客户（Customer）:_____

# 承认书
# Approval Sheet

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同时敬请送返一份附有贵公司签认之测试认定后之样品承认书.

We are pleased in sending you herewith on specification and drawings for your approval.
Please return to us one copy “Approval sheet” with your approved signature.

型号（Model No.） : A-IRM38M18DB9-B0708

发文日期（Issue Date）: 2023/10/16 承认日期（Approved Date）:_____

Checking signature of Amicc

| Designer | Checker | Approver |
|---|---|---|
| Money | | |

Approval signature of customer

| Designer | Checker | Approver |
|---|---|---|
| | | |

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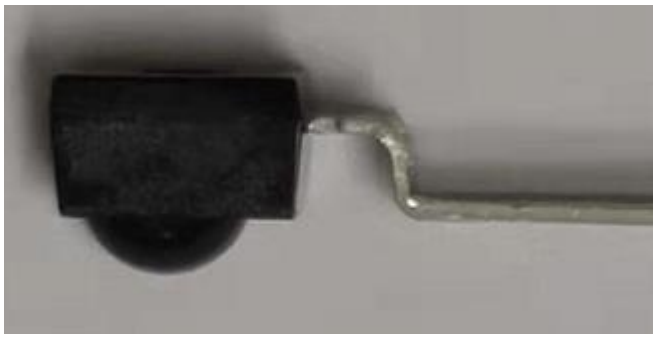
IRM Type

# A-IRM38M18DB9-B0708



## Features

- High protection ability against EMI
- Suitable for continuous code
- Low operating voltage and low power consumption
- High immunity against ambient light
- High sensitivity
- Long reception range
- JEDEC MSL 3

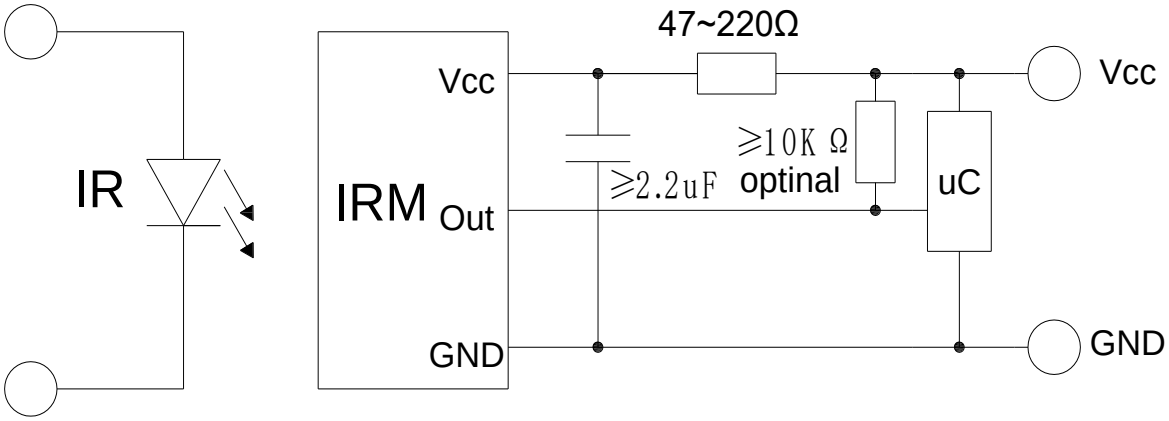
## Description

The A-IRM38M18DB9-B0708 devices are DIP type infrared receivers which have been developed and designed by using the latest IC technology.
The PIN diode and preamplifier are assembled onto a lead frame and molded into a black epoxy package which operates as an IR filter.
The demodulated output signal can directly be decoded by a microprocessor.

