Ligent
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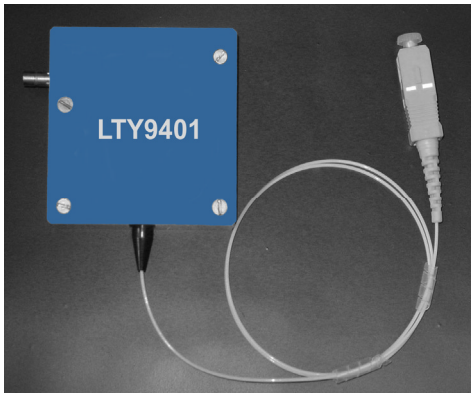
LTY9401 and LTY9403

1250 Mb/s E-PON PX-20U ONU Triplexer with 8472 DDM

Product Description

The LTY9401 and LTY9403 triplexers are low-cost 1250 Mb/s E-PON bidirectional transceivers designed to meet the requirements of the IEEE 802.3ah D3.2 PX-20U specification for 20 km point to multi point service in advanced "triple play" Optical Network Termination (ONT) or Optical Network Unit (ONU) equipment. They incorporate a 1310 nm F-P burst mode upstream laser transmitter, a 1490 nm continuous mode downstream digital receiver and a 1550 nm receiver for reception of CATV signals in the 47 to 870 MHz band. They are packaged in a 20-Pin Single-In-Line 50.8 x 50.8 x 13.7 mm metal housing with fiber pigtail and SC/APC connector. The RF output is via the side mounted 75-Ohm SMB connector. They are designed to operate over the industrial temperature range of –40ºC to +85ºC. The receiver incorporates the LVTTL Rx_SD monitor function (LTY9401) or the LVTTL Rx_LOS Loss of Signal monitor function (LYT9403) and the burst mode transmitter incorporates the LVTTL Tx_BEN Burst Mode Enable function. The 2-wire LVTTL I^2C data bus enables access to the 8472 internally calibrated alarm and warning functions.



Optical Features

- Single Fiber 1250 Mb/s Triplexer
- 1310 nm F-P Burst Mode Transmitter
- < -45 dBm Tx "Off State" Optical Power
- 1490 nm PIN/TIA CW Mode Digital Receiver
- 1550 nm Linear CATV Video Receiver
- 47 dB Cross Talk Isolation
- SC/APC Fiber Pigtail

RF / Electrical Features

- 3.3 V Burst Mode Transmitter
- 3.3 V Digital Receiver
- 5.0 V and 12.0 V Video Receiver
- 2.2 W Typical Power Consumption
- Differential LVPECL Rx Signal Interface
- Differential LVPECL Tx Signal Interface
- 47 to 870 MHz RF BW
- 13 dBmV RF Output
- 75-Ohm Single-Ended RF Output

Diagnostic Features

- LVTTL Rx_SD (LTY9401)
- LVTTL Rx_LOS (LTY9403)
- LVTTL Tx_BEN
- < 10 ns Burst Mode Tx Response Time
- LVTTL 8472 I^2C DDM Interface

Mechanical Features

- 20-Pin SIL Package
- 50.8 x 50.8 x 13.7 mm Package Outline
- 75-Ohm SMB RF Output Jack

Environmental Features

- -40°C to +85°C Storage Temperature
- -40°C to +85°C Operating Temperature

Applications

- Passive optical network (PON)
- Full Service Access Networks
- Fiber-to-the-Home (FTTH)
- Fiber-to-the-Business (FTTB)
- E-PON / GE-PON Upstream Transceiver

Applied Standards

- IEEE802.3ah D3.2
- ITU-T G.984.2

How to Order

Part Number	Description	Receiver Monitor	RF Output
LTY9401	E-ON ONU Triplexer IEEE802.3ah (D3.2) Compliant, PX-20 Service	LVTTL Rx_SD	75-Ohm SMB Jack
LTY9403	E-ON ONU Triplexer IEEE802.3ah (D3.2) Compliant, PX-20 Service	LVTTL Rx_LOS	75-Ohm SMB JACK

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units
Storage Temp	Tstg	-40	+100	ºC
Case Operating Temperature	Tcase	-40	+85	ºC
Soldering Temperature	Tsld	-	260	ºC
Soldering Time	Ts	-	10	s

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Units	Notes
Operating Temperature	Tamb	-40	-	+85	ºC	
DC Power Supply Voltage	V_{CC}	3.135	3.3	3.465	VDC	
Video Power Supply 1	V_{DD1}	10.8	12.0	13.2	VDC	
Video Power Supply 2	V_{DD2}	4.5	5.0	5.5	VDC	
Tx Bit Rate	-	-	1250	-	Mb/s	
Rx Bit Rate	-	-	1250	-	Mb/s	
Video Bandwidth	BW	47	-	970	MHz	

