

# A-172-MRQ Fingerprint Sensor

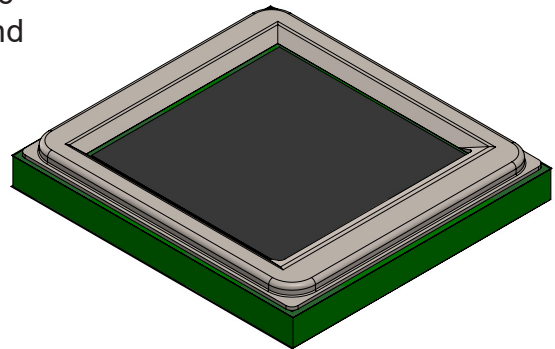
ByNew Technologies Inc.  
Rev. 003



The A-172-MRQ fingerprint sensor is a compact fingerprint scanner. The sensor is based on capacitive-contact technology with hardened surface and enhanced ESD immunity.

## FEATURES

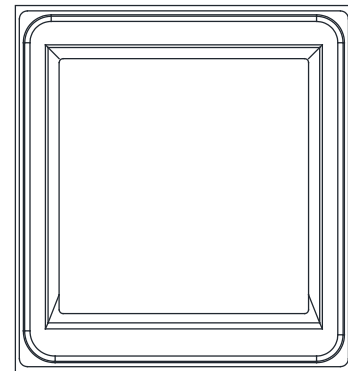
- 2D capacitive fingerprint area sensor
- sensor array of 176x176 pixels
- 508 DPI spatial resolution
- 8-bit pixel value / 256 gray levels
- 8.8 mm x 8.8 mm active sensing area
- High speed SPI interface
- Image capture speed up to 2 MPixel/sec
- ESD protection : + / - 15kV (Air mode)
- Low power : Normal and Stand-by modes
- > 30 million finger placements<sup>1</sup>
- FPC connection interface



## SPECIFICATION

Parameter	Value	Unit
Dimensions	13.75 x 12.65 x 1.95	mm
Dimensions ( sensor )	9.6 x 9.4	mm
ESD ( IEC61000-4-2, level X, air discharge )	+ / - 15	kV
Operating temperature	-20 ~ 80	°C
Extended humidity range	< 90	%
Operating voltage range	2.7~3.3	V
IO pin voltage range	1.8~3.3	V
Normal mode current	2	mA
Stand-by mode current	20	uA
Interface	SPI	

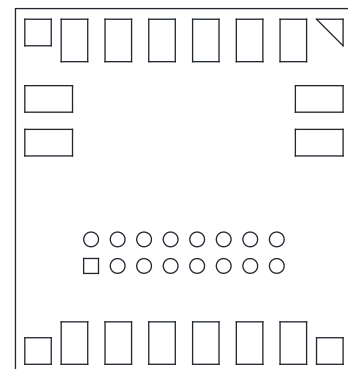
Table 1



Top View



Front View



Top View (see through)

<sup>1</sup> Read Table 3 for more information



**INTERFACE**

The A-172-MRQ sensor is a QFN-packaged module having 16 pads to communicate with a host device.

PIN NO.	PAD Name	Description
1	VDD	2.7 to 3.3V power input
2	SELN	Active low signal to select the device
3	SCK	SPI CLOCK
4	MISO	SPI MISO
5	IOVDD	1.8 to 3.3V power input for I/O
6	MOSI	SPI MOSI
7	TEST	Test signal
8	RESET	sensor reset
9	VSS	Ground
10	VPP	OTP data writing control
11	RING	Active driving signal test point
12~16	VSS	Ground
ESD1~4	ESD	ESD pads

Table 2

**Ordering information**

To order the A-172-MRQ sensor line of fingerprint scanner, refer to Table below.