## Applications

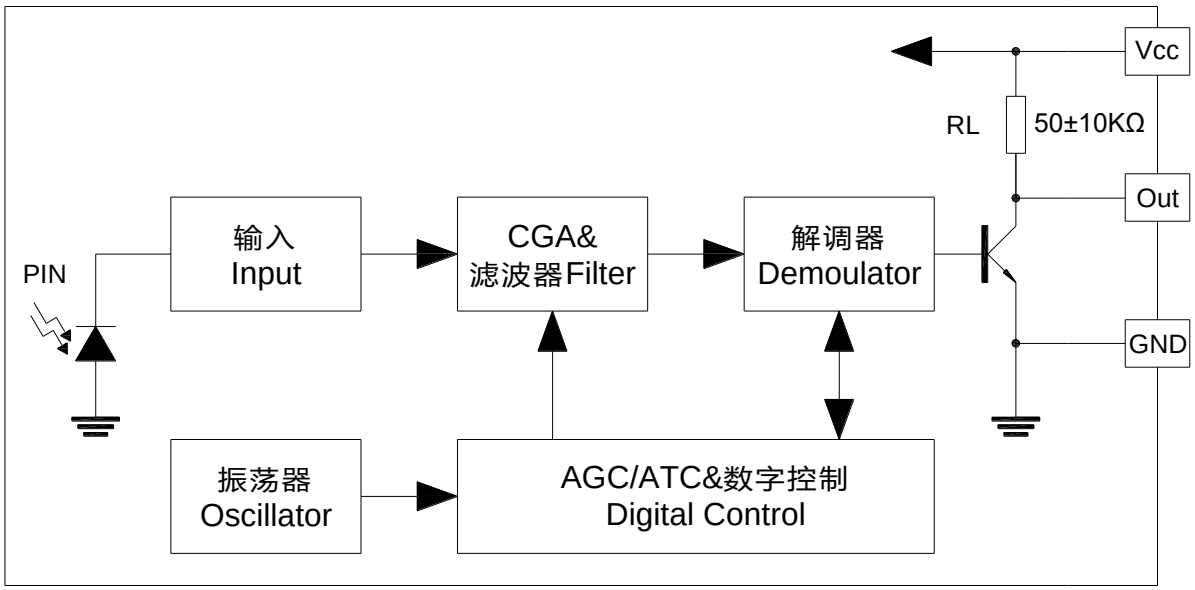
- AV equipment such as TV, VCR, DVD, CD, MD, etc.
- Short pause time protocols
- Toy applications
- CATV set top boxes
- Multi-media Equipment
- Other devices using IR remote control

## Application circuit




The RC Filter must be connected as close as possible to Vcc and GND pins.

## BLOCK DIAGRAM



## Absolute Maximum Ratings ($T_a$=25℃) *1

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Supply Voltage | $V_{cc}$ | 6 | V |
| Operating Temperature | $T_{opr}$ | -20 ~ +80 | ℃ |
| Storage Temperature | $T_{stg}$ | -40 ~ +125 | ℃ |
| Soldering Temperature*2 | $T_{so}$ | 260 | ℃ |

*1 Stress above those listed under Absolute Maximum Rating may cause permanent damage of device.
*2 4mm from mold body for less than 5 seconds.
.

## Electro-Optical Characteristics ($T_a$=25℃)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|---|---|---|---|---|---|---|
| Supply Voltage | $V_{cc}$ | 3.0 | -- | 5.5 | V | |
| Supply Current | $I_{CC}$ | -- | 0.5 | 0.9 | mA | $V_{cc}$=3.0V |
| | | -- | 0.6 | 0.9 | mA | $V_{cc}$=5.0V |
| Peak wavelength | $\lambda_p$ | -- | 940 | -- | nm | |
| High Level Pulse Width | $T_{pwh}$ | 400 | 600 | 800 | us | Fin=f0, burst wave Vin=600us, see Fig.4 |
| Low Level Pulse Width | $T_{pwl}$ | 400 | 600 | 800 | us | |
| High Level Output Voltage | $V_{oh}$ | Vcc-0.3 | -- | Vcc | V | see Fig.1 |
| Low Level Output Voltage | $V_{ol}$ | 0 | -- | 0.2 | V | |
| Directivity | θ | -- | 45 | -- | deg | Angle of half transmission distance |
| Reception range | L0 | -- | 20 | -- | m | EV=200±50Lx, test signal see fig.3, IR diode SED113, $I_F$=400mA |
| | L45 | -- | 10 | -- | m | |
| Center CarrierFrequency | $f_0$ | -- | 38 | -- | KHz | |

