

Optic receiver module

KODENSHI

KSM-40□N

The KSM-40□N consist of a PIN Photodiode of high speed and a preamplifier IC in the package as an receiver for Infrared remote control systems

Features

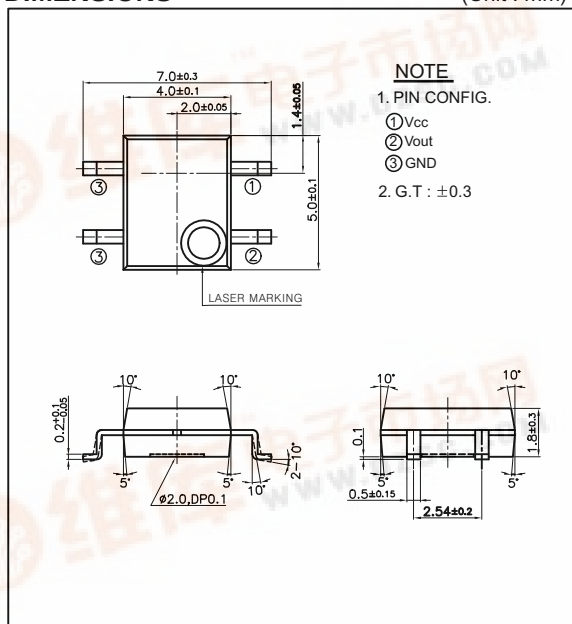
- Small size SMD package
- Supply-voltage range : 4.5V to 5.5V
- Shielded against electrical field disturbance
- Enhanced immunity against ambient light disturbances
- Available for carrier frequencies between 32.7KHz to 56.9KHz
- TTL and CMOS compatible

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 (Max 5 sec)	℃

B.P.F Center Frequency

Model No.	B.P.F Center Frequency(kHz)
KSM-401N	40.0
KSM-402N	36.7
KSM-403N	37.9
KSM-404N	32.7
KSM-405N	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	2.5	mA
Peak Wavelength *1	λ_p		-	940	-	nm
B.P.F Center Frequency	fo		-	37.9	-	kHz
Transmission Distance *1	L	250±50lx	± 0°	7	-	m
			± 30°	5	-	
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	500	600	700	μs
Low level Output Pulse Width *1	T _{WL}	Period = 1.2μs	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.

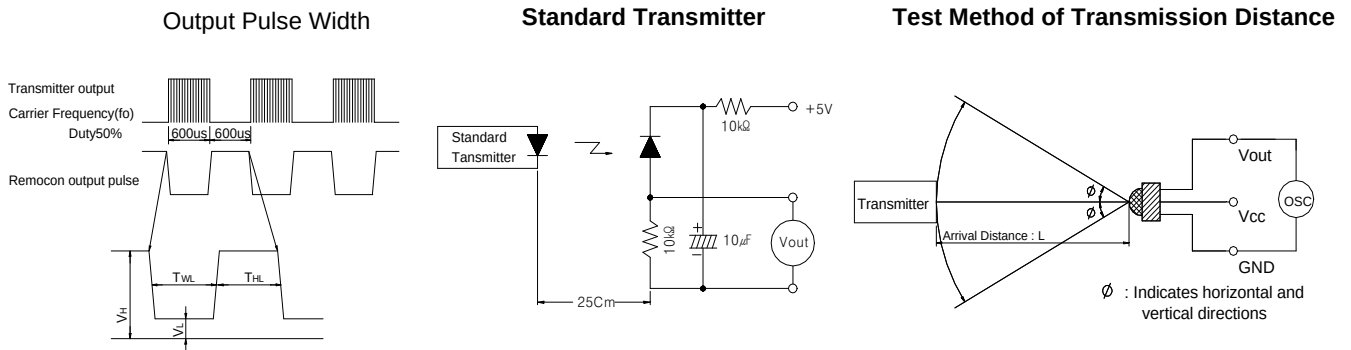
1) Measuring place : Indoor without extreme reflection of light

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

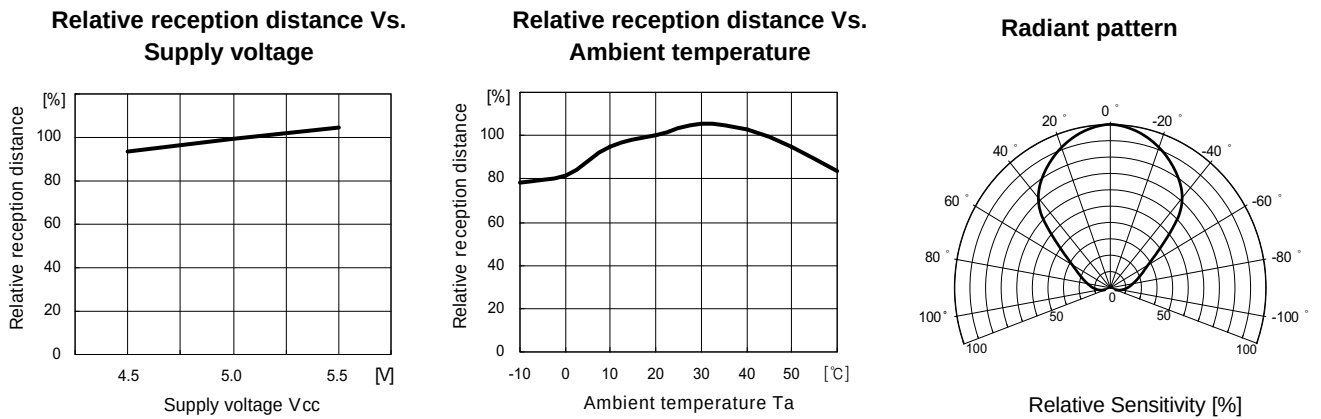
3) Standard transmitter : Burst wave of standard transmitter shall be arranged to 50mVP-P under the measuring circuit

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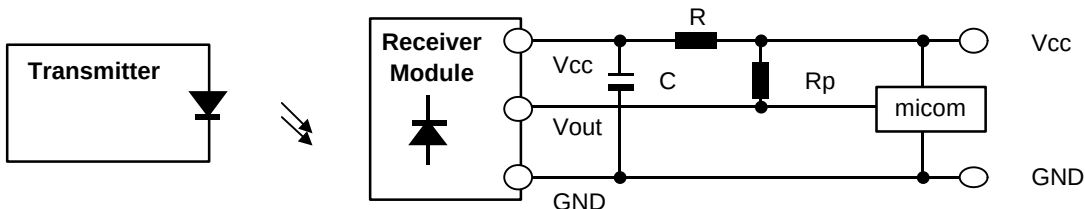
■ Measuring Method [Ta=25°C]



■ 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_{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