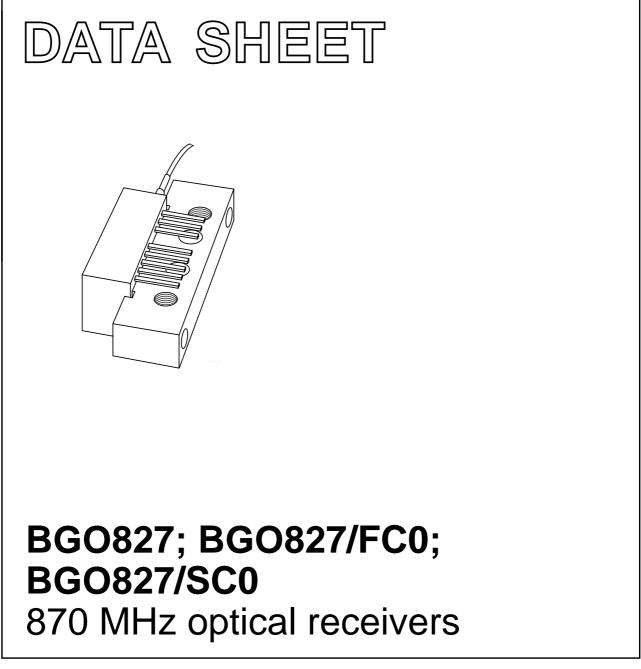
DISCRETE SEMICONDUCTORS



Product specification Supersedes data of 2002 Dec 10 2004 Apr 07



FEATURES

- Excellent linearity
- Low noise
- Excellent flatness
- Standard CATV outline
- Rugged construction
- Gold metallization ensures
 excellent reliability
- High optical input power range.

APPLICATIONS

CATV optical node systems operating in the 40 to 870 MHz frequency range.

DESCRIPTION

High dynamic range optical receiver amplifier modules in a standard SOT115 package where the non-jacketed fibre has either no connector or has an FC/APC or SC/APC connector.

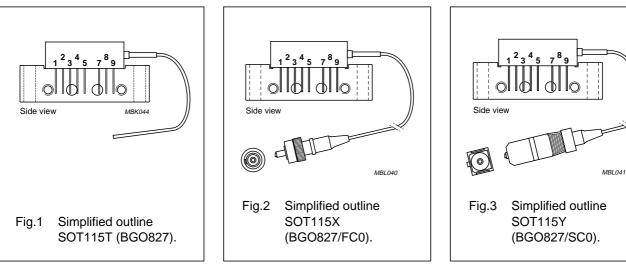
The amplifier supply voltage pin and the photo diode bias voltage pin both connect to 24 V (DC).

The modules have a monomode optical input suitable for 1290 to 1600 nm wavelengths, a terminal to monitor the photo diode current and an electrical output having a characteristic impedance of 75 Ω .

BGO827; BGO827/FC0; BGO827/SC0

PINNING

PIN	DESCRIPTION	
1	monitor current	
2	common	
3	common	
4	+V _B of the photo 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	870	MHz
\$ ₂₂	output return losses	f = 40 to 870 MHz	11	_	dB
	optical input return losses		45	-	dB
d ₂	second order distortion	f = 854.5 MHz	-	-57	dB
F	equivalent noise input	f = 40 to 870 MHz	-	8.5	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.

BGO827; BGO827/FC0; BGO827/SC0

ORDERING INFORMATION

TYPE NUMBER	PACKAGE				
ITPE NUMBER	NAME	NAME DESCRIPTION			
BGO827	_	rectangular single-ended package; aluminium flange; 2 vertical mounting holes; 2 x 6-32 UNC and 2 extra horizontal mounting holes; optical input; 8 gold-plated in-line leads			
BGO827/FC0	_	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			
BGO827/SC0	 D827/SC0 – rectangular single-ended package; aluminium flange; 2 vertical mounting holes; 2 x 6-32 UNC and 2 extra horizontal mounholes; optical input with connector; 8 gold-plated in-line leads 		SOT115Y		

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 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
f	frequency range		40	870	MHz
T _{stg}	storage temperature		-40	+85	°C
T _{mb}	operating mounting base temperature		-20	+85	°C
Pin	optical input power	continuous	-	5	mW
ESD	ESD sensitivity	human body model; R = 1.5 k Ω ; C = 100 pF	500	_	V

CHARACTERISTICS

Bandwidth 40 to 870 MHz; V_B = 24 V; T_{mb} = 30 °C; ZL = 75 Ω .

