



EGPL-G101

M.2 to single isolated GbE LAN Module

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

Innodisk	Customer
Approver	Approver

Total Solution For
Embedded Peripherals

Table of Contents

TABLE OF CONTENTS	I
REVISION HISTORY	II
LIST OF TABLES	1
LIST OF FIGURES	2
1. PRODUCT INTRODUCTION	3
1.1. OVERVIEW	3
1.2. FEATURES	3
2. PRODUCT SPECIFICATIONS	5
2.1. DEVICE PARAMETERS	5
2.2. ELECTRICAL SPECIFICATIONS	5
2.2.1. POWER REQUIREMENT	5
2.2.2. POWER CONSUMPTION	5
2.3. ENVIRONMENTAL SPECIFICATIONS	5
2.3.1. TEMPERATURE RANGES	5
2.3.2. HUMIDITY	6
2.3.3. SHOCK AND VIBRATION	6
2.3.4. MEAN TIME BETWEEN FAILURE (MTBF)	6
2.4. CE AND FCC COMPATIBILITY	6
2.5. RoHS COMPLIANCE	6
2.6. HARDWARE	7
2.6.1. LAYOUT	7
2.6.2. PIN DEFINE	8
2.6.3. I/O CONNECTOR MECHANICAL DRAWING & PIN DEFINES	9
2.6.4. EGPL-G101 MECHANICAL DRAWING	13
2.6.5. CABLE MECHANICAL DRAWING	15
2.6.6. PACKING LIST	15
2.7. SOFTWARE SUPPORT	15
3. INSTALLATION GUIDE	16
4. APPEDIX	17
CONTACT US	21

REVISION HISTORY

Revision	Description	Date
1.0	First Released	Sep, 2018

List of Tables

TABLE 1: DEVICE PARAMETERS	5
TABLE 2: POWER REQUIREMENT.....	5
TABLE 3: POWER CONSUMPTION	5
TABLE 4: TEMPERATURE RANGES.....	5
TABLE 5: SHOCK AND VIBRATION	6
TABLE 6: MEAN TIME BETWEEN FAILURE (MTBF).....	6
TABLE 7: M.2 2280 PCB LAYOUT LEGEND.....	7
TABLE 8: DAUGHTER BOARD PCB LAYOUT LEGEND	7
TABLE 9: M.2 B-M KEY PIN DEFINE	8
TABLE 10: WIRE TO BOARD SMD 2*10P CONNECTOR PIN DEFINE.....	9
TABLE 11: RJ45 LAN LED TABLE.....	12

List of Figures

FIGURE 1: BLOCK DIAGRAM	3
FIGURE 2: M.2 2280 BOARD PICTURE.....	4
FIGURE 3: MOUNTING HOLE DAUGHTER BOARD PICTURE (EGPL-G101-C1/W1).....	4
FIGURE 4: BRACKET DAUGHTER BOARD PICTURE (EGPL-G101-C2/W2).....	4
FIGURE 5: WIRE TO BOARD SMD 2*10P CONNECTOR DRAWING.....	9
FIGURE 6: RJ45 CONNECTOR DRAWING	11
FIGURE 7: EGPL-G101 M.2 BOARD DRAWING	13
FIGURE 8: MOUNTING HOLE DAUGHTER BOARD DRAWING (EGPL-G101-C1/W1)	13
FIGURE 9: BRACKET DAUGHTER BOARD DRAWING (EGPL-G101-C2/W2).....	14
FIGURE 10: BRACKET DRAWING	14
FIGURE 11: BOARD TO BOARD LAN CABLE DRAWING.....	15

1. Product Introduction

1.1. Overview

Innodisk EGPL-G101 is designed with M.2 2280 form factor with B/M key, EGPL-G101 supports PCIe Gen 2.1 with a single lane to single isolated GbE LAN, optimized for higher performance and lower power, which brings you a flexible expansion solution for embedded systems.

