Specification for

Model : DQSP

Revised : Apr. 09. 2012
Original Release Date : May. 30. 2011

OPHIT

Revision History

Version Number	Revision Date	Author	Description of Changes
1.0	May 30, 2011	J.H LEE	Initial Version
1.1	July 04, 2011	J.H LEE	Electrical Specification modified
1.2	Sep 16, 2011	J.H LEE	Electrical Specification modified
1.3	Apr 09, 2012	J.H LEE	Ordering Information Removed

TABLE OF CONTENTS

1. General Description

DQSP, fiber optical extension system, lets your Dual digital flat panel display signal extend up to 300 meters (1000 feet) away from host by TMDS digital signal transmission.

- High speed and long distance transmission by SC type multi Mode fibers (Uses 2 strand multi mode SC fiber optic cable)
- TMDS video signals and EDID data are transmitted by optical fiber
- Extends up to 300m
- It can support single link and dual link.
- DVI Specification 1.0 Compliant
- Supports HDCP Compliant Device with HDCP Rev 1.1 Specification

2. General Specification

Parameter	Symbol	
	Transmitter	Receiver
Optical Converter	850nm, 7ch Transmit OSA 911nm, 1Ch VCSEL 980nm, 1Ch PIN P/D Diode	850nm, 7ch Receive OSA 980nm, 1Ch VCSEL 911nm, 1Ch PIN P/D Diode
Input and Output Signal	TMDS Signal(DVI 1.0 standard)	TMDS Signal(DVI 1.0 standard)
Video Bandwidth	3.5Gbps / Channel	
Module Dimension	50.0 x 15.1 x 75.6 mm (W x H x D)	
Module Weight	--	--
Used electrical Connector	24 PIN DVI-D Plug(input)	24 PIN DVI-D Plug(output)
Optical Connector	2 SC Connector	2 SC Connector
Recommended Fiber	50/125um Multi-mode glass-fiber	
Maximum Supported Resolution	Single Link : WUXGA(1920x1200)60Hz Dual Link : WQXGA(2560x1600)60Hz	

3. Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Power Supply	V_{CC}	-0.3	+5.5	V
Operating temperature	V_{OT}	0	+50	°C
Storage temperature	V_{ST}	-20	+70	°C
Relative Humidity	H_{RH}	10	80	RH

NOTICE

Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings 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 Module

	Parameter	Symbol	Min	Typ	Max	Units	Condition
POWER	Supply Voltage (Option External Power)	V_{CC}		5.0	5.5	V	
	Power consumption	P_O	-	1.5	1.6	W	Dual
TMDS	Reference voltage for graphic signal	V_{REF}	3.1	3.3	3.5	V	
	Single-ended high level input voltage	VH	V_{REF} -0.01		V_{REF} +0.01	V	
	Single-ended low level input voltage	VL	V_{REF} -0.6		V_{REF} -0.4	V	
	Single-ended input swing voltage	V_{ISWING}	0.4		0.6	V	
	Single-ended standby input voltage		V_{REF} -0.01		V_{REF} +0.01	V	
	Data Output Load	RLD		50		Ω	

Transmitter module of Model DQSP includes 7 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 DQSP is Class 1M Laser Product.

4.1.2 Receiver Module

	Parameter	Symbol	Min	Typ	Max	Units	Condition
POWER	Supply Voltage (External Power)	V_{CC}		5.0	5.5	V	
	Power consumption	P_O	-	1.6	1.65	W	
TMDS	Reference voltage for graphic signal	V_{REF}	3.1	3.3	3.5	V	
	Single-ended output swing voltage	V_{OSWING}	0.4		0.6	V	AC couple
	Data Input Load	RLD		50		Ω	

4.2 Connector Pin Assignment

4.2.1 Transmitter

DVI Dual Link

Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data 2-	9	T.M.D.S. Data 1-	17	T.M.D.S. Data 0-
2	T.M.D.S. Data 2+	10	T.M.D.S. Data 1+	18	T.M.D.S. Data 0+
3	T.M.D.S. Data 2/4 Shield	11	T.M.D.S. Data 1/3 Shield	19	T.M.D.S. Data 0/5 Shield
4	T.M.D.S. Data 4-	12	T.M.D.S. Data 3-	20	T.M.D.S. Data 5-
5	T.M.D.S. Data 4+	13	T.M.D.S. Data 3+	21	T.M.D.S. Data 5+
6	DDC Clock (SCL)	14	Out +5V Power	22	T.M.D.S Clock Shield
7	DDC Data (SDA)	15	Ground (for out +5V)	23	T.M.D.S Clock+
8	No Connect	16	Hot Plug Detect	24	T.M.D.S Clock-

DVI Single Link

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 (SCL)	14	Out +5V Power	22	T.M.D.S Clock Shield
7	DDC Data (SDA)	15	Ground (for +5V)	23	T.M.D.S Clock+
8	No Connect	16	Hot Plug Detect	24	T.M.D.S Clock-

4.2.2 Receiver

DVI Dual Link

Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data 2-	9	T.M.D.S. Data 1-	17	T.M.D.S. Data 0-
2	T.M.D.S. Data 2+	10	T.M.D.S. Data 1+	18	T.M.D.S. Data 0+
3	T.M.D.S. Data 2/4 Shield	11	T.M.D.S. Data 1/3 Shield	19	T.M.D.S. Data 0/5 Shield
4	T.M.D.S. Data 4-	12	T.M.D.S. Data 3-	20	T.M.D.S. Data 5-
5	T.M.D.S. Data 4+	13	T.M.D.S. Data 3+	21	T.M.D.S. Data 5+
6	DDC Clock (SCL)	14	Out +5V Power	22	T.M.D.S Clock Shield
7	DDC Data (SDA)	15	Ground (for out +5V)	23	T.M.D.S Clock+
8	No Connect	16	Hot Plug Detect	24	T.M.D.S Clock-

