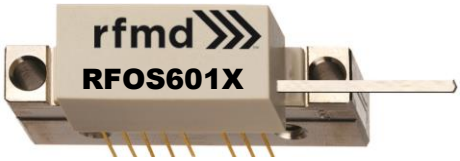
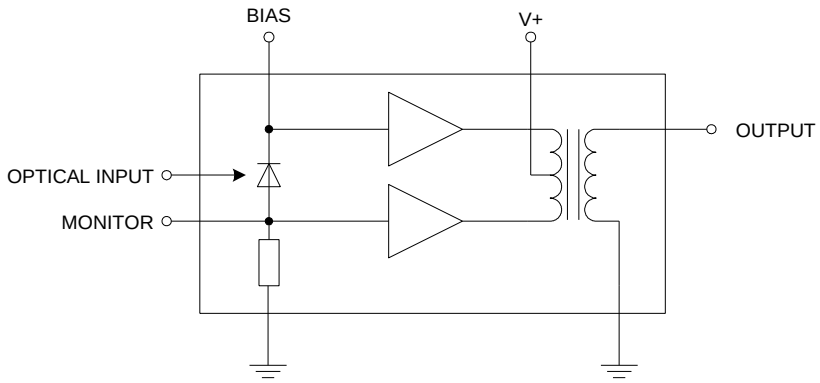
RFOS601X

GaAs Optical Receiver
45MHz to 1200MHz



Package: SOT-115J

RFOS601X is a hybrid high dynamic range optical receiver 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 1290nm to 1600nm, a terminal to monitor the PIN diode current and an electrical output with an impedance of 75Ω.



Features

- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Very Low EINC
- 30.0dB A/W Min. at 1200MHz
- 250mA Max. at 24V+

Applications

- 45MHz to 1200MHz CATV Amplifier Systems

Ordering Information

RFOS6012	Box with 3 Pieces
RFOS6013	Box with 3 Pieces

See Page 3

Absolute Maximum Ratings

Parameter	Rating	Unit
Optical Input Power	5	mW
DC Supply Over-Voltage (5 minutes)	30	V
ESD Sensitivity, Acc. MIL-Standard 1686C (human body model; R = 1.5kΩ, C = 100pF)	500	V
Storage Temperature	-40 to +85	°C
Operating Mounting Base Temperature	-20 to +85	°C
Minimum Fiber Bending Radius	35	mm
Maximum Tensile Strength	5	N

Caution! ESD sensitive device.

RoHS (Restriction of Hazardous Substances): Compliant per EU Directive 2011/65/EU.

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability. Specified typical performance or functional operation of the device under Absolute Maximum Rating conditions is not implied.

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DS140306

Nominal Operating Parameters

Parameter	Specification			Unit	Condition
	Min	Typ	Max		
General Performance					**V+ = 24V; T_{MB} = 30°C; Z_L = 75Ω**
Responsivity	2400	2650		V/W	f = 1200MHz, λ = 1310nm
	30.0	31.0		dB A/W	
Slope[1]	0		2	dB	f = 45MHz to 1200MHz
Flatness of O/E Response		<0.7	1.0	dB	f = 45MHz to 1200MHz (peak to valley)
Optical Return Loss	45			dB	
Output Return Loss	15	17		dB	f = 45MHz to 1200MHz
Equivalent Input Noise		4.2	4.6	pA/ √Hz	f = 50MHz to 1200MHz
Spectral Sensitivity	0.90			A/W	λ = (1310± 20)nm
	0.90			A/W	λ = (1550± 20)nm
Optical Wavelength	1290		1600	nm	
Total DC Current		245	250	mA	module pin 4 and pin 5 connected to V+
PIN Diode Bias Current		1.5	5	mA	
Distortion Data					**V+ = 24V; T_{MB} = 30°C; Z_L = 75Ω**
Second Order Distortion[2]		-75	-71	dBc	fm = 54MHz; f1 = 187.25MHz; f2 = 133.25MHz
		-75	-70	dBc	fm = 446.5MHz; f1 = 97.25MHz; f2 = 349.25MHz
		-70	-65	dBc	fm = 548.5MHz; f1 = 109.25MHz; f2 = 439.25MHz
		-68	-63	dBc	fm = 746.5MHz; f1 = 133.25MHz; f2 = 613.25MHz
		-68	-63	dBc	fm = 854.5MHz; f1 = 133.25MHz; f2 = 721.25MHz
		-66	-63	dBc	fm = 986.5MHz; f1 = 133.25MHz; f2 = 853.25MHz
Third Order Distortion[3]		-78	-75	dBc	fm = 55.25MHz; f1 = 109.25MHz; f2 = 133.25MHz; f3 = 187.25MHz
		-78	-75	dBc	fm = 445.25MHz; f1 = 193.25MHz; f2 = 349.25MHz; f3 = 97.25MHz
		-78	-75	dBc	fm = 547.25MHz; f1 = 217.25MHz; f2 = 439.2MHz; f3 = 109.25MHz
		-78	-75	dBc	fm = 745.25MHz; f1 = 133.25MHz; f2 = 265.25MHz; f3 = 613.25MHz
		-78	-75	dBc	fm = 853.25MHz; f1 = 133.25MHz; f2 = 265.25MHz; f3 = 721.25MHz
		-78	-75	dBc	fm = 985.25MHz; f1 = 133.25MHz; f2 = 265.25MHz; f3 = 853.25MHz

1. The slope is defined as the difference between the O/E response at the start frequency (45MHz) and the O/E response at the stop frequency (1200MHz).

