	Datasheet	No.	DS10-U001-1
		Initial Date	2017-12-28
OU	OU88M8-Dxx	Written Team	R&D Dept.
			GH Zheng

I Preview


PN	OU88M8-Dxx
Description	100G QSFP28 DAC xxm

II Contents

1. Features
2. Applications
3. Description
4. Absolute maximum Ratings
5. Operating Environment
6. Frequency Domain
7. Time Domain
8. Pin Descriptions
9. Memory Map
10. Optical Interface Lanes and Assignment
11. Mechanical Dimensions
12. Model Ordering Information

III Revision History

No.	Date	Items	Change Recording	Ver.	Rev.	Customer
1	2017-12-28	All	Initial registration	000	000	Standard
2						
3						
4						
5						
6						

 Communication Limited	Datasheet		DS10-U001-1 Final Rev.: 2017-12-28	
	Product	100G QSFP28 transceiver OU serials	Ver.	000
	Part No.	OU88M8-Dxx	Rev.	000
			Page	2 / 8

1. Features

- ◆ Four-channel full-duplex passive copper cable transceiver modules
- ◆ Transmission data rate up to 26Gbit/s per channel
- ◆ Low power consumption <3.5W
- ◆ Operating case temperature 0 °C to +70 °C
- ◆ 3.3V power supply voltage
- ◆ RoHS 6 compliant
- ◆ Hot Pluggable QSFP28 form factor

2. Applications

- ◆ 100G Ethernet
- ◆ Infiniband QDR/FDR/EDR
- ◆ Data center
- ◆ Enterprise storage
- ◆ Other links

3. Description

100G QSFP28 Direct Attach Copper Cable Assemblies are high speed, cost effective alternatives to fiber optics in Ethernet, Fiber channel and Infiniband technology applications. The cable assemblies enable hardware OEMs and data center operators to achieve high port density at low cost, while helping to reduce power consumption. The QSFP28 Copper cable form factor uses 8 differential pairs that provide 4 data transmission channels, can meet industry MSA for signal integrity performance.

Based on users' real situation, QSFP28 100G DAC has following types as below:

QSFP28 100G QSFP28 100G Cable assembly, length 1~5m, provides 4 data channels with 25G channel rate.

QSFP28 100G to 2 x QSFP28 50G breakout cable assembly, length 1~5m; The 2XQSFP28 side only use 2 lanes in each port with 25G channel rate.


QSFP28 100G to 4 x SFP+ 25G breakout cable assembly, length 1~5m. Support users to link QSFP28 port to SFP Ports.

4. Absolute Maximum Ratings

The operation in excess of any absolute maximum ratings might cause permanent damage to this module.

Parameter	Symbol	Min	Max	Unit	Note
Storage Temperature	TST	-40	85	°C	
Relative Humidity(non-condensing)	RH	0	85	%	
Operating Case Temperature	TOPC	0	70	°C	
Supply Voltage	VCC	-0.5	3.6	V	

OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518000 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL

 Communication Limited	Datasheet		DS10-U001-1 Final Rev.: 2017-12-28	
	Product	100G QSFP28 transceiver OU serials	Ver.	000
	Part No.	OU88M8-Dxx	Rev.	000
			Page	3 / 8

5. Operating Environment

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	TOPC	0		70	°C
Power Supply Voltage	VCC	3.13	3.3	3.47	V
Data Rate	DR		25.78125		Gbps

6. Frequency Domain

Item	Parameter	IEEE802.3bj Specification
1	Differential Insertion Loss (SDD21)	Maximum insertion loss at 12.8906Ghz -22.48dB Minimum insertion loss at 12.8906Ghz -8dB
2	Differential Insertion Loss (SDD21)	
3	Differential Return Loss (SDD22)	-16.5+2xSQRT(f) @ 0.01 to 4.1GHz - 10.66+14xLog10(f/5.5) @ 4.1 to 19GHz
4	Differential Return Loss (SDD11)	
5	Common Mode Reflection (SCC22)	-2dB @ 0.01 to 19GHz
6	Common Mode Reflection (SCC11)	
7	Common Mode Conversion (SCD22)	-22+(20/25.78)*(f) @ 0.01 to 12.89GHz - 15+(6/25.78)*(f) @ 12.9 to 19GHz
8	Common Mode Conversion (SCD11)	
9	Differential to Common Mode Conversion Loss (SCD12)	-10dB @ 0.01 to 12.89GHz -27+(29/22)*(f) @ 12.9 to 15.7GHz -6.3dB @ 15.71 to 19GHz
10	Differential to Common Mode Conversion Loss (SCD21)	

