Model No. : AD-S10G

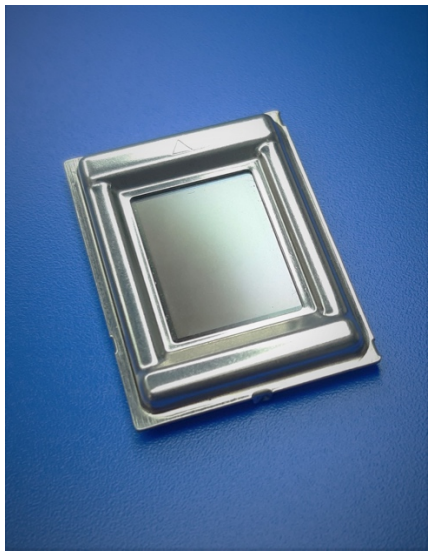
Issued Date: 2019-11-12

Version: 2.0

☐ Preliminary Specification

■ Final Product Specification

The technical specification is subjected to change without notice.



Contents

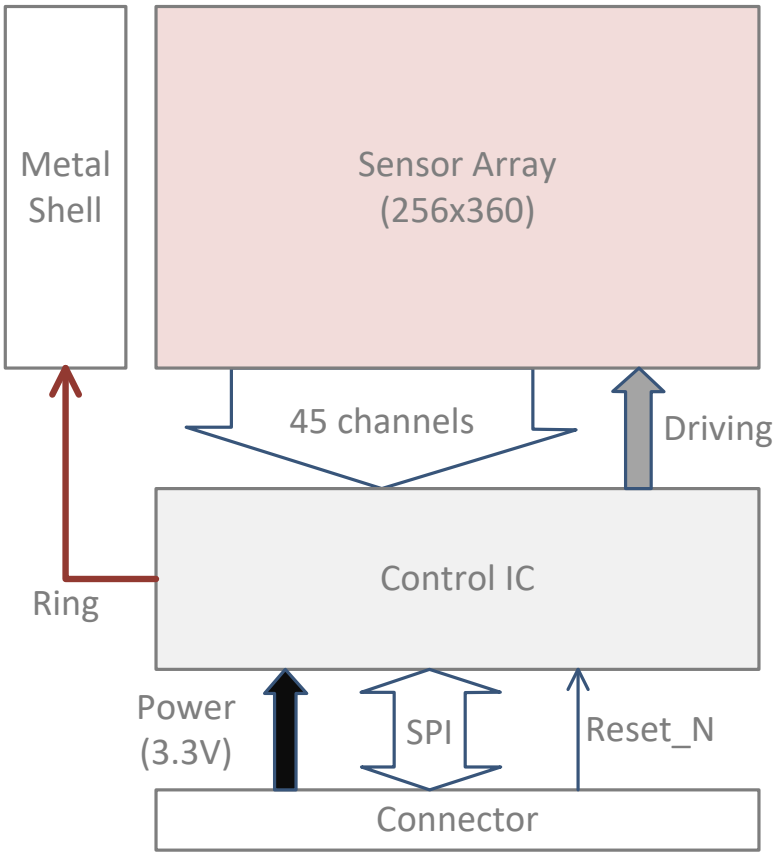
Document Version History

Rev	Issue Date	Description	Editor
0.1	2019-2-15	Preliminary release	Scott Tu
0.2	2019-7-26	Order information update	Scott Tu
1.0	2019-9-12	Pin assignment update Precautions update Connector drawing update	Scott Tu
1.1	2019-10-22	Function group update Pin assignment update	Ray Lei Scott Tu
2.0	2019-11-12	Interface update Order information update	Steven Yi Scott Tu

1. General Descriptions

AD-S10G is a new type of high quality capacitance fingerprint sensor. The capture area is designed to meet FAP10 specification, which can acquire a full fingerprint image at one touch.

AD-S10G deliver 508ppi, high quality image that can score 1 (excellent) in NFIQ score (NIST Fingerprint Image Quality) for most of the scanned fingerprint images and can meet PIV biometrics specifications. It provides SPI Interface to communicate with the host system. The module is designed for integration into custom products including readers, notebooks, tablets, POS, locks etc.



