



Customer :

Specification for

Model : DSK

Revised : Jan. 07. 2011
Original Release Date : Jan. 07. 2011

OPHIT



Revision History

| Version Number | Revision Date | Author | Description of Changes |
|-----------------------|----------------------|---------------|-------------------------------|
| 1.0 | Jan 07, 2011 | J.H Lee | Initial Version |
| | | | |
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TABLE OF CONTENTS

1. General Description

2. General Specification

3. Absolute Maximum Ratings

4. Electrical Specification

4.1 Electrical Specification

4.1.1 Transmitter Module

4.1.2 Receiver Module

4.2 Connector Pin Assignment

5. Mechanical Specification

5.1 Case Dimension

5.2 Cable & Ordering Information

6. RoHS

1. General Description

DSK, optical DVI extension module, is designed to let digital flat panel display extend over 1000 meters away from host based on DVI standard by optical transmission technology.

Its small package and pseudo DDC detect function and Self-EDID detect function to use standard SC fiber connector allow users to install and utilize the device conveniently.

- Long distance transmission of digital graphic signal corresponding to T.M.D.S
-over 1000 meter(3,300ft) by multi-mode one fiber.
- R, G, B, Clock signal is transmitted separately by one multi-mode optical fiber.
- Pseudo-DDC detection function for EDID information
Self detecting function for EDID information
Maximum resolution WUXGA
- Optional external power supply for Transmitter(Automatic power switch is included.)

2. General Specification

| Parameter | Symbol | |
|-------------------------------|---------------------------------|--------------------------------|
| | Transmitter | Receiver |
| Optical Converter | 850nm, 4ch Transmit OSA | 850nm, 4Ch Receive OSA |
| Input and Output Signal | TMDS Signal (DVI 1.0 standard) | TMDS Signal (DVI 1.0 standard) |
| Video Bandwidth | 1.65Gbps / Channel | |
| Module Dimension | 39 x 14 x 61.4 mm (W x H x D) | |
| Module Weight | -- | -- |
| Using electrical Connector | 24 PIN DVI-D Plug (input) | 24 PIN DVI-D Plug (output) |
| Optical Connector | 1 SC Connector | 1 SC Connector |
| Recommended Fiber | 50/125um Multi-mode glass-fiber | |
| Maximum Supporting Resolution | WUXGA(1920x1200) / 60Hz | |

3. Absolute Maximum Ratings

| Parameter | Rating |
|-------------------------|-------------------|
| Storage temperature | -20°C ~ +70°C |
| Operating temperature | 0°C ~ +50°C |
| Power Supply | -0.3 ~ 5.5 V |
| Relative Humidity | 10 ~ 80 % |
| Lead solder temperature | 260°C, 10 seconds |

NOTICE

Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operations section for extended periods of time may affect reliability.

4. Electrical Specification

4.1 Electrical Specification

4.1.1 Transmitter Characteristics

| | Parameter | Symbol | Min | Typ | Max | Units | Condition |
|-----------------------|---|--------|-----------|------|-----------|-------|-----------|
| P O W E R | Supply Voltage (Option External Power) | Vcc | +4.5 | +5.0 | +5.5 | V | |
| | Supply Current | Icc | | 160 | | mA | |
| | Power Dissipation | Po | | 0.8 | | W | |
| T M D S | Reference voltage for graphic signal | Vref | +3.1 | +3.3 | +3.5 | V | |
| | Single-ended high level input voltage | VH | Vref-0.01 | | Vref+0.01 | V | |
| | Single-ended low level input voltage | VL | Vref-0.6 | | Vref-0.4 | V | |
| | Single-ended input swing voltage | Vswing | 0.4 | | 0.6 | V | |
| | Single-ended standby input voltage | | Vref-0.01 | | Vref+0.01 | V | |
| | Data Output Load | RLD | | 50 | | Ohms | |

Transmitter module of Model DSK includes 4 channel VCSEL (Vertical Surface Emitting Laser Diode) with 850 nm invisible laser radiation.

Do not view directly laser module of transmitter or the end of the other side of optical cable connected to transmitter with optical instrument.

Transmitter module of DSK is Class 1M Laser Product.

4.1.2 Receiver Module

| | Parameter | Symbol | Min | Typ | Max | Units | Condition |
|-----------------------|---|---------|------|------|------|-------|-----------|
| P O W E R | Supply Voltage (External Power) | Vcc | +4.5 | +5.0 | +5.5 | V | |
| | Supply Current | Icc | | 125 | | mA | |
| | Power Dissipation | Po | | 0.63 | | W | |
| T M D S | Reference voltage for graphic signal | Vref | +3.1 | +3.3 | +3.5 | V | |
| | Single-ended output swing voltage | Voswing | 0.4 | | 0.6 | V | AC couple |
| | Data Input Load | RLD | | 50 | | Ohms | |

