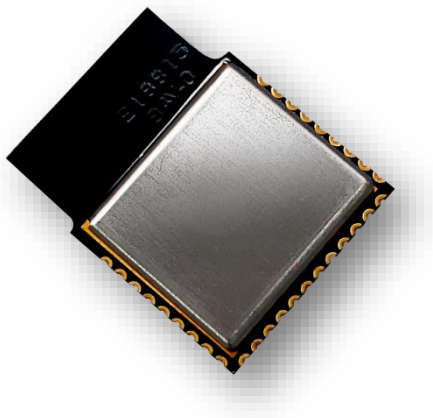
REYAX
TECHNOLOGY CORPORATION, LTD

5-SEP-2024 56312E36

RYB2340

2.4GHz Bluetooth Low Energy Module with Integrated Antenna

Datasheet



PRODUCT DESCRIPTION

The RYB2340 is a Bluetooth Low Energy Module with Integrated Antenna. It is specially designed for smartphone peripheral applications. By using the AT command and Android/iOS APP source codes which are developed by REYAX, your products could be fast and easily connected with the smartphones.

FEATURES

- Bluetooth v5.3 with Bluetooth Low Energy (Bluetooth Smart).
- High-Performance and Low-Power TI CC2340R5 industry-standard chip.
- Designed with PCB integrated antenna, Suitable for SMT.
- Metal cover against EMI interference.
- GATT profile module, designed for transparent mode.
- Support Master and Slave role.

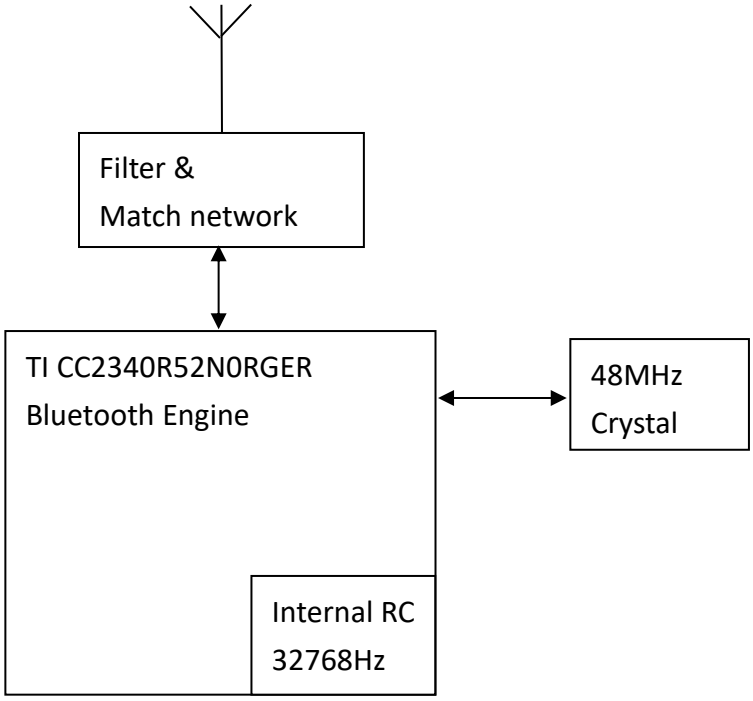
APPLICATIONS

- Smart phone/Tablet accessories.
- Remote monitoring and control.
- Peer to peer communication.

SOFTWARE

- Standard Generic Attribute Profile (GATT)
- Android APP source code support
- Apple iOS APP source code support
- Open TI SOC.

