



High-Sensitivity Image Sensors for Security Usage

■Progressive CCDs

Optical format	Total pixels	Model No.	Video performance	Color filter	Resolution	Pixel size H x V (μm)	Sensitivity* ¹ (mV) TYP.	Smear ratio (dB) TYP.	Package
					Image pixels (H x V)				
1/3 type	350 k	RJ33B3AA0DT* ²	VGA 120 fps (1 ch output)	Primary color	660 x 494	7.4 x 7.4	3 000	-125	P-DIP024-0400
		RJ33B4AA0DT* ²		B/W			4 500		
		RJ33B3AD0DT* ²	VGA 200 fps (2 ch output)	Primary color			3 000		
		RJ33B4AD0DT* ²		B/W			4 500		
	520 k	RJ3331AA0PB	NTSC 650 TV lines	Complementary color	976 x 494	5.0 x 7.4	1 500	-120	P-DIP016-0450
	610 k	RJ3341AA0PB	PAL 650 TV lines	Complementary color	976 x 582	5.0 x 6.3			
	1 350 k	RJ33J3BA0DT	1.3M 30 fps 720p 30 fps (1 ch output)	Primary color	1 320 x 976	3.75 x 3.75	790	-120	P-DIP024-0400
		RJ33J4BA0DT		B/W			1 190		
		RJ33J3CA0DT* ²		Primary color			950		
		RJ33J4CA0DT* ²		B/W			1 430		
	2 170 k	RJ33N3AA0LT* ²	1 080p 25 fps (1 ch output)	Primary color	1 928 x 1 088	2.8 x 2.8	470	-110	N-LCC040-R350B
		RJ33N4AA0LT* ²		B/W			650		
		RJ33N3AD0LT* ²	1 080p 50 fps (2 ch output)	Primary color			470		
		RJ33N4AD0LT* ²		B/W			650		
1/2 type	2 170 k	RJ31N3EA0DT* ²	1 080p 25 fps (1 ch output)	Primary color	1 928 x 1 088	3.65 x 3.65	750	-115	
		RJ31N4EA0DT* ²		B/W			1 150		
		RJ31N3ED0DT* ²	1 080p 50 fps (2 ch output)	Primary color			750		
		RJ31N4ED0DT* ²		B/W			1 150		
1/1.8 type	2 100 k	RJ31N3AA0DT	2M 25 fps (1 ch output)	Primary color	1 644 x 1 236	4.4 x 4.4	1 100	-120	P-DIP028-0566
		RJ31N4AA0DT		B/W			1 650		
	2 130 k	RJ31N3AD0DT	2M 50 fps (2 ch output)	Primary color			1 100		
		RJ31N4AD0DT		B/W			1 650		
	2 960 k	RJ31P3AA0DT* ²	2.8M 17 fps (1 ch output)	Primary color	1 940 x 1 460	3.69 x 3.69	750	-115	
		RJ31P4AA0DT* ²		B/W			1 150		
		RJ31P3AD0DT* ²	2.8M 30 fps (2 ch output)	Primary color			750		
		RJ31P4AD0DT* ²		B/W			1 150		

*¹ The average G signal output voltage (the average output voltage in the case of the complementary color filter) when a 1,000-lux light source with a 90% reflector is imaged by a lens of F4 at 1/30 sec (1/25 sec in the case of RJ3341AA0PB) frame accumulation.

*² This model is the next-generation model. Light efficiency including the near-infrared light region has been drastically improved by our process technology.

Notice

In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc.

