

# Optical Components

Rev. 3 [10. 2008]

## OF3507B

156Mbps APD-preamplifier coaxial module with a single mode fiber

### 1. DESCRIPTION

OF3507B is an optical receiver module for digital transmission systems up to 156Mbps. It uses an InGaAs avalanche photodiode with a low noise preamplifier. Package style is a hermetically sealed coaxial package with a single mode fiber pigtail.

### 2. FEATURES

Data rate up to 156Mbps  
High responsivity InGaAs-APD : 8.5A/W  
Wide dynamic range  
Typical sensitivity : -47.5dBm  
Low noise  
Small coaxial package

### 3. APPLICATION

SONET OC-3/SDH STM-1 applications  
Long-haul transmission systems up to 156Mbps



### 4. OPTICAL AND ELECTRICAL CHARACTERISTICS

(Wavelength=1550nm , Tc =25°C , Vcc=3.3V, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Wavelength	$\lambda$	--	1250	--	1620	nm
APD Breakdown Voltage	VBR	ID=10μA	40	50	70	V
Temperature Coefficient of VBR	$\gamma$	--	0.05	0.09	0.12	V/°C
APD Responsivity	RAPD	$\lambda=1.55\mu\text{m}$ , M=1	0.80	0.85	--	A/W
		$\lambda=1.31\mu\text{m}$ , M=1	0.75	0.85	--	
Responsivity	R	RL>500Ω, M=10, Pin=-43dBm, Differential	160	--	--	kV/W
Bandwidth	BW	f3dB, RL>500Ω, M=10	120	--	--	MHz
Sensitivity	Prmin	155Mbps, NRZ, BER=10 <sup>-10</sup> , PRBS2 <sup>23</sup> -1, Rext=12.0dB*, M=Mopt.	--	-47.5	-46.5	dBm
Overload	Prmax	155Mbps, NRZ, BER=10 <sup>-10</sup> , PRBS2 <sup>23</sup> -1, M=3	-7	-5	--	dBm
Supply Current	ICC	Pin = 0mW	--	21	26	mA
Recommended TIA Supply Voltage	VCC	--	3.1	3.3	3.5	V
Optical Return Loss	ORL	--	--	--	-27	dB

\*) Extinction ratio of LD source.

**OF3507B**

**5. ABSOLUTE MAXIMUM RATING**

(Tc = 25 °C, unless otherwise specified)

Parameter	Symbol	Rating	Unit
APD Bias Voltage	VB	0 to VBR	V
TIA Supply Voltage	Vcc	4.5	V
APD Forward Current	IF	2	mA
APD Reverse Current	IR	2(cw)	mA
Operating Temperature	Tc	-40 to +85	°C
Storage Temperature	Tstg	-40 to +85	°C

**6. CONNECTOR AND FIBER SPECIFICATIONS**

Parameter	Specifications	Unit
Type	SM	--
Flame Rating	UL94 V-0	--
	UL1581 VW-1	--
Mode Field Diameter	10	μm
Cladding Diameter	125	μm
Jacket Diameter	900	μm
Length	1 (Min.)	m
Standard Connector	FC/PC or SC/PC	--

**7. ORDERING INFORMATION**

OF3507B - \_ \_ \_ \_

ex.) OF3507B-WFFC

OF3507B with a flange and FC connector.

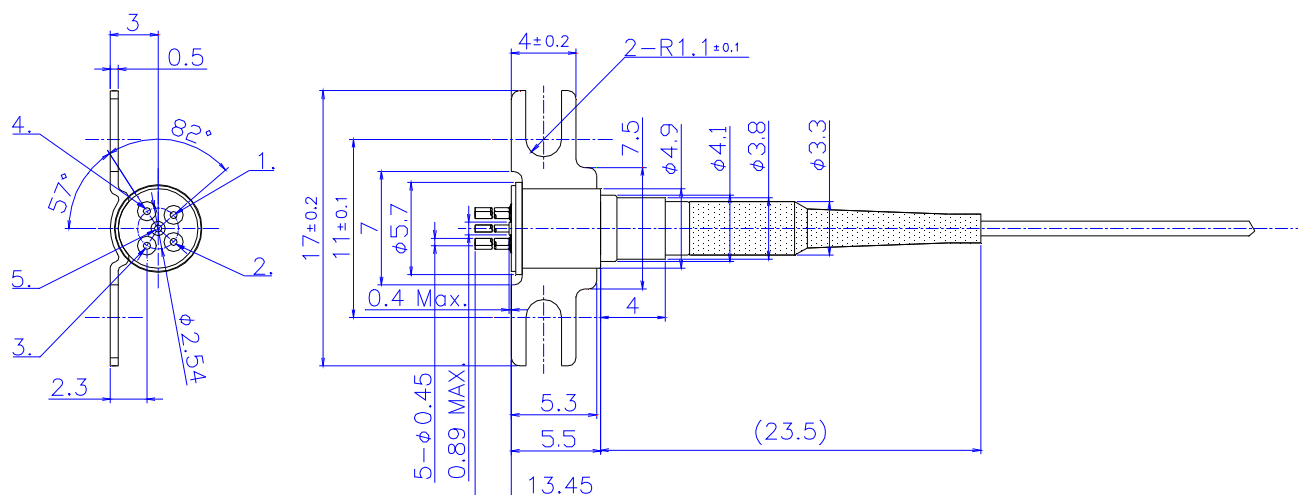
<u>Flange</u>	<u>Connector</u>
WF	FC
NF	SC
	LC
	MU