7. Time Domain

Item	Parameter	Specification (Proposal)
1	Intra-Skew* 1M 1.5M~2M	20ps Max 25ps Max
2	Impedance Rise time: 14ps (20%~80%)	100 +/- 10 Ohm

Remark: The Items have different diameter and length requirements, different specification.

8. Pin Descriptions

OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518000 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL

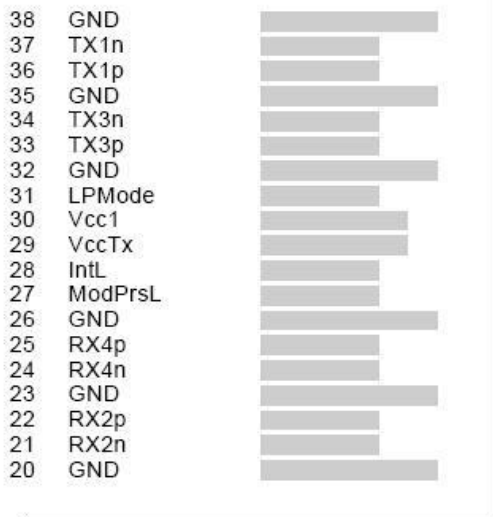


Communication Limited

Datasheet

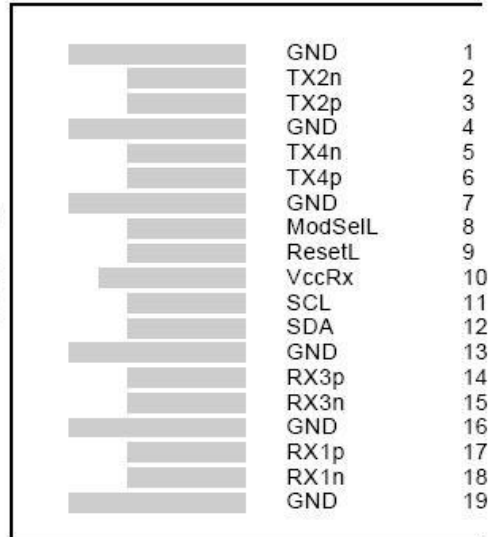
DS10-U001-1
Final Rev.: 2017-12-28

Product	100G QSFP28 transceiver OU serials	Ver.	000
Part No.	OU88M8-Dxx	Rev.	000
		Page	4 / 8



Top Side
Viewed from Top

Card Edge




Bottom Side
Viewed from Bottom

PIN	Logic	Symbol	Name/Description	Note
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	1
8	LVTLL-I	ModSelL	Module Select	
9	LVTLL-I	ResetL	Module Reset	
10		VccRx	+ 3.3V Power Supply Receiver	2
11	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data	
13		GND	Ground	
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1

OCRE COMMUNICATION LIMITED

Web: www.ocrecom.com
E-Mail: sales@ocrecom.com
Add. Dist.A, Building 6, Bay on the six block, Xixiang,
Baoan Dist, Shenzhen, China 518000
Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855

DESIGN	CHECK	CHECK	APPROVAL

 CRE Communication Limited	Datasheet		DS10-U001-1 Final Rev.: 2017-12-28	
	Product	100G QSFP28 transceiver OU serials	Ver.	000
	Part No.	OU88M8-Dxx	Rev.	000
			Page	5 / 8

21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	1
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		VccTx	+3.3 V Power Supply transmitter	2
30		Vcc1	+3.3 V Power Supply	2
31	LVTTL-I	LPMode	Low Power Mode	
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	1

Notes:

1. Module circuit ground is isolated from module chassis ground within the module. GND is the symbol for signal and supply (power) common for QSFP28 modules.
2. The connector pins are each rated for a maximum current of 1000mA.