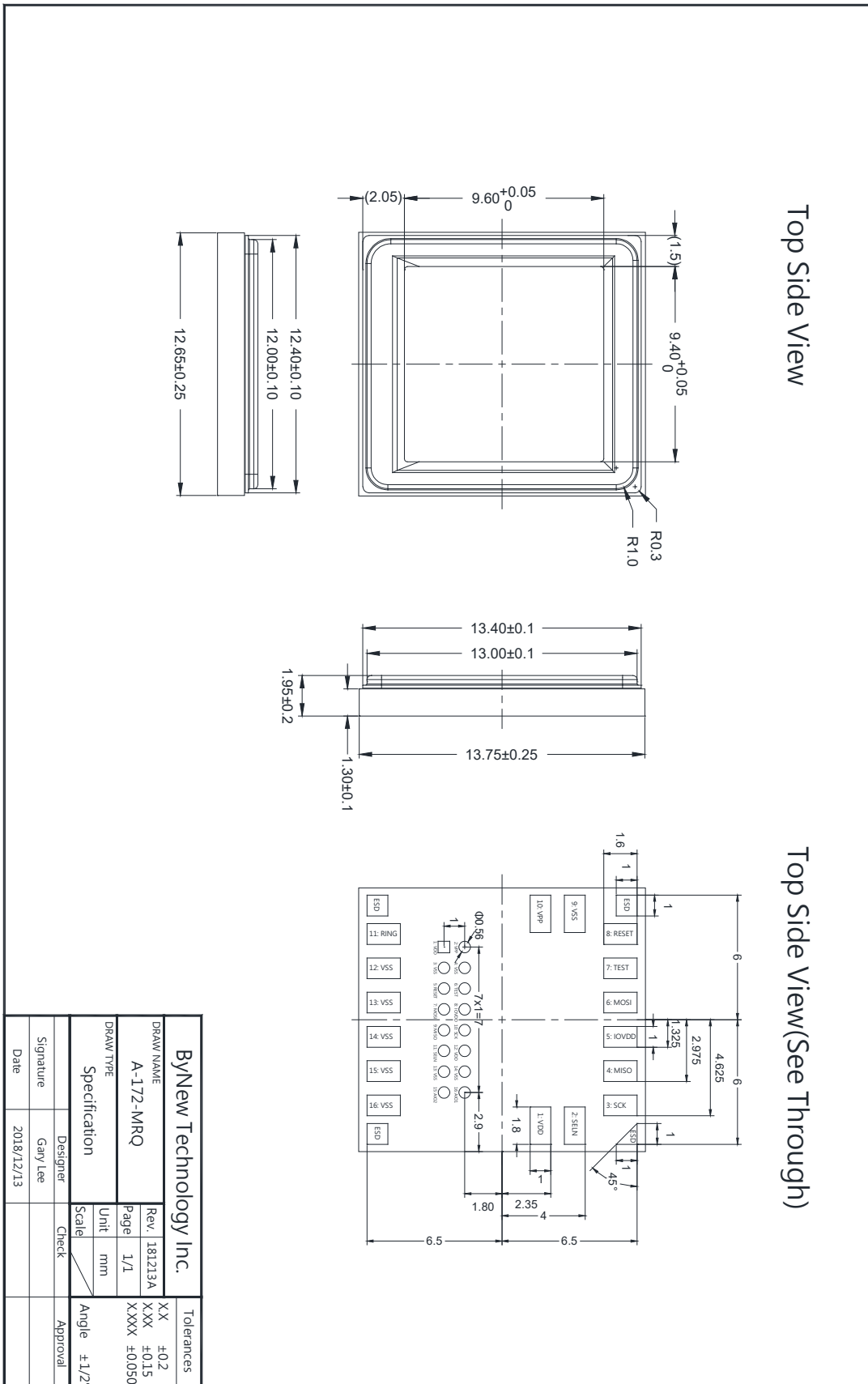
Part Number	Coating			Bezel	
	Color	RCA	Hardness	Color	Salt Spray Test
A-172-MRQ-K05	Black Matte	> 700	7H	Raw Material (Stainless Steel)	> 72hrs

Table 3





**MECHANICAL DIMENSION**



<b>ByNew Technology Inc.</b>		Tolerances	
DRAW NAME	A-172-MRQ	XX	±0.2
Rev.	181213A	XXX	±0.15
Page	1/1	XXXX	±0.050
DRAW TYPE	Specification	Unit	mm
Scale	1/1	Angle	±1/2°
Designer	Gany Lee	Check	Approval
Signature			
Date	2018/12/13		



**Revision History**

<b>Revision</b>	<b>Date</b>	<b>Modification Description</b>
001	2017/07/22	Preliminary Release
002	2018/10/12	Initial release.
003	2019/04/03	update Mechanical Drawing, Coating and Bezel information