

# SO-QSFP28-ACUxM-2C

QSFP28, 100GBase, DAC, AWGxx, xm, active (2CDRs)

## OVERVIEW

SO-QSFP28-ACUxM-2CDR copper cable assemblies are high-performance, cost effective I/O solutions for 100 GB Ethernet and OTU4 applications. QSFP28 copper modules allow hardware manufacturers to achieve high port density, configurability and utilization at a very low cost and to reduce power budget.

## PRODUCT FEATURES

- Supports 103.125Gb/s and 111.8Gb/s bit rates
- Lower power consumption for single module < 1.3W
- 30AWG up to 3 meters distance
- Power supply: +3.3V
- Compatible to SFF-8665
- Temperature range: 0~ 70
- RoHS6 compliant
- With both side CDR

## APPLICATIONS

- 100G Ethernet links
- OTU4

## ORDERING INFORMATION

Part Number	Description
SO-QSFP28-ACU.5M-2C	QSFP, Active, AWG30, 27.95G per lane, 0.5m
SO-QSFP28-ACU1M-2C	QSFP, Active, AWG30, 27.95G per lane, 1m
SO-QSFP28-ACU2M-2C	QSFP, Active, AWG30, 27.95G per lane, 2m
SO-QSFP28-ACU3M-2C	QSFP, Active, AWG30, 27.95G per lane, 3m
SO-QSFP28-ACU4M-2C	QSFP, Active, AWG30, 27.95G per lane, 4m
SO-QSFP28-ACU5M-2C	QSFP, Active, AWG30, 27.95G per lane, 5m

## REGULATORY COMPLIANCE

Parameter	Symbol	Min
TUV	R50135086	EN 60950-1:2006+A11+A1+A12
UL	E317337	CSA C22.2 No. 60950-1-07
EMC CE	AE 50285865 0001	EN 55022:2010 EN 55024:2010
FCC	WTF14F0514417E	47 CFR PART 15 OCT., 2013
ROHS	HS01G006464	2011/65/EU

Note: The above certificate number updated to June 2014, because some certificate will be updated every year, such as FCC and ROHS. For the latest certification information, please check with SmartOptics.

## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Max	Unit
Maximum Supply Voltage	V <sub>cc</sub>	-0.5	4	V
Storage Temperature	T <sub>s</sub>	-40	85	°C

Note: Exceeding any one of these values may destroy the device immediately.

## NORMAL OPERATING CONDITIONS

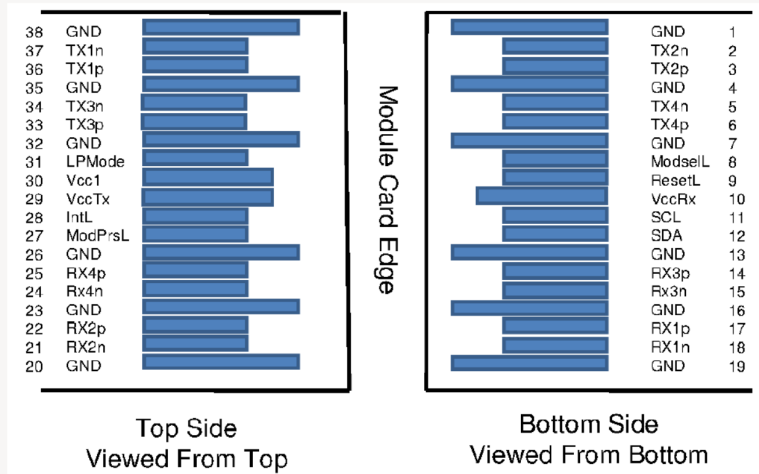
Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T <sub>c</sub>	0		70	°C
Supply Voltage	V <sub>cc</sub>	3.15	3.3	3.45	V
Power Consumption (per QSFP28 single module)	P			1.3	W
Data Rate (per channel)				27.95	Gbps

Note: The power consumption value is just depended on single module.

