

Highest Resolution Charge Coupled Devices (CCDs) – Overview



Part No.	Version	Resolution Pixels	Pixel Size in μm	Image Area in mm	Architecture ^{*3}	No. of Outputs	Output-Type ^{*6}	QE ^{*4} in %	Data rate in MHz	Readout Rate in Hz	MPP ^{*2}	FI ^{*1} BI ^{*1}	RON ^{*5} in e ⁻ @ data rate	FWC ^{*7} in ke ⁻
CCD1600LN	Low Noise	10k x 10k	9	95 x 95	Split-FF	16	1-Stage SF	> 95 > 40	0.1 (10)	0.1 (2)	optional	FI BI	2 e ⁻ @ 50 kHz 5 e ⁻ @ 1 MHz	70 - 100
CCD1600FT	Frame Transfer	10k x 10k	9	95 x 95	Split-FT	16	2-Stage SF	> 95 > 40	10	2	optional	FI BI	5 e ⁻ @ 100 kHz 8 e ⁻ @ 1 MHz	> 80
CCD2700A	Standard	8k x 8k	7.5	62 x 65	Split-FF	8	2-Stage SF	> 45	20	2	optional	FI	< 5 e ⁻ @ 150 kHz 6 e ⁻ @ 1 MHz	30 - 65
CCD2500A	Custom	8k x 6k	8.6	72 x 54	Split-FF	32	2-Stage SF	> 50	40	20	no	FI	38 e ⁻ @ 40 MHz	60 - 90
CCD2520A	Custom	4k x 3k	8.6	36 x 27	Split-FF	32	2-Stage SF	> 50	40	32	no	FI	30 e ⁻ @ 20 MHz	60 - 90
CCD_FF4K	Custom	4k x 4k	10	40 x 40	Split-FF	4, 16	1-Stage SF	> 95	0,5	0,5	optional	BI	< 5 e ⁻ @ 500 kHz	> 90
CCD4150A	Low Noise	4k x 4k	15	61 x 61	Split-FF	4	1-Stage SF	> 95	3	< 1	optional	BI	< 3 e ⁻ @ 100 kHz	150 - >300
CCD3200A	Custom X-ray	4k x 4k	24 ^{*9}	96 x 96	Split-FT	16	2-Stage SF	> 80 ^{*8}	5	3	optional	BI	380e ⁻ @ 5 MHz ^{*10}	1400
CCD3600A	Standard	2k x 2k (1k x 2k)	15	31 x 31 (15 x 31)	Split-FF (FT)	4 (2)	1-Stage SF	> 95	3	2 (1)	standard	BI	< 3 e ⁻ @ 100 kHz	150 - >200
CCD_FT2K	Standard	2k x 2k	16	31 x 31	Split-FT	16	1-Stage SF	~ 50	1	20 (60)	standard	FI	< 5 e ⁻ @ 1 MHz	125 - 220
CCD1630A	Standard	1k x 1k	9	12 x 12	FF	1	2-Stage SF	> 50	20	10	standard	FI	30 e ⁻ @ 20 MHz	70 - 100

*1 FI - Front illuminated; BI - Back illuminated; missing option (e.g. BI) could be developed, but is not yet available as standard part.

*2 MPP - Multi-Phase Pinning for reduced dark current

*3 FF - Full Frame, FT - Frame Transfer

*4 Quantum efficiency, possible max. value @ selected wavelength @ -100°C

*5 RON - Read Out Noise

*6 SF - Source Follower

*7 FWC - Full Well Capacity

*8 X-ray detection efficiency @ 12 keV

*9 20 μm X-ray resolution @ 20 keV

*10 Depending on dynamic range (FWC)