APTEK APS1113-40/APS1115-40

1.25Gbps BiDi SFP Optical Transceiver 40Km DDM

Module quang SFP (A)

APTEK APS1113-40

Module quang SFP (B)

APTEK APS1115-40

The **APTEK APS1113-40** and **APS1115-40** are high-performance Bi-directional (BiDi) SFP transceivers designed for Gigabit Ethernet data transmission over long distances. These modules support data rates up to 1.25Gbps and are engineered for use with Single-mode fiber.

These modules allow for simultaneous data transmission and reception over a single fiber strand. To establish a functional link, they are designed to be used as a pair. Or you can easily pair them with other brands that have the same technical specifications. Both models support a transmission range of up to 40 km, providing a cost-effective and reliable solution for expanding network capacity without the need for additional fiber cabling.

With a hot-pluggable design and high-reliability performance, these SFP modules are ideal for telecommunications, fiber-to-the-home (FTTH), and campus network infrastructures requiring high-speed, long-haul connectivity

Features:

- Single mode SFP package with single LC/UPC connector
- **APTEK APS1113-40:** Tx 1310nm and Rx 1550nm
- **APTEK APS1115-40:** Tx 1550nm and Rx 1310nm
- Up to 40Km transmission on SMF
- +3.3V single power supply
- Power supply ≤ 300mA
- LVPECL compatible data input/output interface
- Low EMI and excellent ESD protection
- laser safety standard IEC-60825 compliant
- Compatible with Class 1 Laser Safety
- Compatible with RoHS
- Compatible with SFF8472
- Compatible with MSA SFP
- Compatible with IEEE 802.3z
- Support hot-plug

Applications:

- 1.25Gb/s 1000Base-LX Ethernet
- 1.06 Gb/s Fibre Channel Fiber Channel

Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Storage Temperature	Tst	-40	+85	°C
Supply Voltage	Vcc	3.135	+3.5	V
Operating Relative Humidity	RH	5	90	%

Operation Environment

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

Optical Characteristics:

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

Parameter		Symbol	Min.	Typ.	Max.	Units
Transmitter Section						
Center Wavelength	Tx 1310	λo	1260	1310	1360	nm
	Tx 1550		1540	1550	1560	
Spectral Width (RMS)	Tx 1310	Δλ	-	-	4	nm
	Tx 1550				1	
Average Output Power	Tx 1310	Po	-5	-	3	dBm
	Tx 1550		-5	-	3	dBm
Extinction Ratio		Er	8	-		dB
Rise/Fall Time (20%~80%)		Tr/Tf			300	ps
Total jitter		Tj			0.43	UI
Optical Eye Diagram		IEEE 802.3z and ANSI Fibre Channel Compatible				
Receiver Section						
Center Wavelength	Rx 1550	λo	1500	1550	1600	nm
	Rx 1310		1260	1310	1360	nm
Receiver Sensitivity (PRBS 2^7-1 @10^{-12} BER)		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	

Electrical Characteristics

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

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

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	28	40km
15	1	Length (9um)	64/C8/FF	
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 xx xx xx xx xx xx xx xx	ASC II

56-59	4	Vendor rev	31 2E 30 20	V1.0
60-61	2	Wavelength	05 1E/06 0E	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 specifi		

Diagnostics

Parameter	Range	Accuracy	Unit	Calibration
Temperature	0 ~ 70	±3	°C	Internal
Voltage	3 ~ 3.6	±3	%	Internal
Bias Current	10 ~ 80	10	%	Internal
Tx Power	-5 ~ 3	±3	dBm	Internal
Rx Power	-24~-3	±3	dBm	Internal

Outline drawing