Datasheet

oToBrite Electronics, Inc

oToCAM233

Revision	Description	Release Date
1.0	First Release	Dec, 15, 2020

1. General Description

The oToCAM233 is an automotive grade camera for the application of autonomous driving and CMS. It uses high sensitive CMOS sensor to perform good image quality for the detection purpose of the system product.

2. Product specification

| No.	Item	Specification
1	Image sensor	CMOS (Sony IMX 224)
2	Camera Number of pixels (default)	1M (1280 (H) × 720 (V))
3	View angle(H/V)	HFOV：28.4° ; VHOV: 16.1°
4	Resolution (Center)	Center TV line ≧ 500
5	Color filter array	RGGB
6	Output Interface	GMSL with POC
7	Output Formats	Parallel 8-bit YCbCr data (uyvy)
8	Lens structure	6G+IR
9	Lens F No.	F1.64
10	Power source (POC)	DC6~12V
11	Startup time of power in	Within 1000ms
12	Frame rate (default)	30 fps (Depends on ISP code version)
13	Exposure Control	DOL3(Depends on ISP code version)
14	Serializer	Maxim MAX96705
15	Camera Current Consumption	≦ 173mA @6V
16	Operating Temperature	-40℃ ~ +85℃
17	Storage temperature Range	-40℃ ~ +95℃
18	Waterproof	IP62
19	Dimension(mm)	44*28*27.66 mm (exclude FAKRA connector)
20	Weight	35g

3. Outline Drawing
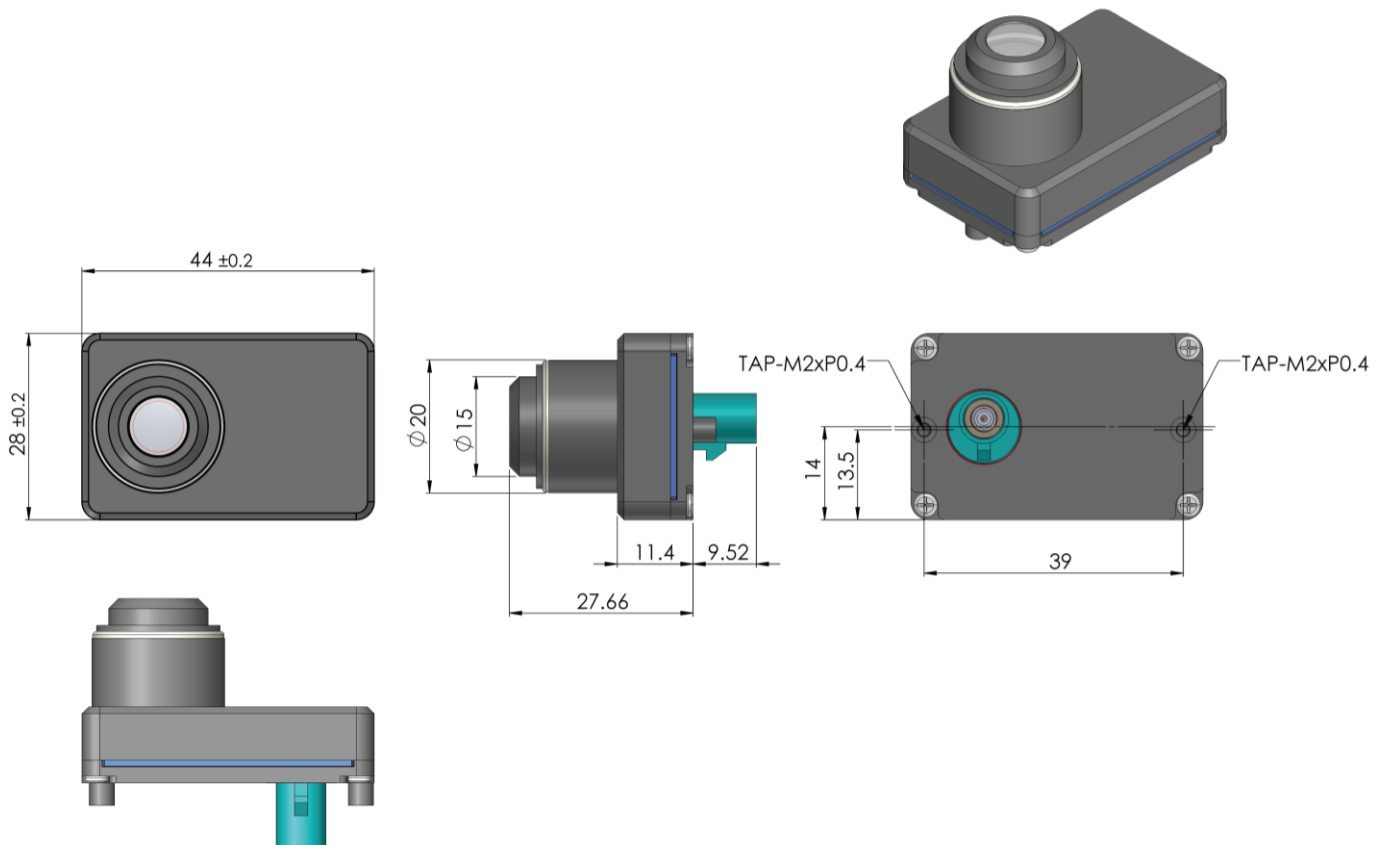
Figure 1. oToCAM233 Diagram (the bracket is optional and different for different car models)