4.2 Connector Pin Assignment

Transmitter

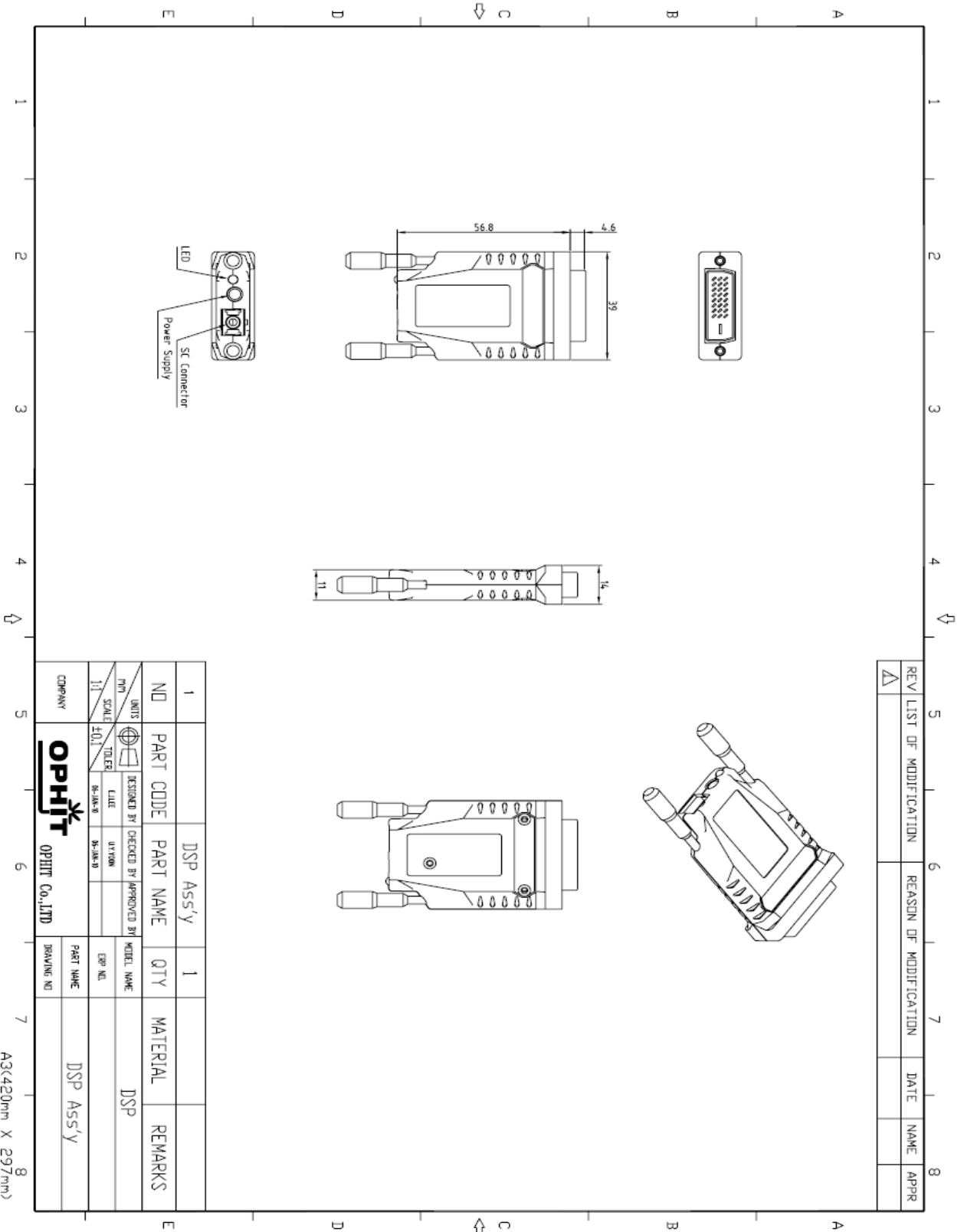
| Pin | Signal Assignment | Pin | Signal Assignment | Pin | Signal Assignment |
|-----|-----------------------|-----|-----------------------|-----|-----------------------|
| 1 | T.M.D.S. Data2- | 9 | T.M.D.S. Data1- | 17 | T.M.D.S. Data0- |
| 2 | T.M.D.S. Data2+ | 10 | T.M.D.S. Data1+ | 18 | T.M.D.S. Data0+ |
| 3 | T.M.D.S. Data2 Shield | 11 | T.M.D.S. Data1 Shield | 19 | T.M.D.S. Data0 Shield |
| 4 | No Connect | 12 | No Connect | 20 | No Connect |
| 5 | No Connect | 13 | No Connect | 21 | No Connect |
| 6 | DDC Clock (Only TX) | 14 | +5V Power | 22 | T.M.D.S Clock Shield |
| 7 | DDC Data (Only TX) | 15 | Ground (for +5V) | 23 | T.M.D.S Clock+ |
| 8 | No Connect | 16 | No Connect | 24 | T.M.D.S Clock- |

