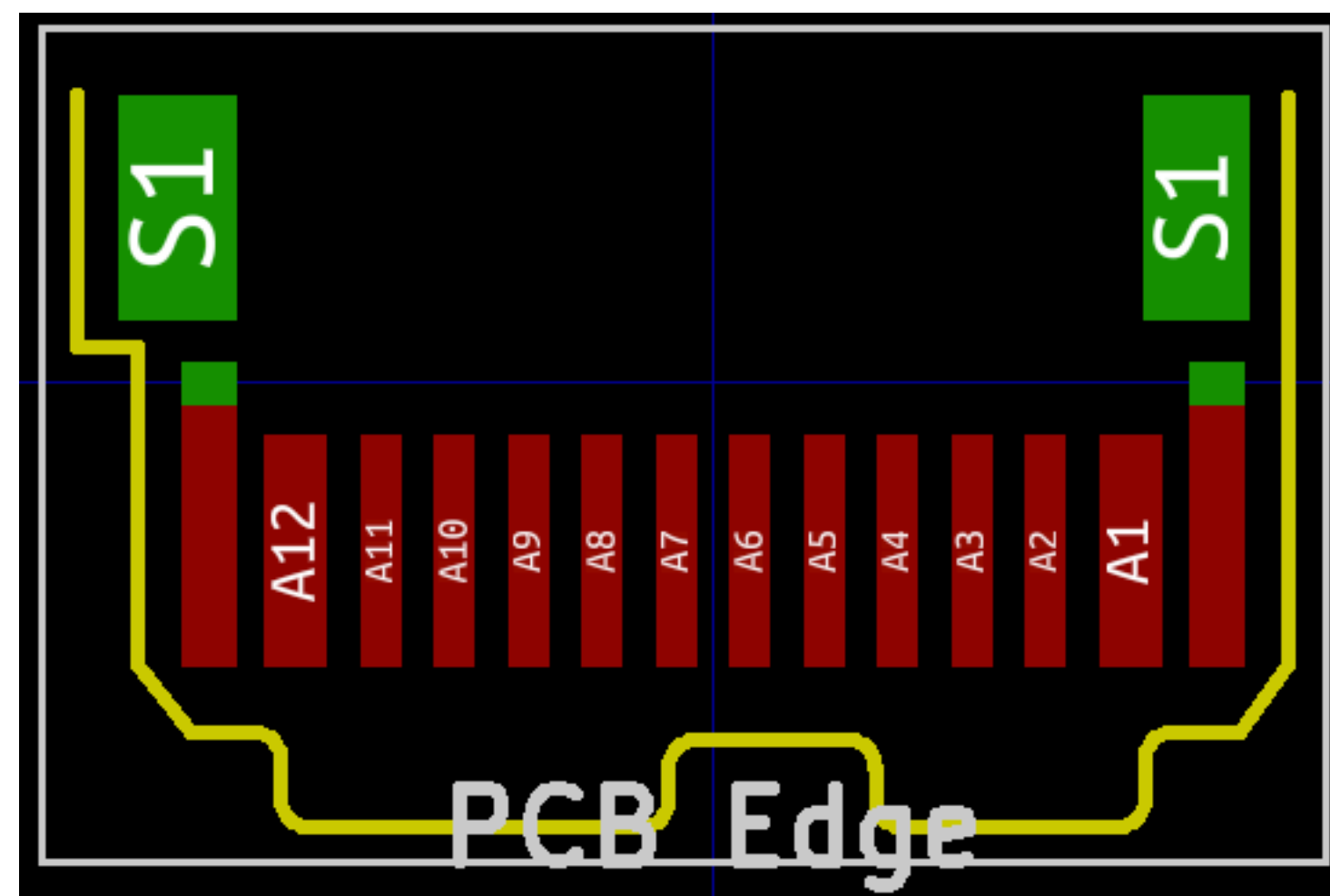
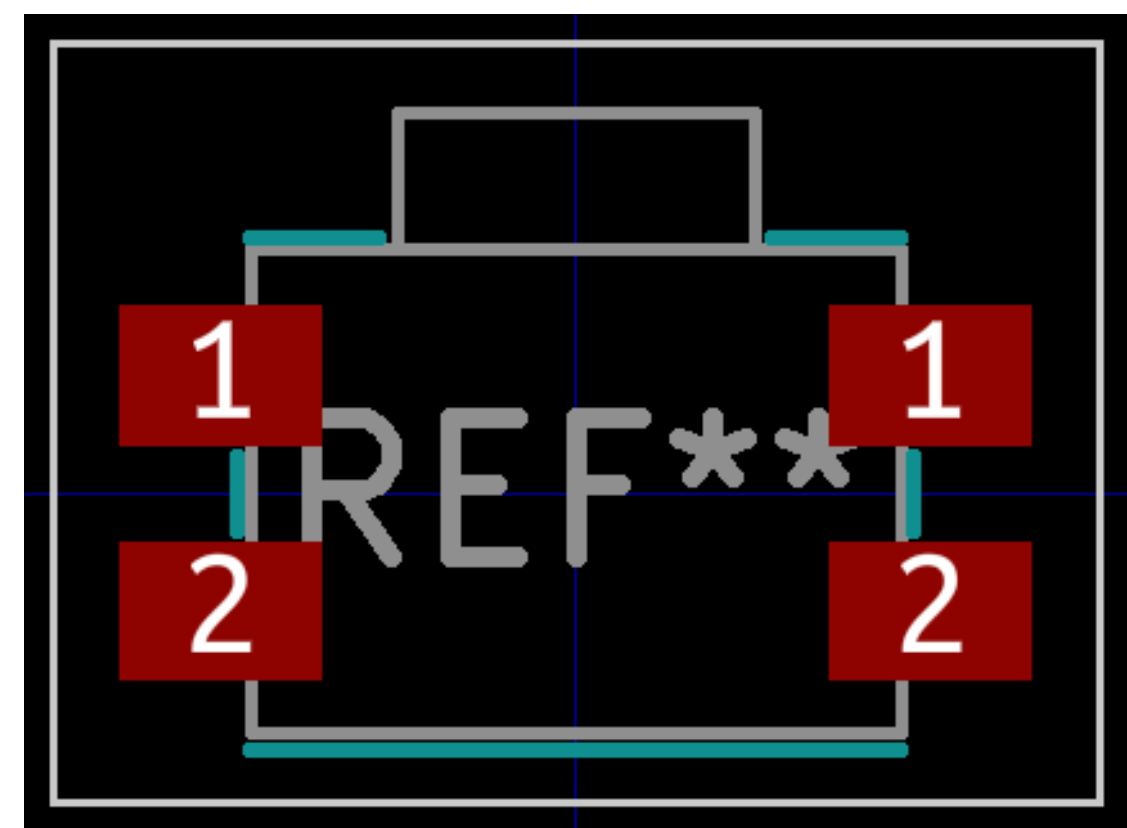
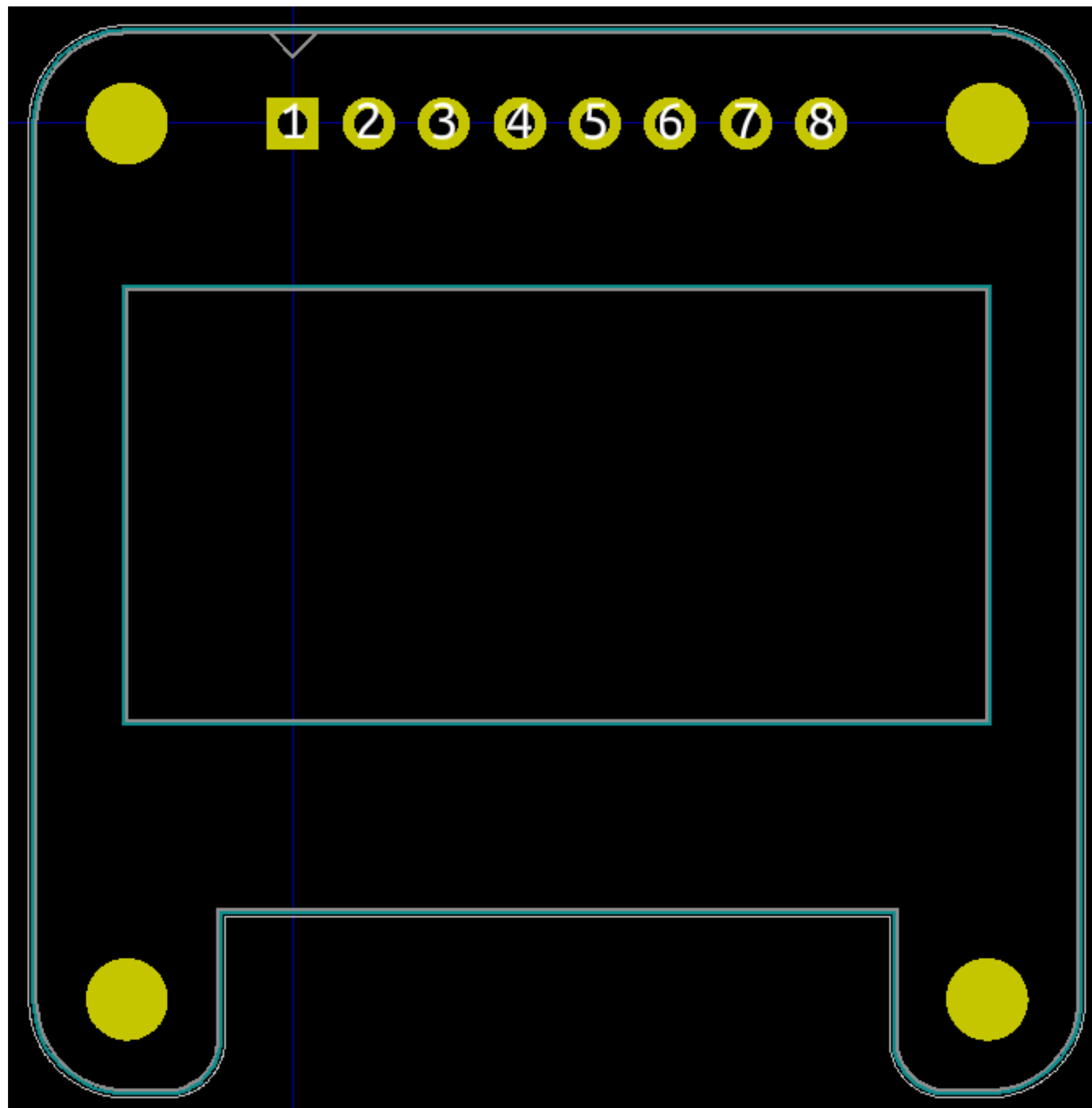