## Test method

The specified electro-optical characteristics are valid under the following conditions.

1. Measurement environment
   Indoor, without extreme reflection of light.
2. External light
   Detecting surface illumination shall be 200±50Lux under ordinary fluorescent lamp of no high Frequency lighting.
3. Standard transmitter
   The test transmitter is calibrated by using the circuit shown in figure 2. Burst wave of standard transmitter shall be arranged to 50mVp-p under the measurement circuit.
4. The signal is according to figure 1.
5. Receive distanced incidence angle test is shown in figure 3.

Fig.1 Transmitter Wave Form

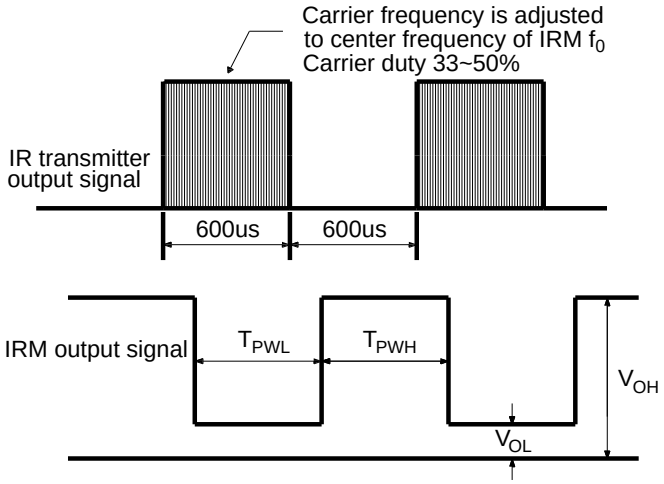



Fig.2 Standard transmitter calibration

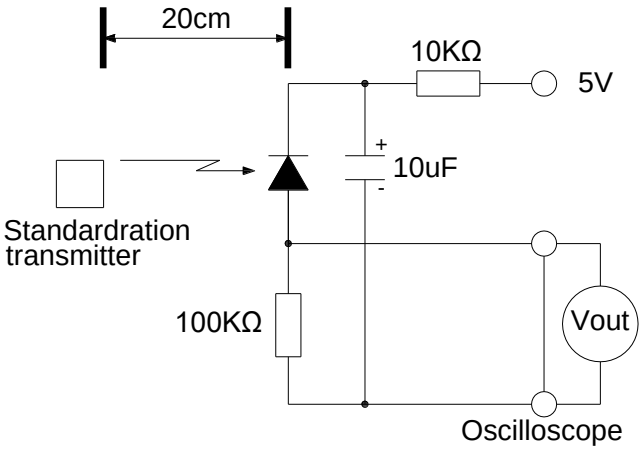
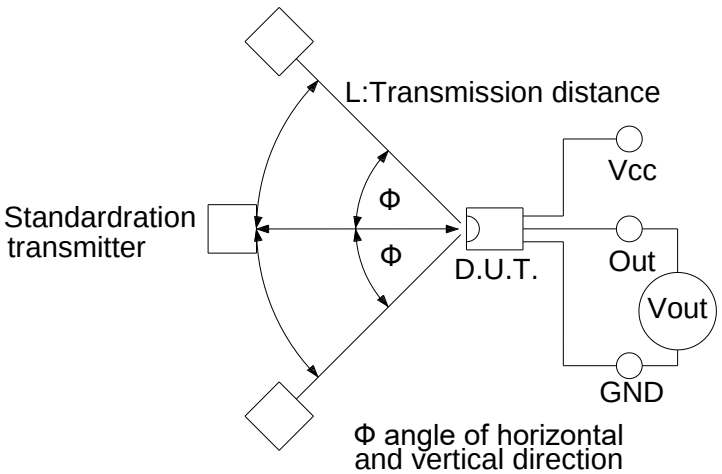