Function Block Diagram

2. General Specifications

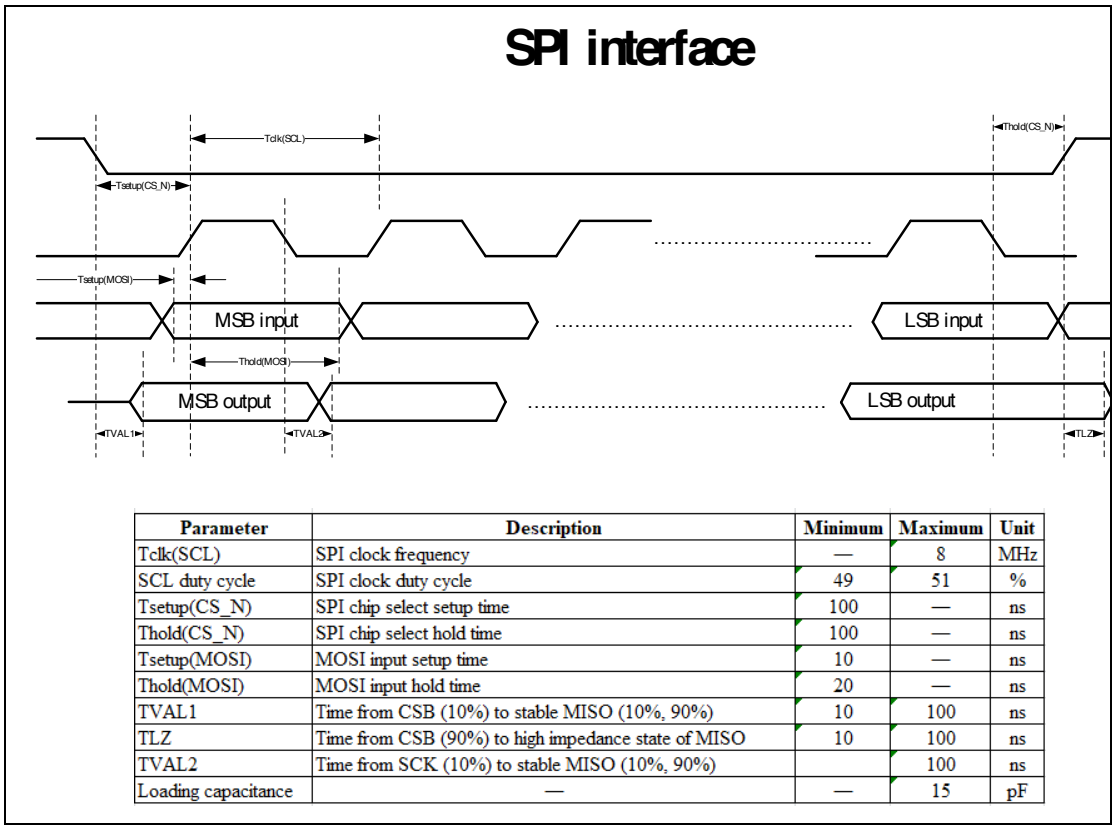
Category	Parameter	Min.	Typical	Max.	Remark
Dimension	Length(mm)	34.80	35.00	35.20	
	Width(mm)	24.80	25.00	25.20	
	Thickness(mm)	4.22	4.32	4.42	
	View area(mm)	13.60x19.40 (±0.10)			
Feature	Active area(mm)	12.80x18.00			
	Pixels	256x360			
	Resolution(dpi)	508			
	Frame Rate		2 or 4		Depending on the model
Reliability	Hardness	7H	8H		
	Operation Temperature (℃)	-10		55	
	Operation humidity			90	
	Storage temperature	-40		60	
	Storage humidity	20		90	
	ESD Protection (Air Mode)		8kV or 15kV		Depending on the version
	ESD Protection (Contact Mode)		6kV or 8kV		Depending on the version

3. Input / Output Terminals

Pin No.	Pin Name	Direction	Functions
1	RESET_N	Input	Start signal
2	CS_N	Input	SPI interface chip select
3	SCL	Input	SPI interface master clock
4	MOSI	Input	SPI interface master output, slave input
5	MISO	Output	SPI interface master input, slave output
6	Test	--	For test only (Please do not connect with any signal)
7	Test	--	For test only (Please do not connect with any signal)
8	Test	--	For test only (Please do not connect with any signal)
9	Test	--	For test only (Please do not connect with any signal)
10	Test	--	For test only (Please do not connect with any signal)
11	VCI 3P3V	Power	DC 3.3V/150mA(max) (for Digital Circuits)
12	VPP	--	For test only (Please do not connect with any signal)
13	GND	Ground	Ground
14	Test	--	For test only (Please do not connect with any signal)
15	VGH	--	For test only (Please do not connect with any signal)
16	VGL	--	For test only (Please do not connect with any signal)

