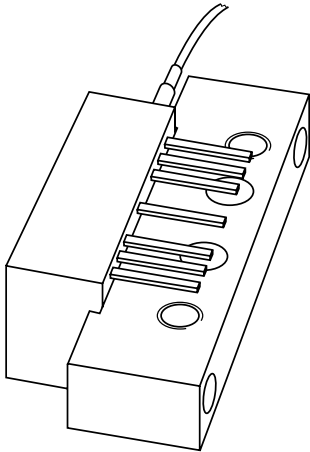


# DATA SHEET



## **BGY887BO/FC1** Optical receiver module

Product specification  
Supersedes data of 1998 Feb 02  
File under Discrete Semiconductors, SC16

1998 Mar 13

# Optical receiver module

# BGY887BO/FC1

## FEATURES

- Excellent linearity
- Extremely low noise
- Excellent flatness
- Standard CATV outline
- Rugged construction
- Gold metallization ensures excellent reliability
- FC/APC connector (JDS version).

## APPLICATIONS

- CATV systems operating over a frequency range of 40 to 860 MHz.

## DESCRIPTION

Hybrid high dynamic range optical receiver module in a SOT115R 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.

The optical fibre is terminated by an FC/APC connector (JDS version) and partly reinforced by a 3 mm diameter Kevlar buffer.

## PINNING - SOT115R

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

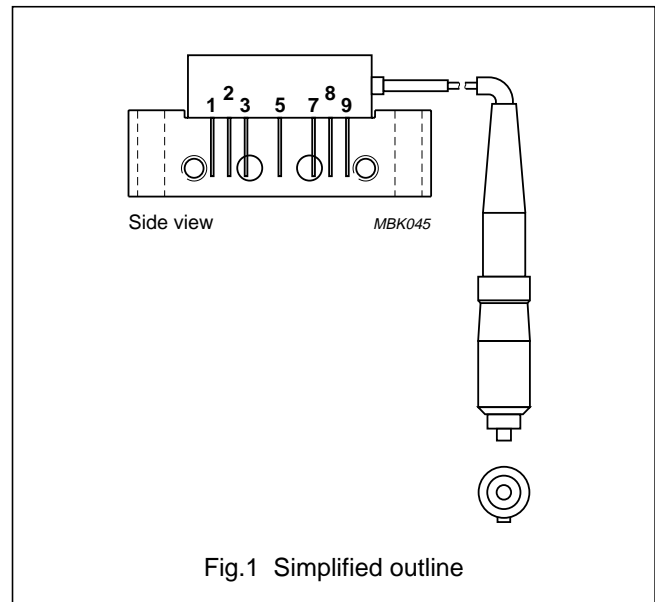


Fig.1 Simplified outline

## 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		40	–	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

### 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.

## HANDLING

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

# Optical receiver module

# BGY887BO/FC1

## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
f	frequency range		40	860	MHz
T <sub>stg</sub>	storage temperature range		-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 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	750	-	V/W
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		40	-	dB
OBR <sub>C</sub>	connector optical return losses		70	-	dB
IL <sub>C</sub>	connector optical insertion losses		-	0.5	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 <sub>1</sub> = 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	buffered fibre; SM type; 9/125 μm; Kevlar buffer: 3 mm	817	917	mm
I <sub>tot</sub>	total current consumption	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.

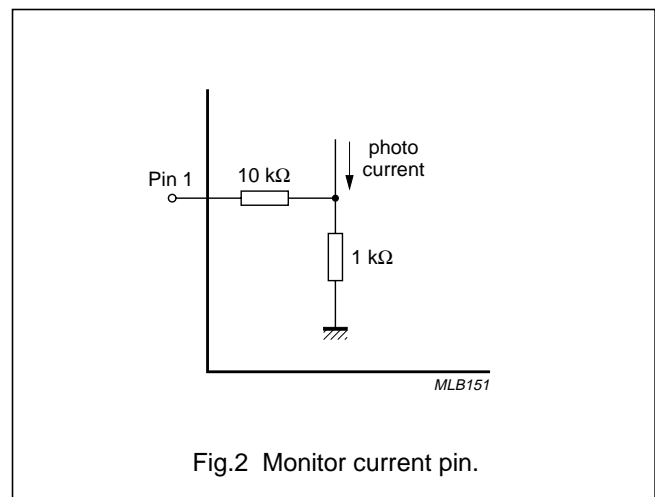


Fig.2 Monitor current pin.

