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DATA SHEET

PART NO. : PL-IRM1911002

REV : A / 2

CUSTOMER'S APPROVAL : _____ DCC : _____

● Description

The is miniaturized 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 lead frame.

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.

● Features

Wide Operating Supply Voltage 2.7V - 5.5 V (Min . 2.0V operating)

Low current consumption (Typ. 330uA @ 3V)

Maximum interference safety against VCC noise & light noise

Suitable for minimum burst length of 10 pulses per burst .

Continuous (<1ms pause time) and sony 20bit codes are acceptable .

No external components necessary

Internal filter for a high frequency lighting fluorescent lamp

Output active low

Carrier frequency 37.9khz

● Applications:

1. Optical switch
2. Light detecting protion of remote contol

• AV instruments such as Audio,TV,VCR,CD,MD,DVD,etc.

• Home appliances such as Air-conditioner,Fan,etc.

• CATV set top boxes

• Multi-media Equipment

● Cautions

• store and use where there is no force causing transformation or change in quality

• store and use where there is no extreme humidity

• in order to prevent damage from static electricity make sure that the human body and the Soldering iron are connected to ground before using

• the ripple noise from power supply lines may shorten detecting distance of IT receiver module Thus in order to ensure more reliable operating please add RC filter (R=100 C=47) between Vcc and GND

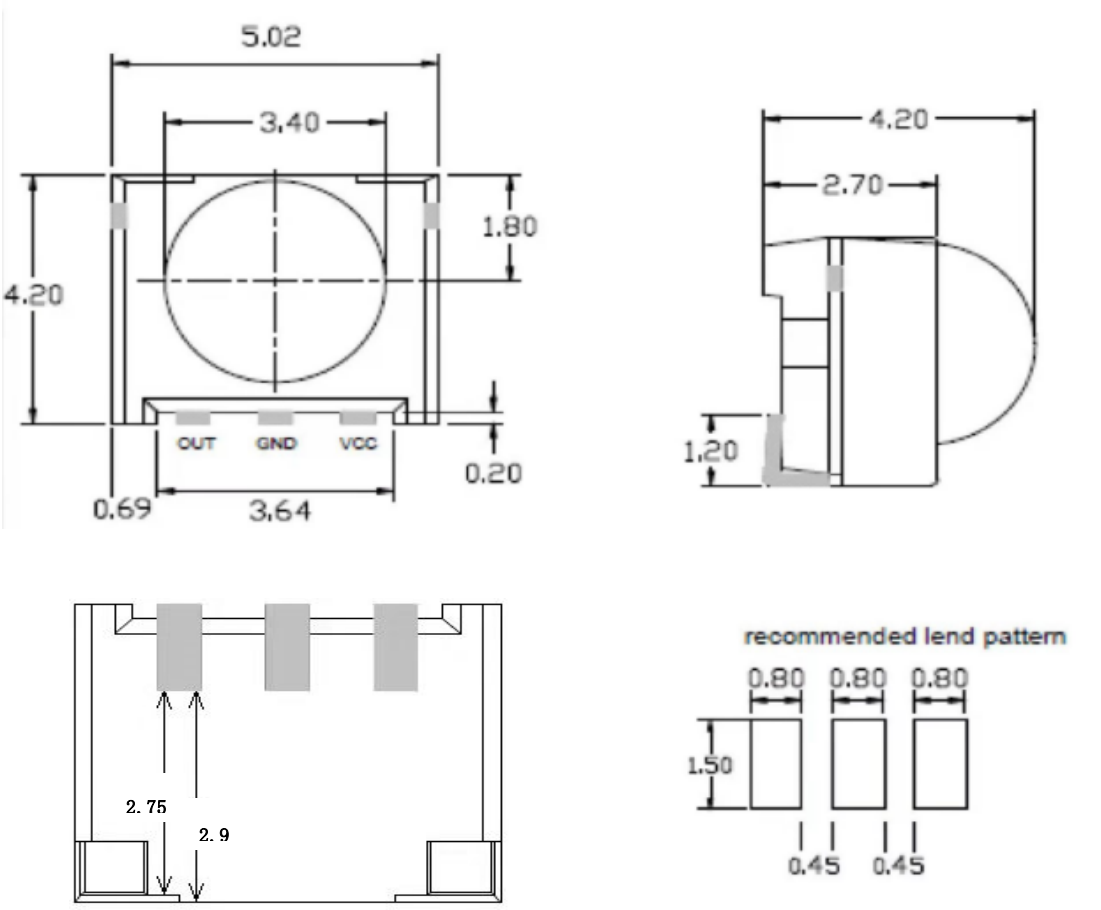
• when a disturbance signal is applied to the series it can still receive the data signal However the sensitivity is reduced to the level that no unexpected pulses will occurSome examples of such disturbance signals which can be suppressed pulses by the series:

A DC light(ex from tungsten lamp or sunlight)

B Continuous signal at center frequency or any other frequency

C Signals from fluorescent lamps with electronic ballast with high or low mosulation

● Package Dimensions:



NOTES:

1.All dimensions are in millimeters (inches).

2.Tolerance is ±0.30mm (0.012'') unless otherwise specified.

3.Specifications are subject to change without notice.

● Absolute Maximum Ratings(Ta=25℃)

Parameter	Symbol	Ratings	Unit	Notice
Supply Voltage	V	0 - 6.0	V	—
Supply Current	I	0~2.5	mA	—
Operating Temperature	To	-20~+80	℃	—
Storage Temperature	Ts	-30~+85	℃	—
Soldering Temperature	Ts	260 t＜5sec	℃	—
Reflow soldering temperature	Ts	260 t＜10sec	℃	—

● Electrical And Optical Characteristics(Ta=25℃

Parameter	Symbol	Ratings			Unit	Condition	
		Min.	Typ.	Max.			
Supply Voltage	Vs	2.7	--	5.5	V		
Supply Current	Icc	0.2	—	0.60	mA	Vcc=5V	No signal input
		0.15	—	0.60		Vcc=3V	
Reception Distance	L_0	18	—	—	m	At the ray axis*1	
	L_{45}	9	—	—			
B.P.F Center Frequency	fo	—	38	—	KHz		
BPF Bandwidth	fbw	-	4.5	-	kHz	Vcc=5vfin=37.9kHz-3DbBand	
		-	4.5	-	kHz	Vcc=3vfin=37.9kHz-3DbBand	
Peak Wavelength	λp	—	940	—	nm		
Half Angle	θ	—	45	—	deg	At the ray axis *1	
High Level Pulse Width	T_H	400	—	800	μS	At the ray axis *2	
Low Level Pulse Width	T_L	400	—	800	μS		
High Level Output Voltage	V_H	4.7	—	—	V	Vcc=5V	
		2.7	—	—		Vcc=3V	
Low Level Output Voltage	V_L	—	—	0.4	V		

*1:The ray receiving surface at a vertex and relation to the ray axis in the range of θ=0° and θ=45°

*2:A range from 30cm to the arrival distance. Average value of 50 pulses

• **Electrical And Optical Curves**(Ta=25℃)

