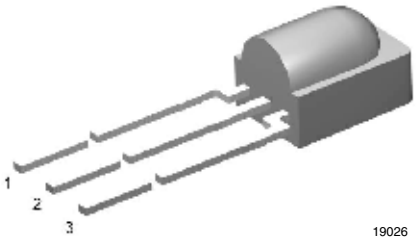
# IR Sensor Module for Remote Control Systems

## Description

The TSOP98260 is a miniaturized sensor for receiving the modulated signal of infrared remote control systems. A PIN diode and preamplifier are assembled on a lead frame, the epoxy package is designed as an IR filter. The modulated output signal, Carrier Out, can be used for code learning applications.
This component has not been qualified according to automotive specifications.




## Features

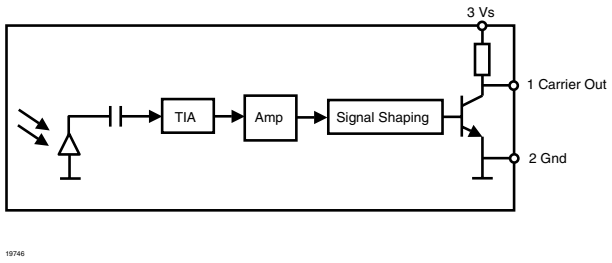
- Photo detector and preamplifier in one package
- AC coupled response from 20 kHz - 60 kHz, all data formats
- Improved shielding against electrical field disturbance
- TTL and CMOS compatibility
- Output active low
- Supply voltage: 2.7 V to 5.5 V
- Carrier Out signal for code learning functions
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

## Mechanical Data

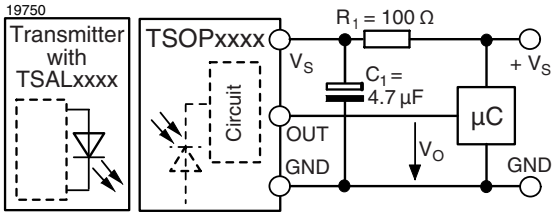
**Pin Description:**

1 = Carrier OUT, 2 = GND, 3 = $V_S$

## Block Diagram




## Application Circuit




$R_1$ + $C_1$ recommended to suppress power supply disturbances.

## Absolute Maximum Ratings

$T_{amb}$ = 25 °C, unless otherwise specified

| Parameter | Test condition | Symbol | Value | Unit |
|---|---|---|---|---|
| Supply Voltage | (Pin 3) | $V_S$ | - 0.3 to + 5.5 | V |
| Output Voltage | (Pin 1) | $V_O$ | - 0.3 to ($V_S$ + 0.3) | V |
| Output Current | (Pin 1) | $I_O$ | 10 | mA |
| Junction Temperature | | $T_j$ | 100 | °C |
| Storage Temperature Range | | $T_{stg}$ | - 25 to + 85 | °C |
| Operating Temperature Range | | $T_{amb}$ | - 25 to + 85 | °C |
| Soldering Temperature | t ≤ 10 s, 1 mm from case | $T_{sd}$ | 260 | °C |

## Electrical and Optical Characteristics Carrier Out

$T_{amb}$ = 25 °C, unless otherwise specified

$V_S$ = 3 V

| Parameter | Test condition | Symbol | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Supply Current (Pin 3) | $E_v$ = 0 | $I_{SD}$ | | 0.6 | 0.8 | mA |
| Supply Voltage | | $V_S$ | 2.7 | | 5.5 | V |
| Output Voltage Low (Pin 1) | $I_{OSL}$ = 0.5 mA, test signal see fig. 1 | $V_{OSL}$ | | | 250 | mV |
| Maximum Irradiance | test signal see fig. 1 (20 - 60* kHz) | $E_{e\ max}$ | 300 | 500 | | W/m$^2$ |
| Directivity | Angle of half transmission distance | $\varphi_{1/2}$ | | ± 45 | | deg |
| Transmission Distance | $E_v$ = 0, test signal see fig. 1, IR diode TSAL6200, $I_F$ = 400 mA | d | | 1 | | m |
| Threshold Irradiance | $V_S$ = 3 V (20 - 60* kHz) | $E_{e\ min}$ | | 0.3 | 0.5 | W/m$^2$ |
| Carrier Out rise time | Vs = 3 V, $C_L$ = 10 pF | $T_R$ | | 100 | | ns |
| Carrier Out fall time | Vs = 3 V, $C_L$ = 10 pF | $T_F$ | | 10 | | ns |
| Output pulse width | $T_{PI}$ = 10 µs, $C_L$ = 10 pF | $T_{PO}$ | 5.0 | 7.0 | 10.0 | µs |