## OF3507B

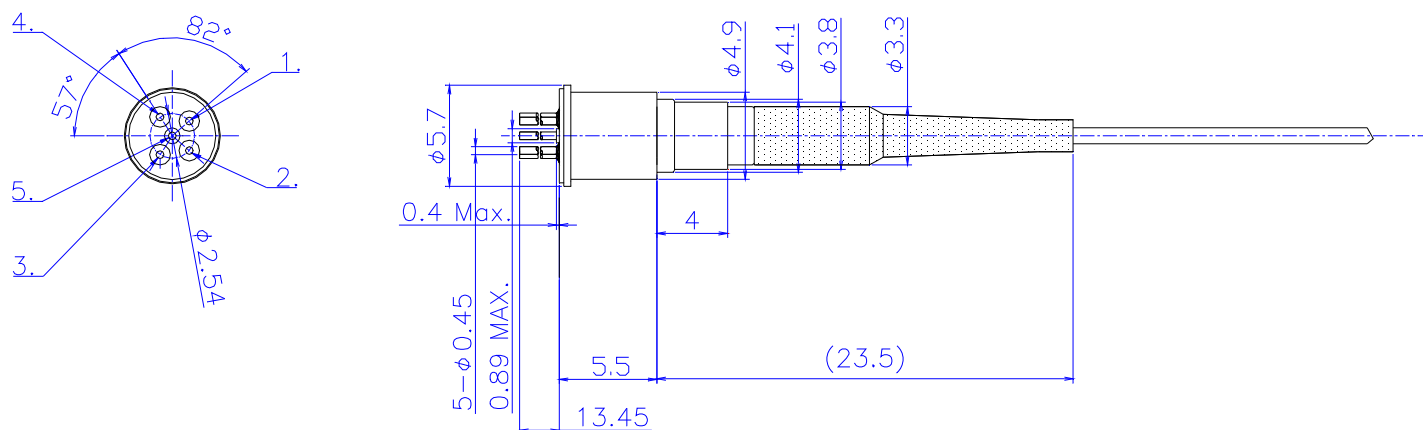
### 8. OUTLINE DRAWING

All dimensions in millimeters

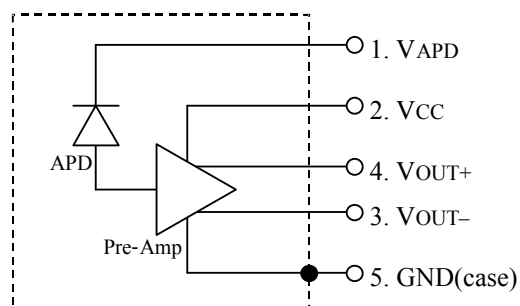
Package No. OF3507B-WF\_\_



Package No. OF3507B-NF\_\_



Pin Connection	
1	VAPD
2	VCC
3	VOUT-
4	VOUT+
5	GND(case)



**NOTE**

Under the condition “ $V_{APD}$  set, but with  $V_{cc}$  absent”, optical inputs may result in damage to the TIA. It is necessary to set  $V_{cc}$  before optical inputs to prevent such trouble.

**SAFETY INFORMATION ON THIS PRODUCT**

<b>Caution</b>  GaAs Product	The product contains gallium arsenide, GaAs. GaAs vapor and powder are hazardous to human health if inhaled, ingested or swallowed. Do not destroy or burn the product. Do not crush or chemically dissolve the product. Do not put the product in the mouth. Observe related laws and company regulations when discarding this product. The product should be excluded from general industrial waste or household garbage.
<b>Caution</b>  Optical Fiber	A glass-fiber is attached on the product. Handle with care. When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments.

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