

規格承認書

客戶名稱：

客戶料号：

永旭料号：

KGK-ARM-NS7538HZ-S1

送樣日期：

ALL-BRITE簽程：

工程：

龚朝阳

品管：

日期：

2023/3/17

客戶確認簽程：

工程：

品管：

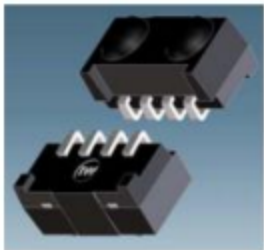
日期：

Description

The KGK-ARM-NS7538HZ-S1 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 leadframe.
 The epoxy package contains a special IR filter.
 This module has excellent performance even in disturbed ambient light applications and provides

Features

1. Anti interference WIFI(2.4G&5.0G)
2. Photo detector and preamplifier in one package
3. Internal filter for PCM frequency
4. High immunity against ambient light
5. Improved shielding against electric field disturbance
6. 2.7-Volt supply voltage; low power consumption
7. TTL and CMOS compatibility



Applications

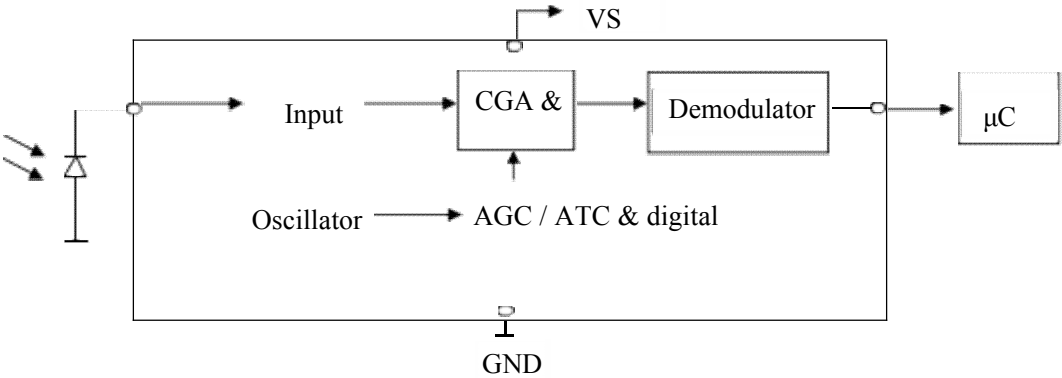
It can be used for TVs、VTRs、audio equipment
 air conditioners、car stereo radio、toys、home
 computers and all other equipment requiring remote control.

Code information

Protocol	Suitable	Protocol	Suitable
NEC	Yes	Sony 15 Bit	No
RC5	Yes	Sony 20 Bit	No
RC6	No	Toshiba	Yes
JVC	No	RCA	No
Matsushita	No	Sharp	Yes
Misubishi	No	Sony 12 Bit	Yes
R-STEP	No	Zenith	No
RCS-80	No	Continuous Code	No

Item	Symbol	Limitation
Minimum burst length	Tburst_min	300uS
Minimum gap time after each burst	Tgap_min	350uS
Minimum data pause time*	Tpause_min	30mS

BLOCK DIAGRAM



Absolute Maximum Ratings

@ Ta=25°C

Item	Symbol	Ratings	Unit	Remark
Supply voltage	V _{cc}	2.7 ~ 5.5	V	
Supply Current / Output Current	I _{out}	2.5	mA	
Operating temperature	T _{opr}	-20 ~ + 80	°C	
Storage temperature	T _{stg}	-25 ~ + 85	°C	
Reflow Soldering Temperature (Pb Free)	T _{sd}	260	°C	Maximum 10 seconds
Moisture Sensitivity Levels	Level 4 (≤30°C / 60% RH 72hours)			

Electro-optical characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remarks
Supply Voltage	V _{cc}	2.7	-	5.5	V	
Current consumption	I _{cc}	-	0.43	0.60	mA	Under no signal
Response wavelength*3	λ _p	-	940	-	nm	
B.P.F Center Frequency	f _o	-	37.9	-	KHz	
Output form	- - - - - active low output - - - - -					
H level output voltage *3	V _{oh}	V _{cc} -0.4	-	-	V	
L level output voltage*3	V _{ol}	-	0.2	0.4	V	
H level output pulse width*3	T _{wh}	400	-	800	μs	Burst Wave = 600μs Period = 1.2ms
L level output pulse width*3	T _{wl}	400	-	800	μs	
Distance between emitter & detector	L ₁ (θ=0°)	-	32	-	m	200LUX IF=400mA Note 1)、2)
	L ₂ (θ=30.°)	-	25	-	m	

