



## APS1385

### SFP+ 10Gbps Optical Transceiver 550m DDM

#### 1. Feature:

- SFP+ package with LC connector
- 850nm VCSEL Laser and PIN photo detector
- Up to 300m transmission on 2000MHz-km MMF
- Power dissipation < 1W
- LVPECL compatible data input/output interface
- Low EMI and excellent ESD protection
- Laser safety standard IEC-60825 compliant
- Compatible with RoHS
- Compatible with SFF8472



#### 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	+3.6	V
Operating Relative Humidity	RH	0	85	%

#### 4. Operation Environment:

Parameter	Symbol	Min	Typical	Max	Units
Supply Voltage	Vcc	3.15		3.45	V
Operating Case Temperature	Commercial	Tc		+70	°C
	Industrial			-40	
Power Dissipation				1	W
Data Rate			10.3125		Gbps



## 5. Optical Characteristics: (Ambient Operating Temperature 0°C to +70°C, V<sub>cc</sub> =3.3 V)

Parameter	Symbol	Min.	Typ.	Max.	Units
<b>Transmitter Section</b>					
Center Wavelength	$\lambda_o$	840	850	860	nm
RMS Spectral Width	$\Delta\lambda$	-	-	0.45	dB
Average Output Power	P <sub>o</sub>	-5	-	-1	dBm
Extinction Ratio	E <sub>r</sub>	3.0	-	-	dB
Dispersion Penalty				3.9	dB
Relative Intensity Noise	RIN <sub>12OMA</sub>			-128	dB/Hz
Total jitter	T <sub>j</sub>	IEEE 802.3ae			
<b>Receiver Section</b>					
Center Wavelength	$\lambda_o$		850		nm
Receiver Sensitivity	R <sub>sen</sub>			-11.5	dBm
Stressed Sensitivity	R <sub>sen</sub>			-10.5	dBm
Receiver Overload	R <sub>ov</sub>	0			dBm
Return Loss		12			dB
LOS Assert	LOS <sub>A</sub>	-17			dBm
LOS Dessert	LOS <sub>D</sub>			-15	dBm
LOS Hysteresis		0.5		4	

## 6. Electrical Characteristics

(Ambient Operating Temperature 0°C to +70°C, V<sub>cc</sub> =3.3 V)

Parameter	Symbol	Min.	Typ.	Max.	unit
<b>Transmitter Section</b>					
Input Differential Impedence	Z <sub>in</sub>	90	100	110	Ohm
Data Input Swing Differential	V <sub>in</sub>	180		700	mV
TX Disable	Disable	2.0		V <sub>cc</sub>	V
	Enable	0		0.8	V
TX Fault	Assert	2.0		V <sub>cc</sub>	V
	Deassert	0		0.8	V
<b>Receiver Section</b>					
Output differential impedance	Z <sub>out</sub>		100		Ohm
Data output Swing Differential	V <sub>out</sub>	300		800	mV
Rx_LOS	Assert	2.0		V <sub>cc</sub>	V
	Deassert	0		0.8	V



## 7. Diagnostics

Parameter	Range	Accuracy	Unit	Calibration
Temperature	-5 ~ 75	±3	°C	Internal
Voltage	0 ~ VCC	0.1	V	Internal
Bias Current	0 ~ 12	0.5	mA	Internal
Tx Power	-8 ~ 1	±1	dBm	Internal
Rx Power	-18 ~ 0	±1	dBm	Internal

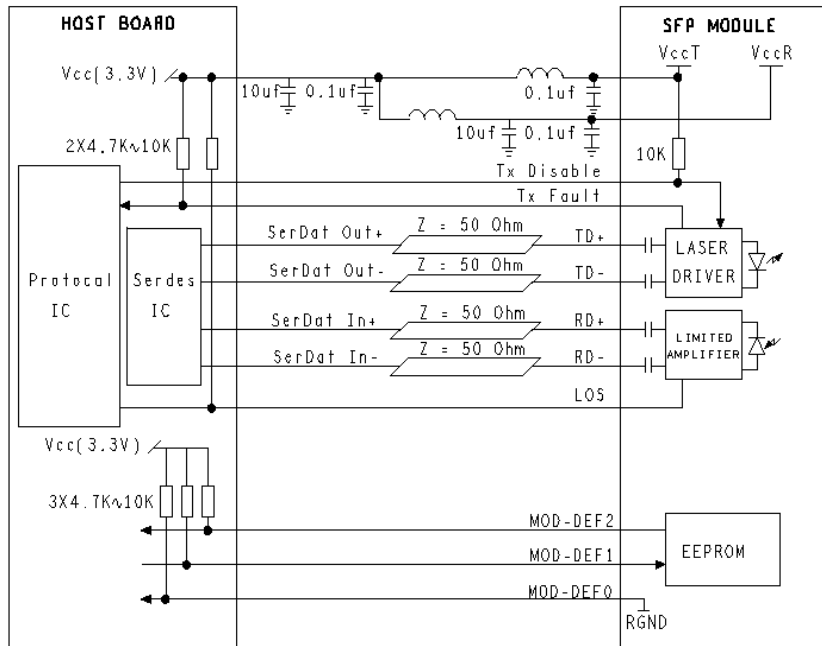
## 8. EEPROM INFORMATION (A0) :

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	10000Mbps
13	1	Reserved	00	
14	1	Length (9um)-km	00	
15	1	Length (9um)	00	
16	1	Length (50um)	08	
17	1	Length (62.5um)	02	
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	03 52	850nm
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		Unspecified

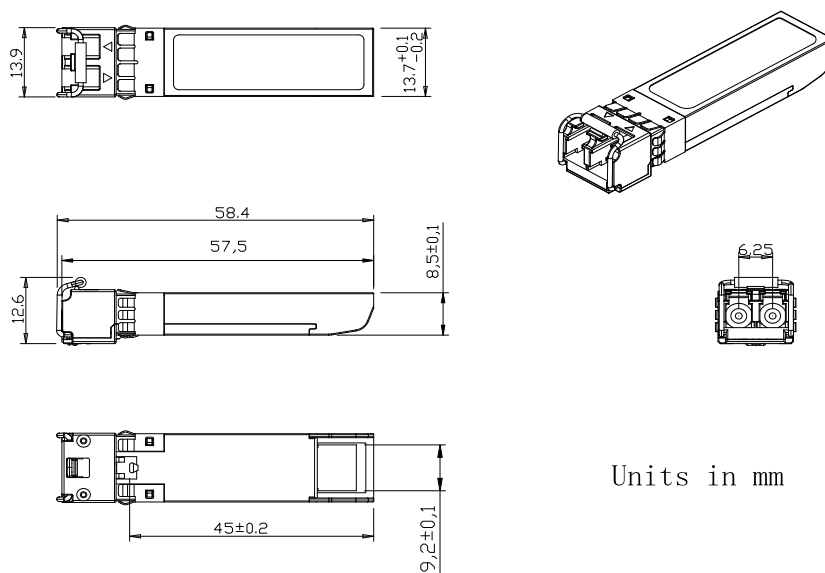


84-91	8	Vendor date code	XX XX XX 20	Year, Month, Day
92-94	3	Reserved	00	
95	1	CC_EXT	XX	Check sum of byte 64~94
96-255	160	Vendor specific		

## 9. Recommended Application Circuit



## 10. Outline drawing (mm):



Units in mm