

# 承认书

## Specification for approval

客户名称(Customer name): \_\_\_\_\_

经办者(Director): \_\_\_\_\_

职称(title): \_\_\_\_\_

客户料号(Customer part NO): \_\_\_\_\_

版本(Revision): \_\_\_\_\_ A.0

发件日期(Issue date): \_\_\_\_\_ 2024-04-16

回文日期(Return date): \_\_\_\_\_

一、谨致执事者：兹提供�公司产品之有关详细规格及图面数据，敬请给予办理测试认定手续，同时敬请送返一份附有贵公司签认之测试认定后之样品认定书。

( We are please in sending you herewith our specification and drawings for your approval. )

( Please return to us one copy "For Approval" with your approved signatures. )

二、附件(Accessory):

☐样品    ☐出货检验记录表    ☐封装尺寸图    ☐电气特性曲线  
☐内部线路图    ☐焊性建议    ☐PAD 建议    ☐包装方式

三、客户意见栏(Customer's Proposal)

☐ 同意(Agree): (请于认可栏中签名)

☐ 不同意(Disagree):

原因(Reason): \_\_\_\_\_

客户认可签章(Customer Signature): \_\_\_\_\_

## 1、 Description:

The GRM-4033D8C4-EF2 is SMD Type infrared receivers for remote control and other applications requiring improved ambient light rejection. The separate PIN diode and preamplifier IC are assembled on a single leadframe. The epoxy package contains a special IR filter. This module has excellent performance even in disturbed ambient light applications and provides protection against uncontrolled output pulses.

## 2、 Features:

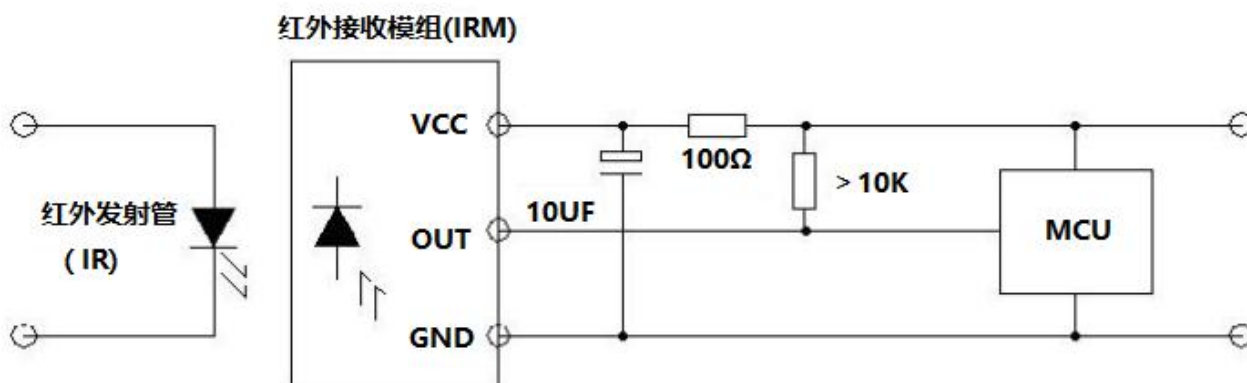
1. Photo detector and preamplifier in one package
2. Internal filter for PCM frequency
3. High immunity against ambient light
4. Improved shielding against electric field disturbance
5. 3.0-Volt supply voltage; low power consumption
6. TTL and CMOS compatibility



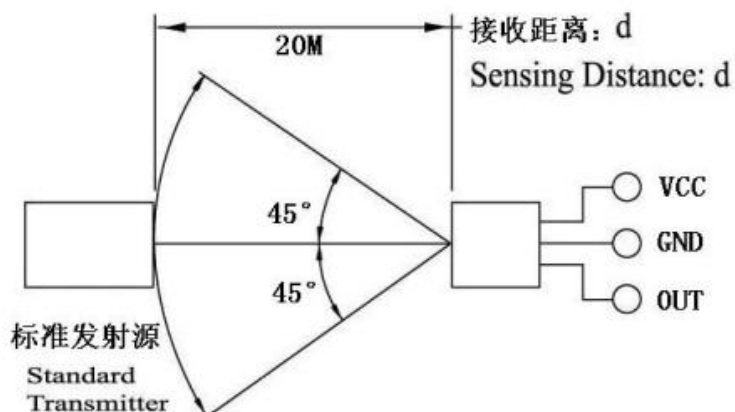
## 3、 Applications:

It can be used for TVs、VTRs、audio equipment air conditioners、 car stereo radio、 toys、 home computers and all other equipment requiring remote control.

