

EGPL-T102

M.2 2280 to single

10GbE LAN Module

Customer:

Customer

Part Number:

Innodisk

Part Number:

Innodisk

Model Name:

Date:

Innodisk	Customer
Approver	Approver

Table of Contents

- TABLE OF CONTENTS I**
- REVISION HISTORYII**
- 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-T102 MECHANICAL DRAWING13
 - 2.6.5.CABLE MECHANICAL DRAWING14
 - 2.6.6.PACKING LIST14
 - 2.7. SOFTWARE SUPPORT.....14
- 3. INSTALLATION GUIDE 15**
- 4. APPEDIX 16**
- CONTACT US..... 22**

REVISION HISTORY

Revision	Description	Date
1.0	First Released	Jan, 2024
1.1	1. Add PTP Feature 2. Support -20 to 55C	Apr, 2024

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 20P CONNECTOR PIN DEFINE 10

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-T102-C1) 4

FIGURE 4: WIRE TO BOARD SMD 20P CONNECTOR DRAWING 9

FIGURE 5: RJ45 CONNECTOR DRAWING 11

FIGURE 6: EGPL-T102 M.2 BOARD DRAWING 13

FIGURE 7: EGPL-T102 RJ45 DAUGHTER BOARD DRAWING 13

FIGURE 8: BOARD TO BOARD LAN CABLE DRAWING..... 14

1. Product Introduction

1.1. Overview

Innodisk EGPL-T102 is designed with M.2 2280 form factor with B/M key, EGPL-T102 supports PCIe Gen 3.0 with dual lane to single 10 GbE LAN, optimized for higher performance and lower power, which brings you a flexible expansion solution for embedded systems.

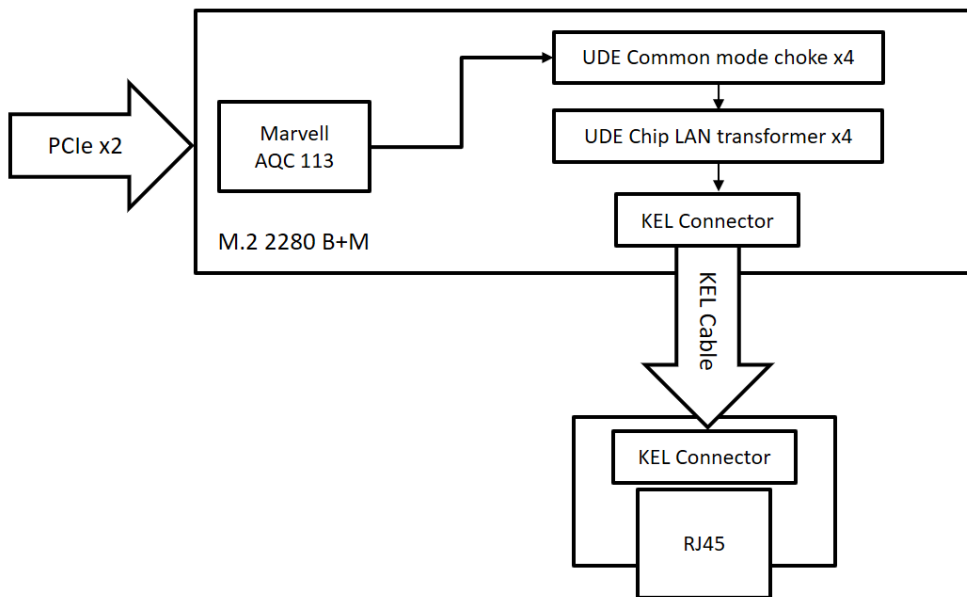


Figure 1: Block Diagram

1.2. Features

- Marvell AQtion Ethernet Controller
- Support 10G/5G/2.5G/1000M/100M/10M LAN speed
- Lowest power and smallest 10GbE expansion solution
- Support x2/x1 PCI Express with Gen3/Gen2
- Tiny daughter board with high speed shielding cable
- Support Precision Time Protocol (PTP-1588v2)/AVB
- Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV
- Operation temperature -20°C to +55°C support
- 30μ" golden finger, 3-year warranty
- Industrial design, manufactured in Innodisk Taiwan



