

FCB Micro Series

Color Block Cameras

SONY



Sony is expanding its popular FCB Micro Series with the introduction of two new ultra-compact, all-in-one color block cameras.

The new FCB-MA132 and FCB-MA133 color block cameras build on the strong reputation established by the FCB-MA130 camera Block by providing excellent picture quality – in both still images and moving pictures – and additionally offering several new lens versions which support a variety of horizontal angle-of-view capabilities.

Incorporating a 1/2.45-type Exmor™ CMOS sensor from Sony, the FCB Micro Series Cameras enables users to capture Full HD resolution (1080p/30) movies and still images of up to 13 megapixels. These color block cameras also feature several other innovative functions, including embedded image stabilization and face detection, thanks to Sony's unique on-board image signal processor.

The unmatched combination of performance and size makes the FCB Micro Series Cameras suitable for a wide variety of applications, including document scanning, UAV (unmanned aerial vehicle) use, and other security and industrial applications.

Exmor®

KEY FEATURES

■ Compact Size (FCB-MA130 only)

The FCB-MA130 camera is extremely compact, measuring just 16.5 x 10.3 x 18.0 mm (21/32 x 13/32 x 23/32 inches), and can be easily integrated into space-restricted products.

■ Supports Still and Moving Images

The FCB Micro Series Cameras supports high-quality images. Each camera achieves 13-megapixel still images and Full HD (1080p/30)-quality moving pictures in a single unit.

■ Superb Picture Quality

Thanks to Sony's renowned high-quality Exmor® image sensor and Sony's original image signal processor, the FCB Micro Series Cameras deliver superb picture quality in both still images and moving pictures.

In addition to these technologies, picture quality is optimized by precise adjustment previously developed by Sony during production of mobile phone camera modules.

■ Auto Focus (FCB-MA130 only)

This camera offers a one-push auto focus (AF) function for ease of use.

■ Sony's Original Image Processor

Many useful features are achieved thanks to Sony's original image processor:

- Image Stabilization
- Face Detection
- Adaptive Tone Reproduction
- Noise Reduction (3DNR)
- 16x Digital Zoom

PIN ASSIGNMENTS

FCB-MA133 / FCB-MA132 / FCB-MA130

Pin No.	Symbol	I/O	Type of Power Supply	Description
1	GND	–	–	Ground
2	GND	–	–	Ground
3	VDD_33	–	–	Power Supply (3.3 V)
4	VDD_33	–	–	Power Supply (3.3 V)
5	VDD_33	–	–	Power Supply (3.3 V)
6	VDD_12	–	–	Power Supply (1.2 V)
7	VDD_12	–	–	Power Supply (1.2 V)
8	VDD_12	–	–	Power Supply (1.2 V)
9	VDD_18	–	–	Power Supply (1.8 V)
10	GND	–	–	Ground
11	GND	–	–	Ground
12	N.C.	–	–	Not Connected
13	TRIG	O	VDD_18	Mode Transition Signal
14	C7	O	VDD_33	Parallel Output Video Data (Chroma Parallel Data 7)
15	C6	O	VDD_33	Parallel Output Video Data (Chroma Parallel Data 6)
16	C5	O	VDD_33	Parallel Output Video Data (Chroma Parallel Data 5)
17	C4	O	VDD_33	Parallel Output Video Data (Chroma Parallel Data 4)
18	C3	O	VDD_33	Parallel Output Video Data (Chroma Parallel Data 3)
19	C2	O	VDD_33	Parallel Output Video Data (Chroma Parallel Data 2)
20	C1	O	VDD_33	Parallel Output Video Data (Chroma Parallel Data 1)
21	C0	O	VDD_33	Parallel Output Video Data (Chroma Parallel Data 0)
22	DCLK	O	VDD_33	Parallel Output Video Clock
23	Y7	O	VDD_33	Parallel Output Video Data (Luminance Parallel Data7)

*1 An external pull-up resistor (10kΩ) is recommended.

*2 MIPI I/F is based on D-PHY Ver1.00 or later.

Pin No.	Symbol	I/O	Type of Power Supply	Description
24	Y6	O	VDD_33	Parallel Output Video Data (Luminance Parallel Data6)
25	Y5	O	VDD_33	Parallel Output Video Data (Luminance Parallel Data5)
26	Y4	O	VDD_33	Parallel Output Video Data (Luminance Parallel Data4)
27	Y3	O	VDD_33	Parallel Output Video Data (Luminance Parallel Data3)
28	Y2	O	VDD_33	Parallel Output Video Data (Luminance Parallel Data2)
29	Y1	O	VDD_33	Parallel Output Video Data (Luminance Parallel Data1)
30	Y0	O	VDD_33	Parallel Output Video Data (Luminance Parallel Data0)
31	HD	O	VDD_33	Parallel Output Video H-Active Signal
32	VD	O	VDD_33	Parallel Output Video V-Active Signal
33	GND	O	–	Ground
34	MIPI_D0-	O	*2	MIPI Output Data Lane0(-)
35	MIPI_D0+	O	*2	MIPI Output Data Lane0(+)
36	MIPI_CK-	O	*2	MIPI Output Clock(-)
37	MIPI_CK+	O	*2	MIPI Output Clock(+)
38	MIPI_D1-	O	*2	MIPI Output Data Lane1(-)
39	MIPI_D1+	O	*2	MIPI Output Data Lane1(+)
40	GND	O	–	Ground
41	XRST	I	VDD_18	System Reset, or not connected
42	SDA	IO	VDD_18	I2C Serial Bus Data I/O*1
43	SCL	I	VDD_18	I2C Serial Bus Clock*1
44	GND	O	–	Ground
45	GND	O	–	Ground