Fig.3 Receive distanced incidence angle test



## Typical Electro-Optical Characteristics Curves

Fig.4 Relative spectril sensitivity

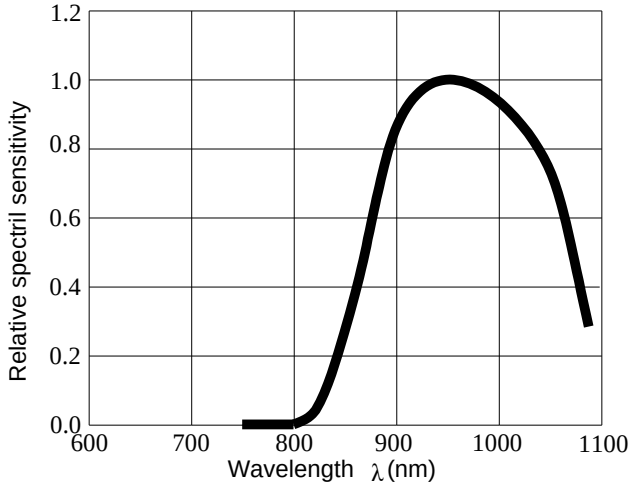



Fig.5 Incidence angle VS. Relative receiving distance

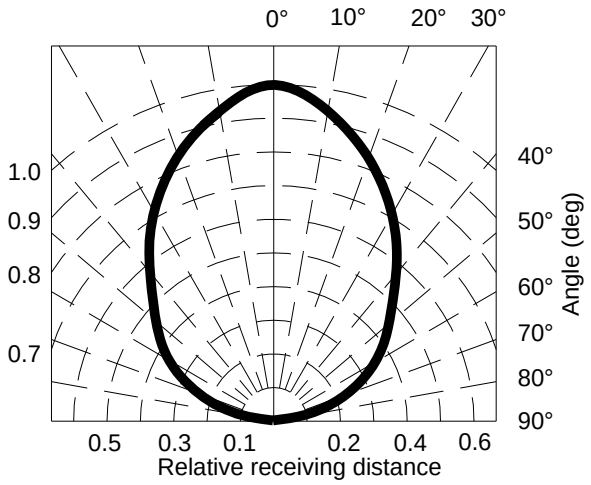



Fig.6 Variation output pulse width vs. Distance

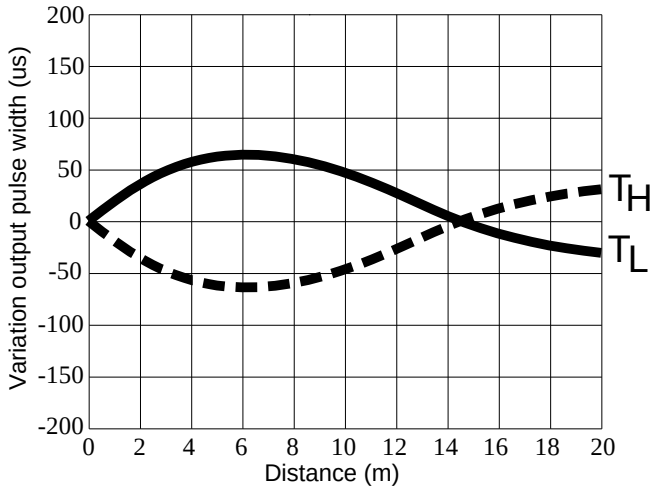
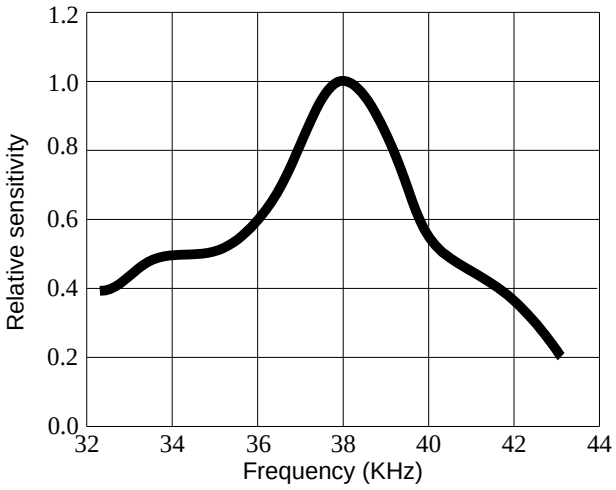



