Optical receiver module

MZBO2027SC/FC

FEATURES

- Excellent linearity
- Extremely low noise
- Excellent flatness
- Standard CATV outline
- Rugged construction
- Gold metallization ensures excellent reliability.

APPLICATIONS

Reverse receiver amplifier in two-way CATV systems in the 5 to 300 MHz frequency range.

DESCRIPTION

Hybrid high dynamic range optical amplifier module in a SOT115T package operating at a voltage supply of +24 V (DC). The module contains a monomode optical input suitable for wavelengths from 1290 to 1 600 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 SC/FC/APC connector and partly reinforced by a 3 mm diameter Kevlar buffer.

PINNING - SOT115P

PIN	DESCRIPTION
1	monitor current
2, 3, 7, 8	common
5	$+V_B$
9	output

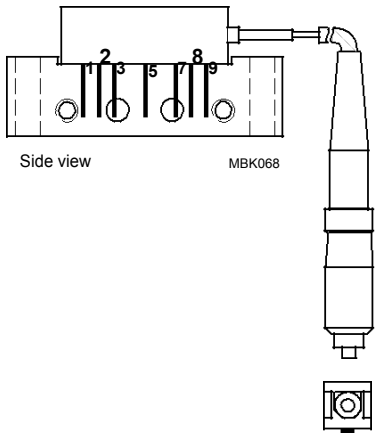


Fig.1 Simplified outline.

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	10		dB
	optical input return losses		45		dB
d_2	second order distortion			70	dBc
F	equivalent noise input	f = 10 to 300 MHz		7	pA/ √Hz
I_{tot}	total current consumption (DC)	V_B = 24 V	110	140	mA

HANDLING

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

To prevent damage to the optical fibre, a clamp should be fixed at a distance of not less than 26 mm from the cap of the module.

CAUTION
The device is supplied in an antistatic package and must be protected against static discharge during transport or handling.

Optical receiver module MZBO2027SC/FC

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
f	frequency range		5	300	MHz
T_{stg}	storage temperature		-40	+85	℃
T_{mb}	operating mounting base temperature		-20	+85	℃
P_{in}	optical input power	continuous	-	3	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} = 25℃; Z_L = 75Ω .

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
S	responsivity	λ = 1300 nm	850	-	V/W
$V_{pin\ 1}$	pin 1 monitor voltage	λ = 1300 nm	0.85	1	V/mW
FL	flatness of frequency response		-	±0.3	dB
S_{22}	output return losses	f = 5 to 300 MHz	10	-	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 = 10 to 300 MHz	-	7	pA/√Hz
s	spectral sensitivity	λ = 1310± 20 nm	0.85	-	A/W
		= 155 20 nm		-	
	optical wavelength		1 290	1 600	nm
L	length of optical fibre	buffered fibre; SM type; 9/125 m; kevlar buffer: 3 mm	800	1000	mm
I_{tot}	total current consumption (DC)	note 3	110	140	mA

Notes

1. Two laser test; each laser with 40% 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.
2. Three laser test; each laser with 40% modulation index; f_p = 125.25 MHz; P_p = 0.33 mW; f_q = 110.25 MHz; P_q = 0.33 mW; f_r = 135.25 MHz; P_r = 0.33 mW; measured at $f_p + f_q - f_r$ = 100.25 MHz.
3. The module normally operates at V_B = 24 V, but is able to withstand supply transients up to 30 V.

