

Product Specification

GT-GT-NUCL1633K1

Version 1.2

May 9, 2022

Revision History

Version	Date	Description
1.0	2021/11/22	-Initial version
1.1	2021/12/1	-Modify metal ring size & PCB thickness -Add PCB location hole *2pcs
1.2	2022/5/9	-Modify metal ring size -Modify storage capacity & environment specification -Modify connector pin arrangement

Table of content

Revision History.....	2
Table of content.....	3
1. Introduction and Features.....	4
2. Specification.....	5
3. System Block Diagram.....	6
4. Pin Description.....	7
5. DC Characteristics.....	8
6. Product Outline Dimension.....	9

1. Introduction

The GT-NUCL1633K1 is the latest miniature touch sensor with extensive enhancements on power consumption and user flexibility. It allows 360-degree rotation, which enables maximum performance without compromising on design aesthetics.

The product integrate optical sensor 、light source and touch under cover glass, allowing it to instantaneously capture high resolution images of the fingerprint while rapidly outputting the captured images through the high speed SPI interface to the MCU for recognition algorithm. This range of fingerprint sensor with their advanced optical technology, press instructions, durable structure, high ESD immunity and other features combine to provide designers with a reliable and highly functional sensor for products requiring fingerprint recognition functions.

Feature

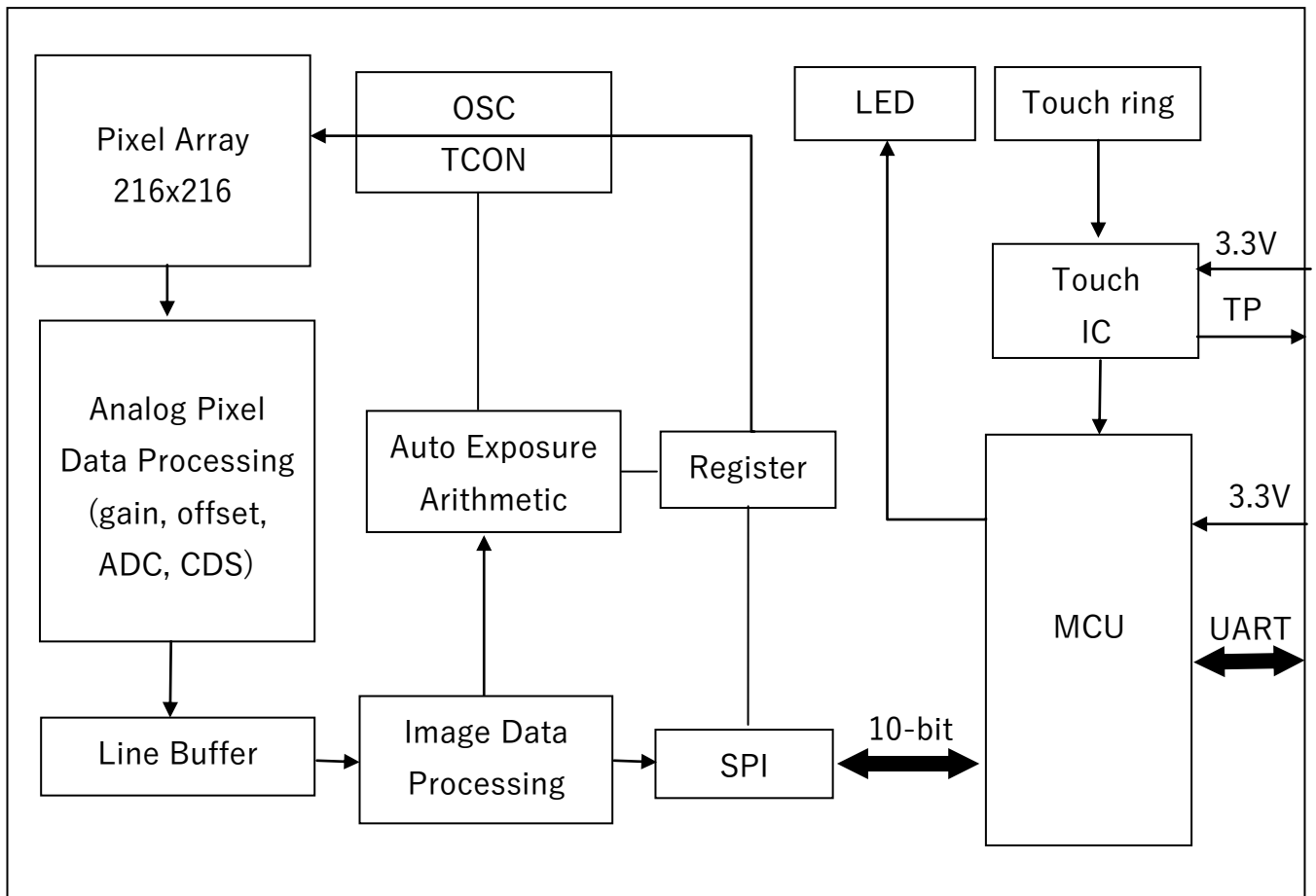
- Under glass design and no ESD concern
- Support 2.0mm cover glass
- Wet finger recognition workable with water pouring and water drop
- Self-luminous without additional light indicator
- Matching on Chip (MOC)
- Precise Biometrics Biomatch® embedded matching algorithm

