Multi-source Agreement (MSA) of 40 Gbit/s Miniature Device (XLMD)

XLMD11

Electrical & Optical Interfaces of Optical Receiver Device

Rev. 1.0
February 21, 2008

Description

This technical document has been created by the XLMD MSA committee. This document is offered to both users and suppliers of 40Gbit/s pigtail type optical device as a basis for a technical agreement. However, it is not a warranted document. Each optical device supplier will have its own datasheet. If the users wish to find a warranted document, they should consult the datasheet of the chosen optical device supplier.

The MSA committee reserves the rights at any time to add, amend or withdraw technical data contained in this document.

Revision History

Revision	Date	Purpose/Changes
1.0	February 21, 2008	First public issue

1 Scope

The XLMD MSA committee has created this technical document to specify the electrical and optical interface of Optical Receiver Device. The specifications were based on the investigation of PIN TIA receiver with fiber pigtail.

2 Reference Documents

[1] XLMD12
"Physical Interface of Optical Receiver Device Package"

[2] IEC62007-1
"Semiconductor optoelectronic devices for fibre optic system applications - Part 1: Essential ratings and characteristics"

[3] IEC62007-2
"Semiconductor optoelectronic devices for fibre optic system applications - Part 2: Measuring methods"

[4] ITU-T G.959.1
"Optical transport network physical layer interfaces"

[5] ITU-T G.693
"Optical interfaces for intra-office systems"

[6] Telcordia GR-253-CORE
"SONET Transport Systems: Common Generic Criteria"

[7] Telcordia GR-468-CORE
"Generic Reliability Assurance Requirements for Optoelectronic Devices Used In Telecommunications Equipment"

3 Abbreviations

PD Photo diode
TIA Trans-impedance amplifier

4 Electrical Interface

Table 1 Specifications of electrical and optical performances

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Notes
O/E Conversion gain	G	Single-ended	100	—	—	V/W	
Output voltage swing	V_0	Single-ended AC	—	—	0.8	Vpp	Fig. 1 Fig. 2
Power supply voltage	Vpd	—	—	—	5.25	V	PD bias
	Vcc	—	3.135	3.3	3.465	V	TIA
Power supply current	Icc	—	—	—	150	mA	TIA

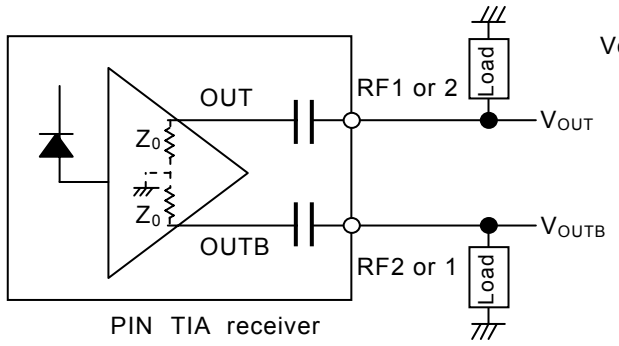

Fig. 1 Definition of the output impedance

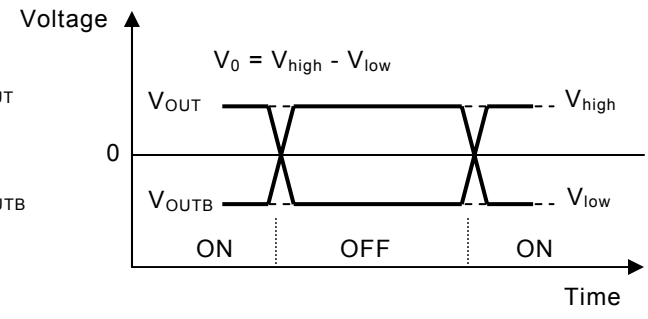

Fig. 2 Definition of single-ended output

ON: Optical input on
OFF: Optical input off

5 Optical Interface

The applicable optical interface shall be specified by each vendor considering the following.

ITU-T (G.959)	P1S1-3C2	P1S1-3C3	P1S1-3C5
Source Type	SLM	SLM	SLM
	P1L1-3A2	P1L1-3A3	P1L1-3A5
	SLM	SLM	SLM
	1L1-3C2FD	1L1-3C3FD	1L1-3C5FD
	SLM	SLM	SLM
	1L1-3C2F	1L1-3C3F	1L1-3C5F
	SLM	SLM	SLM

ITU-T (G.693)	VSR2000-3R2	VSR2000-3R3	VSR200-3R5
Optical Device	SLM	SLM	SLM
	VSR2000-3R2F	VSR2000-3R3F	VSR2000-3R5F
	SLM	SLM	SLM
	VSR2000-3L2F	VSR2000-3L3F	VSR2000-3L5F
	SLM	SLM	SLM
	VSR2000-3M2	VSR2000-3M3	VSR2000-3M5
	SLM	SLM	SLM
	VSR2000-3H2	VSR2000-3H3	VSR2000-3H5
	SLM	SLM	SLM

Telcordia (GR253-CORE)	SR-2	IR-2	IR-3
Optical Device	Indirect Modulation(IM)	IM	IM
	LR-2	LR-3	
	IM	IM	