

# KSM-90 □ LM1T

The KSM-90□LM1T consist of a PIN Photodiode of high speed and a preamplifier IC in the package as an receiver for Infrared remote control systems

## Features

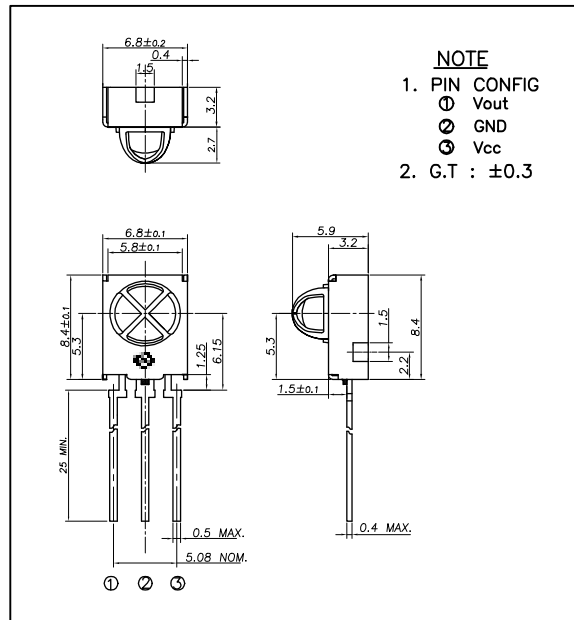
- Wide angle design
- Supply-voltage range : 4.5V to 5.5V
- Shielded against electrical field disturbance
- High immunity against ambient light disturbances  
(Logic Controller Adaptation)
- Available for carrier frequencies between 32.7KHz to 56.9KHz
- TTL and CMOS compatible

## Applications

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

## DIMENSIONS

(Unit : mm)



### Maximum Ratings

[Ta=25 ]

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

### B.P.F Center Frequency

| Model No.   | B.P.F Center Frequency(kHz) |
|-------------|-----------------------------|
| KSM-901LM1T | 40.0                        |
| KSM-902LM1T | 36.7                        |
| KSM-903LM1T | 37.9                        |
| KSM-904LM1T | 32.7                        |
| KSM-905LM1T | 56.9                        |

## Electro-Optical Characteristics

[Ta=25 , Vcc=5.0V]

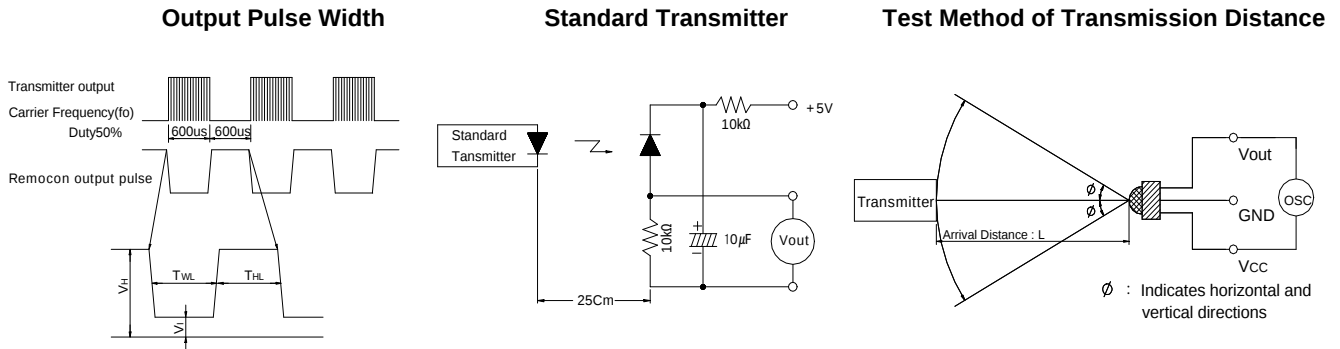
| Parameter                        | Symbol            | Condition                          |        | Min. | Typ. | Max. | Unit |
|----------------------------------|-------------------|------------------------------------|--------|------|------|------|------|
| Recommended Supply Voltage       | Vcc               |                                    |        | 4.5  | 5    | 5.5  | V    |
| Current Consumption              | Icc               | No signal input                    |        | -    | 1.0  | 1.2  | mA   |
| Peak Wavelength *1               | λ p               |                                    |        | -    | 940  | -    | nm   |
| B.P.F Center Frequency           | fo                |                                    |        | -    | 37.9 | -    | kHz  |
| Transmission Distance *1         | L                 | 250 ± 50lx                         | 0 °    | 21   | -    | -    | m    |
|                                  |                   |                                    | ± 30 ° | 17   | -    | -    |      |
| High level Output voltage *1     | V <sub>OH</sub>   | 30cm over<br>the ray axis          |        | 4.5  | 5.0  | -    | V    |
| Low level Output voltage *1      | V <sub>OL</sub>   |                                    |        | -    | 0.1  | 0.25 | 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.