2. Two laser test; each laser with 40% OMI; Popt = 1mW (total).

3. Three laser test; each laser with 60% OMI; Popt = 1mW (total).

Cable Lengths and Connector Types

Type	Dimension A, See Figure 1				Optical Connector Type
	Inches	Tolerance	mm	Tolerance	
RFOS6012	33.4	-4 to +0.5	848	-102 to +13	FC/APC
RFOS6013	33.4	-4 to +0.5	848	-102 to +13	SC/APC

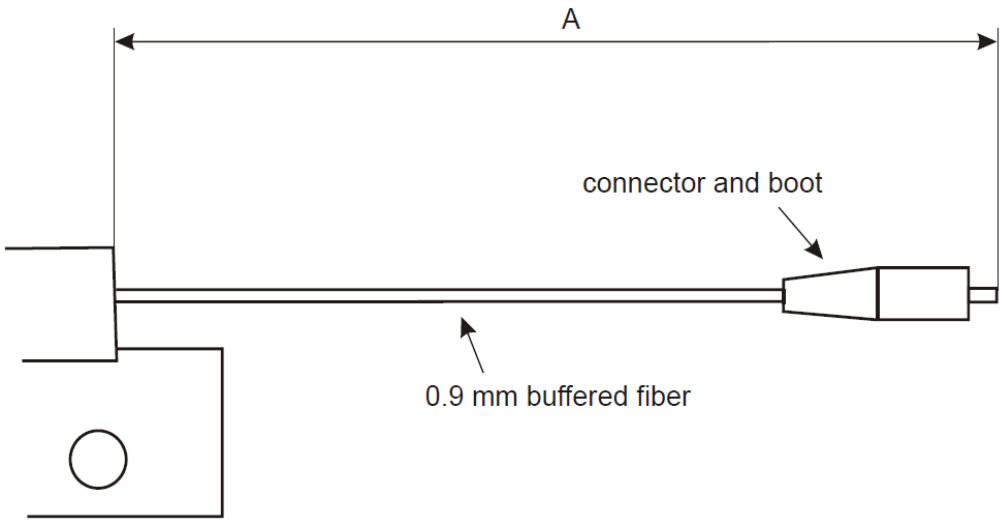
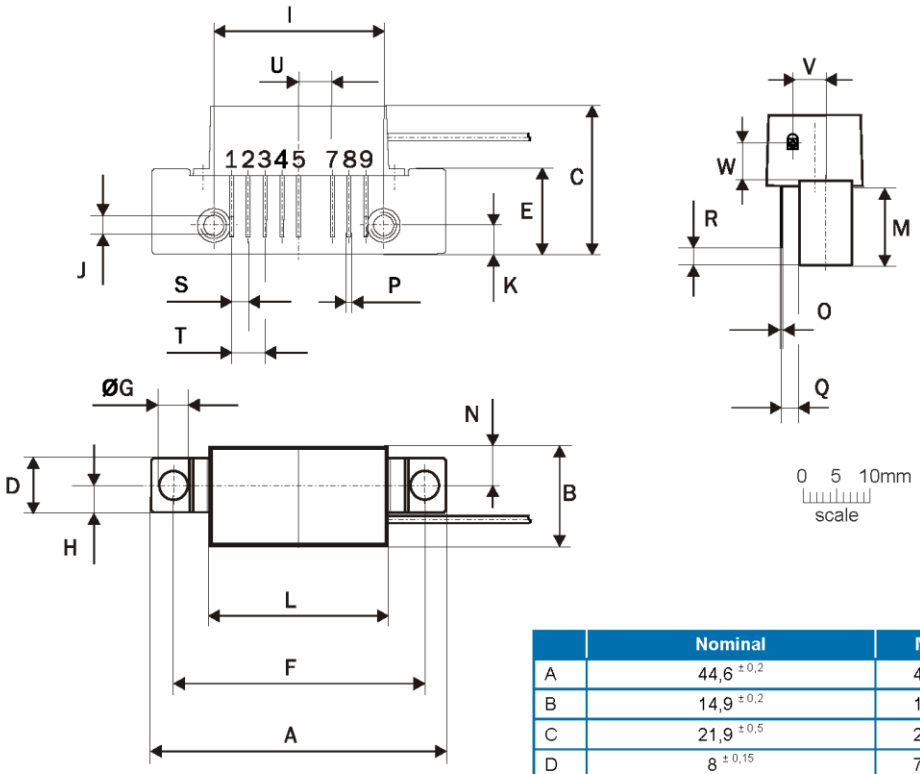


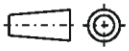
Figure 1 – Fiber length details

Package Drawing (Dimensions in millimeters)



Notes:

European Projection



	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 ±0,2	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		

Pinning:

Pin	Name
1	PHOTODIODE CURRENT MONITOR
2-3	GND
4	PHOTODIODE BIAS
5	V+
6	
7-8	GND
9	OUTPUT