Except where specially indicated, models listed on this page comply with the RoHS Directive*. For details, please contact SHARP.
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■ Progressive CCDs (cont'd)

Optical format	Total pixels	Model No.	Video performance	Color filter	Resolution	Pixel size H x V (μm)	Sensitivity*1 (mV) TYP.	Smear ratio (dB) TYP.	Package
					Image pixels (H x V)				
2/3 type	5 240 k	RJ32S3AA0DT	5M 9 fps (1 ch output)	Primary color	2 456 x 2 058	3.45 x 3.45	530	-110	P-DIP028-0566
		RJ32S4AA0DT		B/W			800		
		RJ32S3AD0DT	5M 15 fps (2 ch output)	Primary color			530		
		RJ32S4AD0DT		B/W			800		
		RJ32S3AF0DT*2	5M 30 fps (4 ch output)	Primary color	580		P-DIP064-1000		
		RJ32S4AF0DT*2		B/W	870				
1/1 type	6 090 k	RJ3DT3AA0DT*2	6M 8 fps (1 ch output)	Primary color	2 758 x 2 208	4.54 x 4.54	1 150	-125	P-DIP064-1000
		RJ3DT4AA0DT*2		B/W			1 750		
		RJ3DT3AD0DT*2	6M 15 fps (2 ch output)	Primary color			1 150		
		RJ3DT4AD0DT*2		B/W			1 750		
		RJ3DT3AF0DT*2	6M 30 fps (4 ch output)	Primary color			1 150		
		RJ3DT4AF0DT*2		B/W			1 750		
	8 290 k	RJ3DV3AF0DT*2	8M 25 fps (4 ch output)	Primary color	3 320 x 2 496	3.88 x 3.88	750	-120	
		RJ3DV4AF0DT*2		B/W			1 100		
4/3 type	8 340 k	★RJ3EV3EF0DT*2	8M 25 fps (4 ch output)	Primary color	3 848 x 2 168	5.14 x 5.14	1 500	-125	P-DIP064-1000B
		★RJ3EV4EF0DT*2		B/W			2 250		

*1 The average G signal output voltage when a 1,000-lux light source with a 90% reflector is imaged by a lens of F4 at 1/30 sec frame accumulation.

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■ 1/3-type CCDs

Total pixels	Standard		Model No.	Resolution		Pixel size H x V (μm)	Sensitivity*1 (mV) TYP.	Smear ratio (dB) TYP.	Package
				Horizontal TV lines	Image pixels (H x V)				
270 k	Color	NTSC	RJ2315EA0PB	330	512 x 492	9.6 x 7.5	4 200	-140	P-DIP016-0450
			RJ2315FA0PB*2				4 500		
320 k		PAL	RJ2325EA0PB		512 x 582	9.6 x 6.34	4 200		
			RJ2325FA0PB*2				4 500		
410 k		NTSC	RJ2355DA0PB	480	768 x 494	6.4 x 7.5	2 700	-135	
			RJ2355EA0PB*2				3 000		
470 k		PAL	RJ2365DA0PB		752 x 582	6.53 x 6.39	2 700		
			RJ2365EA0PB*2				3 000		
520 k		NTSC	RJ2331BA0PB	650	976 x 494	5.0 x 7.4	2 400	-125	
			RJ2331CA0PB*2				2 600		
610 k		PAL	RJ2341BA0PB		976 x 582	5.0 x 6.3	2 400		
			RJ2341CA0PB*2				2 600		

*1 The average output voltage measured when imaging a 90% reflector illuminated by a 1,000-lux light source through an optical system set at an f number of F4.0.

*2 This model is the next-generation model. Light efficiency including the near-infrared light region has been drastically improved by our process technology.

■ 1/4-type CCDs

Total pixels	Standard		Model No.	Resolution		Pixel size H x V (μm)	Sensitivity*1 TYP. (mV)	Smear ratio TYP. (dB)	Package
				Horizontal TV lines	Image pixels (H x V)				
270 k	Color	NTSC	RJ2411FA0PB	330	512 x 492	7.2 x 5.6	1 800	-130	P-DIP014-0400A
320 k		PAL	RJ2421FA0PB		512 x 582	7.2 x 4.73	1 650		
410 k		NTSC	RJ2455DA0PB	480	768 x 494	4.9 x 5.6	1 350	-120	
470 k		PAL	RJ2465DA0PB		752 x 582	5.0 x 4.77			
520 k		NTSC	RJ2431AA0PB	650	976 x 494	3.75 x 5.56	1 400		
610 k		PAL	RJ2441AA0PB		976 x 582	3.75 x 4.47			

*1 The average output voltage measured when imaging a 90% reflector illuminated by a 1,000-lux light source through an optical system set at an f number of F4.0.