BLOCK DIAGRAM

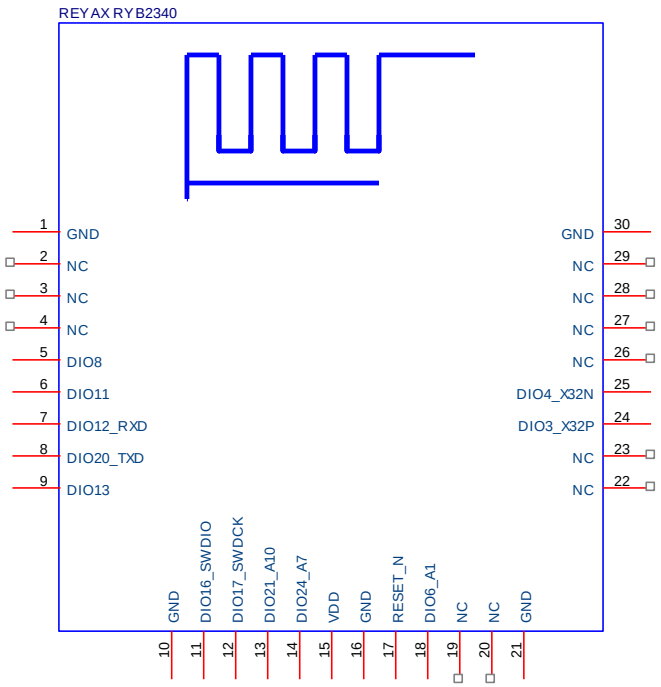


SPECIFICATION

Item	Min.	Typical	Max.	Unit	Condition
Operation Voltage	2.2	3.3	3.8	V	VDD
RF Output Power			8	dBm	
Radio transmit current		10.7		mA	+8 dBm output power setting 2440 MHz system bus off.
RF Sensitivity		-96.5 -102		dBm	1Mbps 125Kbps
Radio receive current		5.3		mA	2440 MHz, 1 Mbps, GFSK, system bus off.
RF Frequency Range	2360		2510	MHz	
Flash erase cycles		30		K	Cycles
Operating Temperature	-40	25	+85	˚C	
Antenna					Embedded PCB Antenna
Dimensions					16.7mm*13mm*2.2mm Please refer to the 3D model.
Weight		0.8		g	