Fig.1 Relative Spectral Sensitivity vs. Wavelength

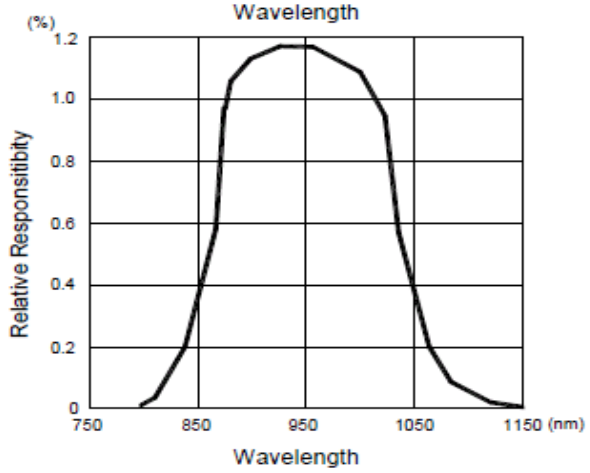


Fig.2 Relative Transmission Distance Vs. Direction

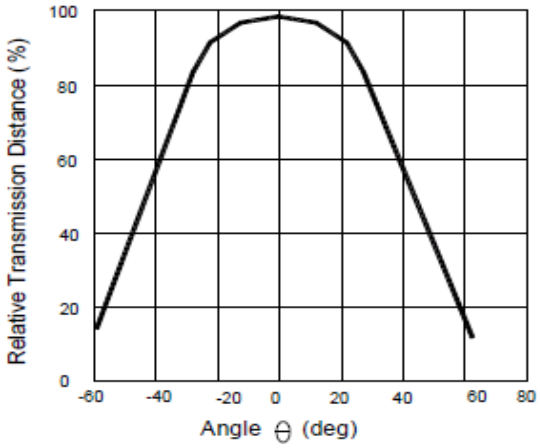


Fig.3 Frequency Dependence of Responsivity

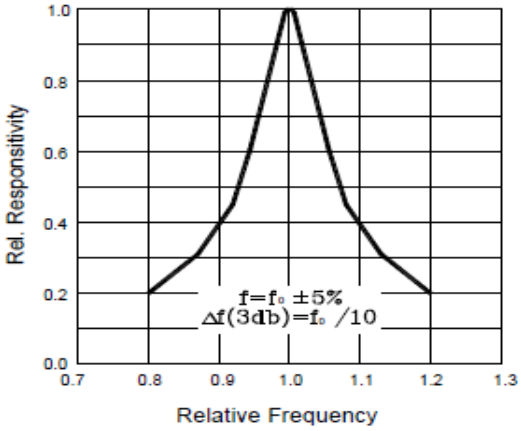


Fig.4 Supply Current vs. Ambient Temperature

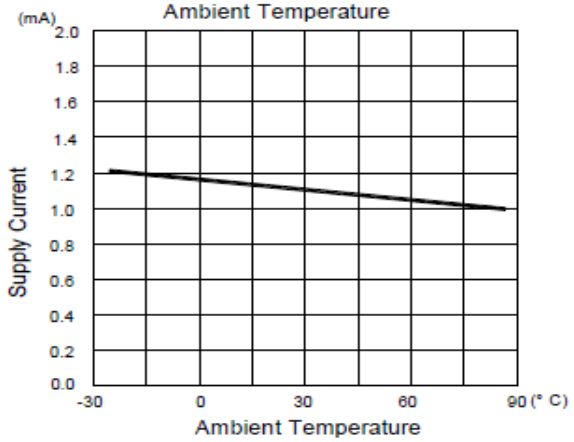
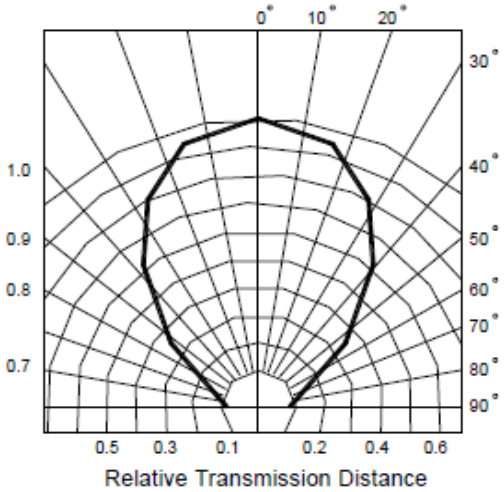