Transmitter Optical Characteristics (Tamb = -40º to +85ºC unless noted otherwise, VCC = 3.3 V)

Parameter	Symbol	Min	Typ	Max	Units	Notes
Average Optical Output	Pout	-2	0	3	dBm	Into 9/125 micron fiber
Optical Rise / Fall Time	t_r / t_f	-	150	260	ps	20% to 80%
Operating Wavelength	λ	1280	1310	1340	nm	
Spectral Line Width	$\Delta\lambda$	-	-	2.5	nm	
Extinction Ratio	ER	10	12	-	dB	
Output Eye	-	-	-	-	-	IEEE802.3ah Mask
Relative Intensity Noise	RIN	-	-	-113	dB/Hz	
Total Jitter	Tj	-	-	0.2	UI	
Optical Cross Talk	C_{RT}	-	-40	-	dB	

Transmitter Electrical Parameters (Tamb = -40º to +85ºC unless noted otherwise, VCC = 3.3 V)

Parameter	Symbol	Min	Typ	Max	Units	Notes
Supply Current	I_{CCT}	-	-	150	mA	
Signal / Data Differential Input Voltage	V_{IH} - V_{IL}	300	-	1900	mV p-p	RF signal voltage @ 1250 Mb/s
Signal / Data Input Voltage / LOW	V_{IL} - V_{CC}	-2.0	-	-1.58	V	LVPECL Interface
Signal / Data Input Voltage / HIGH	V_{IH} - V_{CC}	-1.1	-	-0.75	V	LVPECL Interface
Tx_BEN Burst Mode Enable Time	Tx_{EN}	-	-	10	ns	
Tx_BEN Burst Mode Disable Time	Tx_{DIS}	-	-	10	ns	
Tx OFF Optical Output Power	$Pout_{OFF}$	-	-	-45	dBm	Tx_BEN in the Disable State

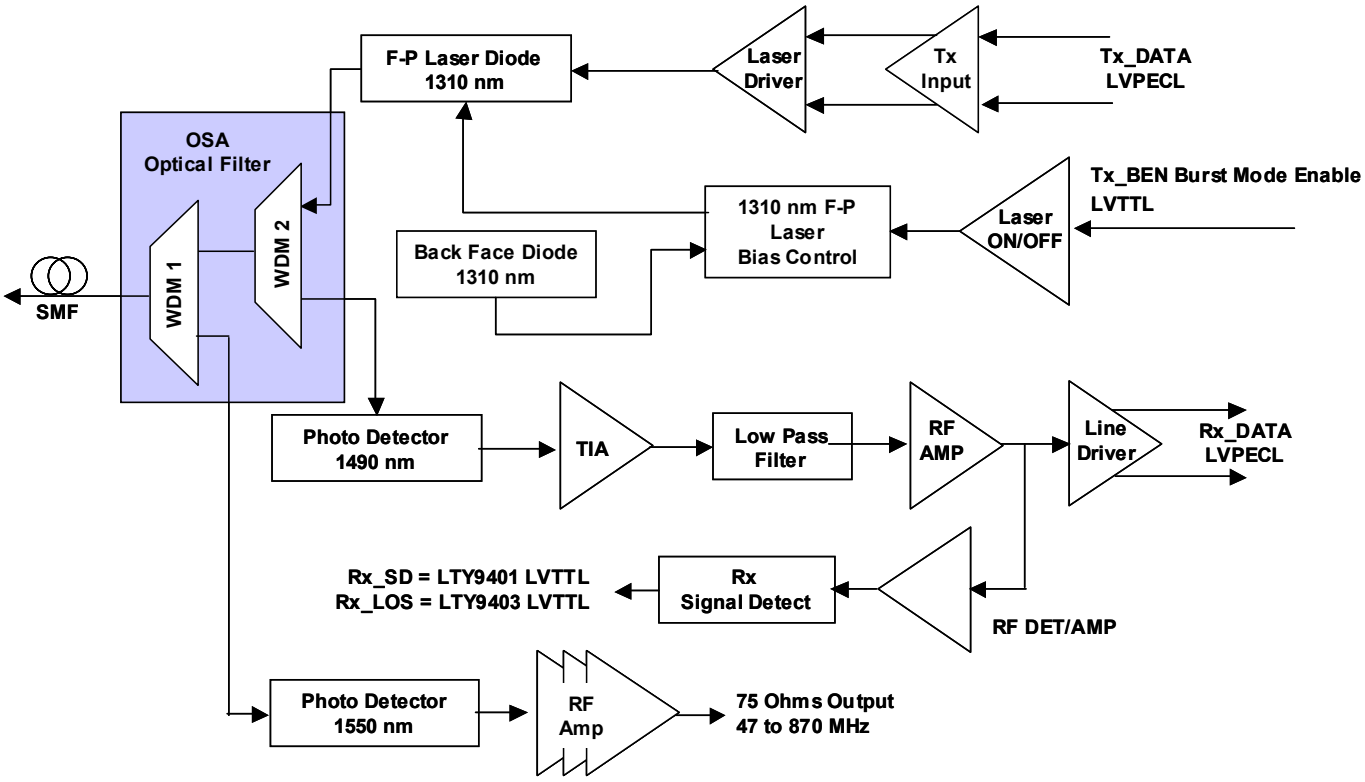
Digital Receiver Optical Characteristics (Tamb = -40ºC to +85ºC unless noted otherwise, VCC = 3.3 V)

