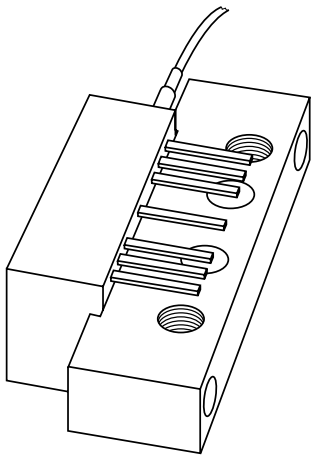


# DATA SHEET



## **BGO387** 300 MHz Optical receiver

Product specification  
Supersedes data of 2002 Jun 27

2002 Dec 03

# 300 MHz Optical receiver

# BGO387

## FEATURES

- Excellent linearity
- Low noise
- Excellent flatness
- Standard CATV outline
- Rugged construction
- Gold metallization ensures excellent reliability.

## APPLICATIONS

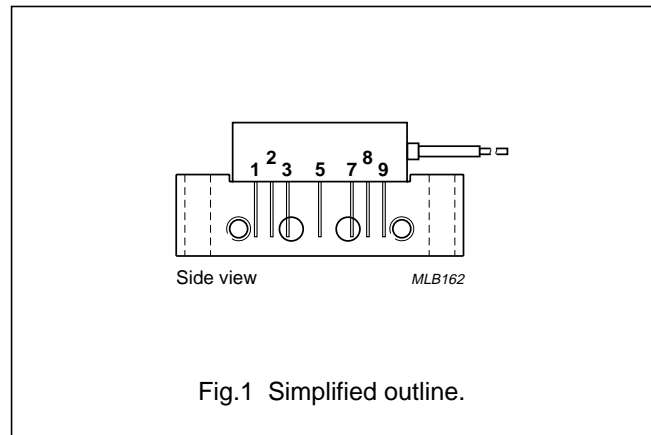
- Reverse receiver amplifiers in two-way CATV systems operating in the 5 to 300 MHz frequency range.

## DESCRIPTION

High dynamic range optical receiver amplifier module in a standard SOT115U package, operating at a voltage supply of 24 V (DC). The module contains a monomode optical input suitable for wavelengths from 1290 to 1600 nm, a terminal to monitor the pin diode current and an electrical output with a characteristic impedance of 75 Ω.

## PINNING - SOT115U

PIN	DESCRIPTION
1	monitor current
2, 3	common
5	+V <sub>B</sub>
7, 8	common
9	output



## QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
f	frequency range		5	300	MHz
S <sub>22</sub>	output return losses	f = 5 to 300 MHz	16	–	dB
	optical input return losses		45	–	dB
d <sub>2</sub>	second order distortion		–	–70	dB
F	equivalent noise input	f = 10 to 300 MHz	–	7.5	pA/√Hz
I <sub>tot</sub>	total current consumption (DC)	V <sub>B</sub> = 24 V	160	190	mA

## HANDLING

Fibreglass optical coupling: maximum tensile strength = 5 N; minimum bending radius = 35 mm.

<b>CAUTION</b>
This product is supplied in anti-static packing to prevent damage caused by electrostatic discharge during transport and handling. For further information, refer to Philips specs.: SNW-EQ-608, SNW-FQ-302A and SNW-FQ-302B.

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**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
f	frequency range		5	300	MHz
T <sub>stg</sub>	storage temperature		-40	+85	°C
T <sub>mb</sub>	operating mounting base temperature		-20	+85	°C
P <sub>in</sub>	optical input power	continuous	-	5	mW
ESD	ESD sensitivity	human body model; R = 1.5 kΩ; C = 100 pF	500	-	V