Fig.5 Relative Transmission Distance vs. Direction

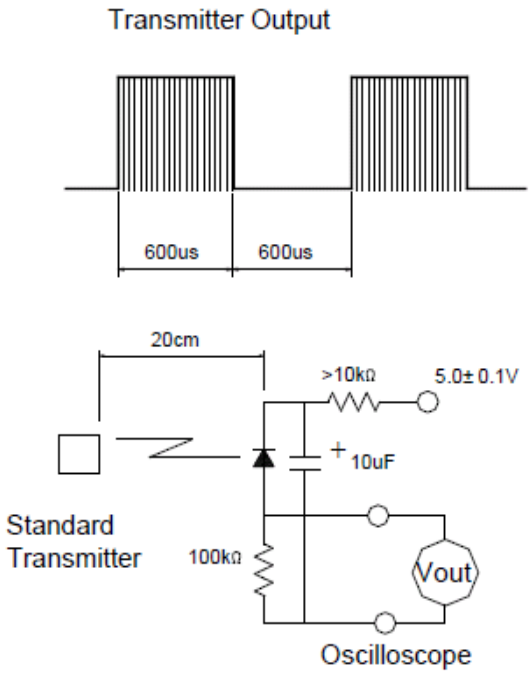


ESD Test Results

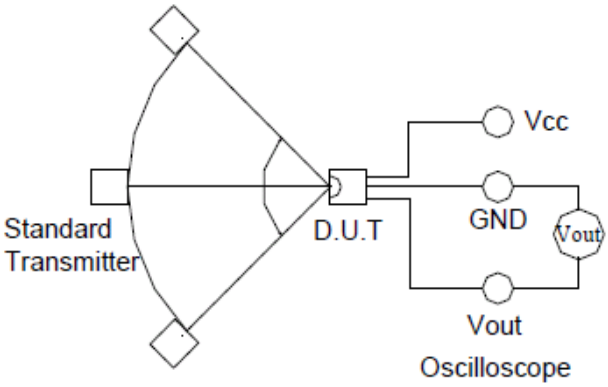
Parameter	Specification	Results
Machine Model	Min ±200V	> ±400V
Human Body Model	Min ±2000V	> ±4000V
Charged Device Model	Min ±400V	> ±600V