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
S	responsivity	$\lambda = 1300 \text{ nm}$				
	BGO827		800	_	-	V/W
	BGO827/FC0, BGO827/SC0		750	-	-	V/W
ΔS	responsivity difference	resp at T _{mb} = 85 °C – resp at T _{mb} = 30 °C; f = 870 MHz	-	-50	-	V/W
FL	flatness straight line (peak to valley)	f = 40 to 870 MHz	-	-	1	dB
SL	slope straight line	f = 40 to 870 MHz	0	-	2	dB
∆SL	slope difference	slope at $T_{mb} = 85 \text{ °C} - \text{slope at}$ $T_{mb} = 30 \text{ °C}$	-	-0.35	-	dB
\$ ₂₂	output return losses	f = 40 to 870 MHz	11	-	-	dB
	optical input return losses		45	-	-	dB

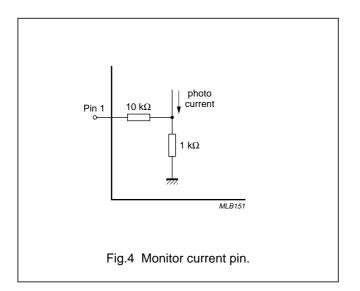
BGO827; BGO827/FC0; BGO827/SC0

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
d ₂	second order distortion	f _m = 446.5 MHz; notes 1 and 3	_	-	-68	dB
		f _m = 746.5 MHz; notes 1 and 4	_	_	-63	dB
		f _m = 854.5 MHz; notes 1 and 5	_	_	-57	dB
Δd_2	second order distortion difference	d_2 at T_{mb} = 85 °C – d_2 at T_{mb} = 30 °C	-	2.5	-	dB
		d_2 at $T_{mb} = -20 \text{ °C} - d_2$ at $T_{mb} = 30 \text{ °C}$	-	-1.5	-	dB
d ₃	third order distortion	f _m = 853.25 MHz; notes 2 and 6	-	_	-73	dB
Δd_3	third order distortion difference	d_3 at T_{mb} = 85 °C – d_3 at T_{mb} = 30 °C	-	1	-	dB
		d_3 at $T_{mb} = -20 \text{ °C} - d_3$ at $T_{mb} = 30 \text{ °C}$	-	-1	-	dB
F	equivalent noise input	f = 40 to 450 MHz	-	-	7	pA/√Hz
		f = 450 to 750 MHz	-	-	8	pA/√Hz
		f = 750 to 870 MHz	-	-	8.5	pA/√Hz
s _λ	spectral sensitivity	$\lambda = 1310 \pm 20 \text{ nm}$	0.85	-	-	A/W
		$\lambda = 1550 \pm 20 \text{ nm}$	0.9	-	-	A/W
λ	optical wavelength		1290	_	1600	nm
L	length of optical fibre	fibre; SM type; 9/125 μm				
	BGO827		1	_	-	m
	BGO827/FC0, BGO827/SC0		746	_	861	mm
I _{tot}	total current consumption (DC)		175	_	205	mA
I _{bias}	diode bias current at pin 4 (DC)		-	-	25	mA

Notes

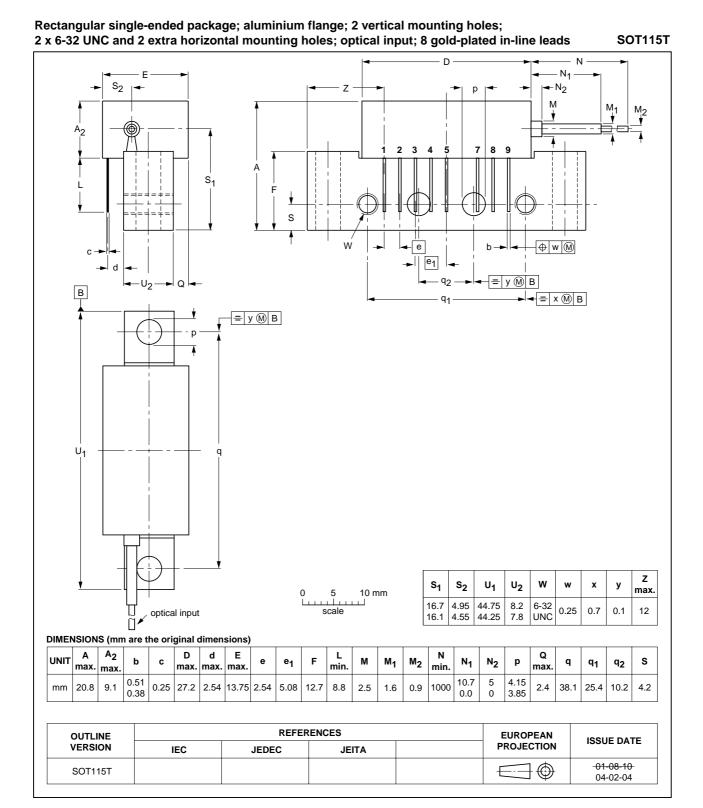
- 1. Two laser test; each laser with a modulation index of 40%; P_{opt} = 1 mW (total).
- 2. Three laser test; each laser with a modulation index of 60%; $P_{opt} = 1 \text{ mW}$ (total).
- 3. $f_m = 446.5 \text{ MHz}; f_p = 97.25 \text{ MHz}; f_q = 349.25 \text{ MHz}.$
- 4. $f_m = 746.5 \text{ MHz}; f_p = 133.25 \text{ MHz}; f_q = 613.25 \text{ MHz}.$
- 5. $f_m = 854.5 \text{ MHz}; f_p = 133.25 \text{ MHz}; f_q = 721.25 \text{ MHz}.$
- 6. $f_m = 853.25 \text{ MHz}; f_p = 133.25 \text{ MHz}; f_q = 265.25 \text{ MHz}; f_r = 721.25 \text{ MHz}.$