## 4、 Application Circuit:



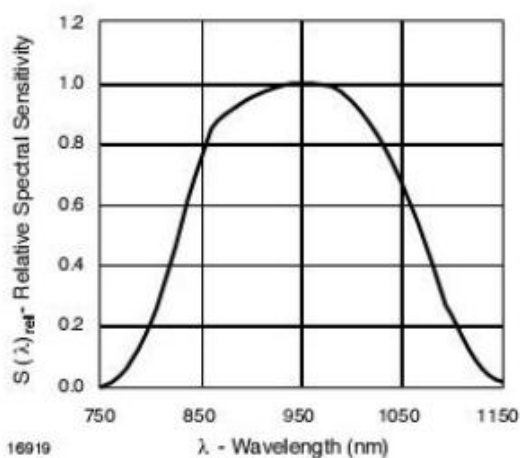
## 5、Detection Length Test:



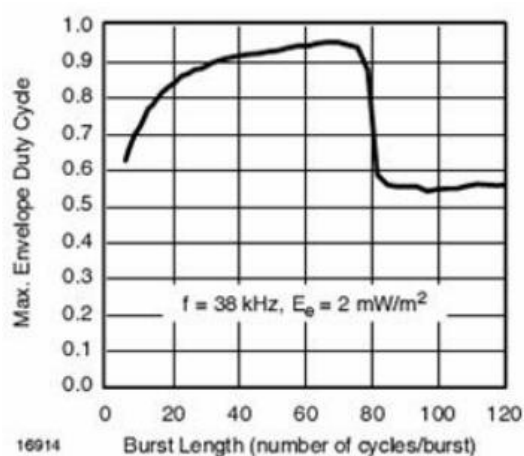
## 6、 Absolute Maximum Ratings: (Ta=25°C)

| Parameter                   | Symbol | Rating                                                        | Unit |
|-----------------------------|--------|---------------------------------------------------------------|------|
| Forward Voltage             | VDD    | 0-6                                                           | V    |
| Operating Temperature Range | Topr   | -20°C ~ +70°C                                                 |      |
| Storage Temperature Range   | Tstg   | -40°C ~ +85°C                                                 |      |
| Soldering Condition         | Tsol   | Reflow soldering : 260°C , 10s<br>Hand soldering : 300°C , 3s |      |

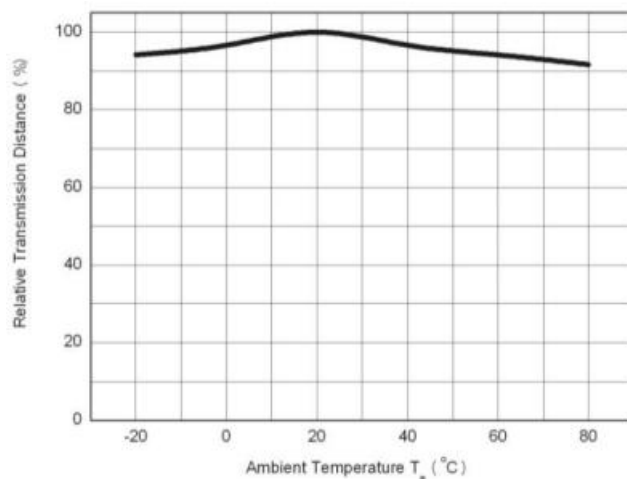
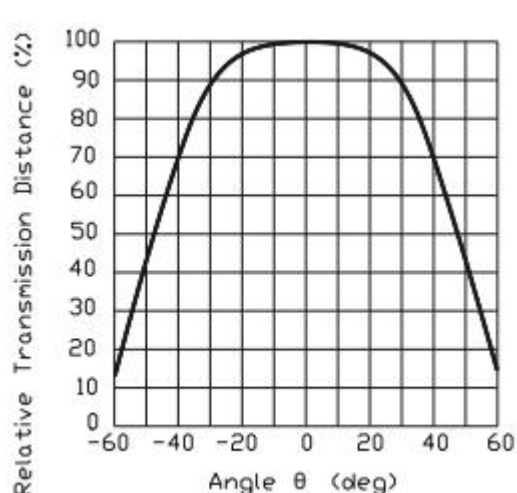
## 7、 CHARACTERISTIC CURVES (TA=25oC):