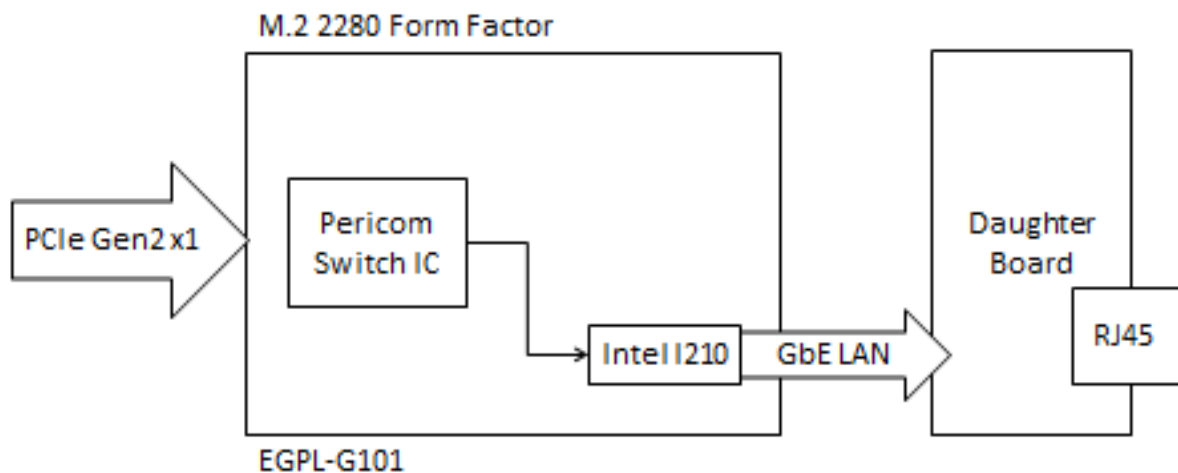


Figure 1: Block Diagram

1.2. Features

- Single isolated GbE LAN ports
- Complies with EN61000-4-5 2kV Surge protection
- Complies with IEC 60950-1:2005 + A1: 2009 + A2:2013 2kV HiPOT protection
- Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV
- Flexible daughter board with cable to fit into different system
- Optional terminal mounting hole or bracket for daughter board



Figure 2: M.2 2280 Board Picture

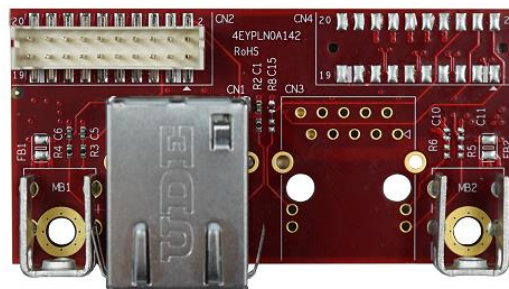


Figure 3: Mounting Hole Daughter Board Picture (EGPL-G101-C1/W1)

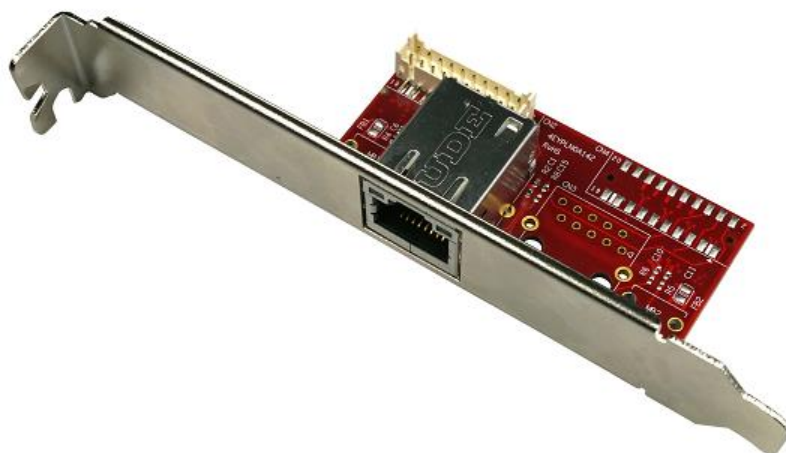


Figure 4: Bracket Daughter Board Picture (EGPL-G101-C2/W2)

2. Product Specifications

2.1. Device Parameters

Table 1: Device Parameters

Form Factor	M.2 2280 B-M
Input I/F	PCI Express 2.1 x 1
Output I/F	GbE LAN x 1
Output Connector	RJ45 x 1
Dimension (WxLxH)	M.2 Board: 22 x 80 x 7.1 mm Daughter Board: 30 x 59.95 x 19.37

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)
200	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)
EGPL-G101	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	37,334,947

2.4. CE and FCC Compatibility

EGPL-G101 conforms to CE and FCC requirements.

2.5. RoHS Compliance

EGPL-G101 is fully compliant with RoHS directive.

2.6. Hardware

2.6.1. Layout

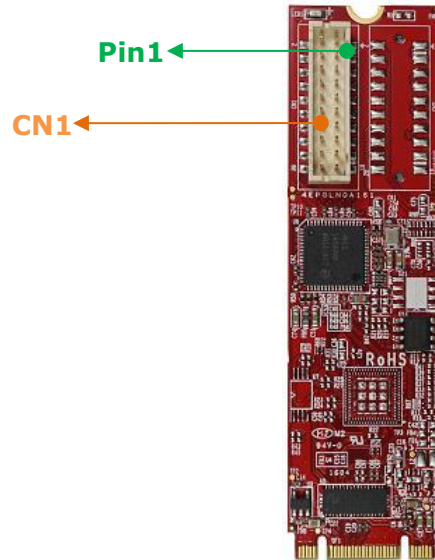


Table 7: M.2 2280 PCB Layout Legend

Label	Connector Type	Function
CN1	Wire to board SMD 2*10P 180° P:2.00mm H:4.0mm	GbE LAN Signal 10/100/1000 LED Signal

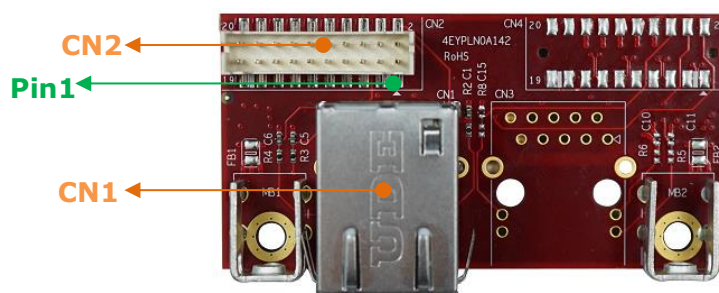


Table 8: Daughter Board PCB Layout Legend

Label	Connector Type	Function
CN1	10/100/1000 Base-T RJ45 DIP 10P8C 90° LED: Green-Orange/Green	GbE LAN Port 10/100/1000 LED Indicator
CN2	Wire to board SMD 2*10P 180° P:2.00mm H:4.0mm	GbE LAN Signal 10/100/1000 LED Signal