Parameter	Symbol	Min	Typ	Max	Units	Notes
Operating Wavelength	λ	1480	-	1500	nm	
Optical Input Power	Pin	-24	-	-3	dBm	BER < 10E-10, 1250 Mb/s, 2_7-1 PRBS
Optical Input Power MAX	Pin_{MAX}	-	-	0	dBm	
Optical Return Loss	RL	20	-	-	dB	
Data Output Rise / Fall Time	t_r / t_f	-	-	250	ps	20% to 80%
Signal Detect: ASSERT	Pa	-34	-	-24	dBm	Applies to Rx_SD or Rx_LOS
Signal Detect: DEASSERT	Pd	-35	-	-25	dBm	Applies to Rx_SD or Rx_LOS
Signal Detect: Hysteresis	-	1	-	-	dB	Applies to Rx_SD or Rx_LOS
Signal Detect: ASSERT / DEASSERT Time	-	-	-	100	µs	Applies to Rx_SD or Rx_LOS

Digital Receiver Electrical Characteristics (Tamb = -40ºC to +85ºC unless noted otherwise, VCC = 3.3 V)

Parameter	Symbol	Min	Typ	Max	Units	Notes
Supply Current	I_{CCR}	-	-	125	mA	Not including Output Load Current
Signal / Data Differential Output Voltage	-	600	-	1900	mV p-p	RF signal voltage @ 1250 Mb/s
Signal Detect Output Voltage: LOW State	V_{IL}	0	-	0.8	V	Rx_SD or Rx_LOS
Signal Detect Output Voltage: HIGH State	V_{IH}	2.4	-	3.3	V	Rx_SD or Rx_LOS