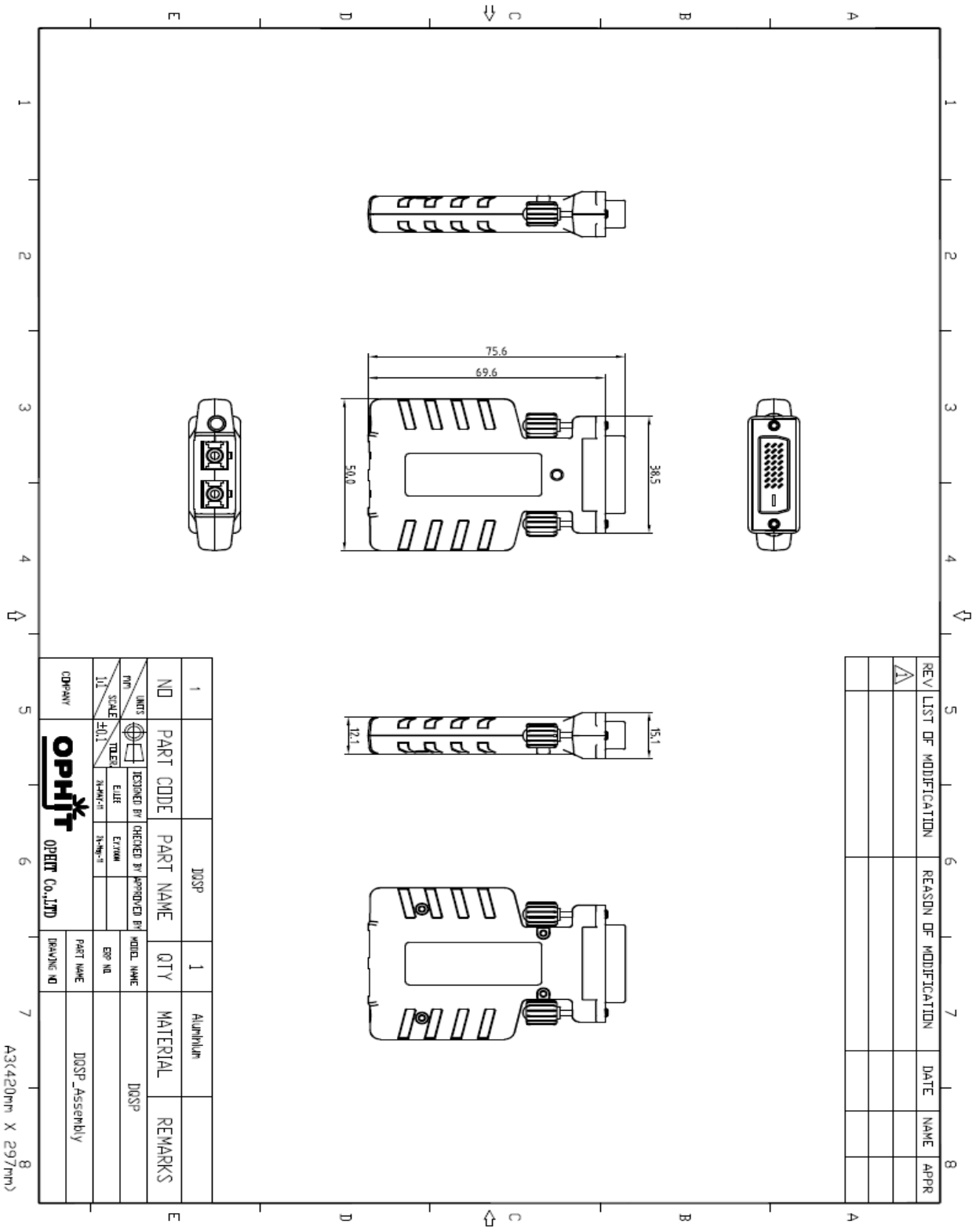
DVI Single Link

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 (SCL)	14	Out +5V Power	22	T.M.D.S Clock Shield
7	DDC Data (SDA)	15	Ground (for +5V)	23	T.M.D.S Clock+
8	No Connect	16	Hot Plug Detect	24	T.M.D.S Clock-

5. Mechanical Specification

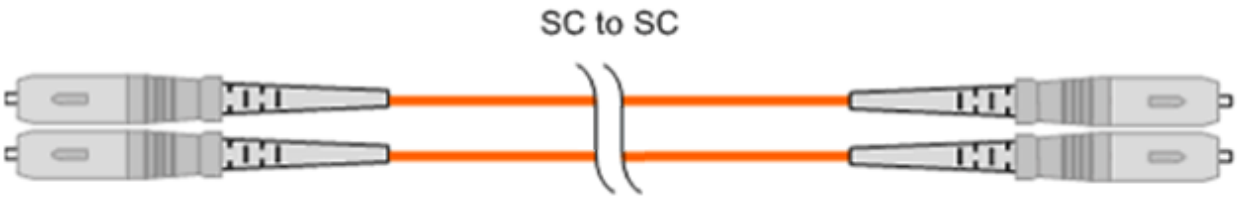
5.1 Case Dimension

5.1.1 Transmitter / 5.1.2 Receiver



5.2 Cable Information

- Optical Fiber Cable



6. RoHS

Certificate of Conformance RoHS

Dear Customer,

On January 27, 2003, the European Parliament and the Adminstrative 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 polybrominated diphenyl (PBDE).

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

- DQSP

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.