

EXTERNAL INFRARED RECEIVER MODULE

SPECIFICATION

TITLE : SW-EM02series

1. Description

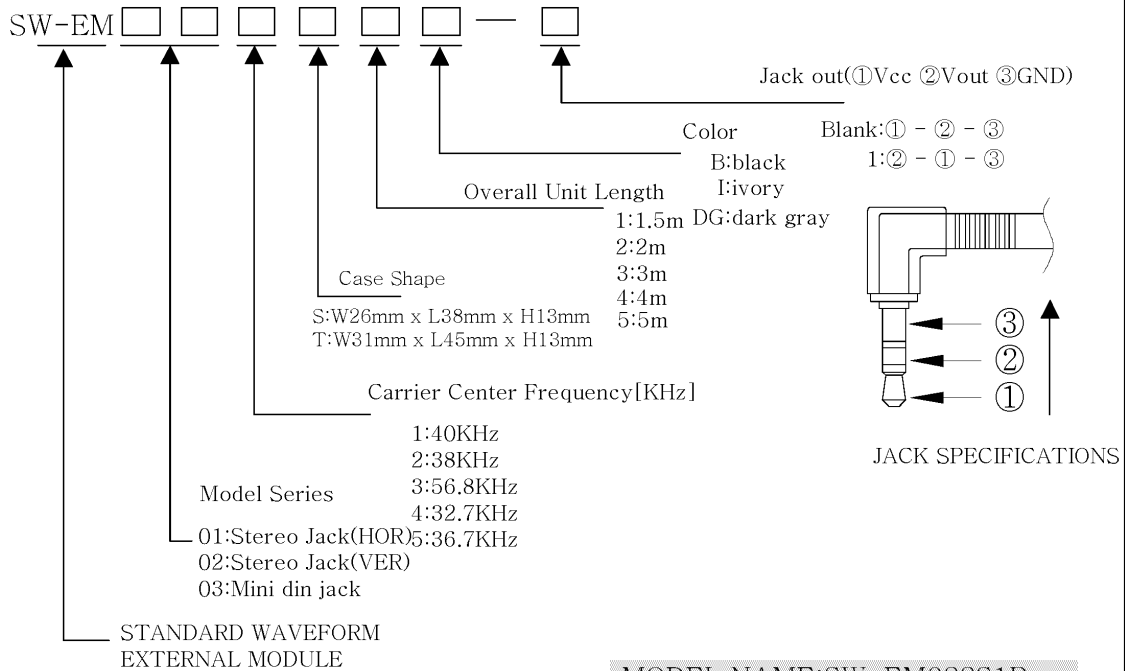
The SW-EM02 series are receiver units for infrared remote control system. Assembled high performance PIN photodiode and preamplifier on lead frame is molded in uniquely designed epoxy package with daylight cut filter & metal shield case.

2. Features

- ◇ Low power consumption
- ◇ Possible to direct connection to TTL & CMOS
- ◇ Low sensitivity against fluorescent lamp driven by inverter
- ◇ Open collector output with a pull-up resistance
- ◇ Various Band Pass Filter frequency

3. Product Designation

The Product designations for Celadon's external receiver module consist of a type name as show in below.



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4. Absolute Maximum Ratings

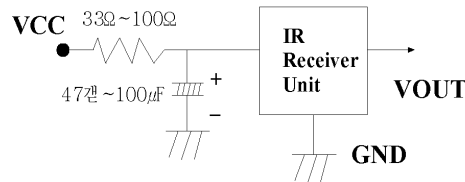
Parameter	Symbol	Rating	Unit
Supply voltage	Vcc	5.5	V
Operating temperature	Topr	-10 ~ +60	°C
Storage temperature	Tstg	-20 ~ +75	°C
Soldering temperature *1	Tsol	260	°C

*1. Within 5 seconds

5. Recommended Operating Conditions

Parameter	Symbol	Operating condition	Unit
Supply voltage	Vcc	2.7 ~ 5.5	V

* In case of Vcc include noise factor please add the R-C line filter as shown



6. Electro-optical Characteristics

Ta=25°C, Vcc=3V to 5V

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Current consumption	Icc		1.2		mA	No input signal
High level output voltage	VOH	Vcc-0.25	Vcc		V	*2.
Low level output voltage	VOL			0.25	V	*2.
High level pulse width	TWH	450	600	750	μs	*2.
Low level pulse width	TWL	450	600	750	μs	*2.
B.P.F. center frequency	f0	40.0,38.0,56.7,32.7,36.7			KHz	*2.
Peak sensitive wavelength	λ P		940		nm	
Detecting distance	L	8.0			m	*2. Ec=200LUX
Detecting half angle	Δθ		±45		deg	Horizontal direction

*2 The output signal and detecting distance of this receiver unit shall satisfy the following requirements with the transmitter specified as below (Fig.1) in the optical standard system (Fig.2).

(1) Standard transmitter

A transmitter output shall be set as Vout=40mVpp, and the burst wave as shown in the figure shall be transmitted by the transmitter.

however the SW-D470R in this application is Pin Photodiode which has a characteristics as short-circuit current Isc=25mA at Ev=1000LUX(2856. K standard light source), spectral sensitivity λ=880~1050nm.