***For more detail, please refer to the TI CC2340R5 Product Information.**

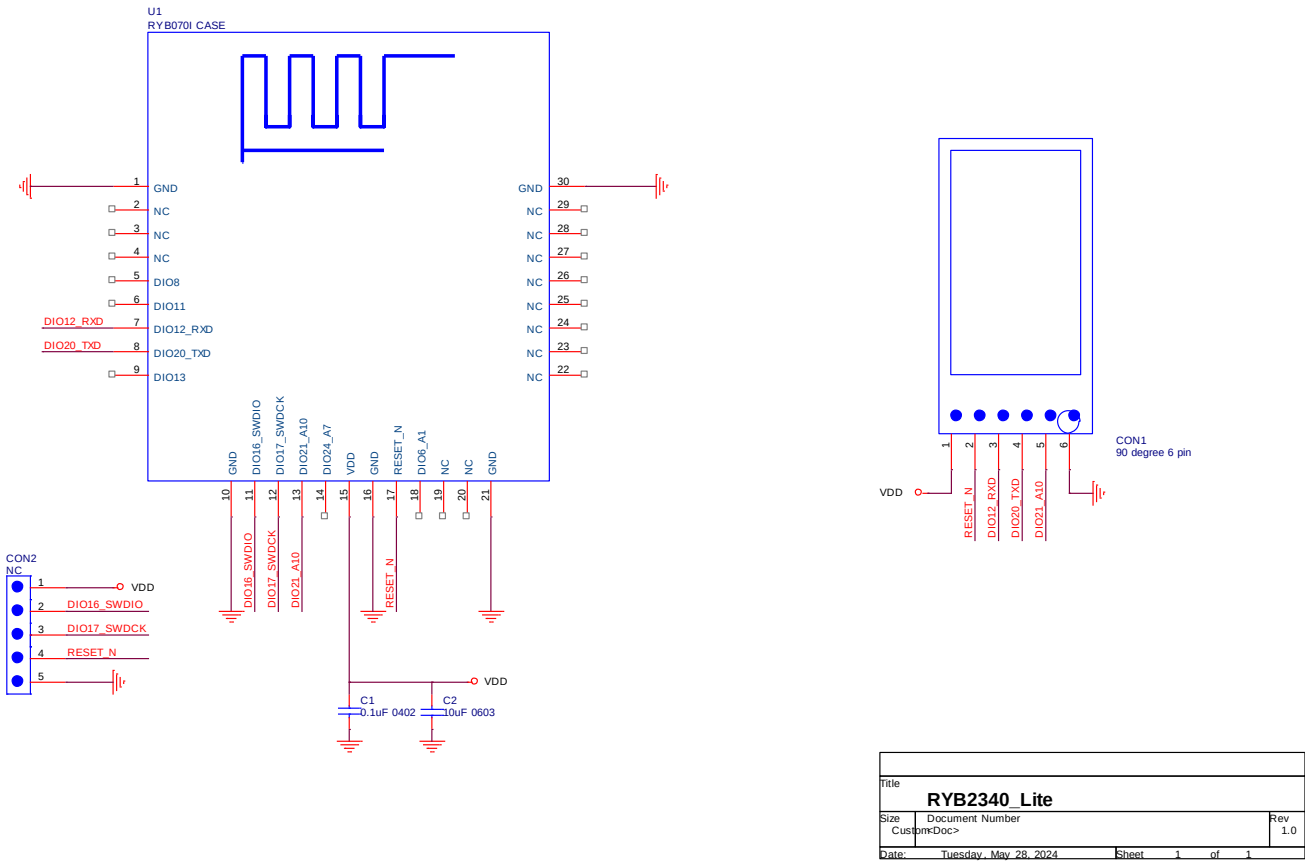
PIN DESCRIPTION



Pin	Name	I/O	Condition
1	GND	-	Ground
2	NC	-	Leave Unconnected.
3	VDD	I	Power Supply
4	RESET_N	I	Low Reset
5	DIO8	I/O	GPIO
6	DIO11	I/O	GPIO
7	DIO12_RXD	I	UART Data Input
8	DIO20_TXD	O	UART Data Output
9	DIO13	I/O	GPIO
10	GND	-	Ground
11	DIO16_SWDIO	I/O	GPIO
12	DIO17_SWDCK	I/O	GPIO
13	DIO21_A10	I/O	GPIO
14	DIO24_A7	I/O	GPIO
15	VDD	I	Power Supply
16	GND	-	Ground
17	RESET_N	I	Low Reset
18	DIO6_A1	I/O	GPIO

19	NC	-	Leave Unconnected.
20	NC	-	Leave Unconnected.
21	GND	-	Ground
22	NC	-	Leave Unconnected.
23	NC	-	Leave Unconnected.
24	DIO3_X32P	I/O	GPIO
25	DIO4_X32N	I/O	GPIO
26	NC	-	Leave Unconnected.
27	NC	-	Leave Unconnected.
28	NC	-	Leave Unconnected.
29	NC	-	Leave Unconnected.
30	GND	-	Ground

APPLICATION SCHEMATIC



REFLOW SOLDERING

Consider the "IPC-7530 Guidelines for temperature profiling for mass soldering (reflow and wave) processes, published 2001. **Only single reflow soldering processes are recommended for REYAX modules. Repeated reflow soldering processes and soldering the module upside down are not recommended.**

Preheat phase

Initial heating of component leads and balls. Residual humidity will be dried out. Please note that this preheat phase will not replace prior baking procedures.

- Temperature rise rate: max. 3 °C/s If the temperature rise is too rapid in the preheat phase it may cause excessive slumping.
- Time: 60 - 120 s If the preheat is insufficient, rather large solder balls tend to be generated.
  Conversely, if performed excessively, fine balls and large balls will be generated in clusters.
- End Temperature: 150 - 200 °C If the temperature is too low, non-melting tends to be caused in
  areas containing large heat capacity.