2.6.2. Pin Define

Table 9: M.2 B-M Key Pin Define

Signal Name	Pin #	Pin #	Signal Name
		75	NC
3.3V	74	73	GND
3.3V	72	71	GND
3.3V	70	69	NC
NC	68	67	RESET#
Module Key M			
NC	58		
NC	56	57	GND
PE_WAKE_N	54	55	CLK+
GND	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	NC
Module Key B			

NC	10	11	GND
NC	8	9	NC
NC	6	7	NC
3.3V	4	5	GND
3.3V	2	3	GND
		1	NC

2.6.3. I/O Connector Mechanical Drawing & Pin Defines

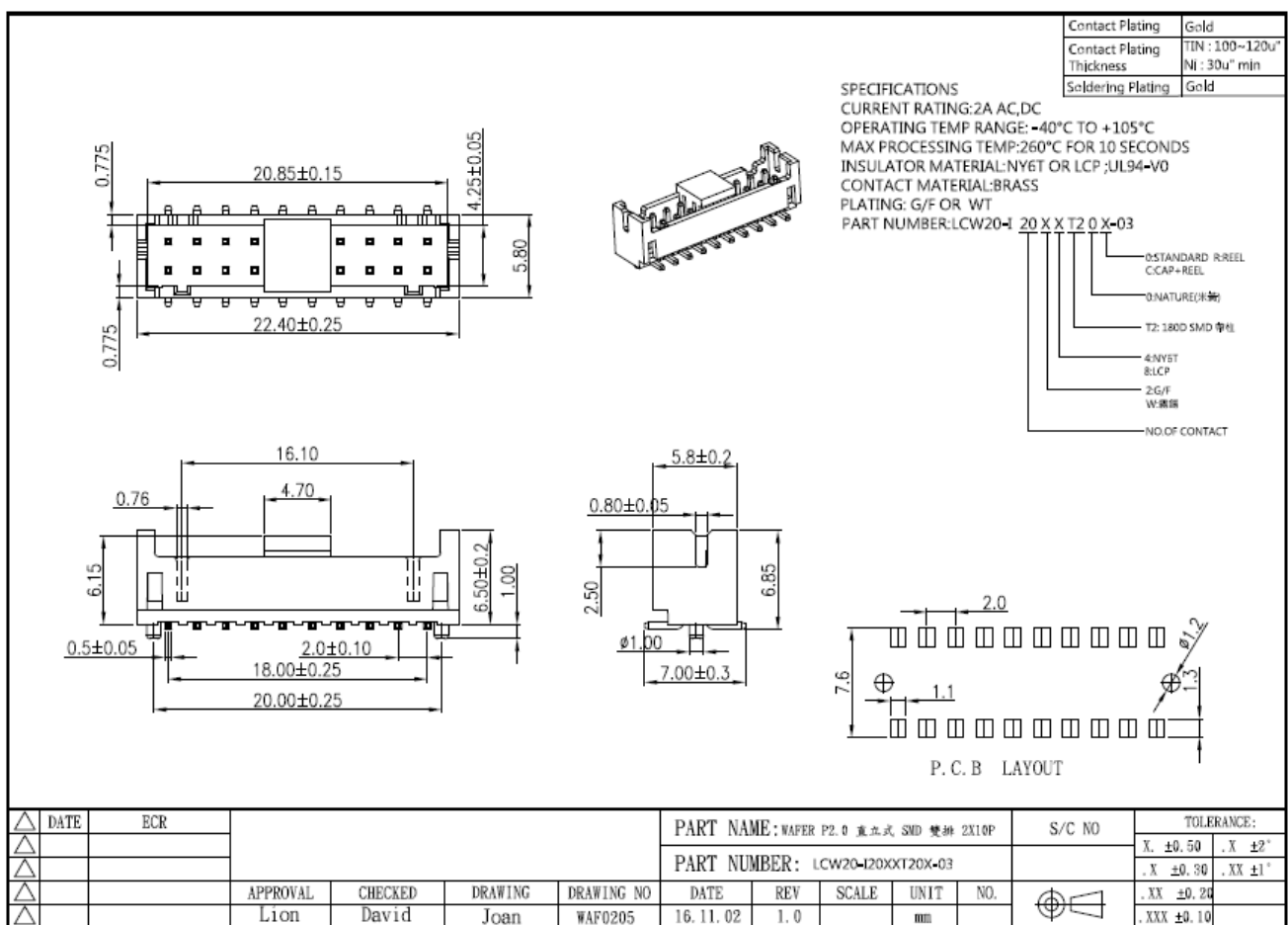


Figure 5: Wire to Board SMD 2*10P Connector Drawing

Table 10: Wire to Board SMD 2*10P Connector Pin Define

Signal Name	Pin #	Pin #	Signal Name
LINK_100_N	2	1	MDIOP_IC
LINK_ACT_N	4	3	MDION_IC

