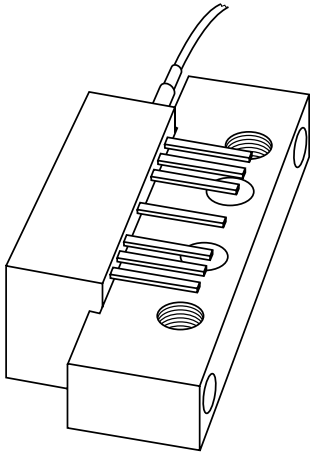


# DATA SHEET



## **BGE887BO** Optical receiver module

Product specification  
Supersedes data of 2000 Apr 10

2001 Sep 27

# Optical receiver module

# BGE887BO

### FEATURES

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

### APPLICATIONS

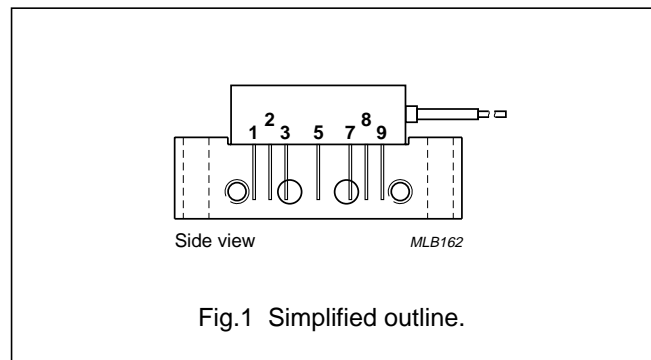
- CATV systems operating in the 40 to 860 MHz frequency range.

### DESCRIPTION

Hybrid high dynamic range optical receiver module in a 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 an impedance of 75 Ω.

### PINNING - SOT115U

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



### QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
f	frequency range		40	860	MHz
S <sub>22</sub>	output return losses	f = 40 to 860 MHz	11	–	dB
	optical input return losses		45	–	dB
d <sub>2</sub>	second order distortion	f = 324.25 MHz	–	–70	dBc
F	equivalent noise input	f = 40 MHz	–	7	pA/√Hz
I <sub>tot</sub>	total current consumption (DC)	V <sub>B</sub> = 24 V	175	205	mA

### HANDLING

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

## Optical receiver module

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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		40	860	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

**Table 1** Bandwidth 40 to 860 MHz; V<sub>B</sub> = 24 V; T<sub>mb</sub> = 30 °C; Z<sub>S</sub> = 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		-	±0.5	dB
S <sub>22</sub>	output return losses	f = 40 to 860 MHz	11	-	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 = 40 MHz	-	7	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	175	205	mA

## Notes

- Two laser test; each laser with 40% modulation index;  
f<sub>p</sub> = 135 MHz; P<sub>p</sub> = 0.5 mW;  
f<sub>q</sub> = 189.25 MHz; P<sub>q</sub> = 0.5 mW;  
measured at f<sub>p</sub> + f<sub>q</sub> = 324.25 MHz.
- Three laser test; each laser with 40% modulation index;  
f<sub>p</sub> = 326.25 MHz; P<sub>p</sub> = 0.33 mW;  
f<sub>q</sub> = 333.25 MHz; P<sub>q</sub> = 0.33 mW;  
f<sub>r</sub> = 335.25 MHz; P<sub>r</sub> = 0.33 mW;  
measured at f<sub>p</sub> + f<sub>q</sub> - f<sub>r</sub> = 324.25 MHz.
- The module normally operates at V<sub>B</sub> = 24 V but is able to withstand supply transients up to 30 V.

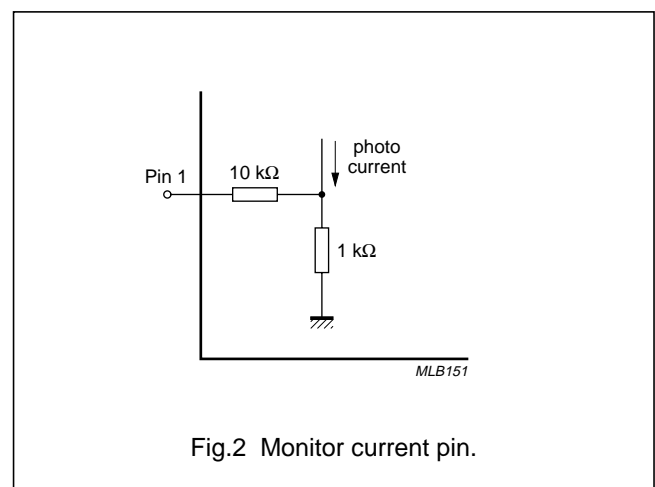


Fig.2 Monitor current pin.

