

PACKLIST

Aeroflex Colorado Springs, Inc.

4350 Centennial Blvd
Colorado Springs, CO 80907
Phone 719-594-8000
Fax 719-594-8468
CAGE Code 65342

Date:10/14/2014

Page:1

Packlist ID:33310



AEROFLEX

Sold To Address

CALIFORNIA INSTITUTE OF TECH PURCHASING SERVICES
1200 E. CALIFORNIA BLVD
MAIL CODE 103-6
PASADENA, CA 91125
USA

Ship To Address

CALIFORNIA INSTITUTE OF TECHNOLOGY
391 S. HOLLISTON AVENUE
PASADENA, CA 91125
USA

CUSTOMER PO:



44A-S149229

CUSTOMER ID			SUPPLEMENT NO		PAYMENT TERMS		ARXX ORDER NUMBER	
7000333			EMAIL 10/2/2014		Net 30		GV-14083	
SALES REP			SHIP DATE		SHIPPING METHOD		F.O.B.	
CK ASSOCIATES - WEST			10/14/2014		FEDEX PRIORITY		COLORADO SPRINGS	
QUANTITY		LINE	PART ID				CUST PART NUMBER	
ORD	SHP	CUST	ARXX	DESCRIPTION		MFG PART NUMBER		CUST SPEC/REV

3



3

5

7

JYR01A_VR_WAFER



JYR01A WAFER SALES



JYR01A_VR_WAFER

CRH-WAFER FABRICATION

Ship Weight:

Shipped Unit of Measure:

WA

JYR01A_VR_WAFER CONTAINS JY11A AND JY12A DIE.

LOT NUMBER:

D22755.1-G QTY: 3.00

Government Rating/Contract:

Export Type:

Export License:

Schedule B:

ECCN:

ORDER SPECIFICATIONS

ATTN: DEBBY MILES, 290-17

The export of these commodity(ies), technology, or software are subject either to the U. S. Commerce Department Export Administration Regulations (E.A.R.), or to the U. S. State Department International Traffic In Arms Regulations (I.T.A.R.). Diversion, the shipment to unauthorized locations or entities, or the disclosure of related technical data or software to unauthorized foreign nationals is contrary to U. S. law and is prohibited. If export is authorized to a specific country or end-users, compliance with the U. S. export laws is required prior to transfer, transshipment on a non-continuous voyage, or disposal in any other country, or to any other end-user of these commodities, either in their original form or after being incorporated into other end-items.

Aeroflex Colorado Springs, Inc. integrated circuits may be covered by one or more of the following U.S. Patents, or by pending patent applications: 4602270, 4711700, 4730160, 4753820, 4772936, 4805137, 4817029, 4875138, 4900693, 4959706, 4965643, 4996661, 5010256, 5012404, 5037781, 5079737, 5104818, 5128733, 5141597, 5145802, 5146151, 5157625, 5166902, 5187113, 5206182, 5218214, 5298773, 5317181, 5325359, 5344785, 5350607, 5367641, 5380683, and 5384278.

Acceptance expressly conditioned upon enclosed Terms and Conditions of Quotation and Sale.

IF YOU HAVE QUESTIONS REGARDING THIS PACKLIST PLEASE CONTACT AEROFLEX, COLORADO SPRINGS

4350 Centennial Blvd
Colorado Springs, CO 80907
(719) 594-8000 Fax (719) 594-5541
Cage Number: 65342

Certificate Of Conformance



Aeroflex certifies that the product being supplied has been manufactured and meets the performance defined in the agreed to specification(s) and all associated quality clauses, whether or not the actual testing has been performed, except as noted below.