SPECIFICATIONS

	FCB-MA133	FCB-MA132	FCB-MA130
Camera			
Image Sensor	1/2.45-type Exmor CMOS (13.19 megapixels)		
Moving Image	1920 x 1080 (FHD), 1600 x 1200 (UXGA), 1280 x 960 (SXGA), 1280 x 720 (HD), 1024 x 768 (XGA), 800 x 480 (WVGA), 640 x 480 (VGA); 30fps/25fps*1		
Still Image	4192 x 3104, 4128 x 3096 (13M), 3264x2448 (8M), 2592 x 1944 (5M), 1920 x 1080 (FHD), 1280 x 960 (SXGA), 1280 x 720 (HD), 640 x 480 (VGA)		
Minimum illuminator (Typ.)	6 lx	4 lx	6 lx
Gain	Auto (2 dB-36 dB)		
Shutter Speed	1/25 to 1/5000 s, 24 Step		
Sync System	Internal		
Exposure Control	Auto, Hold, Manual, Shutter priority, Gain priority		
Backlight Correction	Yes		
White Balance	Auto, Hold, ATW, Fixed (Light Bulb, Neutral Color Fluorescent Light, Clear Sky, Cloudy Sky, Daylight Color Fluorescent Light, Light Bulb Color Fluorescent Light)		
Lens	F2.8 f=2.8 mm	F2.2 f=3.8 mm	F2.8 f=5.3 mm
Digital Zoom	16x		
Focusing System	Fixed*3		One-push AF, MF
Viewing Angle (Movie, 1920 x 1080)	Horizontal: 115° Vertical: 62°	Horizontal: 85° Vertical: 46°	Horizontal: 53° Vertical: 29°
Viewing Angle (Still, 4192 x 3104)	Horizontal: 128° Vertical: 91°	Horizontal: 94° Vertical: 67°	Horizontal: 58° Vertical: 42°
Minimum Object Distance	*3		100 mm
Camera Features			
Auto ICR	No		
Adaptive Tone Reproduction	Yes		
Noise Reduction (3DNR)	Yes		
Image Stabilization for Still Image	Yes		
Image Stabilization for Moving Image	Yes		
Face Detection	Yes		
Picture Effect	Yes (Flip horizontal, Flip vertical)		
Interface			
Video Output	CMOS Clock 81MHz, Parallel 16bit (Y/Cb/Cr 4:2:2) / Sync Signal (HD, VD)		
Video Output (HD)	MIPI D-PHY Clock 324MHz, Data 2lane CSI-2 (Y/Cb/Cr 4:2:2)		
Camera Control Interface	I2C		
General			
Power Requirements	3.3±0.1, 1.8±0.1, 1.2-0.05/+0.1 V DC		
Power Consumption (Typ.)	Normal: 710 mW -		Normal: 710 mW AF Active: 730 mW
Operating Temperature	-5°C to +50°C*4 23°F to 122°F*4		-5°C to +50°C 23°F to 122°F
Storage Temperature	-20°C to +60°C -4°F to +140°F		
Dimensions (W x H x D)*2	28.0 x 25.6 x 18.9 mm 1 1/8 x 1 1/16 x 3/4 inches	28.0 x 26.0 x 18.9 mm 1 1/8 x 1 1/16 x 3/4 inches	16.5 x 10.3 x 18.0 mm 21/32 x 13/32 x 23/32 inches
Mass*2	8.7 g 0.307 oz	9.7 g 0.342 oz	2.2 g 0.078 oz

*1 Non-standard video format.

*2 The values for Dimensions and Mass are approximate.

*3 It is possible to adjust the focus by turning the lens.