LINK_1000_N	6	5	MDI1P_IC
GND	8	7	MDI1N_IC
GND	10	9	MDI2P_IC
GND	12	11	MDI2N_IC
3.3V	14	13	MDI3P_IC
3.3V	16	15	MDI3N_IC
NC	18	17	NC
NC	20	19	NC

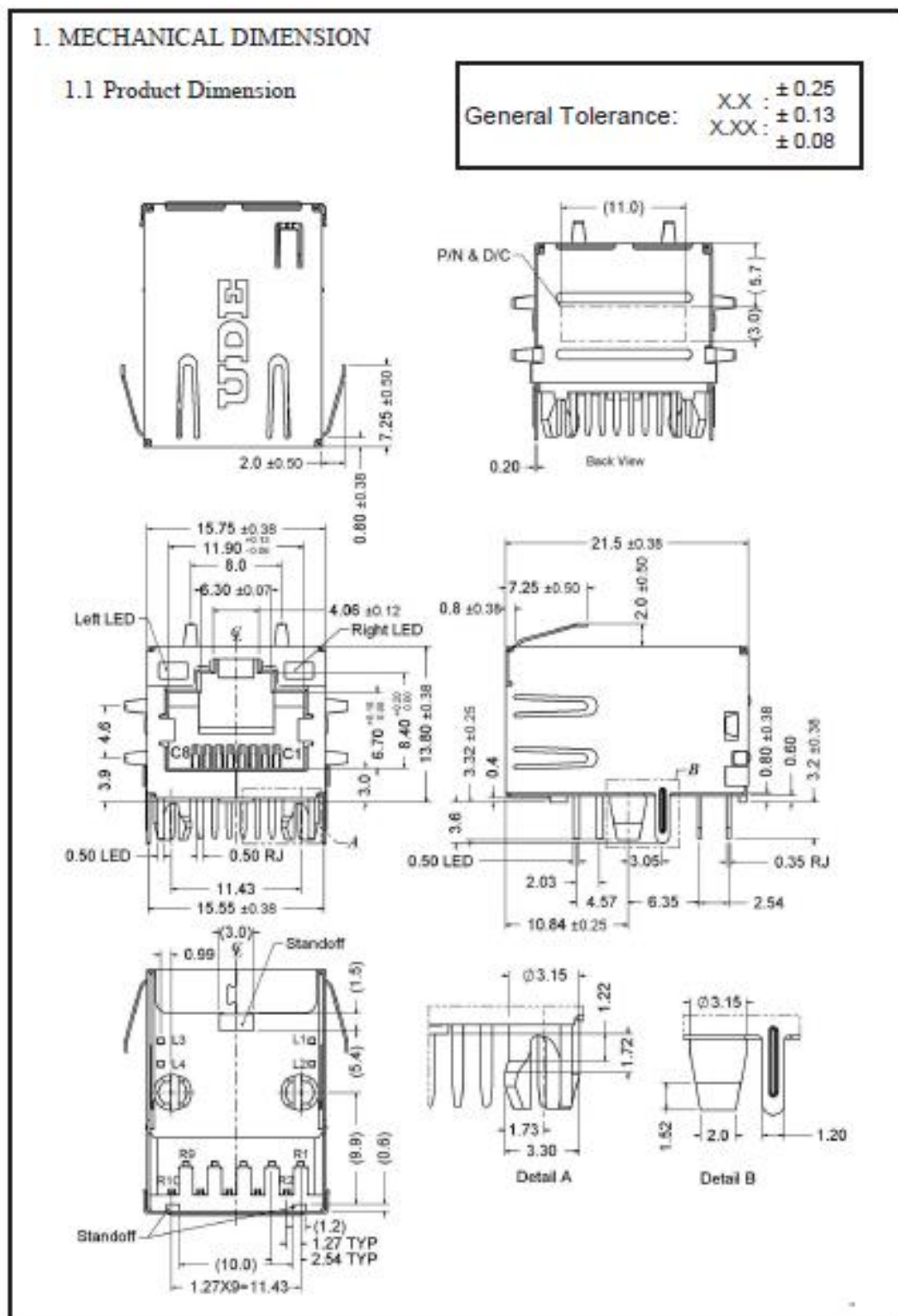
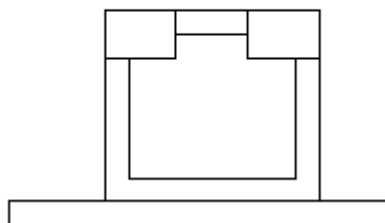


