Preliminary Product Specification

OR3005230W

Si Optical Receiver, 5 – 300MHz, 190mA max. @ 24VDC

FEATURES

- Excellent linearity
- Superior return loss performance
- Extremely low distortion
- Optimal reliability
- Excellent price/performance ratio
- Low noise
- Excellent flatness

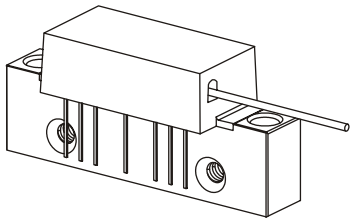
APPLICATION

- 5 to 300 MHz CATV reverse amplifier systems

DESCRIPTION

- Hybrid high dynamic range optical receiver amplifier module. The module contains a single mode 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.

OR3005230W



Si Optical Receiver
5 – 300MHz
190mA max. @ 24VDC

HANDLING

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

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134)

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
f	frequency range	5	300	MHz
P_{in}	optical input power (continuous)	-	5	mW
ESD	ESD sensivity (human body model; R = 1.5 kΩ, C = 100 pF)	500		V
T_{stg}	storage temperature	- 40	+ 85	°C
T_{mb}	operating mounting base temperature	- 20	+ 85	°C

CHARACTERISTICS

Table 1: Bandwidth 5 to 300MHz; V_B = 24V; T_{mb} = 30°C; Z_L = 75 Ω

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
S	responsivity	λ = 1310 nm	850.0			V/W
SL	slope straight line	f = 5 to 300 MHz	0.0		1.0	dB
FL	flatness straight line	f = 5 to 300 MHz	-	0.4	0.6	dB
	optical input return loss		45.0		-	dB
S_{22}	output return loss	f = 5 to 300 MHz	16.0		-	dB
EINC	equivalent input noise	f = 10 to 300 MHz			7.5	pA/√Hz
s_λ	spectral sensitivity	λ = 1310 +- 20 nm	0.8		-	A/W
		λ = 1550 +- 20 nm	0.90		-	A/W
λ	optical wavelength		1290		1600	nm
I_{tot}	total current consumption (DC) [5]		160		190	mA

CHARACTERISTICS

Table 2: Distortion data, V_B = 24V; T_{mb} = 30°C; Z_L = 75 Ω

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
d_2	second order distortion [1)]	f_m = 54.25 MHz [3)]	-		-70.0	dBc
d_3	third order distortion [2)]	f_m = 100.25 MHz [4)]	-		-80.0	dBc

Notes:

1. Two laser test; each laser with 25% modulation index; Popt = 1 mW (total).
2. Three laser test; each laser with 40% modulation index; Popt = 1 mW (total).
3. fm = 54.25 MHz; f1 = 20.25 MHz; f2 = 34 MHz, 0.5mW optical power each
4. fm = 100.25 MHz; f1 = 125.25 MHz; f2 = 109.25 MHz, f3 = 134.25MHz, 0.33mW optical power each
5. I_{tot} is total current into hybrid with pin 4 connected to V_B=24V

CABLE LENGTHS AND CONNECTOR TYPES

Table 3:

TAB	Dimension A, see Figure 1		Optical Connector Type
	inches	mm	
-012	$33.4^{+0.5}_{-4.}$	848^{+13}_{-104}	FC/APC
-013	$33.4^{+0.5}_{-4}$	848^{+13}_{-104}	SC/APC