1、 Relative Spectral Sensitivity vs.Wavelength



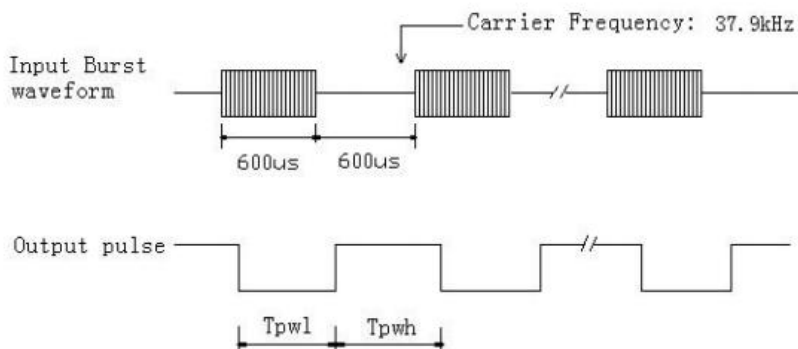
2、 Max.Envelope Duty Cycle vs.Burstlength



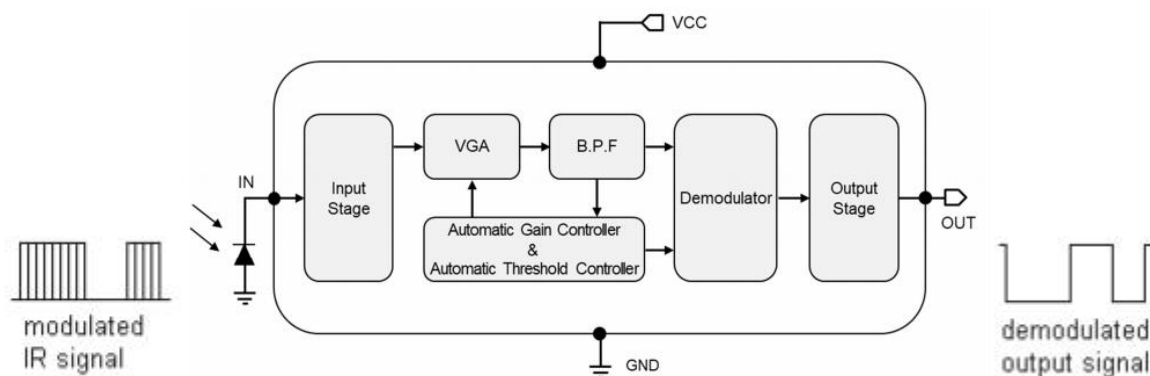
## 3、Relative Sensitivity vs.Direction

## 4、Relativi Transmission Distance VS. Ambient Temperature

## 8. Test Method:



## 9. Block Diagram:

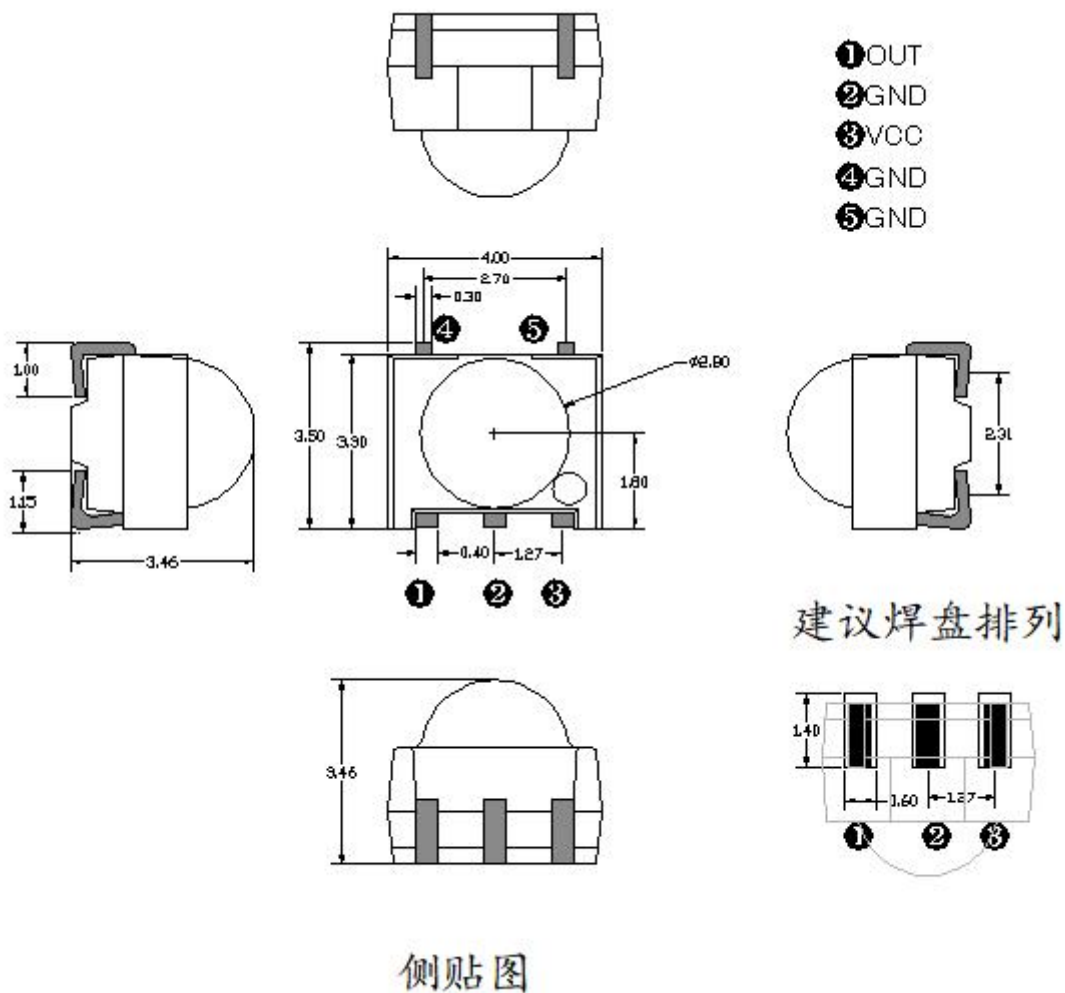




## 10、Electro-optical characteristics:

| Parameter                                     | Symbol                    | Min  | Typ  | Max  | Unit    | Conditions                             |
|-----------------------------------------------|---------------------------|------|------|------|---------|----------------------------------------|
| Supply Voltage<br>供电电压                        | Vcc                       | 2.7  |      | 5.5  | V       |                                        |
| Consumption Current<br>消耗电流                   | Icc                       | 0.08 | 0.25 | 0.33 | mA      | No Input Signal                        |
| Peak Wavelength<br>峰值波长                       | $\lambda_p$               | -    | 940  | -    | nm      |                                        |
| High level<br>Output voltage<br>高电平输出电压       | Voh                       | 4.5  | 5.5  | -    | V       | Vcc=5V                                 |
|                                               |                           | 2.7  | 3.0  | -    | V       | Vcc=3V                                 |
| Low Level<br>Output voltage<br>低电平输出电压        | Vol                       |      | 0.2  | 0.5  | V       |                                        |
| High Level Output<br>Pulse Width<br>高电平输出脉冲宽度 | Twh                       | 400  |      | 800  | $\mu s$ | Burst Wave=600 $\mu s$<br>Period=1.2ms |
| Low Level Output<br>Pulse Width<br>低电平输出脉冲宽度  | Twl                       | 400  |      | 800  | $\mu s$ |                                        |
| B.P.F Center<br>Frequency<br>B.P.F 中心频率       |                           | -    | 37.9 | -    | KHz     |                                        |
| Arrival Distance<br>接收距离                      | D                         |      | 20   |      | M       | $\pm 0^\circ$                          |
|                                               |                           |      | 15   |      | M       | $\pm 45^\circ$                         |
| Output Form<br>输出方式                           | Active Low output 低电平有效输出 |      |      |      |         |                                        |

