Data sheet

10 Gb/s APD Preamp Receiver

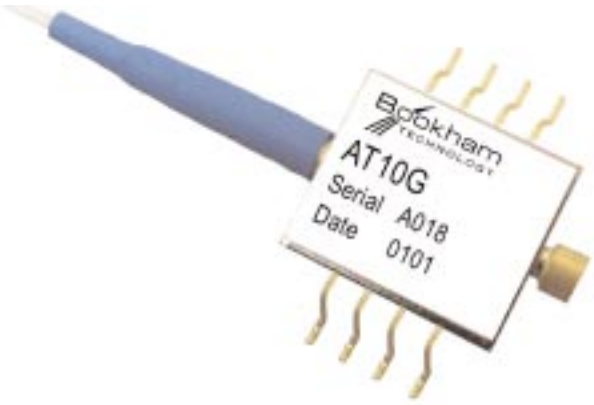
The module consists of an APD photodetector, a low noise preamplifier, a connectorized single-mode fibre pigtail (for coupling light into the photodetector), an SMP electrical output connector, and an hermetic metal package. Optimized for use in 10 Gb/s Metro applications using NRZ Modulation with or without FEC.

Features

- High Sensitivity
- Low Capacitance high speed InGaAs APD detector
- High Performance preamplifier chip
- Single polarity power supply
- Hermetically sealed
- Bellcore GR468-CORE Controlled Environment compliant
- Single mode fibre tail
- MSA Compliant

Applications

- Long reach STM16/OC48 receivers



Characteristics

TC = 25 °C unless otherwise specified.

Performance	Symbol	Min	Nom	Max	Unit
Optical Sensitivity 2^{23} -1 BER< 10^{-10} (4), m=10	Sens		-26.5	-25	dBm
High frequency -3dB corner (2), m=10	F3dB	7.5	8.1		GHz
Deviation from linear phase (d.c-6GHz)		-10		+10	deg
Return loss S22 (400KHz to 12GHz)			-12	-5	dB
Optical overload 2^{23} -1 BER< 10^{-10}	Psat	-3	-1		dBm
APD breakdown voltage temp coefficient	Tvbr	.050	0.056	.061	V/°C
APD breakdown voltage	Vbr	25		40	V
Amplifier bias voltage (Positive)	Vcc	7.6	8	8.4	V
Dark current at 90% of V_{br}	Id			100	nA
Current consumption	Icc		110	120	mA
Transimpendance gain (2,3)	TZG	400	500	650	Ohms

1) Optical wavelength is in the 1300nm region and between 1525 - 1575nm
2) Load impedance is 50Ω (AC coupled) with a return loss > 20dB, up to 20GHz.
3) Excludes APD responsivity.
4) Measured with 10 Gb/s NRZ PRBS data and no FEC.

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Amplifier bias voltage	Vcc	-0.5	8.5	V
Operating temperature (1)	Top	0	70	°C
Storage temperature (2)	Tstg	-40	85	°C
Maximum Transient Optical Input Power	Ppo		10	dBm
APD bias voltage	Vbr		40	V
Fibre bend radius		35		mm

1) The operating temperature is defined as the temperature of the module case.
2) The rating is referred to ambient temperature.
3) The optical level that causes no damage to the module. However, the electrical and optical performance specified in this document may not be guaranteed.
4) The receiver may be damaged if not powered up and powered down in the correct order. When powering up the device, turn on APD bias (Vapd) first, then positive supply (Vcc). Power down in reverse order.
5) Vbr of individual device at given operating temperature is not to be exceeded.

Class 1 ESD precautions must be observed when handling these devices

Pin #	Function
1	Vapd (+ve)
2	Case ground
3	Vcc (+ve)
4	Case Ground
5	Case Ground
6	Case Ground
7	Case Ground
8	Thermistor

