

LED 650nm

1 General

This device is designed for applications with standard 1mm plastic optical fiber (POF). Pre-mounted with a fast 650nm LED capable of a high optical output power, the component is a good alternative solution in optical data transmission systems with plastic optical fibers.

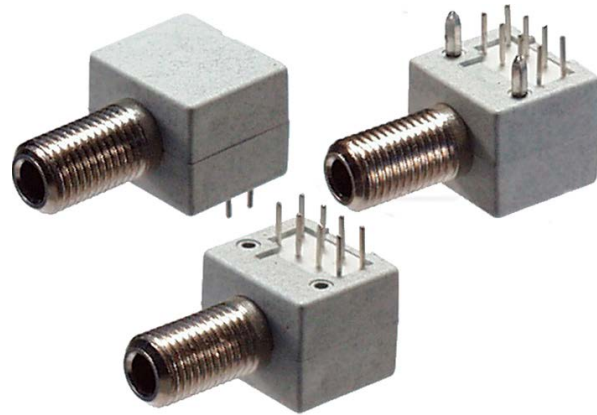
2 Application

Due to the good optical and mechanical features this transmitter may be used in many applications:

- Optical networks
- Industrial electronic
- Power electronic
- Light barrier

3 Ordering information

| Specification | Part number |
|---------------------------------|---------------|
| 650nm LED | 905SE650SM001 |
| 650nm LED including fixing pins | 905SE650SM002 |



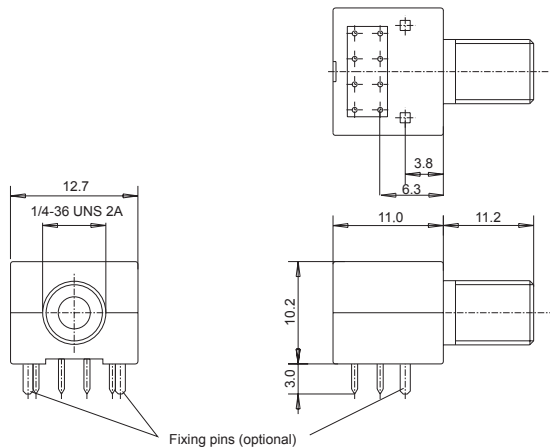
Pic. 1 RPO Transmitter DIP housing

4 Features

- 650nm LED
- F-SMA port (metal)
- Qualified for plastic and PCF fiber
- Plastic case
- Optional with fixing pins
- Pick and place support
- Wave soldering compatible

5 Technical drawing

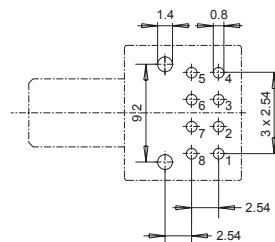
Housing



Pic. 2 Drawing

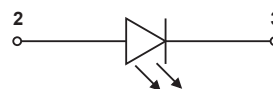
Drill drawing

Top view
 Drill diameter:
 Pin 1..8 = 0.8mm
 Fixing pins (optional) = 1.4mm



| Pin-Nr. | Function |
|------------------|----------|
| 2 | Anode |
| 3 | Cathode |
| 1, 4, 5, 6, 7, 8 | NC |

Schematic diagram



LED 650nm

6 Maximum Ratings _____

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 range | -40 ... +85 | °C |
| Storage temperature range | -40 ... +100 | °C |
| Junction temperature | 100 | °C |
| Soldering temperature 2mm from case bottom, t ≤ 5s | 260 | °C |
| Reverse voltage | 3 | V |
| Forward current | 50 | mA |
| Power dissipation | 120 | mW |
| Thermal resistance (Junction/Air) | 450 | K/W |