## 10. Dimensions in mm:



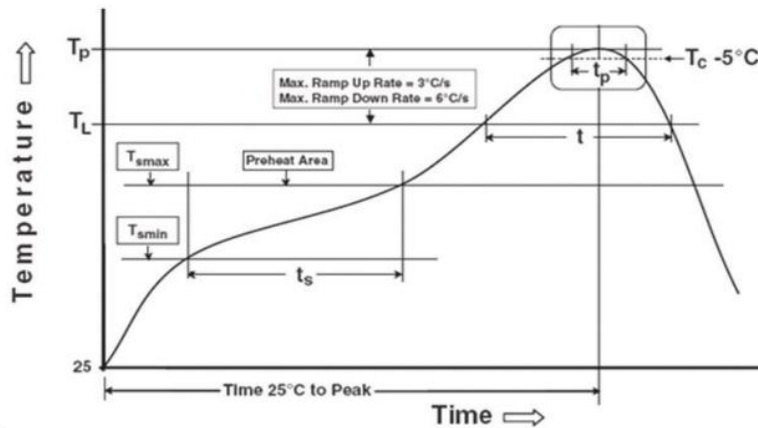
Notes: 1. All dimensions are in millimeters  
2. Tolerance is  $\pm 0.10$  mm unless otherwise noted



## 12、Code information;

|                                                             |   |
|-------------------------------------------------------------|---|
| suitable DATA FORMAT : ● : continuouse key ×: one key       |   |
| NEC CODE                                                    | ● |
| RC5                                                         | ● |
| Toshiba Micom Code                                          | ● |
| Continuous Data communication don't support. (tpause = 0ms) |   |

## 13、Solder Reflow Temperature Profile:

**Note:**

Reference: IPC/JEDEC J-STD-020D

**Preheat**

|                                                                  |                 |
|------------------------------------------------------------------|-----------------|
| Temperature min (T <sub>smin</sub> )                             | 150 °C          |
| Temperature max (T <sub>smax</sub> )                             | 200°C           |
| Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> ) | 60-120 seconds  |
| Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> )      | 3 °C/second max |

