

Datasheet

oToBrite Electronics, Inc



oToCAM235-C89M

1. General Description

The oToCAM236-C89M 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 ISX 019)
2	Camera Number of pixels (default)	1280(H) ×720 (V) (default setting)
3	View angle (H/V)	HFOV : 89.3° ; VFOV: 51.6°
4	Resolution (Center/Corner)	TV line \geq 500
5	Color filter array	RGGB
6	Output Interface	GMSL with POC
7	Output Formats	Parallel 8-bit YCbCr data (uyvy)
8	Lens structure	4G+2GM+IR
9	Lens F No.	F2.1
10	Power over coaxial (POC)	DC 6~12V
11	Startup time of power in	Within 500ms
12	Frame rate (default)	30 fps (default setting)
13	Exposure Control	DOL3
14	Serializer	Maxim MAX96705
15	Camera Current Consumption	Below 120mA @6V
16	Operating Temperature	-40°C ~ +85°C
17	Storage temperature Range	-40°C ~ +95°C
18	Waterproof	IP 67
19	Dimension(mm)	28.6*24.6*32 mm (exclude FRAKA connector)
20	Weight	< 30g

3. Outline Drawing (Unit: mm)

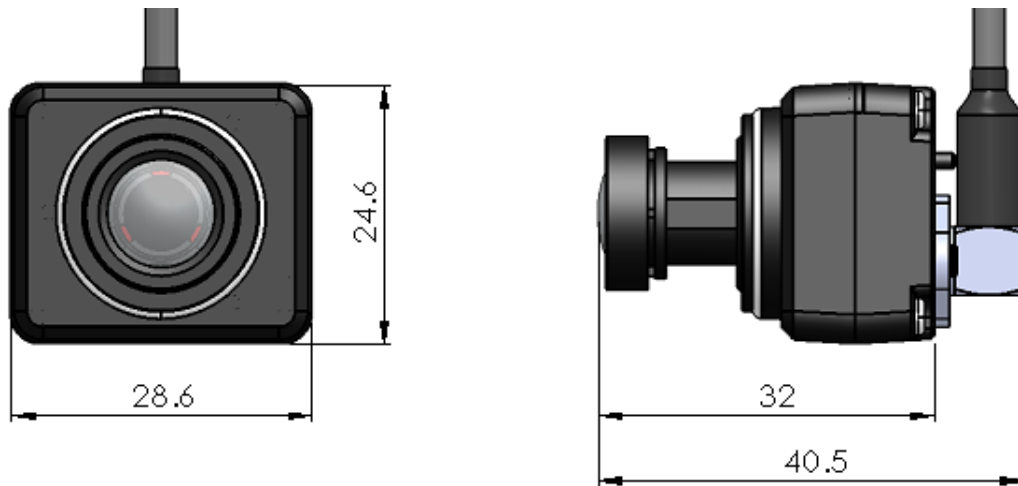


Figure 1. oToCAM236-C89M Diagram (the bracket is optional and different for different car models)

4. Interface, Cables and Connectors (Male and Female)

4.1 Connectors of pigtail cable

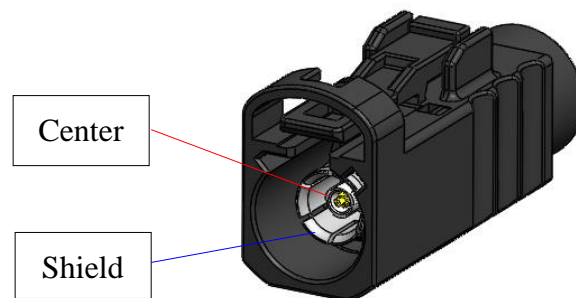


Figure 2.1 DEREN 6A0103-026R

4.2 LVDS cable (POC) with FAKRA connector

Cable length: 150mm (+10/0 mm)

