

Crystal Image through
Imaging Innovation

PIXELPLUS



*Preliminary
Brief Spec*

***1/3 inch SD Single Chip
CMOS Image Sensor with NTSC/PAL Transmitter***

PC4089K

Rev 0.1

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*1/3 inch SD Single Chip
CMOS Image Sensor with NTSC/PAL Transmitter*

Features

- 728 x 488 effective pixel array with RGB bayer color filters and micro-lens
- Interface
 - Composite Output
 - CVBS(NTSC/PAL)
 - Digital Output
 - YCbCr422 / RGB565 / RGB444 / Bayer
 - Analog/Digital Output
 - ITU-R. BT656 / CVBS
- Image processing on chip : lens shading compensation, gamma correction, defect correction, color correction, NR(2D noise reduction), color interpolation, edge enhancement, brightness, contrast, de-color, auto black level compensation, auto white balance, auto exposure control, back light compensation
- Programmable frame size, window size and position
- Free scaling (scale down)
- Horizontal/Vertical mirroring
- Automatic flicker cancellation
- Smart IR-LED/TDN(moving) filter controller
- 4 overlay functions by using SPI ROM
- I2C master included
- SPI master included
- Software reset
- On chip regulator for core
- Crystal input support

General Description

The PC4089K is a 1/3-inch CMOS image sensor with NTSC/PAL Transmitter. It is a single chip with effective pixel array of 728 (width) x 488 (height). The PC4089K can generate analog/digital/composite outputs at maximum frame rate of 60. On-chip sensor functions can be controlled through I2C interface.

Table 1 Key Performance Parameter

Parameter	Typical value
Pixel size	6.35 [um] x 7.40 [um]

*1/3 inch SD Single Chip
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Parameter	Typical value
Effective pixel array	728 (H) x 488 (V)
Effective image area	4.623 [mm] x 3.611 [mm]
Optical format	1/3 [inch]
Input clock frequency	27~54 [MHz]
Output interface	10/8-bit parallel
	CVBS(NTSC/PAL)
Max. frame rate	60fps : ITU-R. BT656 @ 27[MHz] (for NTSC)
	50fps : ITU-R. BT656 @ 27[MHz] (for PAL)
	60fields/sec : NTSC @ 27[MHz]
	50fields/sec : PAL @ 27[MHz]
	60fps : YCbCr422/RGB565/RGB444 @ 54[MHz]
	60fps : Bayer @ 27[MHz]
Dark signal	37.9 [mV/sec]
Sensitivity	19.5 [V/Lux.sec]
Power supply	AVDD : 3.3 [V]
	HVDD : 3.3 [V]
	CVDD : 3.3 [V]
Power consumption	298 [mW] @ dynamic
	534.9 [uW] @ standby
Operating Temp. (fully functional Temp.)	-30~85 [°C] @ambient
Dynamic range	64.4 [dB] @ 60 [°C]
SNR	50 [dB]