Figure 6: RJ45 Connector Drawing

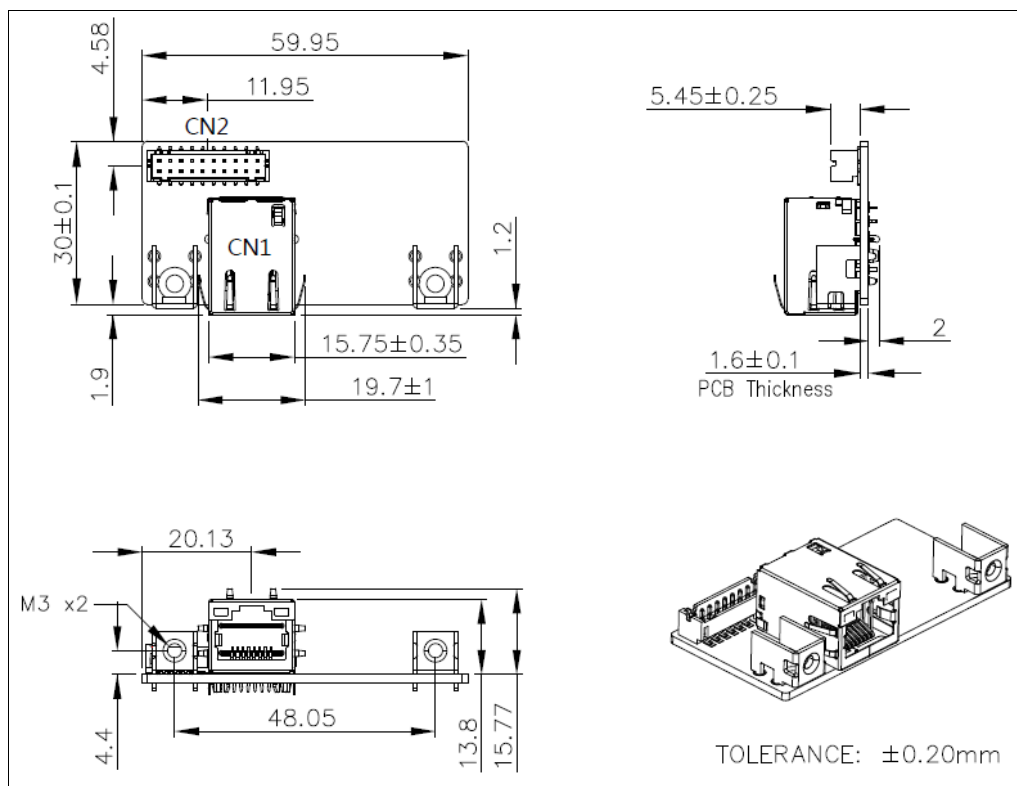
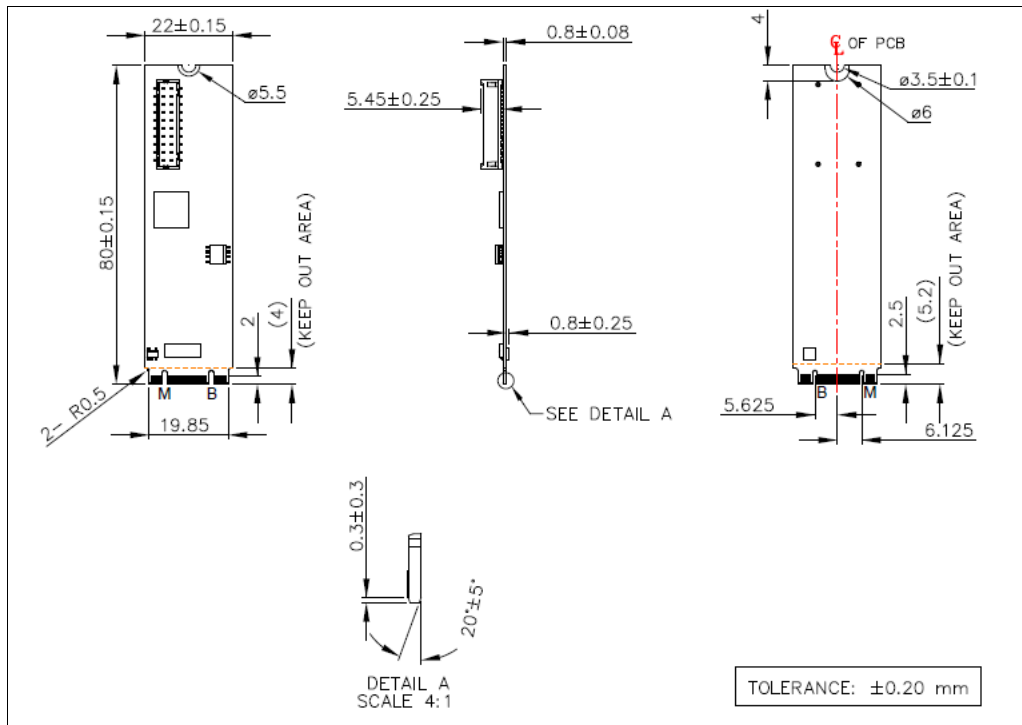
Table 11: RJ45 LAN LED Table

Orange
/Green Green



Speed	Orange/Green (Status)	Green (Active/Link)
10M	OFF	Flash
100M	ON (Green)	Flash
1G	ON (Orange)	Flash

