

OPTIC REMOTE CONTROL
RECEIVER MODULE

SPECIFICATION DATA

ISSUED DATE : May. 02, 2001

DOCUMENT NO. : PDD-803LM-01

CUSTOMER : _____

DESCRIPTION : REMOCON MODULE

MODEL NO. : KSM-803LM

[KODENSHI KOREA CORP.]

ISSUE DEPT.			SBU		Q/A	
ISSUE	REVIEW	APPR'L	REVIEW	APPR'L	QC	QP

[CUSTOMER APPROVAL]

ISSUE	REVIEW	APPR'L	REVIEW	APPR'L	QC	QP

[REVISION]

NO	DATE	REVISION ITEMS	ISSUED BY	APPR'D BY

KSM-803LM

1. Scope

The KSM-803LM consist of a PIN Photodiode of high speed and a preamplifier IC in the package as an receiver for Infrared remote control systems

2. Features

- ◆ One mold small package
- ◆ 3 ~ 5 Volt supply voltage, low power consumption
- ◆ Shielded against electrical field disturbance
- ◆ High immunity against ambient light
- ◆ Easy interface with the main board
- ◆ TTL and CMOS compatibility

3. Applications

TOY that require controlling, exclusively

4. Package Outline

See the attached Drawing No. RM-803-ASY-01

5. Absolute Maximum Ratings

[Ta = 25]

Parameter	Symbol	Ratings	Unit
Supply Voltage	Vcc	6	V
Operating Temperature	Topr	-10 ~ +60	°C
Storage Temperature	Tstg	-20 ~ +75	°C
Soldering Temperature	Tsol	260(Max 5 sec)	°C

6. Reliability Test

Parameter	Condition
High Temperature *1	Ta= +60°C, Vcc=3V t=240H
High Temperature/High Humidity *1	Ta= +60°C, 90%RH, Vcc=3V t=240H
Low Temperature *1	Ta= -10°C , Vcc=3V t=240H
Heat Cycle *1	-20°C (0.5H) ~ +75°C (0.5H) 20cycle
Dropping *2	Test devices shall be dropped 3 time naturally onto hard wooden board from a 75 height position

Note : *1. electro-optical characteristics shall be satisfied after leaving 2hours in the normal temperature

*2. electro-optical characteristics shall be satisfied and no deforms and destructions of appearance.(excepting deforms of terminals)

7. Electro-optical Characteristics

[Ta= 25, Vcc= 3V]

Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Supply Voltage	Vcc			2.4	-	6.0	V
Current Consumption	Icc	Input Signal = 0			0.7	1.5	mA
Peak Wavelength *3	λ_p			-	940	-	nm
B.P.F Center Frequency *4	fo			-	37.9	-	khz
Arrival Distance *3	L	200 ±50Lux	0	10	-	-	m
Half Angle	$\angle\theta$				±45		deg
H Level Output Voltage *3	VOH	30cm over the ray axis		2.5			V
L Level Output Voltage *3	VOL			-	0.1	0.5	V
H Level Output Pulse Width *3	TWH	Bust Wave = 600 μ S Period = 1.2ms		500	600	700	μ S
L Level Output Pulse Width *3	TWL			500	600	700	μ S
Output Form	Active Low Output						

Note : *3. It specifies the maximum distance between emitter and detector that the output waveform satisfies the standard(8-2,3) under the conditions below against the standard transmitter