4. Interfaces

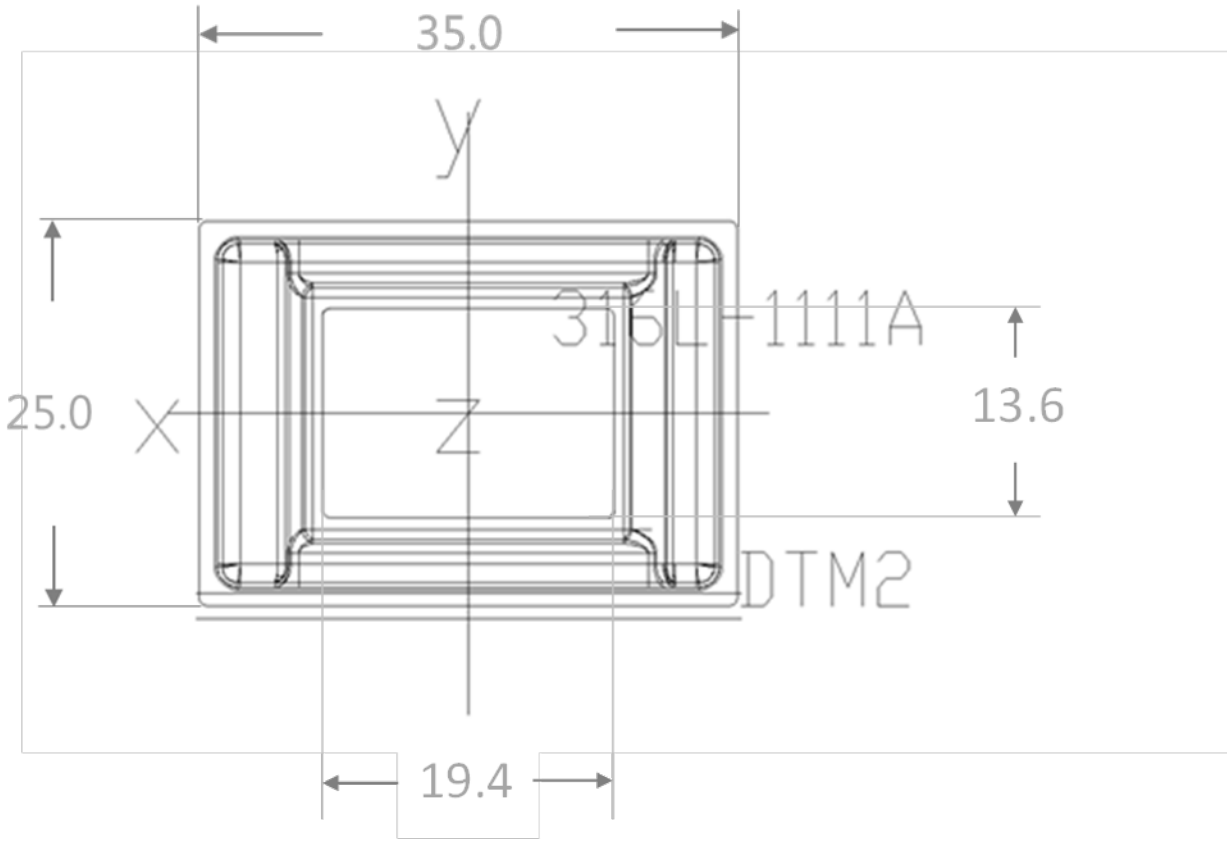
The SPI interface's timing requirement is illustrated in the following figure.



Parameter	Description	Minimum	Maximum	Unit
Tclk(SCL)	SPI clock frequency	—	8	MHz
SCL duty cycle	SPI clock duty cycle	49	51	%
Tsetup(CS_N)	SPI chip select setup time	100	—	ns
Thold(CS_N)	SPI chip select hold time	100	—	ns
Tsetup(MOSI)	MOSI input setup time	10	—	ns
Thold(MOSI)	MOSI input hold time	20	—	ns
TVAL1	Time from CSB (10%) to stable MISO (10%, 90%)	10	100	ns
TLZ	Time from CSB (90%) to high impedance state of MISO	10	100	ns
TVAL2	Time from SCK (10%) to stable MISO (10%, 90%)		100	ns
Loading capacitance	—	—	15	pF