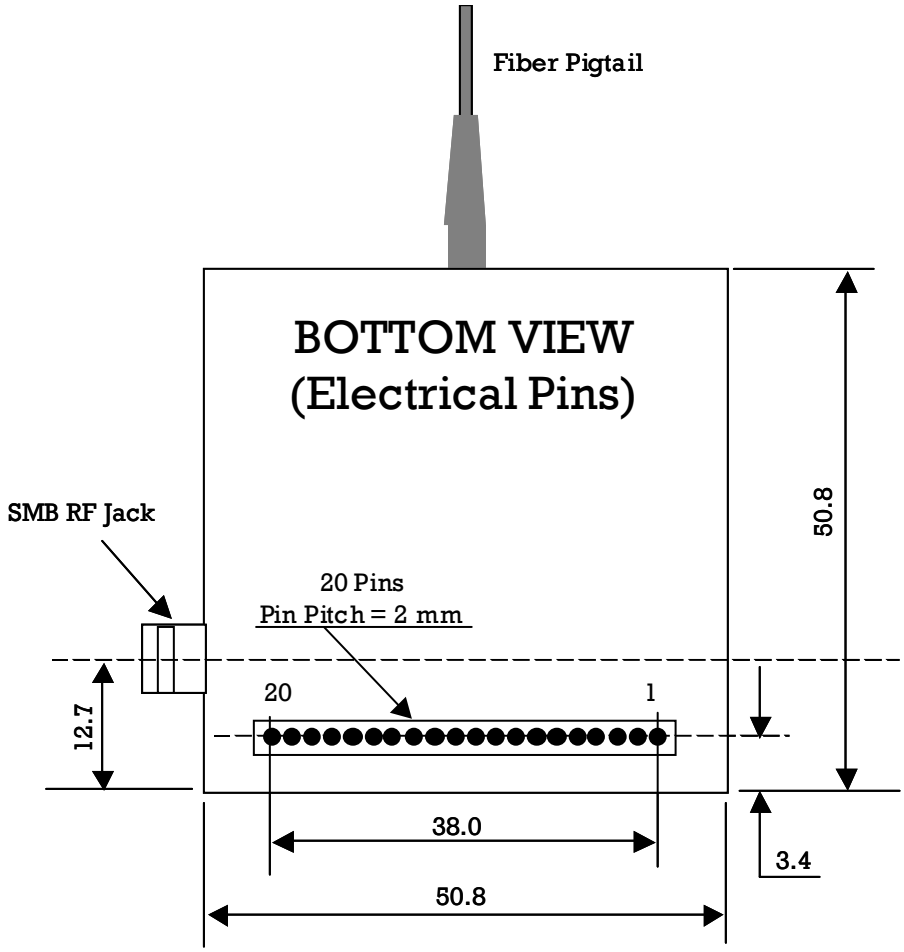
LTY9401 and LTY9403 Block Diagram



Logic States

Parameter	Logic State	Logic Type	Part Number	Description	Notes
Rx_SD	HIGH	LVTTL	LTY9401	Normal Operation	8472 MSA Compliant
Rx_SD	LOW	LVTTL	LTY9401	Loss of Signal	8472 MSA Compliant
Rx_LOS	HIGH	LVTTL	LTY9403	Loss of Signal	8472 MSA Compliant
Rx_LOS	LOW	LVTTL	LTY9403	Normal Operation	8472 MSA Compliant
Tx_BEN	HIGH	LVTTL	All	Burst Mode Transmitter ENABLED	
Tx_BEN	LOW	LVTTL	All	Burst Mode Transmitter DISABLED	
MOD_DEF 0	GROUND	N/A	All	Ground State for the DDM	
MOD_DEF 1	HIGH	LVTTL	All	Serial Clock HIGH State	8472 MSA Compliant
MOD_DEF 1	LOW	LVTTL	All	Serial Clock LOW State	8472 MSA Compliant
MOD_DEF 2	HIGH	LVTTL	All	Serial DATA High State	8472 MSA Compliant
MOD_DEF 2	LOW	LVTTL	All	Serial DATA Low State	8472 MSA Compliant

LTY9401 / LTY9403 Package Outline Drawing



Package Dimensions 50.8 x 50.8 x 13.7 mm
Dimensions are in mm

Video (RF) Receiver Characteristics (Tamb = -40ºC to +85ºC unless noted otherwise, VDD1 = 12 V, VDD2 = 5.0 V)

Parameter	Symbol	Min	Typ	Max	Units	Notes
Operating Wavelength	λ	1530	1550	1560	nm	
RF Bandwidth	BW	47	-	870	MHz	
Optical Input Power	Pin	-6	-4	+2	dBm	
RF Ripple	-	-	±0.5	±0.75	dB	47 to 870 MHz
RF Output Gain Flatness	-	-	-	±0.5	dB	Adjacent Channel
RF Output	Pout	13	-	-	dBmV	F = 870 MHz
Linear Slope Correction	-	0	2	5	dB	46 vs. 870 MHz
Compound Second Order	CSO	-	-68	-65	dBc	0 dBm power, 3.6% OMI, 82 NTSC Channels
Compound Triple Beat	CTB	-	-70	-65	dBc	0 dBm power, 3.6% OMI, 83 NTSC Channels
Carrier to Noise Ratio	CNR (1)	48	-	-	dBc	-6 dBm input, 3.6% OMI, 82 NTSC Channels
Carrier to Noise Ratio	CNR (2)	54	-	-	dBc	0 dBm input, 3.6% OMI, 82 NTSC Channels
Output Impedance	Z_{out}	-	75	-	Ohms	Unbalanced
Output Return Loss (RF)	RL	-	-	-12	dB	47 to 870 MHz
Video Power Supply 1	V_{DD1}	10.8	12.0	13.2	VDC	
Video Power Supply 2	V_{DD2}	4.5	5.0	5.5	VDC	
Power Consumption	P_{DC}	-	-	1.6	Watts	

