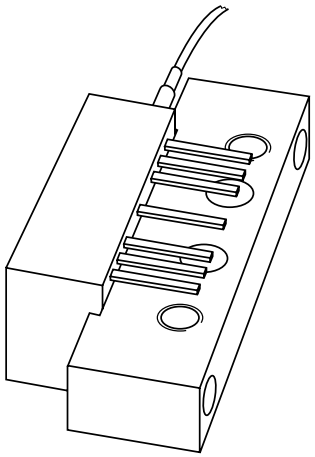
DATA SHEET



BGY887BO/FC1
Optical receiver module

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

1998 Mar 13

Philips
Semiconductors

PHILIPS

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	$+V_B$
7	common
8	common
9	output

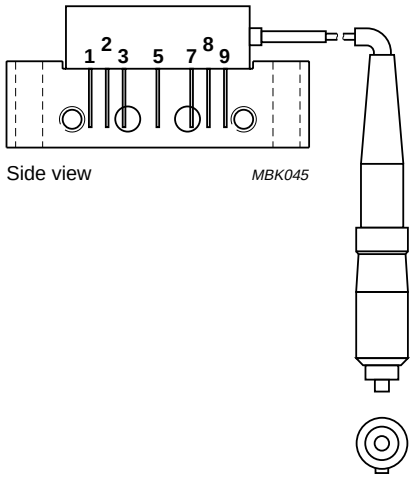


Fig.1 Simplified outline

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
f	frequency range		40	860	MHz
S_{22}	output return losses	f = 40 to 860 MHz	11	–	dB
	optical input return losses		40	–	dB
d_2	second order distortion	f = 324.25 MHz	–	–70	dBc
F	equivalent noise input	f = 40 MHz	–	7	pA/√Hz
I_{tot}	total current consumption (DC)	V_B = 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.

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_{stg}	storage temperature range		–40	+85	°C
T_{mb}	operating mounting-base temperature		–20	+85	°C
P_{in}	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_B = 24 V; T_{mb} = 30 °C; $Z_S = Z_L$ = 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_{22}	output return losses	f = 40 to 860 MHz	11	–	dB
	optical input return losses		40	–	dB
OBR_C	connector optical return losses		70	–	dB
IL_C	connector optical insertion losses		–	0.5	dB
d_2	second order distortion	note 1	–	–70	dB
d_3	third order distortion	note 2	–	–80	dB
F	equivalent noise input	f_1 = 40 MHz	–	7	pA/√Hz
s_λ	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_{tot}	total current consumption	note 3	175	205	mA

Notes

1. Two laser test; each laser with 40% modulation index:
   f_p = 135 MHz; P_p = 0.5 mW;
   f_q = 189.25 MHz; P_q = 0.5 mW;
   measured at $f_p + f_q$ = 324.25 MHz.
2. Three laser test; each laser with 40% modulation index:
   f_p = 326.25 MHz; P_p = 0.33 mW;
   f_q = 333.25 MHz; P_q = 0.33 mW;
   f_r = 335.25 MHz; P_r = 0.33 mW;
   measured at $f_p + f_q - f_r$ = 324.25 MHz.
3. The module normally operates at V_B = 24 V, but is able to withstand supply transients up to 30 V.