Company Name: Aeroflex Colorado Springs, Original Equipment Manufacturer (OEM)/Original Component Manufacturer (OCM)
Marking symbol: ARXX

Customer Name: CALIFORNIA INSTITUTE OF TECH PURCHASING
SERVICES
PASADENA CA 91125 USA

PIC Number: JYR01A_VR_WAFER

Aeroflex Part Number: JYR01A_VR_WAFER

Customer Part Number/Revision: CRH-WAFER FABRICATION LOT

P.O. Number/Supplement: 44A-S149229 / EMAIL 10/2/2014

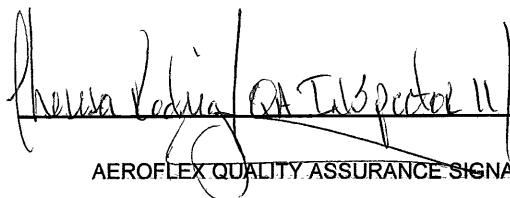
Specification Number/Revision:

Aeroflex Sales Order: GV-14083

Lot Number	Quantity	Date Code
D22755.1-G	3	

MADE IN USA

ALL TEST AND INSPECTION DATA IS MAINTAINED ON FILE FOR ON
SITE REVIEW BY CUSTOMER AND OR GOVERNMENT PERSONNEL

 QA Inspector II / Oct 14, 2014

AEROFLEX QUALITY ASSURANCE SIGNATURE / TITLE / DATE



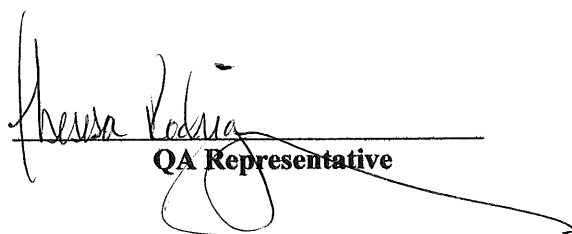
**Wafer Lot Acceptance Summary For
Wafer Foundry With Planar process**

Device: JYR01A Fab Out Date: 09/26/14

Wafer Lot #: D22755.1 Wafer Numbers: 2,4,6

Screen	Aeroflex COS Internal Procedure	Quantity In / Out
Wafer Lot Acceptance Note 1/	03300	3 / 3
DC Parametric Data Review	68508 & 40-1017-XX	3 / 3
Internal Visual	69804 & 49201	3 / 3
Aracor	68501 & 40-1017-YY	3 / 3

Note 1/: SEM inspection is not required for the wafer fab processes that have a planar oxide metal interconnect structure. Metallization step coverage is guaranteed by design for these processes.


QA Representative

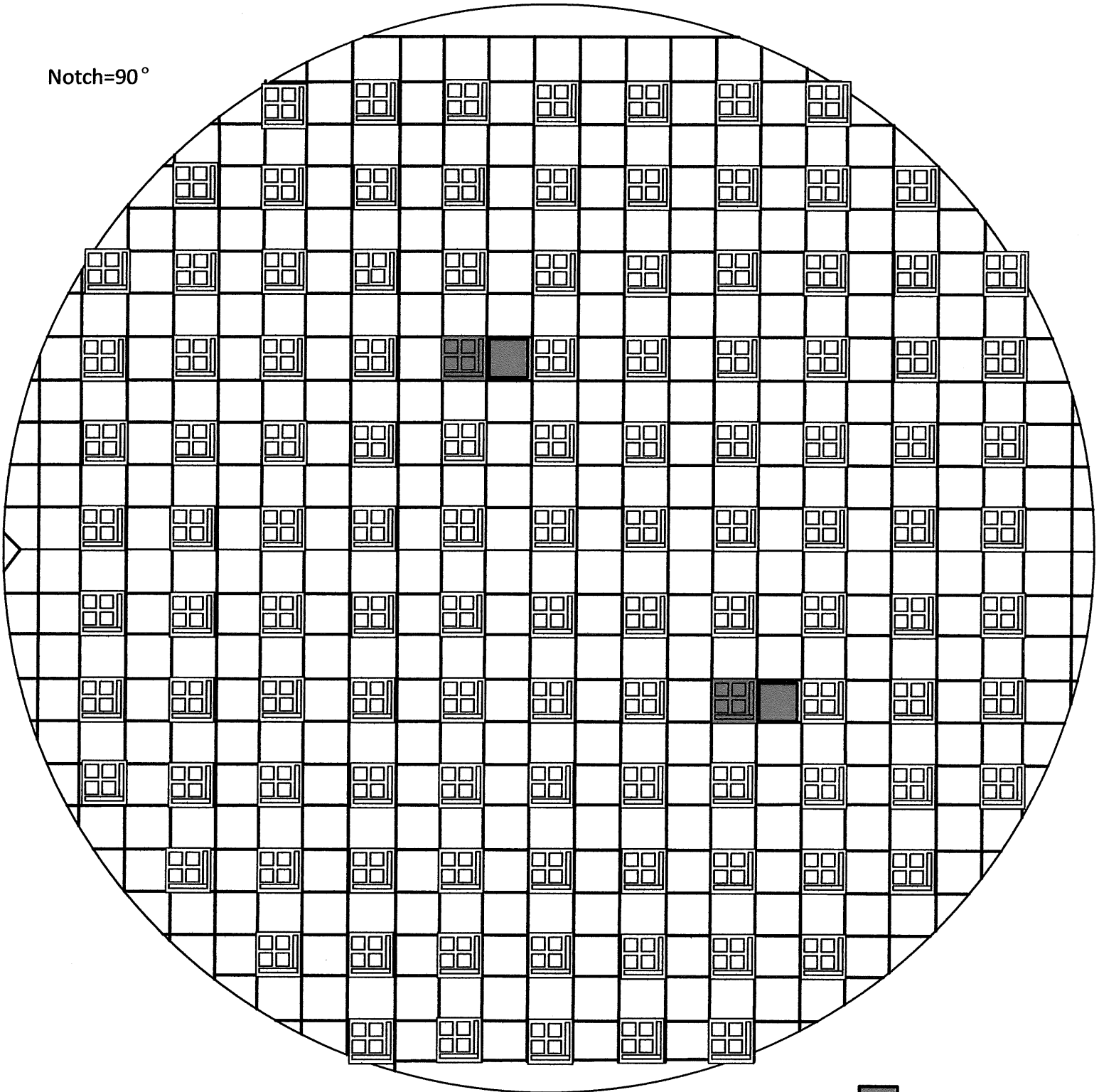
October 14, 2014
Date

JYR01A

Wafer Lot: _D22755_

Wafer Number: _2,4,&6_

Notch=90°



 = Aracor Yield Loss

[illegible]

— 215 —

Parameter name	Min Spec	Value	Max Spec	Delta	D Spec	Units	P/F

nchl_svt_20.00_0.60	2.00e-01	5.2564e-01	7.00e-01	-2.282e-02	-3.80e-01	v
nchl_ioff_20.00_0.60	0.00e+00	6.3779e-12	3.00e-09	1.345e-12	-3.00e-09	A
nchl_bvds_20.00_0.60	7.00e+00	1.0091e+01	1.50e+01	1.703e-01	-8.00e+00	v
nchl_fvt_ply_n/fd_20.00_1.20	5.50e+00	9.4000e+00	1.50e+01	-6.000e-01	-5.00e+00	v
nchl_ioff_ply_n/fd_20.00_1.20	0.00e+00	1.1814e-11	1.00e-06	6.100e-14	-1.00e-06	A
nchl_svt_20.00_0.60	-1.10e+00	-7.8127e-01	-6.00e-01	-2.826e-02	-5.00e-01	v
nchl_bvds_20.00_0.60	-1.60e+01	-1.1166e+01	-7.00e+00	-1.210e-01	-9.00e+00	v
npbias_npflag1_npbias	0.00e+00	0.0000e+00	1.00e+00	0.000e+00	-1.00e+00	na

Parameter name	Min Spec	Value	Max Spec	Delta	D Spec	Units	P/F
-----*							

[illegible]

業

parameter name	Min Spec	Value	Max Spec	Delta	D Spec	Units	P/F
-----*							

chl_svt_20.00_0.60	2.00e-01	5.5498e-01	7.00e-01	0.000e+00	0.00e+00	v
chl_ioff_20.00_0.60	0.00e+00	4.7500e-12	3.00e-09	0.000e+00	0.00e+00	A
chl_bvdss_20.00_0.60	7.00e+00	9.8336e+00	1.50e+01	0.000e+00	0.00e+00	v
chl_fvt_ply_n/fd_20.00_1.20	5.50e+00	1.0000e+01	1.50e+01	0.000e+00	0.00e+00	v

HITAC Microelectronic Systems

BRAGG XRAY TEST RESULTS

```
##### TOTAL DGE=0.0e+00 Keads =
```

np01as_npflagi_np01as	0.00e+00	0.0000e+00	1.00e+00	0.000e+00	0.00e+00	NA
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```
##### TOTALDOSE=1.0e+02 Krad +
```

parameter name	min spec	value	max spec	delta	d spec	units	F/F
----------------	----------	-------	----------	-------	--------	-------	-----

npol123_npr1232_npr1233	0.00000000	0.00000000	1.00000000	0.00000000	-1.00000000	ns
npol123_npr1232_npr1233	0.00000000	0.00000000	1.00000000	0.00000000	-1.00000000	ns

parameter name	min spec	value	max spec	unit	0 spec	units	P/F
----------------	----------	-------	----------	------	--------	-------	-----

npbias_npfagl_npbias	0.00e+00	0.0000e+00	1.00e+00	0.000e+00	-1.00e+00	na
----------------------	----------	------------	----------	-----------	-----------	----

))))))This die passed

~~~~~ TOTAL DISEASE Net 00 Grade +

| Parameter Name | Min Spec | Value | Max Spec | Delta | D Spec | Units | P/F |
|----------------|----------|-------|----------|-------|--------|-------|-----|
|----------------|----------|-------|----------|-------|--------|-------|-----|

|                              |          |            |          |           |          |   |
|------------------------------|----------|------------|----------|-----------|----------|---|
| chlf_fvt_ply_n/fd_20.00_1.20 | 5.50e+00 | 1.0000e+01 | 1.50e+01 | 0.000e+00 | 0.00e+00 | v |
|------------------------------|----------|------------|----------|-----------|----------|---|

UTMC Microelectronic Systems  
ARACOR XRAY TEST RESULTS

|         |              |       |           |          |              |         |            |
|---------|--------------|-------|-----------|----------|--------------|---------|------------|
| LOT     | : D22755.1-6 | WAFER | :04       | PROCESS  | : AC6U       | PRODUCT | : JYR01A   |
| VECFILE | : m10471.vec | PPG   | :jyr01    | DATE     | : 9 Oct 2014 | SUBREV  | : 11-20-13 |
| KV      | : 4.50e+01   | MAPPS | :4.60e+01 | DOSERATE | : 2.99e+03   |         | :          |

|                                |           |             |           |           |          |    |
|--------------------------------|-----------|-------------|-----------|-----------|----------|----|
| nchl1_ioff_ply_n/fd_20.00_1.20 | 0.00e+00  | 1.5888e-11  | 1.00e-06  | 0.000e+00 | 0.00e+00 | A  |
| pchl_svt_20.00_0.60            | -1.10e+00 | -7.4500e-01 | -6.00e-01 | 0.000e+00 | 0.00e+00 | v  |
| pchl_bvds_20.00_0.60           | -1.60e+01 | -1.1649e+01 | -7.00e+00 | 0.000e+00 | 0.00e+00 | v  |
| npbias_npflag1_npbias          | 0.00e+00  | 0.0000e+00  | 1.00e+00  | 0.000e+00 | 0.00e+00 | nc |

| Parameter name                 | Min Spec  | Value       | Max Spec  | Delta      | D Spec    | Units | P/F |
|--------------------------------|-----------|-------------|-----------|------------|-----------|-------|-----|
| #                              |           |             |           |            |           |       | #   |
| nchl_svt_20.00_0.60            | 2.00e-01  | 5.3199e-01  | 7.00e-01  | -2.145e-02 | -3.80e-01 | v     |     |
| nchl_ioff_20.00_0.60           | 0.00e+00  | 6.8502e-12  | 3.00e-09  | 1.311e-12  | -3.00e-09 | A     |     |
| nchl_bvdss_20.00_0.60          | 7.00e+00  | 9.9392e+00  | 1.50e+01  | 8.230e-02  | -8.00e+00 | v     |     |
| nchif_fvt_ply_n/fd_20.00_1.20  | 5.50e+00  | 9.2800e+00  | 1.50e+01  | -8.000e-01 | -5.00e+00 | v     |     |
| nchif_ioff_ply_n/fd_20.00_1.20 | 0.00e+00  | 1.5668e-11  | 1.00e-06  | -2.200e-12 | -1.00e-06 | A     |     |
| pchl_svt_20.00_0.60            | -1.10e+00 | -7.8496e-01 | -6.00e-01 | -3.996e-02 | -5.00e-01 | v     |     |
| pchl_bvdss_20.00_0.60          | -1.60e+01 | -1.1164e+01 | -7.00e+00 | -1.150e-01 | -9.00e+00 | v     |     |
| npbias_npflag1_npbias          | 0.00e+00  | 0.0000e+00  | 1.00e+00  | 0.0000e+00 | -1.00e+00 | na    |     |

| Parameter name                 | Min Spec  | Value       | Max Spec  | Delta      | D Spec    | Units | P/F |
|--------------------------------|-----------|-------------|-----------|------------|-----------|-------|-----|
| chi_svt_20.00_0.60             | 2.00e-01  | 4.9615e-01  | 7.00e-01  | -5.731e-02 | -3.60e-01 | v     |     |
| chi_ioff_20.00_0.60            | 0.00e+00  | 1.3570e-07  | 3.00e-07  | 1.349e-07  | -3.00e-07 | A     |     |
| chi_bvds_20.00_0.60            | 7.00e-00  | 9.9e+0e+00  | 1.00e+01  | 1.170e+01  | -8.00e+00 | v     |     |
| chi_fvq_ply_n/fa_20.00_1.20    | 9.50e+00  | 6.1000e+00  | 1.50e+01  | -3.900e+00 | -5.00e+00 | v     |     |
| chi_f_ioff_ply_n/fa_20.00_1.20 | 0.00e+00  | 1.1403e-10  | 1.00e-06  | 9.894e-11  | -1.00e-06 | A     |     |
| chi_svt_20.00_0.60             | -1.10e+00 | -6.5400e-01 | -6.00e-01 | -1.091e-01 | -5.00e-01 | v     |     |
| chi_bvds_20.00_0.60            | -1.60e-01 | -1.1239e+01 | -7.00e+00 | -1.900e-01 | -9.00e+00 | v     |     |
| pbias_npilagi_npbias           | 0.00e+00  | 0.0000e+00  | 1.00e+00  | 0.0000e+00 | -1.00e+00 | na    |     |

~~~~~This die passed