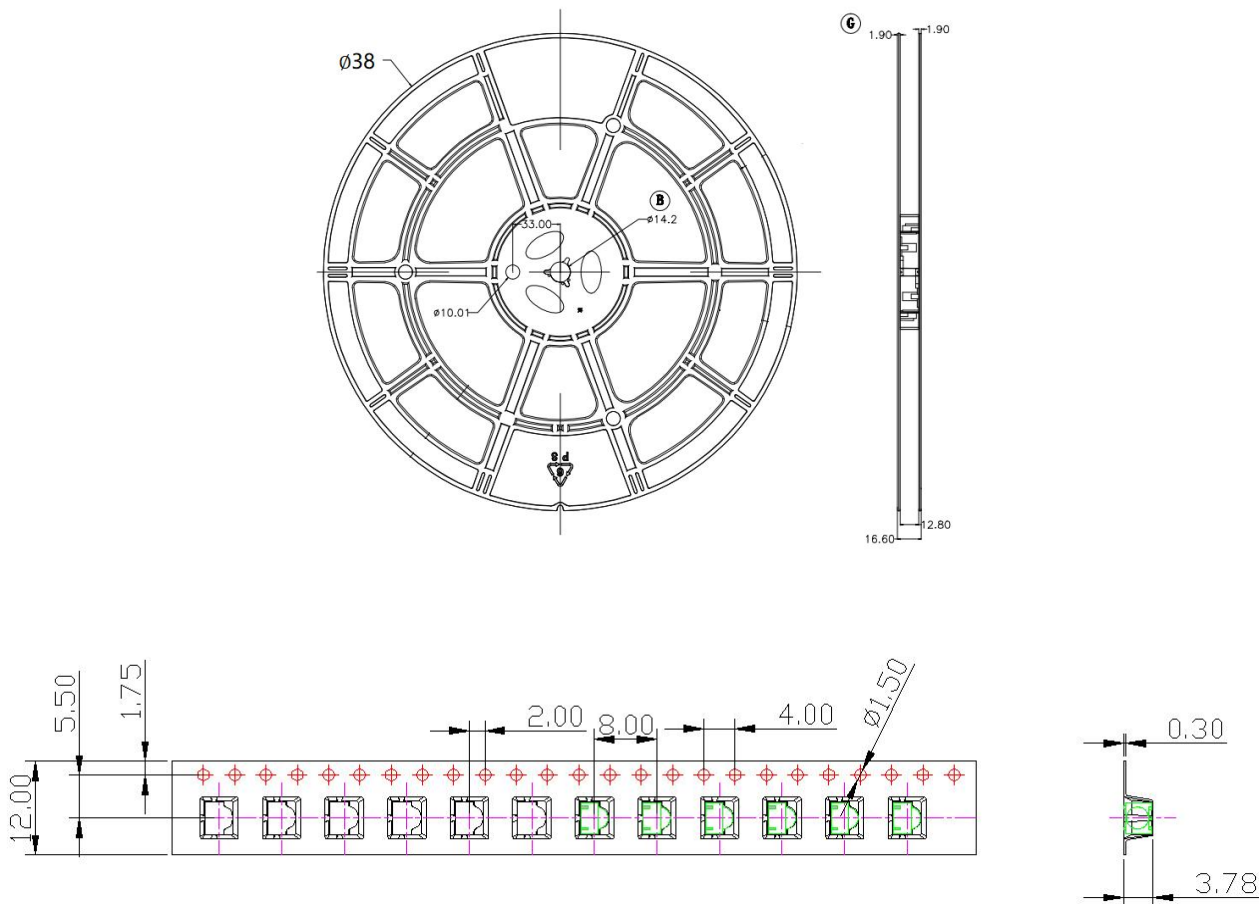
**Other**

|                                                                   |                  |
|-------------------------------------------------------------------|------------------|
| Liquidus Temperature (T <sub>L</sub> )                            | 217 °C           |
| Time above Liquidus Temperature (t <sub>L</sub> )                 | 60-100 sec       |
| Peak Temperature (T <sub>P</sub> )                                | 260°C            |
| Time within 5 °C of Actual Peak Temperature: T <sub>P</sub> - 5°C | 30 s             |
| Ramp- Down Rate from Peak Temperature                             | 6°C /second max. |
| Time 25°C to peak temperature                                     | 8 minutes max.   |
| Reflow times                                                      | 2 times          |



## 14、Tape & Reel Packing Specifications;

Packing Quantity: 2000 pcs/reel



- Notes: 1. All dimensions are in millimeters.  
2. Tolerance is  $\pm 0.1$  mm unless otherwise noted.

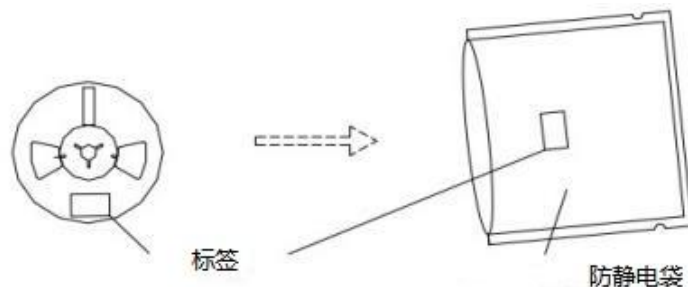
## 15、Recommended method of storage

The following are general recommendations for moisture sensitive level (MSL) 4 storage and use:

1. Shelf life in sealed bag from the bag seal date: 12 months at  $< 40^{\circ}\text{C}$  and  $< 80\%$  relative humidity (RH)
2. After bag is opened, devices that will be subjected to reflow solder or other high temperature process must be mounted within 48 hours of factory conditions  $< 30^{\circ}\text{C}/60\%\text{RH}$ .
3. If the moisture absorbent material (silica gel) has faded away or the IRM has exceeded the storage time. Baking treatment is required, refer to IPC/JEDEC J-STD-033 for bake procedure or recommend the conditions:  $50\pm 5^{\circ}\text{C}$  for 24 hours.

## 16、Labeling and identification:





### 17、CAUTION ( When use and storage of this device )

- 1.Store and use where there is no force causing transformation or change in quality .
- 2.Store and use where there is no corrosive gas or sea(salt) breeze .
- 3.Store and use where there is no extreme humidity .
- 4.Solder the lead-pin within the condition of ratings. After soldering do not add extra force .
- 5.Do not wash this device . Wipe the stains of diode side with a soft cloth. You can use the solvent , ethylalcohol or methylalcohol or isupropylene only .
- 6.To prevent static electricity damage to the Pre-AMP make sure that the human body , the soldering iron is connected to ground before using .
- 7.Put decoupling device between Vcc and GND for reduse the noise from power supply line .
- 8.The performance of remote-control system depends on environments condition and ability of periferal parts. Customer should evaluate the performance as total system in those conditions after system up with components such as commander , micon and this receiver module .

### 18、Others

- 1.This device is not design to endure radiative rays and heavily charged particles .
- 2.In case where any trouble or questions arise,both parties agres to make full discussion covering the said problem .