2.6.4. EGPL-G101 Mechanical Drawing



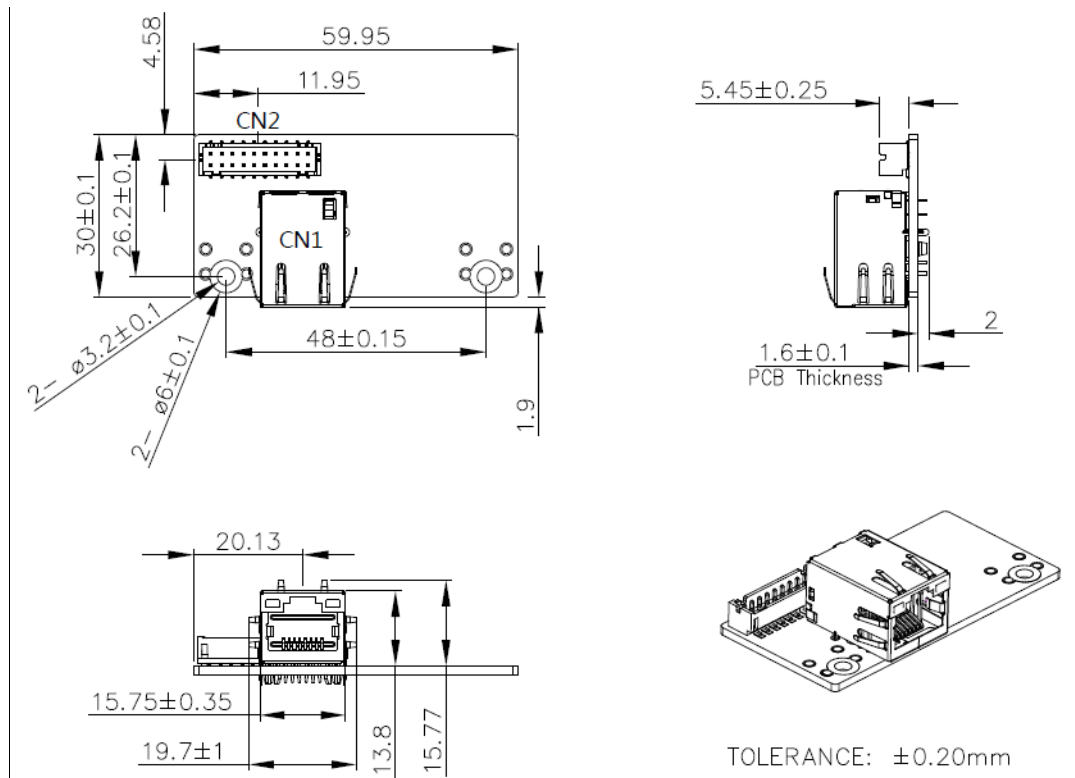


Figure 9: Bracket Daughter Board Drawing (EGPL-G101-C2/W2)