## ELECTRICAL CHARACTERISTICS – TRANSMITTER & RECEIVER (EACH LANE)

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter Differential Input Voltage	V <sub>IN</sub>	500	-	1200	mV <sub>pp</sub>	
Receiver Differential Output Voltage	V <sub>O</sub>	500	-	1200	mV <sub>pp</sub>	
Impedance	Z <sub>cable</sub>	90	100	110	Ohms	

## QSFP28 TRANSCEIVER ELECTRICAL PAD LAYOUT



### PIN FUNCTION DEFINITIONS

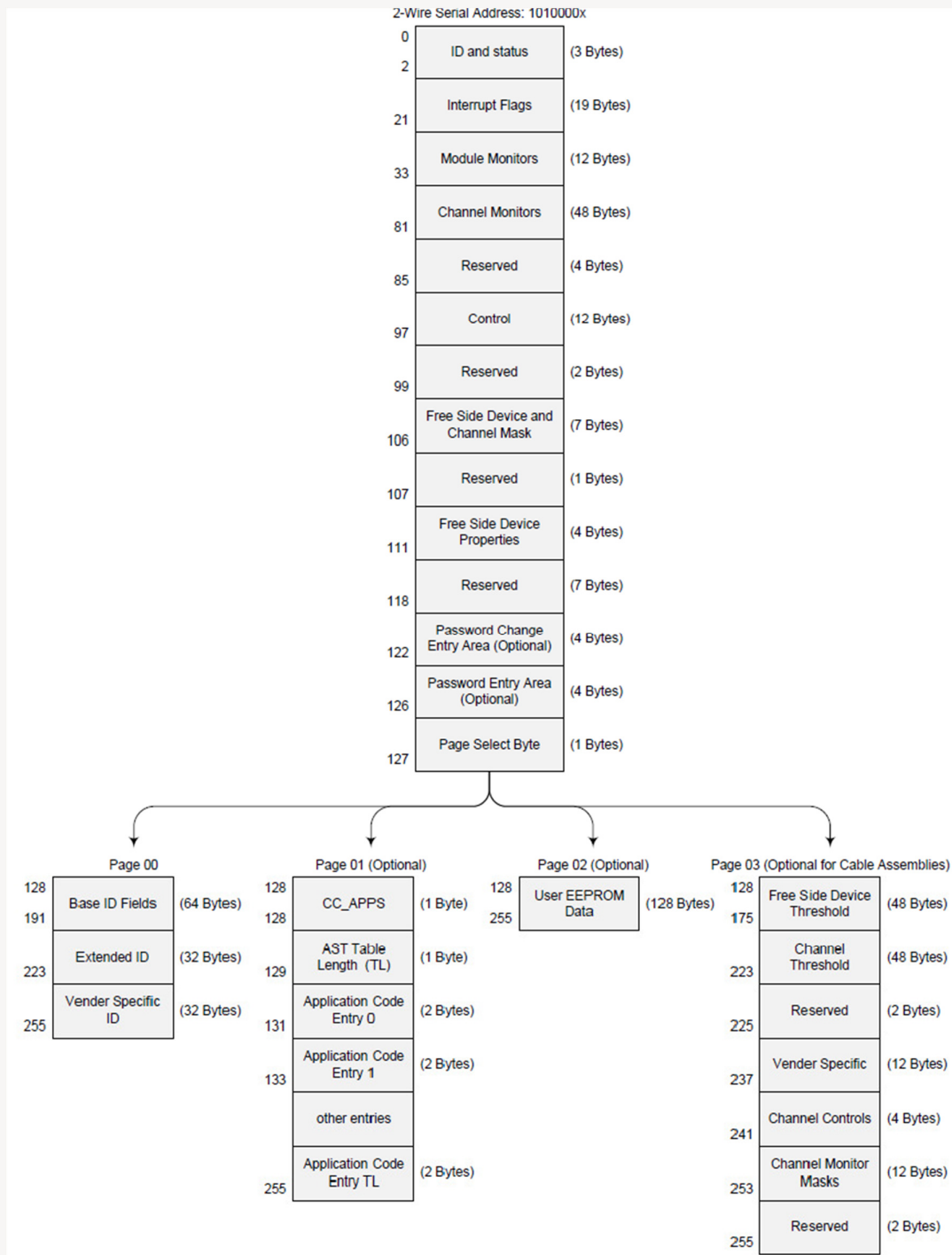
PIN	Signal Name	Description	PIN	Signal Name	Description
1	GND	Ground (1)	20	GND	Ground (1)
2	Tx2n	Transmitter Inverted Data Input	21	Rx2n	Receiver Inverted Data Output
3	Tx2p	Transmitter Non-Inverted Data Input	22	Rx2p	Receiver Non-Inverted Data Output
4	GND	Ground (1)	23	GND	Ground (1)
5	Tx4n	Transmitter Inverted Data Input	24	Rx4n	Receiver Inverted Data Output
6	Tx4p	Transmitter Non-Inverted Data Input	25	Rx4p	Receiver Non-Inverted Data Output
7	GND	Ground (1)	26	GND	Ground (1)
8	ModSelL	Module Select	27	ModPrsL	Module Present
9	ResetL	Module Reset	28	IntL	Interrupt
10	VccRx	+3.3V Power Supply Receiver (2)	29	VccTx	+3.3V Power supply transmitter (2)
11	SCL	2-wire serial interface clock	30	Vcc1	+3.3V Power supply
12	SDA	2-wire serial interface data	31	LPMODE	Low Power Mode
13	GND	Ground (1)	32	GND	Ground (1)
14	Rx3p	Receiver Non-Inverted Data Output	33	Tx3p	Transmitter Non-Inverted Data Input
15	Rx3n	Receiver Inverted Data Output	34	Tx3n	Transmitter Inverted Data Input
16	GND	Ground (1)	35	GND	Ground (1)
17	Rx1p	Receiver Non-Inverted Data Output	36	Tx1p	Transmitter Non-Inverted Data Input
18	Rx1n	Receiver Inverted Data Output	37	Tx1n	Transmitter Inverted Data Input
19	GND	Ground (1)	38	GND	Ground (1)

