

SPECIFICATION

**FOR PRELIMINARY**

ISSUED DATE : 2006. 12. 21

DOCUMENT NO. : PDCM-60□LM2K-01

CUSTOMER :

DESCRIPTION : RECEIVER MODULE

MODEL NO. : KSM-603LM2K

**[ KODENSHI KOREA CORP. ]**

ISSUE DEPT.			BRD		SBU		QRA	
ISSUE	REVIEW	APPR'L	REVIEW	APPR'L	REVIEW	APPR'L	REVIEW	APPR'L
	/		/			<i>nl</i>	/	

**[ CUSTOMER APPROVAL ]**


**[ REVISION ]**

NO	DATE	REVISION ITEMS	ISSUED BY	APPR'D BY

◇ This specification sheets include the contents under the copyright of KODENSHI KOREA CORP ("KODENSHI"). Please keep them with reasonable care as important without KODENSHI's consent.

◇ Please obey the instructions mentioned below for actual use of this device.

① This device is designed for general electronic equipment.

Main uses of this device are as follows;

- |   |  |  |
|---|--|--|
| <ul style="list-style-type: none"><li>• Computer</li><li>• Telecommunication equipment (Terminal)</li><li>• Measuring instrument</li><li>• Industrial robot</li><li>• Home appliance</li><li>etc.</li></ul> | <ul style="list-style-type: none"><li>• OA equipment</li><li>• Machine tool</li><li>• AV equipment</li></ul> |  |
|---|--|--|

② Please take proper steps in order to maintain reliability and safety, in case this device is used for the uses mentioned below which require high reliability.

- |  |   |  |
|--|---|--|
| <ul style="list-style-type: none"><li>• Unit concerning control and safety of a vehicle (air plane, train, automobile etc.)</li><li>• Traffic signal</li><li>• Fire box and burglar alarm box</li><li>etc.</li></ul> | <ul style="list-style-type: none"><li>• Gas leak detection breaker</li><li>• Other safety equipment</li></ul> |  |
|--|---|--|

③ Please don't use for the uses mentioned below which require extremely high reliability.

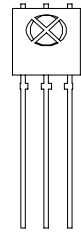
- |  |   |  |
|--|---|--|
| <ul style="list-style-type: none"><li>• Space equipment</li><li>• Nuclear control equipment</li><li>• Medical equipment (relating to any fatal element)</li><li>etc.</li></ul> | <ul style="list-style-type: none"><li>• Telecommunication equipment (Trunk)</li></ul> |  |
|--|---|--|

### 1. Scope

The KSM-603LM2K 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

- ◆ 2.7 ~ 5.5 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
- ◆ One mold package
- ◆ RoHS Compliance



### 3. Applications

TV, VTR, Acoustic Devices, Air Conditioners, Car Stereo Units, Computers, Interior controlling appliances, and appliances that require remote controlling

### 4. Package Outline

See the attached Drawing No. (RM-60□LM□□-ASY-01)

### 5. Absolute Maximum Ratings (at 25 °C Unless otherwise notes)

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

### 6. Reliability Test

Parameter	Condition
High Temperature *1	Ta= + 60 °C, Vcc=5V t=240H
High Temperature/High Humidity *1	Ta= + 60 °C, 90%RH, Vcc=5V t=240H
Low Temperature *1	Ta= - 10 °C, Vcc=5V 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 75cm 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. Electrical Characteristics

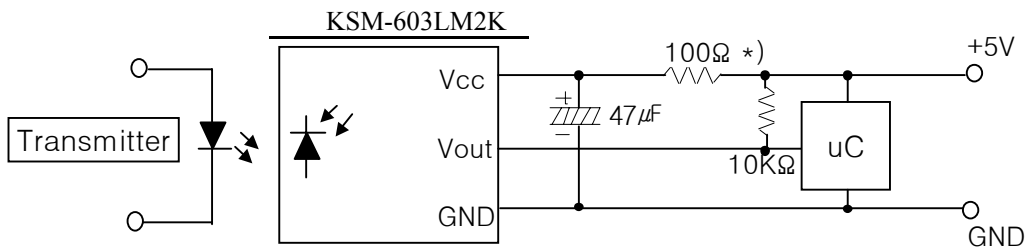
[ Ta= 25 °C Vcc= 5.0V (V=3.0V) ]