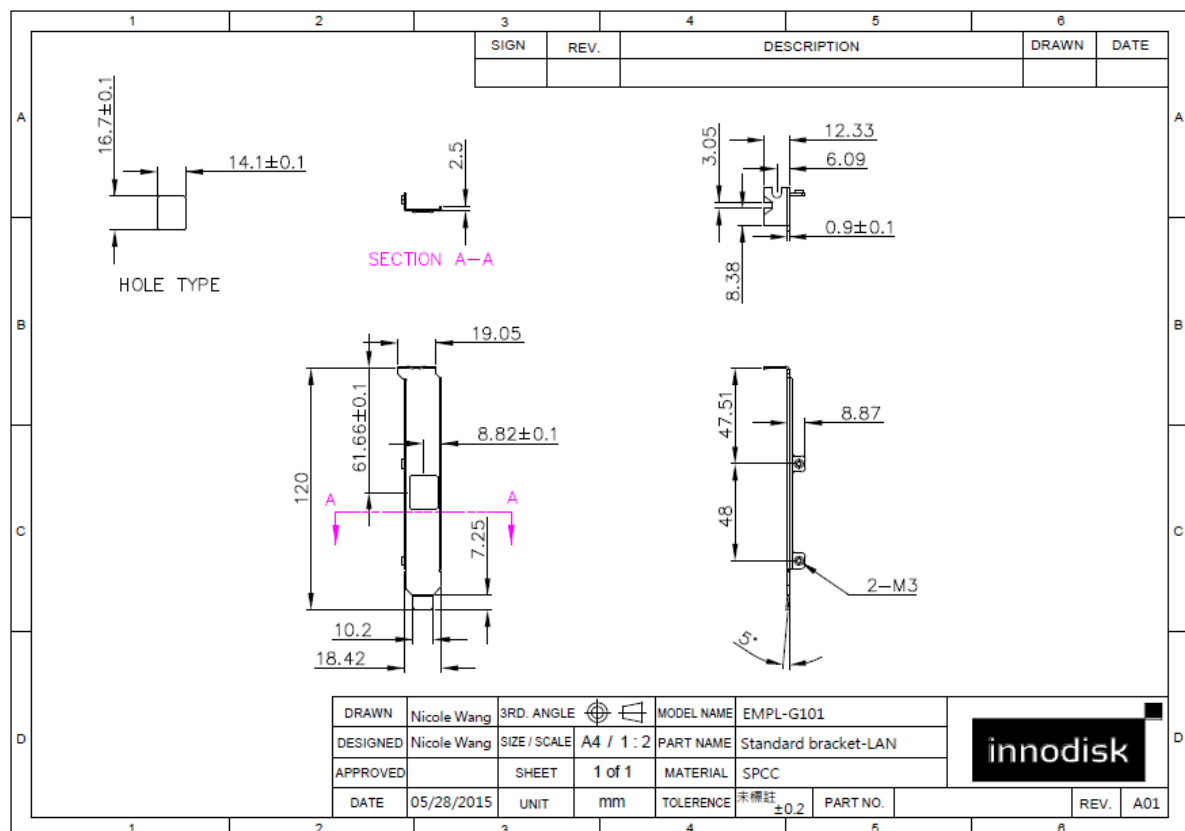


Figure 10: Bracket Drawing

2.6.5. Cable Mechanical Drawing

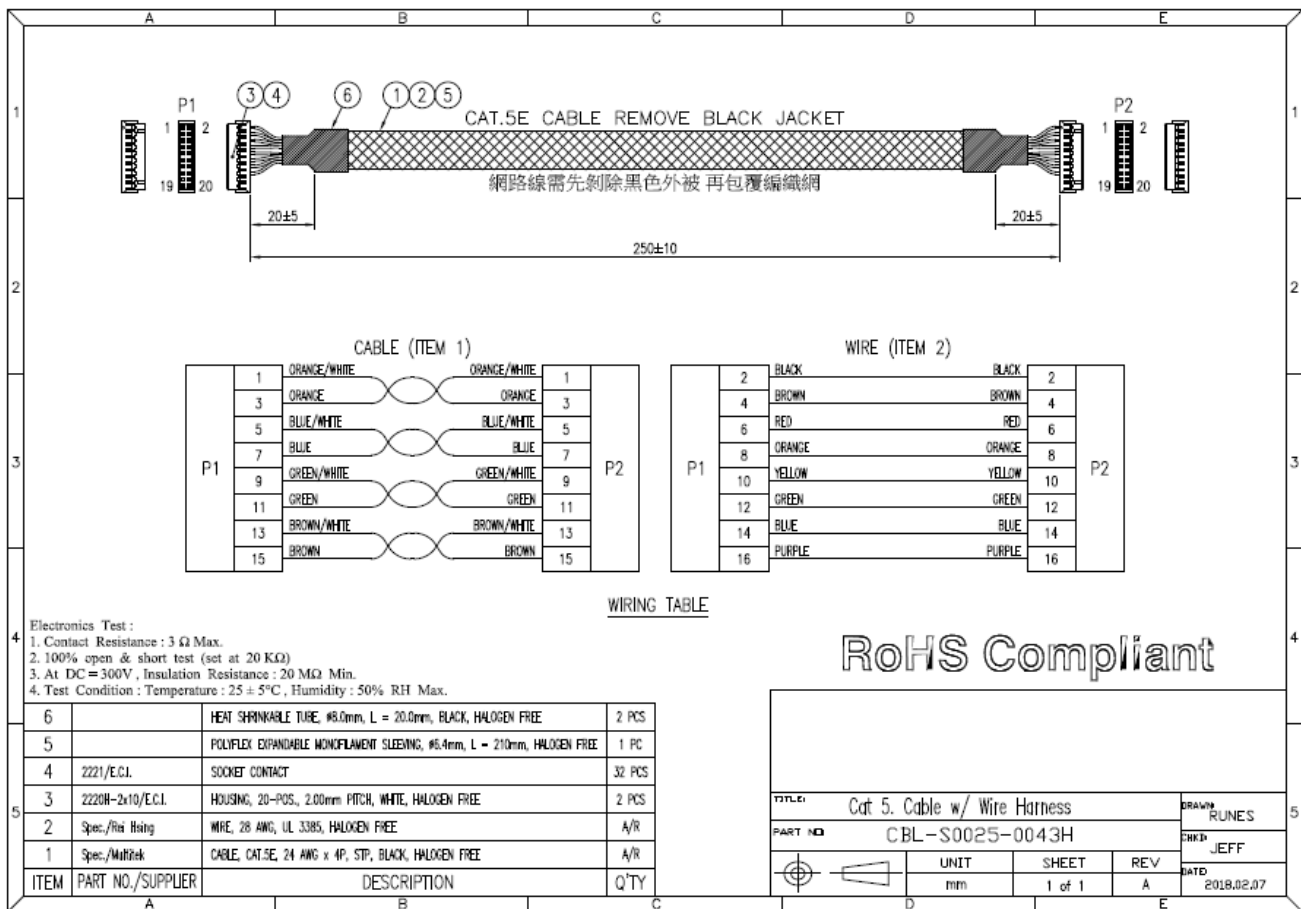


Figure 11: Board to Board LAN Cable Drawing

2.6.6. Packing List

- EGPL-G101 M.2 Board x 1
- EGPL-G101 Daughter Board x 1
- Board to Board LAN Cable x 2
- Bracket x 1 (EGPL-G101-C2/W2 only)
- Screw M3*5 Silver x 2 (EGPL-G101 C2/W2 only)

2.7. Software Support

- Windows: XP(32bit), 7(32/64bit), 8/8.1(32/64 bit), 10(32/64bit)
- Linux: Kernel 2.4 above.

3. Installation Guide

Please download driver from Myinnodisk web site.