Receiver

| Pin | Signal Assignment | Pin | Signal Assignment | Pin | Signal Assignment |
|-----|-----------------------|-----|-----------------------|-----|-----------------------|
| 1 | T.M.D.S. Data2- | 9 | T.M.D.S. Data1- | 17 | T.M.D.S. Data0- |
| 2 | T.M.D.S. Data2+ | 10 | T.M.D.S. Data1+ | 18 | T.M.D.S. Data0+ |
| 3 | T.M.D.S. Data2 Shield | 11 | T.M.D.S. Data1 Shield | 19 | T.M.D.S. Data0 Shield |
| 4 | No Connect | 12 | No Connect | 20 | No Connect |
| 5 | No Connect | 13 | No Connect | 21 | No Connect |
| 6 | No Connect | 14 | Out +5V Power | 22 | T.M.D.S Clock Shield |
| 7 | No Connect | 15 | Ground (for Out +5V) | 23 | T.M.D.S Clock+ |
| 8 | No Connect | 16 | No Connect | 24 | T.M.D.S Clock- |

5. Mechanical Specification

5.1 Case Dimension



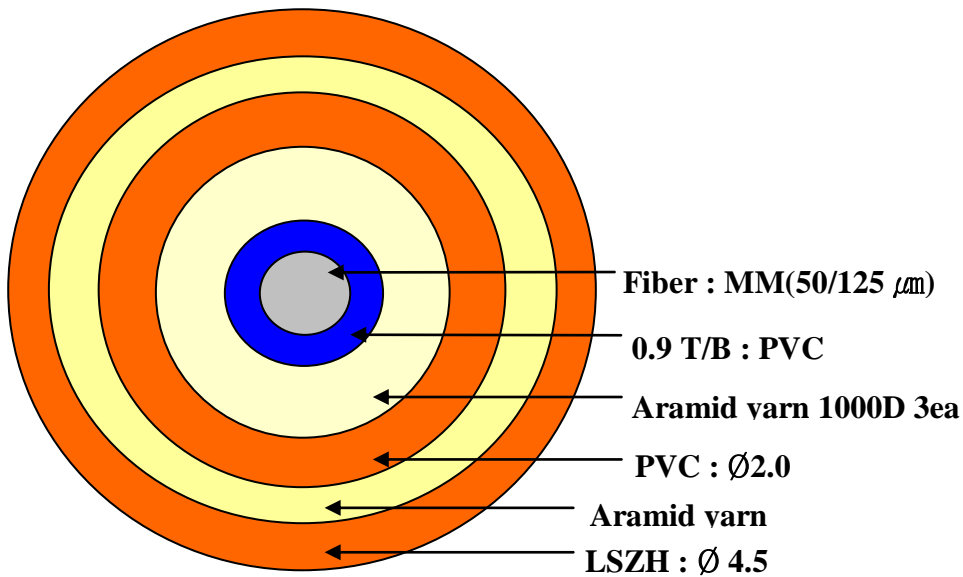
| REV | LIST OF MODIFICATION | REASON OF MODIFICATION | DATE | NAME | APPR |
|-----|----------------------|------------------------|------|------|------|
| Δ | | | | | |

| | | | | | |
|---------|-------------------|-------------|------------|-------------|------------|
| 1 | DSP Ass'y | 1 | | | |
| NO | PART CODE | PART NAME | QTY | MATERIAL | REMARKS |
| | | | | | DSP |
| UNITS | | DESIGNED BY | CHECKED BY | APPROVED BY | MODEL NAME |
| MM | | | | | |
| SCALE | TOLER | DATE | UT/VAW | | |
| 1:1 | ±0.1 | 06-10-03 | 06-10-03 | | |
| COMPANY | OPHIT Co.,LTD | | PART NAME | DSP Ass'y | |
| | | | DRAWING NO | | |

A3(420mm X 297mm)

5.2 SC Connector and ordering information

▪ Outdoor Type Cable



▪ Ordering Information

DSK - AXXX - X

- Model Name
 - A: Full set including of Tx, Rx, Adapter and Cable for Outdoor type (4.5mm jacket)
 - M : Tx, Rx and IPower Adapter
- Type
- SC Fiber Length
 - 050 = 50 meters
 - 100 = 100 meters
 - 300 = 300 meters
 - 500 = 500 meters
- pseudo-DDC function
 - Maximum Resolution for DDC check
 - O : No DDC check
 - U : UXGA
 - S : SXGA
 - X : XGA
 - G : SVGA
 - A : VGA

• Cable length is upon customer request by every 10 meters

6. RoHS

Certificate of Conformance RoHS

Dear Customer,

On January 27, 2003, the European Parliament and the Administrative Council adopted Directive 2002/95/EC (RoHS) that concerns the "Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment".

The parts currently delivered by **OPHIT CO., LTD.** are already free of lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (Cr 6), polybrominated biphenyl (PBB) and poly brominated diphenyl (PBDE).

This Certification of Conformance is to certify that the products listed below comply with RoHS Directive mentioned above:

- DSK

If you have any further questions regarding the RoHS compliance of parts delivered by **OPHIT CO., LTD.**, please do not hesitate to contact us at support@ophit.com.

Best regards,

JONG-KOOK MOON/CEO

OPHIT CO., LTD.