Parameter	Simbol	Condition	Min.	Typ.	Max.	Unit	
Supply Voltage Range	Vcc		2.7	-	5.5	V	
Current Consumption	Icc	Input Signal = 0	-	1.0	1.5	mA	
Peak Wavelength *3	$\lambda_p$		-	940	-	nm	
B.P.F Center Frequency *4	fo		-	56.7	-	kHz	
Arrival Distance *3	L	250Lux	0 °	12	-	-	m
			±30 °	10	-	-	m
H Level Output Voltage *3	V <sub>OH</sub>	30cm over the ray axis	4.5 (2.8)	5 (3.0)	-	V	
L Level Output Voltage *3	V <sub>OL</sub>		-	0.2	0.5	V	
H Level Output Pulse Width *3	T <sub>WH</sub>	Burst Wave = 600µs Period = 1.2ms	400	-	800	µs	
L Level Output Pulse Width *3	T <sub>WL</sub>		400	-	800	µs	
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 100mVp-p under the measuring circuit specified in drawing(8-2,3)

4) Application Circuit



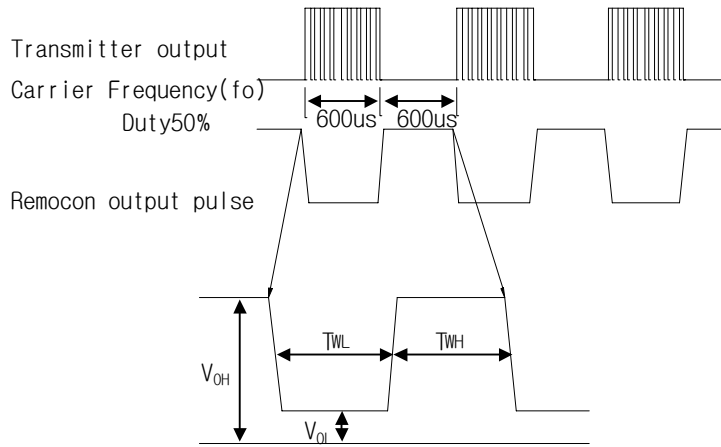
\*)Recommended to suppress power supply disturbances

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

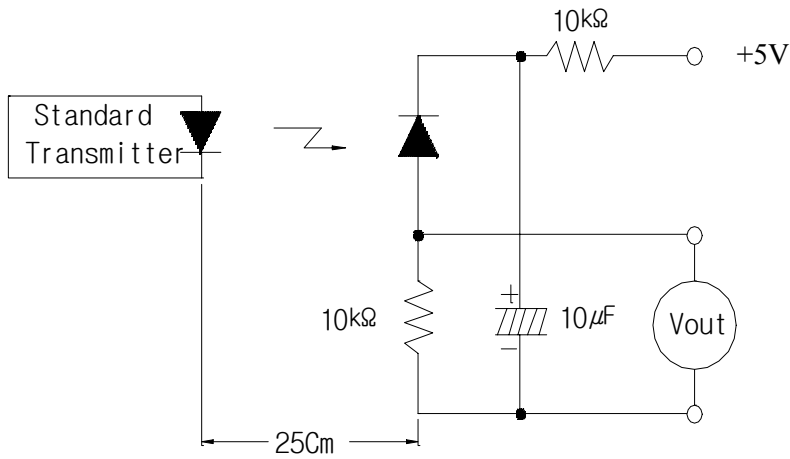
Molde NO.	B.P.F Center Frequency(kHz)
KSM-601 series	40.0
KSM-602 series	36.7
KSM-603 series	37.9
KSM-604 series	32.7
KSM-605 series	56.9