焊盘 - Pad/Land

- 选择焊盘类型 - 器件形状、大小、布置形式、振动、受热、受力等因素
- 泪滴状焊盘 - 发热且受力较大、电流较大
- 各元件焊盘孔的大小要按照元件引脚粗细分别编辑确定
- 注意焊盘和焊盘中心间距是否与器件管脚中心间距一致

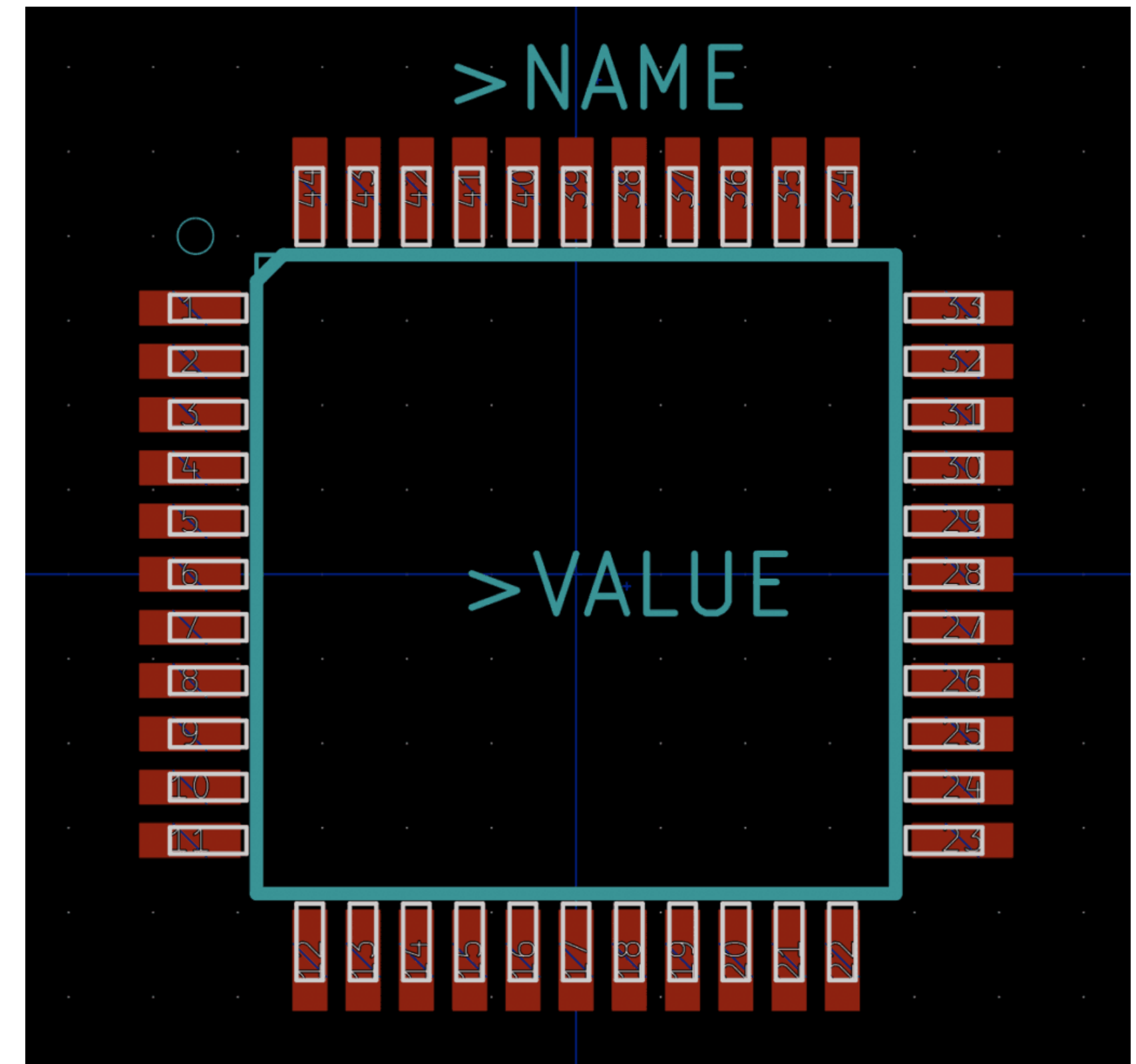
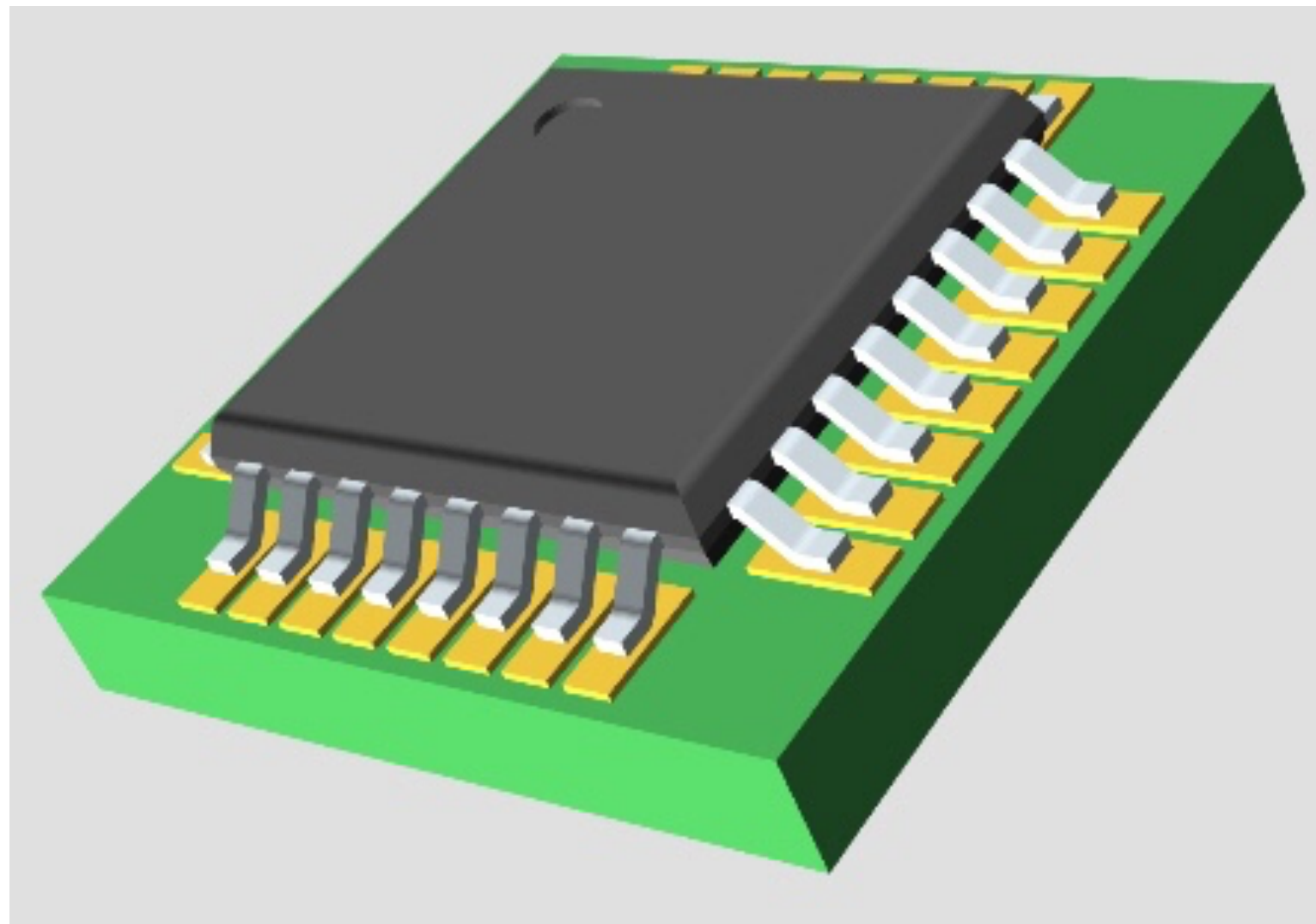