Notes:

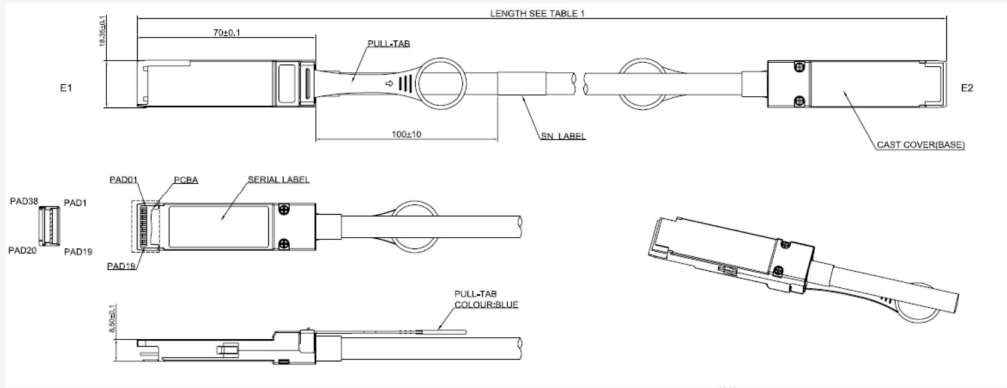
All Ground (GND) are common within the QSFP+ module and all module voltages are referenced to this potential unless noted otherwise. Connect these directly to the host board signal common ground plane.

VccRx, Vcc1 and VccTx are the receiving and transmission power suppliers and shall be applied concurrently. The connector pins are each rated for a maximum current of 500mA.

MEMORY MAP



### MECHANICAL SPECIFICATIONS



Subject to change without notice.

For more information, visit [smarptoptics.com](http://smarptoptics.com).