



EGPU-3401

M.2 to four USB 3.0 Module

Customer:	
Customer	
Part Number:	
Innodisk	
Part Number:	
Innodisk	
Model Name:	
Date:	

Innodisk	Customer
Approver	Approver

Total Solution For
Embedded Peripherals

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REVISION HISTORY

Revision	Description	Date
1.0	First Released	Dec, 2024

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1. Product Introduction

1.1. Overview

Innodisk EGPU-3401 is designed with standard M.2 2280 form factor, EGPU-3401 supports PCIe Gen 2.0 with a single lane to four independent USB 3.0 ports. EGPU-3401 supports USB battery charging specification rev. 1.2 and compliant with xHCI 1.0, USB 3.0 rev 1.0 which brings you a flexible design for small form factor or embedded systems.

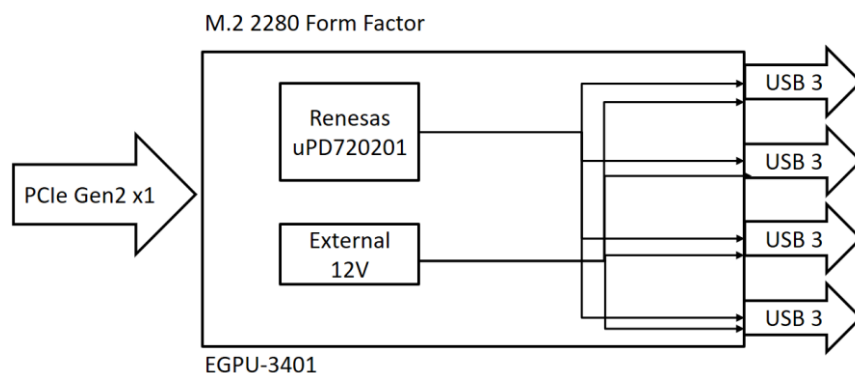


Figure 1: Block Diagram

1.2. Features

- M.2 2280 B-M Key
- Compliant with PCI Express Base Specification Revision 2.0
- Compliant with USB 3.0 Specification Revision 1.0, up to 5Gbs
- Compliant with xHCI 1.0
- Supports 4 USB 3.0 Ports (Share PCIe Gen 2 x1 Bandwidth)
- With 12V External Power
- Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV
- Optional Industrial Temperature (-40°C to +85°C) support
- Industrial Design, Manufactured in Innodisk Taiwan



Figure 2: M.2 2280 Board Picture



Figure 3: 19pin Pitch 2.0 Connector to 2 USB 3.0 Cable



Figure 4: 4pin Power Cable

2. Product Specifications

2.1. Device Parameters

Table 1: Device Parameters

Form Factor	M.2 2280 B+M Key
Input I/F	PCI Express 2.0 x 1
Output I/F	USB 3.0 x 4
Output Connector	19 Pin Pitch 2.0 Connector
Dimension (WxLxH)	M.2 2280: 22.0 x 80.0 x 8.4 mm

2.2. Electrical Specifications

2.2.1. Power Requirement

Table 2: Power Requirement

Item	Connector	Rating
Input voltage	M.2 Golden Finger	+3.3 DC +-5%

2.2.2. Power Consumption

Table 3: Power Consumption

Full Load (mA)	Voltage (V)
427.2	3.3

2.3. Environmental Specifications

2.3.1. Temperature Ranges

Table 4: Temperature Ranges

Temperature	Range
Operating	Standard Grade: 0°C to +70°C Industrial Grade: -40°C to +85°
Storage	-55°C to +95°

2.3.2. Humidity

Relative Humidity: 10-95%, non-condensing

2.3.3. Shock and Vibration

Table 5: Shock and Vibration

Reliability	Test Conditions	Reference Standards
Vibration	7 Hz to 2K Hz, 20G, 3 axes	IEC 68-2-6
Mechanical Shock	Duration: 0.5ms, 1500 G, 3 axes	IEC 68-2-27

2.3.4. Mean Time between Failure (MTBF)

Reliability prediction methodology provides the basis for reliability evaluation and analysis. The purpose of the prediction is to predict the life time of the product in units of failure rate and MTBF.