• Test Method

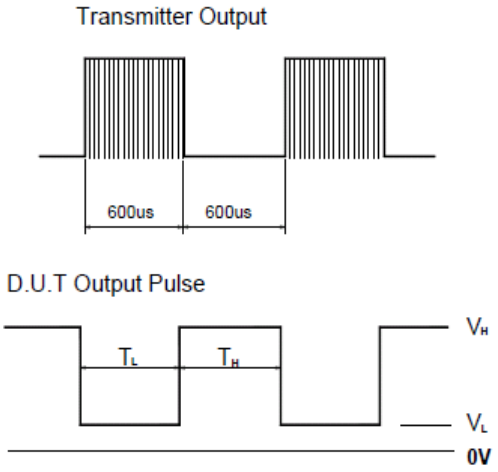
A.Standard Transmitter



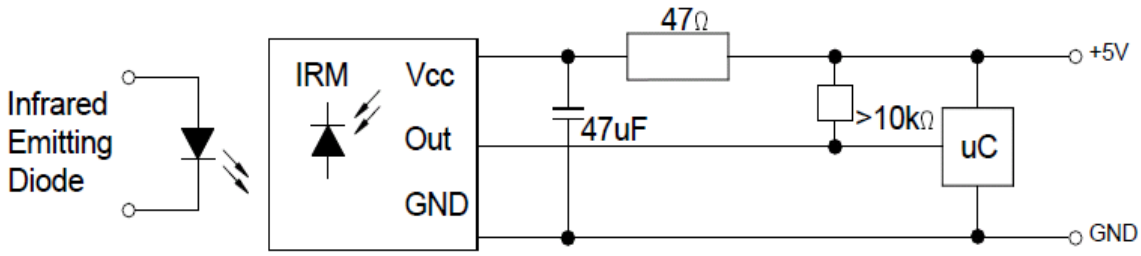
B.Detection Length Test



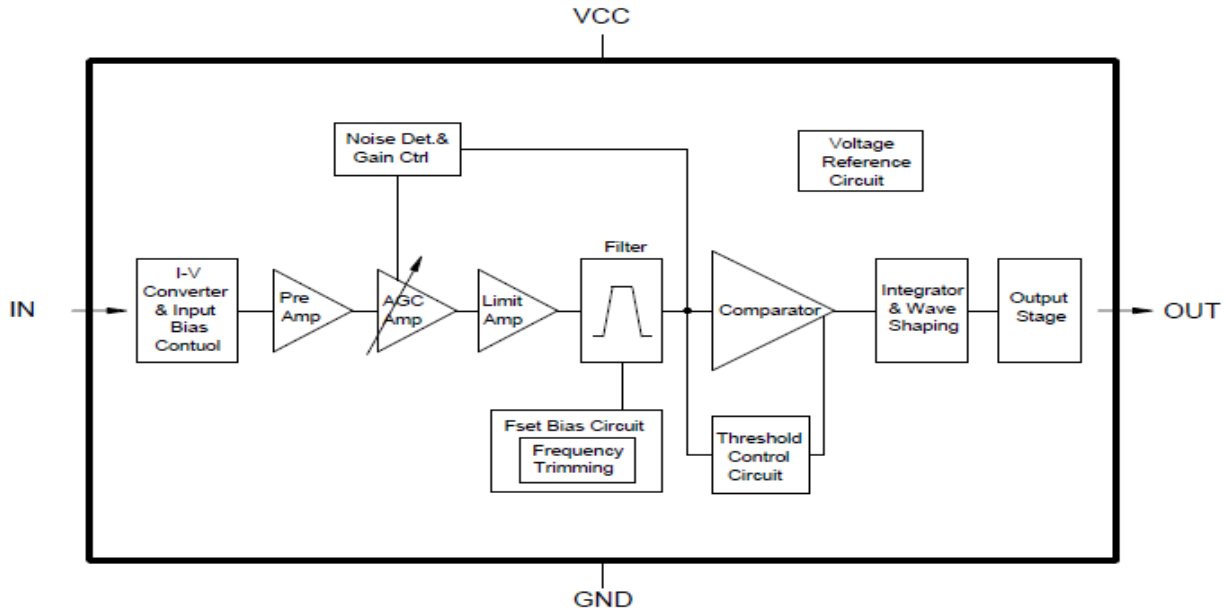
C.Pulse Width Test



● Application Circuit



• Function block diagram



• Suitable Data format

Item	Symbol	Time
Minimum burst length	t_{Burst}	10 pulses
Minimum gap time after each burst	t_{Gap}	14 pulses
Minimum pause time in the data stream	t_{pause_min}	< 1ms

tPause _min Could be changed by different data word format. Therefore, for new application on sets please refer to“Required data pause time(tPause)” on above.

• Reliability Test Items

Parameter	Test conditions	Remark
High Temperature	Ta=+85, VCC=5.0V t=240h	※1, ※2
Low Temperature	Ta=-30, VCC=5.0V t=240h	※1, ※2
High Temp./ High Humidity	Ta=+85℃ 85%RH, VCC=5.0V t=240h	※1, ※2
Heat Cycle	Ta=-20℃(0.5h) to +85℃(0.5h) 20 cycle	※2, ※3
Fall Test	Height=75cm, 3 times	※4

※ 1. Supply voltage of load test is 5V.

※ 2. Electro-optical characteristics shall be satisfied after leaving 2 hours in the normal condition.

