

APTEK APS1335-20

SFP+ 10Gbps Optical Transceiver 20Km DDM

1. Feature:

- SFP package with LC connector
- 1310nm FP laser and PIN photo detector
- Up to 20Km 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
- Digital Diagnostic SFF-8472 compliant



2. Application:

- Ethernet
- Fiber Channel

3. Absolute Maximum Ratings:

Parameter	Symbol	Minimum	Maximum	Units
Storage Temperature	Tst	-40	+85	°C
Supply Voltage	Vcc	0	+3.6	V
Operating Relative Humidity	RH	5	85	%



4. Operation Environment:

Parameter		Symbol	Min	Typical	Max	Units
Supply Voltage		V _{cc}	3.135	3.3	3.5	V
Operating Case Temperature	Commercial	T _c	0		+70	°C
	Industrial		-40		+85	
Power Dissipation					1	W
Data Rate				10.3125		Gbps

5. Optical Characteristics:

(Ambient Operating Temperature 0°C to +70°C, V_{cc} = 3.3 V)

Parameter	Symbol	Min.	Typ.	Max.	Units
Transmitter Section					
Center Wavelength	λ_o	1290	1310	1330	nm
Side-Mode Suppression Ratio	SMSR	35	-	-	dB
Average Output Power	P _o	-5	-	+0.5	dBm
Extinction Ratio	E _r	3.5	-	-	dB
Dispersion Penalty				3.2	dB
Relative Intensity Noise	RIN _{12OMA}			-128	dB/Hz
Total jitter	T _j	IEEE 802.3ae			
Receiver Section					
Center Wavelength	λ_o		1310		nm
Receiver Sensitivity	R _{sen}			-14.5	dBm
Stressed Sensitivity	R _{sen}			-13.5	dBm
Receiver Overload	R _{ov}	-3			dBm
Return Loss		12			dB
LOS Assert	LOS _A	-25			dBm
LOS Dessert	LOS _D			-19	dBm
LOS Hysteresis		0.5		4	



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 Impedence	Zin	90	100	110	Ohm
Data Input Swing Differential	Vin	180		700	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 impedance	Zout		100		Ohm
Data output Swing Differential	Vout	300		800	mV
Rx_LOS	Assert	2.0		Vcc	V
	Deassert	0		0.8	V

7. Diagnostics

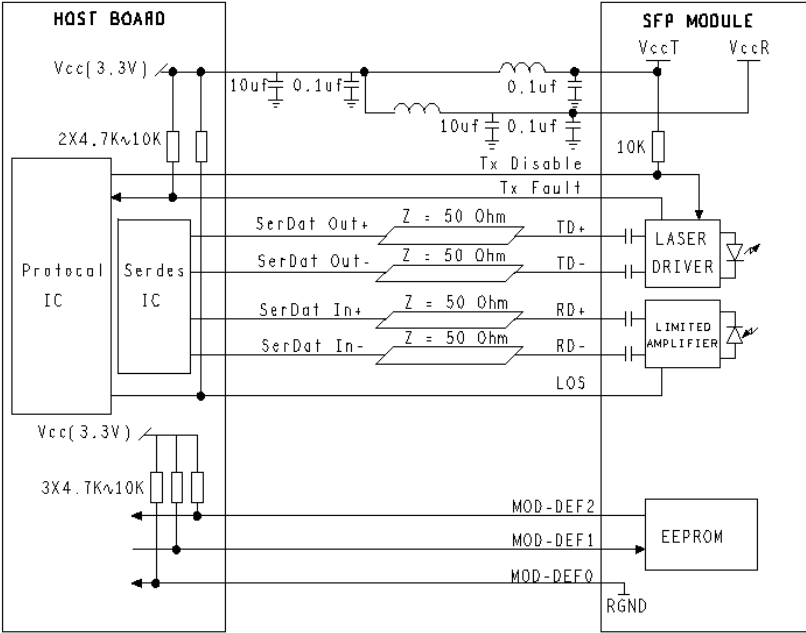
Parameter	Range	Accuracy	Unit	Calibration
Temperature	-10 ~ 75	±3	°C	Internal
Voltage	0 ~ VCC	0.1	V	Internal
Bias Current	0 ~ 100	0.5	mA	Internal
Tx Power	-8 ~ 1	±1	dBm	Internal
Rx Power	-18 ~ 0	±1	dBm	Internal



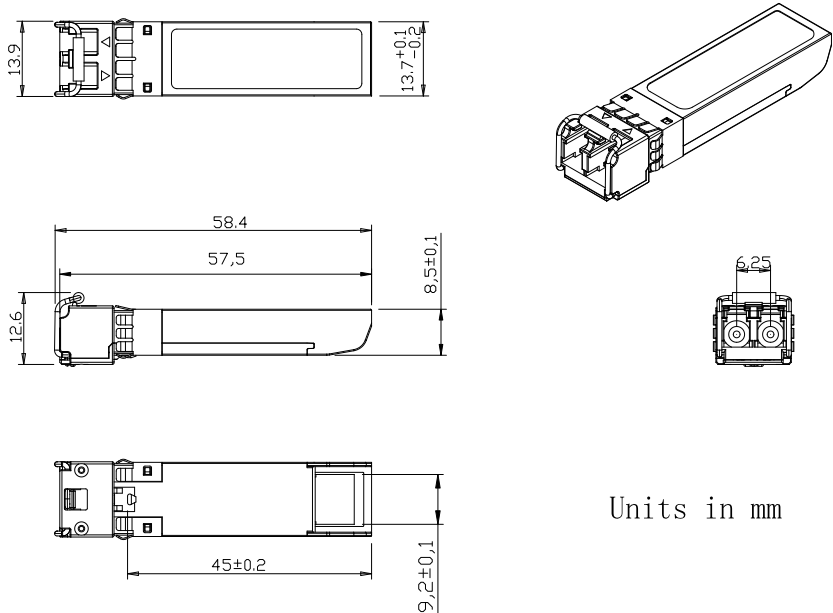
8. EEPROM INFORMATION (A0)

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	10 00 00 00 00 00 00 00	Transmitter Code
11	1	Encoding	06	64B66B
12	1	BR, nominal	67	1000Mbps
13	1	Reserved	00	
14	1	Length (9um)-km	0A	
15	1	Length (9um)	00	
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		APTEK
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	1310nm
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	00	
67	1	BR, min	00	
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		

9. Recommended Application Circuit:



10. Outline drawing (mm):



Units in mm