Note : *3. It specifies the maximum distance between emitter and detector that the output waveform satisfies the standard(A,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(A) of standard transmitter shall be arranged to 1.6Vp-p under the measuring circuit specified in drawing(A,3)

ESD Test Results

Parameter	Conditions	Specification	Results
Machine Model	C=200pF, R=0Ω	Min ±200V	>±200V
Human Body Model	C=100pF, R=1.5kΩ	Min ±2000 V	>±2000V
Charged Device Model	R=100MΩ, 1 Ω	Min ±400V	>±400V

Test Method

A. Standard Transmitter

ON/OFF pulse width satisfied from 25 cm to detection limit

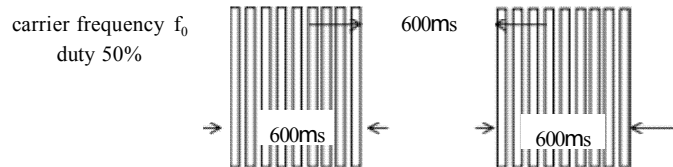


Fig 1. Burst Wave

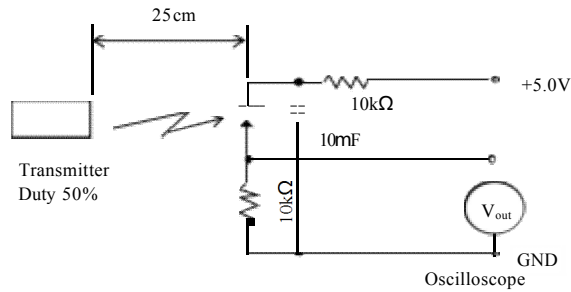
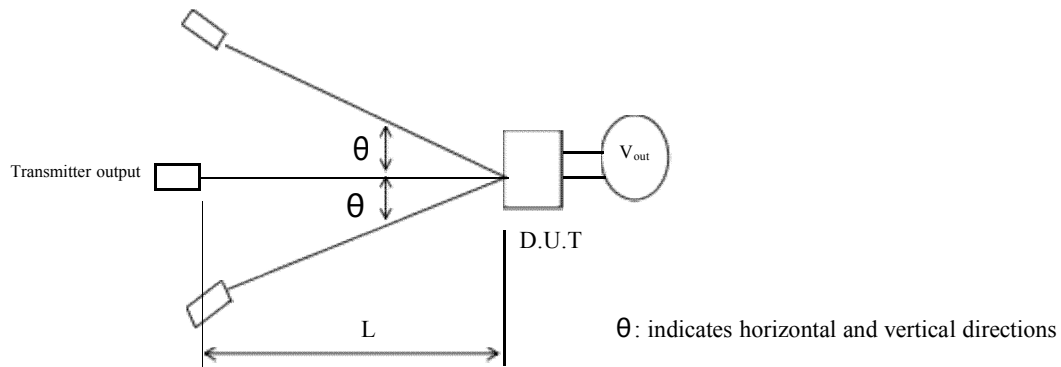
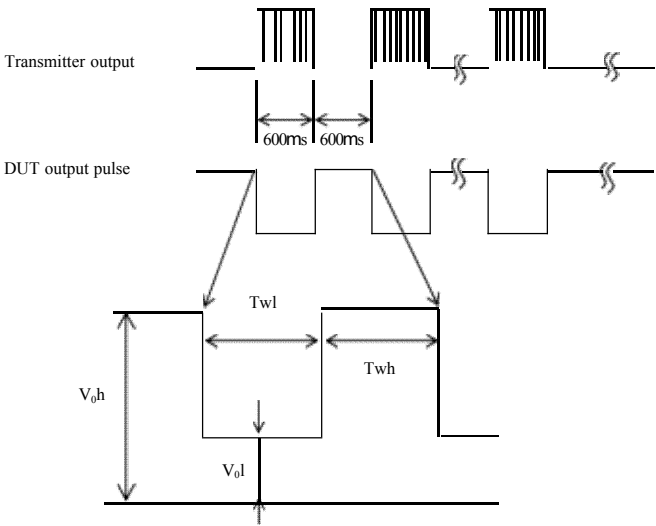


