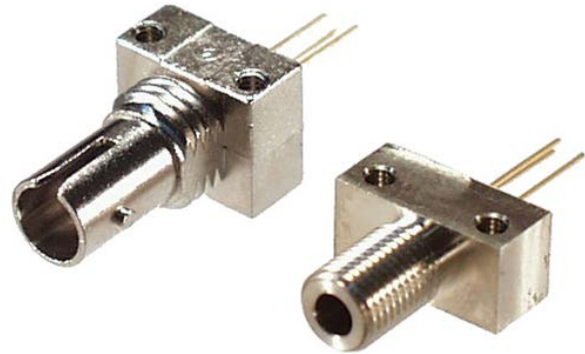


Photo-Receiver 850 nm

1 General Description

The receiver consists of a photo diode with integrated TIA and a TTL compatible 'open collector' output. The receiver is fully DC coupled and does not require an encoded input signal. The receiver is especially appropriate for fiber optic applications up to 200/230 μ m fiber diameter.



Pic. 1 Receiver F-SMA / F-ST

2 Applications

On the basis of the good optical and mechanical characteristics, the component may be used in various applications:

- Optical Networks
- Industrial Electronics
- Power Electronics
- Light Barriers

3 Ordering Information

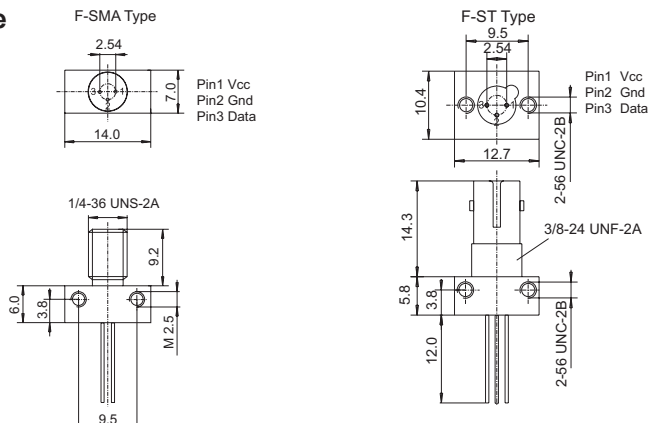
Type	Order number
F-SMA	905EM850SM102
F-SMA including fixing accessories	905EM850SM1Z2
F-ST	905EM850ST102
F-ST including fixing accessories	905EM850ST1Z2

5 Features

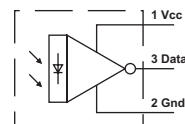
- 850nm photo receiver
- open-collector output
- 4 μ W guaranteed output low
- F-ST port
- F-SMA port
- Metal receptacle
- wave soldering compatible
- suitable for applications with optical fiber 50/125 μ m up to 20/230 μ m

4 Technical Drawing

Receptacle



Circuitry



Accessories:
 Fixing nut
 Washer,
 Screw for PCB mounting

Photo-Receiver 850 nm

6 Maximum Ratings ($T_A=25^\circ\text{C}$) _____

Stresses beyond those listed under 'Maximum Ratings' may cause permanent damage to the device. Listed values are stress limits only and functional operation of the device at these conditions is not recommended. Exposure to maximum rating conditions for extended periods may affect the device reliability.

Parameter	Value	Unit
Operating temperature	-40 ... +85	°C
Storage temperature	-55 ... +115	
Lead soldering 2mm from case, $t \leq 10\text{s}$	260	°C
Supply voltage	-0.5 to 7.0	V
Output voltage	-0.5 to 18.0	
Output current	25	mA
Open collector power distribution	40	mW