Table 6: Mean Time between Failure (MTBF)

Product	Condition	MTBF (Hours)
EGPU-3401-C1	The analysis is at 25°C ambient temperature by Telcordia SR-332, Issues 4, Method I, Case 3 under Ground Benign, Controlled environment, 50% operation stress	16,730,134
EGPU-3401-W1	The analysis is at 25°C ambient temperature by Telcordia SR-332, Issues 4, Method I, Case 3 under Ground Benign, Controlled environment, 50% operation stress	17,143,322

2.4. CE and FCC Compatibility

EGPU-3401 conforms to CE and FCC requirements.

2.5. RoHS Compliance

EGPU-3401 is fully compliant with RoHS directive.

2.6. Hardware

2.6.1. Layout

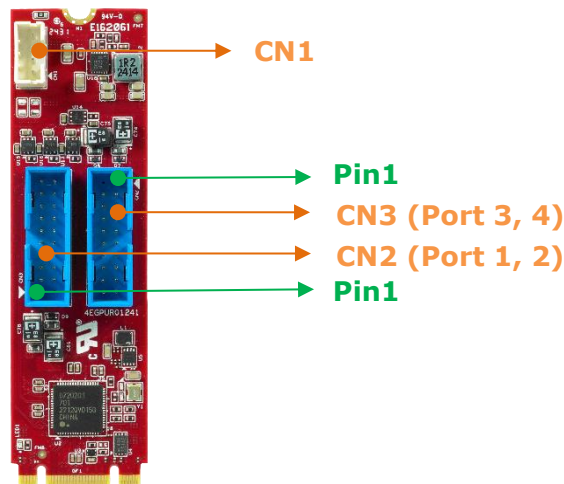


Table 7: M.2 2280 B-M Key PCB Layout Legend

Label	Connector Type	Function
CN1	4 Pin Header P:2.0mm	External 12V Power
CN2/3	DIP 2*10P(cut 1pin) 90° P:2.0mm	USB 3.0 Signal

2.6.2. How to Unplug USB 3.0 19pin Connectors from Mainboard

The USB 3.0 19pin connector is a standard connector that is not designed for multi-times plug/unplug usage. The purpose of the USB 3.0 19pin connector is to securely connect when the cable is plugged in, not to allow users to unplug easily. Therefore, there are small tabs located on the cable connector that clips into the pin header connector from the inside.

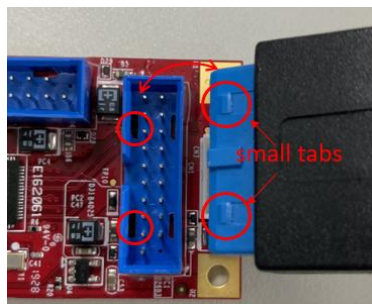


Figure 5. Small tabs on the USB 3.0 19pin connector

To pull off the USB 3.0 cable, DO NOT unplug the USB cable from the module directly, Wiggle Left-Right to release the small tabs from sockets then unplug the cable, refer to the below pictures for

example:

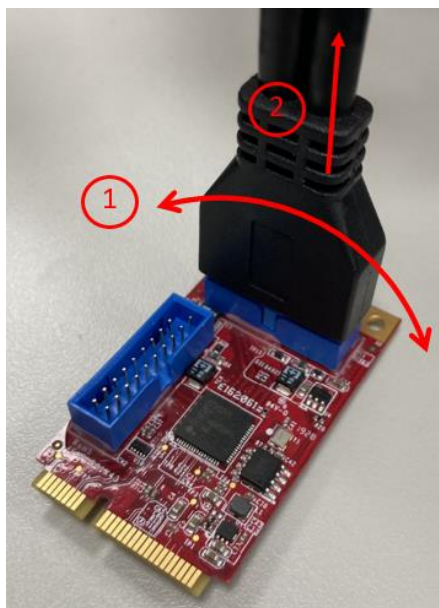


Figure 6. Wiggle Left- Right then unplug the cable

2.6.3. Pin Define

Table 8: M.2 B-M Key Pin Define

Signal Name	Pin #	Pin #	Signal Name
		75	GND
3.3V	74	73	GND
3.3V	72	71	GND
3.3V	70	69	NC
NC	68	67	NC
Module Key M			
NC	58		
NC	56	57	GND
PE_WAKE_N	54	55	CLK+
CLK_REQ	52	53	CLK-
PE_RST	50	51	GND
NC	48	49	RX+
NC	46	47	RX-
NC	44	45	GND
NC	42	43	TX+
NC	40	41	TX-
NC	38	39	GND