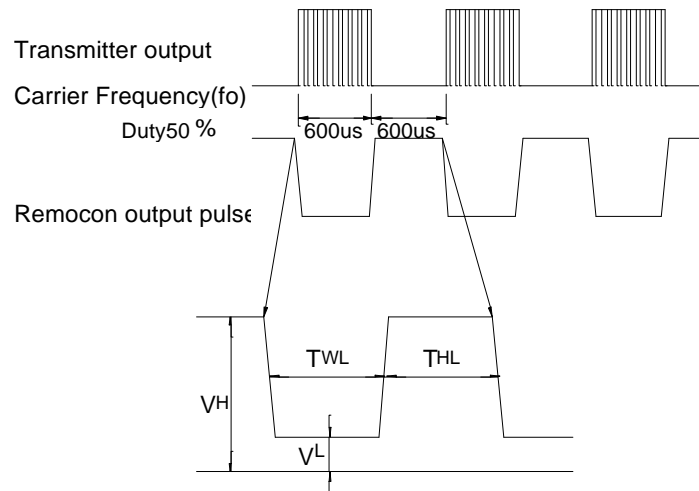
- 1) Measuring place : Indoor without extreme reflection of light
- 2) Ambient light source : Detecting surface illumination shall be irradiate 200 ± 50Lux under ordinary white fluorescence lamp without high frequency lightning
- 3) Standard transmitter : Burst wave indicated in drawing(8-1) of standard transmitter shall be arranged to 50mVp-p under the measuring circuit specified in drawing(8-2,3)

*4. B.P.F Center Frequency(f_o) of each model is shown below

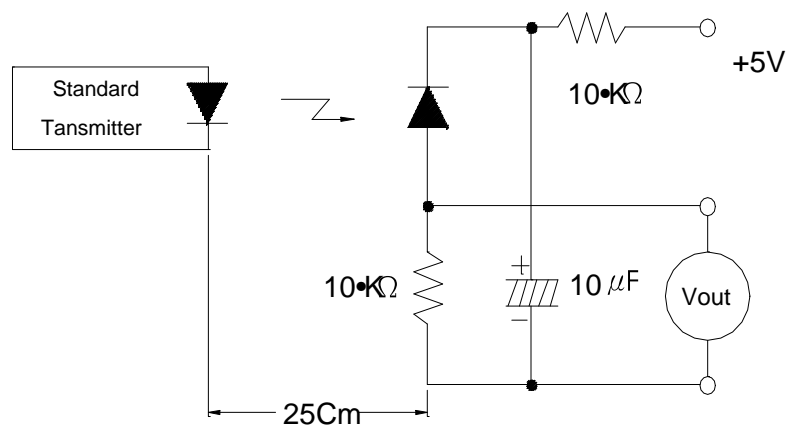
Molde No.	B.P.F Center Frequency(KHz)
KSM-○○1○○	40.0
KSM-○○2○○	36.7
KSM-○○3○○	37.9
KSM-○○4○○	32.7
KSM-○○5○○	56.7

