

# KSM-91□TM1Y

The KSM-91□TM1Y consist of a PIN Photodiode of high speed and a preamplifier IC in the package as an receiver for Infrared remote control systems

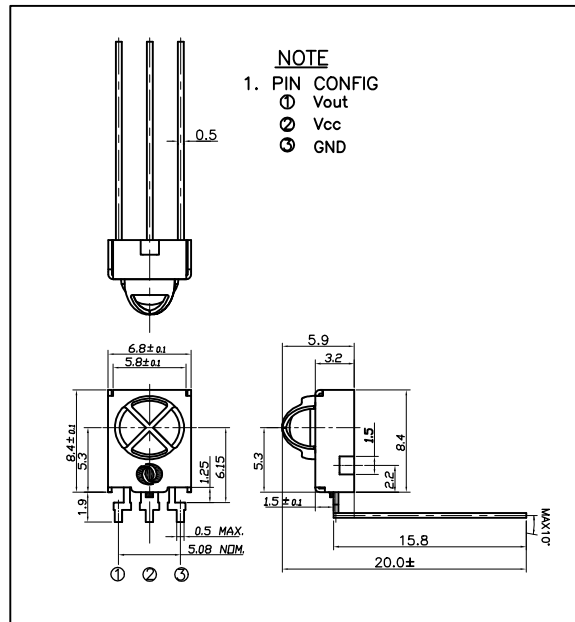
## Features

- Wide angle design
- Wide supply-voltage range : 2.7V to 5.5V
- Shielded against electrical field disturbance
- High immunity against ambient light disturbances (Logic Controller Adaptation)
- Available for carrier frequencies between 32.7KHz to 56.9KHz
- TTL and CMOS compatible

## Applications

- Audio & Video Applications (TV, VTR, Audio, DVDP, CDP)
- Home Appliances (Air conditioner, Computer, Camcoder)
- Wireless Toys
- Remote Control Equipment

## DIMENSIONS



## Maximum Ratings

[Ta=25°C]

| Parameter             | Symbol | Ratings            | Unit |
|-----------------------|--------|--------------------|------|
| Supply Voltage        | Vcc    | 6.0                | V    |
| Operating Temperature | Topr   | -10 ~ +60          | °C   |
| Storage Temperature   | Tstg   | -20 ~ +75          | °C   |
| Soldering Temperature | Tsol   | 260<br>(Max 5 sec) | °C   |

## B.P.F Center Frequency

| Model No.   | B.P.F Center Frequency(kHz) |
|-------------|-----------------------------|
| KSM-911TM1Y | 40.0                        |
| KSM-912TM1Y | 36.7                        |
| KSM-913TM1Y | 37.9                        |
| KSM-914TM1Y | 32.7                        |
| KSM-915TM1Y | 56.9                        |

## Electro-Optical Characteristics

[Ta=25°C, Vcc=5.0V(Vcc=3.0V)]

| Parameter                        | Symbol            | Condition                          |       | Min.     | Typ.     | Max. | Unit |
|----------------------------------|-------------------|------------------------------------|-------|----------|----------|------|------|
| Recommended Supply Voltage       | Vcc               |                                    |       | 2.7      | -        | 5.5  | V    |
| Current Consumption              | Icc               | No signal input                    |       | -        | 1.0      | 1.2  | mA   |
| Peak Wavelength *1               | $\lambda$ p       |                                    |       | -        | 940      | -    | nm   |
| B.P.F Center Frequency           | fo                |                                    |       | -        | 37.9     | -    | kHz  |
| Transmission Distance *1         | L                 | 250±50lx                           | 0 °   | 12       | -        | -    | m    |
|                                  |                   |                                    | ±30 ° | 10       | -        | -    |      |
| High level Output voltage *1     | V <sub>OH</sub>   | 30cm over<br>the ray axis          |       | 4.5(2.8) | 5.0(3.0) | -    | V    |
| Low level Output voltage *1      | V <sub>OL</sub>   |                                    |       | -        | 0.1      | 0.5  | V    |
| High level Output Pulse Width *1 | T <sub>WH</sub>   | Burst wave=600μs<br>Period = 1.2ms |       | 400      | 600      | 700  | μs   |
| Low level Output Pulse Width *1  | T <sub>WL</sub>   |                                    |       | 500      | 600      | 800  | μs   |
| Output Form                      | Active Low Output |                                    |       |          |          |      |      |

\*1. It specifies the maximum distance between emitter and detector that the output wave form satisfies the standard under the conditions below against the standard transmitter.

