Product Specification

OS8740230

Si Optical Receiver, 40 – 870MHz, 225mA max. @ 24VDC

FEATURES

- Excellent linearity
- Superior return loss performance
- Extremely low distortion
- Optimal reliability
- Low noise
- Standard CATV outline
- Excellent flatness

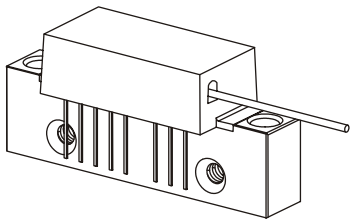
APPLICATION

- 40 to 870 MHz CATV amplifier systems

DESCRIPTION

- Hybrid high dynamic range optical receiver amplifier module. Two of the module pins are for connection to 24V (DC), one for amplifier supply voltage, the other for the PIN diode bias. 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.

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Si Optical Receiver
40 – 870MHz
225mA 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	40	870	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 40 to 870MHz; V_B = 24V; T_{mb} = 30°C; Z_L = 75 Ω

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
S	responsivity	λ = 1310 nm	900.0	950.0	1050	V/W
SL	slope straight line	f = 40 to 870 MHz	0.0		2.0	dB
FL	flatness straight line	f = 40 to 870 MHz	-	0.7	1.0	dB
	optical input return loss		45.0	55.0	-	dB
S_{22}	output return loss	f = 40 to 870 MHz	12.5	14.0	-	dB
EINC	equivalent input noise	f = 40 to 750 MHz			7.0	pA/√Hz
		f = 750 to 870 MHz			8.0	pA/√Hz
s_λ	spectral sensitivity	λ = 1310 +- 20 nm	0.85		-	A/W
		λ = 1550 +- 20 nm	0.90		-	A/W
λ	optical wavelength		1290		1600	nm
I_{tot}	total current consumption (DC) [13)]		205.0	215.0	225.0	mA
$I_{pin\ 4}$	PIN diode bias current		-		10.0	mA

CHARACTERISTICS

Table 2: Distortion data 40 – 870 MHz; 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 = 54.0 MHz [3]	-		-73.0	dBc
		f_m = 446.5 MHz [4]	-		-68.0	dBc
		f_m = 548.5 MHz [5]	-		-67.0	dBc
		f_m = 746.5 MHz [6]	-		-63.0	dBc
		f_m = 854.5 MHz [7]	-		-63.0	dBc
d_3	third order distortion [2]	f_m = 55.25 MHz [8]	-		-80.0	dBc
		f_m = 445.25 MHz [9]	-		-80.0	dBc
		f_m = 547.25 MHz [10]	-		-75.0	dBc
		f_m = 745.25 MHz [11]	-		-75.0	dBc
		f_m = 853.25 MHz [12]	-		-75.0	dBc

Notes:

1. Two laser test; each laser with 40% modulation index; Popt = 1 mW (total).
2. Three laser test; each laser with 60% modulation index; Popt = 1 mW (total).
3. fm = 54 MHz; f1 = 187.25 MHz; f2 = 133.25 MHz.
4. fm = 446.5 MHz; f1 = 97.25 MHz; f2 = 349.25 MHz.
5. fm = 548.5 MHz; f1 = 109.25 MHz; f2 = 439.25 MHz.
6. fm = 746.5 MHz; f1 = 133.25 MHz; f2 = 613.25 MHz.
7. fm = 854.5 MHz; f1 = 133.25 MHz; f2 = 721.25 MHz.
8. fm = 55.25 MHz; f1 = 109.25 MHz; f2 = 133.25 MHz; f3 = 187.25 MHz.
9. fm = 445.25 MHz; f1 = 193.25 MHz; f2 = 349.25 MHz; f3 = 97.25 MHz.
10. fm = 547.25 MHz; f1 = 217.25 MHz; f2 = 439.25 MHz; f3 = 109.25 MHz.
11. fm = 745.25 MHz; f1 = 133.25 MHz; f2 = 265.25 MHz; f3 = 613.25 MHz.
12. fm = 853.25 MHz; f1 = 133.25 MHz; f2 = 265.25 MHz; f3 = 721.25 MHz.
13. I_{tot} is total current into hybrid with both pins 4 and 5 connected to V_B=24V

CABLE LENGTHS AND CONNECTOR TYPES

Table 3:

