

RD3-0037.01.01 Hive Power Monitor

Created By: Connor Kirkpatrick
Reviewed By: Khoi Nguyen

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Notes Legend:

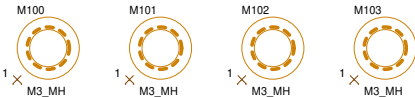
- Design Notes
- Temporary Notes
- PCB Layout Notes
- Additional Schematic or Component Information

Revision Notes

Revision 01.01: Initial revision created February 05, 2024

Board Parameters

Operating Temperature: 0-70C
I2C Addresses:
Power Monitor: 0xDE
GPIO Expander: 0x41



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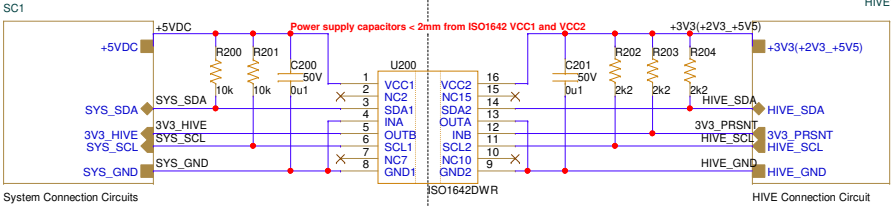
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01: Index				
Size	Document Number	Variant Name	Major Rev.	Minor Rev.
B	RD3-0037	Core Design	01	01
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System Connection

HIVE Connection

-Input Voltage Range: 12V-48V
-Monitor: Voltage, Current.
-Power toggle circuit

-Input Voltage Range: 2.3 -5.5V
-I2C and Power over CAT6 cable



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Title

02: Block Diagram

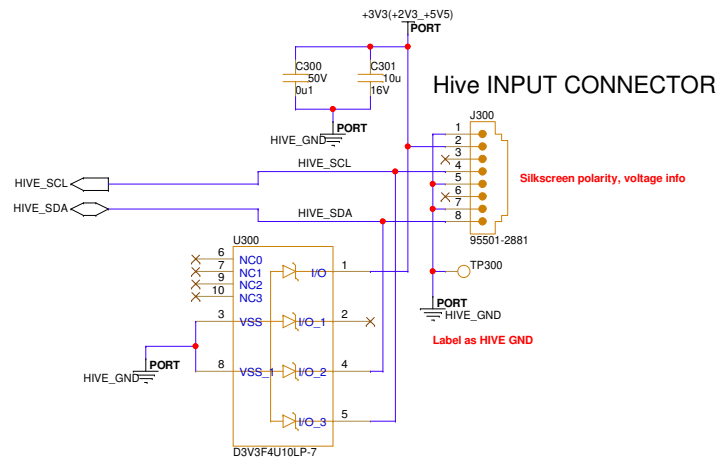
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Title 03: HIVE Connection Circuit				
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INPUT CONNECTOR

12V, 48V reverse input:
Inwm = 3mA, 15mA
12V, 48V correct input:
Inwm = 10uA, 50uA

Label as **RVS_GND**

OV Protection: 53.14V(max)

LCD MONITOR CONNECTOR

Pin 1: ADA3626 Load+ Pin 3: ADA3626 Battery+
Pin 2: ADA3626 Battery- Pin 4: ADA3626 Load+

OUTPUT CONNECTOR

Max Load Current = 16.384A

12-bit ADC
Current Sense=[binary value]x20uV/5mOhm
VIN=[binary value]x25mV
ADIN=[binary value]x0.5mVx2.5

Labels and Annotations:

- TP400:** Vwm: 48V Vclamp: 77.4V
- TP401:** Vwm: 48V Vclamp: 77.4V
- TP402:** Vwm: 48V Vclamp: 77.4V
- TP403:** Vwm: 48V Vclamp: 77.4V
- TP404:** Vwm: 48V Vclamp: 77.4V
- TP405:** Vwm: 48V Vclamp: 77.4V
- TP406:** Vwm: 48V Vclamp: 77.4V
- TP407:** Vwm: 48V Vclamp: 77.4V
- TP408:** Vwm: 48V Vclamp: 77.4V
- TP409:** Vwm: 48V Vclamp: 77.4V

Components and Connections:

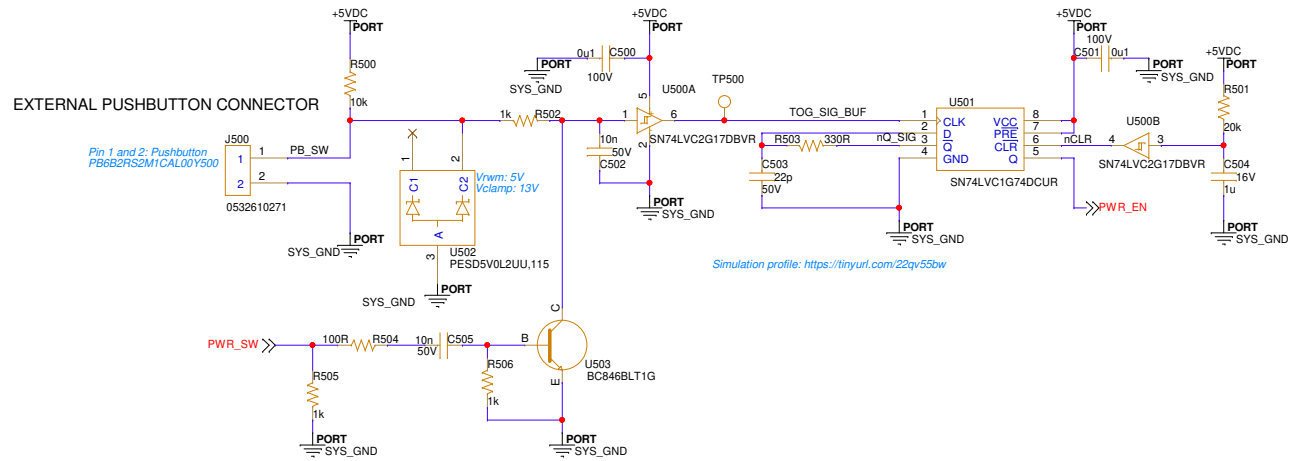
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I2C Address: 0x41
 IO0 (input): Read status of PWR_EN
 IO1 (output): Outputs switch signal from HIVE
 IO2 (output): Outputs HIVE connection status signal
 IO3: NC

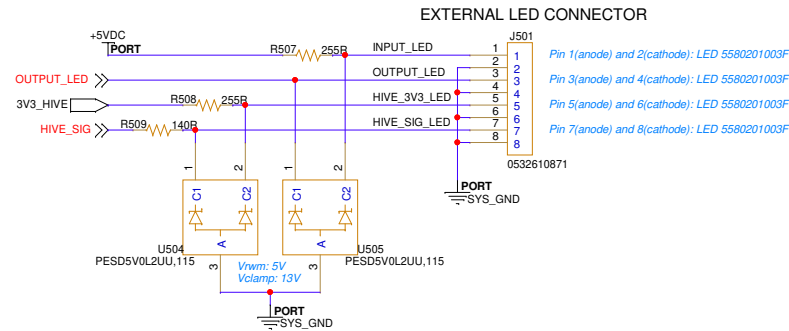
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Title				
04: Measurement, GPIOs & Supply				
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Switching Circuit



External LED Connector & Protection



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