外形轮廓 - 元器件不能冲突，尤其是焊接、安装

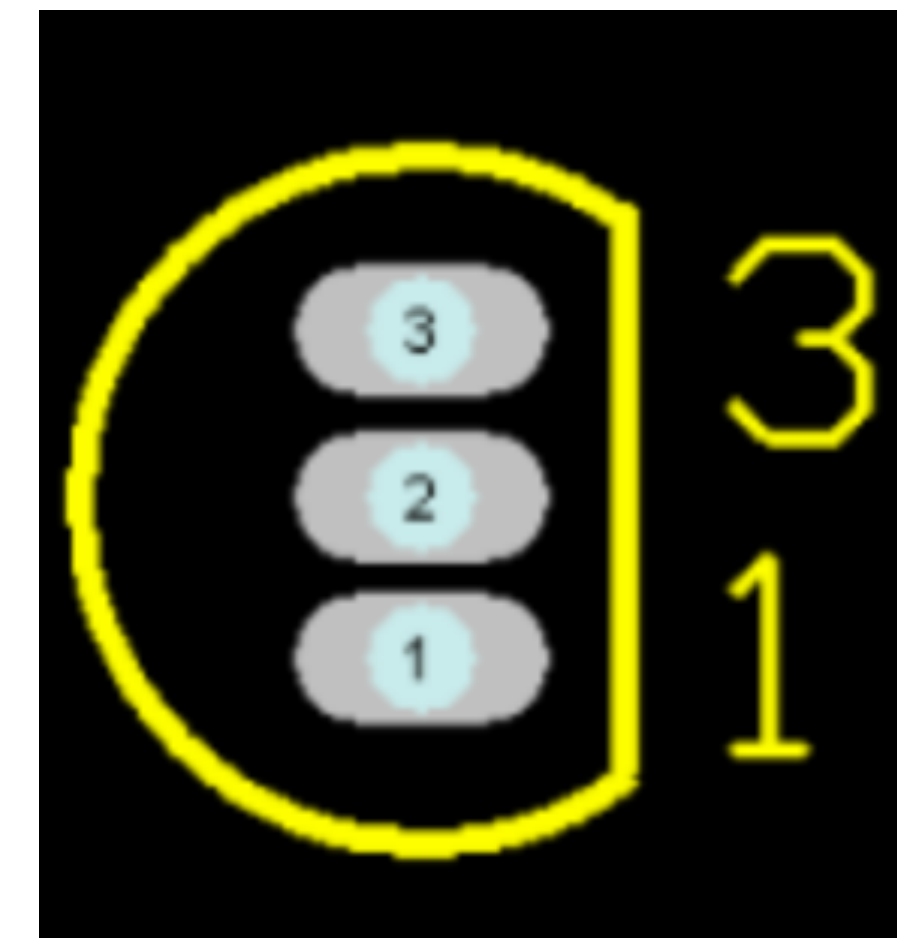
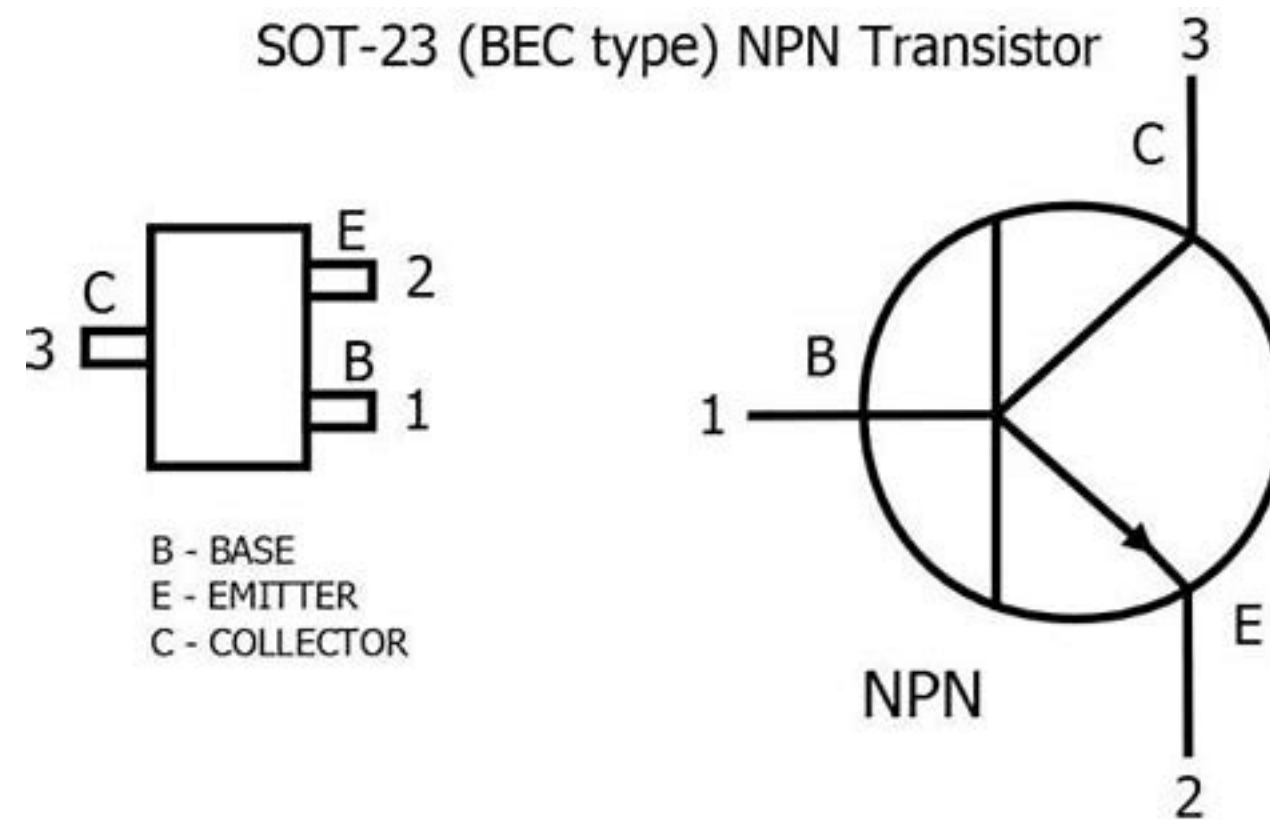
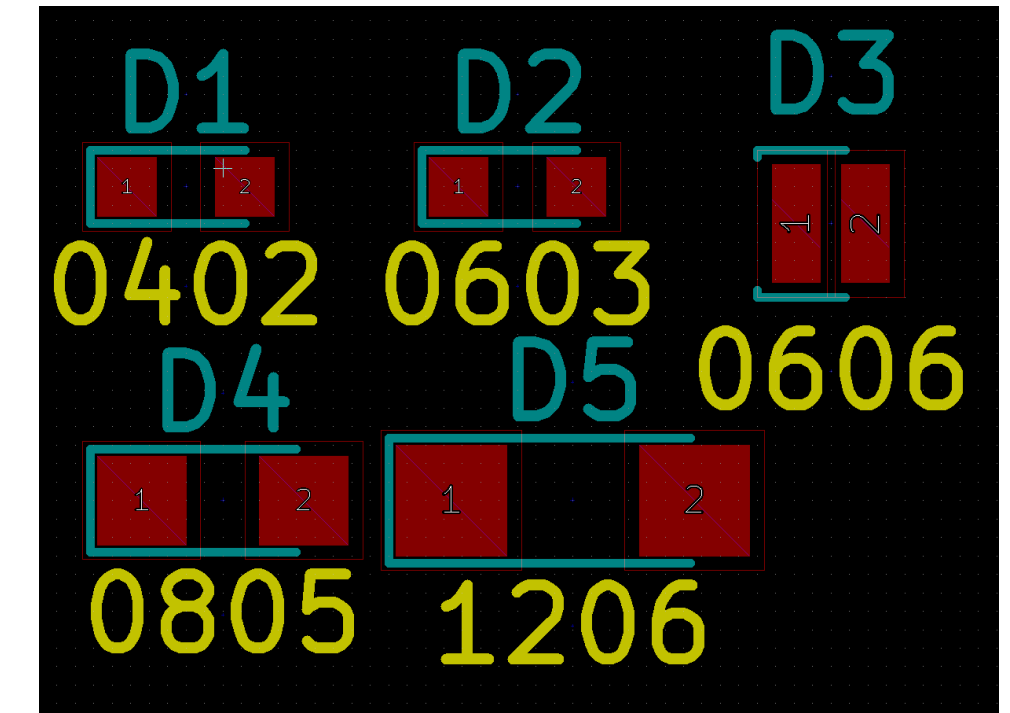
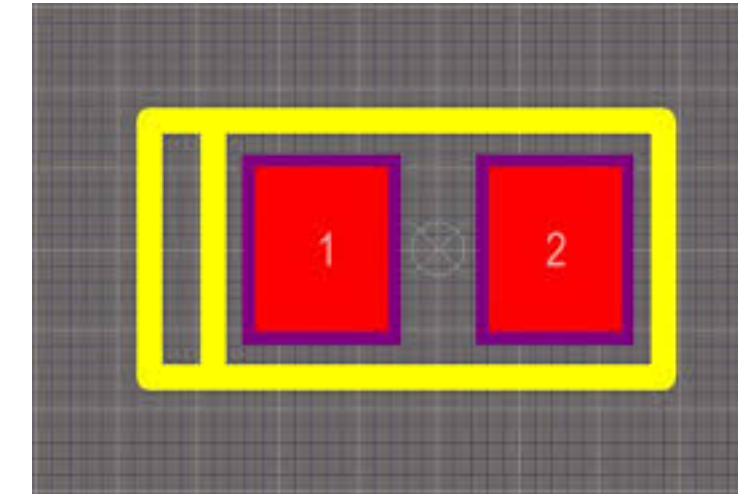
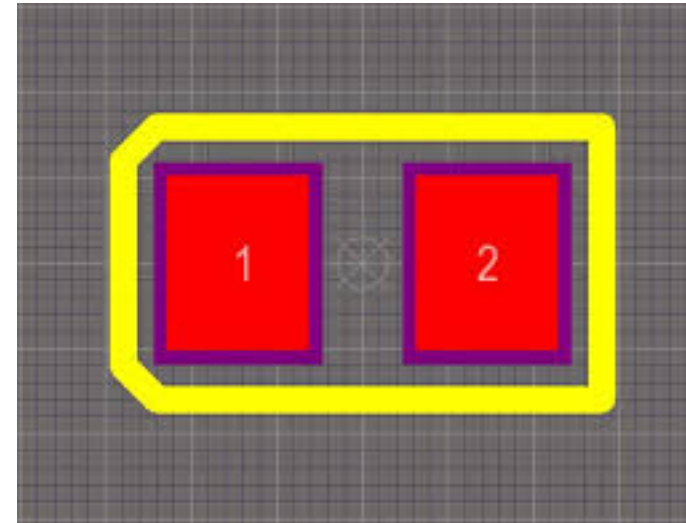
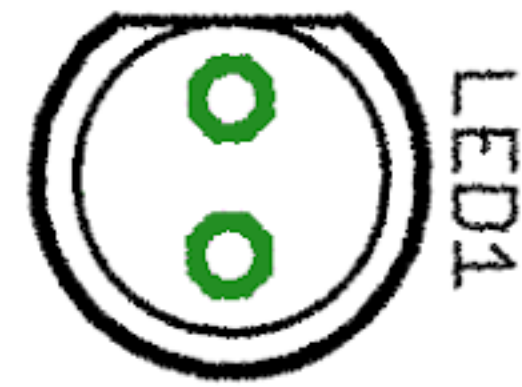
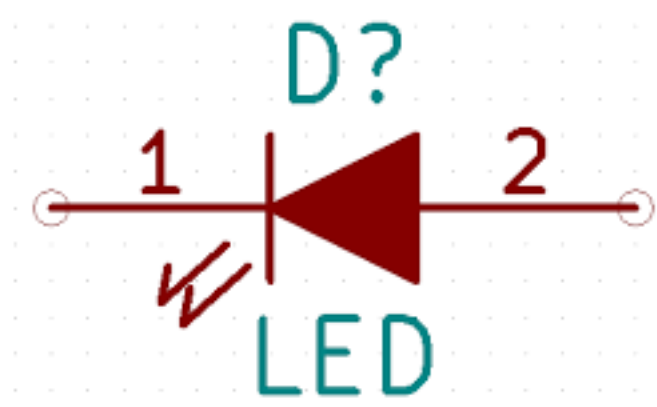