TAB	Dimension A, see Figure 1 and Figure 2		Dimension B, see Figure 2		Optical Connector Type
	inches	mm	inches	mm	
-012	$33.4^{+0.5}_{-4.}$	$848^{+13.}_{-102.}$	No Outer Jacket		FC/APC
-013	$33.4^{+0.5}_{-4.}$	$848^{+13.}_{-102.}$	No Outer Jacket		SC/APC
-014	$37.5^{+0.5}_{-3.5}$	$952^{+13.}_{-89.}$	0.325 min., 0.550 max.	8.3 min., 14.0 max.	FC/APC
-015	$37.5^{+0.5}_{-3.5}$	$952^{+13.}_{-89.}$	0.325 min., 0.550 max.	8.3 min., 14.0 max.	SC/APC
-016	$21.1^{+0.5}_{-1.5}$	$536^{+13.}_{-38.}$	0.325 min., 0.550 max.	8.3 min., 14.0 max.	FC/APC
-017	$21.1^{+0.5}_{-1.5}$	$536^{+13.}_{-38.}$	0.325 min., 0.550 max	8.3 min., 14.0 max.	SC/APC

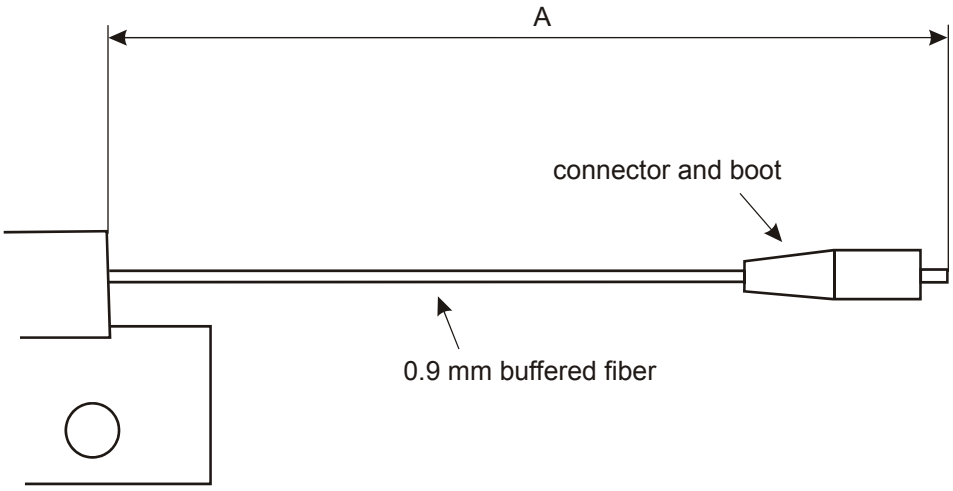


Figure 1: Detail of cable attachment, dimensions in mm; (TABs -012, -013)