4. Interface, Cables and Connectors (Male and Female)
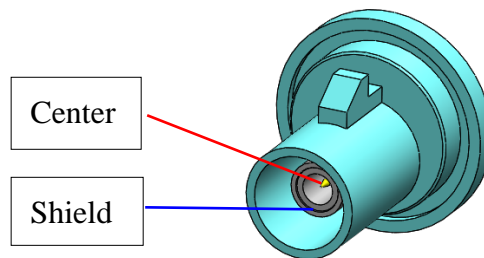## 4.1 Connectors of camera

Center

Shield

Figure 2.1   Amphenol FK1251ZW-034-TT5GP-50

4.2 Recommended counterpart FAKRA connector
Connector type: Amphenol 3FA1-NZSJ-C01E0
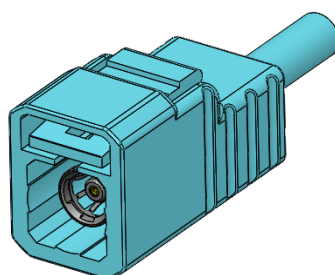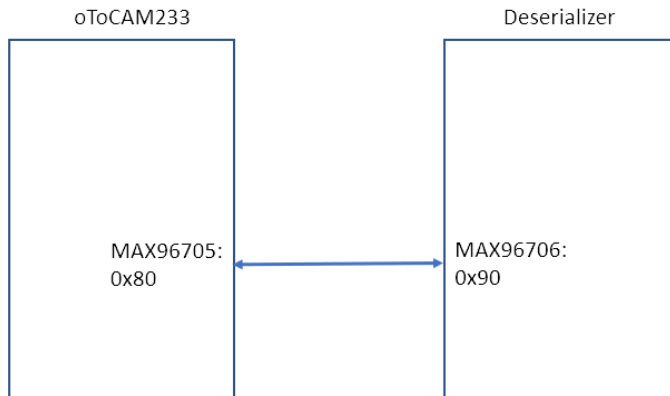

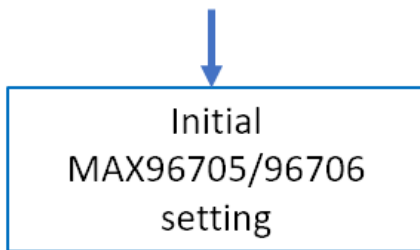Figure 2.2   Amphenol 3FA1-NZSJ-C01E0

Pin definition:

Pin No.	Signal Name	Operation Voltage and Current
Center	DOUT	Min. 0.375V, Max. 0.625V
	PWR	Typ. 143mA @6V / 25°C
Shield	Shield GND	

