Optic receiver module

KSM-91□SY1N

The KSM-91□SY1N consist of a PIN Photodiode of high speed and a preamplifier IC in the package as an receiver for Infrared remote control systems

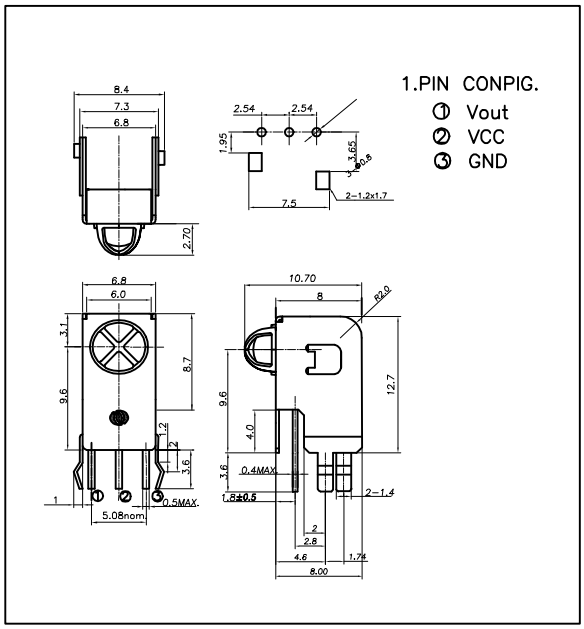
Features

- 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, Camcoder)
- Wireless Toys
- Remote Control Equipment

DIMENSIONS



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 (Max 5 sec)	℃

B.P.F Center Frequency

Model No.	B.P.F Center Frequency(㎑)
KSM-911SY1N	40.0
KSM-912SY1N	36.7
KSM-913SY1N	37.9
KSM-914SY1N	32.7
KSM-915SY1N	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	㎃
Peak Wavelength *1	λp			-	940	-	㎚
B.P.F Center Frequency	fo			-	37.9	-	㎑
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 = 1.2㎳		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 maxmum 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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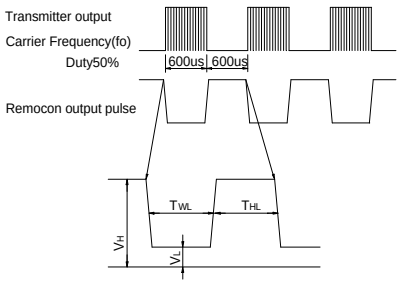
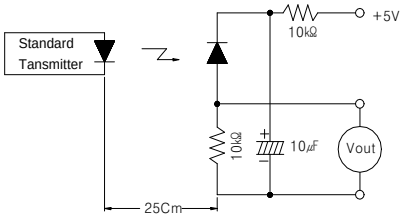
■ Measuring Method [Ta=25℃]

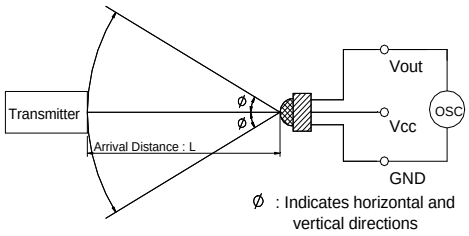
Output Pulse Width



Standard Transmitter

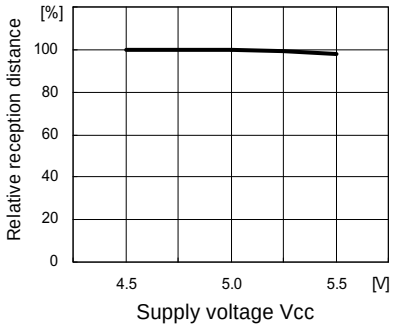


Test Method of Transmission Distance

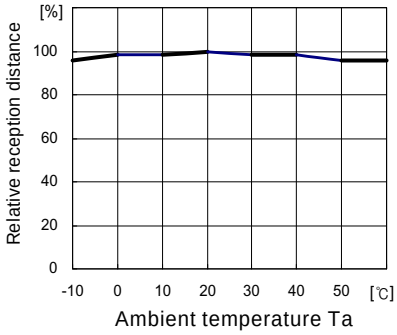


■ Typical Characteristics Curve [Ta=25℃]

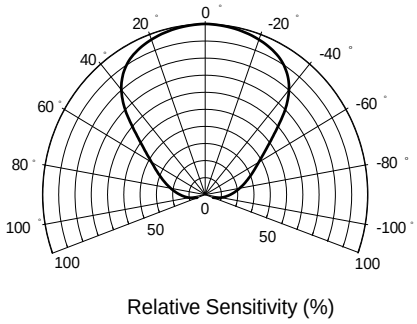
Relative reception distance Vs. Supply voltage



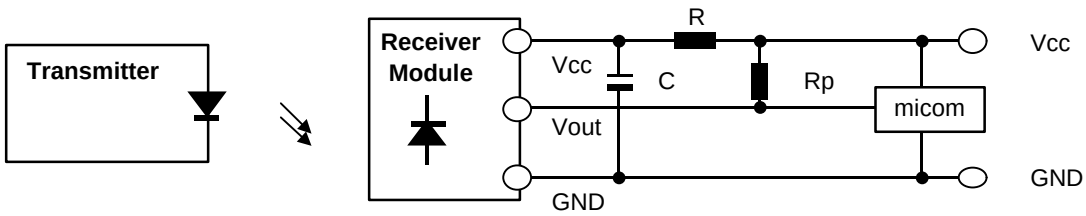
Relative reception distance Vs. Ambient temperature



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=47㎌ ⇒ fc = 1/2π RC = 33.9Hz
3) External pull-up resistor(optional)
   : 10kΩ over