Heating/ Reflow phase

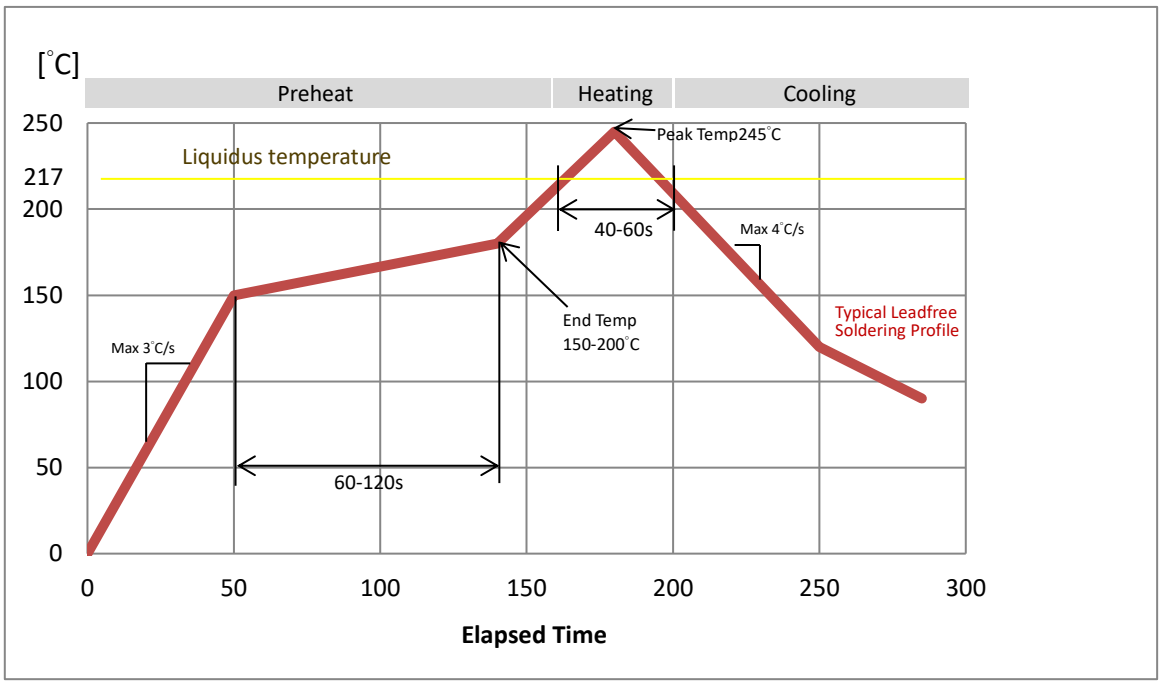
The temperature rises above the liquidus temperature of 217°C. Avoid a sudden rise in temperature as the slump of the paste could become worse.

- Limit time above 217 °C liquidus temperature: 40 - 60 s
- Peak reflow temperature: 245 °C