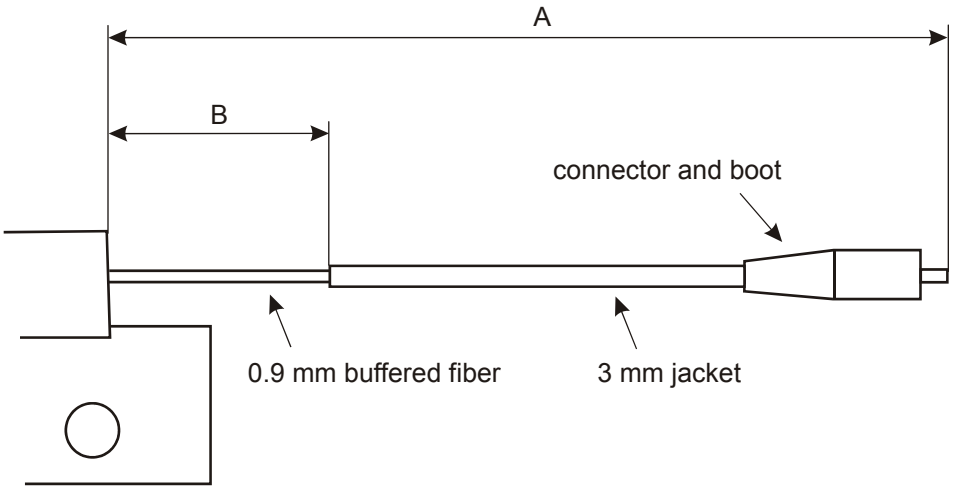
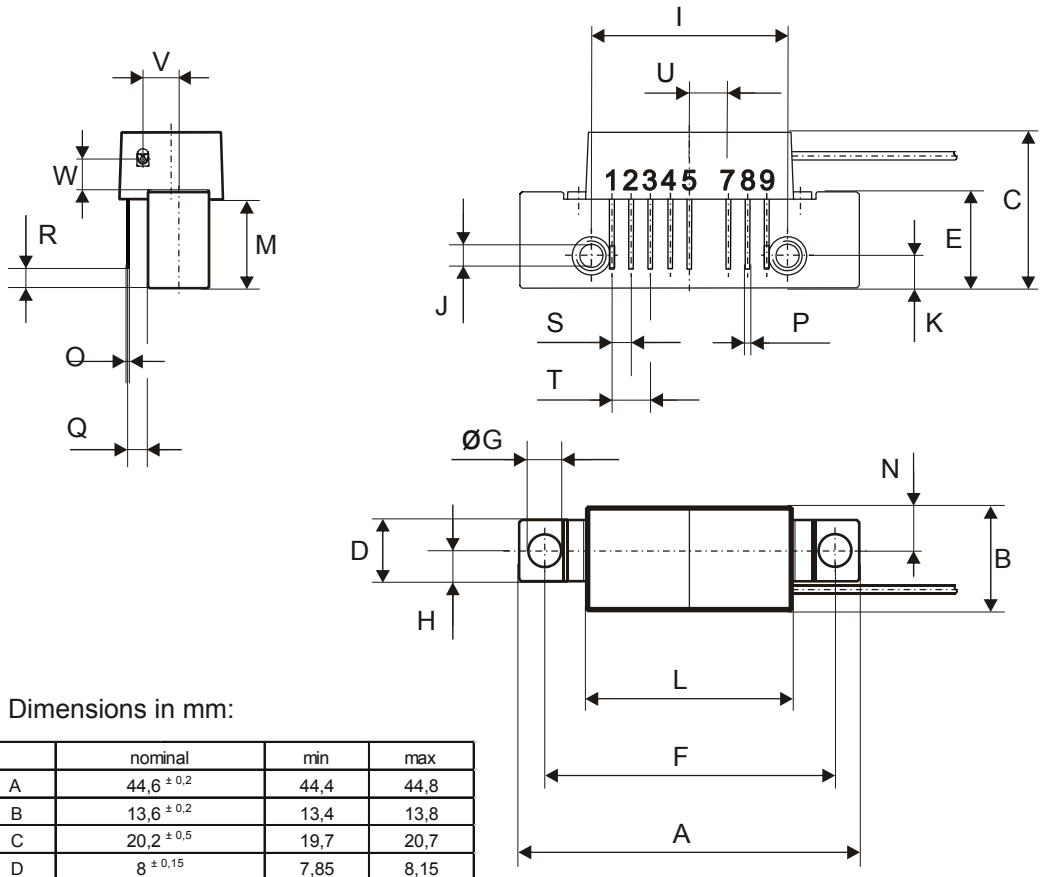


Figure 2: Detail of cable attachment, dimensions in mm (TABs -014, -015, -016, -017)



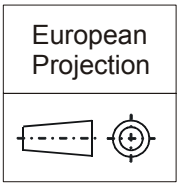
All Dimensions in mm:

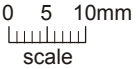
	nominal	min	max
A	44,6 ± 0,2	44,4	44,8
B	13,6 ± 0,2	13,4	13,8
C	20,2 ± 0,5	19,7	20,7
D	8 ± 0,15	7,85	8,15
E	12,6 ± 0,15	12,45	12,75
F	38,1 ± 0,1	38,0	38,2
G	4 +0,2 / -0.05	3,95	4,2
H	4 ± 0,2	3,8	4,2
I	25,4 ± 0,2	25,2	25,6
J	UNC 6-32	-	-
K	4,2 ± 0,2	4,0	4,4
L	28,7 ± 0,2	28,5	28,9
M	11,6 ± 0,5	11,1	12,1
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	4,7 ± 0,2	4,5	4,9
W	3,8		

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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How to contact us:

Premier Devices Germany GmbH

Loeffelholzstrasse 20, D-90441 Nuernberg, Germany
Phone: +49 (0) 911 9411 233, FAX: +49 (0) 911 9411 198,
Email: sales.germany@premierdevices.com, Internet: http://www.premierdevices.de/