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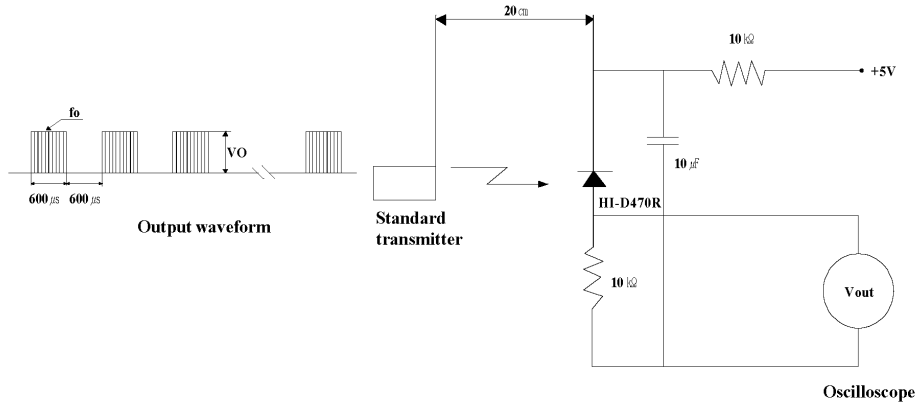


Fig.1 Standard transmitter

(2) Standard optical system

Using a standard transmitter (Fig.1) output pulse width T_{WL} and T_{WH} is tested at the detector face illuminance $E_e=200\text{LUX}$ by outer peripheral light source.

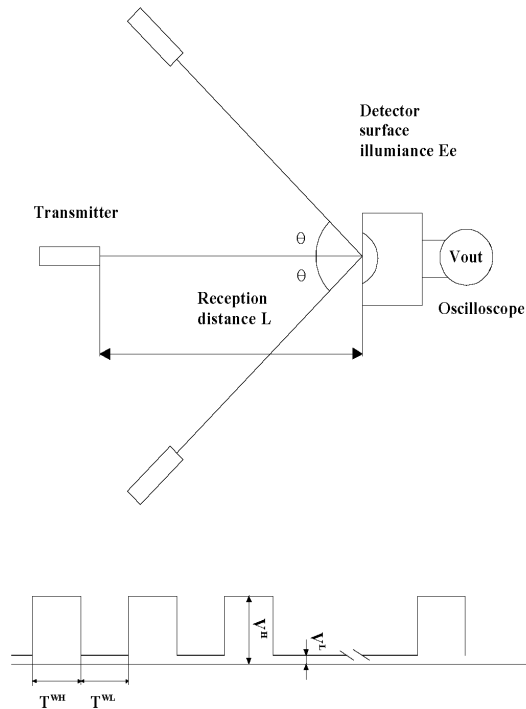


Fig.2 Standard optical test system

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7. Reliability test items and condition

No.	Test Items	Test Conditions
1	Terminal tension	Weight: 50g, 30 sec. / each terminal
2	Terminal bending	Weight: 250g, 0°~ 90°~ 0°, 2times /each terminal
3	Shock	Acceleration: 100g, 6ms, 3direction /3times
4	Variable frequency Vibration	Fre.R:10~55Hz/1min,Amp.:1.5mm X,Y,Z/2H.each
5	High temp./high hum. storage	Ta=40℃, 90%RH t=240H
6	High temperature storage	Ta=75℃ t=240H
7	Low temperature storage	Ta=-20℃ t=240H
8	Temperature cycling	-20℃(30min.)~+70℃(30min.) 20cycle
9	Operation life (high temp.)	Ta=60℃, Vcc=5V t=240H
10	Soldering heat	260 ± 5℃ 5sec.

In performance test, Electro-optical characteristics should be satisfied but it is required that the samples passed through test No.5~No.9 are left 2 hours at normal temperature and humidity after being taken out of the chamber.