BGO827; BGO827/FC0; BGO827/SC0

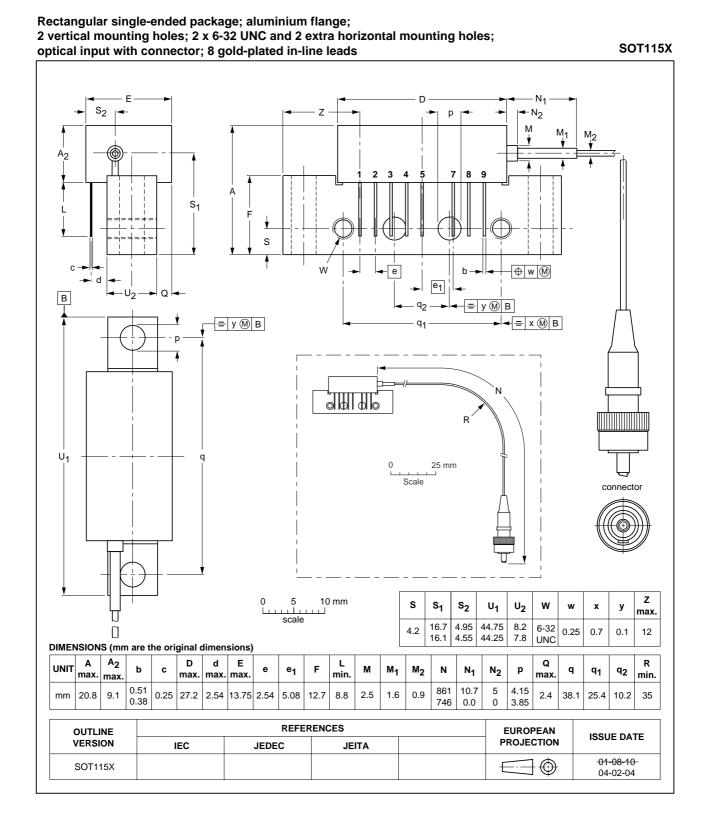


BGO827; BGO827/FC0; BGO827/SC0

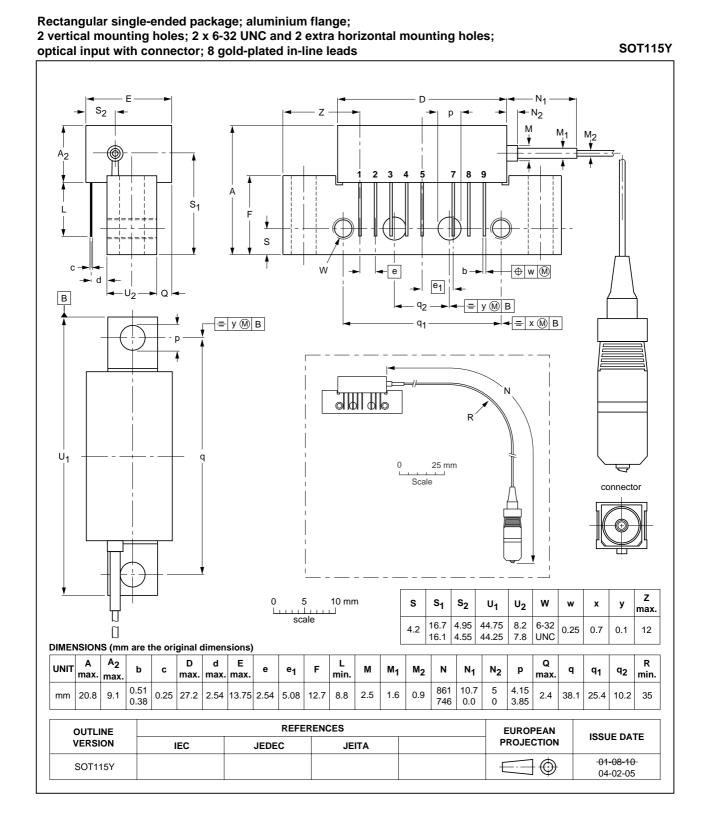
PACKAGE OUTLINES



BGO827; BGO827/FC0; BGO827/SC0



BGO827; BGO827/FC0; BGO827/SC0



BGO827; BGO827/FC0; BGO827/SC0

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.
11	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. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

Notes

- 1. Please consult the most recently issued data sheet before initiating or completing a design.
- 2. The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL http://www.semiconductors.philips.com.
- 3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

DEFINITIONS

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

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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