Figure 2: M.2 2280 Board Picture



Figure 3: Mounting Hole Daughter Board Picture (EGPL-T102-C1)

2. Product Specifications

2.1. Device Parameters

Table 1: Device Parameters

Form Factor	M.2 2280 B-M
Input I/F	PCI Express 3.0 x 2
Output I/F	10GbE LAN x 1
Output Connector	RJ45 x 1
Dimension (WxLxH)	M.2 Board: 22 x 80 x 14.5 mm Daughter Board: 31.75 x 28 x 17.7

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

RMS (mA)	MAX(mA)	Voltage (V)
812.1	1068	3.3

2.3. Environmental Specifications

2.3.1. Temperature Ranges

Table 4: Temperature Ranges

Temperature	Range
Operating	-20°C to +55°C
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-T102	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	11,259,017

2.4. CE and FCC Compatibility

EGPL-T102 conforms to CE and FCC requirements.

2.5. RoHS Compliance

EGPL-T102 is fully compliant with RoHS directive.

2.6. Hardware

2.6.1. Layout

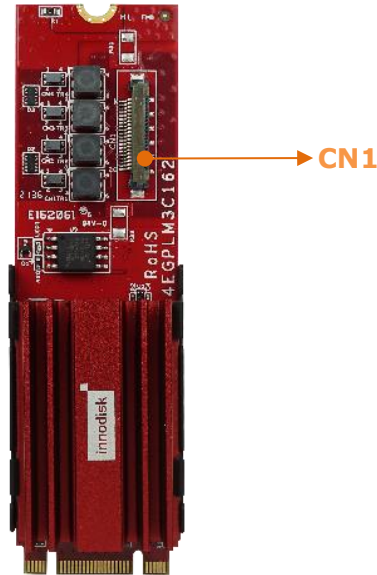


Table 7: M.2 2280 PCB Layout Legend

Label	Connector Type	Function
CN1	WAFER SMD/20P/90D P:0.5mm H2.75mm	GbE LAN Signal LED Signal

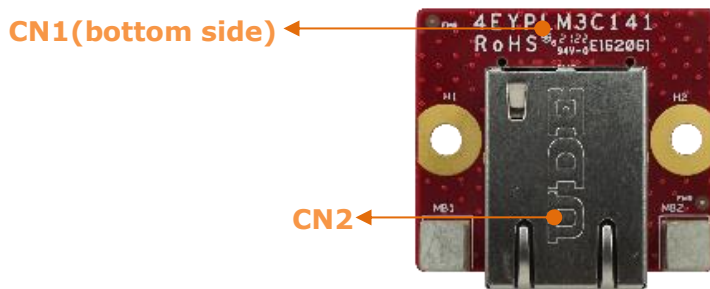


Table 8: Daughter Board PCB Layout Legend

Label	Connector Type	Function
CN1	WAFER SMD/20P/90D P:0.5mm H2.75mm	GbE LAN Signal LED Signal

CN2	10GbE RJ45 DIP/1X1/90D 8P8C w/LED:GO-GO Tab/D	GbE LAN Port LED Indicator
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2.6.2. Pin Define

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

Signal Name	Pin #	Pin #	Signal Name
		75	CONFIG_2 (GND)
3.3V	74	73	GND
3.3V	72	71	GND
3.3V	70	69	CONFIG_1 (NC)
NC	68	67	NC
Module Key M			
NC	58		
NC	56	57	GND
PEWAKE#	54	55	REFCLKp
CLKREQ#	52	53	REFCLKn
PERST#	50	51	GND
NC	48	49	PERp0
NC	46	47	PERn0
NC	44	45	GND
SMB_DATA	42	43	PETp0
SMB_CLK	40	41	PETn0
NC	38	39	GND
NC	36	37	PERp1
NC	34	35	PERn1
NC	32	33	GND
NC	30	31	PETp1
NC	28	29	PETn1
NC	26	27	GND
NC	24	25	NC
NC	22	23	NC

NC	20	21	CONFIG_0 (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	CONFIG_3 (GND)