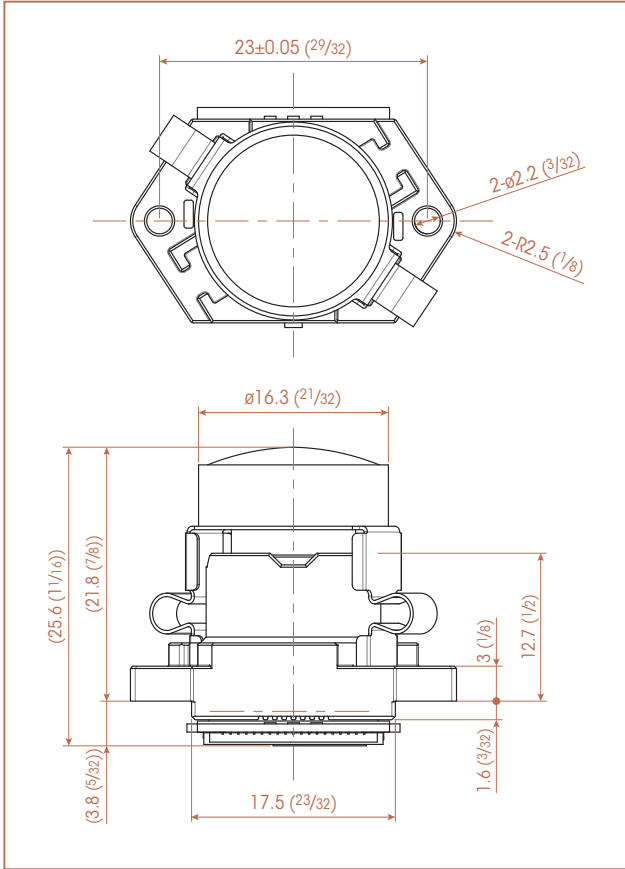
*4 For this product, focus position fluctuates according to temperature change.

Even in a temperature-controlled environment, it is necessary to match the focus to suit operating temperature conditions.

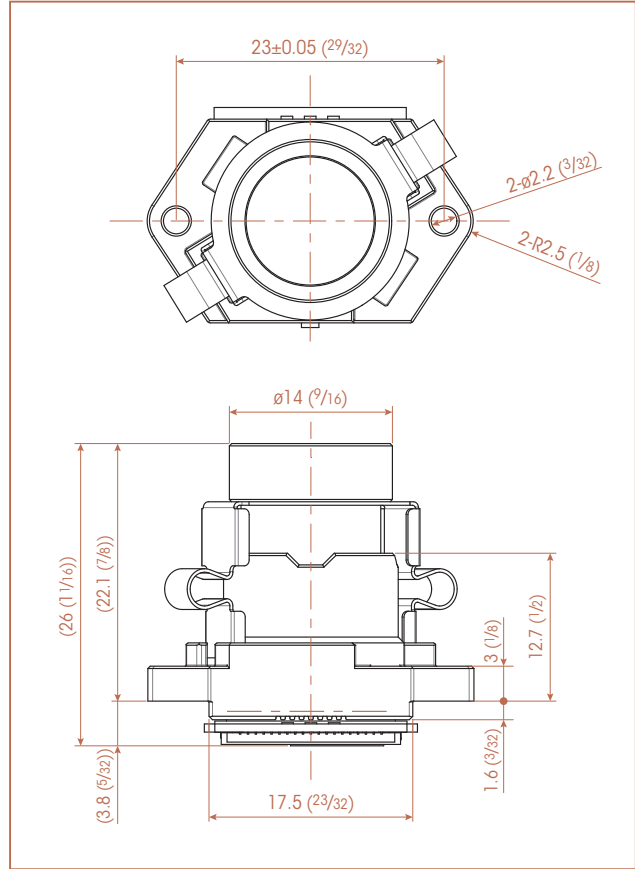
DIMENSIONS

Unit: mm (inches)

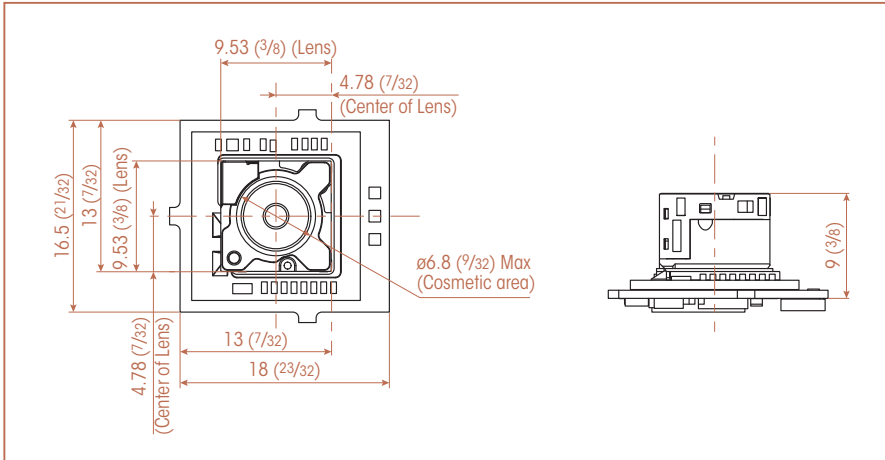
FCB-MA133



FCB-MA132



FCB-MA130



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