2. Specification

Type	Item	Spec
Device	Dimension	Ø21.0mm(OD), Ø19.0mm(ID) H=7.1mm (include 1.8mm cover glass & 0.8mm PCB)
	Weight	TBD
Fingerprint	Supply voltage	3.3V
	Active Mode Supply Current	67mA(typ.)@3.3V
	Effective sensing area	8 x 8 (mm)
	Image pixel array	216 x 216 pixel
	Imaging quality	1024 Grayscale
	Resolution	508 DPI
	Enroll times	8
	FRR @FAR=1/50K	<3%
	Search time	<1s (1:10); <2s (1:30)
	Storage capacity	30 pieces
	Interface	UART
	baud rate	115200 bps
Touch	Supply voltage	3.3V
	Standby Mode Supply Current	3uA@3.3V
	Trigger	Active high
Light	Exterior color	Green
Environment	Operating Temperature	-20°C~70°C
	Storage Temperature	-40°C~85°C
	Humidity	40%~85% RH under 60°C
	ESD protection	IEC61000-4-2 Air discharge±15KV;Contact discharge±8KV

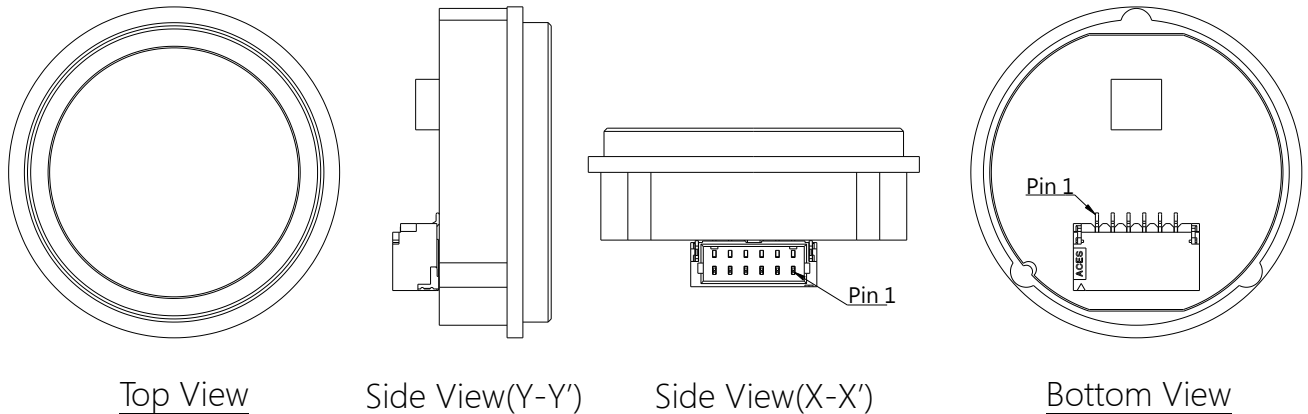


3. System Block Diagram



4. Pin Description

4.1 Product drawing



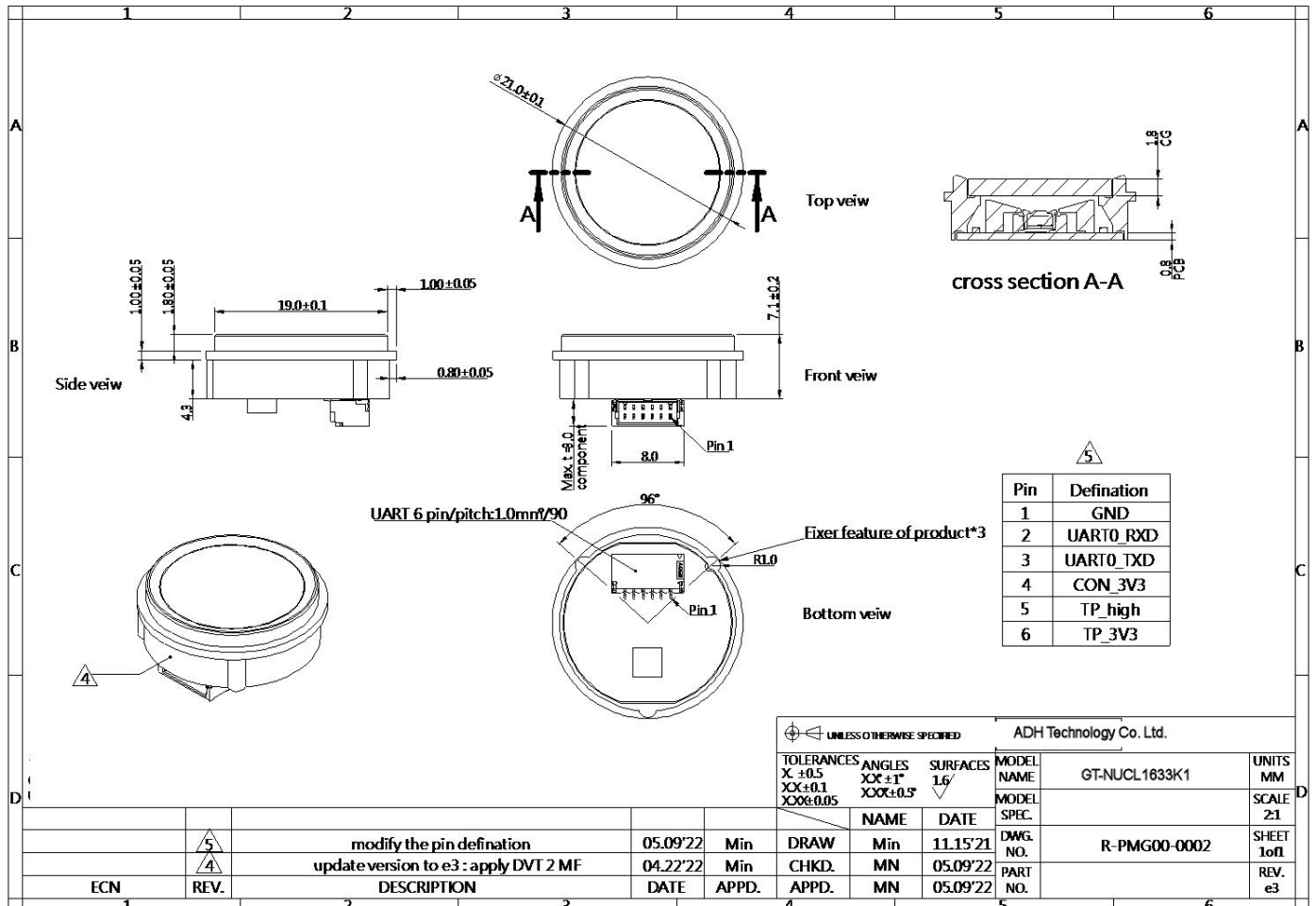
4.2 Pin description

Pin	Name	Pin Type	Function Description
1	GND	Supply	Ground
2	UART0_RXD	Input	UART data Input
3	UART0_TXD	Output	UART data Output
4	CON_3V3	Supply	Fingerprint power 3.3V(typ.).The host should be turned off the power supply to save power consumption after the fingerprint device processing cycle ends.
5	TP_high	Output	Touch signal output (active high). When the touch is working normally, it detects that a finger is placed on the fingerprint collection area of the sensor, TP_HI will output a high level signal and keep it until the finger leaves.
6	TP_3V3	Supply	Touch power 3.3V(typ.). If the touch function is required, the power supply must be continuous.

5. DC Characteristics

Type	Parameter	Min	Typ	Max	Unit
Fingerprint	Power supply		3.3		V
	Operating current		67.3		mA
	Input high voltage	2.3		3.6	V
	Input low voltage	-0.3		1.0	V
	Output high voltage		3		V
	Output low voltage		0.3		V
Touch	Power supply	2.7	3.3	5.5	V
	Operating current		0.8	1.5	mA
	Standby current		1.5	3	uA
Environment	Operating Temperature	-20		70	°C
	Storage Temperature	-40		85	°C

6. Product Outline Dimension



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