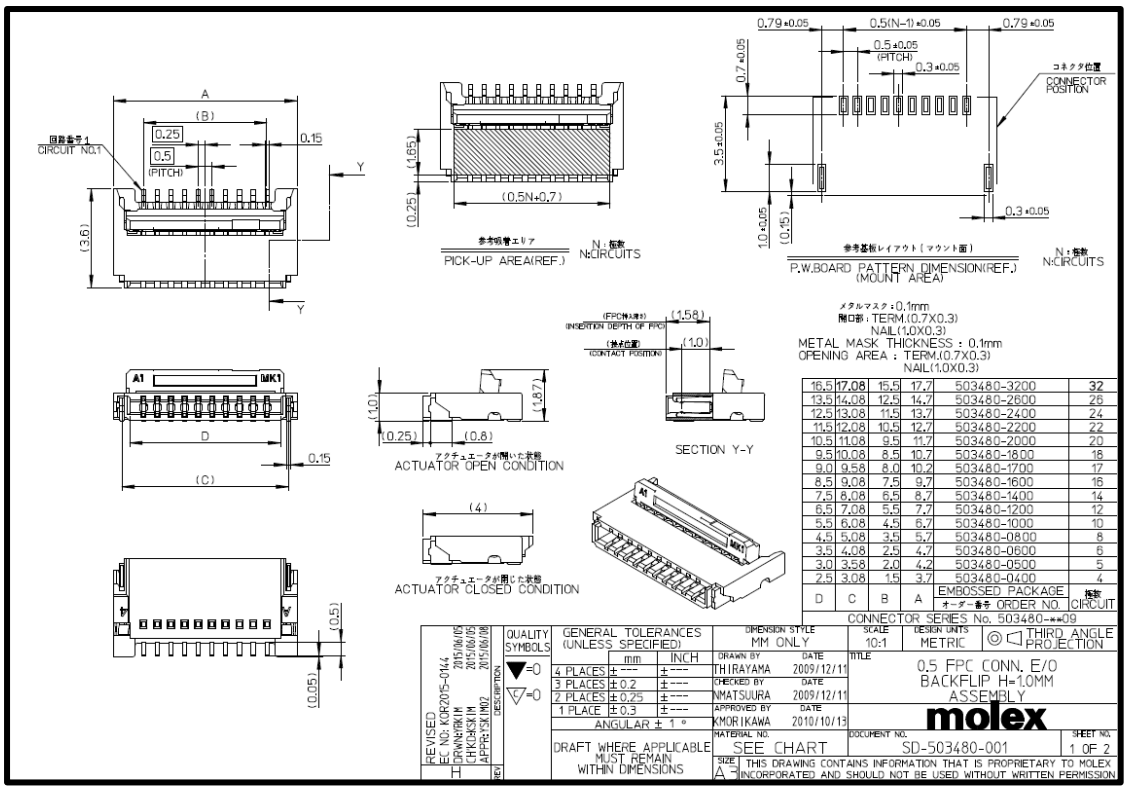
5. Mechanical Drawing

5.1 Sensor (SMT components are not included)



5.2 Connector

FPC Connector 16POS 0.50MM pitch



D	C	B	A		
16.5	17.08	15.5	17.7	503480-3200	32
13.5	14.08	12.5	14.7	503480-2600	26
12.5	13.08	11.5	13.7	503480-2400	24
11.5	12.08	10.5	12.7	503480-2200	22
10.5	11.08	9.5	11.7	503480-2000	20
9.5	10.08	8.5	10.7	503480-1800	18
9.0	9.58	8.0	10.2	503480-1700	17
8.5	9.08	7.5	9.7	503480-1600	16
7.5	8.08	6.5	8.7	503480-1400	14
6.5	7.08	5.5	7.7	503480-1200	12
5.5	6.08	4.5	6.7	503480-1000	10
4.5	5.08	3.5	5.7	503480-0800	8
3.5	4.08	2.5	4.7	503480-0600	6
3.0	3.58	2.0	4.2	503480-0500	5
2.5	3.08	1.5	3.7	503480-0400	4
				EMBOSSED PACKAGE	
				ORDER NO.	CIRCUIT

6. Precautions for Use of Sensors

- No floating metals or any unconnected conductive layer is allowed to be placed on the back side of sensor within the distance of 1mm, which will lead to signal coupling issue and bad fingerprint image quality.

7. Order Information

Part Number Naming Convention

Company	Product	Biospecs	Substrate	Coating Color	Speed	Version
ADH-Tech	S:Sensor	10:FAP10	G:Glass	C:Clear	1:1frame/s	1
	I:IC	20:FAP20	F:Flexible		2:2frame/s	
	R: Reader	30:FAP30			4:4frame/s	
	P: Sensor Panel					