焊盘大小：管脚焊盘宽度同数据手册中一致或略宽

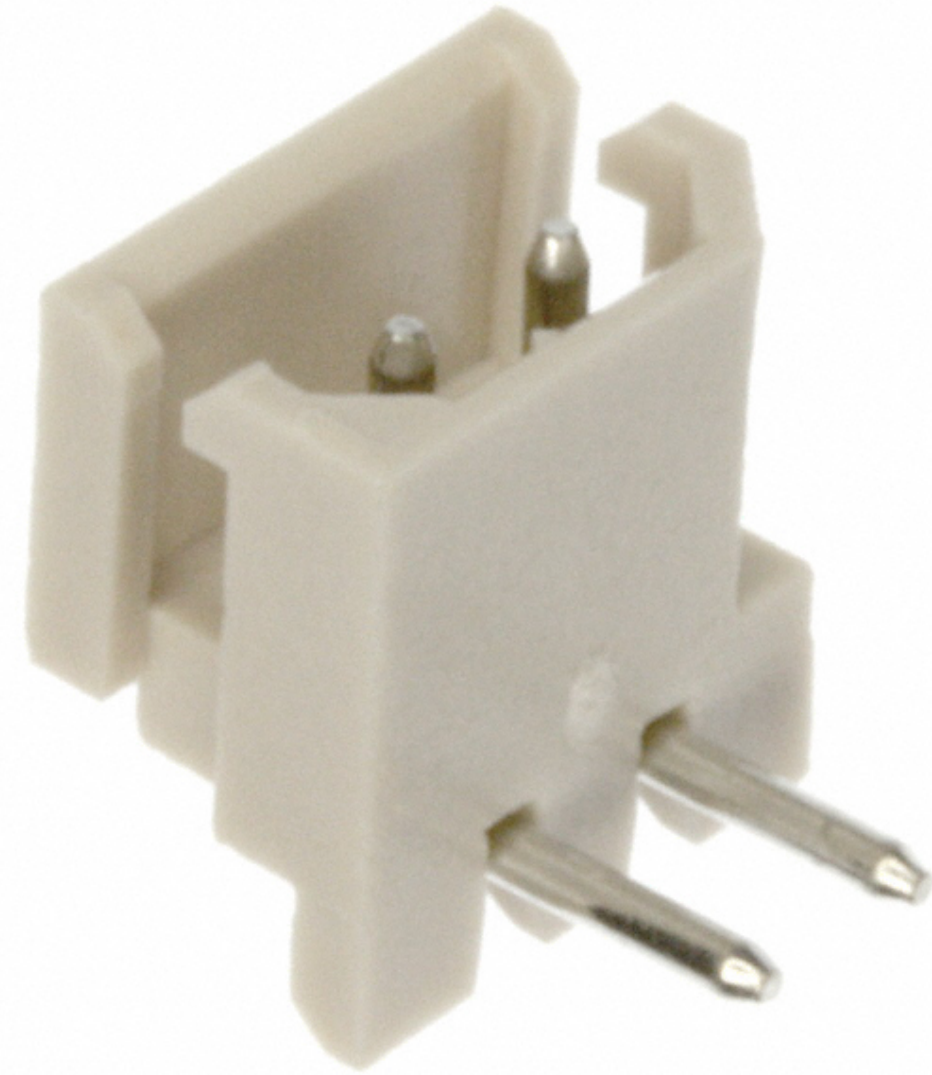
管脚长度略长于数据手册中器件的管脚长度



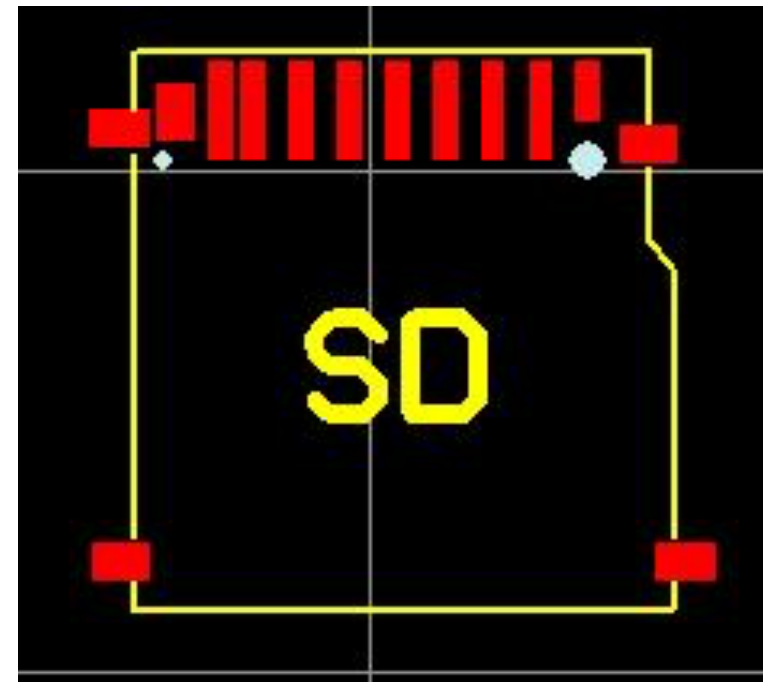
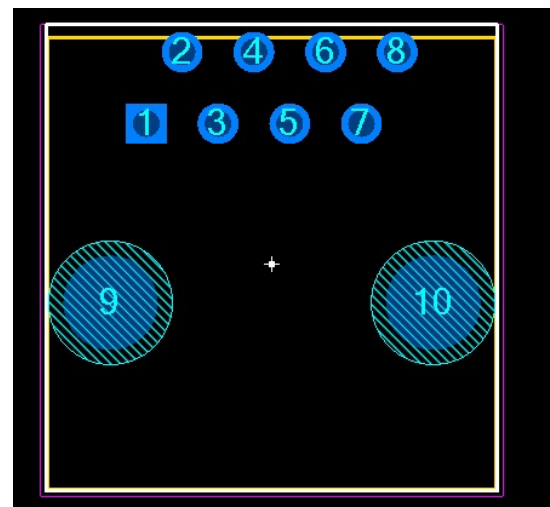
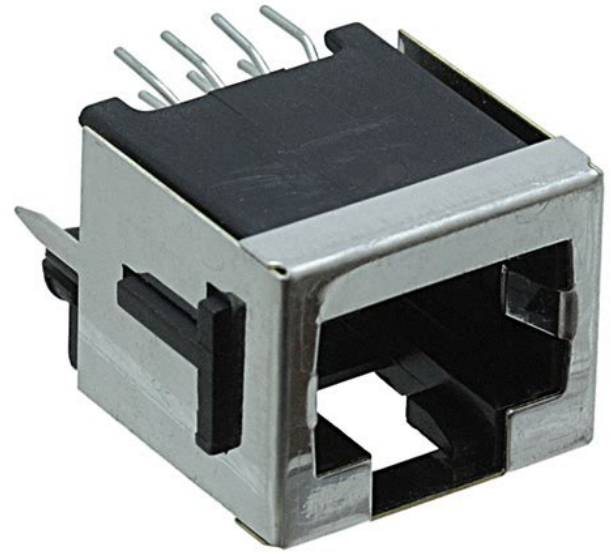
封装库和原理图符号库的管脚编号要对应并有丝印标记



通孔的器件封装库 - 注意管脚的粗细和形状



注意定位用的管脚 - 位置、编号、孔径、接地与否?