NTC thermistor R25 °C = 10K Ω +/- 3%

Circuit Schematic and Dimensions

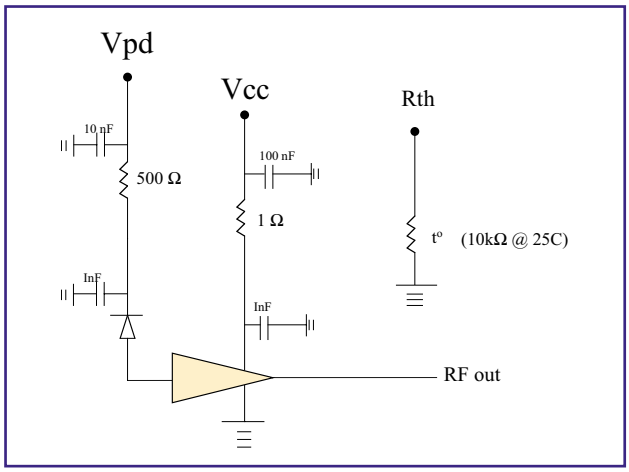


Figure 1: Schematic Diagram

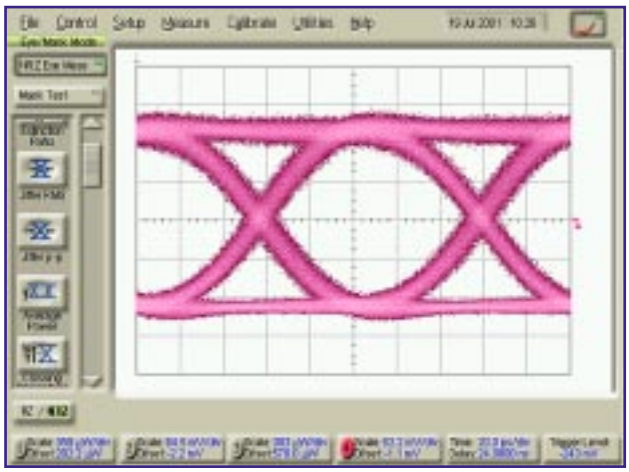


Figure 2: Typical eye diagram measured at 10 Gb/s PRBS NRZ data.

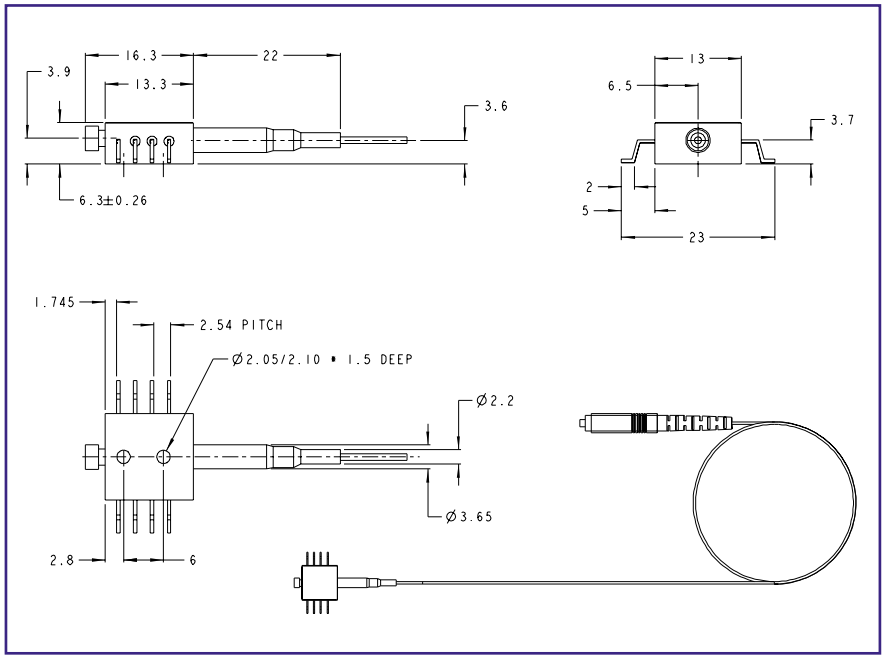


Figure 3: Outline Diagram

CAUTION
STATIC SENSITIVE DEVICE
OBSERVE PRECAUTIONS

Certificate No. FM 15040

Certificate No. EMS 35100

Bookham TECHNOLOGY

Thinking optical solutions

North America

Bookham Technology Inc.
49 Buford Highway
Suwanee
GA 30024
USA

- **Tel: +1 678 482 4021**
- **Fax: +1 678 482 4022**

Europe

Bookham Technology plc
Brixham Road
Paignton
Devon
TQ4 7BE
UK

- **Tel: +44 (0) 1803 66 2875**
- **Fax: +44 (0) 1803 66 2801**

Asia

Bookham Technology plc
21/F Cityplaza One
1111 King's Road
Quarry Bay
Hong Kong

- **Tel: +852 (2100) 2249**
- **Fax: +852 (2100) 2585**

Sales@bookham.com

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