

KSM-50□M2S

The KSM-50□ E consist of a PIN Photodiode of high speed and a preamplifier IC in the package as an receiver for Infrared remote control systems

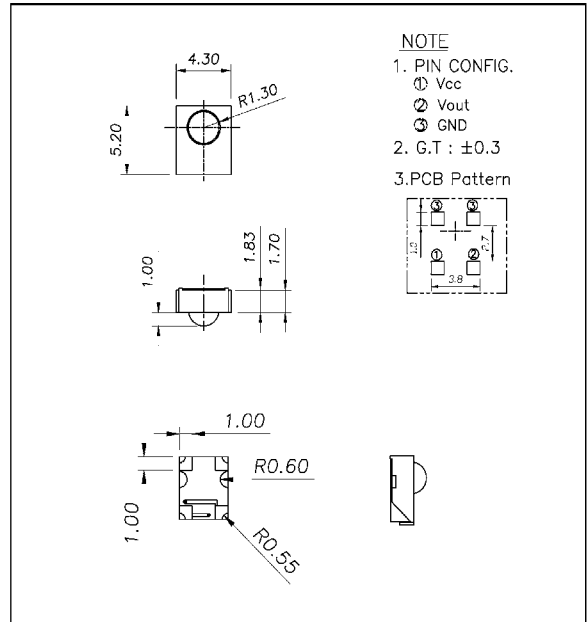
Features

- Small size SMD package
- 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, Camcorder)
- 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(kHz)
KSM-501M2S	40.0
KSM-502M2S	36.7
KSM-503M2S	37.9
KSM-504M2S	32.7
KSM-505M2S	56.9

Electro-Optical Characteristics

[Ta=25℃ , Vcc=5.0V(Vcc=3.0V)]

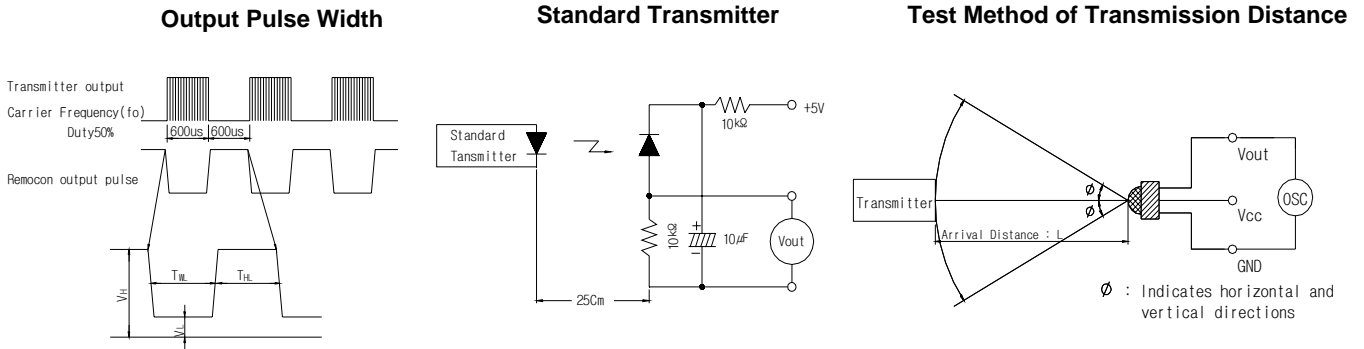
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	
Recommended Supply Voltage	Vcc		2.7	-	5.5	V	
Current Consumption	Icc	No signal input	0.5	0.8(0.7)	1.5	mA	
Peak Wavelength *1	λp		-	940	-	nm	
B.P.F Center Frequency	fo		-	37.9	-	kHz	
Transmission Distance *1	L	250 ± 50lx	0°	8	-	-	m
			± 30°	5	-	-	
High level Output voltage *1	V _{OH}	30cm over the ray axis	4.5(2.8)	5.0(3.0)	-	V	
Low level Output voltage *1	V _{OL}		-	0.1	0.5	V	
High level Output Pulse Width *1	T _{WH}	Burst wave=60μs	400	600	800	μs	
Low level Output Pulse Width *1	T _{WL}	Period = 1.2ms	400	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

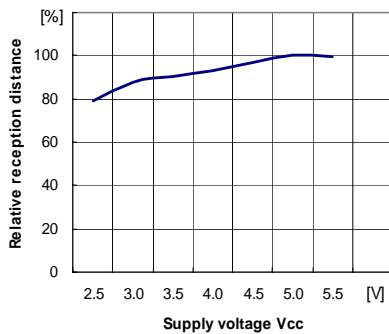
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■ **Measuring Method** [Ta=25 °C]

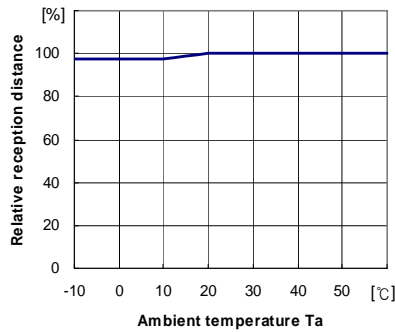


■ **Typical Characteristics Curve** [Ta=25 °C]

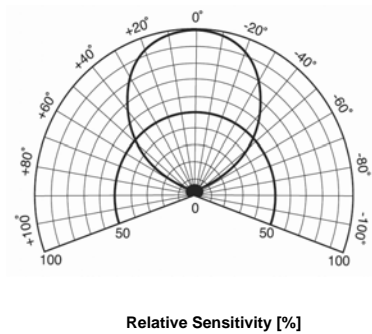
Relative reception distance Vs. Supply voltage



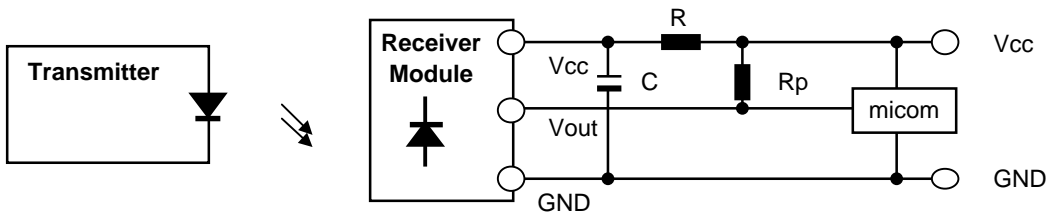
Relative reception distance Vs. Ambient temperature



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