GCT

USB3135-30-A

USB3100 Series 5 Pin SMT Right Angle Top Mount Micro USB Receptacle w/ Peg

Availability: **In Stock**

Package Type: **N/A (Add Suggestion)**

Average Price: **\$0.39 USD**

CAD Models: **Symbol and Footprint**

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[Buy Component](#)

Symbol and Footprint Library /

2D Model 3D Model

GCT Approved by GCT

Symbol

Footprint (Unlink Footprint)

VBUS
D-
D+
ID
GND
SHIELD

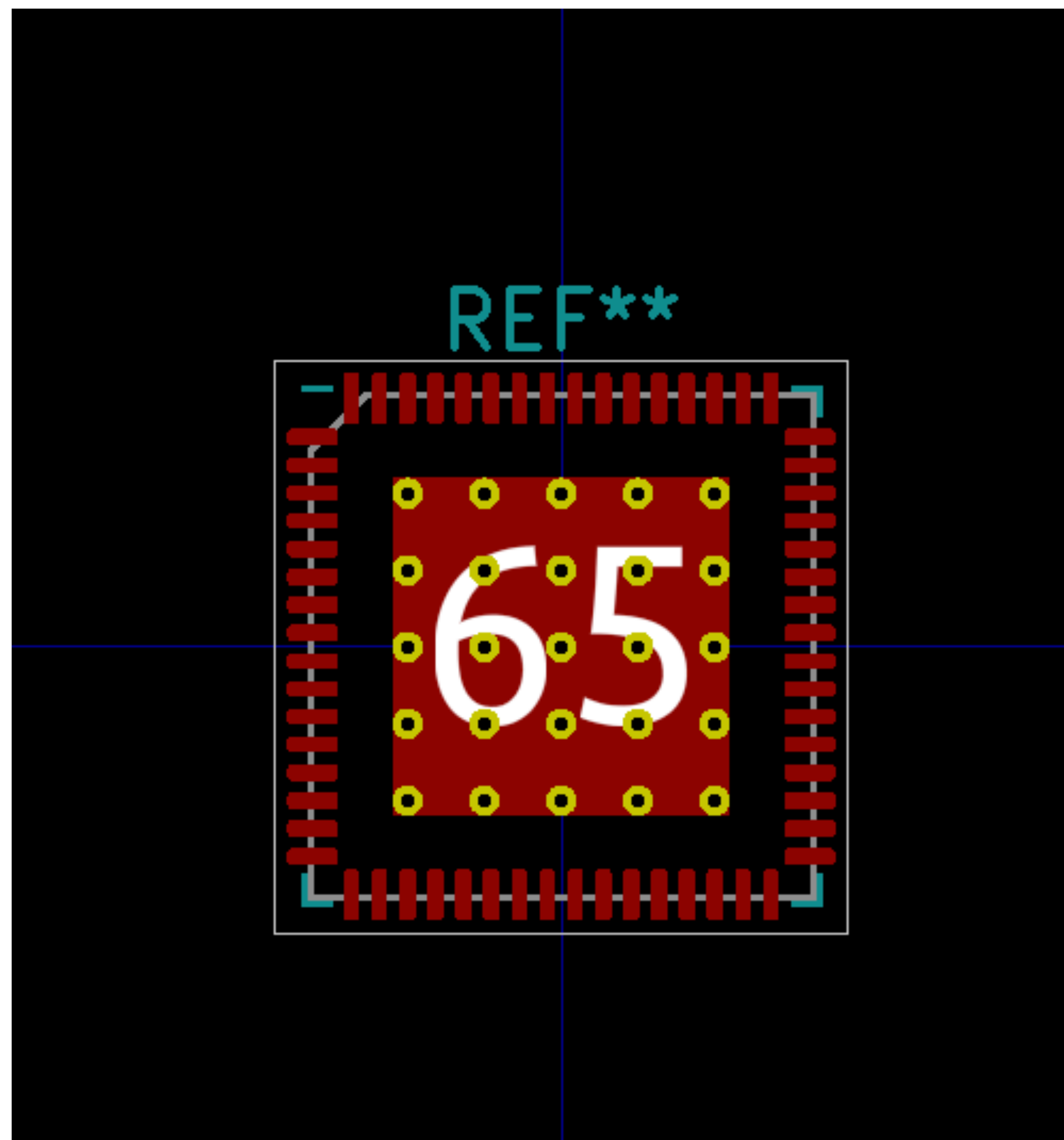
USB3135-XX-X_REVB

GCT_USB3135-XX-X_REVB

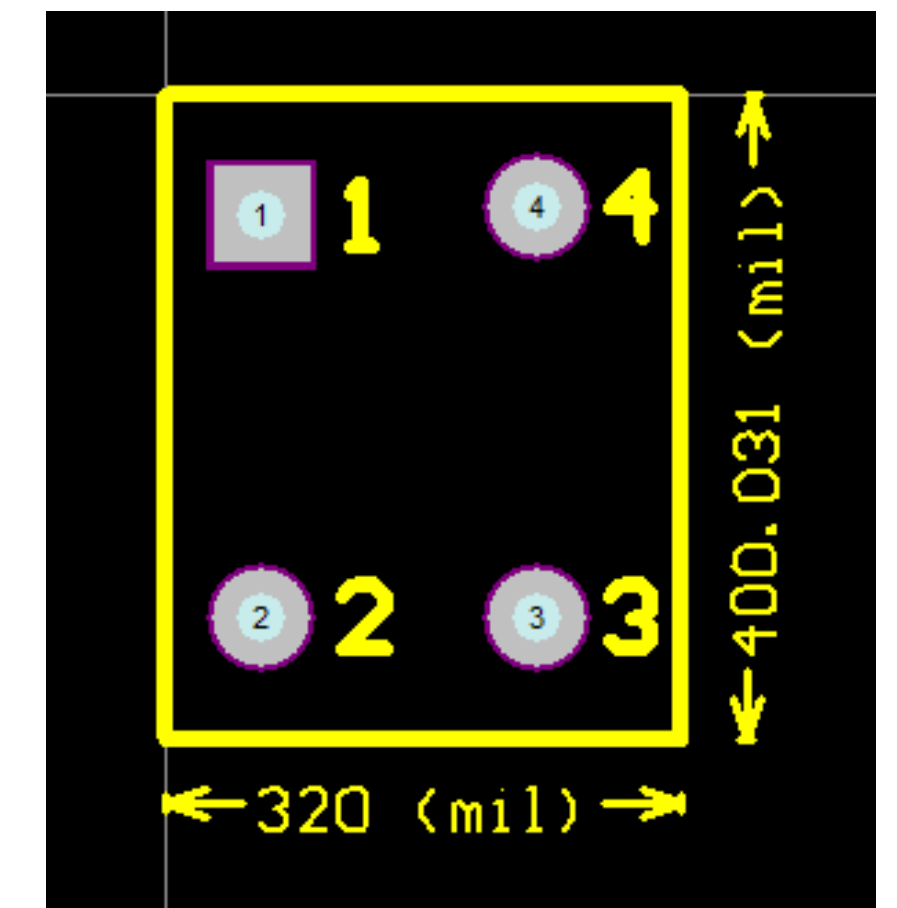
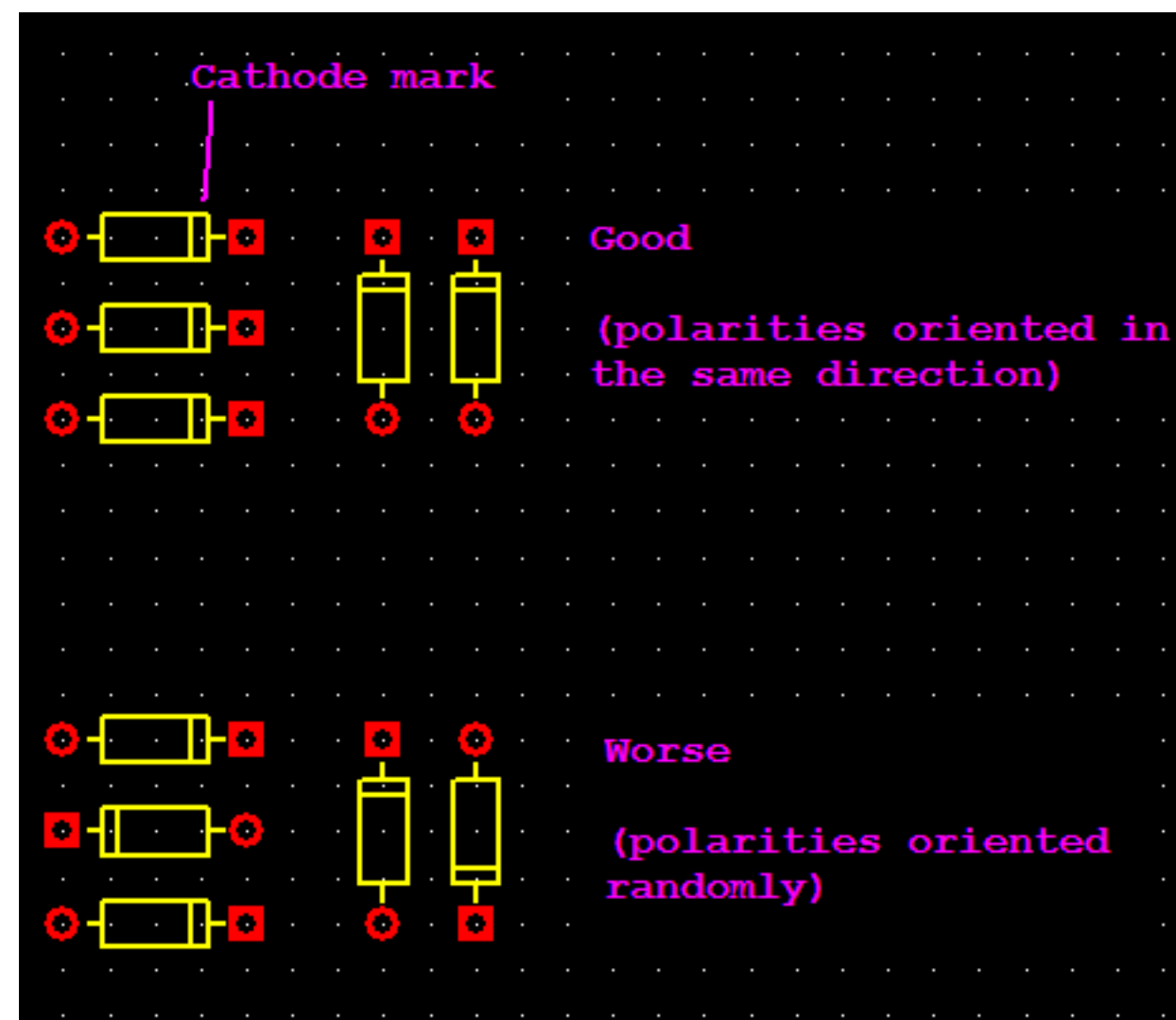
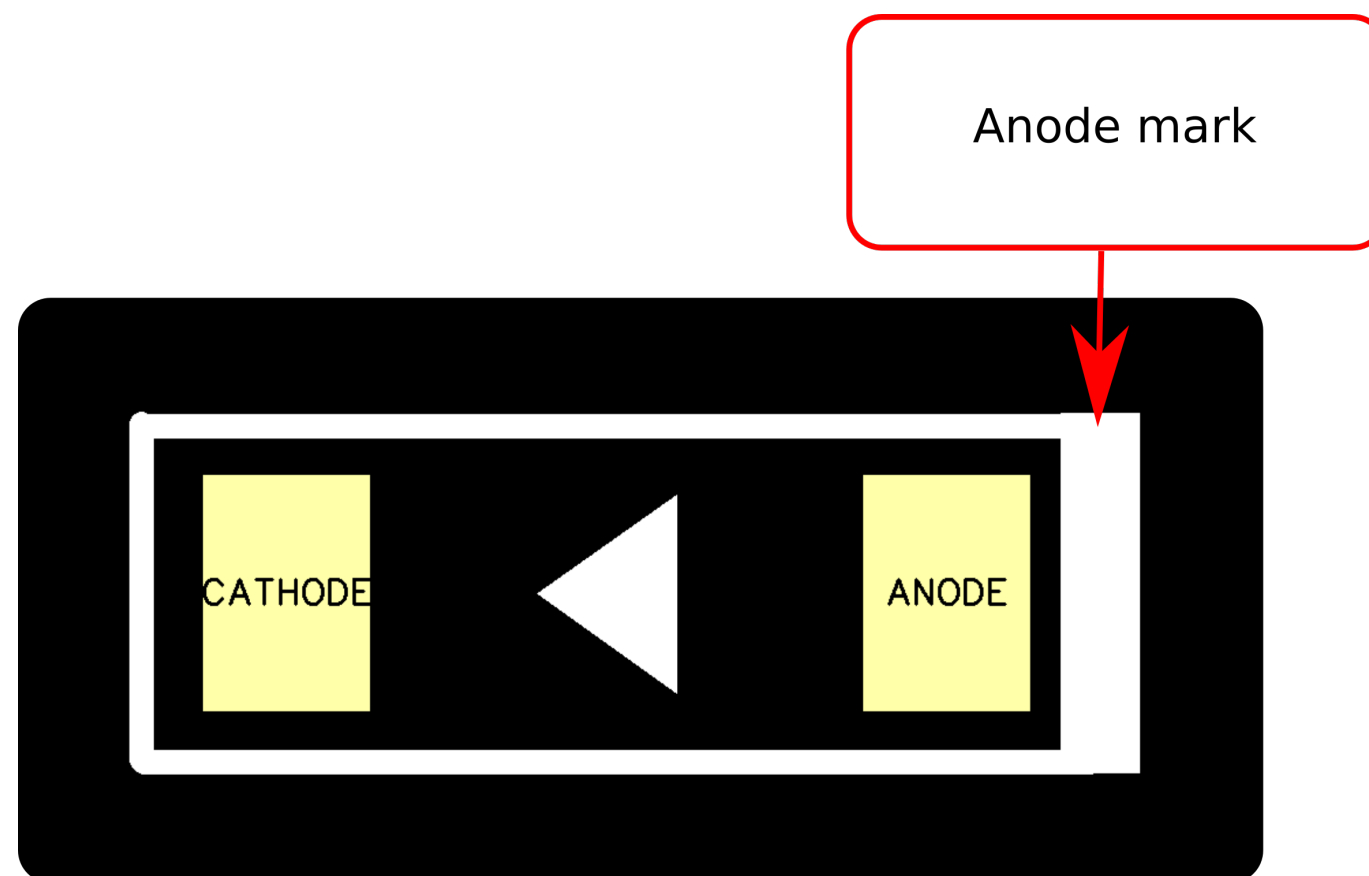