Connector type: DEREN 6A0104-005R



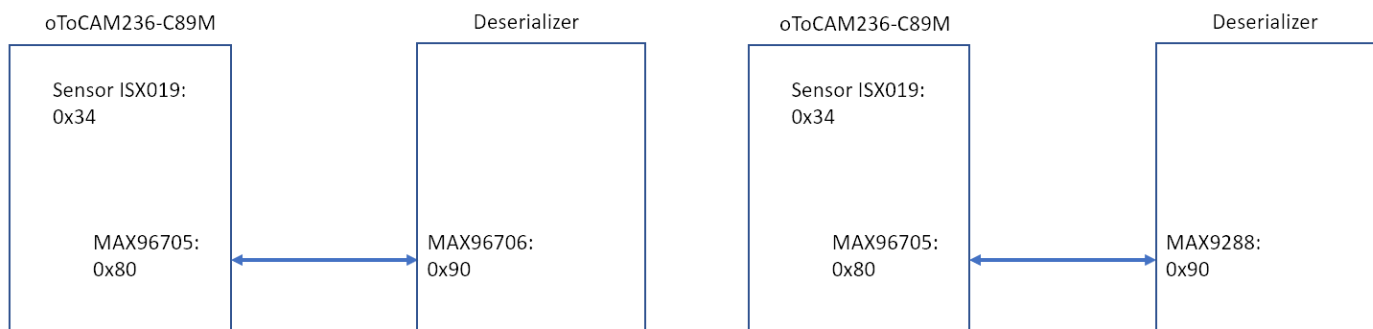
Figure 2.2 DEREN 6A0104-005R

Pin definition:

Pin No.	Signal Name	Operation Voltage and Current
Center	DOUT	Min. 0.375V, Max. 0.625V
	PWR	Typ. 90mA @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 “oToCAM236-C89M EE spec” de-serializer 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=1, HIBW=1, HVEN=1, CXTP=1)

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

MAX9288 Settings:

1. Reference document “oToCAM236-C89M EE spec” de-serializer H/W setting
2. Crossbar setting for MAX96705 to MAX9288 data format transfer
3. MAX9288, Disable audio
4. MAX9288, VC=0, INPUTBW=1, YUV422-8bit

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

5.4. Sensor (ISX019) Register Settings

Sensor setting will be loaded from on-board SPI flash automatically after power up.

6. Special Note

ISX019 is System On Chip image sensor with 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)

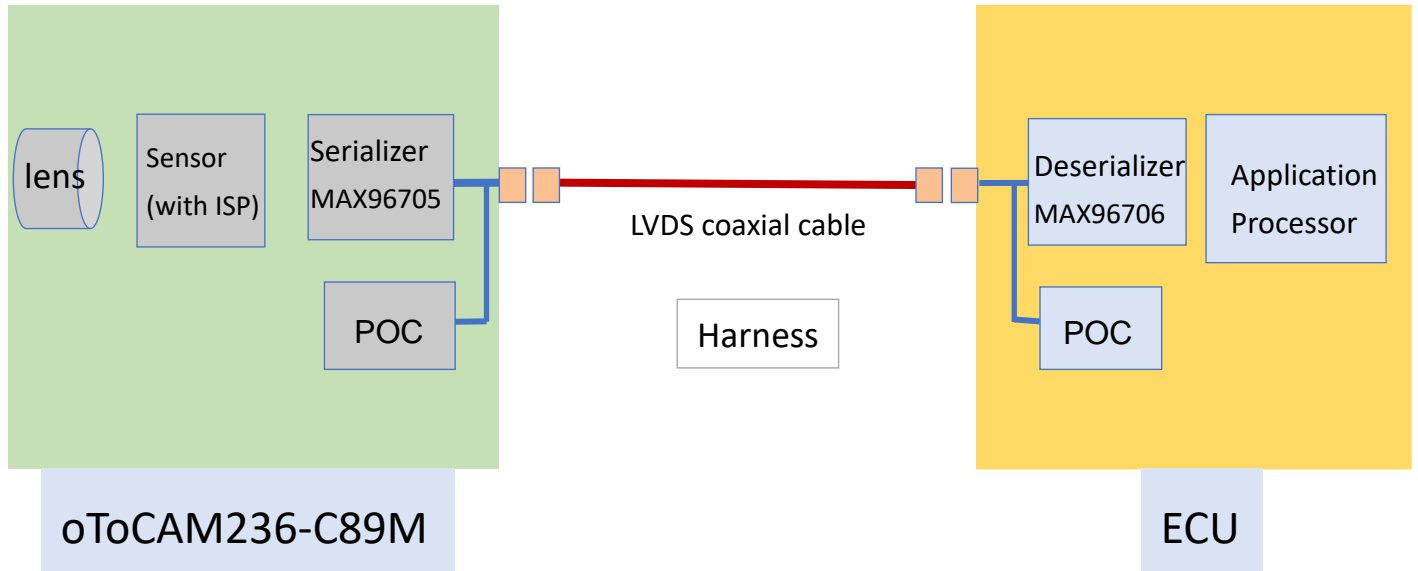


Figure 3. System Configuration

Maxim GMSL Max96706 / Max9288 Deserializer must be used as receiver in ECU for connecting oToCAM236-C89M.