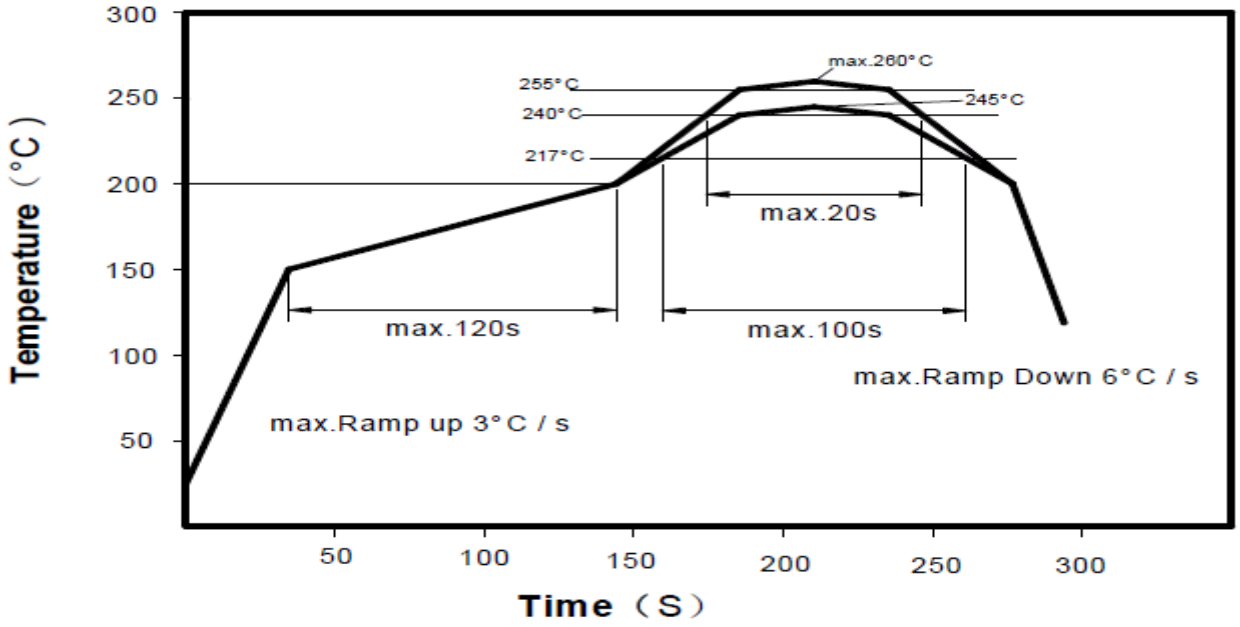
※ 3. Heat cycle test shall repeat above condition 20 times under no load.

※ 4. The test devices shall be dropped three time on the hard wooden board from a height of 75㎝.

• Material Configuration

Parameter	Configuratio	Remark
IC	Silicon(99％	
Photo diode	Silicon(99％	
Epoxy resin	Resin(55.5％), Hardener(45.5％)	
Silver epoxy	Silver(80％), Resin(10％), Hardener(10％)	
Bond wire	Gold(99.99％	