Fig 2. Standard Transmitter Measurement circuit

B. Detection Length Test

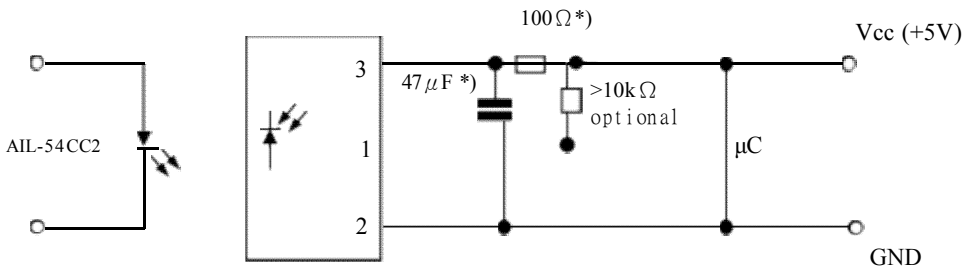


C . Pulse Width Test



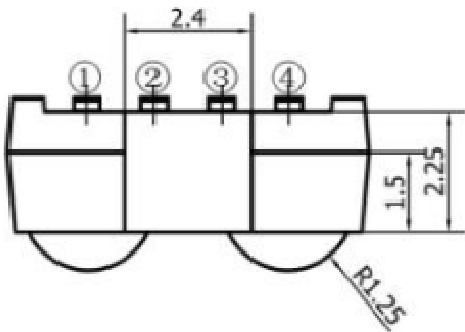
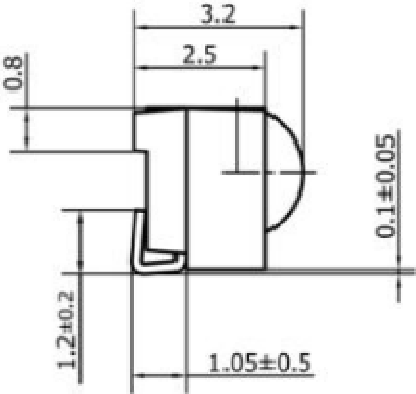
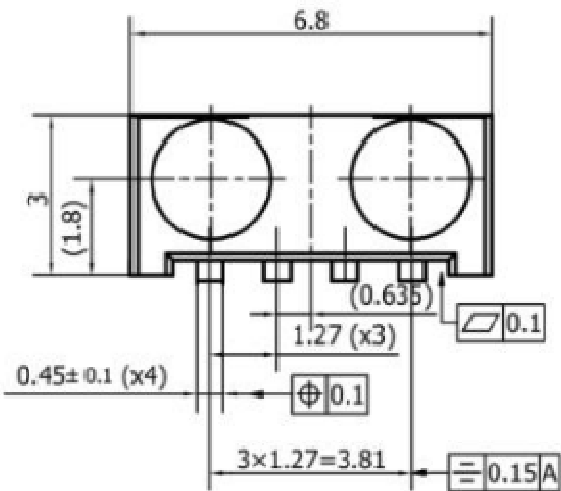
Application Circuit

