

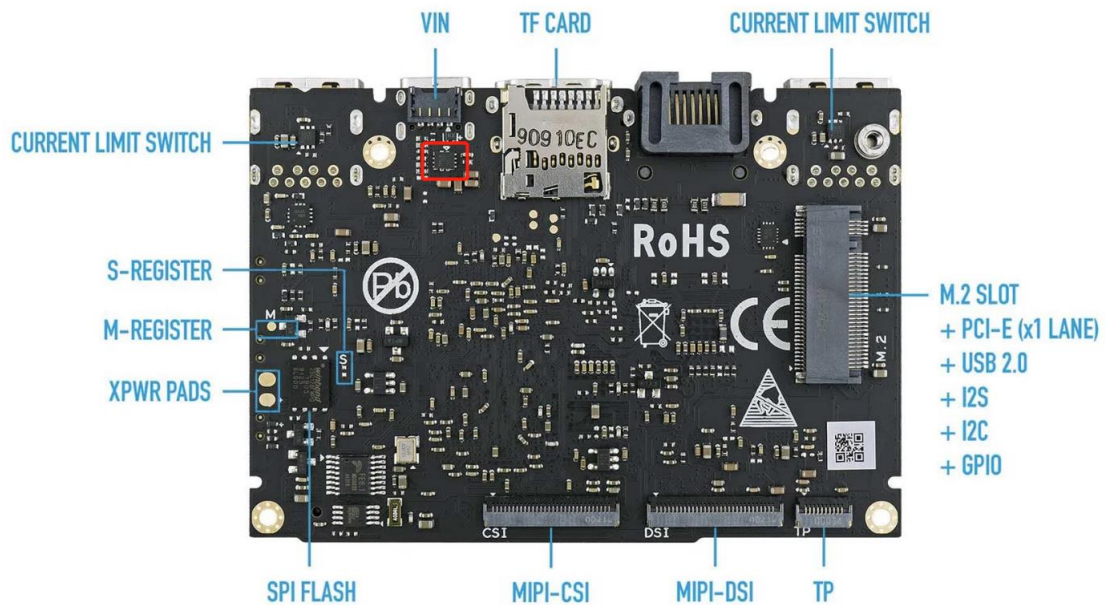
# VIM3 RESTOCKING ISSUES

Shortage of TPS2121RUXR Chip

## INTRODUCTION:

Khadas is experiencing an issue with restocking VIM3 single board computers, because the TPS2121RUXR chip that controls power source selection between USB-C and VIN is in short supply.

In this document, we will describe an alternate version of VIM3 for bulk orders and OEM projects, which does not use this chip. Retailers and Developers should continue to use the original version of VIM3.

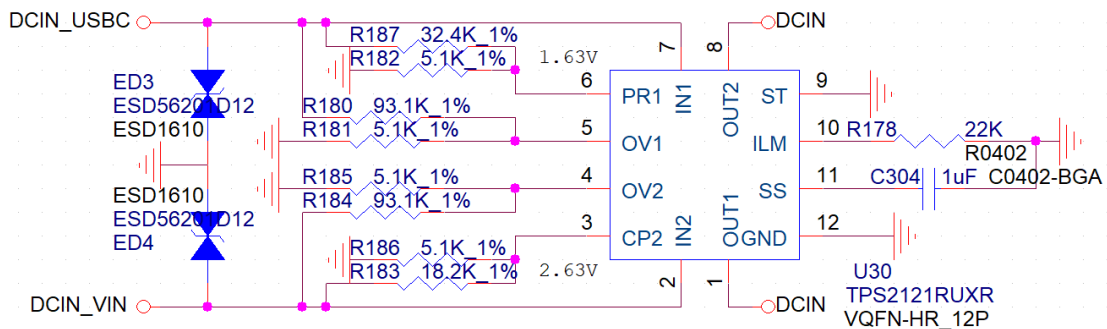


Datasheet: Texas Instruments [TPS2121RUXR](#) (U30) (highlighted in red above)

## STANDARD VERSION:

### 1. Schematics:

The original design includes TPS2121RUXR(Part No.: U30) and circuit diagram below:



## 2. Circuit Description:

- DCIN is the unified power supply for the system, and all power supplies for VIM3 are provided from DCIN.
- The TI TPS2121RUXR chip is for switching between the USB-C port (net DCIN\_USBC) and VIN (net DCIN\_VIN) power sources.
- Both DCIN\_USBC and DCIN\_VIN supply power to DCIN through the TPS2121RUXR chip.

