



NCM03-DSA is a color module with built-in ISP that complies with VGA pixels. It has 640 horizontal and 480 vertical pixels and via 1/4" optical format. Features included low power consumption, on-chip primary colors color filter, and small size by adjusting signal processing.

## 1. Features

- Small all-in package
- Equipped with a compact wide-angle lens
- I2C
- Low Power consumption

## 2. Specification

● Image Sensor	1/4-inch CMOS color sensor
● Shutter Type	Rolling shutter
● Dimension	13 × 21 [mm] ※1
● Effective Pixels	640(H) × 480(V)
● Pixel Size	5.6 μm(H) × 5.6 μm(V)
● Output Interface	Digital 8bit parallel
● Output Signal Format	YUV422, RGB565, RGB444
● Frame rate (Max.)	30fps
● Function	Auto Exposure Control, Auto White Balance, Auto Gain Control, Image Inversion (up/down, left/right), Flicker correction, etc.
● Angle of View (Typ.)	(H)102°/(V)76°/(D)134°
● Optical filter	IRCF
● F Number	F2.8
● Connection Type	FPC
● Power Consumption (Typ.)	130 [mW]

※1 : FPC/FFC part is not included

## 3. Recommended Operating Conditions

● Analog Power Supply	3.3 ± 0.33	[V]
● I/O Supply (HVDD)	3.3 ± 0.33	[V] ※2
● Operating Temperature	-20 ~ +60	[°C] ※3
● Storage Temperature	-30 ~ +70	[°C] ※3

※2 : I/O and digital power supplies are common.

※3 : No condensation

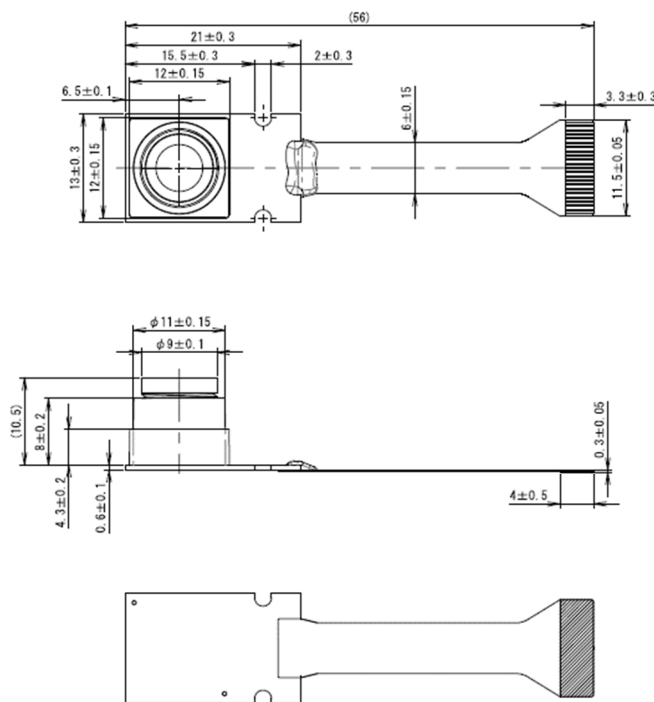
## 4. Terminal Description



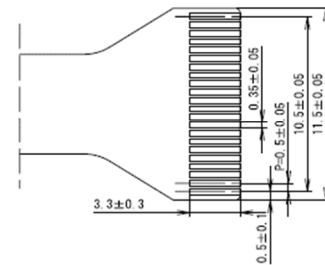
No.	Symbol	I/O	Terminal Description	No.	Symbol	I/O	Terminal Description
1	N.C.	-	Not connected	12	DATA6	O	Digital data output (Data6)
2	DGND	-	Digital ground	13	DATA5	O	Digital data output (Data5)
3	PCLK	O	Data clock	14	DATA4	O	Digital data output (Data4)
4	DGND	-	Digital ground	15	DATA3	O	Digital data output (Data3)
5	HSYNC	O	Horizontal synchronous signal	16	DATA2	O	Digital data output (Data2)
6	VSYNC	O	Vertical synchronous signal	17	DATA1	O	Digital data output (Data1)
7	HVDD	-	I/O power supply (common for digital power supply)	18	DATA0	O	Digital data output (Data0)
8	SDA	I/O	I2C Serial data	19	STDBY	I	Standby mode
9	SCL	I	I2C Serial Clock	20	MCLK	I	System clock
10	RESET	I	System reset	21	AGND	-	Analog ground
11	DATA7	O	Digital data output (Data7)	22	AVDD	-	Analog power supply

## 5. External Dimensions

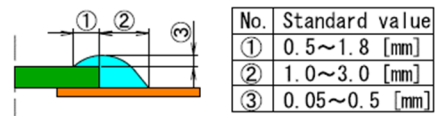
[Unit : mm]



FPC terminal detail



Detail drawing of FPC reinforcement adhesion part



## 6. Image Capture Polarity



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