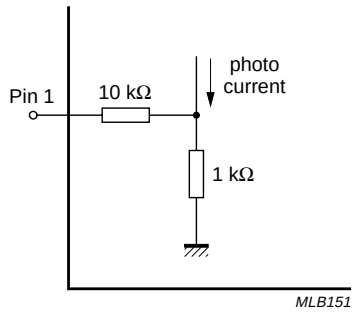
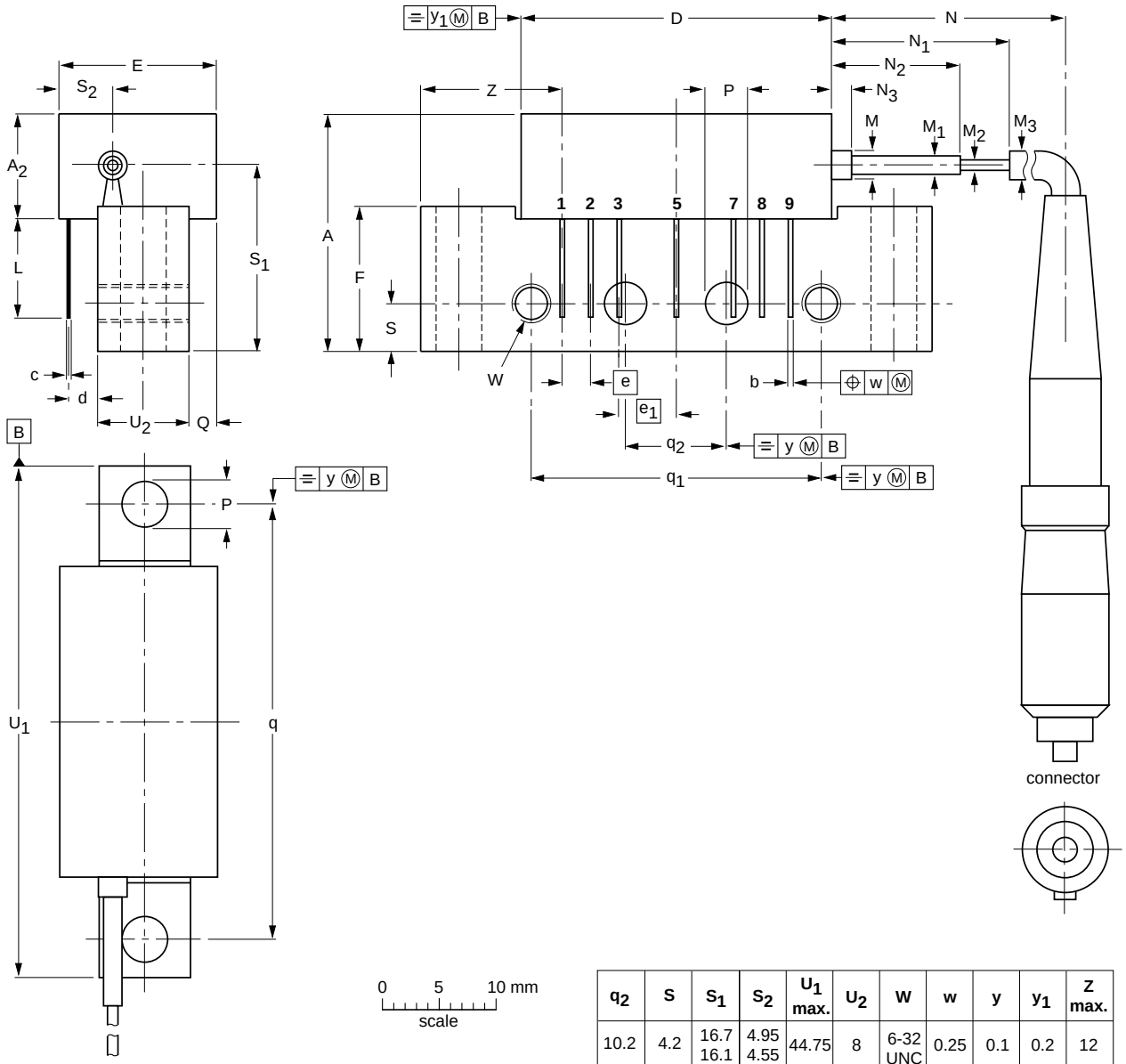


Fig.2 Monitor current pin.

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**



q_2	S	S_1	S_2	U_1 max.	U_2	W	w	y	y_1	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.	A_2 max.	b	c	D max.	d max.	E max.	e	e_1	F	L min.	M	M_1	M_2	M_3	N	N_1	N_2	N_3	∅ P	Q max.	q	q_1
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

DEFINITIONS

Data Sheet Status	
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.
Limiting values	
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.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

NOTES

NOTES

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