NC	36	37	NC
NC	34	35	NC
NC	32	33	GND
NC	30	31	NC
NC	28	29	NC
NC	26	27	GND
NC	24	25	NC
NC	22	23	NC
NC	20	21	GND
Module Key B			
NC	10	11	NC
NC	8	9	NC
NC	6	7	NC
3.3V	4	5	NC
3.3V	2	3	GND
		1	GND

2.6.4. I/O Connector Mechanical Drawing & Pin Defines

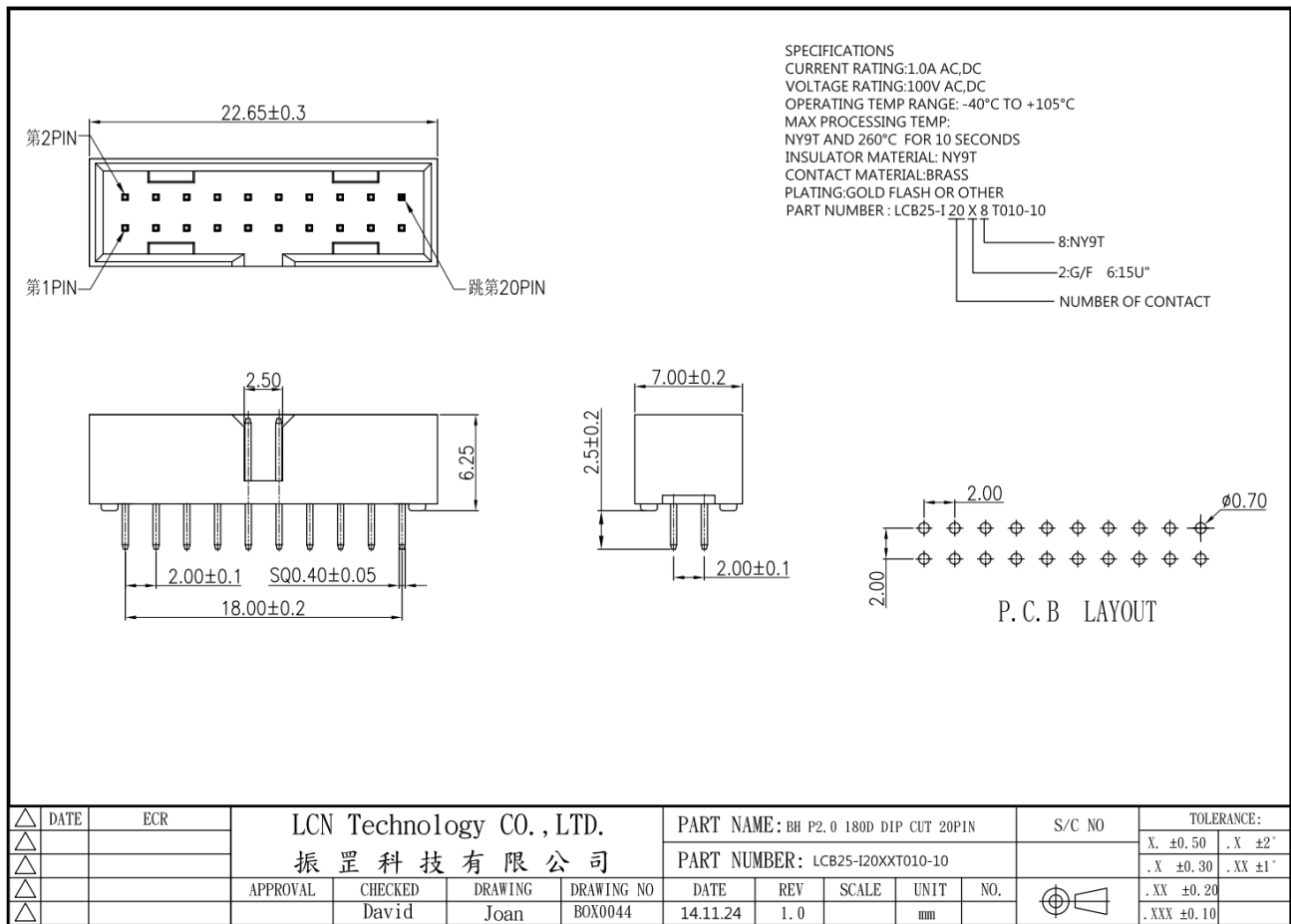


Figure 7: Wire to Board SMD 2*10P (cut 1pin) Connector Drawing

Table 9: Wire to Board SMD 2*10P (cut 1pin) Connector (CN2) Pin Define

Signal Name	Pin #	Pin #	Signal Name
NC	10	11	U2P2_D+
U2P1_D+	9	12	U2P2_D-
U2P1_D-	8	13	GND
GND	7	14	U3P2_TXDP
U3P1_TXDP	6	15	U3P2_TXDN
U3P1_TXDN	5	16	GND
GND	4	17	U3P2_RXDP
U3P1_RXDP	3	18	U3P2_RXDN
U3P1_RXDN	2	19	5V_P2
5V_P1	1		