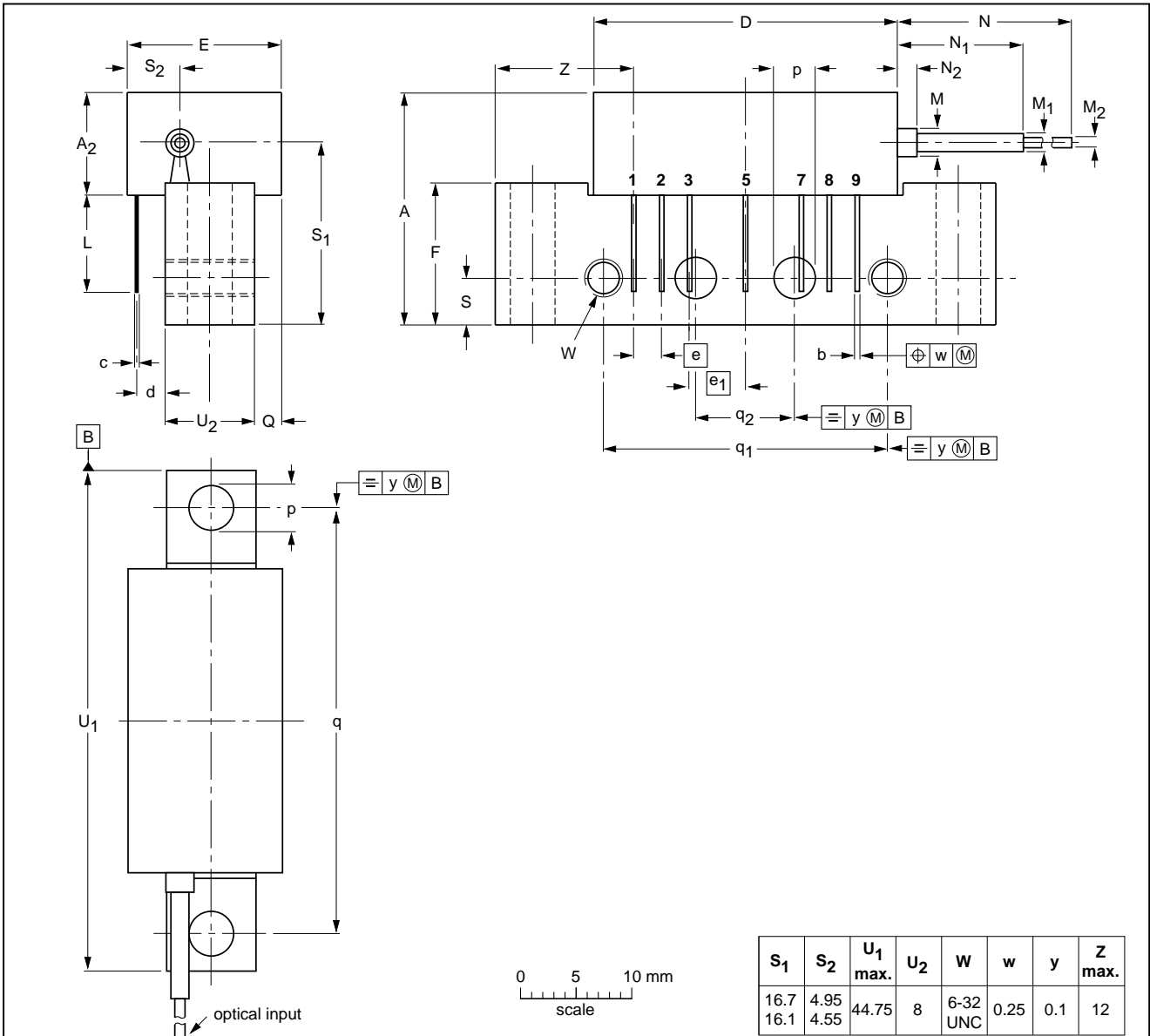
Optical receiver module

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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

## Optical receiver module

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## DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITIONS
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.
Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Changes will be communicated according to the Customer Product/Process Change Notification (CPCN) procedure SNW-SQ-650A.

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## CAUTION

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.

Optical receiver module

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**NOTES**

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**NOTES**

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