

ZISA 100G QSFP28 eSR4 module



DESCRIPTION

ZISA's 100Gbps QSFP28 SR4 module is designed to meet the requirements of optical fiber interface over MMF in data centers. The product is an integrated module containing a micro-optic component and semiconductor material. The module could implement optical-electrical conversion and electrical-optical conversion function. It could be used at key locations in optical networks like 100GBASE Ethernet.

Features

- 100G Ethernet Links
- Data Center Networking

Product List

Customer Code	Customer P/N	ZISA Code	ZISA P/N
			RTXM420-551

SPECIFICATION

Recommended Operating Conditions

Parameter	Units	MIN.	TYP.	MAX.	Notes
Recommended Operating Conditions					
Operating Case Temperature	°C	0		+70	
Power Supply Voltage	V	3.135	3.3	3.465	
Data Rate, each Lane	Gbps		25.78125		
Control Input Voltage High	V	2		Vcc	
Control Input Voltage Low	V	0		0.8	
Link Distance on OM4 MMF	M			300	

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ.	Max	Unit	Note
Supply Voltage	V _{cc1} , V _{ccTx} , V _c	-0.3		3.6	V	
Storage Temperature	T _s	-40		85	°C	
Relative Humidity	RH	0		85	%	

General Specification

Parameter	Symbol	Min	Typ.	Max	Unit	Note
Data Rate / Bit Rate (per channel)	BR lane		25.78125		Gbit/s	±100ppm
Bit Error Ratio @25.78Gb/s	BER		1e-12			PRBS 2 ³¹ -1

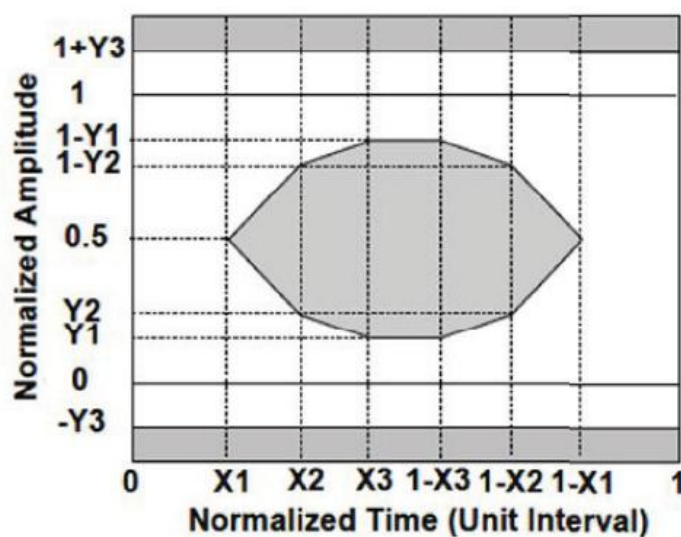
Transmitter Optical Specification

Parameter	Units	MIN.	TYP.	MAX.	Notes
Signaling rate, each lane	GBd		25.78G		
Signaling Speed Accuracy	ppm	-100PPM		100PPM	
Center wavelength	nm	840	850	860	
Spectral Width	nm	/		0.45	
Output average power(EOL)	dBm	-8.4		2.4	
OMA(EOL)	dBm	-6.4		3	
Launch power in OMA minus TDEC	dBm	-7.3		/	
Transmitter launch dispersion eye closure (TDEC) ,each lane(Max)	dB	/		4.3	
Extinction Ratio	dB	3		/	
Mask margin	%	5		/	
Optical Power for TX DISABLE(each lane)	dBm	/		-35	
Encircled flux	%	86		/	
Optical Return Loss Tolerance	dB	/		12	

