CRE	Datasheet	No.	DS10-A002
		Initial Date	2010-07-29
OAB	OAB2S3(5)113(25)	Written Team	R&D Dept.
			GH Zheng

Ⅰ Preview

PN	OAB2S3(5)113(20)
Description	1X9 transceiver, 1.25G SM 1310nm /1550nm 20KM SC 0~70℃ +3.3V

Ⅱ Contents

Ⅲ Revision History

No.	Date	Items	Change Recording	Ver.	Rev.	Customer
1	2010-07-29	All	Initial registration	000	000	Standard
2						
3						
4						
5						
6						

1. Features

- ✧ Single Fiber Bi-Directional Operation
- ✧ Integrated 1310/1550nm Filter
- ✧ Single +3.3V Power Supply
- ✧ LVPECL Data Interface
- ✧ 1X9, Single Mode Fiber
- ✧ Compliant with Telcordia (Bellcore) GR-468-CORE
- ✧ Eye Safety Designed to Meet Laser Class1
- ✧ Compliant with IEC60825-1
- ✧ Isolation > 30dB, Cross Talk < -45dB
- ✧ RoHS Compliant Products Available

2. Applications:

- ✧ Gigabit Ethernet
- ✧ Fiber Channel

3. Description:

OCRE's OAB2S3113(20) / OAB2S5113(20) Bi-Directional transceiver is a high performance, cost effective module for Bi-Directional serial optical data communication applications, all versions are compliant with gigabit Ethernet and fiber channel application. This module is designed for Single-Mode single fiber, operates at the normal wavelength of 1310/1550nm. The transmitter section incorporates FP/DFB and driver IC with temperature compensation and automatic power control circuit. The receiver section incorporates an efficient InGaAs/InP PIN photodiode and transimpedance with AGC for wide dynamic range. An integrated WDM coupler separates 1310nm and 1550nm. The transceiver has excellent immunity and reliability.

4. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	T_{ST}	-40	+85	℃
Supply Voltage	V_{CC}	GND	+3.6	V
Input Voltage	V_{IN}	0	V_{CC}	V
Output Current	I_O	0	30	mA
Soldering Temperature & Time	240/10			℃/S

5. Operating Environment:

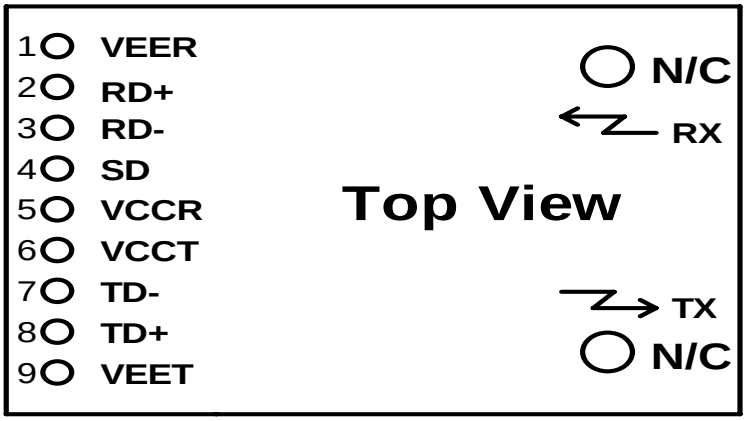
Parameter	Symbol	Min.	Typical	Max.	Unit
Supply Voltage	V_{CC}	+3.15	+3.3	+3.45	V
Operating Temperature	T_{OP}	0	-	+70	℃

