CATV 1000 MHz Optical Receiver Module

1. Product profile

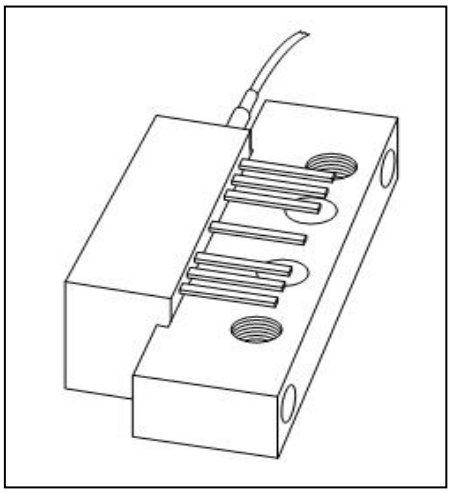
1.1 General description

High dynamic range optical receiver amplifier module is in a standard SOT115U package where the 0.9mm buffered fiber has an FC/APC or SC/APC connector. The amplifier supply voltage is 24 V (DC).The modules have a single mode optical input suitable for 1290 nm to1600 nm wavelengths,output having a characteristic impedance of 75Ω.

CAUTION

This device is sensitive to Electro Static Discharge (ESD)..
Therefore care should be taken during transport and handling.

1.2 Features and benefits



- Large range of optical power input
- Excellent linearity
- Low noise
- Excellent flatness
- Standard CATV outline

1.3 Applications

- CATV optical node systems operating in. the 40 MHz to 1000 MHz frequency range.

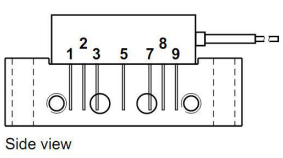
1.4 Handling

- Fiberglass optical coupling:
  Maximum tensile strength= 5 N;
  Minimum bending radius=35mm.

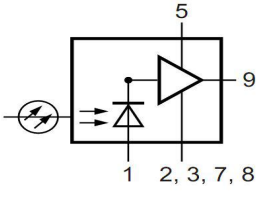
2. Pin information

Pin	Description
1	monitor current
2	Common
3	Common
5	+VB
7	Common
8	Common
9	Output

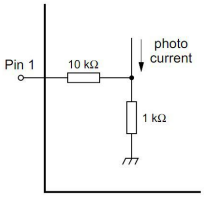
Simplified outline



Graphic symbol



Monitor current



3. Operating conditions

3.1 Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134) (TA = +25°C)

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V_B	-	25	V
Optical Input Power (continuous)	Pi	-	3	mW
Operating Case Temperature	Tc	–20	+90	°C
Storage Temperature	Tstg	–40	+100	°C
ESD sensitivity **[1]**	ESD	500	-	V

[1] Human body model, R=1.5k, C = 100 pF

3.2 Recommended operating conditions ($Z_S = Z_L = 75\ \Omega$)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Supply Voltage	V_B		23.5	24.0	24.5	V
Optical Input Power	Pi	Continuous	-8	-2	+2	dBm
Operating Case Temperature	Tc		−20	+30	+80	°C