Receiver Optical Specification

Parameter	Units	MIN.	TYP.	MAX.	Notes
Signaling rate, each lane	GBd		25.78G		
Signaling Speed Accuracy	ppm	-100ppm		+100ppm	
Operating Wavelength	nm	840		860	
Damage threshold(min)	dBm	3.4		/	
Avage receive power,each lane	dBm	-10.3		2.4	
Receive power,each lane OMA(max)	dBm	/		3	
Receiver reflectance(Max)	dBm	/		-12	
Stress Sensitivity OMA(each Lane)	dBm	/		-5.2	
Sensitivity in OMA	dBm	/		-10.3	BER@5e-5
Saturation Power (EOL)	dBm	2.4		/	
no-power monitor RX	dBm	/	-40	/	
LOS Assert	dBm	-30		/	
LOS De-assert	dBm	/		-12	
Hysteresis	dB	0.5		/	

Eye Mask Definition



	X1	X2	X3	Y1	Y2	Y3
TP2	0.28	0.34	0.43	0.36	0.44	0.4
TP4	0.28	0.5	0.5	0.33	0.33	0.4

Channel List

Center Wavelength	symbol	min	typ	max	unit	remark
Lane 0	$\lambda C0$	840		860	nm	Tx0, Rx0
Lane 1	$\lambda C1$	840		860	nm	Tx1, Rx1
Lane 2	$\lambda C2$	840		860	nm	Tx2, Rx2
Lane 3	$\lambda C3$	840		860	nm	Tx3, Rx3

Electrical Specification

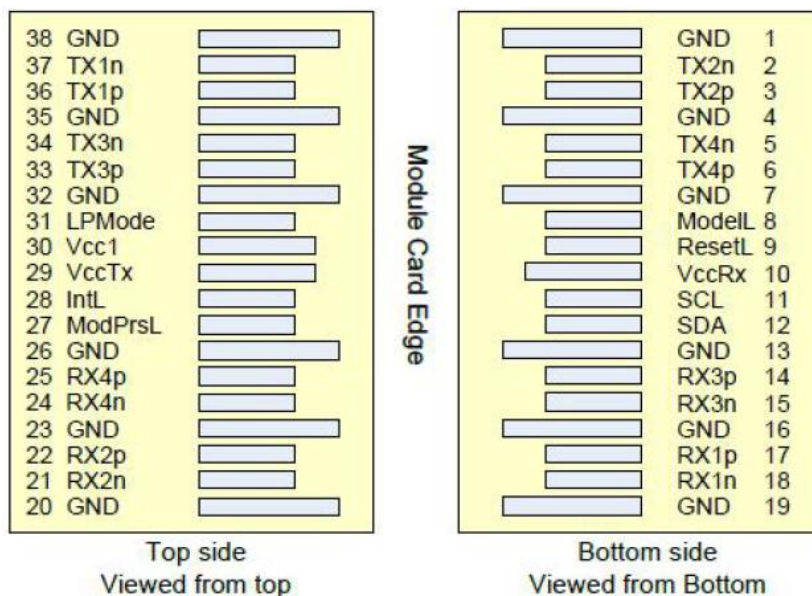
Parameter	Symbol	Min	Typ.	Max	Unit	Remarks
Supply Voltage	VCC	3.14	-	3.47	V	
Supply Current	ICC			600	mA	shared between RX and TX
Transmitter						
Data Rate	BR		25.78		Gbit/s	
TX_DISABLE High	VDH	2	-	3.5	V	Input Voltage High
TX_DISABLE Low	VDL	-0.3	-	0.8	V	Input Voltage Low
TX_FAULT High [assert]	VFH	2	-	3.5	V	Output Voltage High
TX_FAULT Low [negated]	VFL	-0.3	-	0.8	V	Output Voltage Low
Receiver						
Data Rate	BR		25.78		Gbit/s	
Differential Output Swing	VRXDIFF	400	-	800	mV	At TP4
Differential Eye Height	VEH	228			mV	
Loss-Output Voltage High	VOH	2	-	3.5	V	Output Voltage High
Loss-Output Voltage Low	VOL	-0.3	-	0.8	V	Output Voltage Low