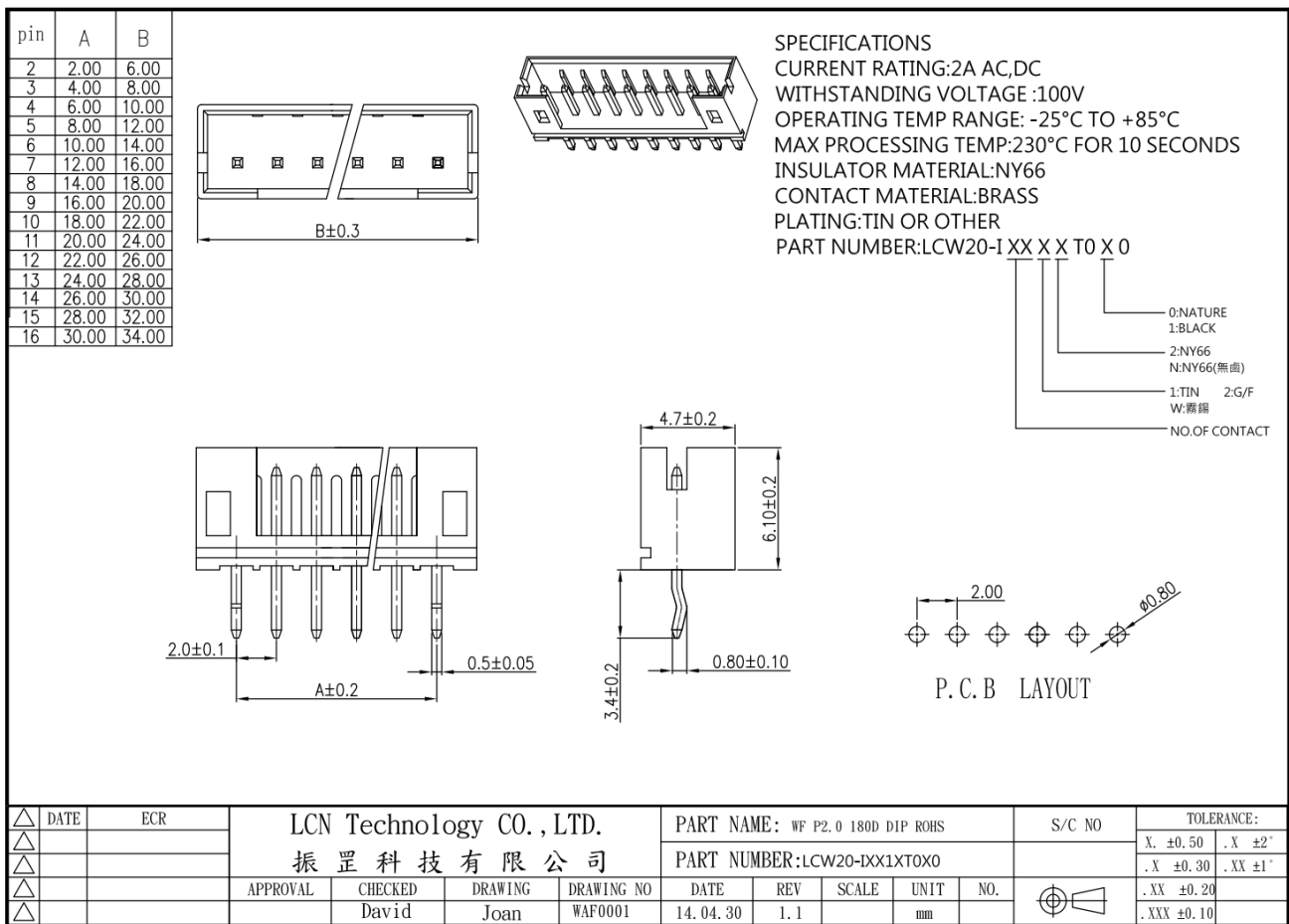


Figure 8: 4 Pin Header P:2.0mm Drawing

Table 10: 4 Pin Header (CN1) Pin Define

Signal Name	Pin #