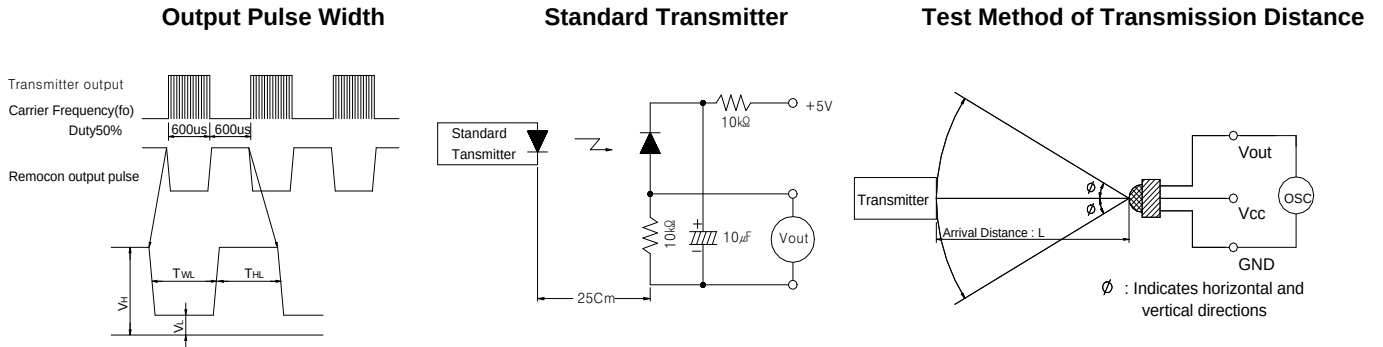
1) Measuring place : Indoor without extreme reflection of light

2) Ambient light source : Detecting surface illumination shall be irradiate 200±50lx under ordinary white fluorescence lamp without high frequency lightning

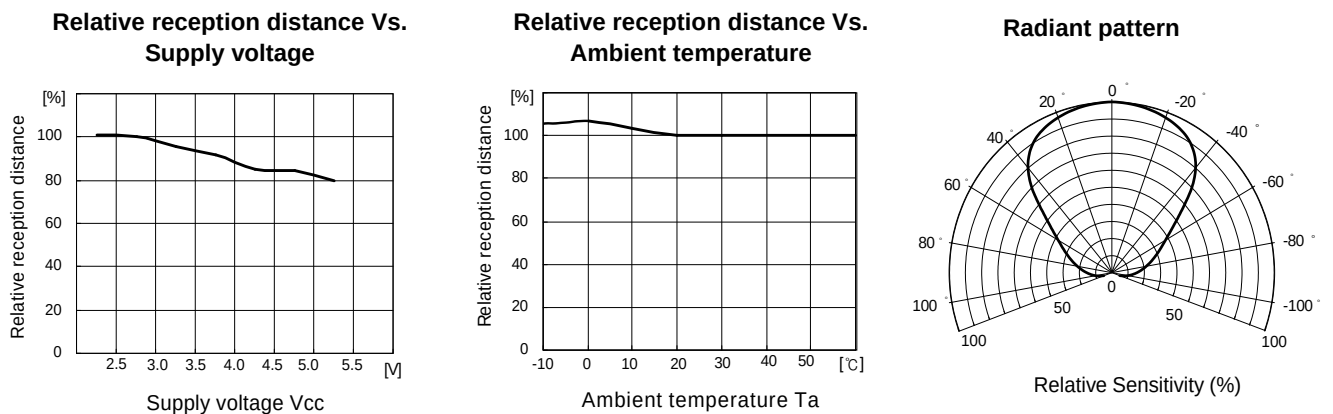
3) Standard transmitter : Burst wave of standard transmitter shall be arranged to 50mVP-P under the measuring circuit

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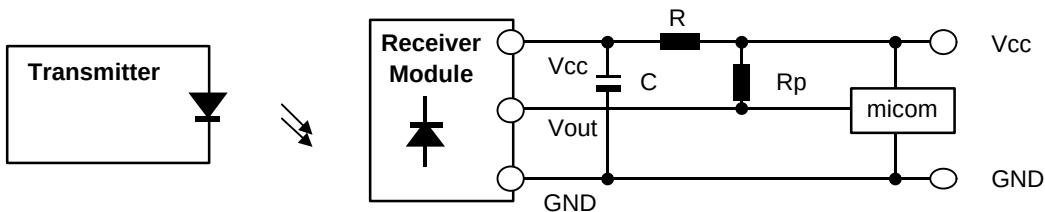
## ■ Measuring Method [Ta=25℃]



## ■ Typical Characteristics Curve [Ta=25℃]



## ■ Standard Application Circuit with R-C Decoupling Filter



### \*1 Recommended Circuit Description

- 1) Transmitter(IRED) drive current  
:  $I_{FP} = 300\text{mA}_{P-P} \sim 600\text{mA}_{P-P}$
- 2) R-C Decoupling Filter with Lower Cut-off Frequency  
:  $R=100\Omega$  ,  $C=47\mu F \Rightarrow f_c = 1/2\pi RC = 33.9\text{Hz}$
- 3) External pull-up resistor(optional)  
:  $10k\Omega$  over