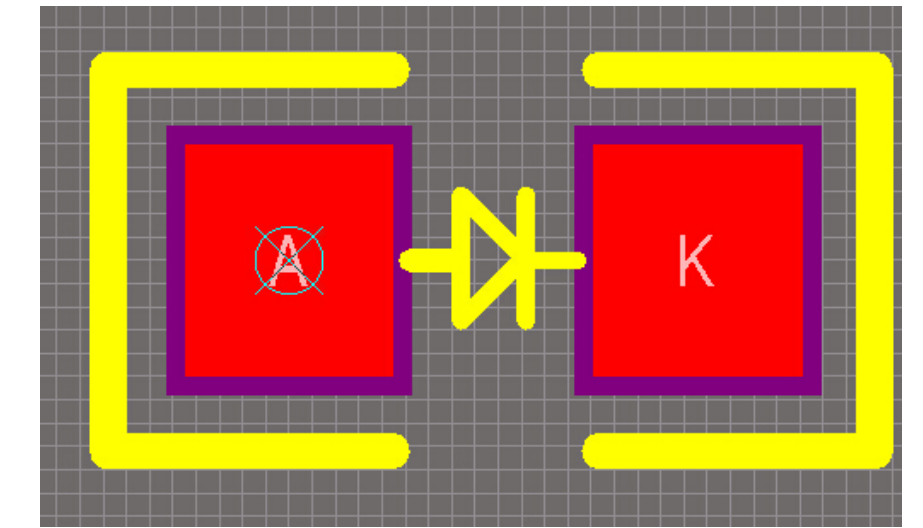
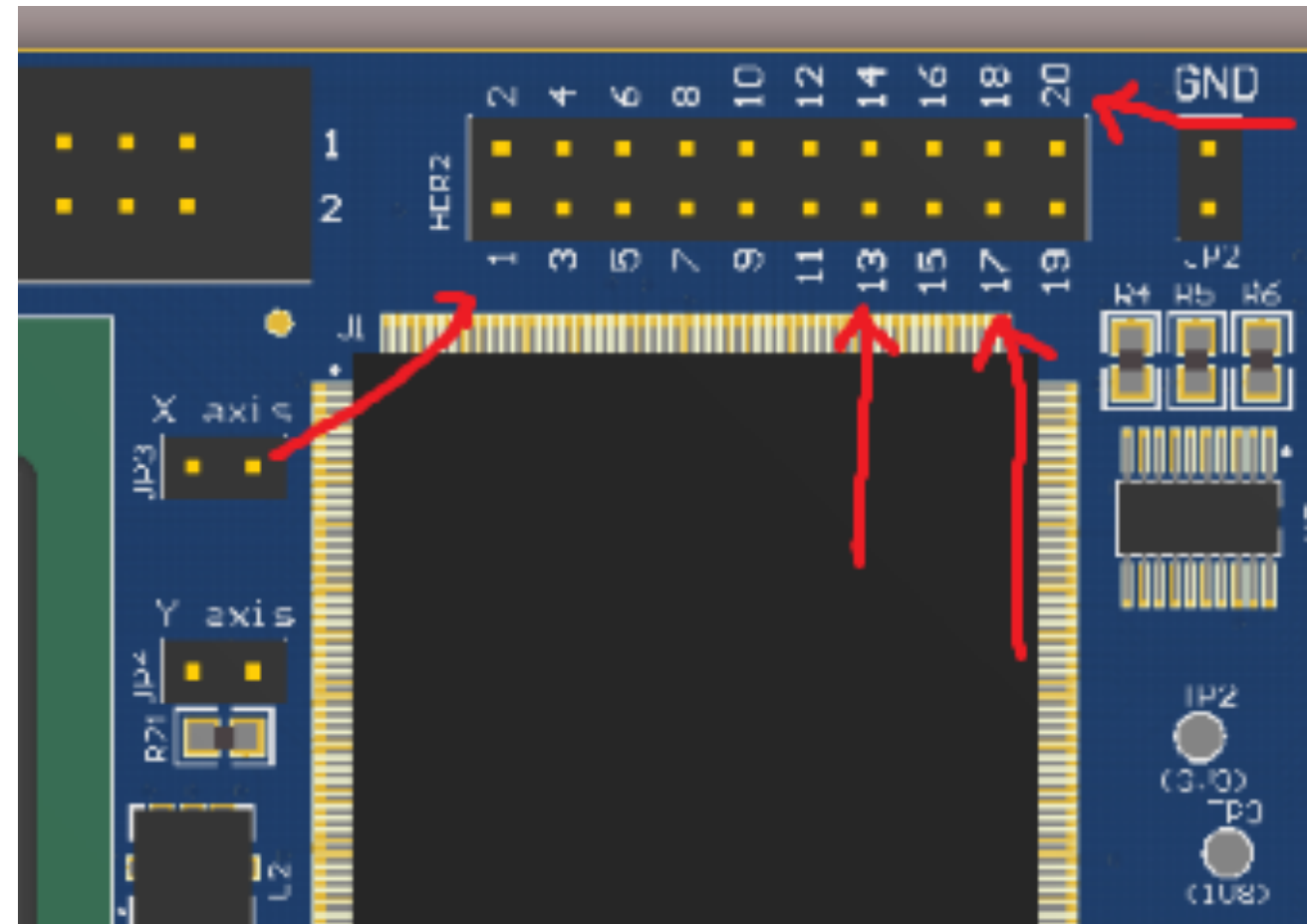
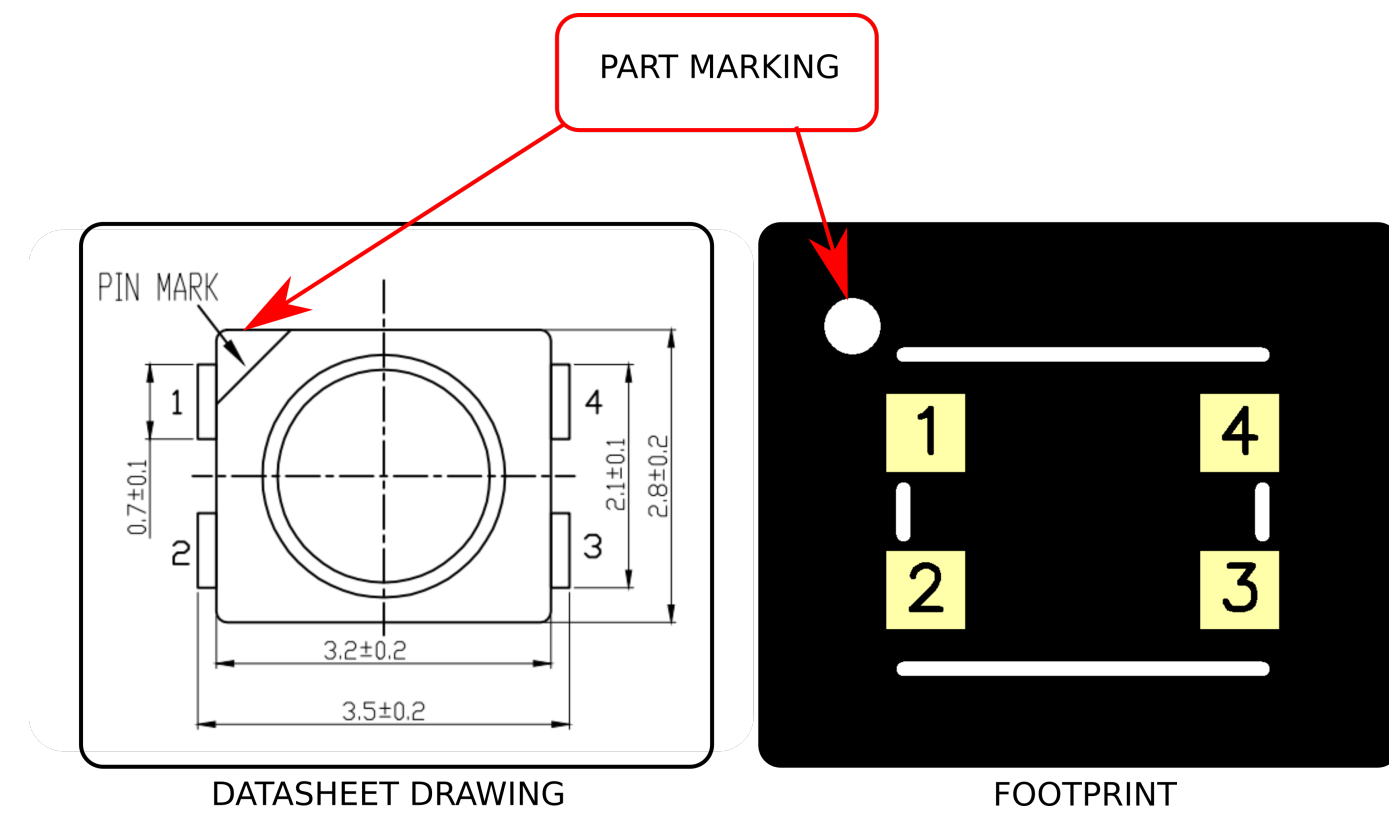
[Download Symbol and Footprint](#)
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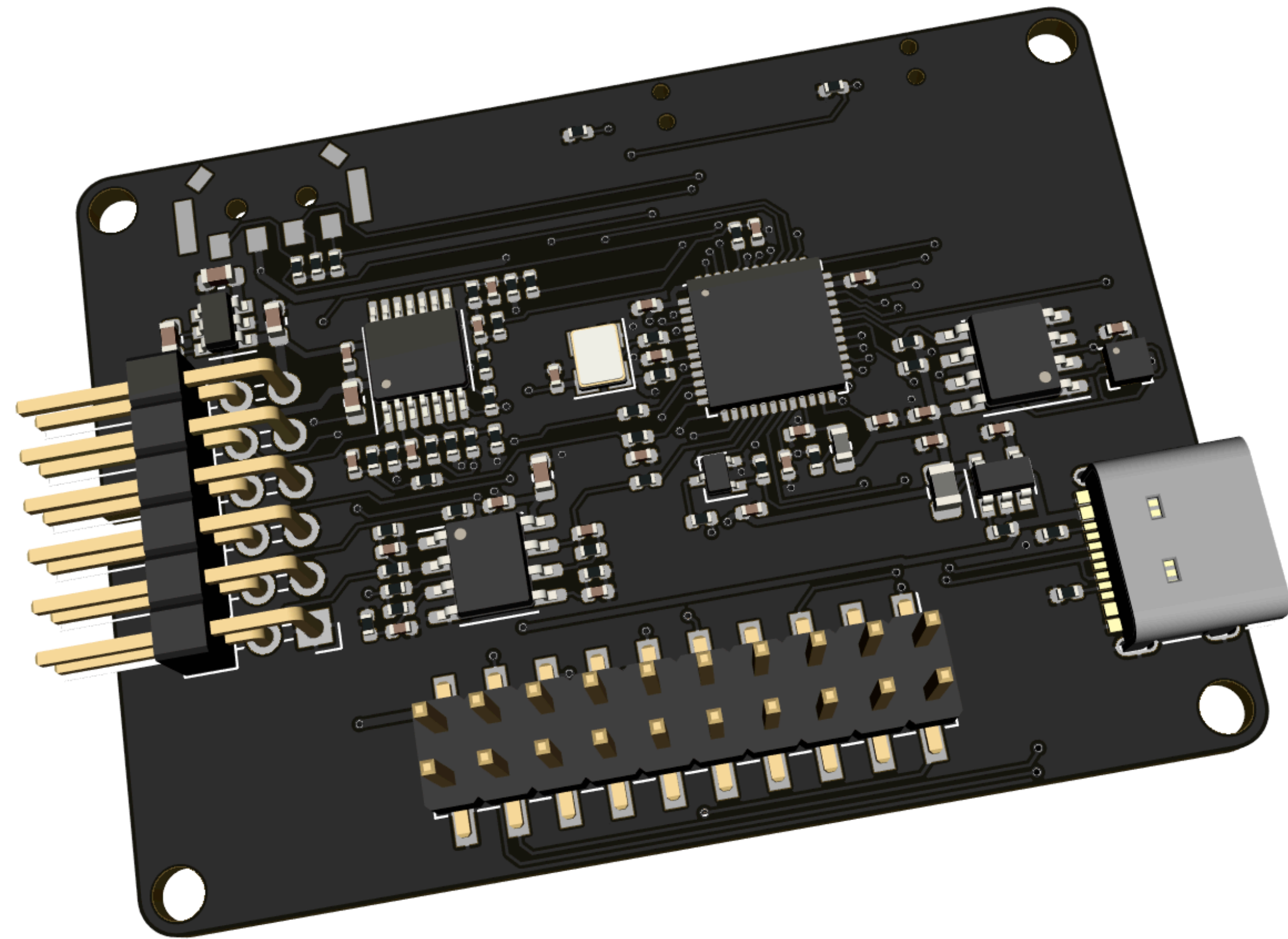
[Download Footprint](#)
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设定好原点



