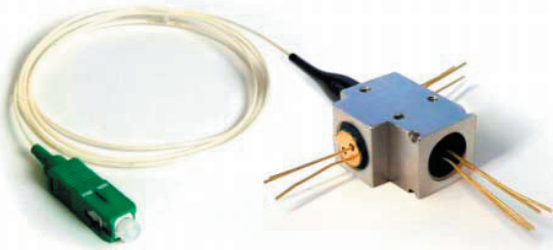


**OTP-345V1-PF-622-SCA-D4**



**Features**

- Low Cost 1310nm FP Design, 1490nm Digital Receiver, and 1555nm Analog Receiver
- High Isolation
- Multiple TIA Version for 155, 622, 1250 Mbps Applications
- 1 GHz Video Receiver Bandwidth
- Compliant to FSAN Class B ITU-T G.983.3 Specification
- Support ITR-B1F-AF4-1

**Absolute Maximum Ratings**

Parameter	Min	Typical	Max	Unit
Operating Temperature	-40	-	85	°C
Storage Temperature	-40	-	85	°C

**Module Characteristics <sup>Note 1</sup>**

Parameter	Min	Typical	Max	Unit
1555nm Video to 1490nm Rx isolation <sup>(a)</sup>	32	-	-	dB
1490nm data to 1555nm Rx isolation <sup>(b)</sup>	34	-	-	dB
1310nm external to 1555nm Video isolation	22	-	-	dB
1310nm external to 1490nm data isolation	17	-	-	dB
1310nm Tx to 1490nm Rx crosstalk	-	-	-47	dB
1310nm Tx to 1555nm Rx crosstalk	-	-	-47	dB
Back Reflection @ 1310nm	-	-	-6	dB
Back Reflection @ 1555nm	-	-	-32	dB
Back Reflection @ 1490nm	-	-	-20	dB

**Note 1) All data is specified at EOL and across the operating temperature range.**

**(a) 1550nm to 1560nm isolation at digital receiver**

**(b) 1480nm to 1500nm isolation at video receiver**

**Transmitter Characteristics <sup>Note 1</sup>**

Parameter	Symbol	Min	Typical	Max	Unit
Wavelength	$\lambda$	1260	-	1360	nm
Spectral Width	$\Delta\lambda$	-	2	3	nm
Typical 1/2 P <sub>peak</sub> set point @25°C	P <sub>set</sub>	-	1.5	-	dBm
Tracking Error	TE	-3	-	3	dB
1/2 P <sub>peak</sub> over temp	1/2P <sub>peak</sub>	0.5	-	3.5	dBm
Bias Current (=I <sub>th</sub> +1/2I <sub>mod</sub> )	I <sub>bias,EOL</sub>	-	-	75	mA
Threshold Current	I <sub>th</sub>	2	-	50	mA
Modulation Current <sup>(e)</sup> (@ P <sub>set</sub> )	I <sub>mod</sub>	10	-	60	mA
PD Monitor Current (@ P <sub>set</sub> ) @25°C	I <sub>PD,mon</sub>	100	-	1500	μA
PD Monitor Current (@ P <sub>set</sub> ) -40°C and 85°C	I <sub>PD,mon</sub>	100	-	1300	μA
Forward Voltage	V <sub>f</sub>	-	1.2	1.7	Volts
Rise/Fall Time <sup>(c)</sup>	t <sub>r</sub> /t <sub>f</sub>	-	-	0.5	ns
PD Monitor Dark Current	I <sub>D</sub>	-	-	1	μA
PD Monitor Capacitance <sup>(d)</sup>	C <sub>PD</sub>	-	10	15	pF
Quantum Efficiency	QE	0.045	-	0.3	mW/mA

**Note 1) All data is specified at EOL and across the operating temperature range.**

**(c) 10% to 90%**

**(d) VRD = 10V**

**(e) greater modulation current can be used to increase output power**

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## Digital Receiver Electrical Characteristics (622 Mbps)