8. Measure Method

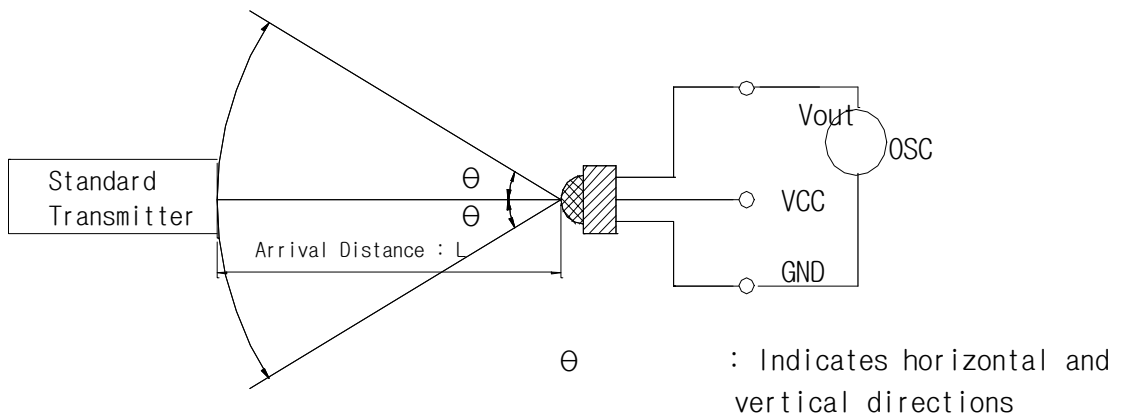
8-1. Output Pulse Width



8-2. Standard Transmitter



8-3. Test Condition of Arrival Distance



**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

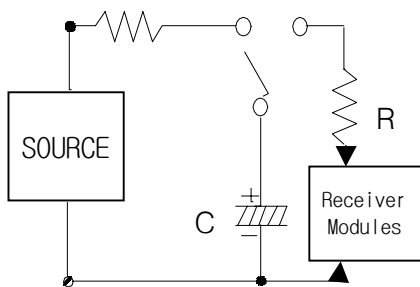
**10. Caution(When use and storage of this device)**

- 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. The shield case shall be grounded on the PCB pattern.

(There are two cases, one is that shield case and GND pin are connected in the shiled case, the other is not connected in it.)

- 10-7. This device has to control of static electricity

KODENSHI Korea Corp. guarantees KSM-603LM2K up to M.M 200V , HBM 2KV



M.M = MACHINE MODEL(Resistance: 0KΩ Capacitor: 200pF)  
 HBM = HUMAN BODY MODEL( Resistance: 1.5kΩ Capacitor: 100pF)

**11.Period of Guarantee and Extent of Guarantee**

11-1.Period of Guarantee

1 year after designated place.

11-2.Extent of Guarantee

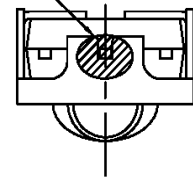
KODENSHI Korea Corp. Shall supply the replacements against defects that will caused from KODENSHI fault.

**12. Others**

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

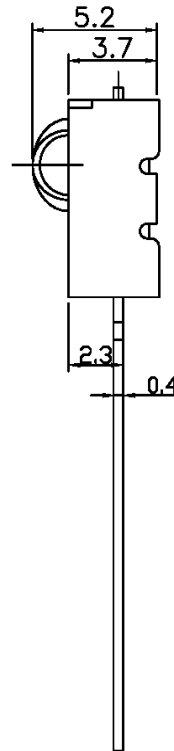
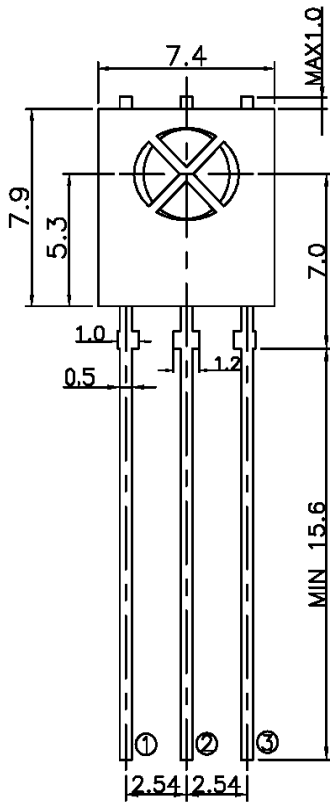
MARK	REVISION	DATE	NAME	SIGN	GENERAL TOLERANCE(±)						
					Dimension	Grade	0	1	2	3	4
					~4 and below	0.005	0.05	0.08	0.1	0.2	0.5
					4~16 and below	0.05	0.08	0.1	0.2	0.3	0.8
					16~64 and below	0.08	0.1	0.2	0.3	0.5	1.2
					63~250 and below	0.1	0.2	0.3	0.5	0.8	1.8

HATCH'G(GND WELD)