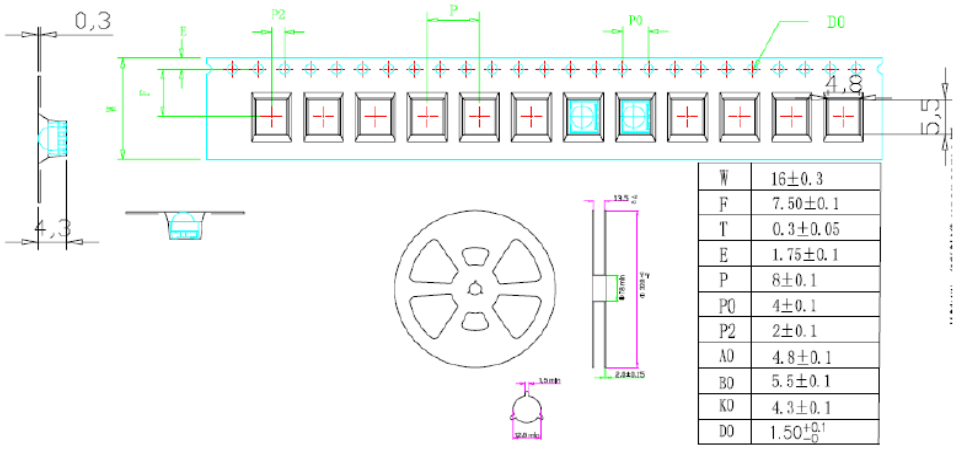
• Lead(Pb)-Free Reflow Solder Profile



• Manual soldering

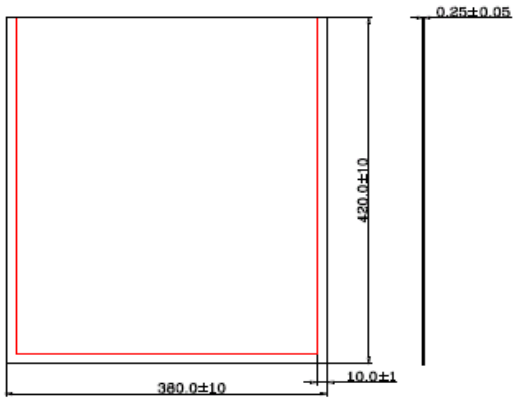
Use a soldering iron of 25W or less. Adjust the temperature of the soldering iron below 260℃.

• Taping and reel dimensions in millimeters

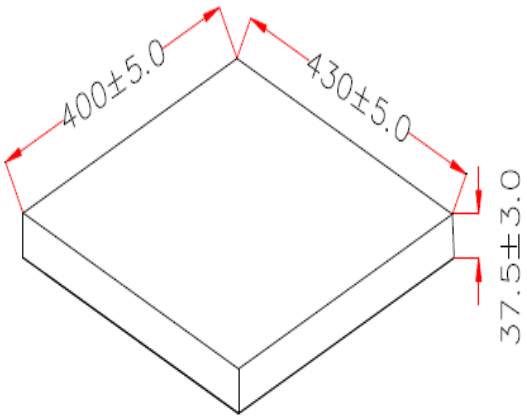


W	16±0.3
F	7.50±0.1
T	0.3±0.05
E	1.75±0.1
P	8±0.1
P0	4±0.1
P2	2±0.1
A0	4.8±0.1
B0	5.5±0.1
K0	4.3±0.1
D0	$1.50^{+0.1}_{-0}$

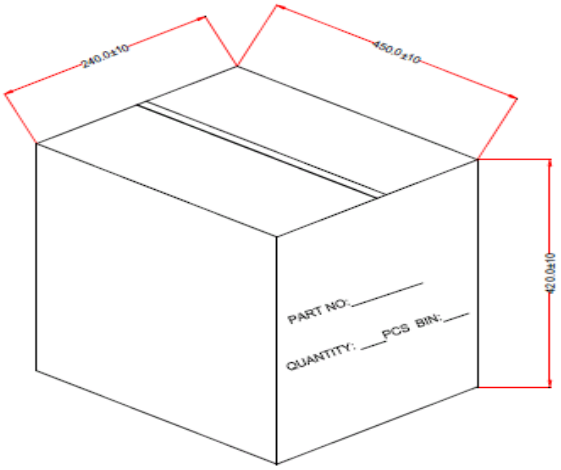
• **Packaging Bag Dimensions**



•**Packaging Box Dimensions**



•**Packaging outer Box Dimensions**



NOTES:

1. 2000 PCS per reel, 2 reels per box，6 box per Carton.
2. All dimensions are in millimeters (inches).
3. Tolerance is ±0.30mm (0.012) unless otherwise specified.
4. Specifications are subject to change without notice.

●acceptable code list

data	code acceptable
N	O
RC5	O
RC6_	O
RCA_Th	O
T	O
S	O
Sony	O
Sony	O
Sony	O
Mat	O
Mit	O
Z	O
J	O
Continuo	O
High Data Rate code	X

●Use matters needing attention

●store and use where there is no force causing transformation or change in quality

●store and use where there is no extreme humidity

●in order to prevent damage from static electricity make sure that the human body and the Soldering iron are connected to ground before using

●Please from the bottom of the resin for welding for more than 2 mm

●Dip soldering: please below 260 degrees, 5 seconds to complete welding

●Soldering iron: please below 350 degrees, 3 seconds to complete welding

●Please avoid correct position after welding

●When welding in the lead frame please don't put pressure on the heated condition

●When the circuit board is installed, the mounting hole distance is consistent With the lead frame