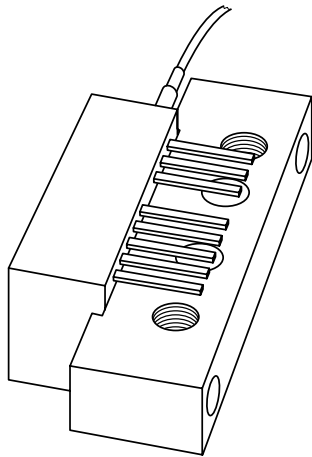


DATA SHEET



BGE847BO/FC Optical receiver module

Product specification
Supersedes data of 1998 Oct 01

1999 Mar 30

Optical receiver module

BGE847BO/FC

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 in the 40 to 860 MHz frequency range.

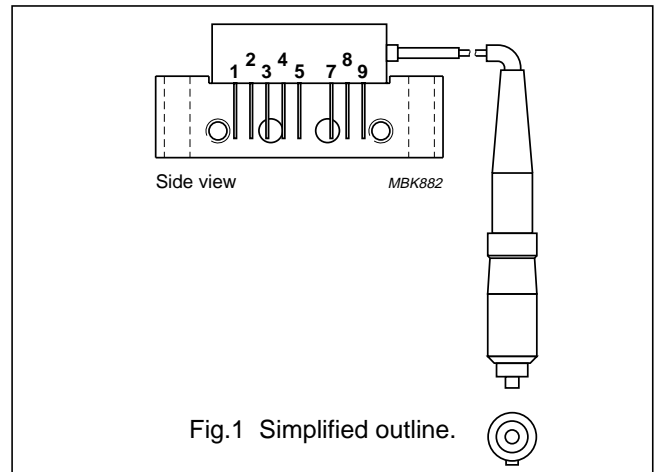
DESCRIPTION

Hybrid high dynamic range optical receiver module in a SOT115W package. Two of the module pins are for connection to 24 V (DC); one for amplifier supply voltage and the other for the pin diode bias.

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 - SOT115W

PIN	DESCRIPTION
1	monitor current
2	common
3	common
4	+V _B of the pin diode
5	+V _B of the amplifier
7	common
8	common
9	output



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		45	–	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

HANDLING

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

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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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		-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

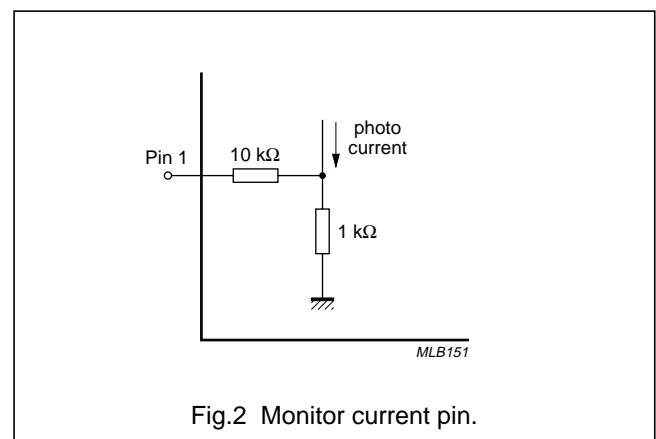
CHARACTERISTICS

Table 1 Bandwidth 40 to 860 MHz; V_B = 24 V; T_{mb} = 30 °C; 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 ₁ = 40 to 860 MHz	11	-	dB
	optical input return losses		45	-	dB
OBR _C	connector optical return losses		60	-	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	577	627	mm
I _{tot}	total current consumption (DC)	note 3	175	205	mA
I _{pin 4}	pin diode bias current (DC)		-	25	mA

Notes

- 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.
- 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.
- The module normally operates at V_B = 24 V, but is able to withstand supply transients up to 30 V.



Optical receiver module

BGE847BO/FC

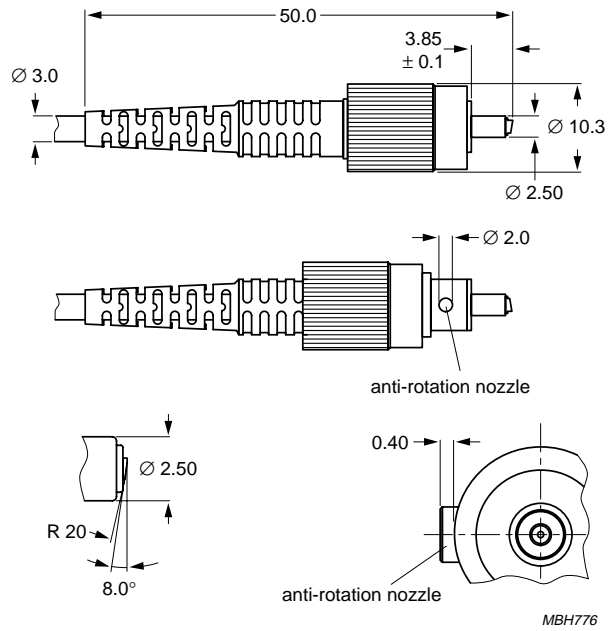


Fig.3 FC/APC connector.