12V	1
GND	2
GND	3
12V	4

2.6.5. EGPU-3201 Mechanical Drawing

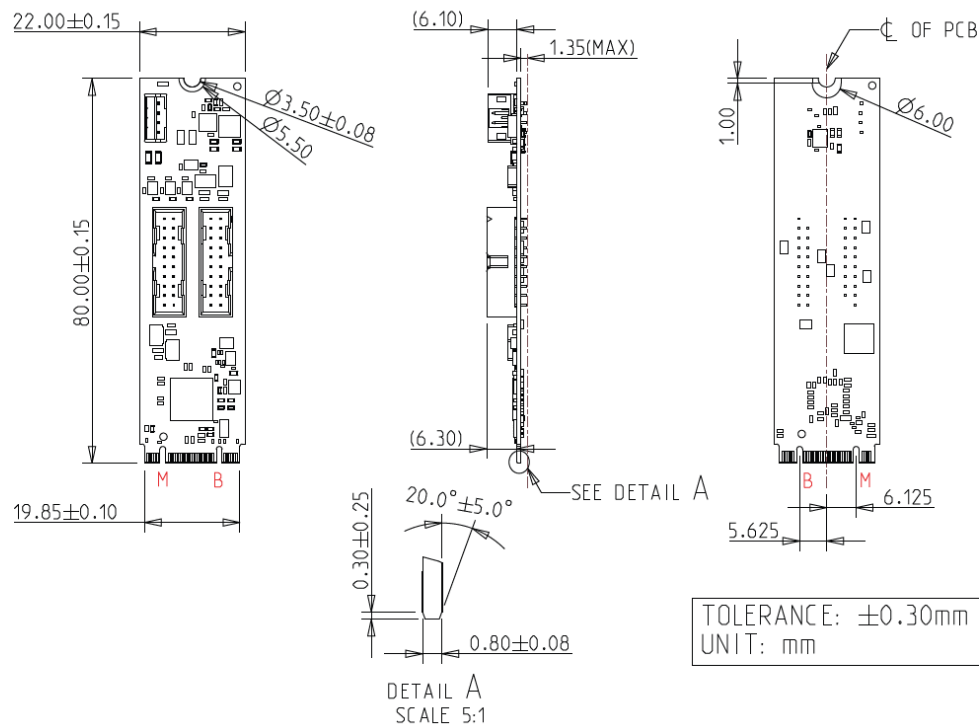


Figure 9: EGPU-3401 M.2 B-M Key Board Drawing