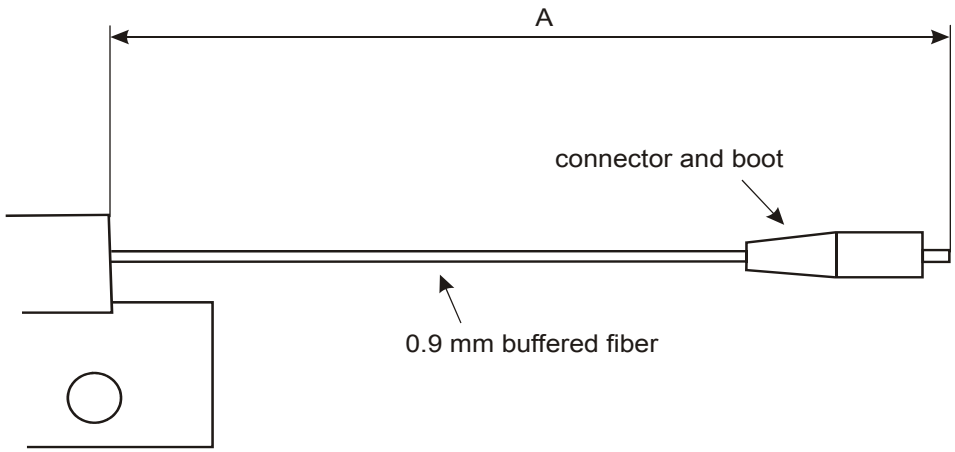
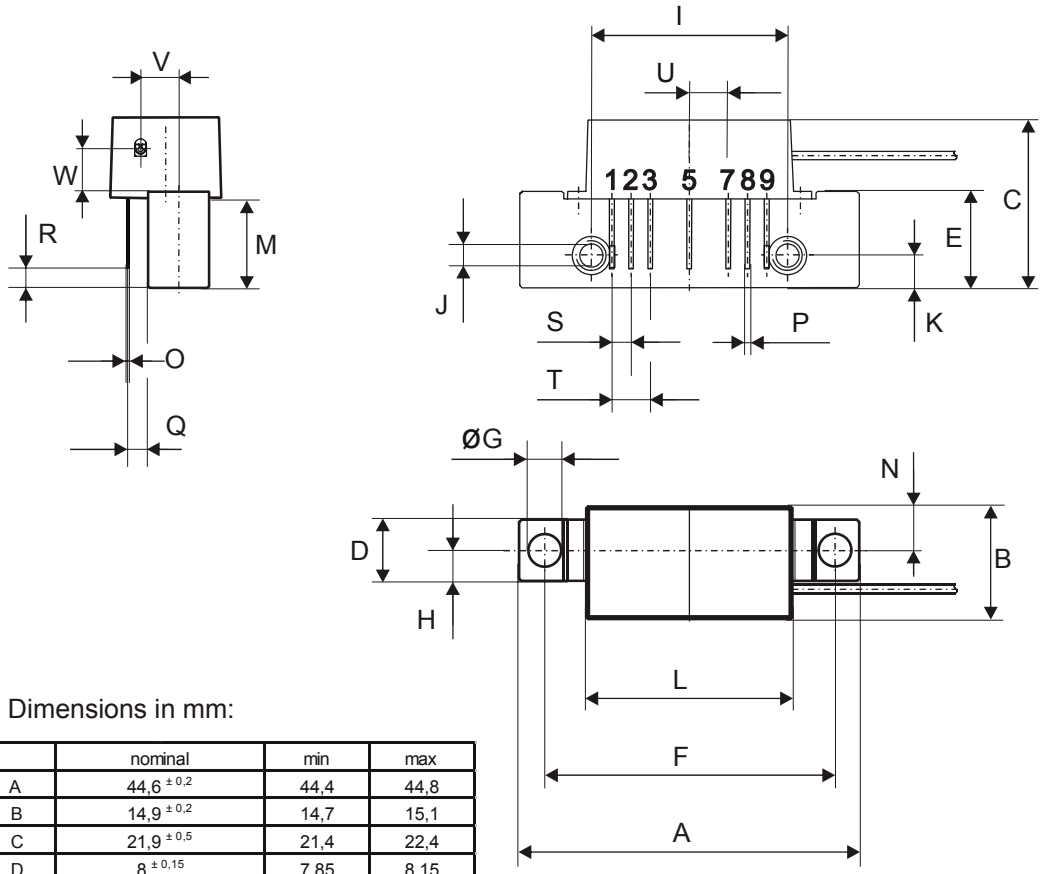


Figure 1: Detail of cable attachment



All Dimensions in mm:

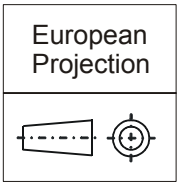
	nominal	min	max
A	44,6 ± 0,2	44,4	44,8
B	14,9 ± 0,2	14,7	15,1
C	21,9 ± 0,5	21,4	22,4
D	8 ± 0,15	7,85	8,15
E	12,6 ± 0,15	12,45	12,75
F	38,1 ± 0,1	38,0	38,2
G	4 +0,2 / -0.05	3,95	4,2
H	4 ± 0,2	3,8	4,2
I	25,4 ± 0,2	25,2	25,6
J	UNC 6-32	-	-
K	4,2 ± 0,2	4,0	4,4
L	28,7 ± 0,2	28,5	28,9
M	11,6 ± 0,5	11,1	12,1
N	5,8 ± 0,4	5,4	6,2
O	0,25 ± 0,02	0,23	0,27
P	0,45 ± 0,03	0,42	0,48
Q	2,54 ± 0,3	2,24	2,84
R	2,54 ± 0,5	2,04	3,04
S	2,54 ± 0,25	2,29	2,79
T	5,08 ± 0,25	4,83	5,33
U	5,08 ± 0,25	4,83	5,33
V	5,0 ± 0,2	4,8	5,2
W	5,35		

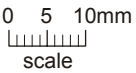
Figure 2: Mechanical dimensions

Pinning:

1	PHOTODIODE CURRENT MONITOR
2	GND
3	GND
4	PHOTODIODE BIAS
5	+VB
6	
7	GND
8	GND
9	OUTPUT

Notes:





DEFINITIONS

Data Sheet Status	
Objective Product Specification	This data sheet contains target or goal specifications for product development.
Preliminary Product 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 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.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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