## Typical Characteristics

$T_{amb}$ = 25 °C, unless otherwise specified

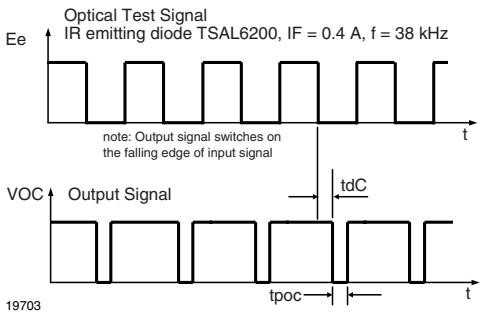



Figure 1. Carrier Output Pulse Diagram

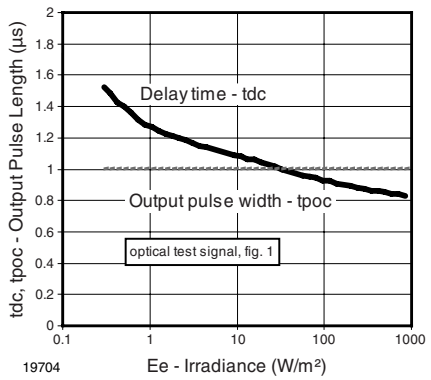



Figure 2. Carrier Output Function Diagram

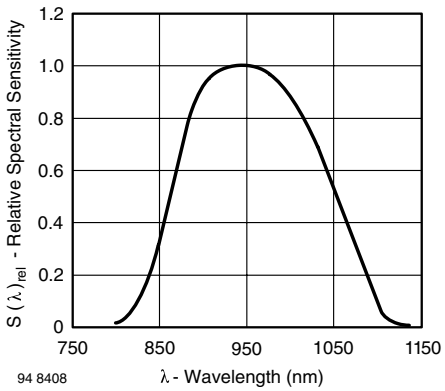



Figure 3. Relative Spectral Sensitivity vs. Wavelength

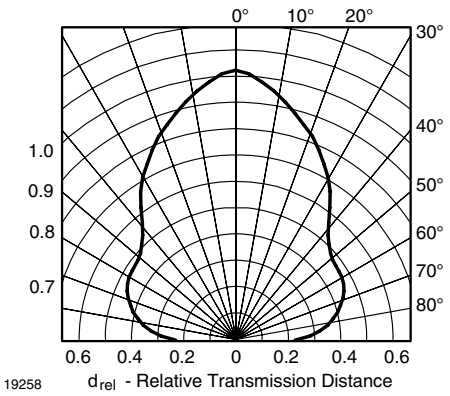



Figure 4. Horizontal Directivity $\varphi_x$