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■ DSPs for CCDs

Description	Model No.	Features		Package
CDS/PGA/ADC + DSP	LR36B16	For 270-k/320-k/410-k/470-k/ 520-k/610-kpixel CCDs	<CDS/PGA/ADC> High-speed S/H circuit, high-gain PGA circuit, 12-bit ADC <DSP> 75-ohm video amplifier, mechanical iris control function, 10-bit DAC, synchronous signal generation circuit, CCD drive timing generator, AE control function, AWB control function, LED light control function, DWDR (gamma transition function), lens shading correction function, auto white blemish compensation function, mirror image function, OSD function (5 languages: En., Ch., Fr., Por., Sp.), privacy mask function, highlight compensation, motion detection function, 2D noise reduction, high resolution function, AF detection value output, NTSC/PAL analog output, Y/C analog output, UYVY digital output (ITU-R BT656 compatible)	P-HQFN072-1010

Notice

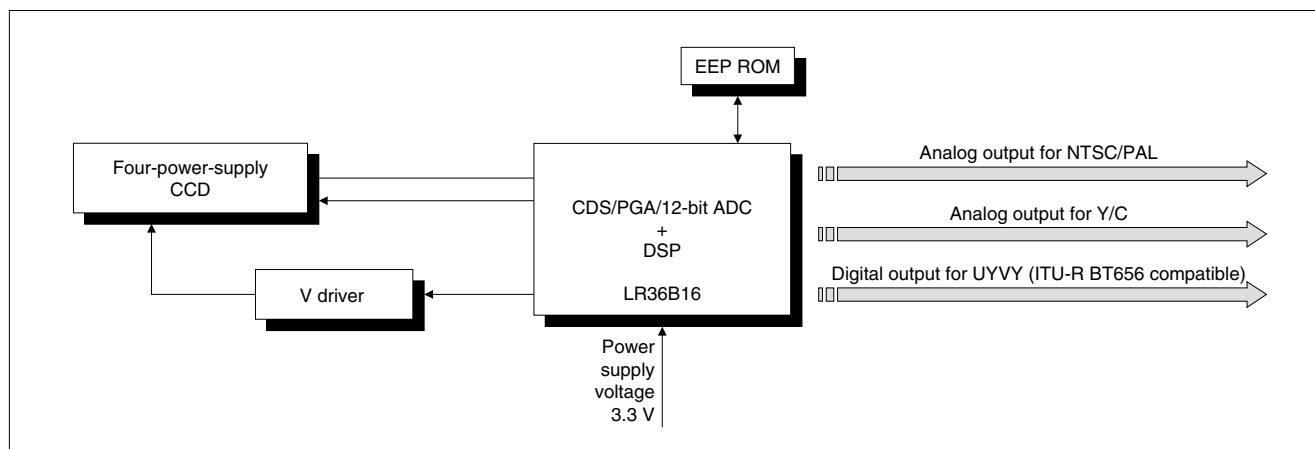
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●System Configuration Examples

<Color Security Camera System with Three-chip Configuration>



Four-power-supply CCDs and peripheral ICs/LSIs

CCD			CDS/PGA/ADC + DSP + Video amplifier
1/3 type	270 kpixels	RJ2315EA0PB	LR36B16
		RJ2315FA0PB	
	320 kpixels	RJ2325EA0PB	
		RJ2325FA0PB	
	410 kpixels	RJ2355DA0PB	
		RJ2355EA0PB	
	470 kpixels	RJ2365DA0PB	
		RJ2365EA0PB	
	520 kpixels	RJ2331BA0PB	
		RJ2331CA0PB	
1/4 type	610 kpixels	RJ2341BA0PB	LR36B16
		RJ2341CA0PB	
	270 kpixels	RJ2411FA0PB	
	320 kpixels	RJ2421FA0PB	
	410 kpixels	RJ2455DA0PB	
	470 kpixels	RJ2465DA0PB	
	520 kpixels	RJ2431AA0PB	
	610 kpixels	RJ2441AA0PB	

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