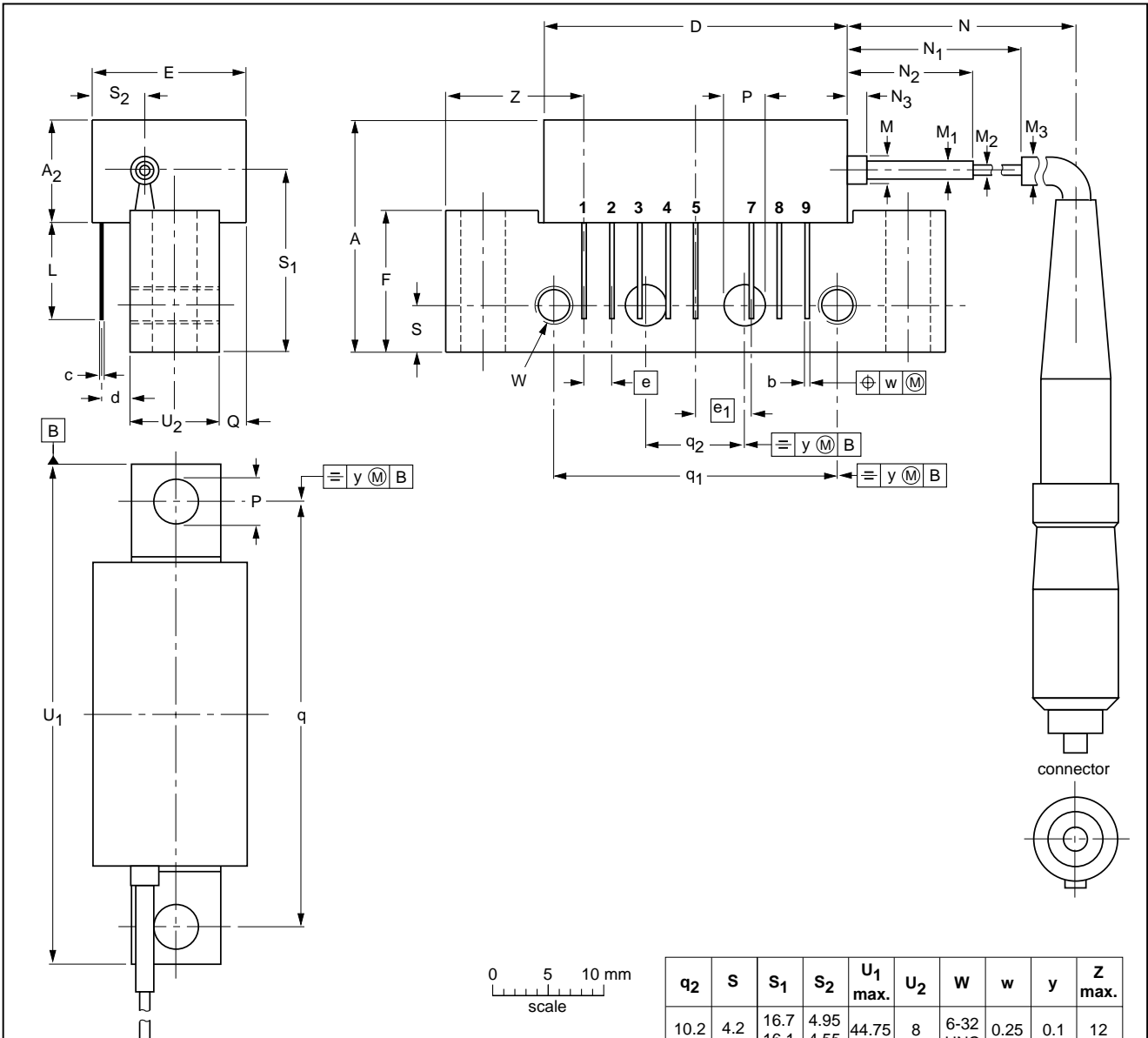
Optical receiver module

BGE847BO/FC

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; 8 gold-plated in-line leads

SOT115W



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	627 577	127 77	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		
SOT115W					99-02-16

Optical receiver module

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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.

Optical receiver module

BGE847BO/FC

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