2.6.6. Cable Mechanical Drawing

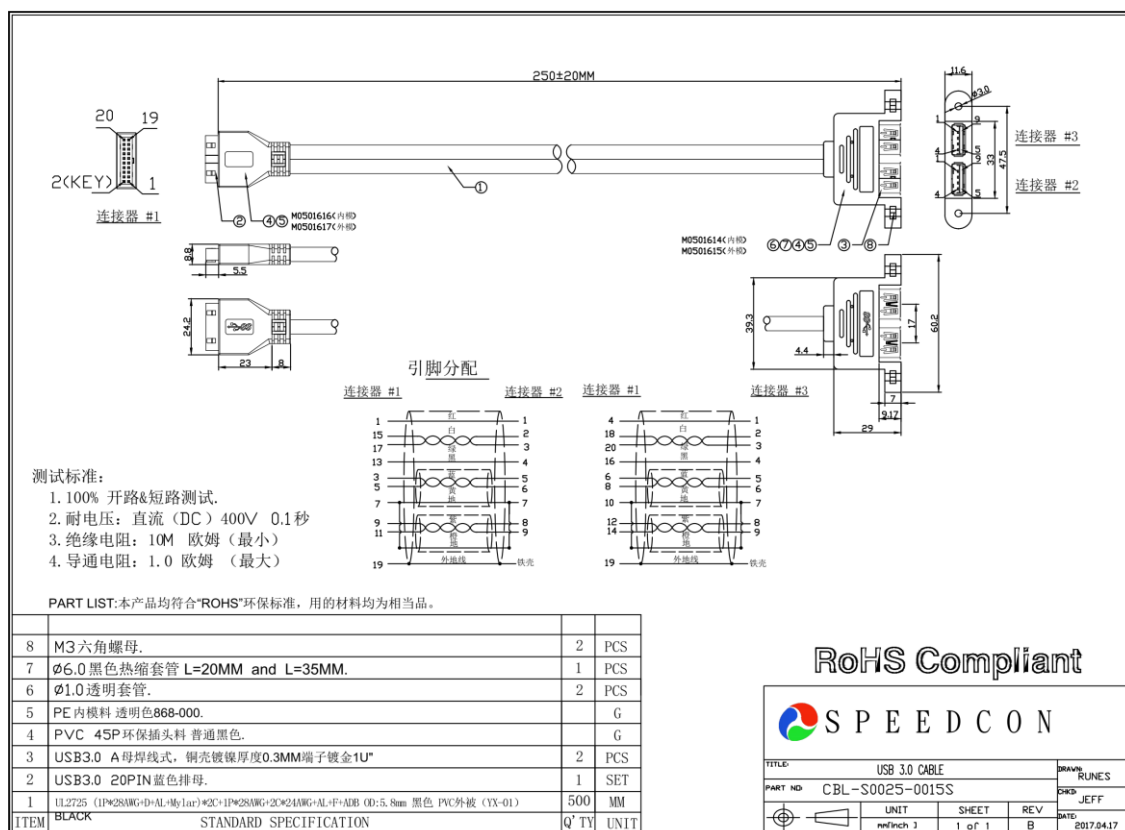
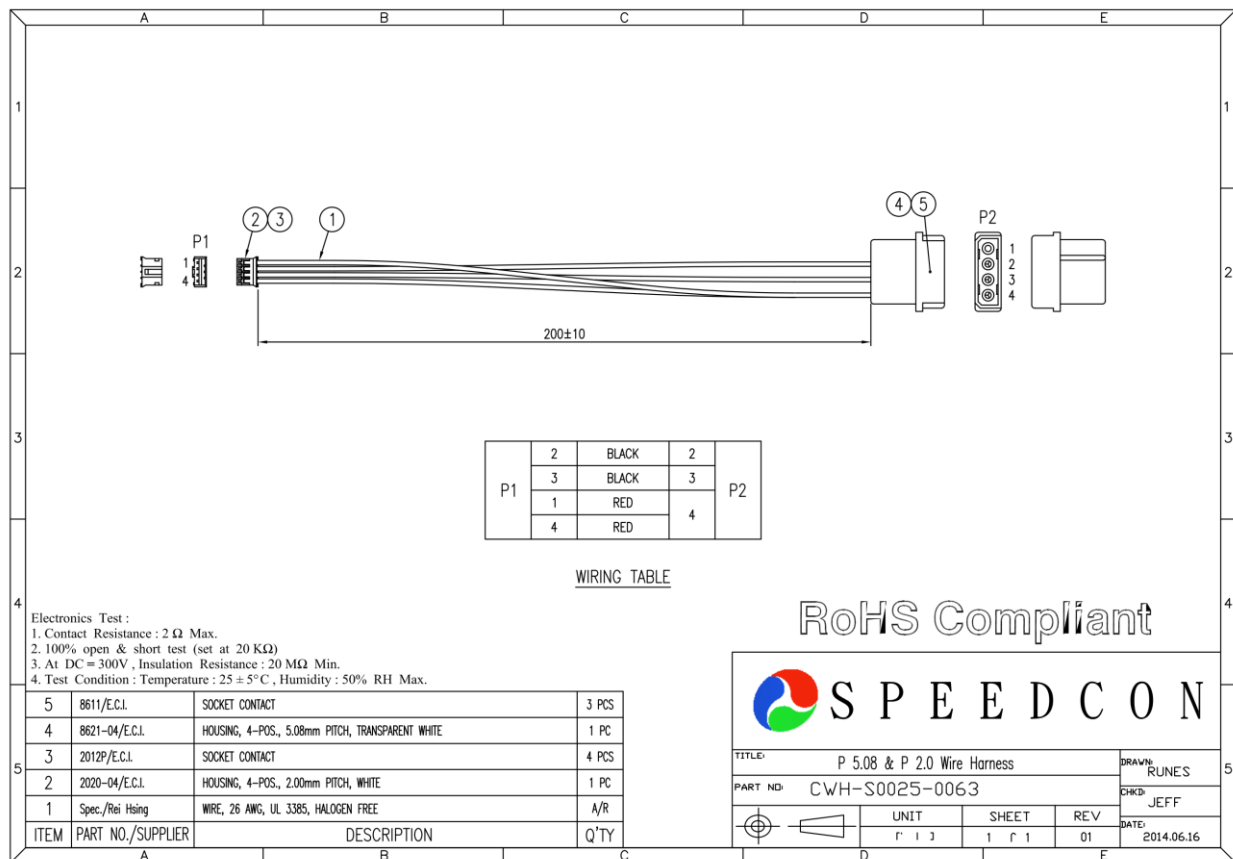