7 Technical Data ($T_A=25^\circ\text{C}$) _____

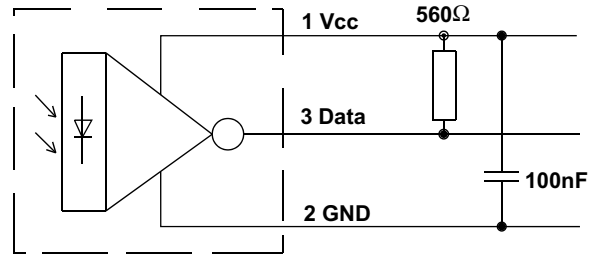
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Peak wavelength	λ_p			850		nm
High level output current	I_{OH}	$V_o = 18\text{V}, P_{oc} < -40 \text{ dBm}$		5	250	μA
Low level output voltage	V_{OL}	$I_o = 8 \text{ mA}, P_{oc} > +24 \text{ dBm}$		0.2	0.5	V
Supply current	I_{CCH}	Output high $V_{cc} = 5.25 \text{ V}, P_{oc} < -40 \text{ dBm}$		3.5	6.3	mA
	I_{CCL}	Output low $V_{cc} = 5.25 \text{ V}, P_{oc} < -24 \text{ dBm}$		6.9	10	
Peak input power level	$P_{OC(H)}$	Output high, $\lambda_p=850\text{nm}$			-40	dBm
		Guranteed output high, $\lambda_p=850\text{nm}$			0.1	μW
	$P_{OC(L)}$	Output low, $\lambda_p=850\text{nm}, I_o=8\text{mA}$	-25.4		-9.2	dBm
			2.9		120	μW
		(Guranteed output low) $\lambda_p=850\text{nm}, I_o=8\text{mA}$ (Guranteed output low) $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$	-24		-10	dBm
		4.0		100	μW	
Rise and fall time	t_r, t_f	$P_{oc} = 20 \text{ dBm (peak)},$ $f = 2.5 \text{ MHz}$		30		ns
Propagation delay	t_{PDHL}	Output high to low, $P_{oc} = 20 \text{ dBm (peak)},$ $f = 2.5 \text{ MHz}$		65		
	t_{PDLH}	Output low to high, $P_{oc} = 20 \text{ dBm (peak)},$ $f = 2.5 \text{ MHz}$		100		
Pulse width distortion	PWD	$P_{oc} = 20 \text{ dBm (peak)},$ $f = 2.5 \text{ MHz}$		± 30		%



Photo-Receiver 850 nm

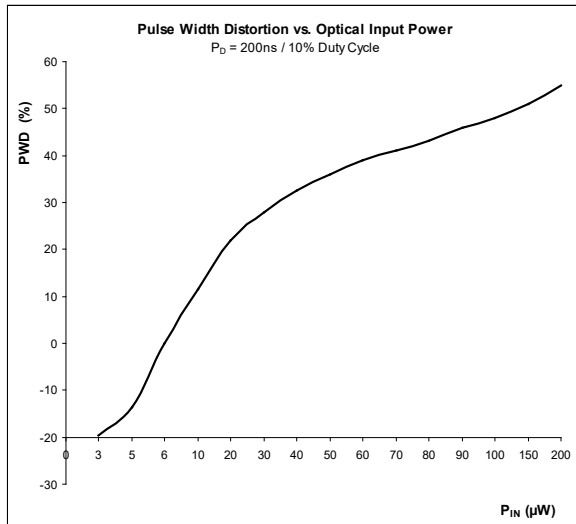
8 Application Notes

- Avoid unwanted signals on the supply voltage
- Place an 100nF decoupling capacitor as close as possible to the receiver
- Keep PCB traces as short as possible
- Avoid extraneous light
- Protect the receiver against dirt



Pic. 2 Circuitry

9 Pulse Distortion



Pic. 3 Characteristic curve

The information released by Ratioplast-Optoelectronics GmbH in this data sheet is believed to be accurate and reliable. However, no responsibility is assumed by Ratioplast-Optoelectronics GmbH for its use. Ratioplast-Optoelectronics GmbH reserves the right to change circuitry and specifications at any time without notification to the customer.