Electric Ports Definition

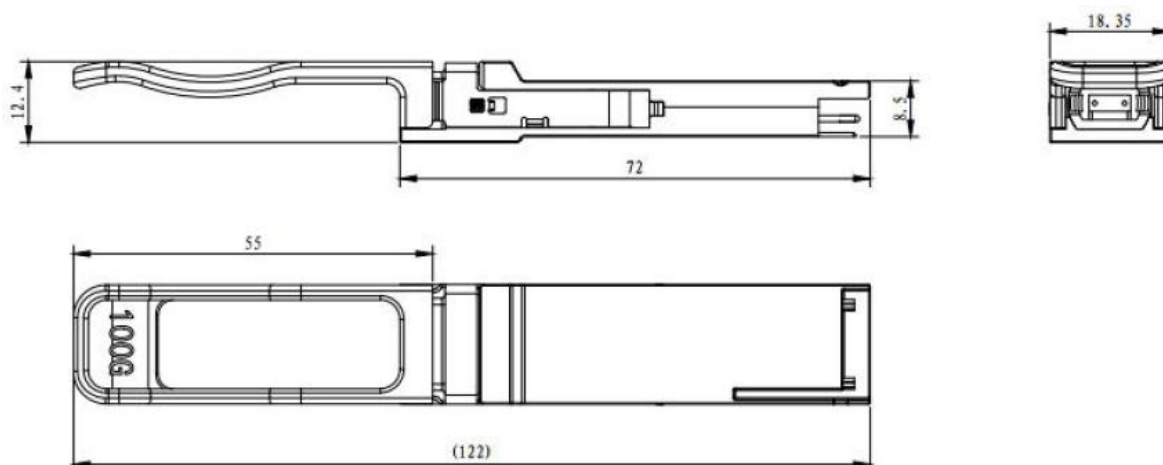
NO	PIN	DEFINITION	DESCRIPTION	NOTE
1	1	GND	Ground	1
2	2	Tx2n	Transmitter Inverted Data Input	
3	3	Tx2p	Transmitter Non-Inverted Data output	
4	4	GND	Ground	1
5	5	Tx4n	Transmitter Inverted Data Input	
6	6	Tx4p	Transmitter Non-Inverted Data output	
7	7	GND	Ground	1
8	8	ModSelL	Module Select	
9	9	ResetL	Module Select	
10	10	VccRx	+3.3V Power Supply Receiver	2
11	11	SCL	2-Wire Serial Interface Clock	
12	12	SDA	2-Wire Serial Interface Data	
13	13	GND	Ground	1
14	14	Rx3p	Receiver Non-Inverted Data Output	
15	15	Rx3n	Receiver Inverted Data Output	
16	16	GND	Ground	1
17	17	Rx1p	Receiver Non-Inverted Data Output	
18	18	Rx1n	Receiver Inverted Data Output	
19	19	GND	Ground	1
20	20	GND	Ground	1
21	21	Rx2n	Receiver Inverted Data Output	
22	22	Rx2p	Receiver Non-Inverted Data Output	
23	23	GND	Ground	1
24	24	Rx4n	Receiver Inverted Data Output	
25	25	Rx4p	Receiver Non-Inverted Data Output	
26	26	GND	Ground	1
27	27	ModPrsL	Module Present	
28	28	IntL	Interrupt	
29	29	VccTx	+3.3 V Power Supply transmitter	2
30	30	Vcc1	+3.3 V Power Supply	2
31	31	LPMODE	Low Power Mode	
32	32	GND	Ground	1
33	33	Tx3n	Transmitter Inverted Data Input	
34	34	Tx3p	Transmitter Non-Inverted Data output	
35	35	GND	Ground	1
36	36	Tx1n	Transmitter Inverted Data Input	
37	37	Tx1p	Transmitter Non-Inverted Data output	
38	38	GND	Ground	1

NOTE:

1. GND is the symbol for signal and supply (power) common for the QSFP28 module. All are common within the module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal common ground plane.
2. VccRx, Vcc1 and VccTx are the receiving and transmission power suppliers and shall be applied concurrently. Recommended host board power supply filtering is shown in Figure 3 below. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the module in any combination. The connector pins are each rated for a maximum current of 1000mA.