9. Memory Map

Address	Size (Bytes)	Name	Description of Base ID Field	Optical Module
128	1	Identifier	Identifier Type of serial Module	
129	1	Ext. Identifier	Extended Identifier of Serial Module	
130	1	Connector	Code for connector type	
131-138	8	Specification compliance	Code for electronic compatibility or optical compatibility	
139	1	Encoding	Code for serial encoding algorithm	

OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518000 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL



Communication Limited

Datasheet		DS10-U001-1 Final Rev.: 2017-12-28	
Product	100G QSFP28 transceiver OU serials	Ver.	000
Part No.	OU88M8-Dxx	Rev.	000
		Page	6 / 8

140	1	BR, nominal	Nominal bit rate, units of 100 Mbits/s
141	1	Extended rateselect Compliance	Tags for extended rate select compliance
142	1	Length(SMF)	Link length supported for SMF fiber in km (note 1)
143	1	Length(OM3 50 um)	Link length supported for EBW 50/125 um fiber (OM3), units of 2m (note 1)
144	1	Length(OM2 50 um)	Link length supported for 50/125 um fiber (OM2), units of 1m (note 1)
145	1	Length(OM1 62.5 um)	Link length supported for 62.5/125 um fiber (OM1), units of 1m (note 1)
146	1	Length (Copper)	Link length of copper or active cable, units of 1 m (note 1) Link length supported for 50/125 um fiber (OM4), units of 2 m) when Byte 147 declares 850nm VCSEL as defined in Table 37
147	1	Device tech	Device technology
148-163	16	Vendor name	QSFP28 vendor name(ASCII)
164	1	Extended Module	Extended Module codes for InfiniBand
165-167	3	Vendor OUI	QSFP28 vendor IEEE company ID
168-183	16	Vendor PN	Part number provided by QSFP28 vendor(ASCII)
184-185	2	Vendor rev	Revision level for part number provided by vendor(ASCII)
186-187	2	Wave length or Copper cable Attenuation	Nominal laser wavelength (wavelength=value/20 in nm) or copper cable attenuation in dB at 2.5GH (Adrs 186) and 5.0GHz (Adrs 187)
188-189	2	Wavelength tolerance	Guaranteed range of laser wavelength(+/- value) from nominal wavelength.(wavelength Tol.=value/200 in nm)
190	1	Max case temp.	Maximum case temperature in degrees C
191	1	CC_BASE	Check code for base ID fields (addresses 128-190)

OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518000 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL



Communication Limited

Datasheet

DS10-U001-1
Final Rev.: 2017-12-28

Product 100G QSFP28 transceiver
OU serials

Ver. 000

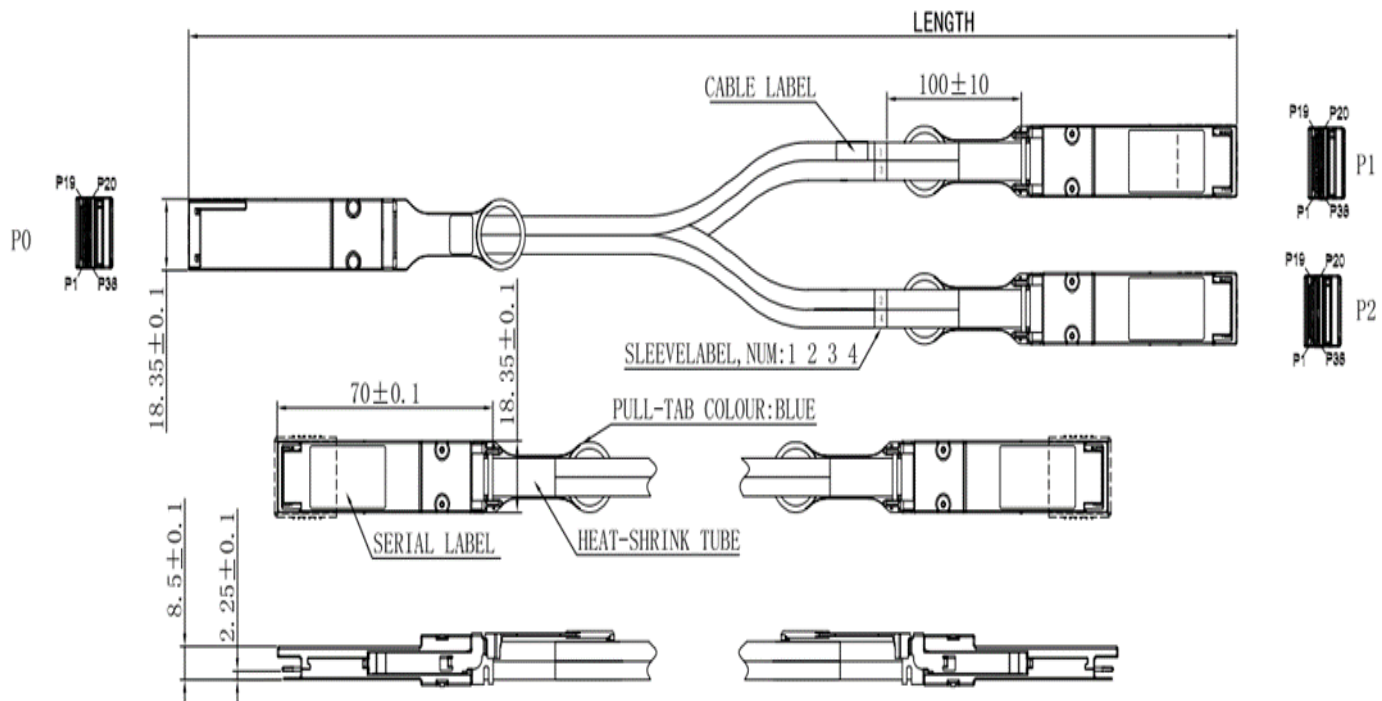
Part No. OU88M8-Dxx

Rev. 000


Page 7 / 8

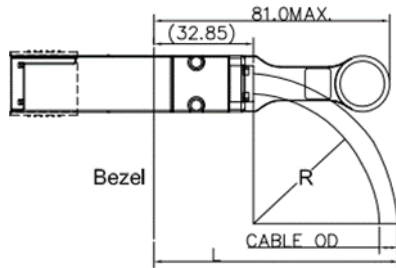
192-195	4	Options	Rate Select, TX Disable, TX Fault, LOS, Warning indicators for: Temperature, VCC, RX, power, TX Bias
196-211	16	Vendor SN	Serial number provided by vendor (ASCII)
212-219	8	Date Code	Vendor's manufacturing date code
220	1	Diagnostic Monitoring Type	Indicates which types of diagnostic monitoring are implemented (if any) in the Module. Bit 1,0 Reserved
221	1	Enhanced Options	Indicates which optional enhanced features are implemented in the Module.
222	1	Reserved	
223	1	CC_EXT	Check code for the Extended ID Fields (addresses 192-222)
Vendor Specific ID Fields			
224-255	32	Vendor Specific EEPROM	

10. Mechanical Dimensions



OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518000 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL

 CRE Communication Limited	Datasheet		DS10-U001-1 Final Rev.: 2017-12-28	
	Product	100G QSFP28 transceiver OU serials	Ver.	000
	Part No.	OU88M8-Dxx	Rev.	000
			Page	8 / 8



CABLE GAUGE	CABLE"OD"	MIN. BEND RADIUS"R"	MIN. BEND SPACE"L"
30AWG	6.5MM	32.5MM	71.85MM
26AWG	8.0MM	40.0MM	81.65MM

11. Module Ordering information

PN	Description
OU88M8-Dxx 30AWG	100G QSFP28 DAC xxm(Max 3m)
OU88M8-Dxx 26AWG	100G QSFP28 DAC xxm(Max 5m)

OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518000 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL