

ELECTRO-OPTICAL AND MECHANICAL RESULTS SHEET CCD231-C6 MULTILAYER COATING, BI, 6k x 6k, NIMO, FOUR OUTPUT	DAS770208AS-1 Version 1 Sheet 1 of 2
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Associated Documents: Data Sheet CCD231-C6 BI NIMO, Provisional Version 3, Jan 2012
 CCD231-C6 Test Plan : CCD231-C6-E2V-PL-001

Device Serial Number	10413-07-01	Tester (Initials & No.)	IS 1145	Date	31/05/2012
Device Type	CCD231-C6-x-F08	Connector I.D. Number	002	Grade	0

All test performed at 173K, on output E, at 500 kHz and in mode-1 unless stated otherwise

TEST	RESULT	LIMITS	PASS / FAIL	UNITS	
Amplifier Responsivity 500 kHz (mode-1)	OS-E	8.22	5.00 min	PASS	$\mu\text{V}/e^-$
	OS-F	8.20	5.00 min	PASS	$\mu\text{V}/e^-$
	OS-G	8.45	5.00 min	PASS	$\mu\text{V}/e^-$
	OS-H	8.15	5.00 min	PASS	$\mu\text{V}/e^-$
Amplifier Responsivity 500 kHz (mode-2)	OS-E	2.50	-	FIO	$\mu\text{V}/e^-$
	OS-F	2.55	-	FIO	$\mu\text{V}/e^-$
	OS-G	2.58	-	FIO	$\mu\text{V}/e^-$
	OS-H	2.48	-	FIO	$\mu\text{V}/e^-$
Amplifier Responsivity 50 kHz (mode-1)	OS-E	8.13	-	FIO	$\mu\text{V}/e^-$
	OS-F	8.18	-	FIO	$\mu\text{V}/e^-$
	OS-G	8.28	-	FIO	$\mu\text{V}/e^-$
	OS-H	8.04	-	FIO	$\mu\text{V}/e^-$
Noise 500 kHz	OS-E	4.6	-	FIO	rms e^-
	OS-F	4.6	-	FIO	rms e^-
	OS-G	4.1	-	FIO	rms e^-
	OS-H	4.6	-	FIO	rms e^-
Noise 50 kHz	OS-E	2.0	3.0 max	PASS	rms e^-
	OS-F	1.8	3.0 max	PASS	rms e^-
	OS-G	2.3	3.0 max	PASS	rms e^-
	OS-H	2.0	3.0 max	PASS	rms e^-
Output Node Capacity	OS-E	284	-	FIO	ke
	OS-F	281	-	FIO	ke
	OS-G	295	-	FIO	ke
	OS-H	305	-	FIO	ke
Max Non-Linearity (between 10% and 80% of node capacity)	OS-E	0.19	3.0 max	PASS	%
	OS-F	0.32	3.0 max	PASS	%
	OS-G	0.15	3.0 max	PASS	%
	OS-H	0.33	3.0 max	PASS	%
Full Well/Blooming Limit (mode-2)	396	275 min		PASS	ke/pix
CTE (Serial)	OS-E	1.000000	0.999990 min, 1.000000 max	PASS	n/a
	OS-F	0.999999	0.999990 min, 1.000000 max	PASS	n/a
	OS-G	1.000000	0.999990 min, 1.000000 max	PASS	n/a
	OS-H	1.000000	0.999990 min, 1.000000 max	PASS	n/a
CTE (Parallel)	0.999998	0.999990 min, 1.000000 max		PASS	n/a
Deferred Charge (Parallel)	1	3 max		PASS	e^-
Deferred Charge (Serial)	2	-		FIO	e^-
Mean Dark Signal at -100°C	12.30	-		FIO	$e^-/\text{pix}/\text{hr}$
Mean Dark Signal at -120°C (calculated)	0.07	2.0 max		PASS	$e^-/\text{pix}/\text{hr}$
Area Max Dark Signal at -100°C	49.4	-		FIO	$e^-/\text{pix}/\text{hr}$
Area Max Dark Signal at -120°C (calculated)	0.27	-		FIO	$e^-/\text{pix}/\text{hr}$

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

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Device serial number	10413-07-01	Connector I.D. Number	002
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TEST	RESULT	LIMITS	PASS / FAIL	UNITS
Deep Depletion Astro AR Multi-Layer				
Quantum Efficiency	350 nm	42.9	30 min	PASS %
	400 nm	90.1	70 min	PASS %
	500 nm	96.8	75 min	PASS %
	650 nm	92.9	75 min	PASS %
	900 nm	59.0	50 min	PASS %
PRNU (1σ)	400 nm	2.1	3.0 max	PASS %
	650 nm	1.1	3.0 max	PASS %
	900 nm	1.6	5.0 max	PASS %

Cosmetics:		Grade 0	Grade 1	Grade 2	GRADE		
Defects in Darkness	Point Defects (a)	3	1000 max	2000 max	3000max	0	n/a
	Bright Columns (b)	0	FIO	FIO	FIO	FIO	n/a
PR Defects	Dark Points (c)	15	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 ⁻)		13	20 max	30 max	40 max	0	n/a
Total Spots (a)+(c)		18	2000 max	4000max	6000max	0	n/a
Total Columns (b)+(d)+(e)		0	10 max	20 max	30 max	0	n/a

Mechanical Measurements:					
Chip Flatness Peak to Valley at -100°C (estimated)		17	40 max	PASS	μm
Package Height Measurement		Pass	PASS/FAIL (20.000 ± 0.015 mm)	PASS	mm

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CUSTOM TESTS (If applicable)

TEST	RESULT	LIMITS	PASS / FAIL	UNITS

OPERATING CONDITIONS (for clocks, high levels non-charge dumping shown)

VOLTAGE	VALUE	MIN - MAX	UNITS	VOLTAGE	VALUE	MIN - MAX	UNITS
VOD, VDOD	30	25 - 31	V	VSS	0	0 - 10	V
VRD	18	16 - 19	V	VRØ	10	9 - 12	V
VOG (mode-1)	2	1 - 5	V	VØR	12	9 - 14	V
VOG (mode-2)	18	18	V	VIØ, VTGØ	10	9 - 12	V
VSW (mode-1)	10	9 - 12	V	VDG	0	-2 - 0.5	V
VSW (mode-2)	2	1 - 5	V	VDD	29	25 - 31	V

ELECTRO-OPTICAL TEST TEMPERATURES

MEASUREMENT	TYPICAL VALUE	ACTUAL VALUE	UNITS
All E-O Tests	-100	-100	°C

NOTES