Cooling phase

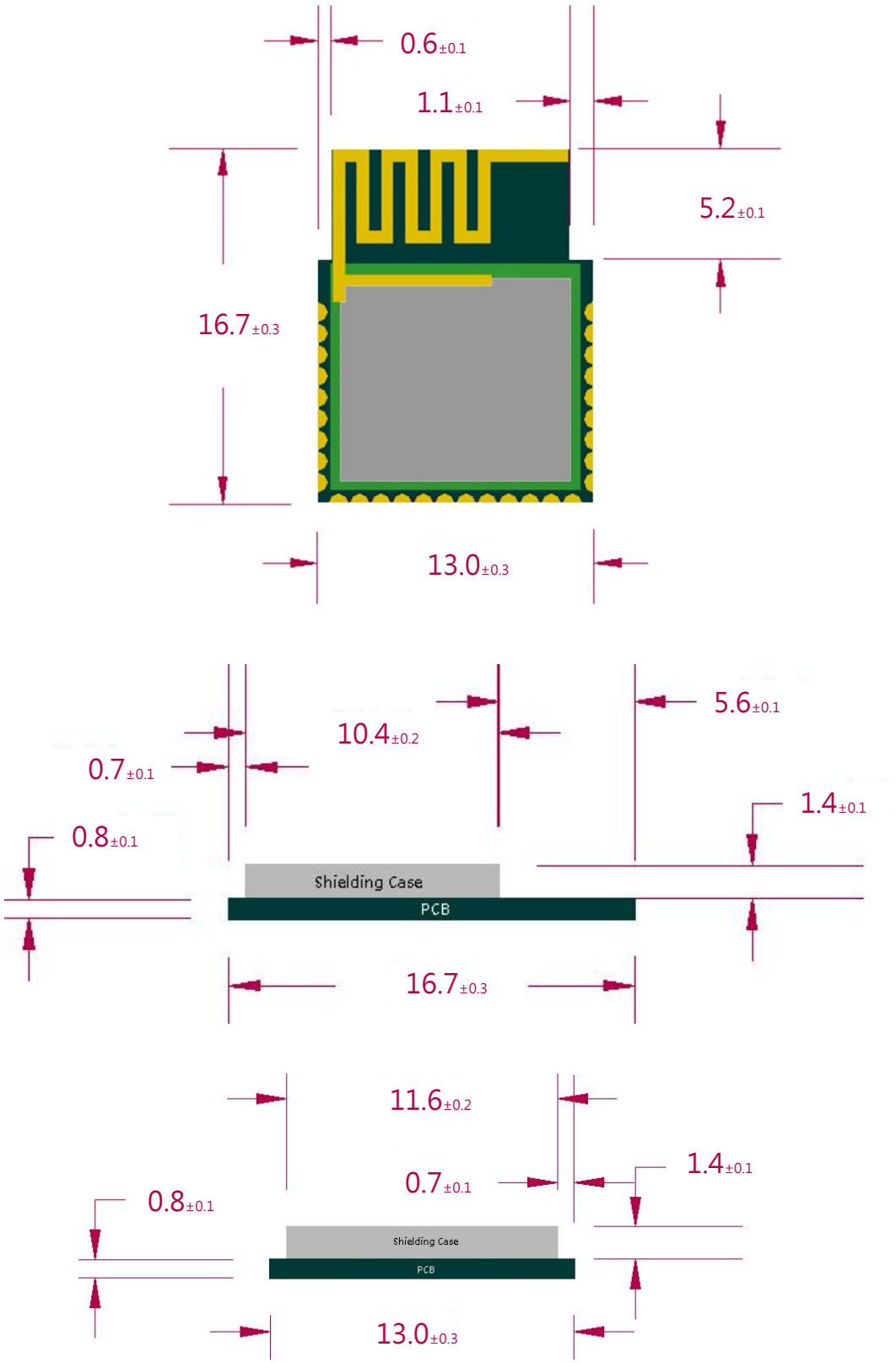
A controlled cooling avoids negative metallurgical effects (solder becomes more brittle) of the solder and possible mechanical tensions in the products. Controlled cooling helps to achieve bright solder fillets with a good shape and low contact angle.

- Temperature fall rate: max 4 °C/s To avoid falling off, the REYAX module should be placed on the topside of the motherboard during soldering.