MECHANICAL DRAWINGS



技术要求:
1. 未注公差 $\pm 0.1\text{mm}$.

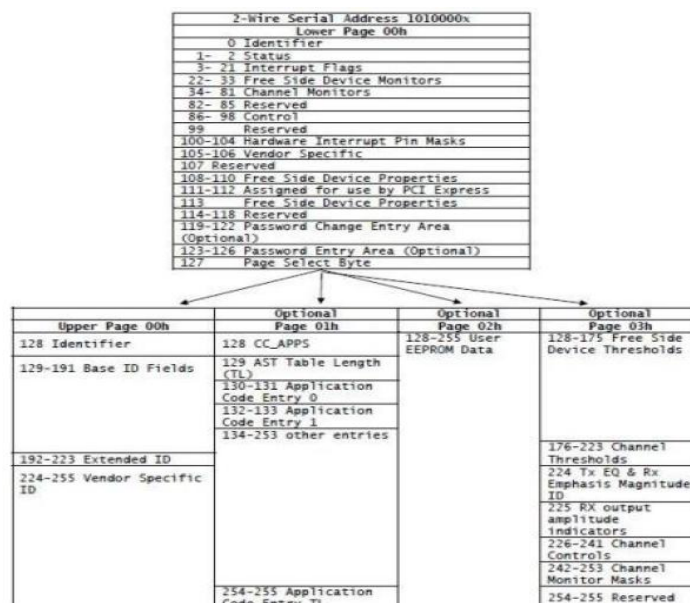
CONNECTOR

PARAMETER	SPECIFICATION	UNIT	NOTE
Connector Type(All ports)	MPO12		

Memory Map

SFF-8636

SFF-8636 defines a common management interface for 4-lane pluggable transceiver modules, direct attach modules and shielded cable assemblies. It sets the EEPROM memory space as follows:



EEPROM

ZISA's QSFP28 SR4's EEPROM is defined based on SFF-8636 and customer's requirement.

Dual Rate Operation Configuration (Optional)

ZISA's QSFP28 SR4 transceiver also supports 41.3Gbit/s and 103.1Gbit/s dual rate operation by controlling the Rate Selection inside the module.

Regulatory Compliance

Feature	Test Method	Performance
RoHS	BS EN 1122: 2001 US EPA METHOD 3050B US EPA METHOD 3052 US EPA METHOD 3060A	Pb <1000ppm Cr6+ <1000ppm Hg <1000ppm PBB <1000ppm PBDE <1000ppm Cd <100ppm
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	500V– Human Body Model
Electrostatic Discharge (ESD) Immunity	IEC61000-4-2	LV4(Air discharge 15kV,Contact discharge 8kV) Performance criterion B
Electromagnetic Interference (EMI)	CISPR22 ITE Class B FCC Class B CENELEC EN55022 VCCI Class 1	Compliant with standard
Immunity	IEC61000-4-3 Class 2	Typically show no measurable effect from a 3 V/m field swept from 80 to 1000MHz applied to the transceiver without a chassis enclosure.
Safety	FDA	
	UL 94V-0	
	TUV	
	CE	

Ordering Information

Part No	Product Description	Data Rate	Tx	Tx Power (dBm)	Rx	OMA Sensitivity (dBm)	Temp (°C)	Reach (m)	Power (W)
RTXM420-551	QSFP28 eSR4	4*25G	850nm VCSEL	-4~ 2.4	PIN	-7.4	0~70	300	<2

ZISA Corporation Limited

Tel: +86-10-52885062 Fax: +86-10-82156720

Mail to : sales@zisacom.com.cn

URL: <http://www.zisacom.com>

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