

KSM-90 □ LM1N

The KSM-90□LM1N consist of a PIN Photodiode of high speed and a preamplifier IC in the package as an receiver for Infrared remote control systems

Features

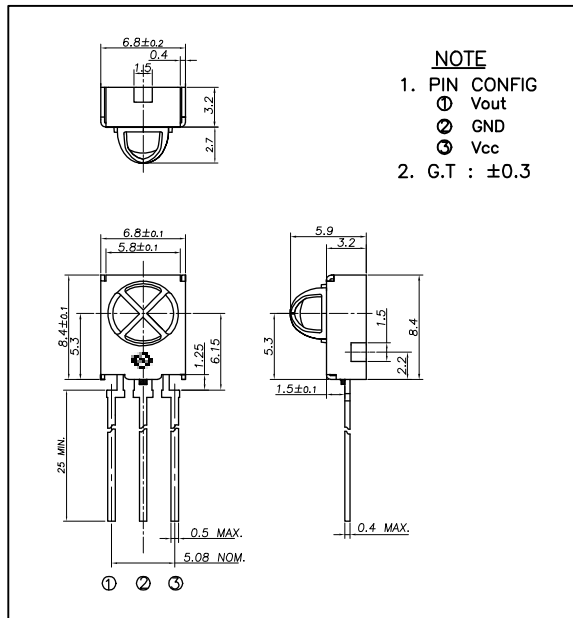
- Wide angle design
- Supply-voltage range : 4.5V to 5.5V
- Shielded against electrical field disturbance
- Enhanced immunity against ambient light disturbances
- Enhanced reception distance
- Continuous data transmission possible (NRZ 1000 bit/s)
- Available for carrier frequencies between 32.7KHz to 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 °C]

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

B.P.F Center Frequency

Model No.	B.P.F Center Frequency(kHz)
KSM-901LM1N	40.0
KSM-902LM1N	36.7
KSM-903LM1N	37.9
KSM-904LM1N	32.7
KSM-905LM1N	56.9

Electro-Optical Characteristics

[Ta=25 , Vcc=5.0V]

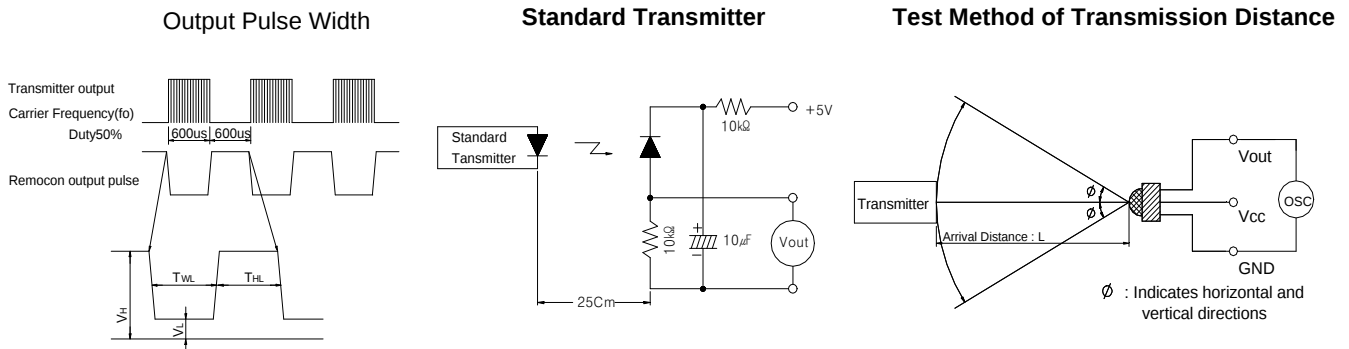
Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Recommended Supply Voltage	Vcc			4.5	5	5.5	V
Current Consumption	Icc	No signal input		-	1.2	2.2	mA
Peak Wavelength *1	λ p			-	940	-	nm
B.P.F Center Frequency	fo			-	37.9	-	kHz
Transmission Distance *1	L	250 ± 50lx	0 °	25	-	-	m
			± 30 °	21	-	-	
High level Output voltage *1	V _{OH}	30cm over the ray axis		4.5	5.0	-	V
Low level Output voltage *1	V _{OL}			-	0.1	0.5	V
High level Output Pulse Width *1	T _{WH}	Burst wave=600μs Period = 1.2ms		500	600	700	μs
Low level Output Pulse Width *1	T _{WL}			500	600	700	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 ± 50 lx 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

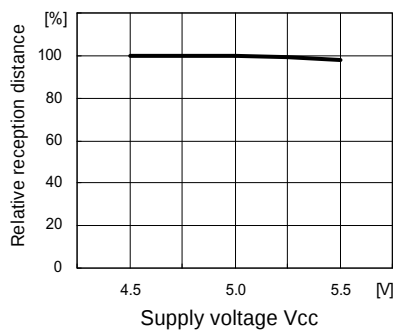
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■ Measuring Method [Ta=25°C]

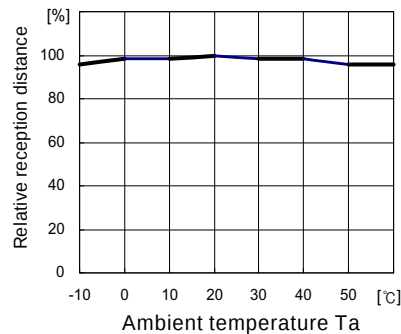


■ Typical Characteristics Curve [Ta=25°C]

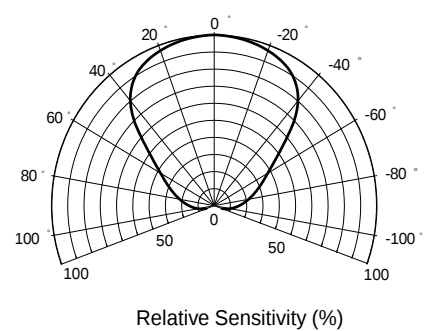
Relative reception distance Vs. Supply voltage



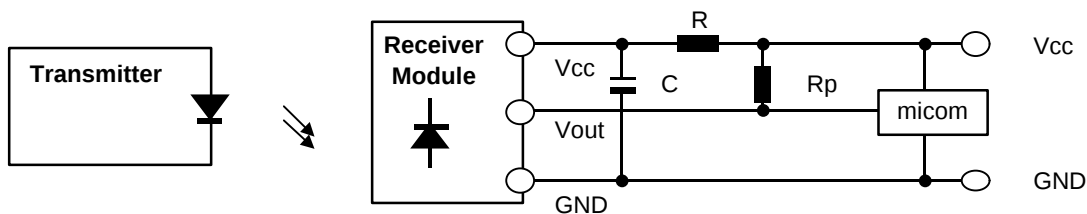
Relative reception distance Vs. Ambient temperature



Radiant pattern



■ Standard Application Circuit with R-C Decoupling Filter



*1 Recommended Circuit Description

- 1) Transmitter(IRED) drive current
: IFP = 300mA_{P-P} ~ 600mA_{P-P}
- 2) R-C Decoupling Filter with Lower Cut-off Frequency
: R=100Ω , C=47μF ⇒ $f_c = 1/2 \pi RC = 33.9\text{Hz}$
- 3) External pull-up resistor(optional)
: 10kΩ over