



At dark night, not everything is visible to the human eye but Panasonic's  $\nu$  Maicovicon<sup>®</sup> image sensor is able to deliver vivid color movie, and catch small letters clearly.

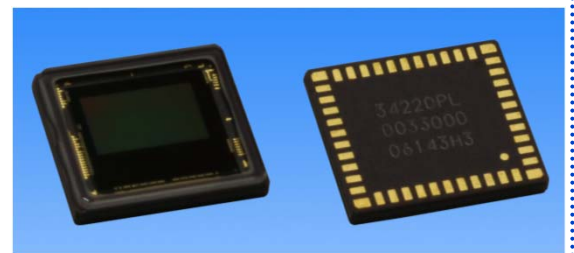
## Key Features

- Offering high sensitivity from Panasonic's proprietary pixel technology
- Capturing sharp and vivid color images at 0.05 lux
- High speed\*<sup>1</sup>
- New Wide Dynamic Range function supports high speed and high sensitivity movie under different light conditions
- Lowest noise\*<sup>2</sup> sensor in the market
- Industry's leading low power consumption sensor
- Industry's leading small QFN package\*<sup>3</sup>

\*1 : Full HD Mode MN34220 : 120fps, MN34229 : 60fps

\*2 : February 2014, Panasonic's investigation

\*3 : Package size : 46pin : 8.30mm x 9.40mm x 1.53mm



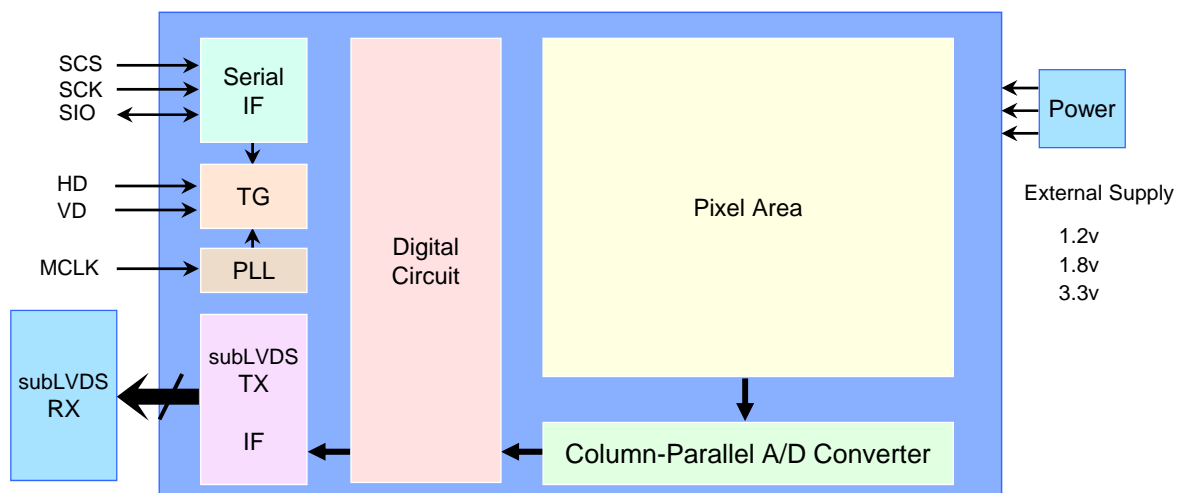
\*  $\nu$  Maicovicon is a registered trademark or trademark of Panasonic Corporation.

## ■ Specifications

Parameter		MN34220PL (2.36M Pixel)	MN34229PL (2.12M Pixel)		
Scan mode		Progressive scan			
Optical size		1/2.86 type (inch)	1/3 type (inch)		
Number of active pixels		1944 (H) x 1213 (V) = 2,358,072 (pixel)	1944 (H) x 1092 (V) = 2,122,848 (pixel)		
Total number of pixels		1956 (H) x 1266 (V) = 2,476,296 (pixel)	1956 (H) x 1266 (V) = 2,476,296 (pixel)		
Pixel size		2.75 (H) um x 2.75 (V) um			
Actual imaging area dimensions (active pixel area)		5,346 (H) um x 3,336 (V) um	5,346 (H) um x 3,003 (V) um		
Color filter arrangement		R,G,B Bayer Pattern			
Package, Pin number		QFN 46pin Ceramic Package ( 8.30mm x 9.40mm x 1.53mm )			
Power supply voltage		3.3V / 1.8V / 1.2V			
Master clock		13.5MHz / 27 MHz / 54MHz / 37.125MHz / 74.25MHz			
Bit number of internal ADC		12bit			
Output signal type		subLVDS DDR method Output data rate : 445.5 Mbps, 486 Mbps, 594 Mbps	subLVDS DDR method Output data rate : 445.5 Mbps, 594 Mbps		
Register I/F		3 Line Serial I/F, I <sup>2</sup> C I/F			
Output frame rate per second		subLVDS 1ch 4port / 2ch 2port 12bit format : 60 fps (Full scan mode) subLVDS 1ch 6port / 2ch 3port 10bit format : 108 fps (Full scan mode) 10bit format : 120 fps (Full HD)	subLVDS 1ch 4port / 2ch 2port 12bit format : 60 fps (Full HD)		
Electronic shutter		60fps : 1 / 59.89 s ~ 1 / 67500 s (1/67500 s step)			
Variable gain		Analog gain 0dB ~ 30dB 0.36dB/step Digital gain 0dB ~ 30dB 0.36dB/step			
Functions	Vertical any cropping	1080p	120fps	Yes	n/a
			60fps	Yes	Yes *1
		720p	Yes	Yes	
	Flip mode		Yes	Yes	
	Variable frame rate, Long time Exposure		Yes	Yes	
	UXGA mode		Yes	n/a	

\*1 : 1080p of MN34229 is not cropping

## ■ Block Diagram



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