2.6.3. I/O Connector Mechanical Drawing & Pin Defines

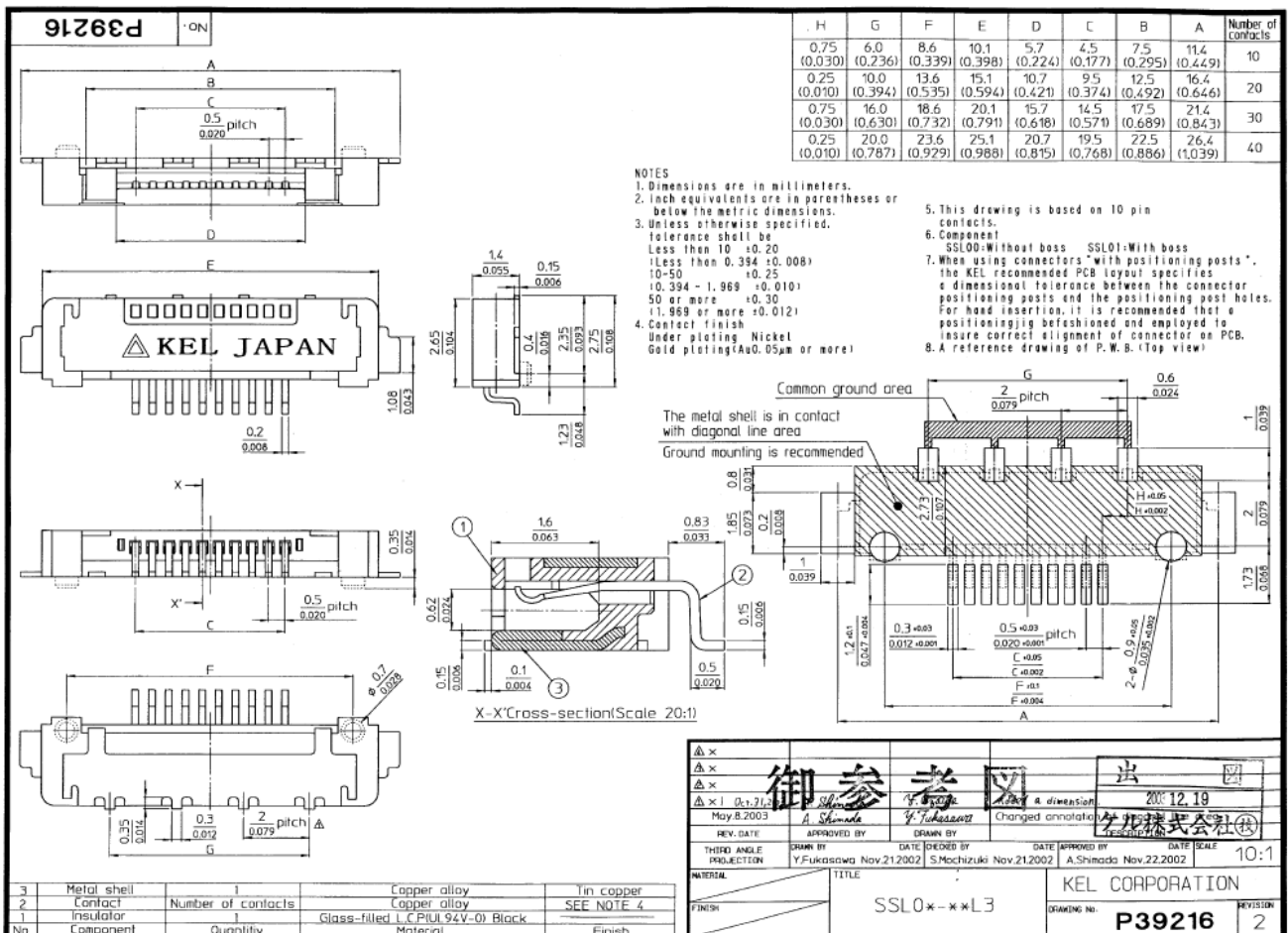


Figure 4: Wire to Board SMD 20P Connector Drawing

Table 10: Wire to Board SMD 20P Connector Pin Define

Pin #	Signal Name
1	LED_A2
2	LED_A1
3	LED_A0
4	3.3V
5	GND
6	P0_D_N_CN
7	P0_D_P_CN
8	GND
9	GND
10	P0_C_N_CN
11	P0_C_P_CN
12	GND
13	GND
14	P0_B_N_CN
15	P0_B_P_CN
16	GND
17	GND
18	P0_A_N_CN
19	P0_A_P_CN
20	GND