**CHARACTERISTICS**Bandwidth 5 to 300 MHz; V<sub>B</sub> = 24 V; T<sub>mb</sub> = 30 °C; Z<sub>L</sub> = 75 Ω

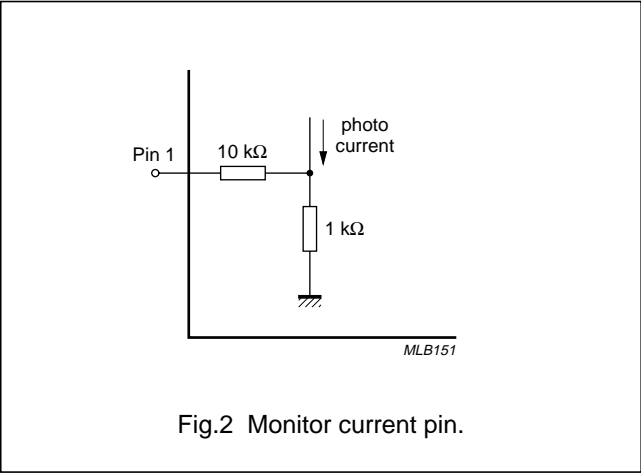
SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
S	responsivity	λ = 1300 nm	800	-	V/W
V <sub>pin 1</sub>	pin 1 monitor voltage	λ = 1300 nm	0.75	1	V/mW
FL	flatness of frequency response		-	±0.3	dB
SL	slope cable equivalent	f = 5 to 300 MHz	0	2	dB
s <sub>22</sub>	output return losses	f = 5 to 300 MHz	16	-	dB
	optical input return losses		45	-	dB
d <sub>2</sub>	second order distortion	note 1	-	-70	dB
d <sub>3</sub>	third order distortion	note 2	-	-80	dB
F	equivalent noise input	f = 10 to 300 MHz	-	7.5	pA/√Hz
s <sub>λ</sub>	spectral sensitivity	λ = 1310 ± 20 nm	0.85	-	A/W
		λ = 1550 ± 20 nm	0.9	-	A/W
λ	optical wavelength		1290	1600	nm
L	length of optical fibre	fibre; SM type; 9/125 μm	1	-	m
I <sub>tot</sub>	total current consumption (DC)	note 3	160	190	mA

**Notes**

- Two laser test; each laser with 25% modulation index; f<sub>p</sub> = 20.25 MHz; P<sub>p</sub> = 0.5 mW; f<sub>q</sub> = 34 MHz; P<sub>q</sub> = 0.5 mW; measured at f<sub>p</sub> + f<sub>q</sub> = 54.25 MHz.
- Three laser test; each laser with 40% modulation index; f<sub>p</sub> = 125.25 MHz; P<sub>p</sub> = 0.33 mW; f<sub>q</sub> = 109.25 MHz; P<sub>q</sub> = 0.33 mW; f<sub>r</sub> = 134.25 MHz; P<sub>r</sub> = 0.33 mW; measured at f<sub>p</sub> + f<sub>q</sub> - f<sub>r</sub> = 100.25 MHz.
- The module normally operates at V<sub>B</sub> = 24 V, but is able to withstand supply transients up to 30 V.