5. Applications

5.1. I2C ID Address

5.2. Initialization

5.3. Deserializer Settings
MAX96706 Settings:
1. Reference document "oToCAM233 EE spec" deserializer H/W setting
2. MAX96706, Select GMSL input 0x0F bit7=0:Select IN0+/-; 0x0F bit7=1:Select IN1+/-
3. MAX96706, mode config(0x07) (DBL=1, DRS=0, BWS=0, ES=0, HIBW=1, HVEN=1, CXTP=1)

MAX96705 Settings:
1. MAX96705 mode config(0x07) (DBL=1, HIBW=1, BWS=0, ES=1, HVEN=1)

(The registers file will be provided under NDA and/or samples purchased)

5.4. Sensor (IMX224) Register Settings
Sensor setting will be loaded from on-board SPI flash automatically after power up.

6. Special Note

oToCAM233 is System On Module ,includes an Image sensor and ISP (Image Signal Processor).
Image are captured and transmitted with 8-bit YCbCr data from camera through coax cable.
Usually, Gamma curve is applied to get 8-bit image to improve dynamic range for application.
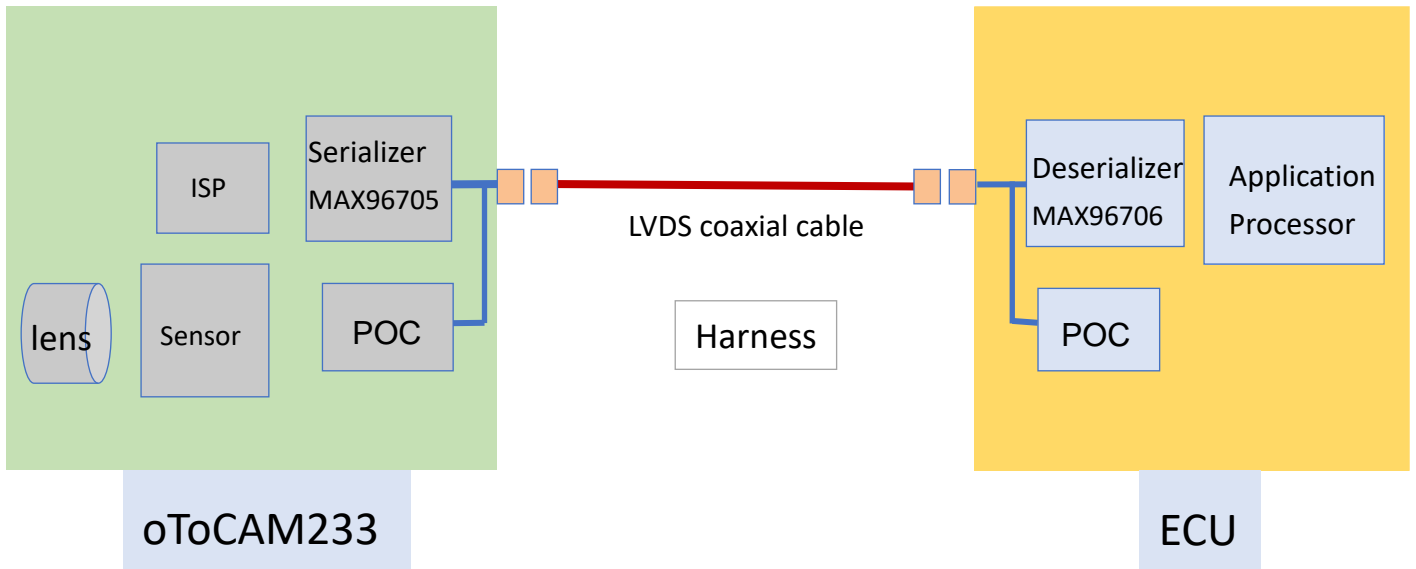
7. System Configuration (TBD)

Figure 3. System Configuration

Maxim GMSL Max96706 Deserializer must be used as receiver in ECU for connecting oToCAM233.