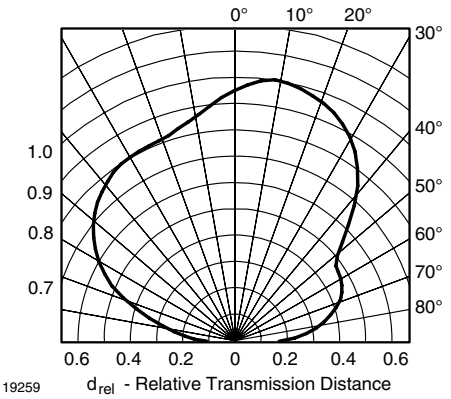
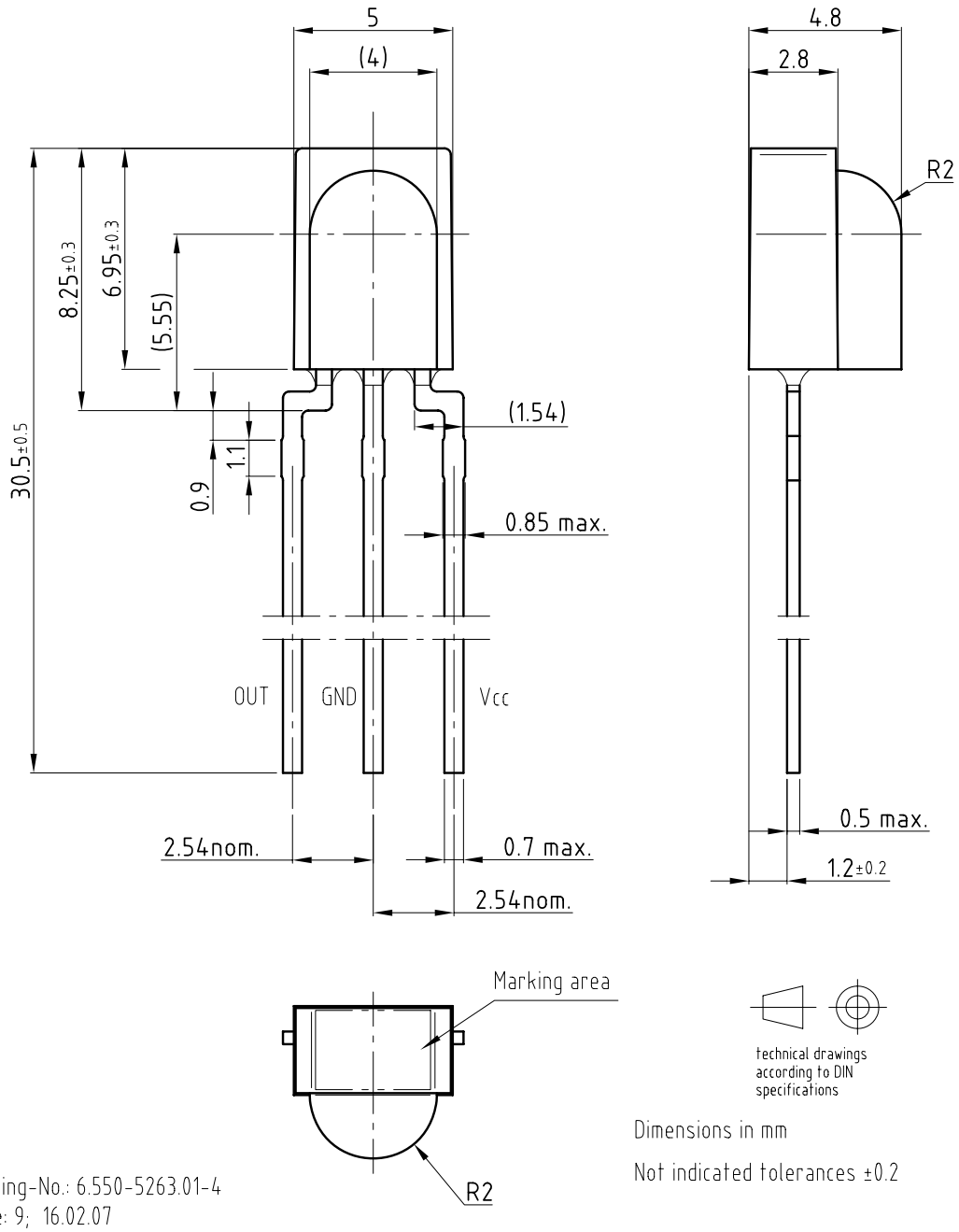



Figure 5. Vertical Directivity $\varphi_y$

## Package Dimensions in millimeters

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2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

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1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

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