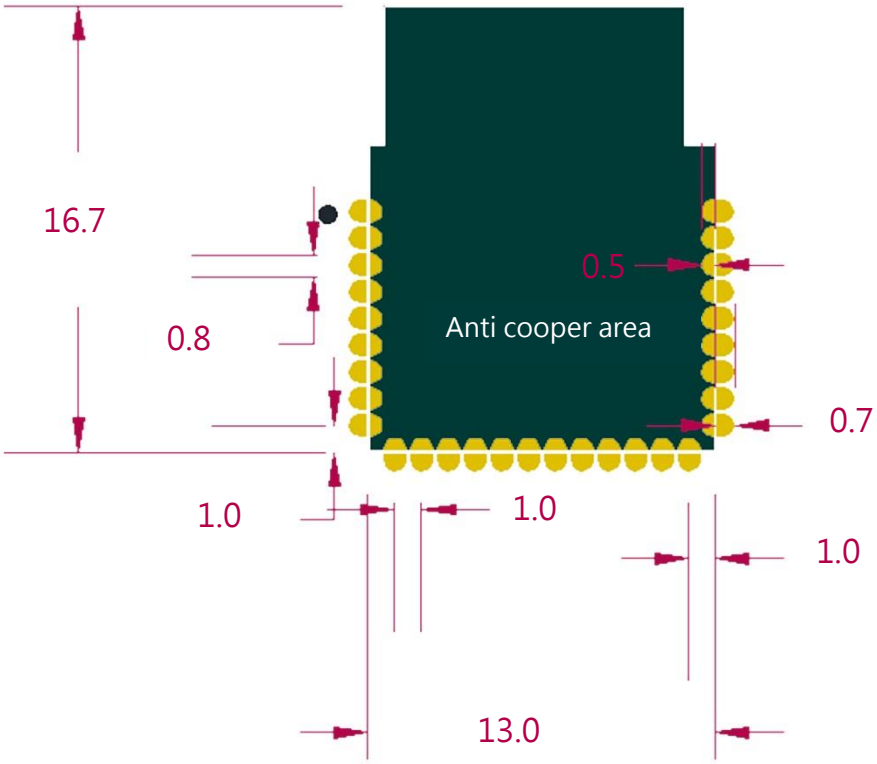
Recommended soldering profile

DIMENSIONS



Unit : mm

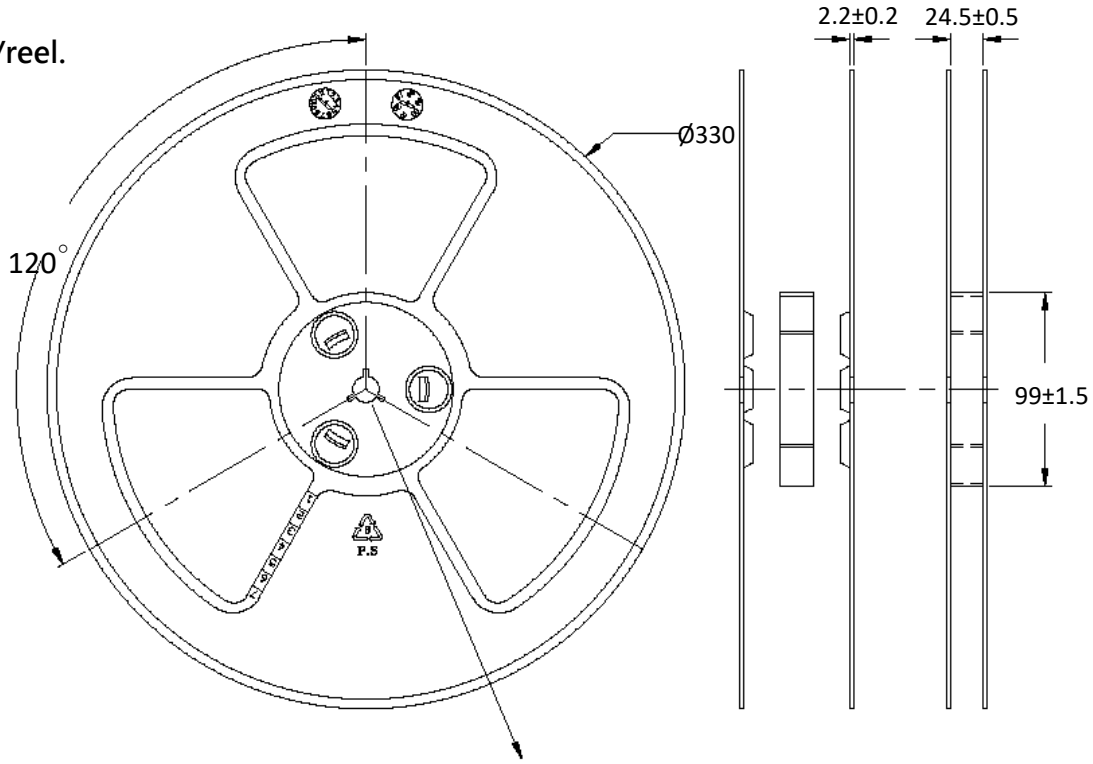
LAYOUT FOOTPRINT RECOMMENDATIONS



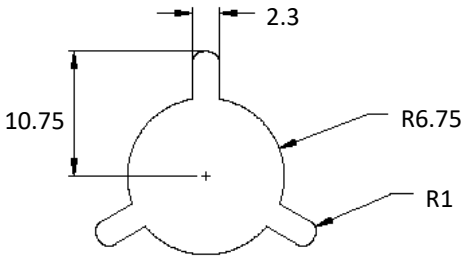