Parameter	Symbol	Min	Typical	Max	Unit
Detection Wavelength	$\lambda$	1480	-	1500	nm
Gain, Differential	G	12	-	-	mV/ $\mu$ W
Sensitivity	-	-	-	-29	dBm
Optical Input Overload	$P_{in}$	-4	-	-	dBm
Optical Input Power Damage Threshold		3	-	-	dBm
Supply Voltage	$V_{CC}$	3.135	3.3	3.465	V
Supply Current <sup>(a)</sup>	$I_{CC}$	20	35	50	mA
High Frequency -3 dB point <sup>(b)</sup>	$f_{-3dB(h)}$	400	520	600	MHz
Single-ended Output Voltage (p-p) @100mA p-p	$V_{o(se)(p-p)}$	-	-	450	mV
Single-ended Output Resistance	$R_{o(se)}$	40	50	62	Ohm
Small Signal Transresistance, differential	$R_{tr}$	7	-	25	K $\Omega$
Polarization Dependent Loss	PDL	-	-	0.5	dB

(a) AC coupled; RL = 50 Ohm

(b)  $C_i = 0.7$  pF

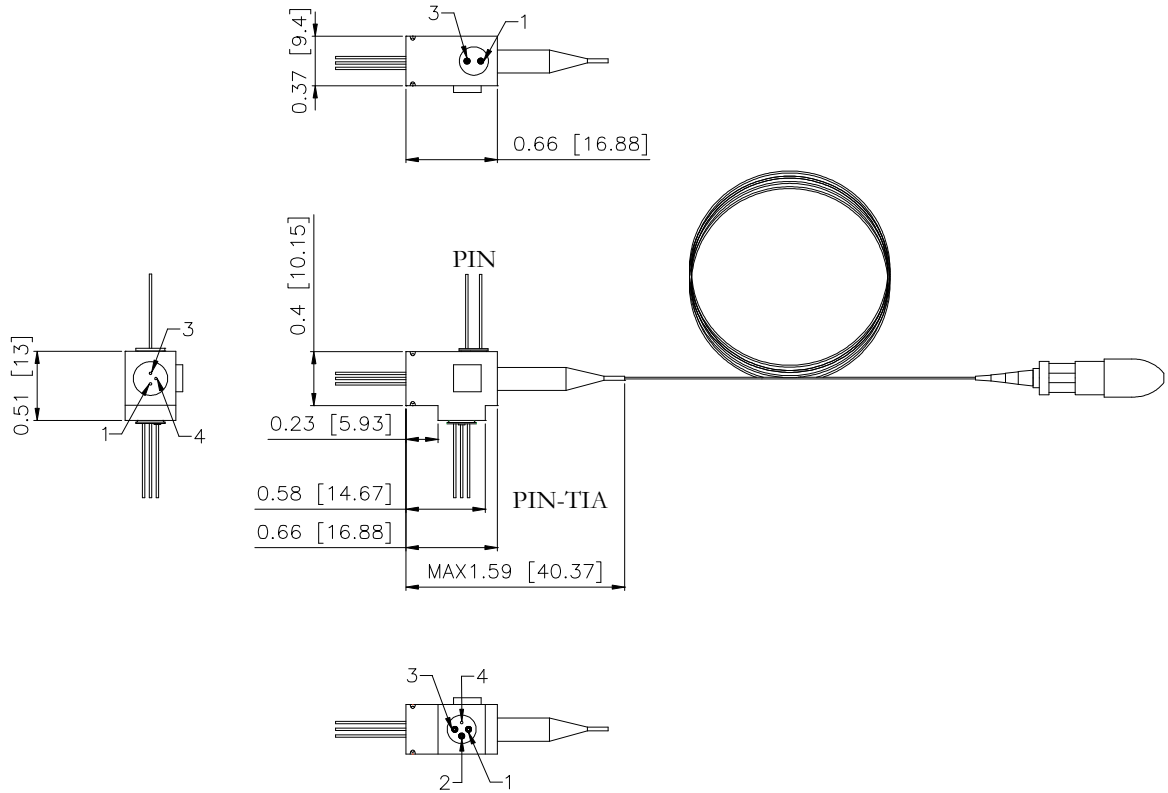
## Analog Receiver Characteristics

Parameter	Symbol	Min	Typical	Max	Unit
Detection Wavelength	$\lambda$	1550	1555	1560	nm
Optical Input power Damage Threshold	$P_{damage}$	3	-	-	dBm
Responsivity	R	0.75	0.85	-	mA/mW
Bandwidth <sup>(a)</sup>	BW	1000	-	-	MHz
Dark Current at $V_r=5V$	$I_d$	-	2	50	nA
Capacitance at $V_r=5V$ and 1 MHz	C	-	0.6	1.5	pF
DSO		-	-	-70	dBc
DTB		-	-	-80	dBc
Polarization Dependent Loss	PDL	-	-	0.5	dB