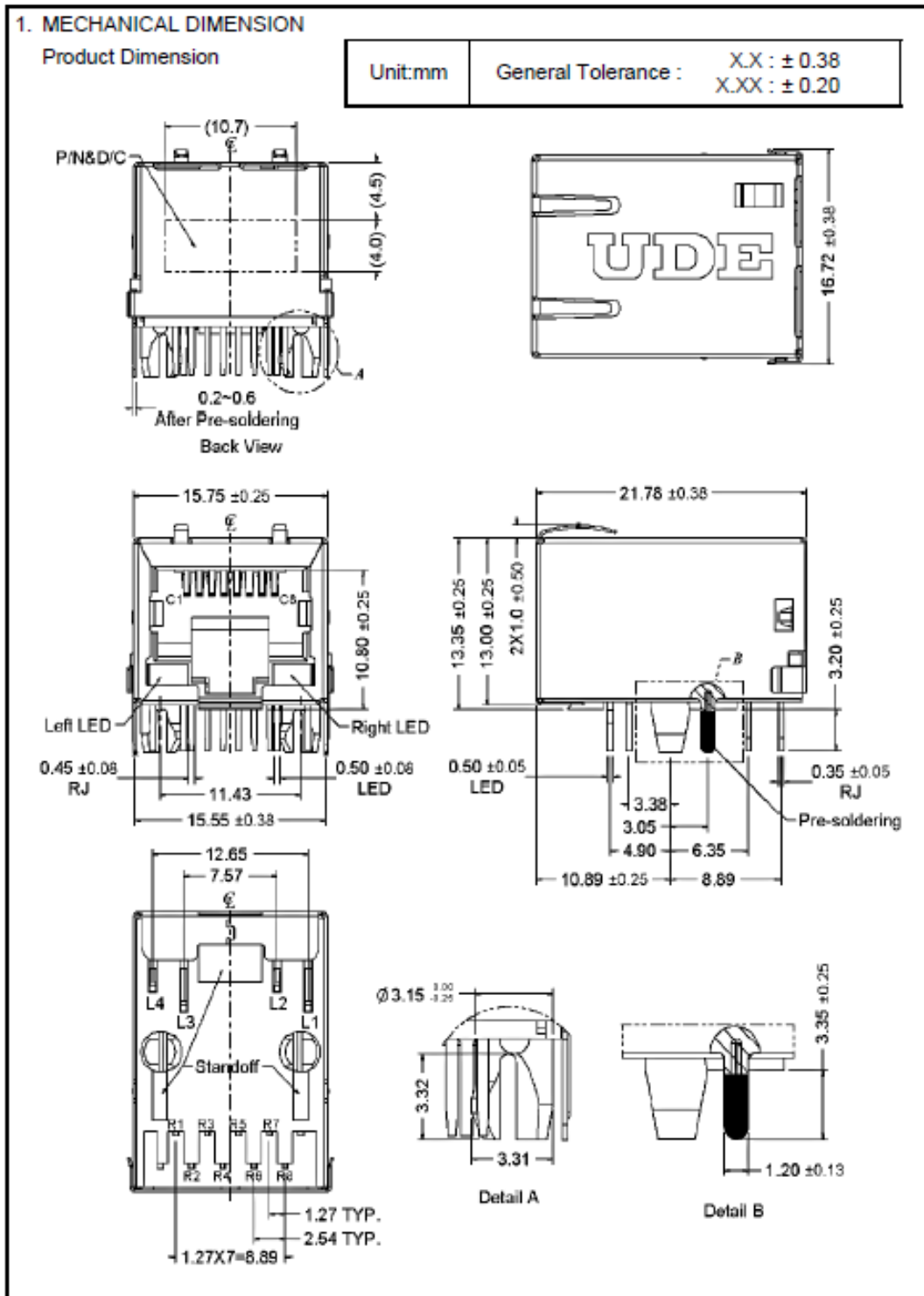
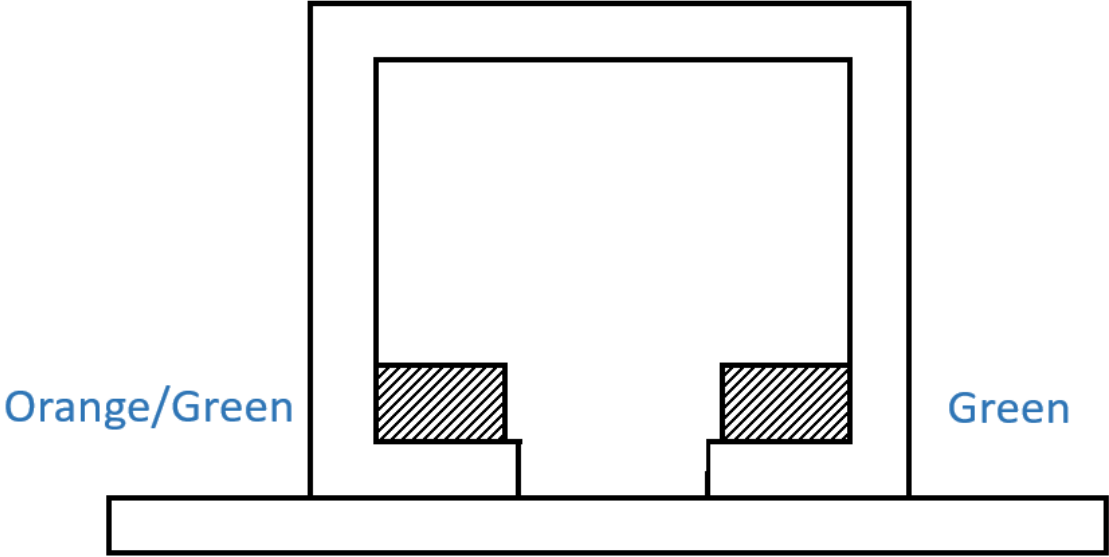