WDM Characteristics

Parameter	Wavelength	Min	Typ	Max	Units
Tx Channel	-	1260	-	1360	nm
Digital Rx Channel	-	1480	-	1500	nm
Video Rx Channel	-	1539	-	1565	nm
Optical Isolation: From External Source to Digital Rx	1260 nm to 1310 nm into 1490 nm	50	-	-	dB
Optical Isolation: From External Source to Digital Rx	1550 nm to 1560 nm into 1490 nm	40	-	-	dB
Optical Cross Talk from Internal Laser to Digital Rx	1260 nm to 1360 nm into 1490 nm	50	-	-	dB
Optical Isolation from External Source to Video Rx	1260 nm to 1360 nm into 1550 nm	50	-	-	dB
Optical Isolation from External Source to Video Rx	1480 nm to 1500 nm into 1550 nm	36	-	-	dB
Optical Cross Talk from Internal Laser into Video Rx	1260 nm to 1360 nm into 1550 nm	48	-	-	dB

LTY9401 Triplexer Pin Out Table (RF Output via 75-Ohm SMB Jack, Receiver Monitor Function = Signal Detect)

Pin Number	Symbol	Description	Notes
1	GND	Ground	
2	V_{CCR}	3.3 Volt DC Digital Receiver Voltage Input	
3	Rx_SD	Digital Receiver Signal Detect Function	LVTTL (External Pull-Up Required)
4	Rx_DATA(+)	Digital Receiver Rx DATA Non-Inverted Output	LVPECL
5	Rx_DATA(-)	Digital Receiver RxDATA Inverted Output	LVPECL
6	Tx_BEN	Transmitter Burst Mode Enable	LVTTL (External Pull-Up Required)
7	NC	Not Connected	
8	GND	Ground	
9	Tx_DATA(+)	Transmitter TxDATA Non-Inverted Input	LVPECL
10	NC	Not Connected	
11	Tx_DATA(-)	Transmitter TxDATA Inverted Input	LVPECL
12	V_{CCT}	3.3 Volt DC Transmitter Voltage Input	
13	SDA	I^2C Serial Data I/O	LVTTL (External Pull-Up Required)
14	SCL	I^2C Serial Clock	LVTTL (External Pull-Up Required)
15	NC	Not Connected	
16	V_{DD1}	12.0 Volt Video Photo Detector Bias	
17	V_{MON}	Video Photo Detector Monitor Output	Analog Signal is Proportional to Optical Input
18	V_{DD2}	5.0 Volt RF Amplifier Voltage Input	
19	GND	Ground	
20	NC	Not Connected	

LTY9403 Triplexer Pin Out Table (RF Output via 75-Ohm SMB Jack, Receiver Monitor Function = Loss of Signal)

Pin Number	Symbol	Description	Notes
1	GND	Ground	
2	V_{CCR}	3.3 Volt DC Digital Receiver Voltage Input	
3	Rx_LOS	Digital Receiver Signal Detect Function	LVTTL (External Pull-Up Required)
4	RxDATA(+)	Digital Receiver Rx DATA Non-Inverted Output	LVPECL
5	RxDATA(-)	Digital Receiver RxDATA Inverted Output	LVPECL
6	Tx_BEN	Transmitter Burst Mode Enable	LVTTL (External Pull-Up Required)
7	NC	Not Connected	
8	GND	Ground	
9	TxDATA(+)	Transmitter TxDATA Non-Inverted Input	LVPECL
10	NC	Not Connected	
11	TxDATA(-)	Transmitter TxDATA Inverted Input	LVPECL
12	V_{CCT}	3.3 Volt DC Transmitter Voltage Input	
13	SDA	I^2C Serial Data I/O	LVTTL (External Pull-Up Required)
14	SCL	I^2C Serial Clock	LVTTL (External Pull-Up Required)
15	NC	Not Connected	
16	V_{DD1}	12.0 Volt Video Photo Detector Bias	
17	V_{MON}	Video Photo Detector Monitor Output	Analog Signal is Proportional to Optical Input
18	V_{DD2}	5.0 Volt RF Amplifier Voltage Input	
19	GND	Ground	
20	NC	Not Connected	