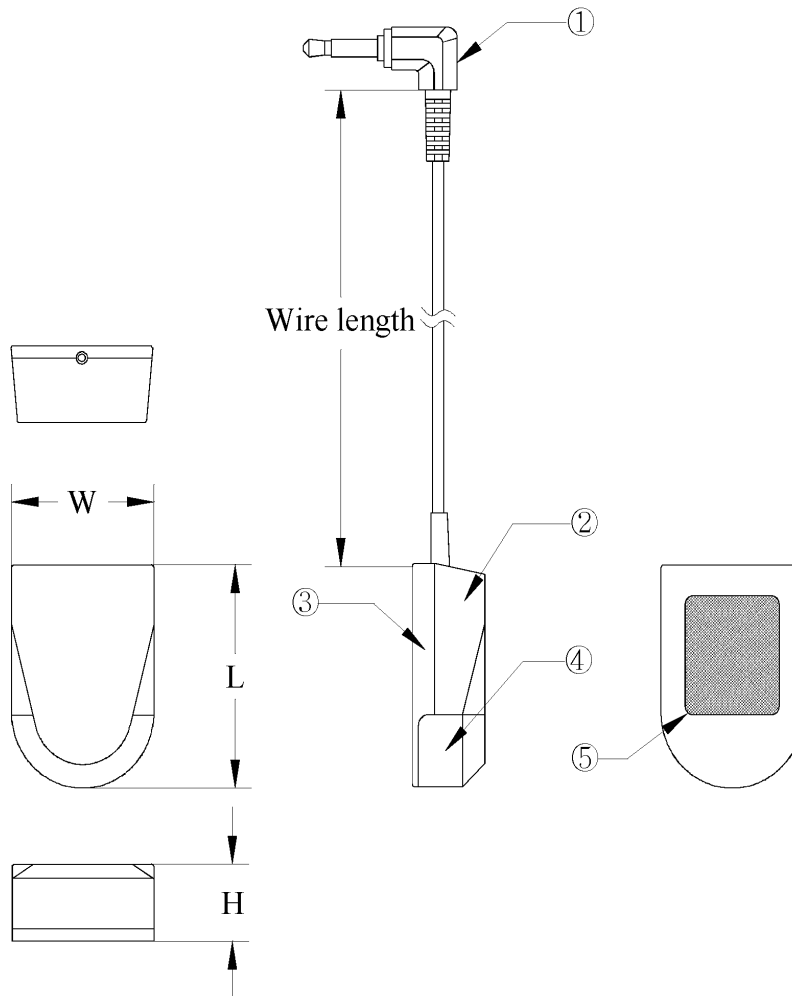
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8. Dimension

1) Product Appearance

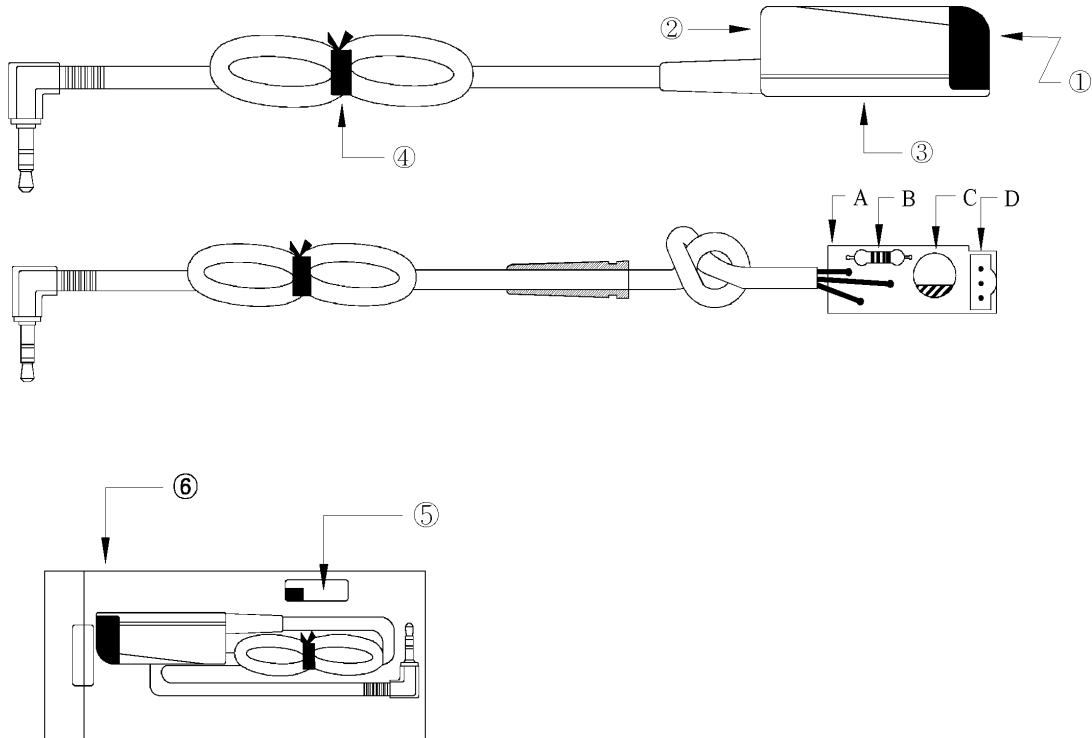


No	ITEM	SPECIFICATIONS
①	S/T CABLE ASSAY	
②	CASE TOP	ABS (LGXR-401)
③	CASE BOTTOM	ABS (LGXR-401)
④	WINDOW	PC
⑤	VELCRO	3M 9448HK

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2) Product Composition



NO	ITEM	SPEC.
A	PCB	FR-2 1.6t
B	RESISTER CARBON	47 1/8W
C	CAP ELECTRIC	100 μ F/16V
D	IR MODULE	HI-M602V0
①	WINDOW	PC
②	UPPER CASE	ABS (LGXR-401)
③	BOTTOM CASE	ABS (LGXR-401)
④	T.I.M	BLACK 70mm
⑤	VELCRO	3M 9448HK 20*15
⑥	VINYL PAK	180mm × 120mm(5M기준)