Unit : mm

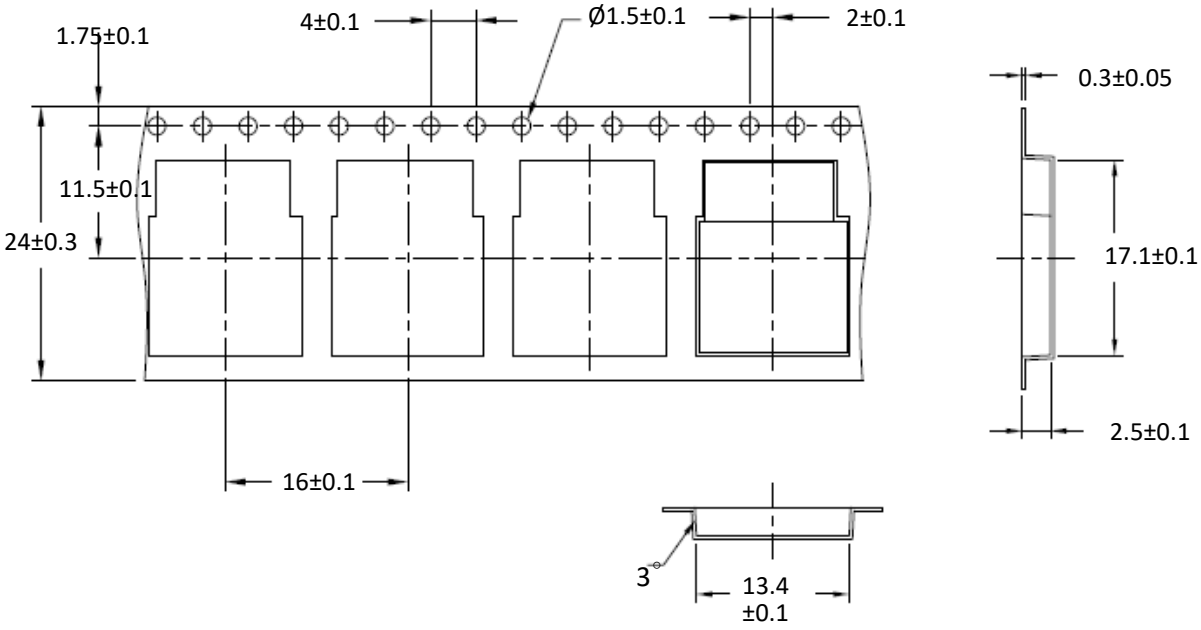
PACKING INFORMATION

500pcs/reel.



Item : 13″ × 4″ REEL
Material : P.S
Unit : (mm)





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