Fig.7 Relative sensitivity VS. Frequency




## SUITABLE DATA FORMAT

| Data Format | Suitable | Data Format | Suitable |
|---|---|---|---|
| NEC | YES | Sony 12Bit | Not Recommended |
| RC5_Philips | YES | Sony 15Bit | Not Recommended |
| RC6_Philips | YES | Sony 20Bit | Not Recommended |
| RCA_Thomson | YES | RECS-80 | YES |
| Toshiba | YES | Mitsubishi | YES |
| RCMM Code | YES | Sharp | YES |
| XMP Code | YES | | |

## Package Dimension

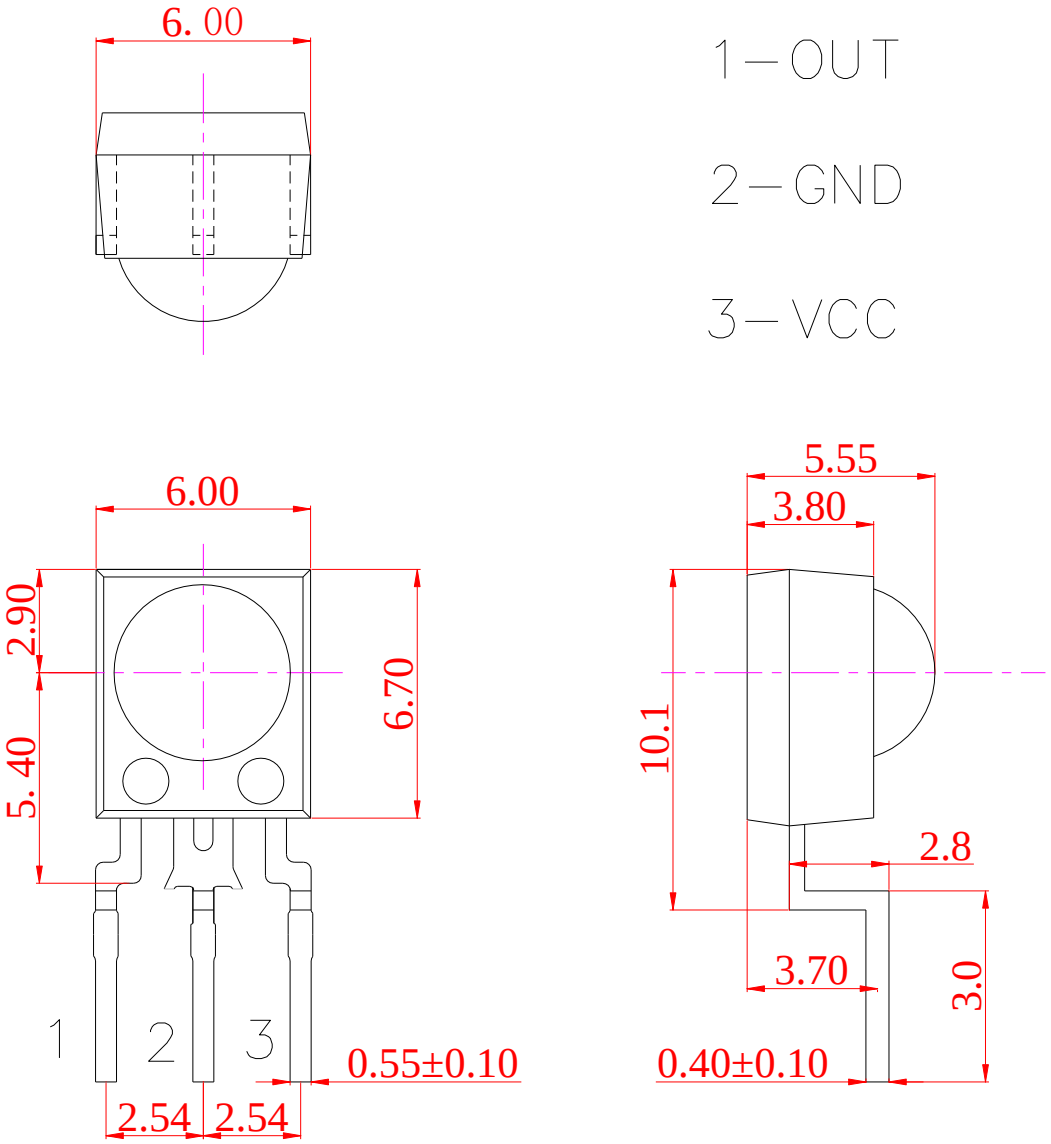
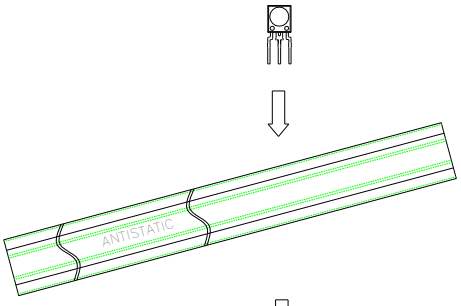