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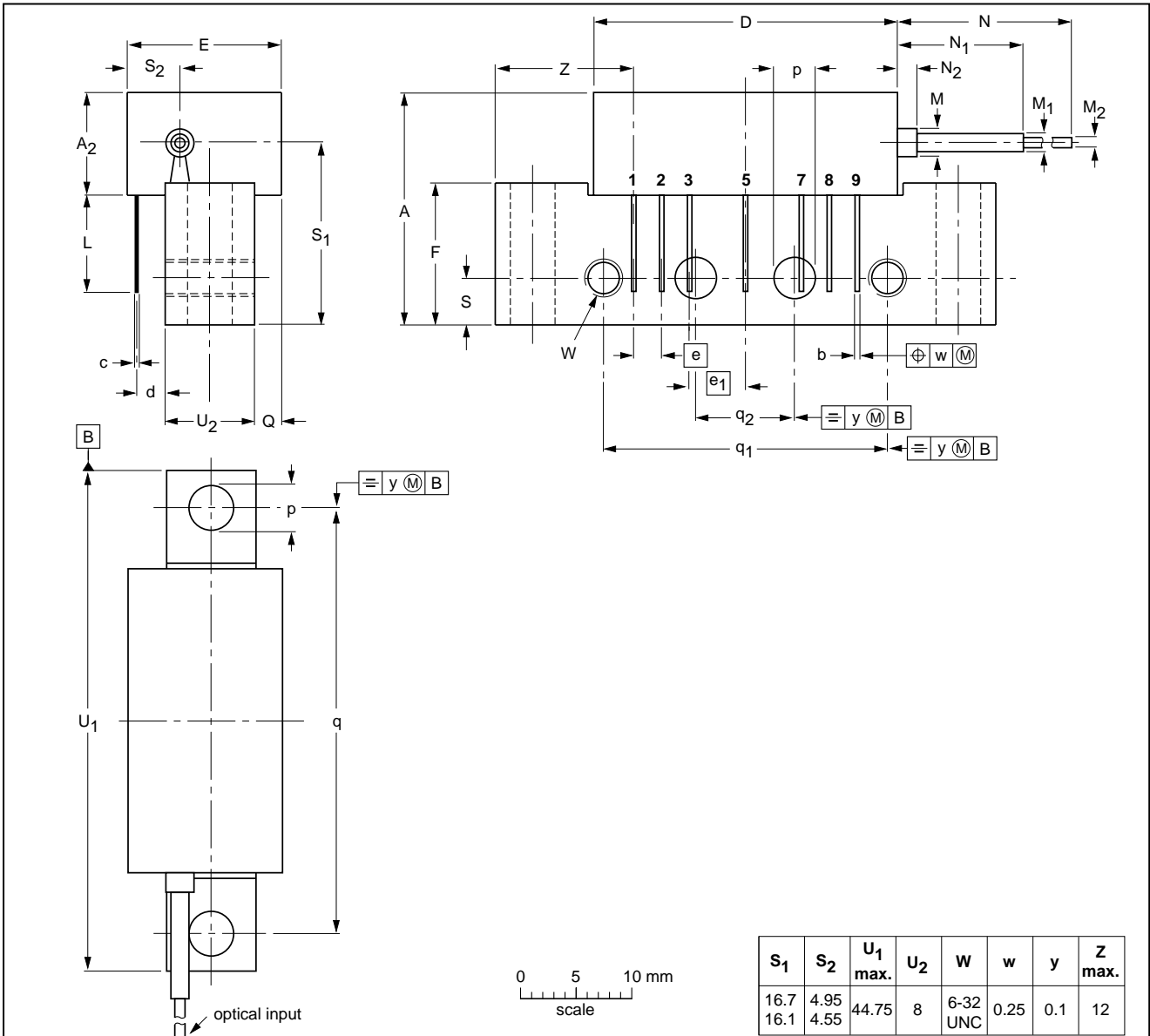
# 300 MHz Optical receiver

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## PACKAGE OUTLINE

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

SOT115U



S <sub>1</sub>	S <sub>2</sub>	U <sub>1</sub> max.	U <sub>2</sub>	W	w	y	Z max.
16.7	4.95	44.75	8	6-32 UNC	0.25	0.1	12
16.1	4.55						

DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A <sub>2</sub> max.	b	c	D max.	d max.	E max.	e	e <sub>1</sub>	F	L min.	M	M <sub>1</sub>	M <sub>2</sub>	N min.	N <sub>1</sub> max.	N <sub>2</sub> max.	p	Q max.	q	q <sub>1</sub>	q <sub>2</sub>	S
mm	20.8	9.1	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	5	4.15 3.85	2.4	38.1	25.4	10.2	4.2

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOT115U					99-04-13 01-08-10

## 300 MHz Optical receiver

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## DATA SHEET STATUS

LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)(3)</sup>	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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**NOTES**

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