

HUSB350 PD 小板参考设计简介

HUSB350 是 Hynetek 慧能泰最新推出的 PD3.0 PPS 协议芯片，主要指标如下：

- 通过 USB PD3.0 PPS 认证，TID1508。
- 支持多达五档 FPDO 和二档 APDO。支持 5V ~ 23V 范围内任意设置和组合 FPDO 档位，所有 PDO 的最大电流等级可达 5A。
- 支持 QC2.0/3.0, PD2.0/3.0, AFC, FCP, BC1.2 DCP, Apple 5V/2.4A 等充电协议
- 支持三级智能降功率功能，适合 1C+1A, 1C+2A, 1C+3A, 2C, 2C+1A, 2C+2A 等不同组合。
- GPIO 引脚可配置成充电状态转灯和 Type-C 插入状态指示等功能。
- 集成 VCONN 电源和 USB 电子标签芯片 (eMarker) 检测功能，支持最大电流输出 6.3A。
- CC1 和 CC2 支持 28V 高压，避免与 VBUS 引脚短路风险。
- 支持通过 Type-C 口反复多次烧录。

该评估板是基于慧能泰最新推出的多协议 PD 方案 HUSB350 设计，它支持 18-115W 任意输出功率 PD，下图 4 个引脚 FB 接光耦阴极、GND 接输出滤波电容负极、VIN 接输出滤波电容正极、PDER 支持智能降功率评估。PDER 引脚与 GND 之间接 33K 电阻可以实现一次降功率，最多可支持三次降额设计。具体功率分配细节请与慧能泰技术支持团队沟通。