Fig.8

Note:
Tolerance unless mentioned is ±0.5mm, Unit = mm.

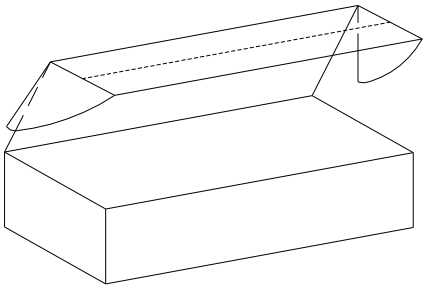
## PACKAGING SPECIFICATION

**IRM Product**

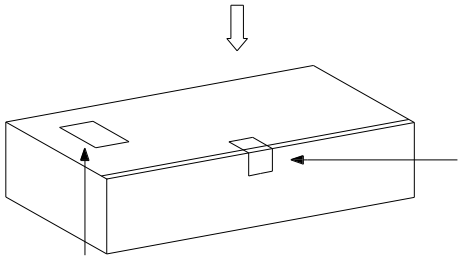



**100pcs/tube**

**64 tubes/inner box**



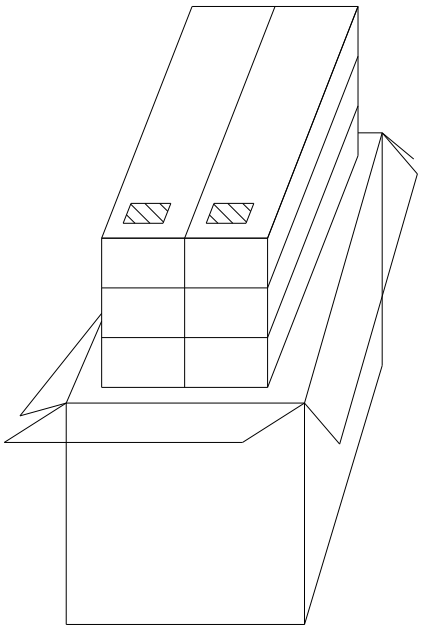
**6400pcs/inner box**



**Full bag label**

**Product label**

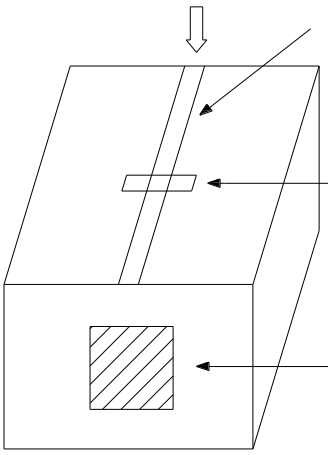
**8 inner boxs/outer box**



**Seal with tape**

**Quality pass label**

**Product label**

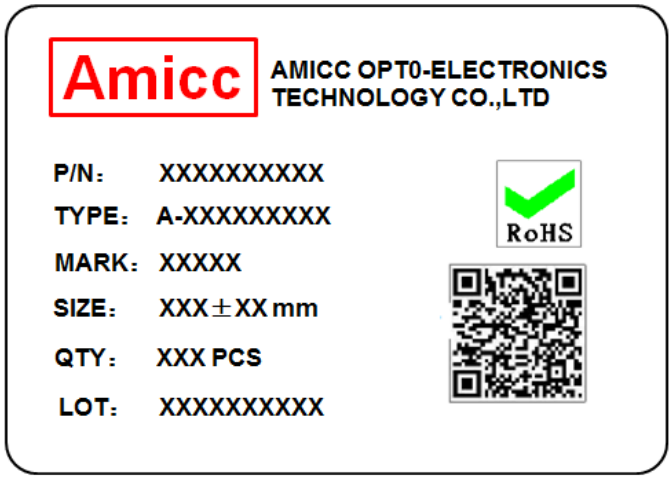


**38400pcs**/outer box

## NOTE:

1. The size of inner box is 655×155×75 mm
2. The size of outer box is 670×320×320 mm

## Label Explanation




◆P/N: Product Number

◆TYPE: Part No.

◆MARK: Production batch Number

◆SIZE: Product Size

◆QTY: Packing Quantity

◆LOT: Lot Number

## Reliability Test Items and Conditions

The reliability of products shall be satisfied with items listed below.
Confidence level：80%
LTPD：20%

| No. | Items | Test Condition | Test Hours/Cycles | Sample Size | Ac/Re |