(a) 0.5 dB measurement

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Outline Drawing



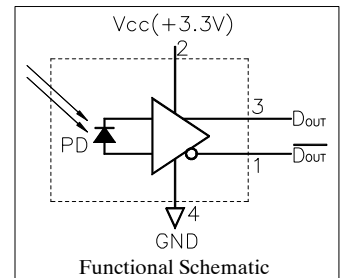
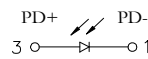
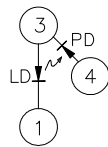
LD Pin Assignment

PIN Pin Assignment

PIN-TIA Pin Assignment

G Type

- Pin 1 : Laser Diode Cathode
- Pin 3 : Laser Anode and Monitor Diode Cathode
- Pin 4 : Monitor Diode Anode

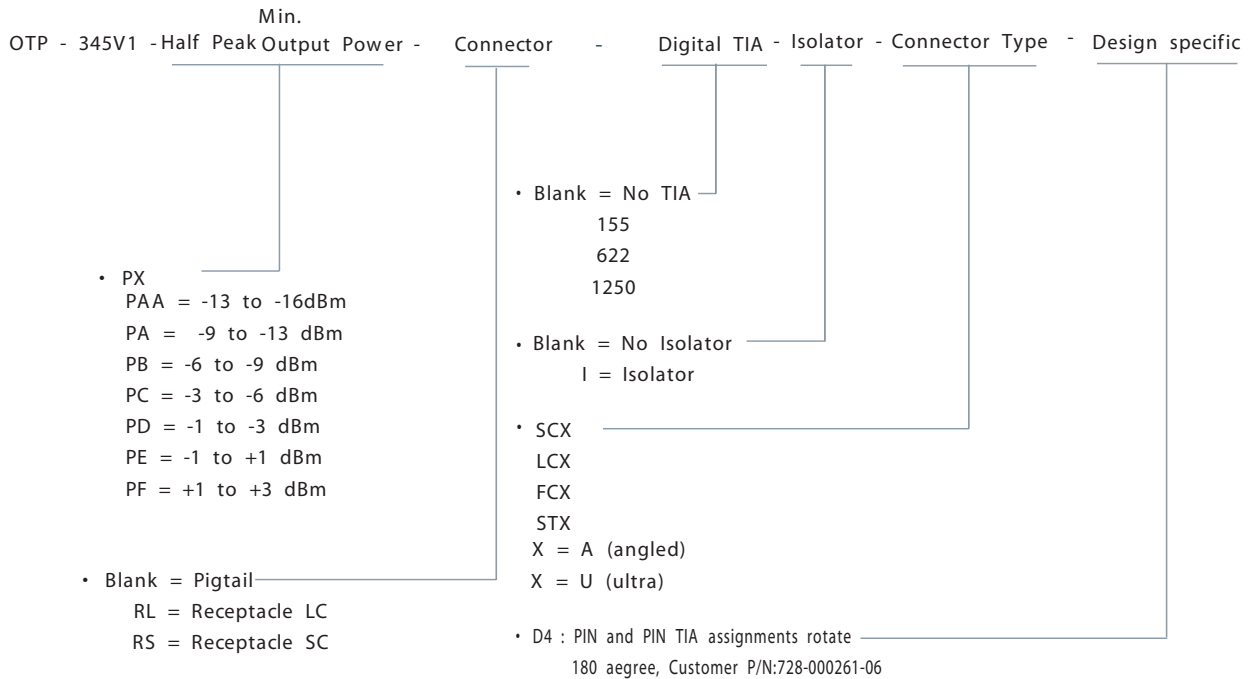


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Ordering Information

Available Options:  
OTP-345V1-PF-622-SCA-D4

Part Numbering Definition:



Warnings:

Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.  
Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

Legal Notes:

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