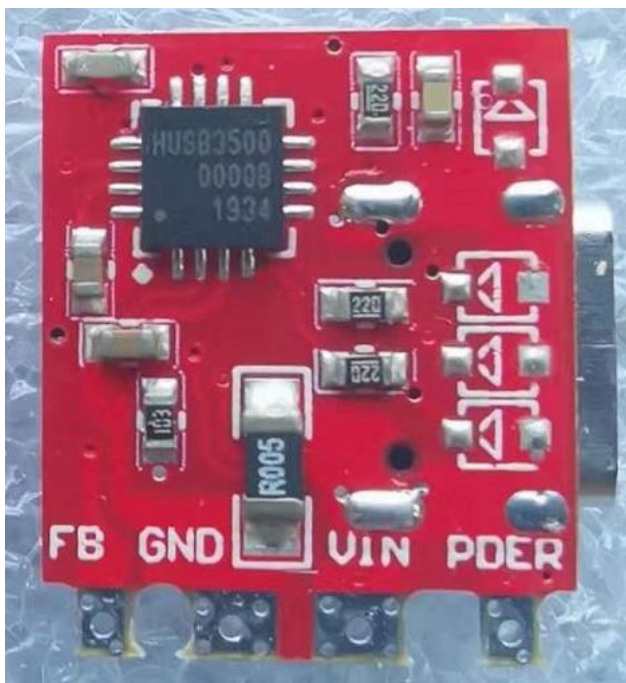


图 1. 评估板顶视图

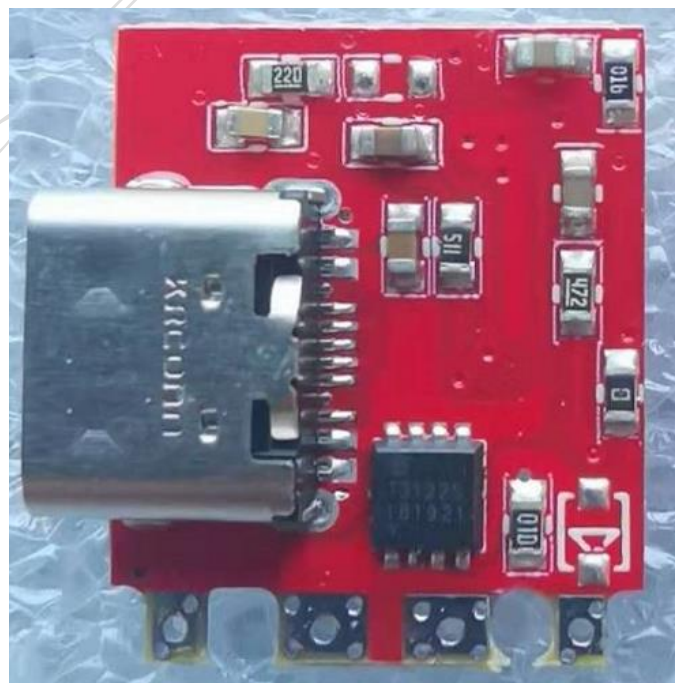
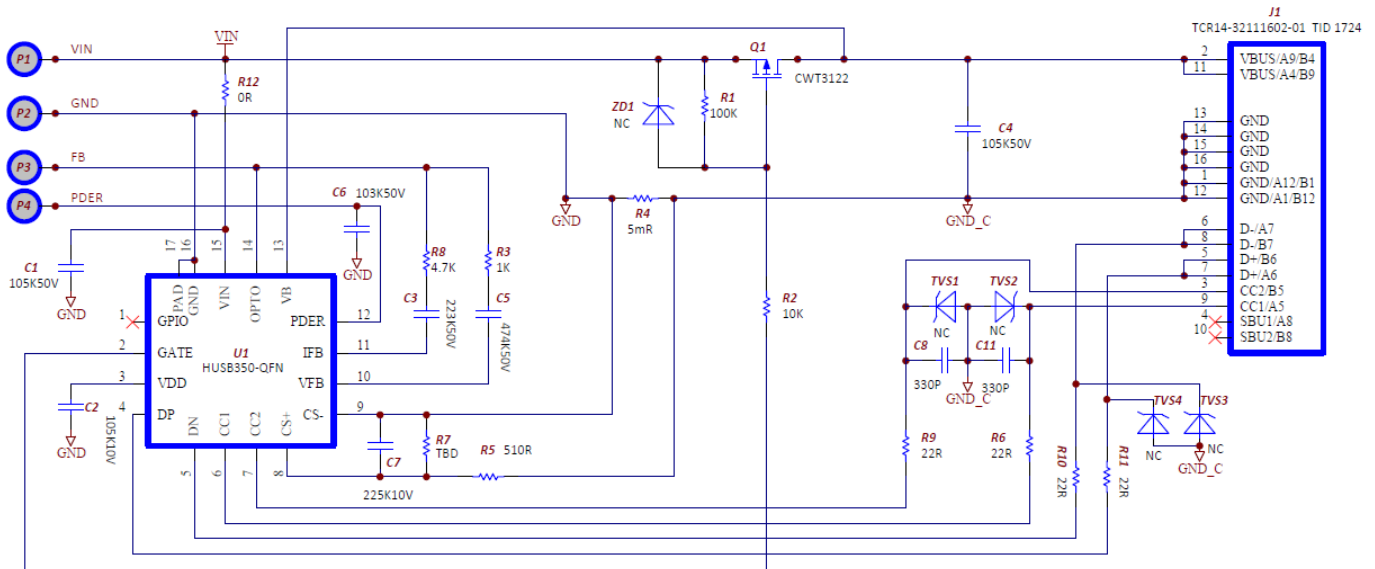
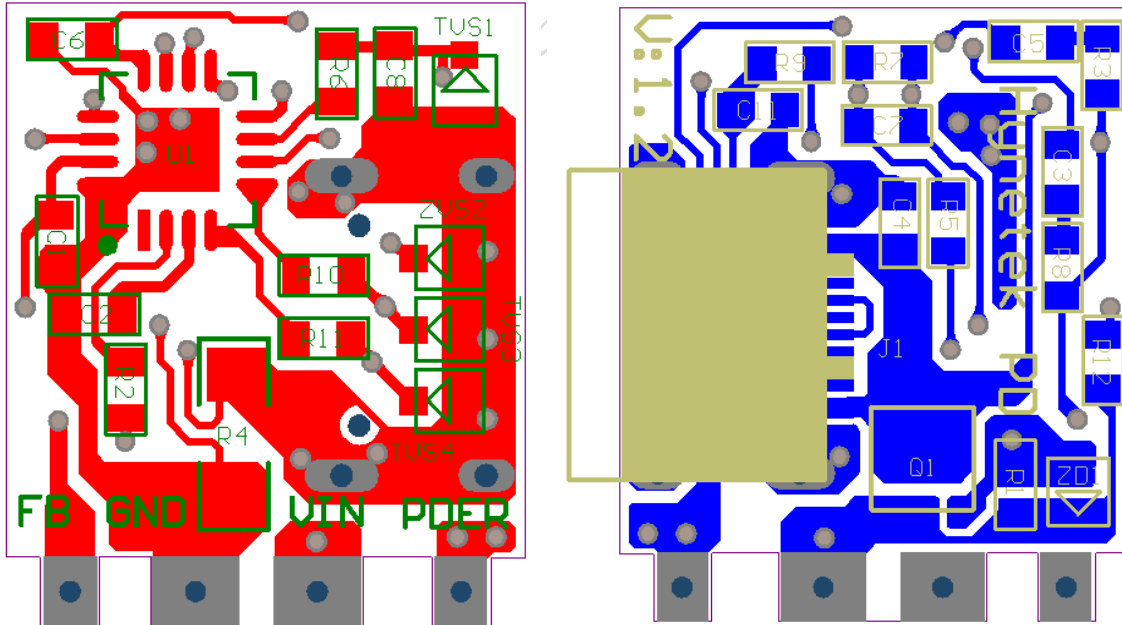


图 2. 评估板底视图

原理图



PCB LAYOUT



BOM

序号	物料名称	规格描述	位号	数量	备注
插件部分					
1	PCB	18*15*1.2mm/无铅锡板/1oZ/绿油白字/过孔盖油	/	1	
2	连接器	12PIN 连接器 TCR14-32111602-01 TID 1724	J1	1	精睿兴业
贴片部分					
3	贴片电阻	0Ω 0603 5%	R12	1	
4	贴片电阻	5mΩ 1206 1%	R4	1	
5	贴片电阻	22Ω 0603 5%	R6.9.10.11	4	
6	贴片电阻	510Ω 0603 5%	R5	1	
7	贴片电阻	1KΩ 0603 5%	R3	1	
8	贴片电阻	4.7KΩ 0603 5%	R8	1	
9	贴片电阻	10KΩ 0603 5%	R2	1	
10	贴片电阻	100KΩ 0603 1%	R1	1	
11	贴片电容	330P50V 0603 X7R	C8.11	2	
12	贴片电容	103K50V 0603 X7R	C6	1	
13	贴片电容	223K50V 0603 X7R	C3	1	
14	贴片电容	474K50V 0603 X7R	C5	1	
15	贴片电容	105K50V 0603 X7R	C1.2.4.7	4	
16	MOSFET	CWT3122 P-MOS DFN3*3	Q1	1	
17	IC	HUSB350 QFN16	U1	1	Hynetek

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