Figure 10: 19pin Pitch 2.0 Connector to 2 USB Cable Drawing**Figure 11: 4 Pin Header Pitch 2.0 Power Cable Drawing****2.6.7. Packing List**

- EGPU-3401 M.2 B-M Key Board x 1
- 19pin Pitch 2.0 Connector to 2 USB Cable x 1
- 4pin Pitch 2.0 Power Cable x 1

2.7. Software Support

- Windows: XP(32bit), 7(32/64bit), 8/8.1(32/64 bit), 10(32/64bit), 11(32/64bit)
 - Linux: Kernel v2.6 above.
- After Win8 and Linux Kernel v2.6.31 supports built-in xHCI 1.0 driver.

2.8. Application Note

EGPU-3401 module doesn't support OC(Over Current) warning.

3. Appedix

innodisk

宜鼎國際股份有限公司 Innodisk Corporation REACH Declaration

Tel:(02)7703-3000 Fax:(02) 7703-3555 Internet: <https://www.innodisk.com/>

Innodisk Corporation pursues its social responsibility for global environmental preservation by committing to be compliant with REACH regulation (REGULATION (EC) No 1907/2006). We hereby confirm that the product(s),

Scope: Flash Memory, DRAM module and Embedded peripherals products.

- The standard products of not listed in the **Appendix2** meet the requirements of REACH SVHC regulations(SVHCs < 0.1% in Article), as described in the candidate list table currently including 211 substances and shown on the ECHA website. (<http://echa.europa.eu/de/candidate-list-table>).
- Contain(s) one or more hazardous substances or constituents exceeding 0.1 % by weight in article if not otherwise specified in candidate list table.
Where the threshold value is exceeded, the substances in question are to be declared in accompanying. (SVHCs > 0.1% in Article).
- Comply with REACH Annex XVII.

Guarantor

Company name 公司名稱: Innodisk Corporation 宜鼎國際股份有限公司

Company Representative 公司代表人: Yichuan Chen 陳怡全

Company Representative Title 公司代表人職稱: QA Manager 品保經理

Date 日期: 2021 / 03 / 03

RoHS 自我宣告書(RoHS Declaration of Conformity)

Manufacturer Products: All Innodisk EM FLASH, DRAM and EP products

- 一、 宜鼎國際股份有限公司（以下稱本公司）特此保證售予貴公司之所有產品，皆符合歐盟 2011/65/EU 及(EU) 2015/863 關於 RoHS 之規範要求。
Innodisk Corporation declares that all products sold to the company, are complied with European Union RoHS Directive (2011/65/EU) and (EU) 2015/863 requirement.
- 二、 本公司同意因本保證書或與本保證書相關事宜有所爭議時，雙方宜友好協商，達成協議。
Innodisk Corporation agrees that both parties shall settle any dispute arising from or in connection with this Declaration of Conformity by friendly negotiations.
- 三、 本公司聲明我們的產品符合 RoHS 指令的附件中(7a)、(7c-I)允許豁免。
We declare, our products permitted by the following exemptions specified in the Annex of the RoHS directive.
- ※ (7a) Lead in high melting temperature type solders(i.e. lead-based alloys containing 85% by weight or more lead).
- ※ (7C-I) Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectric devices, or in a glass or ceramic matrix compound.

