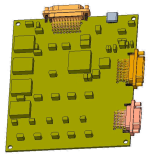
24 V DC-DC Power and Control Board

14 DC output rails from a 20–25 V DC input, with SPI, I²C and 3.3 V and 5 V TTL outputs. The USB Type-C port carries USB 2.0 data. VBUS only detects connection.



DC input and regulation

Parameter	Specification
Nominal DC input	+24 VDC
DC input range	+20 … +25 VDC
Conversion efficiency	≥85% · Rated input and load
Voltage regulation	≤1% · T_a = 25 ±5 °C · 100%
Output ripple and noise	≤100 mV · Rated input and load · T_a = 25 ±5 °C · BW = 20 MHz · 47 µF + 1 µF

DC output rails

Parameter	Specification
VO1 (+5V1)	+5 VDC · ≥2 A
VO2 (+5V2)	+5 VDC · ≥2 A
VO3 (+5V3)	+5 VDC · ≥0.15 A
VO4 (+6V)	+6 VDC · ≥2 A
VO5 (+12V1)	+12 VDC · ≥2 A
VO6 (+12V2)	+12 VDC · ≥2 A
VO7 (+12V3)	+12 VDC · ≥2 A
VO8 (+12V4)	+12 VDC · ≥2 A
VO9 (+12V5)	+12 VDC · ≥5 A
VO10 (+19V)	+19 VDC · ≥12 A
VO11 (+24V1)	+24 VDC · ≥2 A
VO12 (+24V2)	+24 VDC · ≥2 A
VO13 (+28V)	+28 VDC · ≥3 A
VO14 (−28V)	−28 VDC · ≥0.05 A

Control and communication

Parameter	Specification
SPI	XS2 · CS0, CS1, CS2, CS3, CS4
I²C	XS2 · SDA, SCL
TTL 3.3 V	XS2 · TTL0–TTL4
TTL 5 V	XS2 · TTL0–TTL4
Output enable	Each output rail
USB 2.0	XS3 · USB Type-C

Protection with automatic recovery

Parameter	Specification
Input reverse polarity	Provided
Output short circuit	Provided
Overtemperature	Provided

Temperature limits

Parameter	Specification
Operating temperature	−40 … +50 °C
Storage temperature	−40 … +80 °C

XS1 · J30J-25ZKW

Parameter	Specification
1–7, 14–19	GND
8–13, 20–25	+VIN

XS2 · J30J-31ZKW

Parameter	Specification
1–10	GND
11	SDA
12	SCL
13	VCC (3.3 V)
14	CS2

XS2 · J30J-31ZKW

Parameter	Specification
15	CS3
16	CS4
17	3.3V-TTL0
18	3.3V-TTL1
19	3.3V-TTL2
20	3.3V-TTL3
21	3.3V-TTL4
22	5.0V-TTL0
23	5.0V-TTL1
24	5.0V-TTL2
25	5.0V-TTL3
26	5.0V-TTL4
27	MOSI
28	MISO
29	SCLK
30	CS0
31	CS1

XS3 · USB Type-C

Parameter	Specification
A1, B1, A12, B12	GND
A4, A9, B4, B9	VBUS
A5	CC1
B5	CC2
A6, B6	D+
A7, B7	D–

XS4 · J30J-37TJW

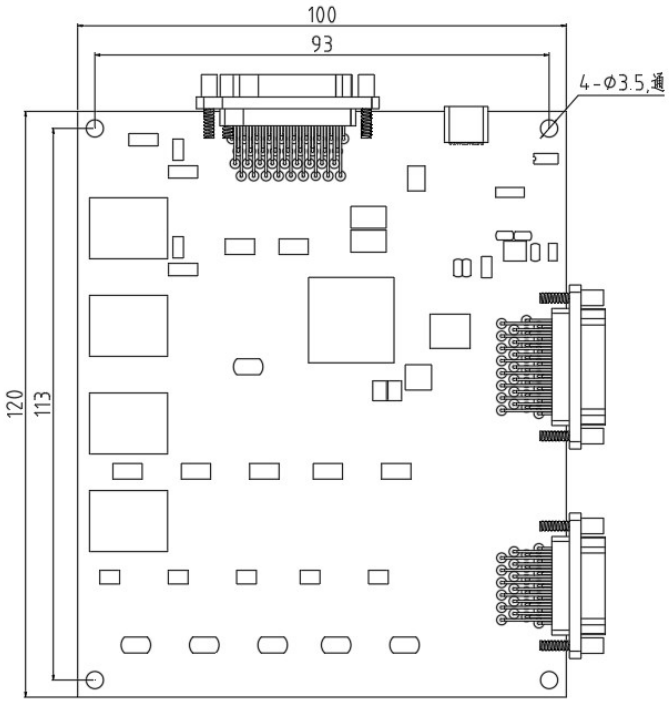
Parameter	Specification
1–16	GND
17–19, 36	+19V

XS4 · J30J-37TJW

Parameter	Specification
20–21	+12V5
22–23	+28V
24	+24V1
25	+24V2
26–27	+5V1
28–29	+5V2
30	+5V3
31	+6V
32	+12V1
33	+12V2
34	+12V3
35	+12V4
37	−28V

Mechanical dimensions

Parameter	Specification
PCB outline	100 × 120 mm
Mounting holes	4 × Ø3.5 mm
Mounting hole center spacing	93 × 113 mm
Board mass	200 g



Document notice

Specifications are subject to revision. Before design release, confirm the current document revision and product-specific requirements with LCRF. The approved quotation and order documentation define the supplied configuration.