8. Measure Method

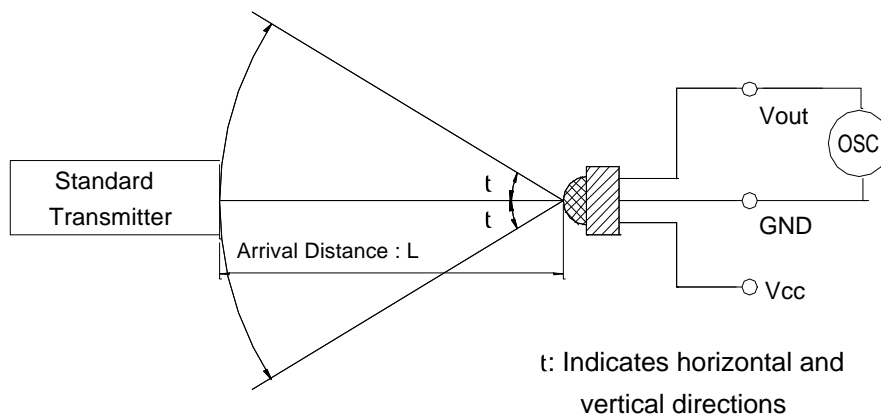
8-1. Output Pulse Width



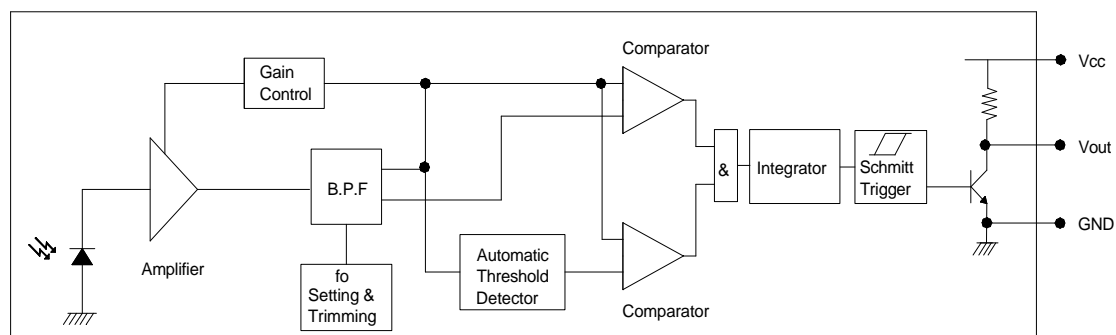
8-2. Standard Transmitter



8-3. Test Condition of Arrival Distance

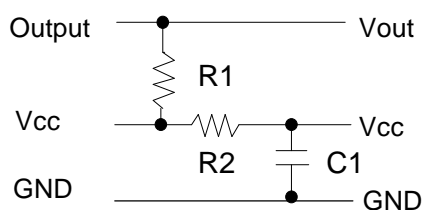


◆ Block Diagram



◆ RC Decoupling

In Case of noise power supply, please serially insert 100Ω resistor and about $47\mu\text{F}$ electrolytic capacitor in V_{cc} line and ground as follows

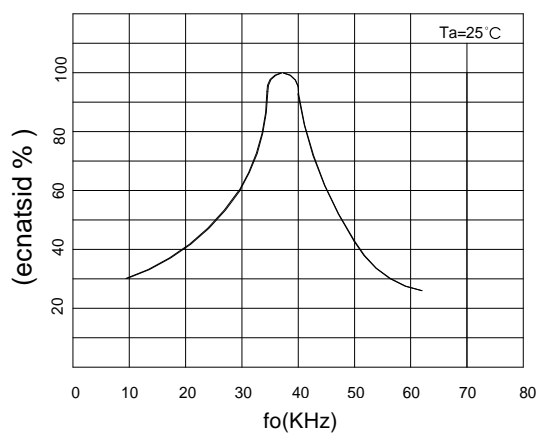


$$R1=22\text{K}\Omega$$

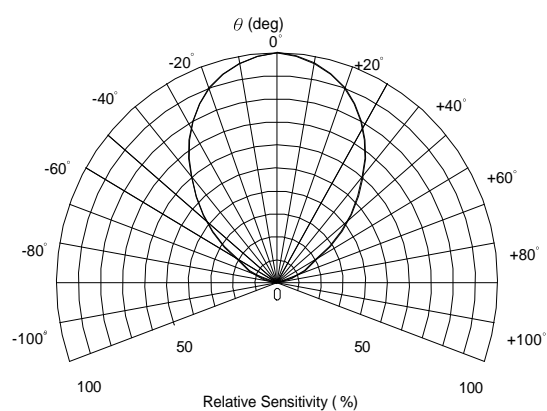
$$R2=47\Omega \sim 100\Omega$$

$$C1=47\mu\text{F} \sim 100\mu\text{F}$$

◆ Relative Reception Distance Vs Transmitter Carrier Frequency



◆ Sensitivity Diagram Angular Displacement



9. Standard Inspection

Among electrical characteristics, total quantity shall be inspected as below

- 9-1. Front distance between emitter and detector
- 9-2. Current consumption
- 9-3. H level output voltage
- 9-4. L level output voltage