Name of hazardous substance	Limited of RoHS ppm (mg/kg)
鉛 (Pb)	< 1000 ppm
汞 (Hg)	< 1000 ppm
鎘 (Cd)	< 100 ppm
六價鉻 (Cr 6+)	< 1000 ppm
多溴聯苯 (PBBs)	< 1000 ppm
多溴二苯醚 (PBDEs)	< 1000 ppm
鄰苯二甲酸二(2-乙基己基)酯 (DEHP)	< 1000 ppm
鄰苯二甲酸丁酯苯甲酯 (BBP)	< 1000 ppm
鄰苯二甲酸二丁酯 (DBP)	< 1000 ppm
鄰苯二甲酸二異丁酯 (DIBP)	< 1000 ppm

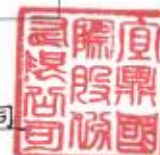
立 保 證 書 人 (Guarantor)

Company name 公司名稱: Innodisk Corporation 宜鼎國際股份有限公司

Company Representative 公司代表人: Randy Chien 簡川勝

Company Representative Title 公司代表人職稱: Chairman 董事長

Date 日期: 2020 / 03 / 03



CERTIFICATE OF CONFORMITY



Product : M.2 to Dual USB3 Module
Brand : Innodisk
Test Model : EGPU-3201
Series Model : E%PU-3201
 %: Form factor: (2: 2.5"SSD,3:DDR3
 DIMM,D:Dongle,G:NGFF_M.2,H:mPCIe Half,L:PCIe Low
 profile,M:mPCIe,S:PCIe Standard,X:Multi,Z:Others)
Applicant : Innodisk Corporation
Report No. : CEBDBO-WTW-P21100284

We, **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, declare that the equipment above has been tested in our facility and found compliance with the requirement limits of applicable standards, in accordance with the Directive 2014/30/EU. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate under the standards herein specified.

EN 55032:2015 +A11:2020, Class B

EN 61000-3-2:2014 (Not applicable)

EN 61000-3-3:2013 (Not applicable)

EN 55035:2017 +A11:2020

EN 61000-4-2:2009 / IEC 61000-4-2:2008 ED. 2.0

EN 61000-4-3:2006 +A1:2008 +A2:2010 / IEC 61000-4-3:2010 ED. 3.2

EN 61000-4-4:2012 / IEC 61000-4-4:2012 ED. 3.0 (Not applicable)

EN 61000-4-5:2014 +A1:2017 / IEC 61000-4-5:2017 ED. 3.1 (Not applicable)

EN 61000-4-6:2014+AC:2015 / IEC 61000-4-6:2013 ED. 4.0 (Not applicable)

EN 61000-4-8:2010 / IEC 61000-4-8:2009 ED. 2.0

EN 61000-4-11:2004 +A1: 2017 / IEC 61000-4-11:2017 ED. 2.1 (Not applicable)

NOTE: The above EN/IEC basic standards are applied with latest version if customer has no special requirement.

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2021/11/2

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CERTIFICATE OF CONFORMITY



Product : M.2 to Dual USB3 Module
Brand : Innodisk
Test Model : EGPU-3201
Series Model : E%PU-3201
%: Form factor: (2: 2.5"SSD,3:DDR3 DIMM,D:Dongle,G:NGFF_M.2,H:mPCIe
Half,L:PCIe Low profile,M:mPCIe,S:PCIe Standard,X:Multi,Z:Others)
Applicant : Innodisk Corporation
Report No. : FDBDBO-WTW-P21100284

We, **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, declare that the equipment above has been tested in our facility and found compliance with the requirement limits of applicable standards. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate under the standards herein specified.

47 CFR FCC Part 15, Subpart B, Class B

ANSI C63.4:2014



Jim Hsiang / Associate Technical Manager

2021/11/2

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January 15, 2026