Figure 5: RJ45 Connector Drawing

Table 11: RJ45 LAN LED Table



Speed	Orange/Green (Status)	Green (Active/Link)
Others	Green	Flash
10G	Orange	Flash

2.6.4. EGPL-T102 Mechanical Drawing

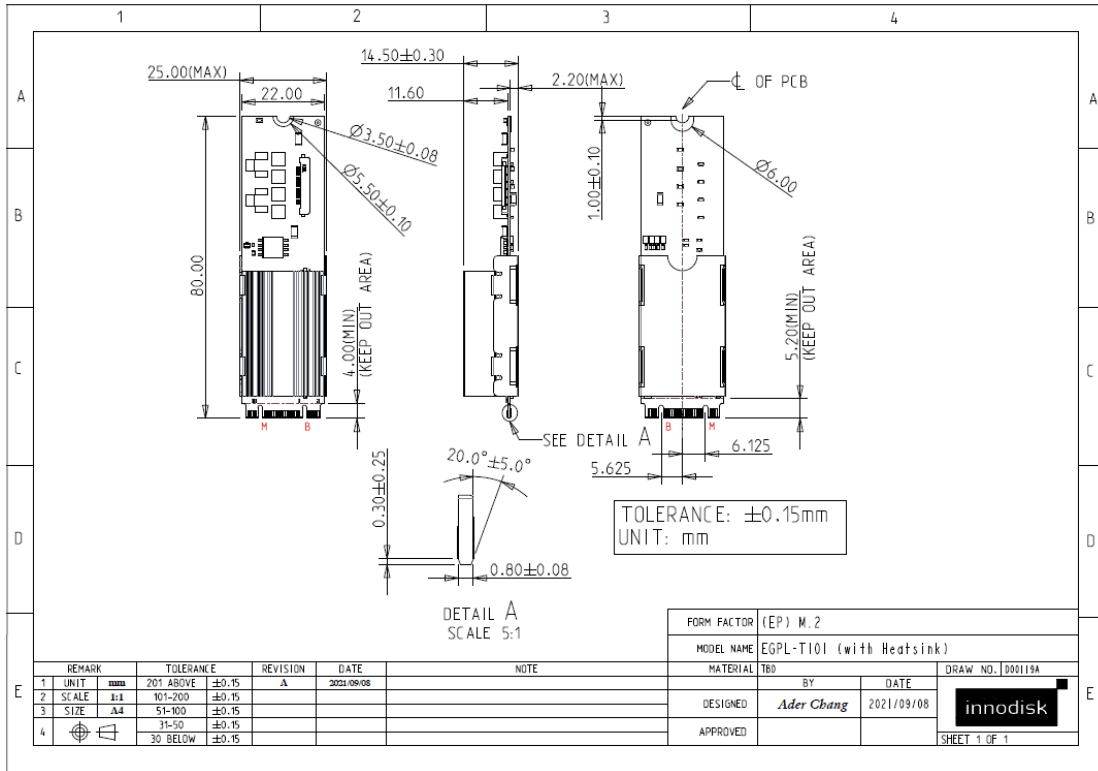


Figure 6: EGPL-T102 M.2 Board Drawing

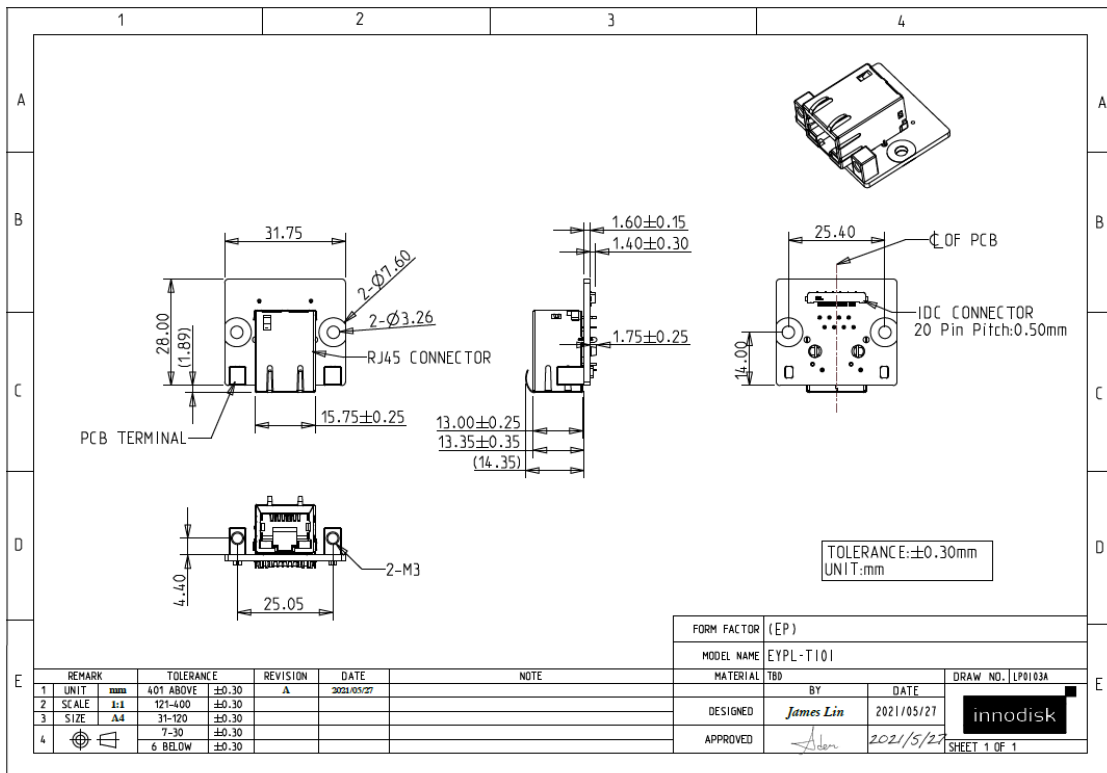


Figure 7: EGPL-T102 RJ45 Daughter Board Drawing

2.6.5. Cable Mechanical Drawing

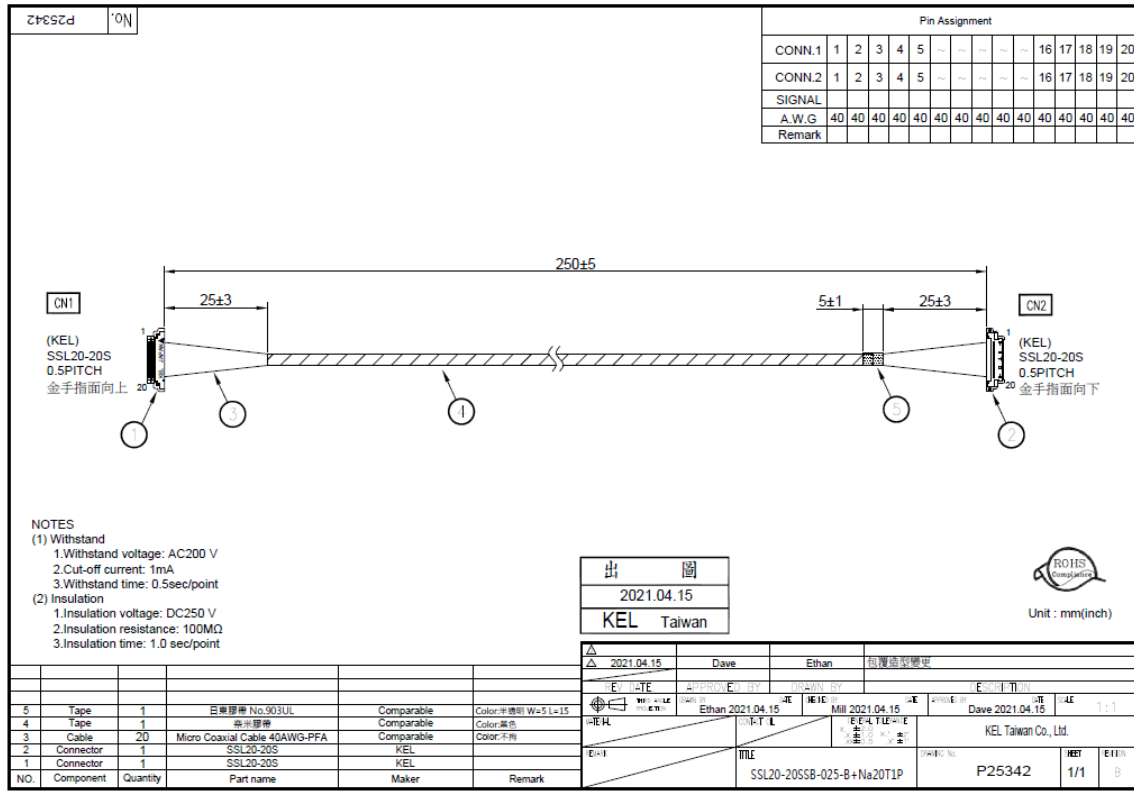


Figure 8: Board to Board LAN Cable Drawing

2.6.6. Packing List

- EGPL-T102 M.2 Board x 1
- EGPL-T102 Daughter Board x 1
- Board to Board LAN Cable x 1

2.7. Software Support

- Microsoft Windows System 10 and later releases
- Linux Kernel 3.10 and later releases

3. Installation Guide

Please download driver from Myinnodisk or Innodisk official web site.

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

4. Appedix

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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 233 substances (release date: 17-Jan-2023) and shown on the ECHA website. <https://echa.europa.eu/candidate-list-table>