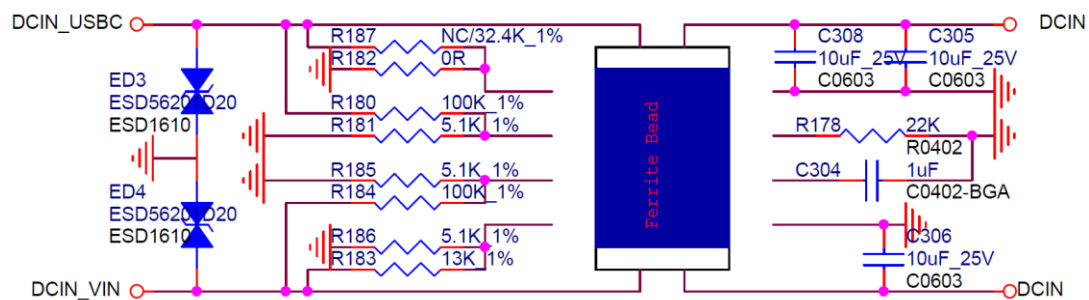
## 3. TPS2121RUXR Power Switching Logic Table:

USB-C Port (Net: DCIN_USBC)	VIN Connector (Net: DCIN_VIN)	Power Selection (DCIN)
● ON	○ OFF	USB-C
○ OFF	● ON	VIN
● ON	● ON	VIN

## ALTERNATE VERSION(A.k.a FB VERSION):

### 1. Schematics:

New Circuit Diagram replacing TPS2121RUXR with 0603 Ferrite Bead:

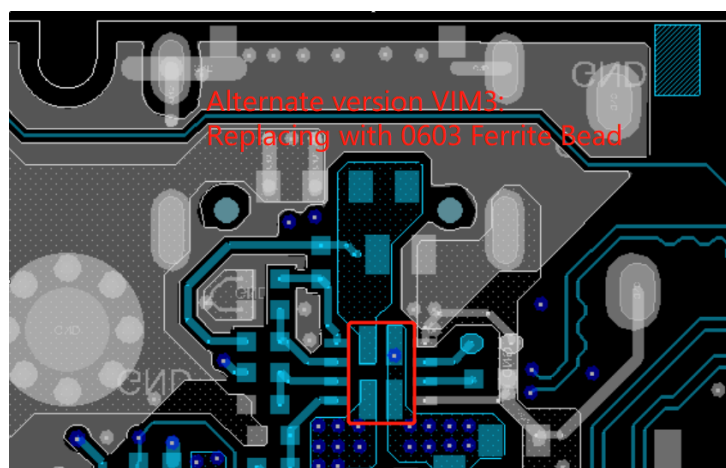


### 2. Circuit Description:

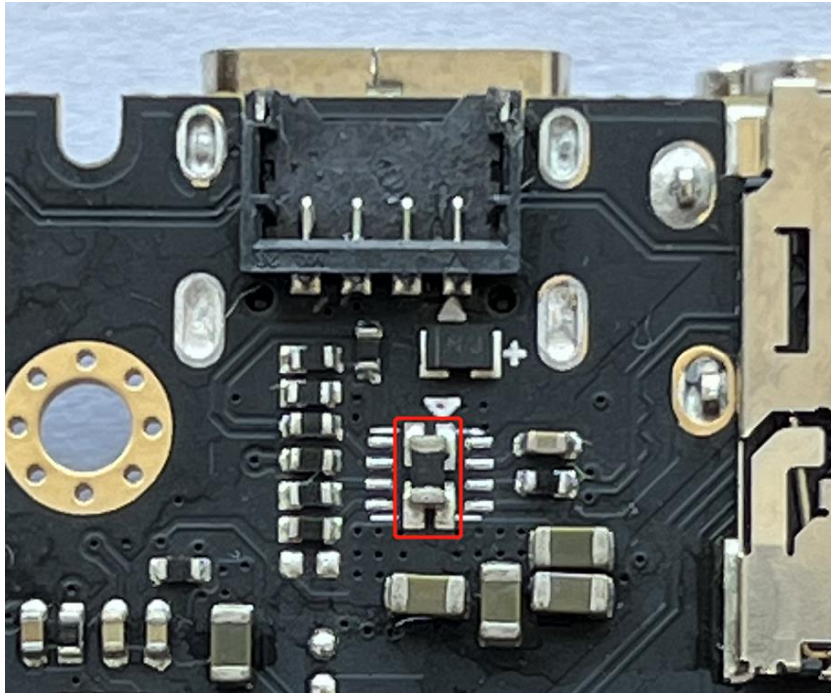
- DCIN is the unified power supply for the system, and all power supplies for VIM3 are provided from DCIN.
- DCIN\_USBC and DCIN\_VIN are shorted through the FB (ferrite bead), and power input from DCIN\_VIN will backflow to DCIN\_USBC.

### 3. New PCB Layout:

- PCB 2D Layout



b) PCBA Photograph:



c) Possible Risks:

Power Source	Risk Level	Remarks
USB-C Only	Safe! No issues.	
VIN Only		
USB-C + VIN at 5V		
USB-C and VIN > 5.5V	High Risk!	Will damage your PC!

\* Note: the standard version of VIM3 which includes the TPS2121RUXR chip, does not have this power-selection risk.

**FURTHER INFORMATION:**

1. This alternate version of VIM3 with ferrite bead is a temporary solution, and we will continue production of the original VIM3 once TPS2121RUXR becomes available.
2. The Ampak AP6398S Wi-Fi module is also in short supply. Depending on future circumstances, we may launch a new version of VIM3 with Wi-Fi 6 (AP6275S).
3. Contact our sales team or email [support@khdas.com](mailto:support@khdas.com) for more information.

Sorry for the inconvenience, and thanks for reading.