7 Technical Data (T_A = 40°C bis +85°C) _____

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|-------------------------|----------------------------|--|-------|------|------|------|
| Forward voltage | V _F | I _{LED_DC} = 50mA, T _A =25°C | | 2.0 | 2.6 | V |
| Optical output power | P _{OPT} | I _{LED_DC} = 10mA, T _A =25°C, Wert _{dBm} = 10*log(Wert _{meas} /1mW), 1mm POF, Länge 1m, NA=0.5 | -10.5 | -6.2 | -2.5 | dBm |
| Peak wavelength | λ _P | | 630 | 650 | 685 | nm |
| Spectral bandwidth | Δ _λ | | | 20 | 30 | |
| Switching times | t _T (10%...90%) | R _{ILED} = 100Ω, T _A =25°C, Wert _{dBm} = 10*log(Wert _{meas} /1mW) | | 14 | 20 | ns |
| | t _F (90%...10%) | | | 16 | 24 | |
| Capacitance | C _S | f _{meas} = 1MHz; V _f = 0V | | 52 | | pF |
| Temperature coefficient | T _{POPT} | LED 10mA-50mA T _{POPT} bei T _A = -40°C bis +25°C | | 0 | | %K |
| | | LED 10mA-50mA; T _{POPT} bei T _A = +25°C bis +85°C | | -0.4 | | |
| | T _{VF} | | | -1.8 | | mV/K |
| | T _λ | | | 0.16 | | nm/K |



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8 Characteristics

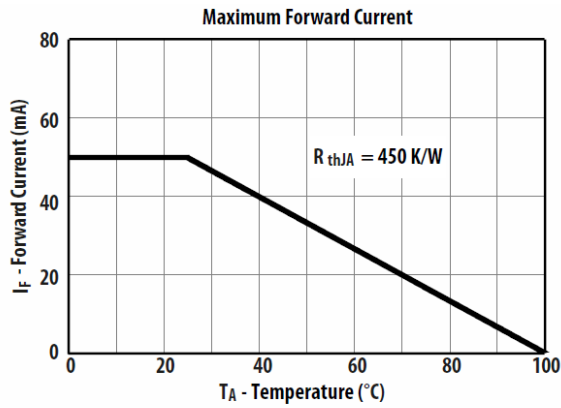


Figure 1. Maximum Forward Current

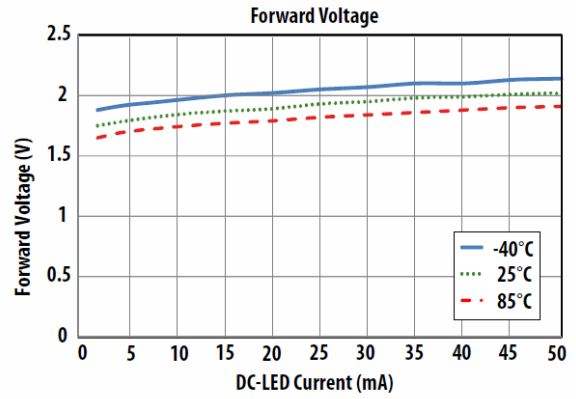


Figure 4. Typical Forward Voltage

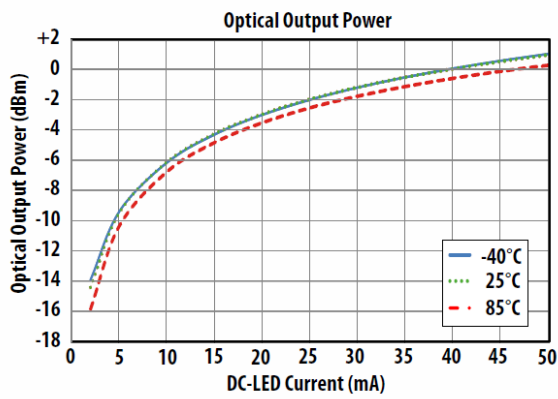


Figure 3. Typical Optical Output Power

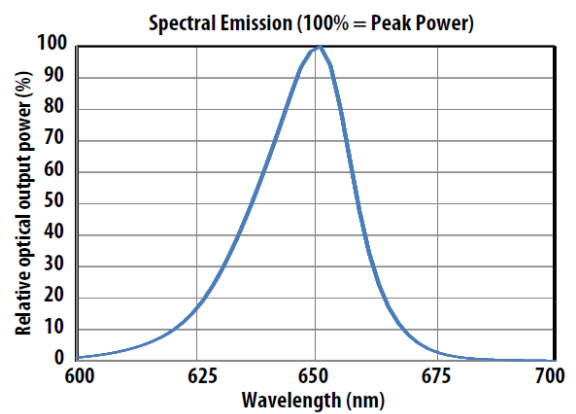


Figure 5. Typical Spectral Emission

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