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APS1113-10

APTEK SFP 1.25Gbps Bidi Optical Transceiver 10Km DDM

1. Feature:

- SFP package with LC/UPC connector
- Wave length: TX1310nm / RX1550nm
- Up to 10Km transmission on SMF
- +3.3V single power supply
- LVPECL compatible data input/output interface
- Low EMI and excellent ESD protection
- Laser safety standard IEC-60825 compliant
- Compatible with RoHS
- Compatible 1000BASE-LX (IEEE 802.3z)
- Compliant with SFP Multi Source Agreement (SFF8472)
- Hot-plug SFP

2. Application：

- Ethernet
- Telecom
- Fiber Channel

3. Absolute Maximum Ratings：

Parameter	Symbol	Minimum	Maximum	Units
Storage Temperature	Tst	-40	+85	°C
Supply Voltage	Vcc	0	+3.5	V
Operating Relative Humidity	RH	5	95	%

4. Operation Environment：

Parameter		Symbol	Min	Typical	Max	Units
Supply Voltage		Vcc	3.135	3.3	3.5	V
Supply Current		Icc		180	300	mA
Operating Case Temperature	Commercial	Tc	0		+70	°C
Power Dissipation					1	W
Data Rate				1.25		Gbps

5. Optical Characteristics：

(Ambient Operating Temperature 0°C to +70°C, Vcc =3.3 V)

Parameter		Symbol	Min.	Typ.	Max.	Units
Transmitter Section						
Center Wavelength	Tx 1310	λo		1310		nm
Spectral Width (RMS)	Tx 1310	Δλ	-	-	4	nm
Average Output Power	Tx 1310	Po	-8	-	-3	dBm
Extinction Ratio		Er	10	-	15	dB
Rise/Fall Time (20%~80%)		Tr/Tf			0.26	ns
Total jitter		Tj			0.43	UI
Optical Eye Diagram		IEEE 802.3z and ANSI Fiber Channel Compatible				
Receiver Section						
Center Wavelength	Rx 1550	λo		1550		nm
Receiver Sensitivity (Measured at 1.25Gbps PRBS 2^7-1, ER=9dB, BER≤10^{-12})		Rsen			-24	dBm
Receiver Overload		Rov	-3			dBm
Return Loss			12			dB
LOS Assert		LOS_A	-36			dBm
LOS Dessert		LOS_D			-26	dBm
LOS Hysteresis			0.5		5	

6. Electrical Characteristics：

(Ambient Operating Temperature 0°C to +70°C, Vcc =3.3 V)

Parameter		Symbol	Min.	Typ.	Max.	unit
Transmitter Section						
Input Differential Impendence		Zin	90	100	110	Ohm
Data Input Swing Differential		Vin	500		2400	mV
TX Disable	Disable		2.0		Vcc	V
	Enable		0		0.8	V
TX Fault	Assert		2.0		Vcc	V
	Deassert		0		0.8	V
Receiver Section						
Output differential impendence		Zout		100		Ohm
Data Input Swing Differential		Vout	370		2000	mV
Rx_LOS	Assert		2.0		Vcc	V
	Deassert		0		0.8	V

7. EEPROM INFORMATION（A0）：

Addr	Field Size (Bytes)	Name of Field	HEX	Description
0	1	Identifier	03	SFP
1	1	Ext. Identifier	04	MOD4
2	1	Connector	07	LC
3-10	8	Transceiver	00 00 00 02 12 00 0D 01	Transmitter Code
11	1	Encoding	01	8B10B
12	1	BR, nominal	0D	1250M bps
13	1	Reserved	00	
14	1	Length (9um)-km	14	10km
15	1	Length (9um)	64	
16	1	Length (50um)	00	
17	1	Length (62.5um)	00	
18	1	Length (copper)	00	
19	1	Reserved	00	
20-35	16	Vendor name	57 49 4E 54 4F 50 20 20 20 20 20 20 20 20 20 20	
36	1	Reserved	00	
37-39	3	Vendor OUI	00 00 00	
40-55	16	Vendor PN	xx xx xx xx xx xx xx xx	ASC II

			xx xx xx xx xx xx xx xx	
56-59	4	Vendor rev	31 2E 30 20	V1.0
60-61	2	Wavelength	05 1E/05 D2	1310nm/1550nm
62	1	Reserved	00	
63	1	CC BASE	XX	Check sum of byte 0~62
64-65	2	Options	00 1A	LOS, TX_DISABLE, TX_FAULT
66	1	BR, max	32	50%
67	1	BR, min	32	50%
68-83	16	Vendor SN	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Unspecified
84-91	8	Vendor date code	XX XX XX 20	Year, Month, Day
92-94	3	Reserved	00	
95	1	CC_EXT	XX	Check sum of byte 64~94
96-255	160	Vendor specific		

8. Diagnostics：

Parameter	Range	Accuracy	Unit	Calibration
Temperature	-5 ~ 70	±3	ºC	Internal
Voltage	3.135~ 3.5	3	%	Internal
Bias Current	0 ~ 120	10	%	Internal
Tx Power	-8 ~ -3	±1	dBm	Internal
Rx Power	< -3	±1	dBm	Internal

9. Outline drawing (mm):