ARM-NS7538HZ-S1

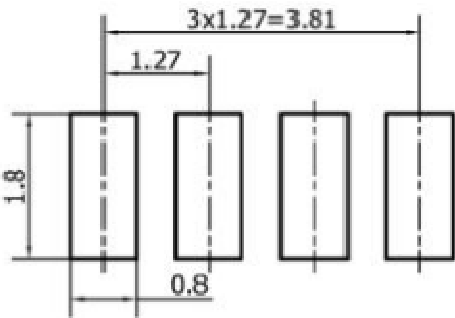


*) recommended to suppress power supply disturbances

Dimensions in mm



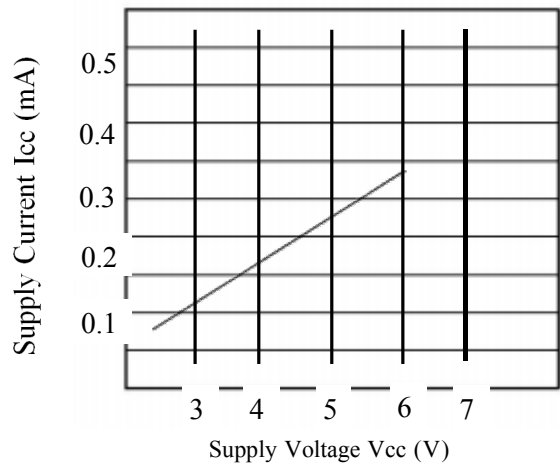
P.C.B. Layout



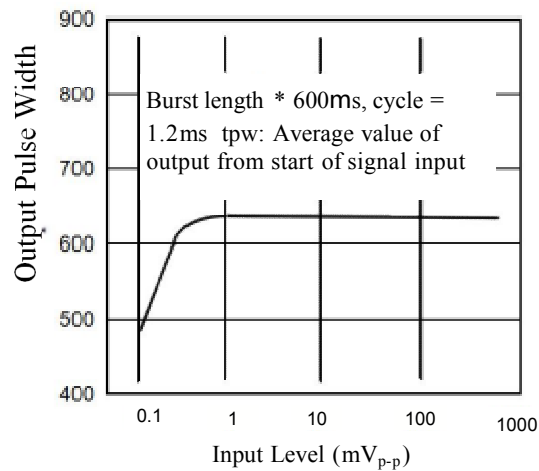
- Note
- Unit mm
 - Unspecified tolerance : ± 0.3mm
 - Reference dimension : ()
 - Electrode base material : Cu
 - Electrode terminal finish : Sn plating
 - Mold resin : optical filter Epoxy
 - Pin configuration

① GND
 ② VCC
 ③ OUT
 ④ GND

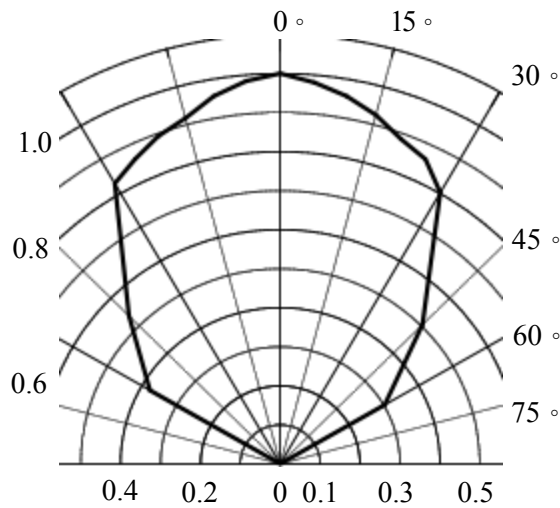
CHARACTERISTIC CURVES (T_A=25°C)