~~~~~ This Water Passed



Date: 11-20-13

Lot: 2.00e+00

| nchl_ioff_ply_n/fd_20.00_1.20   | 0.00e+00  | 1.0000e-11  | 1.00e-06  | 0.0000e+00 | 0.00e+00  | A     |     |
|---------------------------------|-----------|-------------|-----------|------------|-----------|-------|-----|
| pchl_svt_20.00_0.60             | -1.10e+00 | -7.5470e-01 | -6.00e-01 | 0.0000e+00 | 0.00e+00  | V     |     |
| pchl_bvds_20.00_0.60            | -1.60e+01 | -1.1673e+01 | -7.00e+00 | 0.0000e+00 | 0.00e+00  | V     |     |
| npbias_npflag1_npbias           | 0.00e+00  | 0.0000e+00  | 1.00e+00  | 0.0000e+00 | 0.00e+00  | na    |     |
| ***** ID:ALDOSE=1.0e+02 Krads + |           |             |           |            |           |       |     |
| Parameter name                  | Min Spec  | Value       | Max Spec  | Delta      | D Spec    | Units | P/F |
| *****                           |           |             |           |            |           |       |     |
| nchl_svt_20.00_0.60             | 2.00e-01  | 9.3876e-01  | 7.00e-01  | -2.391e-02 | -3.80e-01 | V     |     |
| nchl_ioff_20.00_0.60            | 0.00e+00  | 2.0003e-12  | 3.00e-09  | 1.483e-12  | -3.00e-09 | A     |     |
| nchl_bvds_20.00_0.60            | 7.00e+00  | 9.9448e+00  | 1.50e+01  | 1.038e-01  | -8.00e+00 | V     |     |
| nchl_fvt_ply_n/fd_20.00_1.20    | 5.50e+00  | 9.1600e+00  | 1.50e+01  | -9.000e-01 | -5.00e+00 | V     |     |
| nchl_ioff_ply_n/fd_20.00_1.20   | 0.00e+00  | 1.0516e-11  | 1.00e-06  | -1.200e-13 | -1.00e-06 | A     |     |
| pchl_svt_20.00_0.60             | -1.10e+00 | -7.8488e-01 | -6.00e-01 | -3.018e-02 | -5.00e-01 | V     |     |
| pchl_bvds_20.00_0.60            | -1.60e+01 | -1.1192e+01 | -7.00e+00 | -1.190e-01 | -9.00e+00 | V     |     |
| npbias_npflag1_npbias           | 0.00e+00  | 0.0000e+00  | 1.00e+00  | 0.0000e+00 | -1.00e+00 | na    |     |
| ***** TOTALDOSE=3.0e+02 Krads + |           |             |           |            |           |       |     |
| Parameter name                  | Min Spec  | Value       | Max Spec  | Delta      | D Spec    | Units | P/F |
| *****                           |           |             |           |            |           |       |     |
| nchl_svt_20.00_0.60             | 2.00e-01  | 5.0026e-01  | 7.00e-01  | -6.203e-02 | -3.80e-01 | V     |     |
| nchl_ioff_20.00_0.60            | 0.00e+00  | 2.3467e-10  | 3.00e-09  | 2.291e-10  | -3.00e-09 | A     |     |
| nchl_bvds_20.00_0.60            | 7.00e+00  | 9.9755e+00  | 1.50e+01  | 1.345e-01  | -8.00e+00 | V     |     |
| nchl_fvt_ply_n/fd_20.00_1.20    | 5.50e+00  | 6.3000e+00  | 1.50e+01  | -3.700e+00 | -5.00e+00 | V     |     |
| nchl_ioff_ply_n/fd_20.00_1.20   | 0.00e+00  | 4.3838e-11  | 1.00e-06  | 3.320e-11  | -1.00e-06 | A     |     |
| pchl_svt_20.00_0.60             | -1.10e+00 | -8.3636e-01 | -6.00e-01 | -8.166e-02 | -5.00e-01 | V     |     |
| pchl_bvds_20.00_0.60            | -1.60e+01 | -1.1262e+01 | -7.00e+00 | -1.890e-01 | -9.00e+00 | V     |     |
| npbias_npflag1_npbias           | 0.00e+00  | 0.0000e+00  | 1.00e+00  | 0.0000e+00 | -1.00e+00 | na    |     |

\*\*\*\*\*This die passed

\*\*\*\*\* This Wafer Passed