- The standard products listed in the **Appendix2** 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： 2023 / 02 / 09

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 7(a)、7(c)-I、6(c) 允許豁免。
We declare, our products permitted by the following exemptions specified in the Annex of the RoHS directive.
- ※ 7(a) Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead).
 - ※ 7(c)-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.
 - ※ 6(c) Copper alloy containing up to 4% lead by weight. (This exemption applies to products that use antennas)

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

宜鼎國際股份有限公司
Innodisk Corporation

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： 簡川勝

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

Date 日期： 2023 / 06 / 14



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CERTIFICATE OF CONFORMITY



Product : M.2 to Single 10GbE LAN Module
Brand : Innodisk
Test Model : E%PL-T101
Series Model : E%PL-T101
 %: 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-P21115055

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

Jim Hsiang / Associate Technical Manager
2021/12/23

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Innodisk

CERTIFICATE OF CONFORMITY



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Brand : Innodisk

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 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-P21115055

CE

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
 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
 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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CERTIFICATE OF CONFORMITY


**BUREAU
VERITAS**



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Test Model : E%PL-T101
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 EN 55035:2017 +A11:2020
 EN 61000-4-2:2009 / IEC 61000-4-2:2008 ED. 2.0
 EN 61000-4-3:2008 +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
 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
 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)

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