NOTE

1. PIN CONFIG
  - ① Vout
  - ② GND
  - ③ Vcc
2. G.T : ±0.3
3. LEAD Pb Free



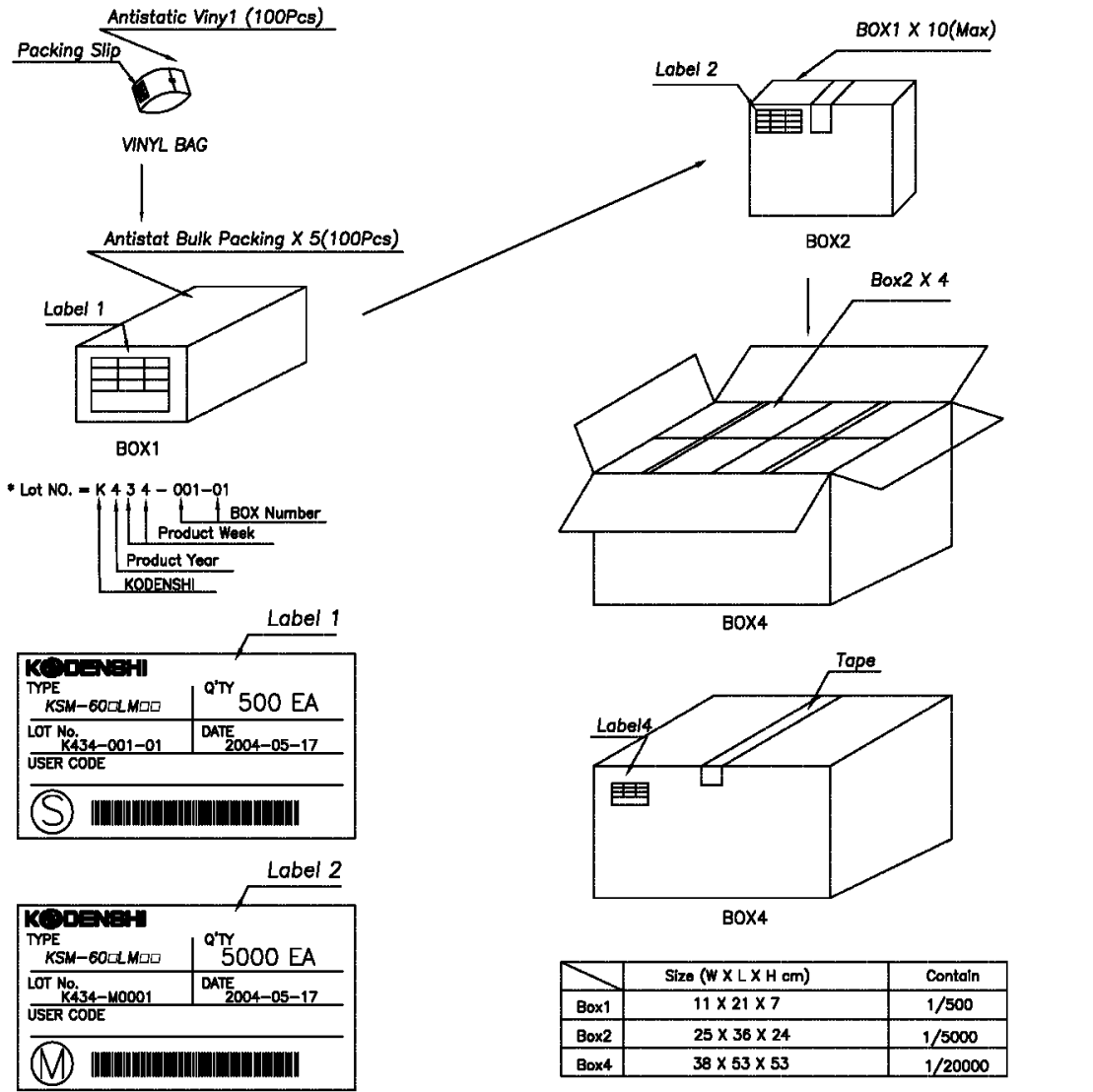
★RoHS Compliance

NO	DESCRIPTION			MAT'L	DIMENSION	REMARK
ISSUED DERT.				Q'TY	TITLE	
ISSUE	REVIEW	REVIEW	APPR'L	UNIT	KSM-60□LM□□ Series	
L.S.H			L.K.Y	SCALE	4/1	
DRAWING NO		REF DWG NO		<b>KODENSHI</b>		
RM-60□LM□□-ASY-01						

KKC-QM-067-1

MARK	REVISION	DATE	NAME	SIGN	GENERAL TOLERANCE(±)							
					Grade	0	1	2	3	4	5	
					Dimension	~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

\* Packing Specification



PACKING STATUS						
NO	DESCRIPTION			MAT'L	DIMENSION	REMARK
ISSUED DERT.				Q'TY	EA	TITLE PACKING
DRAWN	DESIGN	CHECK'D	APPRV'D	UNIT	MM	KSM-60□LM□□
L.S.H	/	/	L.K.Y	SCALE	N/S	
DRAWING NO		REF DWG NO		<b>KODENSHI</b>		
RM-60□LM□□-PK-01						

KKC-QM-067-4