6. Electrical and Optical Characteristics(Condition: Ta=TOP)

Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate	B	-	1.25	-	Gb/s
Transmitter Section (OAB2S3113(20))					
Output Center Wavelength	λc	1270	1310	1360	nm
Output Spectral Width	Δλ(RMS)	-	-	4	nm
Average Output Optical Power	P_O	-8	-	-3	dBm
Extinction Ratio	E.R.	9	-	-	dB
Supply Current	I_{CC}	-	70	100	mA
Data Input Voltage-High	V_{IHS}	V_{cc}-1.16	-	V_{cc}-0.89	V
Data Input Voltage -Low	V_{ILS}	V_{cc}-1.82	-	V_{cc}-1.48	V
Differential Input Voltage	V_{IH} - V_{IL}	300			mV
Output Optical Eye	Compliant with IEEE 802.3Z Recommendation				
Receiver Section (OAB2S3113(20))					
Receiver Sensitivity	P_{min}	-	-	-24	dBm
Max Input Optical Power	Pmax	-3	-	-	dBm
Signal Detection-Asserted	P_{H-L}	-33	-	-	dBm
Signal Detection-Deserted	P_{L-H}	-	-	-23	dBm
Hysteresis	-	1.0		5.0	dB
Output High Voltage	V_{OH}	V_{cc}-1.03	-	V_{cc}-0.89	V
Output Low Voltage	V_{OL}	V_{cc}-1.82	-	V_{cc}-1.63	V
Operating Wavelength	λc	1480	1550	1580	nm
Supply Current	I_{CC}	-	70	100	mA
SD Output Type	LVPECL				
Transmitter Section (OAB2S5113(20))					
Output Center Wavelength	λc	1480	1550	1580	nm
Output Spectral Width	Δλ(-20dB)	-	-	1	nm
Average Output Optical Power	P_O	-8	-	-3	dBm
Extinction Ratio	E.R.	9	-	-	dB
Side Mode Suppression Ratio	SMSR	30	-	-	dB
Supply Current	I_{CC}	-	70	100	mA
Data Input Voltage-High	V_{IHS}	V_{cc}-1.16	-	V_{cc}-0.89	V

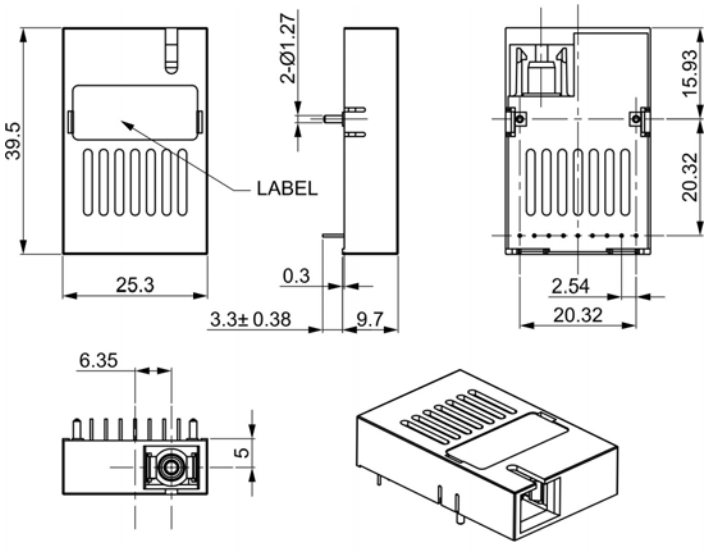
Data Input Voltage -Low	V_{ILS}	V_{cc}-1.82	-	V_{cc}-1.48	V
Differential Input Voltage	V_{IH} - V_{IL}	300			mV
Output Optical Eye	Compliant with IEEE 802.3Z Recommendation				
Receiver Section (OAB2S5113(20))					
Receiver Sensitivity	P_{min}	-	-	-24	dBm
Max Input Optical Power	Pmax	-3	-	-	dBm
Signal Detection-Asserted	P_{H-L}	-33	-	-	dBm
Signal Detection-Deserted	P_{L-H}	-	-	-23	dBm
Hysteresis	-	1.0		5.0	dB
Output High Voltage	V_{OH}	V_{cc}-1.03	-	V_{cc}-0.89	V
Output Low Voltage	V_{OL}	V_{cc}-1.82	-	V_{cc}-1.63	V
Operating Wavelength	λc	1270	1310	1360	nm
Supply Current	I_{CC}	-	70	100	mA
SD Output Type	LVPECL				

