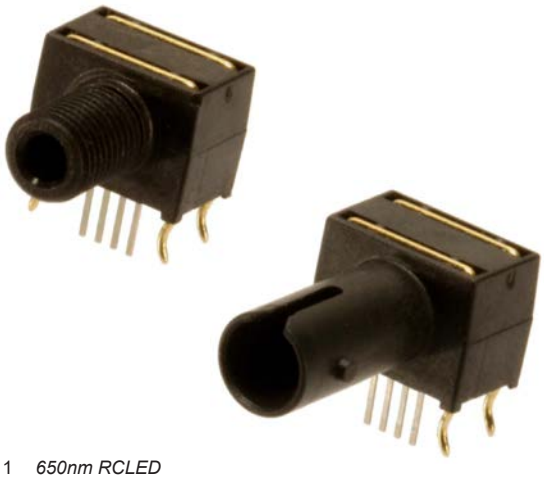
Ratioplast
Electronics | OptoElectronics

Data Sheet — **Plastic Receptacle 650nm Transmitter**

LED 650nm 156MBit/s

1 General

This active component is especially suited for applications with standard 1mm plastic optical fiber. Pre-mounted with a fast 650nm RCLED capable of high optical output power, the component is a good solution in optical data transmission systems with plastic optical fibers.



Pic. 1 *650nm RCLED*

2 Applications

Due to the high data rate of 156MBit/s, the good optical and mechanical features this transmitter may be used in many applications:

- Optical networks
- Industrial electronic
- Power electronic

3 Ordering Information

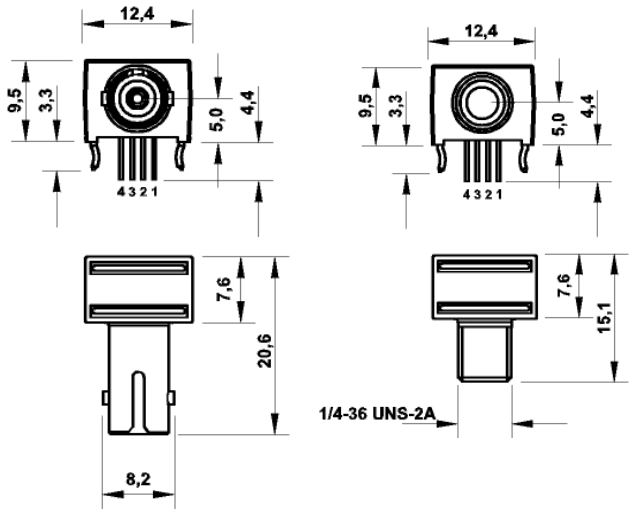
Style	Part Number
F-SMA	905SE650SM403
F-ST	905SE650ST403

4 Features

- 650nm RCLED
- 156MBit/s
- F-SMA port
- F-ST port
- conductive plastic case
- wave soldering compatible
- qualified for plastic fiber