|---|---|---|---|---|---|
| 1 | Flow Soldering Heat Resistance Test | Preheating: Less than 120℃ and Less than 60s Solder:Tamb=260℃, From the lead bottom surface 1.6mm Flux none. | t=10s,2 Times | 22 PCS. | 0/1 |
| 2 | Hand Soldering Heat Resistance Test | Tamb=350℃, From the lead bottom surface 1.6mm Flux none | t=5s,2 Times | 22 PCS. | 0/1 |
| 3 | High Temperature Bias Operating Life Test | Tamb=85℃、Vcc=5V | 500 Hrs | 22 PCS. | 0/1 |
| 4 | High Temperature Humidity Storage Life Test | Tamb=85℃、RH=85% | 1000 Hrs. | 22 PCS. | 0/1 |
| 5 | High Temperature Storage Life Test | Tamb=85℃ | 1000 Hrs. | 22 PCS. | 0/1 |
| 6 | Low Temperature Storage Life Test | Tamb=-25℃ | 1000 Hrs. | 22 PCS. | 0/1 |
| 7 | Thermal Shock Test | Tamb=-20℃(5min) ～85℃(5min) | 10 Cycles | 22 PCS. | 0/1 |
| 8 | Temperature Cycle Test | Tamb=-20℃(30min)～25℃ (5min)～85℃(30min) | 20 Cycles | 22 PCS. | 0/1 |
| 9 | Drop Test | Drop distance:1 m,Drop the device 3 times on a maple board of 3 cm or more in thickness | 3 Times | 22 PCS. | 0/1 |