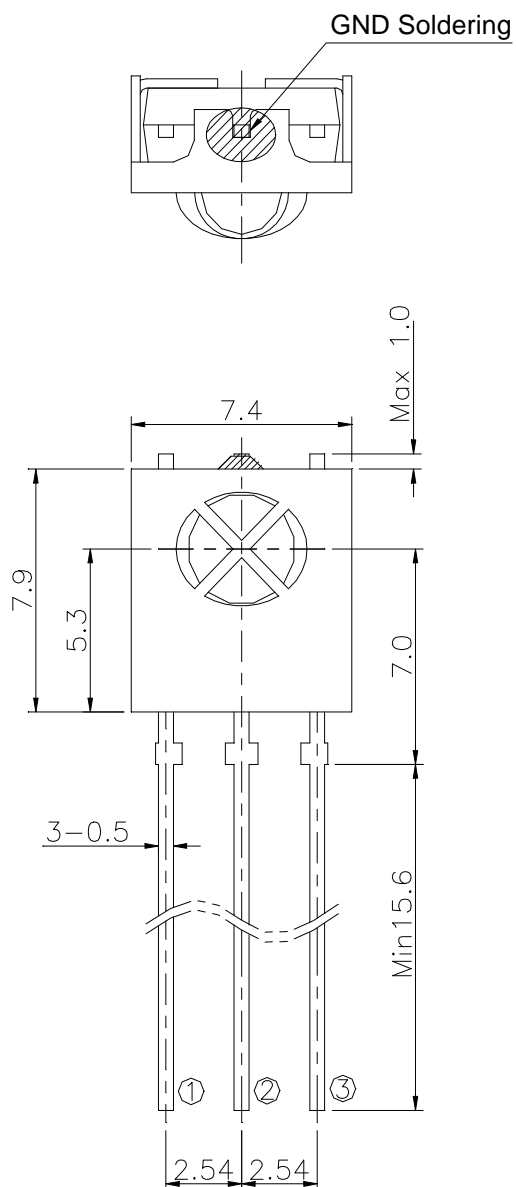
10. Caution(When use and storage of this device)

- 10-1. Store and use where there is no force causing transformation or change in quality
- 10-2. Store and use when there is no extreme humidity
- 10-3. Solder the lead-pin within the condition of ratings. after soldering do not add extrorse force
- 10-4. To prevent static electricity damage to the Pre-AMP make sure that the human body, the soldering iron is connected to ground before using
- 10-5. The performance of remote control system depends on environments condition and ability of peripheral parts, Customer should evaluate the performance as total system in those conditions after system up with components such as commander, Micom and this receiver module
- 10-6. Connect the shield case on the base pattern GND

11. Others

In case where any trouble or questions arise, both parties agree to make full discussion covering the said problem

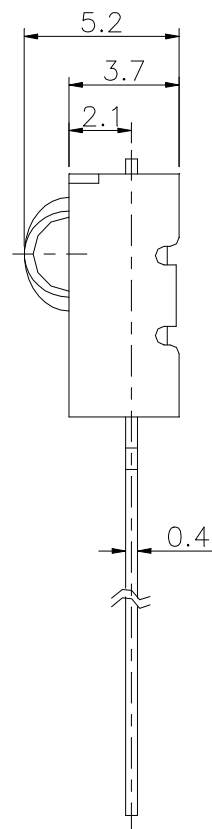
MARK	REVISION	DATE	NAME	SIGN	GENERAL TOLERANCE(±)						
					Dimension \ Grade	0	1	2	3	4	5
					~4 and below	0.005	0.05	0.08	0.1	0.2	0.5
					4~16 and below	0.05	0.08	0.1	0.2	0.3	0.8
					16~64 and below	0.08	0.1	0.2	0.3	0.5	1.2
					63~250 and below	0.1	0.2	0.3	0.5	0.8	1.8




Note.

1. Pin Configure

- ① Vout
- ② GND
- ③ Vcc



NO	DESCRIPTION			MAT'L	DIMENSION	REMARK
ISSUED DERT.				Q'TY		TITLE KSM-803LM
ISSUE	REVIEW	REVIEW	APPR'L	UNIT	mm	
				SCALE	4/1	
DRAWING NO RM-803-ASY-01		REF DWG NO		 KODENSHI		