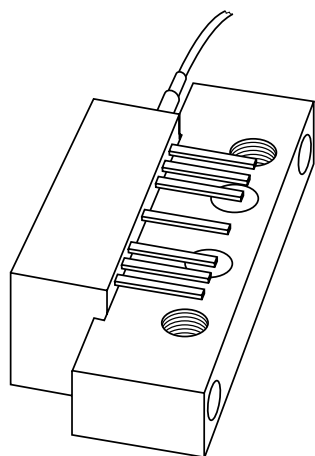


DATA SHEET



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 _B
7, 8	common
9	output

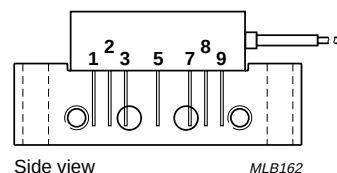


Fig.1 Simplified outline.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
f	frequency range		5	300	MHz
S ₂₂	output return losses	f = 5 to 300 MHz	16	–	dB
	optical input return losses		45	–	dB
d ₂	second order distortion		–	–70	dB
F	equivalent noise input	f = 10 to 300 MHz	–	7.5	pA/ $\sqrt{\text{Hz}}$
I _{tot}	total current consumption (DC)	V _B = 24 V	160	190	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.

300 MHz Optical receiver

BGO387

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 _{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

Bandwidth 5 to 300 MHz; V_B = 24 V; T_{mb} = 30 °C; Z_L = 75 Ω

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
S	responsivity	λ = 1300 nm	800	–	V/W
V _{pin 1}	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 ₂₂	output return losses	f = 5 to 300 MHz	16	–	dB
	optical input return losses		45	–	dB
d ₂	second order distortion	note 1	–	-70	dB
d ₃	third order distortion	note 2	–	-80	dB
F	equivalent noise input	f = 10 to 300 MHz	–	7.5	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	fibre; SM type; 9/125 μm	1	–	m
I _{tot}	total current consumption (DC)	note 3	160	190	mA

Notes

- Two laser test; each laser with 25% modulation index; f_p = 20.25 MHz; P_p = 0.5 mW; f_q = 34 MHz; P_q = 0.5 mW; measured at f_p + f_q = 54.25 MHz.
- Three laser test; each laser with 40% modulation index; f_p = 125.25 MHz; P_p = 0.33 mW; f_q = 109.25 MHz; P_q = 0.33 mW; f_r = 134.25 MHz; P_r = 0.33 mW; measured at f_p + f_q – f_r = 100.25 MHz.
- The module normally operates at V_B = 24 V, but is able to withstand supply transients up to 30 V.

300 MHz Optical receiver

BGO387

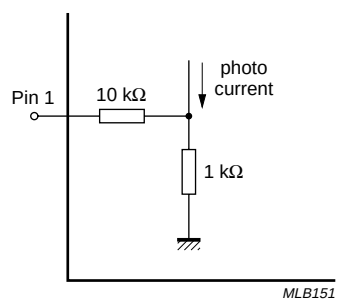


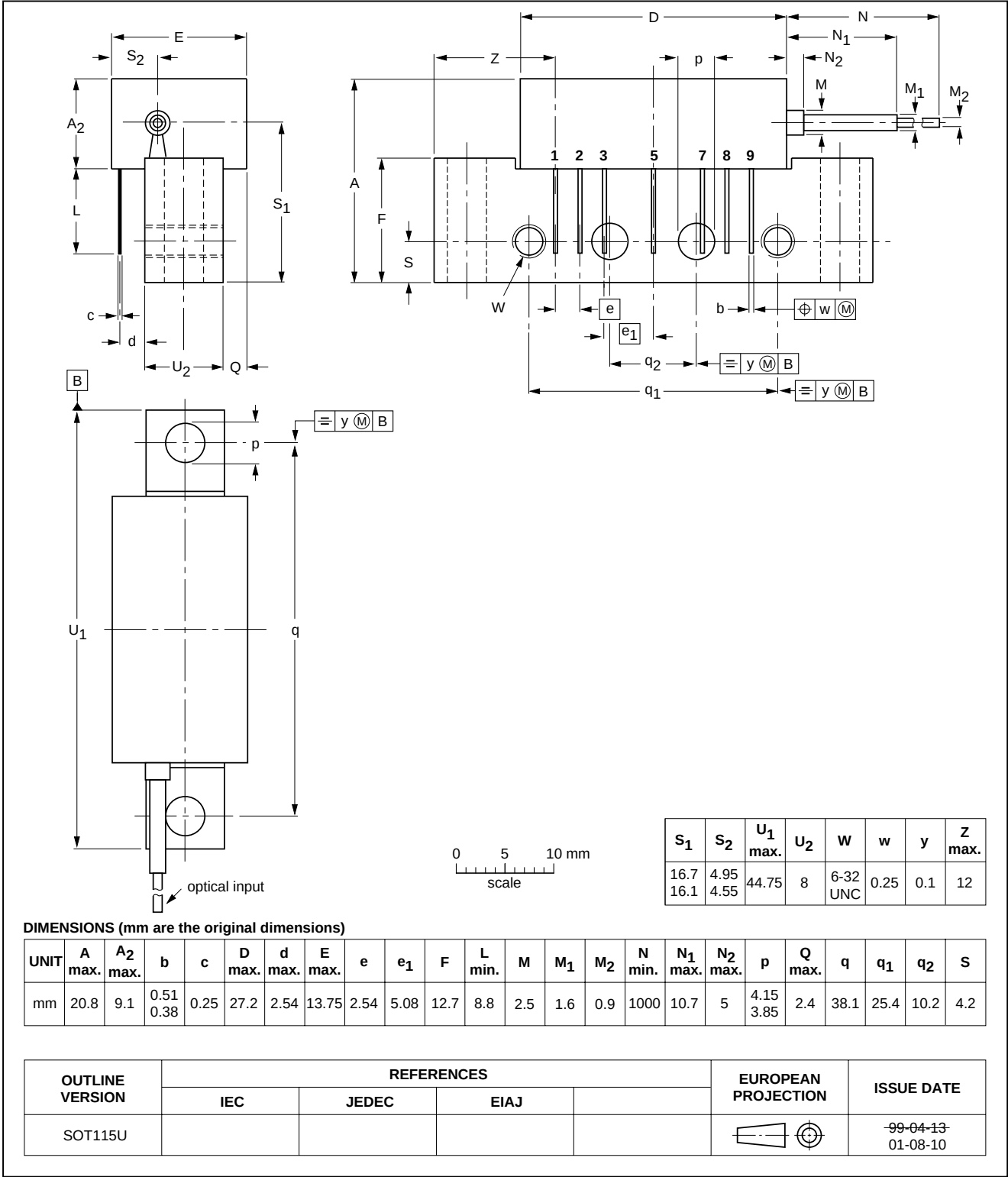
Fig.2 Monitor current pin.

300 MHz Optical receiver

BGO387

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



300 MHz Optical receiver

BGO387

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	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.
II	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.
III	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. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

Notes

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DEFINITIONS

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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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300 MHz Optical receiver

BGO387

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