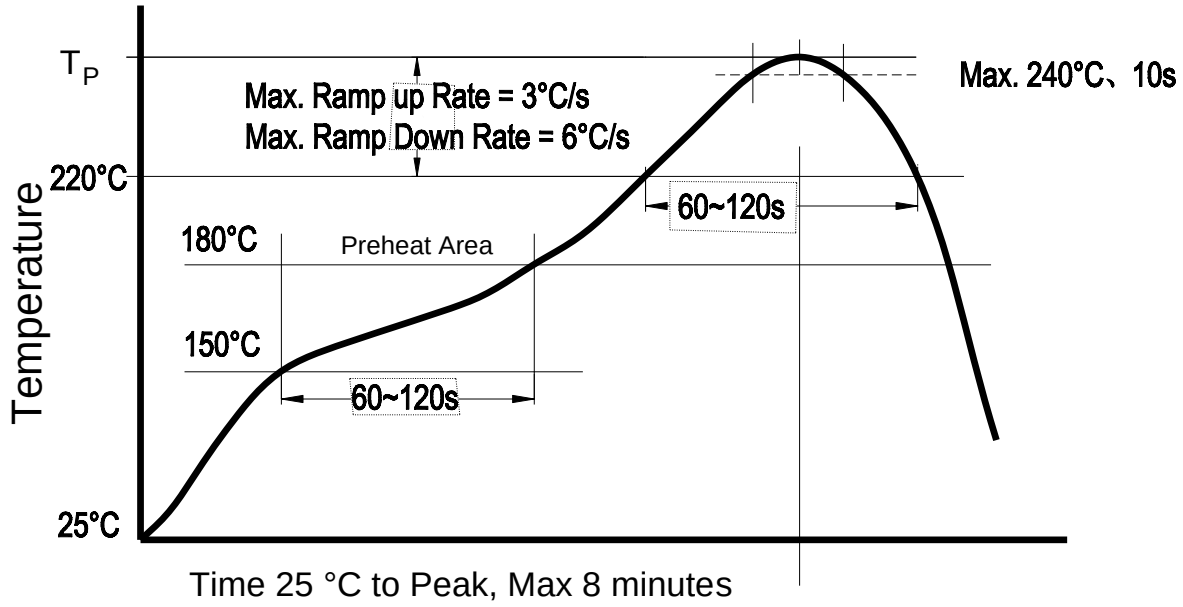
## RECOMMENDED METHOD OF STORAGE

The following are general recommendations for moisture sensitive level (MSL) 3 storage and use:

1. Do not open moisture proof bag before devices are ready to use.
2. Shelf life in sealed bag from the bag seal date: 12 months at 10°C~30°C and < 90% RH.
3. After opening the package, the devices must be stored at 10°C~30°C and < 60%RH, and used within 168 hours (floor life).
4. If the moisture absorbent material (desiccant material) has faded or unopened bag has exceeded the shelf life or devices (out of bag) have exceeded the floor life, baking treatment is required.
5. If baking is required, refer to IPC/JEDEC J-STD-033 for bake procedure or recommend the following conditions: 48 hours at 125°C.

## MOUNTING CONDITION

＊Recommended soldering conditions of reflow (SUGGESTION)




Soldering Times ：1 Times

＊HAND SOLDERING CONDITION (SUGGESTION)

Max. Temperature (surface)：≤350℃

Max. Temperature Duration：≤5s

Soldering Times：2 Times

## DISCLAIMER

1. Above specification may be changed without notice. Amicc will reserve authority on material change for above specification.
2. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
3. When using this product, please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. Amicc assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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