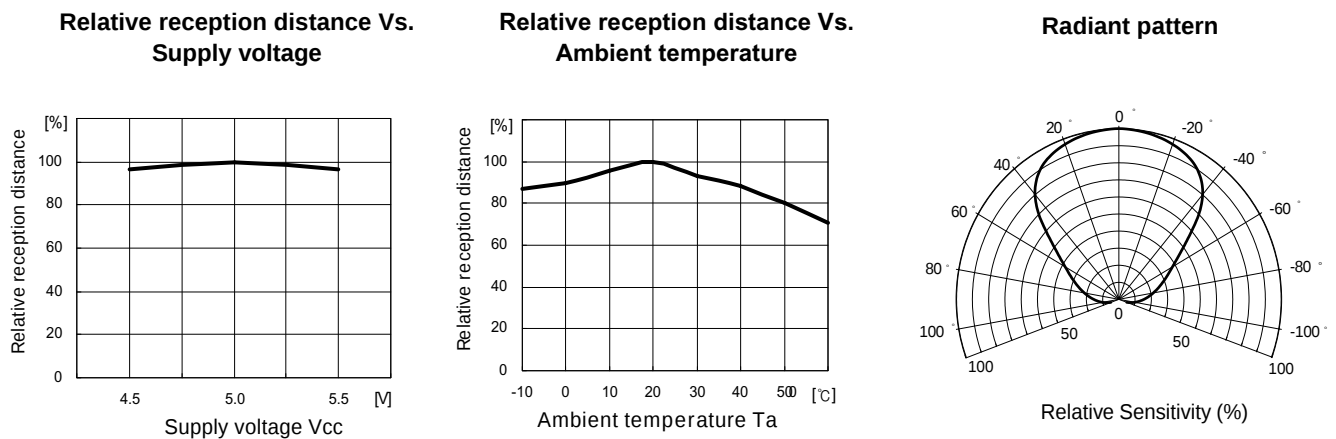
- 1) Measuring place : Indoor without extreme reflection of light
- 2) Ambient light source : Detecting surface illumination shall be irradiate  $200 \pm 50lx$  under ordinary white fluorescence lamp without high frequency lightning
- 3) Standard transmitter : Burst wave of standard transmitter shall be arranged to 50mVP-P under the measuring circuit

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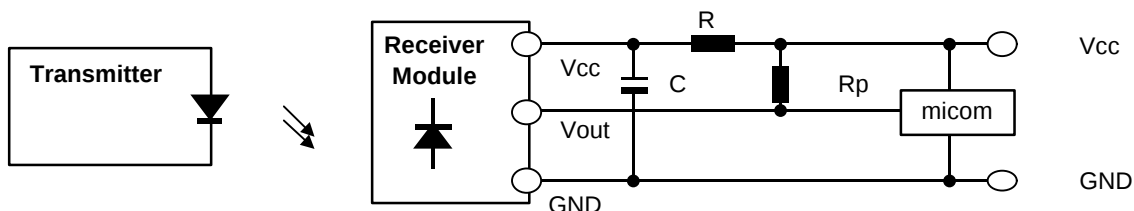
## ■ Measuring Method [Ta=25 °C]



## ■ Typical Characteristics Curve [Ta=25 °C]



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



### \*1 Recommended Circuit Description

- 1) Transmitter(IRED) drive current  
: IFP = 300mA<sub>P-P</sub> ~ 600mA<sub>P-P</sub>
- 2) R-C Decoupling Filter with Lower Cut-off Frequency  
: R=100Ω , C=47μF ⇒ fc = 1/2 π RC = 33.9Hz
- 3) External pull-up resistor(optional)  
: 10kΩ over