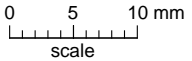
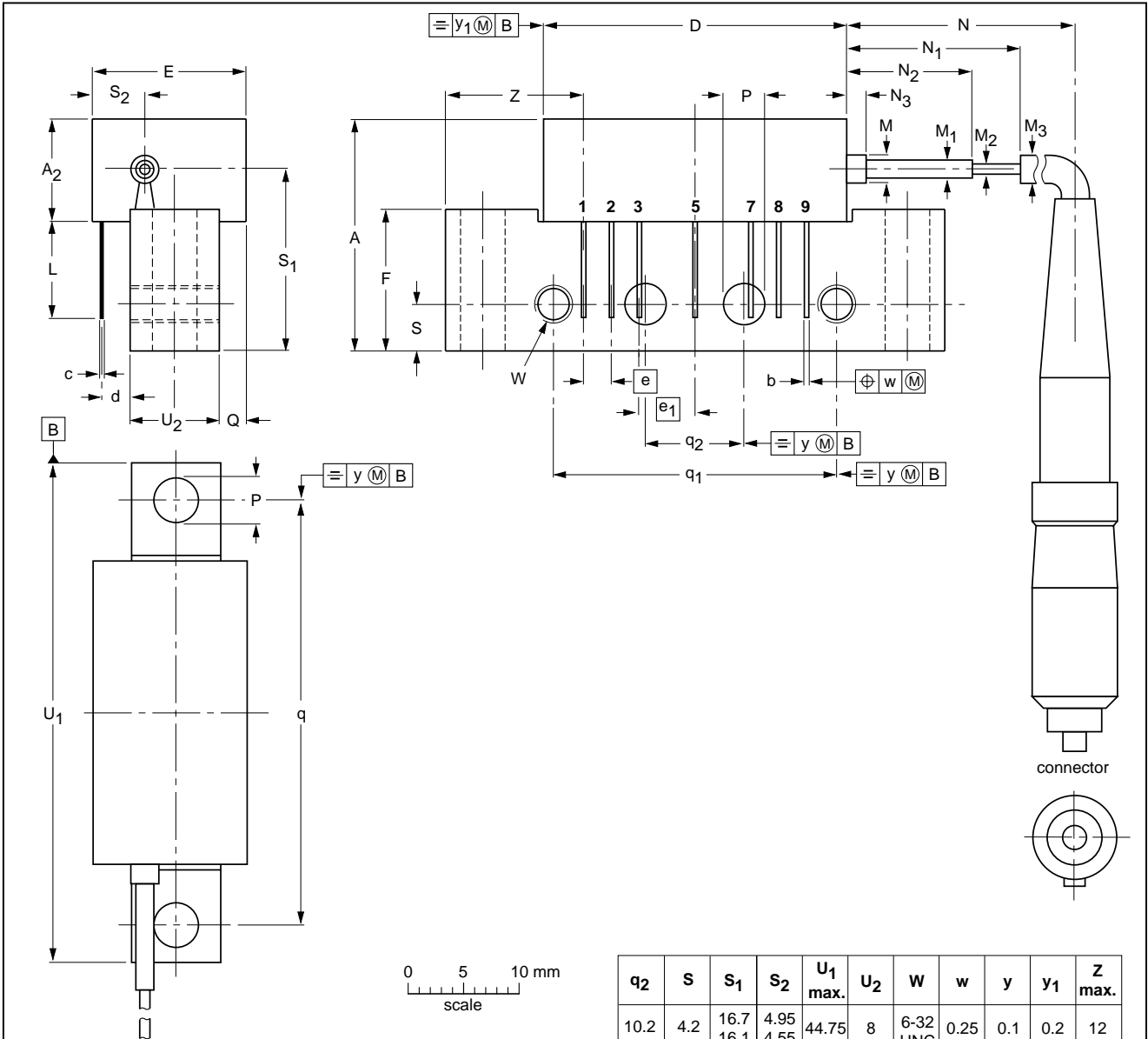
Optical receiver module

BGY887BO/FC1

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 with connector; 7 gold-plated in-line leads

SOT115R



q2	S	S1	S2	U1 max.	U2	W	w	y	y1	Z max.
10.2	4.2	16.7 16.1	4.95 4.55	44.75	8	6-32 UNC	0.25	0.1	0.2	12

DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A2 max.	b	c	D max.	d max.	E max.	e	e1	F	L min.	M	M1	M2	M3	N	N1	N2	N3	∅ P	Q max.	q	q1
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	3	917 817	15.3 8.7	10.7 8.7	5 1	4.15 3.85	2.4	38.1	25.4

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT115R						98-03-06

## Optical receiver module

## BGY887BO/FC1

**DEFINITIONS**

<b>Data Sheet Status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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Optical receiver module

BGY887BO/FC1

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**NOTES**

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**NOTES**

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