

ELECTRO-OPTICAL AND MECHANICAL RESULTS SHEET CCD231-42, BI, 2k x 2k, NIMO, FOUR OUTPUT	DAS770896AS Version 2 Sheet 1 of 2
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Associated Documents: CCD231-42 BI NIMO Data Sheet, Provisional V4, Mar 2013

Device Serial Number	12234-07-04	Tester (Initials & No.)	HR0846	Date	17/03/2013
Device Type	CCD231-42-x- F61	Grade	0		
x=grade					

All test performed on output OS-E, at 500 kHz and in mode-1 unless stated otherwise

TEST	RESULT	LIMITS	PASS / FAIL	UNITS	
Amplifier Responsivity	OS-E (1)	7.11	5.00 min	PASS	$\mu\text{V}/e^-$
	OS-F (2)	7.15	5.00 min	PASS	$\mu\text{V}/e^-$
	OS-G (3)	7.12	5.00 min	PASS	$\mu\text{V}/e^-$
	OS-H (4)	7.26	5.00 min	PASS	$\mu\text{V}/e^-$
Readout Noise (measured at 50 kHz)	OS-E (1)	3.2	4.0 max	PASS	rms e^-
	OS-F (2)	3.2	4.0 max	PASS	rms e^-
	OS-G (3)	3.3	4.0 max	PASS	rms e^-
	OS-H (4)	3.3	4.0 max	PASS	rms e^-
Charge Capacity (where non-linearity =3.0%)	OS-E (1)	354	200 min	PASS	ke
	OS-F (2)	342	200 min	PASS	ke
	OS-G (3)	351	200 min	PASS	ke
	OS-H (4)	342	200 min	PASS	ke
Serial CTE	OS-E (1)	0.999997	0.999990 min, 1.000000 max	PASS	n/a
	OS-F (2)	0.999997	0.999990 min, 1.000000 max	PASS	n/a
	OS-G (3)	0.999996	0.999990 min, 1.000000 max	PASS	n/a
	OS-H (4)	0.999998	0.999990 min, 1.000000 max	PASS	n/a
Parallel CTE	0.999998	0.999990 min, 1.000000 max	PASS	n/a	
Deferred Charge (Parallel)	1	-	FIO	e^-	
Deferred Charge (Serial)	-4	-	FIO	e^-	
Mean Dark Signal at test temperature (Measured)	1283	-	FIO	$e^-/\text{pix}/\text{hr}$	
Equivalent Mean Dark Signal at - 100°C (calculated)	19.9	-	FIO	$e^-/\text{pix}/\text{hr}$	
Mean Dark Signal at -120°C (calculated)	0.11	2.0 max	PASS	$e^-/\text{pix}/\text{hr}$	

Key: FIO = for information only

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Device Serial Number	12234-07-04
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TEST		RESULT	LIMITS			PASS / FAIL	UNITS
		QE limits depend on device type					
Quantum Efficiency	350 nm	49.2	30.0 min			PASS	%
	400 nm	96.2	75.0 min			PASS	%
	500 nm	95.2	75.0 min			PASS	%
	650 nm	96.3	80.0 min			PASS	%
	900 nm	64.4	50.0 min			PASS	%
PRNU (1σ)	400 nm	2.0	3.0 max			PASS	%
	650 nm	1.3	3.0 max			PASS	%
	900 nm	1.9	5.0 max			PASS	%
<u>Cosmetic Grading:</u>			Grade 0	Grade 1	Grade 2	GRADE	
Defects in Darkness	Point Defects (a)	0	100 max	150 max	300 max	0	n/a
	Bright Columns (b)	0	FIO	FIO	FIO	FIO	n/a
PR Defects	Dark Points (c)	2	FIO	FIO	FIO	FIO	n/a
	Dark Columns (d)	0	FIO	FIO	FIO	FIO	n/a
	Bright Columns (e)	0	FIO	FIO	FIO	FIO	n/a
Traps (>200e)		0	5 max	10 max	20 max	0	n/a
Total Spots (a)+(c)		2	100 max	300 max	500 max	0	n/a
Total Columns (b)+(d)+(e)		0	0 max	2 max	10 max	0	n/a
<u>Mechanical Measurements:</u>							
Chip Flatness Peak to Valley at room temperature		14	20 max			PASS	μm

Key: n/a = not applicable FIO = for information only

CUSTOM TESTS (If applicable)

TEST	RESULT	LIMITS			PASS / FAIL	UNITS

OPERATING CONDITIONS (for non-charge dumping conditions)

VOLTAGE	VALUE	MIN - MAX	UNITS	VOLTAGE	VALUE	MIN - MAX	UNITS
OD, DOD*	27.8	25 - 31	V	SS	0	0 - 10	V
RD	17	16 - 19	V	RØH, SWH	10	9 - 12	V
OG	2.5	1 - 5	V	ØRH	10	9 - 14	V
DGL	0	-2 - 0.5	V	IØH, TGØH	10	9 - 12	V
DD	29	25 - 31	V				

* OD/DOD value is set voltage in e2v test camera. Actual applied voltage is 0.3V lower at device level

ELECTRO-OPTICAL TEST TEMPERATURES

MEASUREMENT	TYPICAL VALUE	ACTUAL VALUE	UNITS
Dark Signal / Defects in darkness	-80	-80.0	°C
All other E-O Tests	-100	-100.0	°C

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