明确、正确的丝印标注

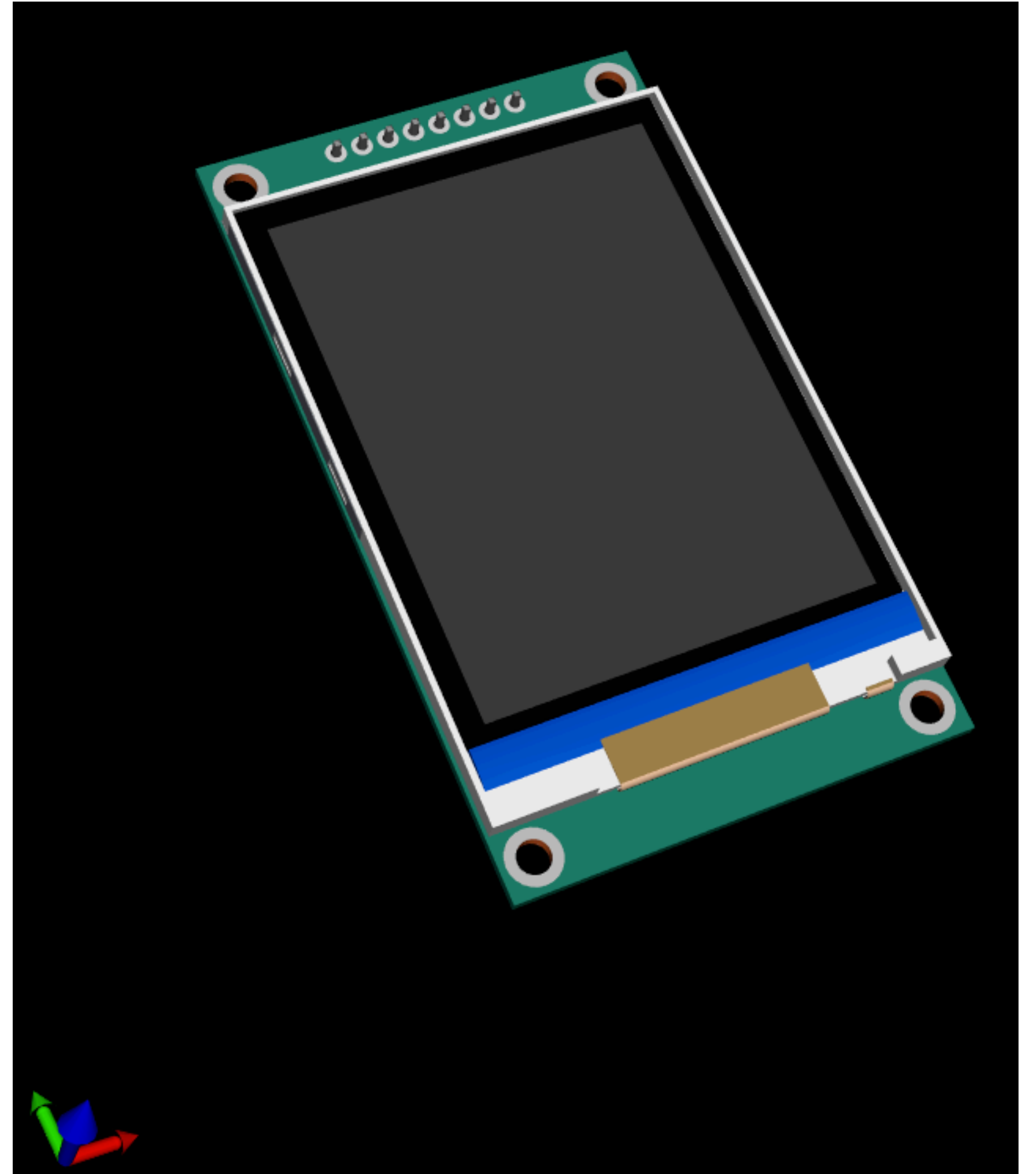




3D模型的构建和使用

3D模型的作用

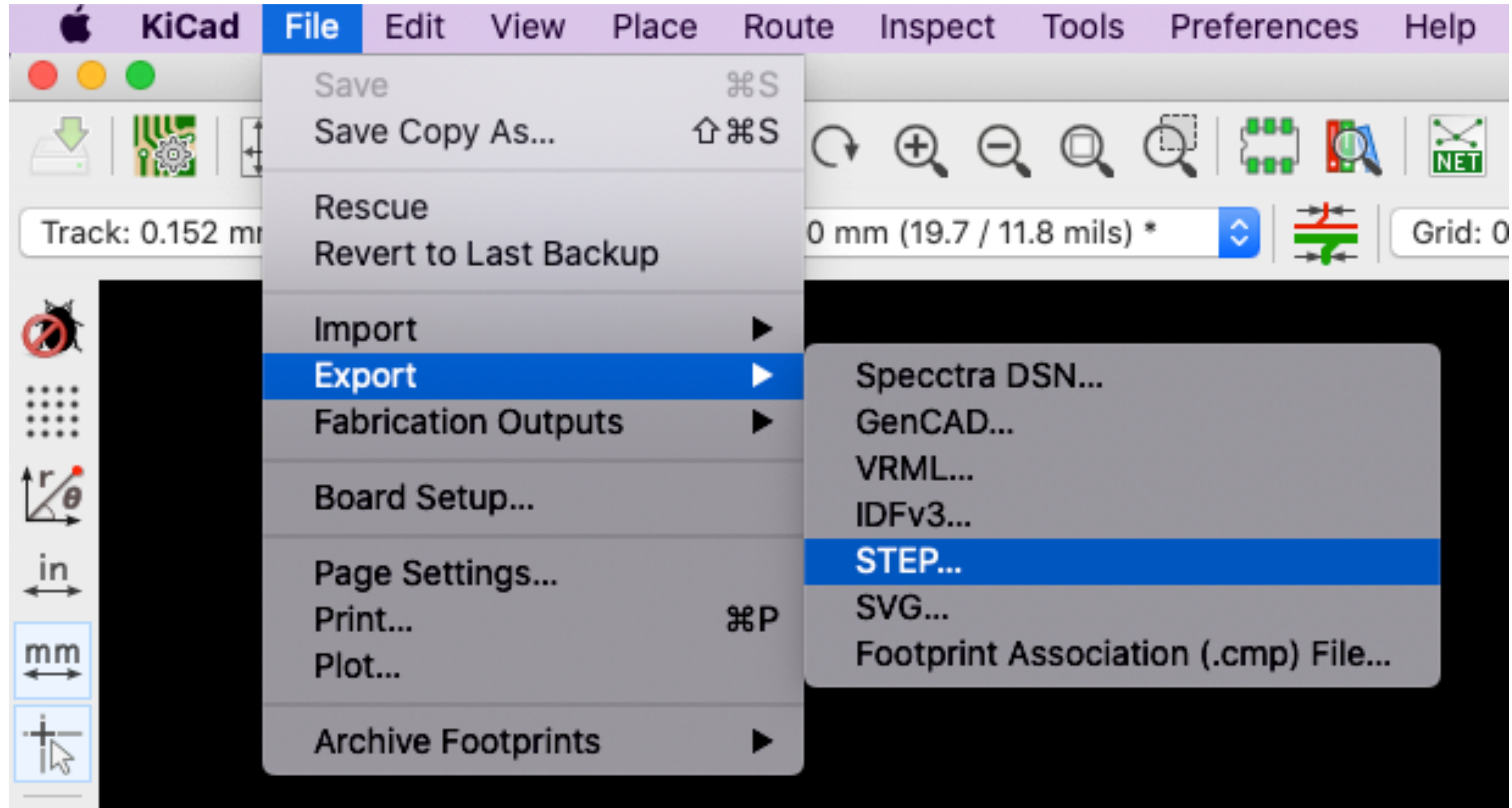
- 空间感觉
- 器件之间是否有冲突
- 用于机械结构设计参考
- 效果展示



3D模型的来源

- 现有的参考设计中提取
- 开源的3D平台 - Grab3d
- 自己创建 - FreeCAD、SolidWorks等
- 模块可以通过KiCad生成

3D模型的生成



3D模型的使用和查看