LTY9401 EEPROM Table - Serial ID Memory Contents (128 bytes) - Page A0H (LYT9401 is typical, LTY9403 is similar)				
Address		**Contents**		
Decimal	**Hex**	**Hex Value**	**ASCII / Description**	**SFF 8472 MSA Reference**
0	00	02	Module Soldered to Mother Board)	SFF 8472 MSA Rev 9.3 Table 3.2
1	01	04	Function is Defined by Serial ID only	SFF 8472 MSA REV 9.3 Table 3.3
2	02	81	Fiber Pigtail with SC/APC Optical Connector	SFF 8472 MSA REV 9.3 Table 3.4
3 to 10	03 to 0A	00	Zero - Do Not Use	SFF 8472 MSA REV 9.3 Table 3.5
11	0B	00	Unspecified Coding	SFF 8472 MSA REV 9.3 Table 3.6
12	0C	0C	1250 Mb/s	Transceiver Bit Rate in Units of 100 Mb/s
13	0D	00	Zero - Do Not Use	SFF 8472 REV 9.3 Reserved Memory
14	0E	F5	Link Length = 20 km Over 9 micron Fiber	SFF 8472 REV 9.3 Fiber Type
15 to 19	0F to 13	00	Zero - Do Not Use	SFF 8472 REV 9.3 Link Lengths for Fiber Types
20	14	4C	L	SFF 8472 REV 9.3 Vendor Name in ASCII Format
21	15	49	I	SFF 8472 REV 9.3 Vendor Name in ASCII Format
22	16	47	G	SFF 8472 REV 9.3 Vendor Name in ASCII Format
23	17	45	E	SFF 8472 REV 9.3 Vendor Name in ASCII Format
24	18	4E	N	SFF 8472 REV 9.3 Vendor Name in ASCII Format
25	19	54	T	SFF 8472 REV 9.3 Vendor Name in ASCII Format
26	1A	20	ASCII “BLANK” Character	SFF 8472 REV 9.3 Vendor Name in ASCII Format
27	1B	50	P	SFF 8472 REV 9.3 Vendor Name in ASCII Format
28	1C	48	H	SFF 8472 REV 9.3 Vendor Name in ASCII Format
29	1D	4F	O	SFF 8472 REV 9.3 Vendor Name in ASCII Format
30	1E	54	T	SFF 8472 REV 9.3 Vendor Name in ASCII Format
31	1F	4F	O	SFF 8472 REV 9.3 Vendor Name in ASCII Format
32	20	4E	N	SFF 8472 REV 9.3 Vendor Name in ASCII Format
33	21	49	I	SFF 8472 REV 9.3 Vendor Name in ASCII Format
34	22	43	C	SFF 8472 REV 9.3 Vendor Name in ASCII Format
35	23	53	S	SFF 8472 REV 9.3 Vendor Name in ASCII Format
36	24	00	Zero - Do Not Use	SFF 8472 REV 9.3 Reserved Memory
37	25	00	Unique Company ID Supplied by IEEE	SFF 8472 REV 9.3 Vendor OUI
38	26	00	Unique Company ID Supplied by IEEE	SFF 8472 REV 9.3 Vendor OUI
39	27	00	Unique Company ID Supplied by IEEE	SFF 8472 REV 9.3 Vendor OUI
40	28	4C	L	SFF 8472 REV 9.3 Vendor P/N in ASCII Format
41	29	54	T	SFF 8472 REV 9.3 Vendor P/N in ASCII Format
42	2A	59	Y	SFF 8472 REV 9.3 Vendor P/N in ASCII Format
43	2B	39	9	SFF 8472 REV 9.3 Vendor P/N in ASCII Format
44	2C	34	4	SFF 8472 REV 9.3 Vendor P/N in ASCII Format
45	2D	30	0	SFF 8472 REV 9.3 Vendor P/N in ASCII Format
46	2E	31	1	SFF 8472 REV 9.3 Vendor P/N in ASCII Format
47	2F	00	Zero - Do Not Use	SFF 8472 REV 9.3 Vendor P/N in ASCII Format