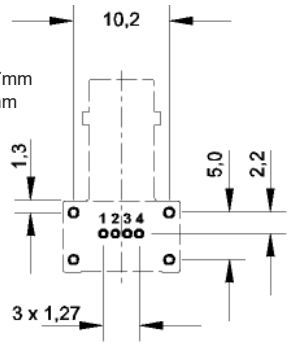
5 Technical Drawing

Housing



PCB hole pattern

View: Component Side
Drill diameters:
PIN 1,2,3,4 = 0.7mm
Fixing Pins = 1mm



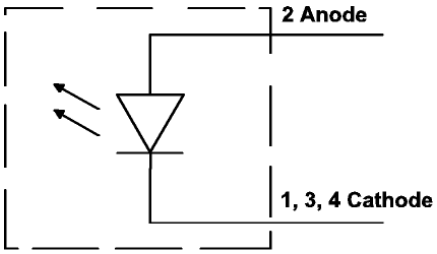
Pinout

PIN Nr.	Function
1	Cathode
2	Anode
3	Cathode
4	Cathode

Pic 2 Case drawing

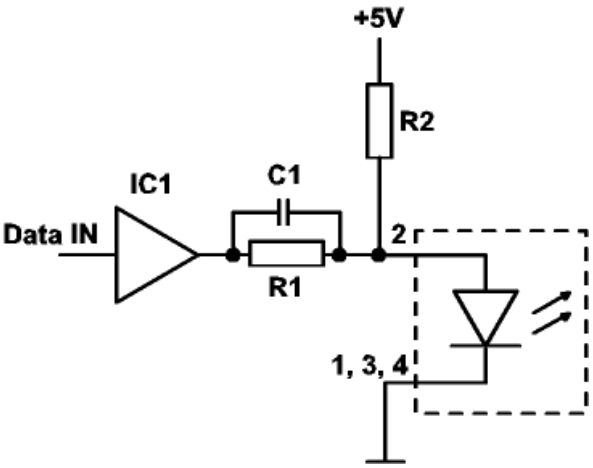
LED 650nm 156MBit/s

6 Schematic



Pic. 3 Schematic

7 Driver circuit



Pic 4 Recommended driver circuit

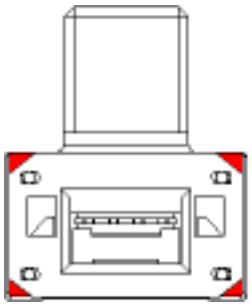
R1 = 100Ω, R2 = 300kΩ, C1 = 20pF
IC1 = 74ACT08 or equivalent

Note:

- Avoid unwanted signals on the voltage supply.
- Place an 100nF decoupling capacitor as close as possible to R2 and IC1.
- Keep PCB traces as short as possible.
- Defend the transmitter from dirt.

8 PCB Layout

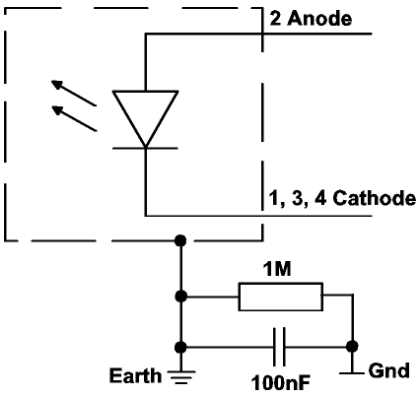
The receptacle is made of **conductive** plastic.
During PCB placement and routing avoid unwanted signal **shorts** by the housing.
The fixing pins are electrical connected to the housing.
Small Stand-Offs at receptacle bottom side allows routing of signal traces on PCB component side.
The stand-off area (see Pic. 5 red marking) should keep clean from signal traces.



Pic 5 Bottom side stand-off area

9 EMI-coupling

Electromagnetic shielding without direct coupling the housing to system ground can be achieved by using the circuitry in picture 5. Component values may vary for specific applications.



Pic. 6 EMI-coupling

LED 650nm 156MBit/s

10 Maximum ratings

Stresses beyond those listed under «Maximum Ratings» may cause permanent damage to the device. Maximum ratings represent stress limits of the device. Operation of the electronic component at these values is not recommended over an extended period as this may adversely affect the reliability of the component.

Parameter	Symbol	Value	Unit
Operating temperature	T_{OPR}	0 to +60	°C
Storage temperature	T_{STG}	-40 to +85	°C
Soldering temperature 1.5 mm distance to housing, t ≤ 5s	T_{SOL}	230	°C
Forward current	I_F	50	mA
Power dissipation	P_{max}	130	mW

11 Technical data

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward voltage	V_F	I_F=20mA	-	1.9	2.4	V
Emission wavelength	λp	I_F=20mA	640	650	665	nm
Spectral half width	Δλ	I_F=20mA	-	-	25	nm
Fiber coupled optical power	P_O	1mm POF, 1m	-4.5	-2	0.5	dBm
Cut-off frequency	f_C	I_F=20mA	60	70	-	MHz

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Company address:
Jockweg 64
D 32312 Lübbecke

Phone +49 (0) 5741 23 66 5-0
Fax +49 (0) 5741 23 66 5-44

Internet: http://www.ratioplast.de
E-Mail: opto@ratioplast.de

VAT Reg. No.: DE 164 216 351
Local Court Bad Oeynhausen HRB 2382