<https://myinnodisk.innodisk.com/myinnodisk/Login.aspx>

Or you can download intel i210 chip driver from intel official web site directly.

<https://downloadcenter.intel.com/product/64399/Intel-Ethernet-Controller-I210-Series>

4. 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: <http://www.innodisk.com/>

We hereby confirm that the product(s) delivered to

Innodisk P/N	Description
All Innodisk EP Products	

- ☐ contain(s) no hazardous substances or constituents exceeding the defined threshold 0.1 % by weight in homogenous material if not otherwise specified, as described in the candidate list table currently including 191 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 homogenous material if not otherwise specified in candidate list table. Where the threshold value is exceeded, the substances in question are to be declared in accompanying Appendix A & B.

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： 2018 / 07 / 27



宜鼎國際股份有限公司 Innodisk Corporation

Page 1/1

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

RoHS 自我宣告書 (RoHS Declaration of Conformity)

Manufacturer Product: All Innodisk 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.

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

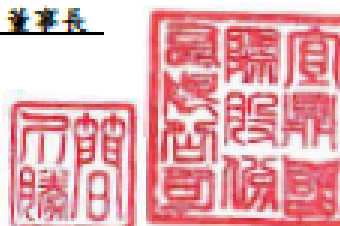
立 保 證 書 人 (Guarantor)

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： 2018 / 07 / 01



Certificate

Issue Date: March 10, 2016

Ref. Report No. ISL-16LE087CE

Product Name : M.2(NGFF) LAN Module
 Model : E%PL-G#01
 (%: 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:SATA, X:Multi, Z:Others)
 #: Output items: (1:1Port, 2:2Ports, 3:3Ports, 4:4Ports, A~Z:TBD, X:Multi))
 Responsible Party : Innodisk Corporation
 Address : 5F., No.237, Sec. 1, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)

We, **International Standards Laboratory**, hereby certify that:

The device bearing the trade name and model specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in European Council Directive- EMC Directive 2004/108/EC (marketed before 2016/04/19) 2014/30/EU (marketed after 2016/04/20). The device was passed the test performed according to :



Standards:

EN 55022: 2010+AC2011 and CISPR 22: 2008 (modified)
 EN 61000-3-2:2014 and IEC 61000-3-2:2014
 EN 61000-3-3: 2013 and IEC 61000-3-3: 2013
 EN 55024: 2010 and CISPR 24: 2010
 EN 61000-4-2: 2009 and IEC 61000-4-2: 2008
 EN 61000-4-3: 2006+A1: 2008 +A2: 2010 and IEC 61000-4-3:2006+A1: 2007+A2: 2010
 EN 61000-4-4:2012 and IEC 61000-4-4:2012

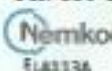
I attest to the accuracy of data and all measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

International Standards Laboratory

W.H. Chang / Director

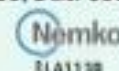
☐ Hsi-Chih LAB:

No. 65, Gu Dai Keng Street, Hsi-Chih Dist.,
 New Taipei City 221, Taiwan
 Tel: 886-2-2646-2550; Fax: 886-2-2646-4641



☒ Lung-Tan LAB:

No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist.,
 Tao Yuan City 325, Taiwan
 Tel: 886-3-407-1718; Fax: 886-3-407-1738



Certificate

Issue Date: March 10, 2016
Ref. Report No. ISL-16LE087FE

Product Name : M.2(NGFF) LAN Module
Model : E%PL-G#01
(%: 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:SATA, X:Multi, Z:Others)
#: Output items: (1:1Port, 2:2Ports, 3:3Ports, 4:4Ports, A~Z:TBD, X:Multi))
Applicant : Innodisk Corporation
Address : 5F., No.237, Sec. 1, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)

We, International Standards Laboratory, hereby certify that:

The device bearing the trade name and model specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified. (refer to Test Report if any modifications were made for compliance).



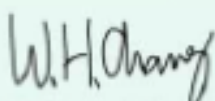
Standards:

FCC CFR Title 47 Part 15 Subpart B: 2014- Section 15.107 and 15.109
ANSI C63.4-2014
Industry Canada Interference-Causing Equipment Standard ICES-003 Issue 6: 2016

Class B

I attest to the accuracy of data and all measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

International Standards Laboratory


W.H. Chang / Director

☐ **Hsi-Chih LAB:**
No. 65, Gu Dai Keng Street, Hsi-Chih Dist.,
New Taipei City 221, Taiwan
Tel: 886-2-2646-2550; Fax: 886-2-2646-4641



☒ **Lung-Tan LAB:**
No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist.,
Tao Yuan City 325, Taiwan
Tel: 886-3-407-1718; Fax: 886-3407-1738



Contact us

Headquarters (Taiwan)

5F., No. 237, Sec. 1, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

Tel: +886-2-77033000

Email: sales@innodisk.com

Branch Offices:

USA

usasales@innodisk.com

+1-510-770-9421

Europe

eusales@innodisk.com

+31-40-3045-400

Japan

jpsales@innodisk.com

+81-3-6667-0161

China

sales_cn@innodisk.com

+86-755-2167-3689

www.innodisk.com

© 2018 Innodisk Corporation.

All right reserved. Specifications are subject to change without prior notice.

July 1, 2020