7. Pin Description



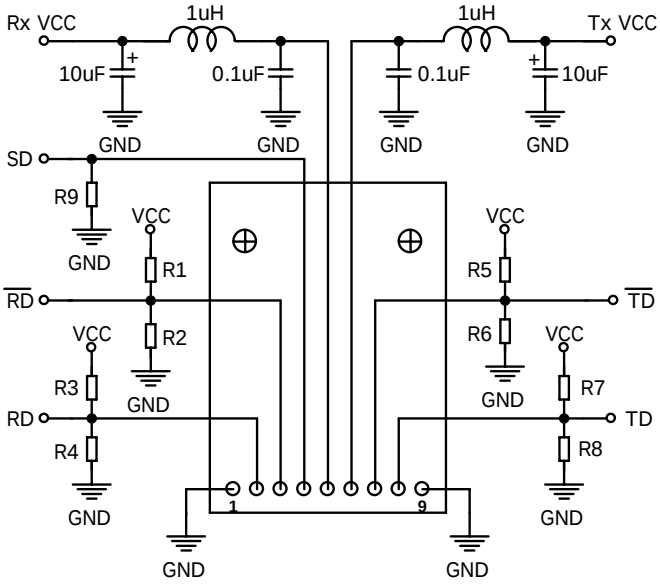
Pin	Name	Level	Description
1	VEER		Negative power of receiver section, normally grounded
2	RD+	LVPECL	Receiver Data Output
3	RD-	LVPECL	Inverted Receiver Data Output
4	SD	LVPECL	Optical alarm of receiver section, High level when normal, low level when no light
5	VCCR		Positive power of receiver section, normally +3.3V
6	VCCT		Positive power of transmitter section, normally +3.3V
7	TD-	LVPECL	Inverted Transmitter Data input
8	TD+	LVPECL	Transmitter Data input
9	VEET		Negative power of transmitter section, normally grounded

8. Mechanical Dimensions(Unit:mm)



1X9 Bi-Di SC

9. Recommended Circuit



NOTE:

1:VCC=+5V
R1=R3=R5=R7=82R
R2=R4=R6=R8=130R
R9=390R

2:VCC=+3.3V
R1=R3=R5=R7=130R
R2=R4=R6=R8=82R
R9=200R

Data-PECL.SD-PECL

10. Model Ordering Information

PN	Description
OAB2S3113(20)	1X9 transceiver, 1.25G SM Tx1310nm/Rx1550nm 20KM SC 0~70℃ +3.3V
OAB2S5113(20)	1X9 transceiver, 1.25G SM Tx1550nm/Rx1310nm 20KM SC 0~70℃ +3.3V
OAB2S3133(20)	1X9 transceiver, 1.25G SM Tx1310nm/Rx1550nm 20KM SC -20~70℃ +3.3V
OAB2S5133(20)	1X9 transceiver, 1.25G SM Tx1550nm/Rx1310nm 20KM SC -20~70℃ +3.3V
OAB2S3123(20)	1X9 transceiver, 1.25G SM Tx1310nm/Rx1550nm 20KM SC -40~85℃ +3.3V
OAB2S5123(20)	1X9 transceiver, 1.25G SM Tx1550nm/Rx1310nm 20KM SC -40~85℃ +3.3V
OAB2S3115(20)	1X9 transceiver, 1.25G SM Tx1310nm/Rx1550nm 20KM SC 0~70℃ +5V
OAB2S5115(20)	1X9 transceiver, 1.25G SM Tx1550nm/Rx1310nm 20KM SC 0~70℃ +5V
OAB2S3135(20)	1X9 transceiver, 1.25G SM Tx1310nm/Rx1550nm 20KM SC -20~70℃ +5V
OAB2S5135(20)	1X9 transceiver, 1.25G SM Tx1550nm/Rx1310nm 20KM SC -20~70℃ +5V
OAB2S3125(20)	1X9 transceiver, 1.25G SM Tx1310nm/Rx1550nm 20KM SC -40~85℃ +5V
OAB2S5125(20)	1X9 transceiver, 1.25G SM Tx1550nm/Rx1310nm 20KM SC -40~85℃ +5V