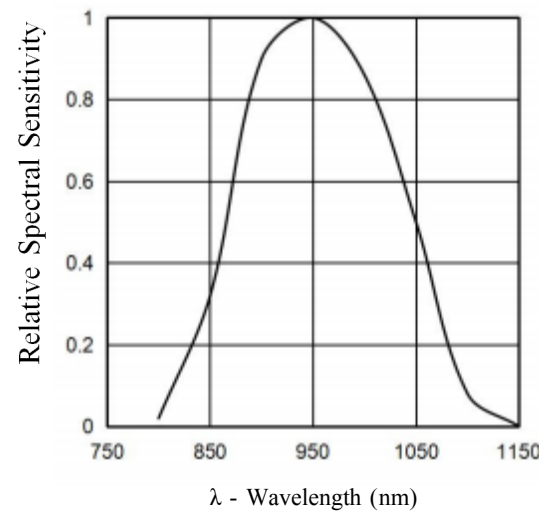
SUPPLY VOLTAGE vs. SUPPLY



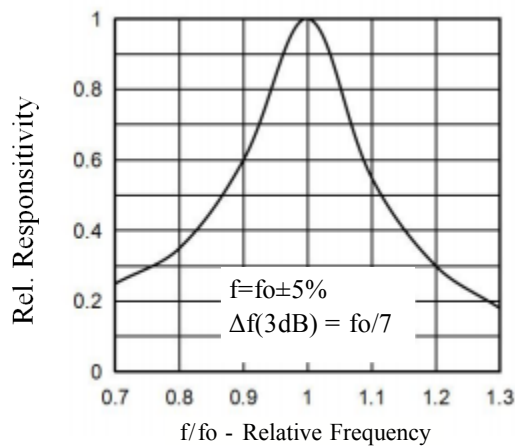
INPUT LEVEL vs.OUTPUT PULSE WIDTH



RELATIVE TRANISSION



RELATIVE SPECTRAL SENSITIVITY vs



FREQUENCY DEPENDENCE OF

Reliability

Parameter	Rating
High Temperature *1	Ta= + 80°C, Vcc=5V t=240H
High Temperature / High Humidity *1	Ta= + 85°C, 85%RH, Vcc=5V t=240H
Low Temperature *1	Ta= - 30°C, Vcc=5V t=240H
Heat Cycle *1	-25°C(0.5H) ~ + 85°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. Distance between emitter & detector specifies maximum distance that output wave form satisfies the standard 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 200±50Lux under ordinary hite fluorescence lamp of no high frequency lighting.
- 3)Standard transmitter: burst wave indicated in Fig1.of standard transmitter shall be arranged to 50mVp-p under the measuring circuit specified in Fig2.

NOTE 2. (electro-optical characteristics) shall be satisfied after leaving 1 hours in the normal temperature .

NOTE 3. (electro-optical characteristics) shall be satisfied and 90% or more of the solder area is covered with solder.

Inspection standard

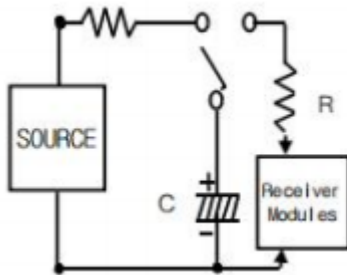
1.Among electrical characteristics , total number shall be inspected on items blow.

- 1-1 front distance between emitter & detector
- 1-2 Current consumption
- 1-3 H level output voltage
- 1-4 L level output voltage

2.Items except above mentioned are not inspected particularly , but shall fully satisfy

CAUTION (When use and storage of this device)

1. Store and use where there is no force causing transformation or change in quality
2. Reflow maximum temperatuer is 260+0/-5 °C within max 10seconds within 72 hours From 30 °C/60% humidity
3. From 30 °C/60% humidity there is not the reflowing problem within 72 hours, but when the temperature condition is higher or 24 hours lapse after opening, product guideline is encouraged to dry from 60°C+5°C, ≤5% RH during 96 hours which are a temperatre where has not become the damage of reel packing.
4. Do not wash this device. Wipe the stains of diode side with a soft cloth.
5. The shield case shall be grounded on the PCB pattern. There are two cases, one is that shield case If the receiver modules of shield case is not becoming ground connection, there is a possibility of being weak in the EMI(Electronic Microwave Interperence) condition.
6. Solder pad within the condition of ratings. after soldering do not add extrorse force.
7. Put decoupling device between Vcc and GND for reduce the noise from power supply line. recommand Vcc-GND 47μF and Vcc- 100Ω. Decoupling device should be near receiver modules.
8. The decrease in distance, the output noise, the malfunction, etc. might occur because of a surrounding electromagnetic environment.
9. 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. This device has to control of static electricity
guarantees a R123V-10E up to M.M 200V , HBM 2KV

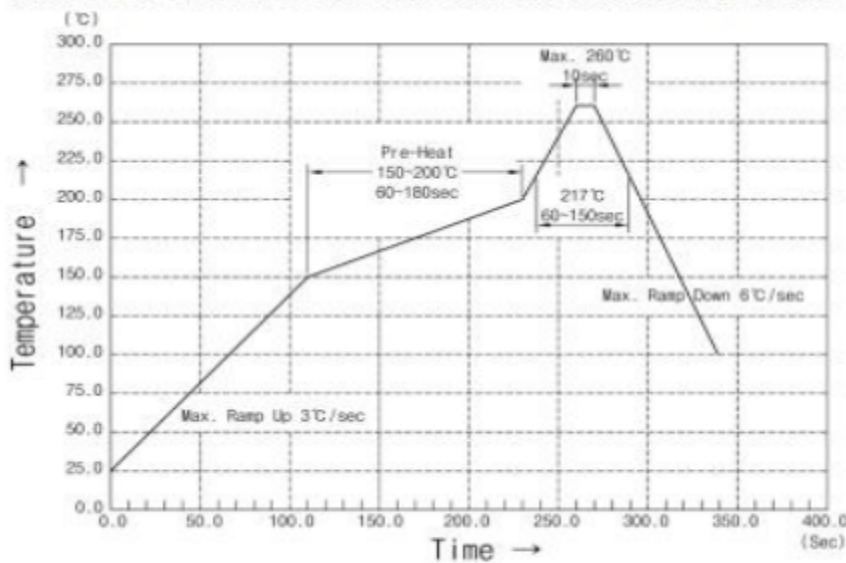


M.M = MACHINE MODEL(Resistance: 0K Ω Capacitor: 200pF)
HBM = HUMAN BODY MODEL(Resistance: 1.5k Ω Capacitor: 100pF)

Reflow

1. Regarding preheat and main heating, please set the temperature according to the reflow temperature profile as below.
2. Even it is within the temperature profile condition as below, the disconnection of wire in the package might be caused by the stress join the package due to the PCB's curving and bending.