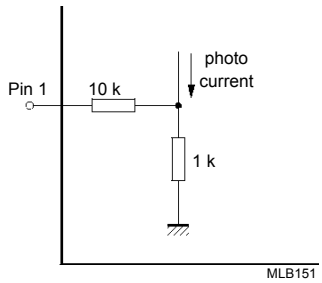
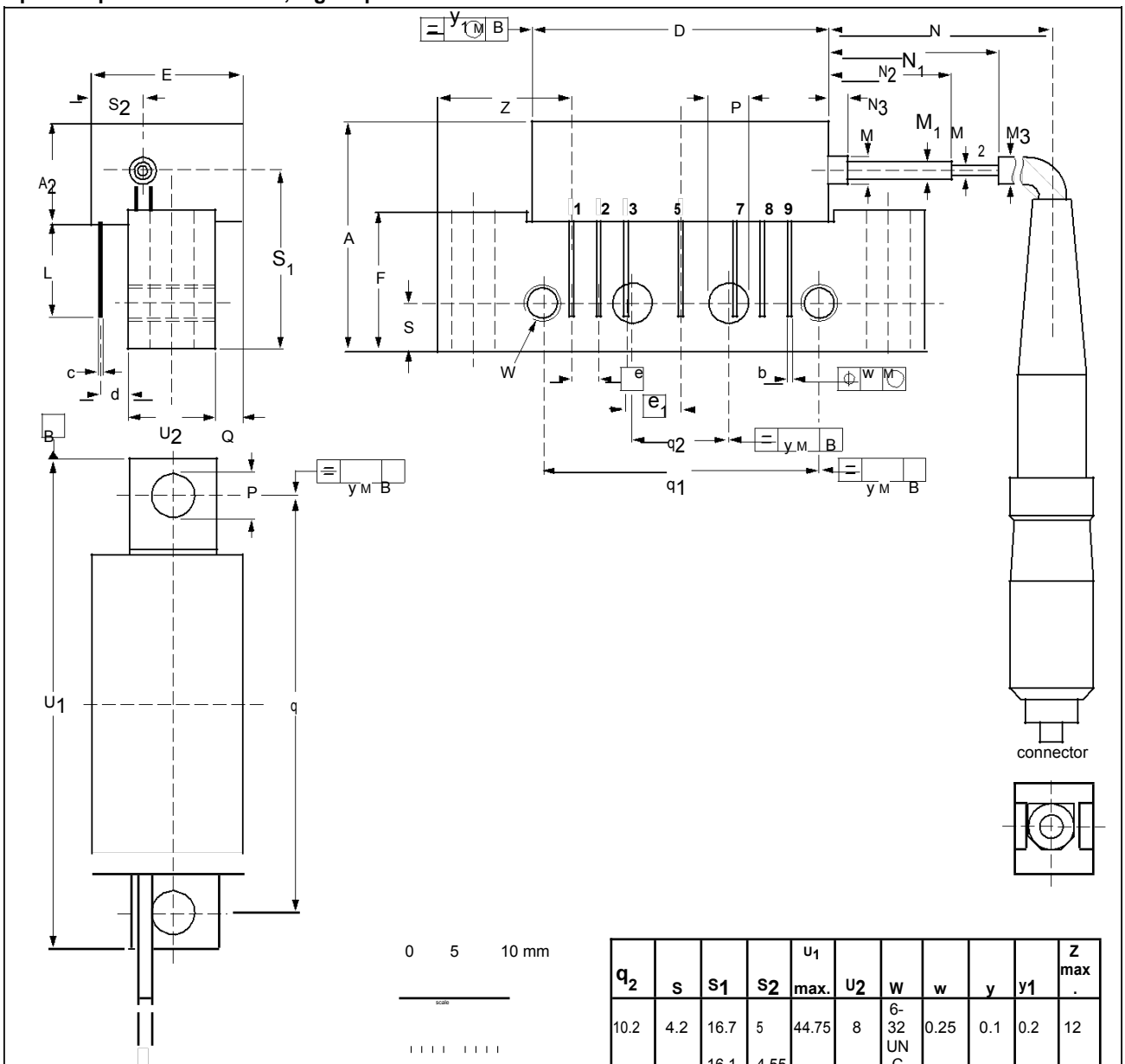


Fig.2 Monitor current pin.

Optical receiver module MZBO2027SC/FC

PACKAGE OUTLINE

Rectangular single-ended flat 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 **SOT115T**



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	5 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	21	9.1	0.52 0.38	0.25	27.2	3.5	13.75	2.54	5.08	12.7	8.2	2.5	1.6	0.9	3	1000	15.3 8.7	10.7 8.7	5 1	4.15 3.85	2.5	38.2	25.4

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT115T						