LTY9401 EEPROM Table - Serial ID Memory Contents (128 bytes) - Page A0H (LYT9401 is typical, LTY9403 is similar)				
Address		**Contents**		
Decimal	**Hex**	**Hex Value**	**Description**	**Comments**
48 to 55	30 to 37	00	Zero - Do Not Use	SFF 8472 REV 9.3 Vendor P/N in ASCII Format
56	38	31	1	SFF 8472 REV 9.3 Vendor REV NO in ASCII Format
57	39	2E	.	SFF 8472 REV 9.3 Vendor REV NO in ASCII Format
58	3A	30	0	SFF 8472 REV 9.3 Vendor REV NO in ASCII Format
59	3B	00	Zero - Do Not Use	SFF 8472 REV 9.3 Vendor REV NO in ASCII Format
60	3C	05	1310 nm	SFF 8472 REV 9.3 Laser Wavelength (2 Bytes)
61	3D	1E	1310 nm	SFF 8472 REV 9.3 Laser Wavelength (2 Bytes)
62	3E	00	Zero - Do Not Use	SFF 8472 REV 9.3 Reserved Memory
63	3F	TBD	Check Sum for ID Fields 0 to 62	SFF 8472 REV 9.3 CC_BASE
64	40	00	Zero - Do Not Use	SFF 8472 REV 9.3 Reserved Memory Table 3.7
65	41	04	Rx_SD enabled according to SFF MSA	SFF 8472 REV 9.3 Table 3.7
66	42	0A	10%	SFF 8472 REV 9.3 Bit Rate Tolerance (Maximum)
67	43	0A	10%	SFF 8472 REV 9.3 Bit Rate Tolerance (Minimum)
68 to 83	44 to 52	TBD	Serial Number Loaded at Time of Manufacture	SFF 8472 REV 9.3 Vendor Serial Number
84	54	TBD	YY = Year MSB	SFF 8472 REV 9.3 Vendor Date Code in ASCII Format
85	55	TBD	YY = Year LSB	SFF 8472 REV 9.3 Vendor Date Code in ASCII Format
86	56	TBD	MM = Month MSB	SFF 8472 REV 9.3 Vendor Date Code in ASCII Format
87	57	TBD	MM = Month LSB	SFF 8472 REV 9.3 Vendor Date Code in ASCII Format
88	58	TBD	DD = Day MSB	SFF 8472 REV 9.3 Vendor Date Code in ASCII Format
89	59	TBD	DD = Day LSB	SFF 8472 REV 9.3 Vendor Date Code in ASCII Format
91	5A	TBD	Lot Number MSB	SFF 8472 REV 9.3 Vendor Lot No in ASCII Format
91	5B	TBD	Lot Number LSB	SFF 8472 REV 9.3 Vendor Lot No in ASCII Format
92	5C	6C	DDM, Int Cal, Rx Power (dBm), ADDR Change	SFF 8472 REV 9.3 Table 3.9
93	5D	7F	Enhanced Options Enabled	SFF 8472 REV 9.3 Table 3.10
94	5E	03	8472 SFP Implementation Type	SFF 8472 REV 9.3 Table 3.11
95	5F	TBD	Check Sum for ID Fields 64 to 94	SFF 8472 REV 9.3 CC_EXT
96 to 121	60 to 79	00	Vendor EEPROM (WRITE PROTECTED)	SFF 8472 REV 9.3 Vendor EEPROM Area
122	7A	01	-40 to +85 Degrees C Operating Temperature	SFF 8472 REV 9.3 Vendor EEPROM Area
123 to 127	7B to 7F	00	Vendor EEPROM (WRITE PROTECTED)	SFF 8472 REV 9.3 Vendor EEPROM Area

LTY9401 EEPROM Table - Serial ID Memory Contents (128 bytes) - Page A2H (LYT9401 is typical, LTY9403 is similar)				
Address		**Contents**		
Decimal	**Hex**	**Hex Value**	**Description**	**Comments**
0	00	55	+85 Degrees Centigrade	Temperature HIGH Alarm
1	01	00	+85 Degrees Centigrade	Temperature HIGH Alarm
2	02	D8	-40 Degrees Centigrade	Temperature LOW Alarm
3	03	00	-40 Degrees Centigrade	Temperature LOW Alarm
4	04	53	+83 Degrees Centigrade	Temperature HIGH Warning
5	05	00	+83 Degrees Centigrade	Temperature HIGH Warning
6	06	D8	-38 Degrees Centigrade	Temperature LOW Warning
7	07	00	-38 Degrees Centigrade	Temperature LOW Warning
8	08	86	3.45 VDC	Voltage HIGH Alarm
9	09	C4	3.45 VDC	Voltage HIGH Alarm
10	0A	7B	3.15 VDC	Voltage LOW Alarm
11	0B	0C	3.15 VDC	Voltage LOW Alarm
12	0C	85	3.42 VDC	Voltage HIGH Warning
13	0D	98	3.42 VDC	Voltage HIGH Warning
14	0E	7C	3.18 VDC	Voltage LOW Warning
15	0F	38	3.18 VDC	Voltage LOW Warning
16	10	TBD	Laser Bias Current	Laser Bias HIGH Alarm
17	11	TBD	Laser Bias Current	Laser Bias HIGH Alarm
18	12	TBD	Laser Bias Current	Laser Bias LOW Alarm
19	13	TBD	Laser Bias Current	Laser Bias LOW Alarm
20	14	TBD	Laser Bias Current	Laser Bias HIGH Warning
21	15	TBD	Laser Bias Current	Laser Bias HIGH Warning
22	16	TBD	Laser Bias Current	Laser Bias LOW Warning
23	17	TBD	Laser Bias Current	Laser Bias LOW Warning
24	18	TBD	Optical Output Power	Tx Power HIGH Alarm
25	19	TBD	Optical Output Power	Tx Power HIGH Alarm
26	1A	TBD	Optical Output Power	Tx Power LOW Alarm
27	1B	TBD	Optical Output Power	Tx Power LOW Alarm
28	1C	TBD	Optical Output Power	Tx Power HIGH Warning
29	1D	TBD	Optical Output Power	Tx Power HIGH Warning
30	1E	TBD	Optical Output Power	Tx Power LOW Warning
31	1F	TBD	Optical Output Power	Tx Power LOW Warning