4. Electrical characteristics

Bandwidth 40 to 1000 MHz ,T C = 30±5°C, V B = 24 V, Z S = Z L = 75 Ω

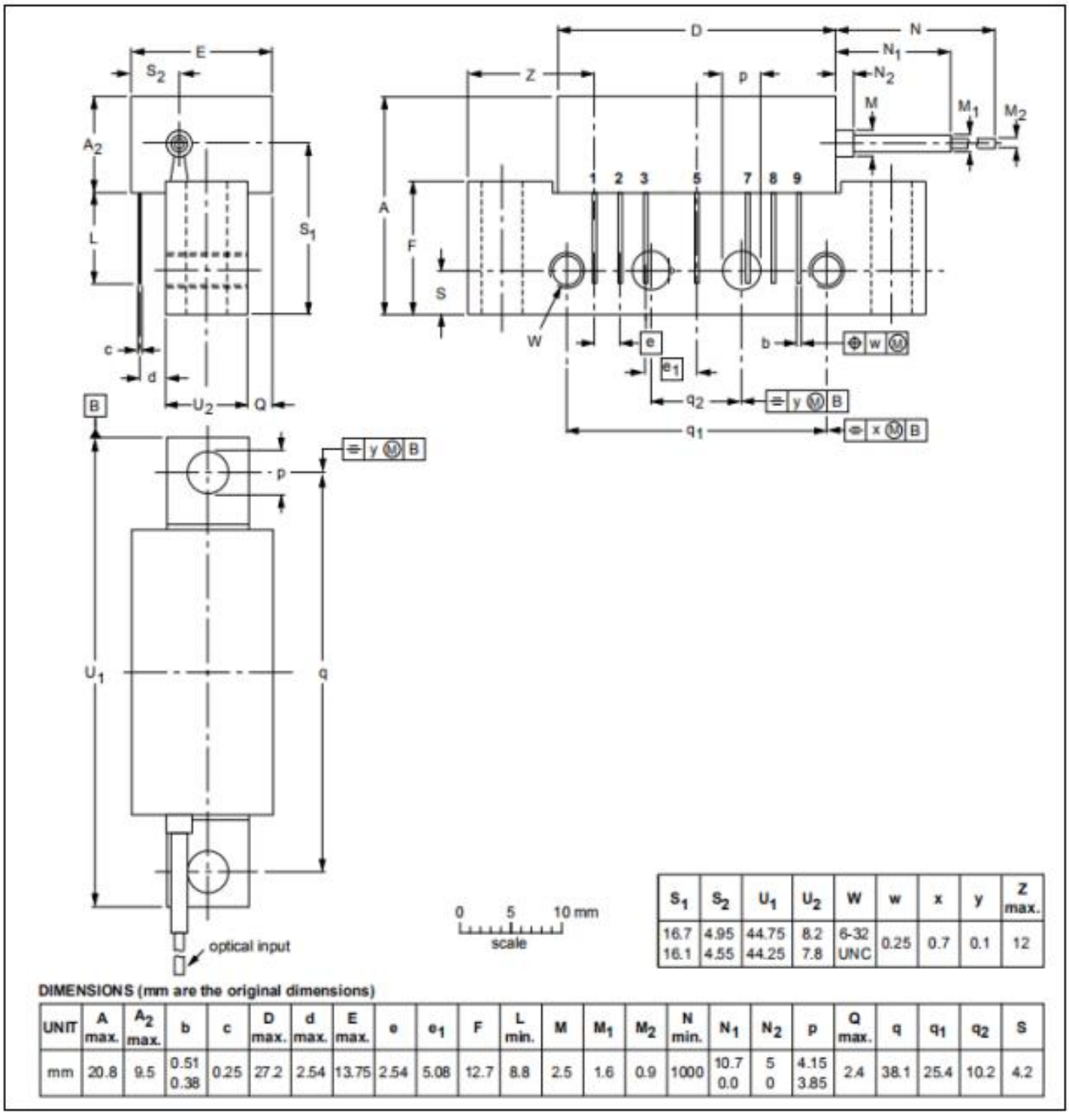
Paramter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Responsivity[1]	S	λ= 1300 nm, f = 1000MHz	800	-	1000	V/W
Flatness straight line (peak to valley)	FL	f = 40 to 1000 MHz	–	–	1.0	dB
Slope straight line	SL	f = 40 to 1000 MHz	0	1.0	2.0	dB
Output Level	Vo	Optical power receiving at 0dBm	86	87	89	dBuV
Optical input return losses			45	–	–	dB
Output Return Loss	S22	f = 40 to 1000 MHz	10	–	–	dB
Composite Triple Beat	CTB	60channels,m=3.7%, flat output level across the band Pi=0dBm, measured at 543.25 MHz,	–	−70	–	dB
Composite 2nd Order Beat	CSO		–	−64	–	dB
Equivalent noise input	F	f = 40 to 1000 MHz	–	–	7	pA/√Hz
Spectral sensitivity	Sλ	λ = 1310±20 nm	0.85	–	–	A/W
		λ = 1550±20 nm	0.90	–	–	A/W
Operating Current	Itot	VB=24VDC	110	120	140	mA
Voltage of monitor current pin (pin1)	Vpin1	VB=24VDC, Pi=0dBm	0.85	–	1.05	V
Optical wavelength	λ	1290 – 1600 nm	1290	–	1600	nm
Length of fiber; SM type; 9/125um	L		0.75	–	1.0	m

[1] Vout(dBmV)=20 x log 10 (Responsivity(v/w) × Optical Input Power(mw) × Modulation Index / √2)

5. Package outline

Rectangular single-ended package; aluminum flange; 2 vertical mounting holes; 2 x 6-32 UNC and 2 extra horizontal mounting holes; 7 gold-plated in-line leads. Optical input

SOT115U



S_1	S_2	U_1	U_2	W	w	x	y	Z max.
16.7 16.1	4.95 4.55	44.75 44.25	8.2 7.8	6-32 UNC	0.25	0.7	0.1	12

DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A_2 max.	b	c	D max.	d max.	E max.	e	e_1	F	L min.	M	M_1	M_2	N min.	N_1	N_2	p	Q max.	q	q_1	q_2	S
mm	20.8	9.5	0.51 0.38	0.25	27.2	2.54	13.75	2.54	5.08	12.7	8.8	2.5	1.6	0.9	1000	10.7 0.0	5 0	4.15 3.85	2.4	38.1	25.4	10.2	4.2

UNIT: mm