Please take care about the condition of reflow machine when use.



Recommended lead free reflow soldering temperature profile.

3. Please do not pile something on the product at reflow soldering because the transformation of the package resin may caused.
4. When you do the reflow soldering twice, please process second reflow soldering within 8 hours after finish the first soldering
5. Handling after reflow should be done only after the work surface has been cooled off.

Manual Soldering

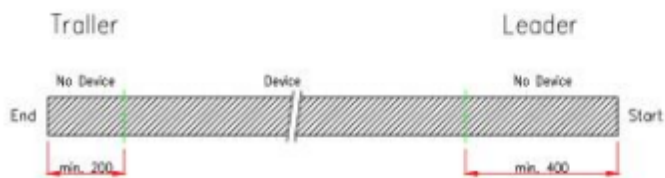
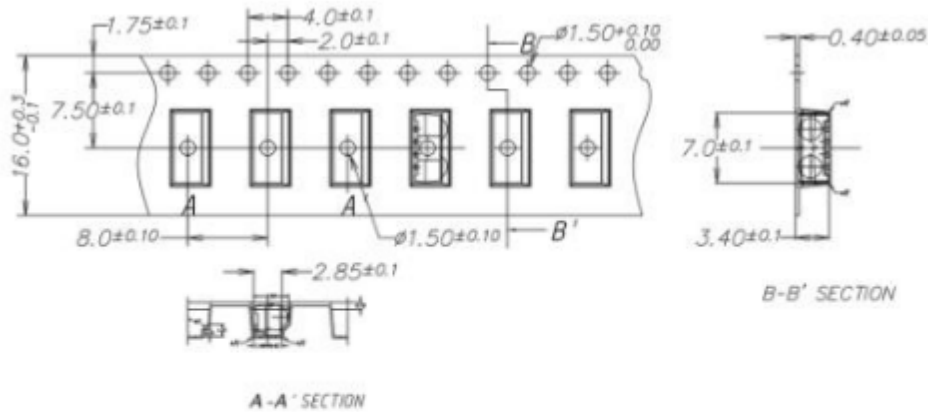
1. Use a soldering iron of 25W or less. Adjust the temperature of the soldering iron below 260°C .

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 agress to make full discussion covering the said problem .

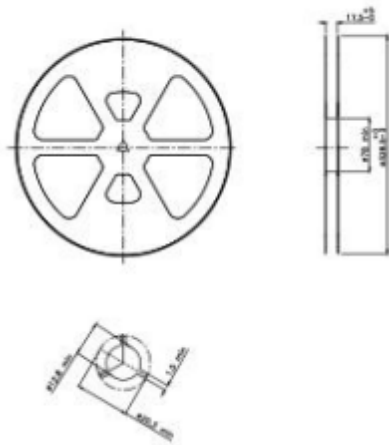
TAPING

Taping specification ▪ dimensions ▪ product unsertion

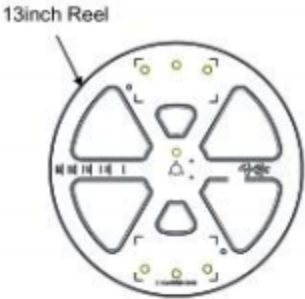


Reel specification ▪ dimensions

Material : PS Conductivity The minimum packing quantity : 2,400pcs/reel



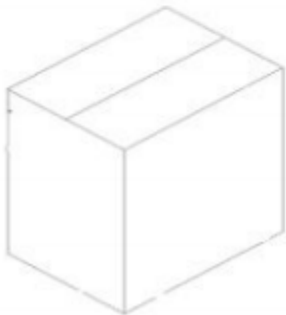
PACKING



卷盘:2400PCS/卷盘



铝箔袋:1卷盘（2400PCS）/包



外箱:14包（33600PCS）/箱