LTY9401 EEPROM Table - Serial ID Memory Contents (128 bytes) - Page A2H (LYT9401 is typical, LTY9403 is similar)				
Address		**Contents**		
Decimal	**Hex**	**Hex Value**	**Description**	**Comments**
32	20	TBD	Receiver Optical Input Power	Rx Input HIGH Alarm
33	21	TBD	Receiver Optical Input Power	Rx Input HIGH Alarm
34	22	TBD	Receiver Optical Input Power	Rx Input LOW Alarm
35	23	TBD	Receiver Optical Input Power	Rx Input LOW Alarm
36	24	TBD	Receiver Optical Input Power	Rx Input HIGH Warning
37	25	TBD	Receiver Optical Input Power	Rx Input HIGH Warning
38	26	TBD	Receiver Optical Input Power	Rx Input LOW Warning
39	27	TBD	Receiver Optical Input Power	Rx Input LOW Warning
40 to 55	28 to 37	00	Zero - Do Not Use	SFF 8472 REV 9.3 Reserved Memory
56 to 91	38 to 5B	00	Ext Cal Constants Blank - Do Not Use	SFF 8472 REV 9.3 Table 3.16
92 to 94	5C to 5E	TBD	Blank - Do Not Use	SFF 8472 REV 9.3 Reserved Memory
95	5F	00	Sum of Low Order Bytes 0 to 94	SFF 8472 REV 9.3 Check Sum
96	60	Dynamic	MSB of Internally Measured Temperature Value	SFF 8472 REV 9.3 Table 3.17 A/D Values
97	61	Dynamic	LSB of Internally Measured Temperature Value	SFF 8472 REV 9.3 Table 3.17 A/D Values
98	62	Dynamic	MSB of Internally Measured Tx Voltage	SFF 8472 REV 9.3 Table 3.17 A/D Values
99	63	Dynamic	LSB of Internally Measured Tx Voltage	SFF 8472 REV 9.3 Table 3.17 A/D Values
100	64	Dynamic	MSB of Internally Measured Laser Bias Current	SFF 8472 REV 9.3 Table 3.17 A/D Values
101	65	Dynamic	LSB of Internally Measured Laser Bias Current	SFF 8472 REV 9.3 Table 3.17 A/D Values
102	66	Dynamic	MSB of Internally Measured Tx Optical Pout	SFF 8472 REV 9.3 Table 3.17 A/D Values
103	67	Dynamic	LSB of Internally Measured Tx Optical Pout	SFF 8472 REV 9.3 Table 3.17 A/D Values
104	68	Dynamic	MSB of Internally Measured Rx Optical Input	SFF 8472 REV 9.3 Table 3.17 A/D Values
105	69	Dynamic	LSB of Internally Measured Rx Optical Input	SFF 8472 REV 9.3 Table 3.17 A/D Values
106 to 109	6A to 6D	00	Zero - Do Not Use	SFF 8472 REV 9.3 Reserved Memory
110	6E	Dynamic	Bits Set for Tx_DIS, Tx_FAULT, Rx_LOS	SFF 8472 REV 9.3 Table 3.17 Status/Control Bits
111	6F	00	Zero - Do Not Use	SFF 8472 REV 9.3 Reserved Memory
112	70	Dynamic	Module Temp, VCC, Laser Bias or Tx Output	SFF 8472 REV 9.3 Table 3.18 Alarm Set if TRUE
113	71	Dynamic	Rx Optical Input Power	SFF 8472 REV 9.3 Table 3.18 Alarm Set if TRUE
114 to 115	72 to 73	00	Zero - Do Not Use	SFF 8472 REV 9.3 Reserved Memory
116	74	Dynamic	Module Temp, VCC, Laser Bias or Tx Output	SFF 8472 REV 9.3 Table 3.18 Warning Set if TRUE
117	75	Dynamic	Rx Optical Input Power	SFF 8472 REV 9.3 Table 3.18 Warning Set if TRUE
118 to 119	76 to 77	00	Zero - Do Not Use	SFF 8472 REV 9.3 Reserved Memory
120 to 127	78 to 7F	00	Vendor EEPROM (WRITE PROTECTED)	SFF 8472 REV 9.3 Vendor EEPROM Area