CATV 1000 MHz Optical Receiver Amplifier Module

1. Product profile

1.1 General description

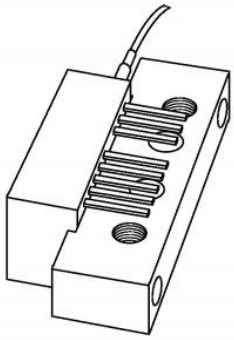
High dynamic range optical receiver amplifier module is in a standard SOT115T package where the 0.9mm buffered fiber has an FC/APC or SC/APC connector. The amplifier supply voltage is 24 V (DC).The modules have a single mode optical input suitable for 1290 nm to1600 nm wavelengths, using a front push-pull amplifier and a cascaded power doubler MMIC with GaAs Technology from USA .adding ESD and surge protective devices.a terminal to monitor the photo diode current and an electrical 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



Product Outline

1.3 Applications

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

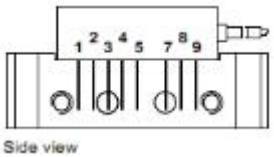
1.4 Handling

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

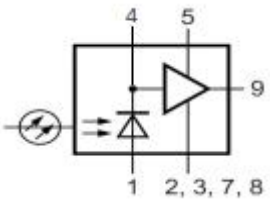
2. Pin information

Pin	Description
1	monitor current
2	Common
3	Common
4	**+VB1 of the PIN diode**
5	**+VB2 of the amplifer**
7	Common
8	Common
9	Output

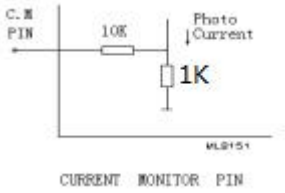
Simplified outline



Graphic symbol



Monitor current pin.



3. Operating conditions

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	-	5	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

4. Electrical characteristics

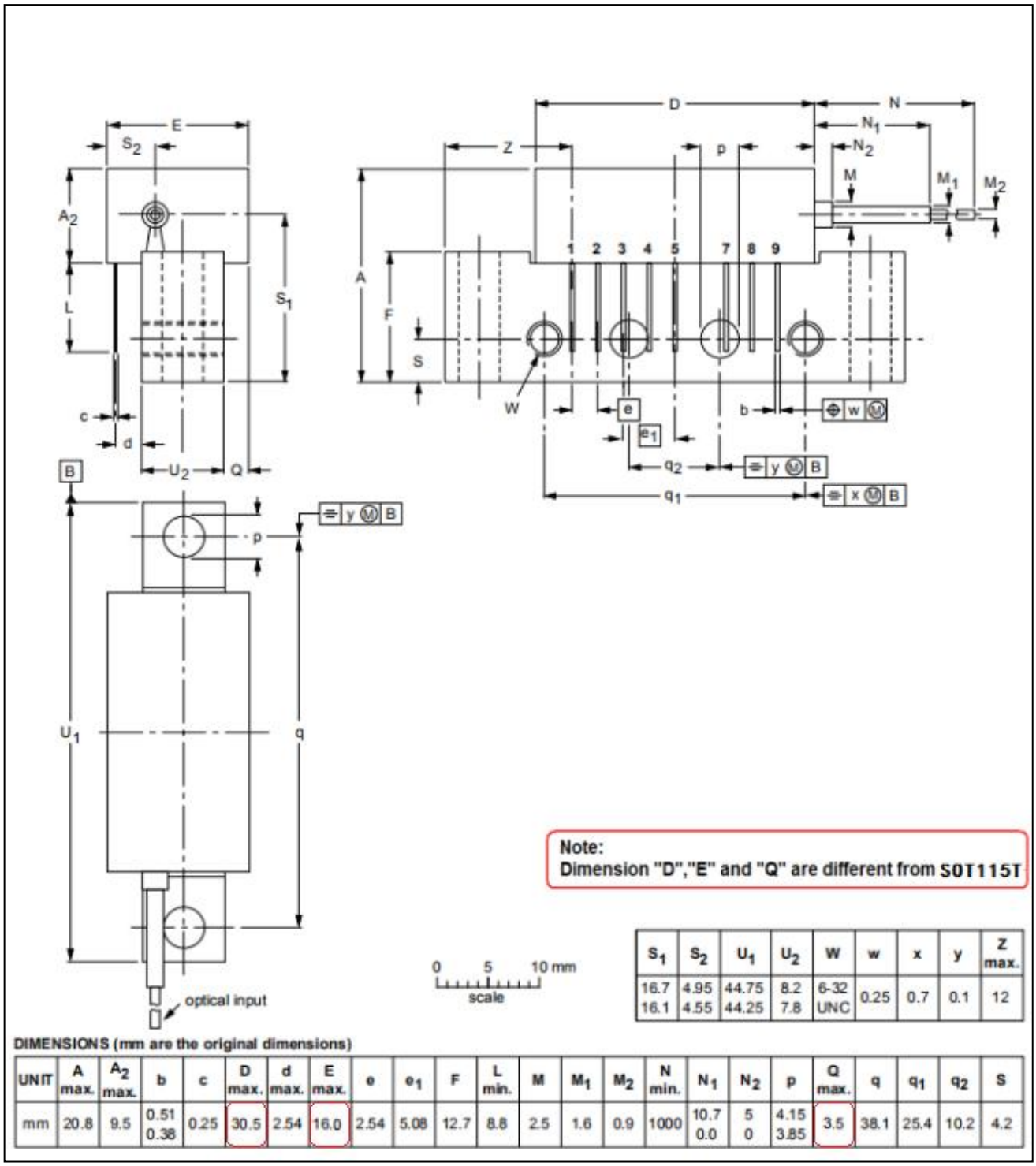
Bandwidth 40 to 1000 MHz ,T C = 30±5°C, Z S = Z L = 75 Ω

SYMBOL	PARAMETER	UNIT	MIN.	TYP.	MAX.	CONDITIONS
f	Frequency range	MHz	40		1000	
Sλ	Spectral sensitivity	A/W	0.85	-	-	λ=1310±20nm
		A/W	0.9	-	-	λ=1550±20nm
λ	Optical wavelength	nm	1290		1600	
	Responsivity	V/W	850		1000	f=1000 MHz, λ=1310nm
SL	Slope Straight Line	dB	1		3	f=40 to 1000 MHz
FL	Flatness Straight Line	dB	-	1.0	1.5	f=40 to 1000 MHz
Vo	Output Level	dBμV	-	90	-	60 channels flat, m=3.7%; measured at 543.25MHz; Optical power receiving at 0dBm
CTB	Composite Triple Beat	dB	-	-70	-	
CSO	Composite Second Order distortion	dB	-	-69	-	
S22	Output Return losses	dB	14	-	-	f=40 to 1000 MHz
	Optical input return losses	dB	45	-	-	
Itot	Total Current Consumption	VB2/mA	260	280	300	V_{B1}/V_{B2}=24V
Ipin4	Pin diode bias current (DC)	VB1/mA	-	-	10	

5. Package outline

Rectangular single-ended package; aluminum flange; 2 vertical mounting holes; 2 x 6-32 UNC and 2 extra horizontal mounting holes; 8 gold-plated in-line leads.
Optical input

SOT115T-B



Note:
Dimension "D","E" and "Q" are different from SOT115T

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	30.5	2.54	16.0	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	3.5	38.1	25.4	10.2	4.2

UNIT: mm