

ON Semiconductor
Formerly a Division of Motorola



Subject: ON Semiconductor PRODUCT/PROCESS CHANGE NOTIFICATION 10048

TITLE: SCHOTTKY RECTIFIERS QUALIFICATION OF GUADALAJARA, MEXICO
WAFER FAB

EFFECTIVE DATE: 29-NOV-99

AFFECTED CHANGE CATEGORIES
On Semi Fabrication Site

AFFECTED PRODUCT DIVISIONS
MOS POWER PRODUCTS

ADDITIONAL RELIABILITY DATA: Available
Contact your local ON Semiconductor Sales Office.

Ref: R12559

SAMPLES: Contact Below
Contact your local ON Semiconductor Sales Office.

Ref: R13943@email.sps.mot.com

For any questions concerning this notification:
REFERENCE: CHRIS HOLLY PHONE: 602-244-4961

DISCLAIMER:

ON SEMICONDUCTOR WILL CONSIDER THIS CHANGE APPROVED UNLESS SPECIFIC
CONDITIONS OF ACCEPTANCE ARE PROVIDED IN WRITING WITHIN 30 DAYS OF
RECEIPT OF THIS NOTICE. TO DO SO, CONTACT YOUR LOCAL ON
SEMICONDUCTOR SALES OFFICE.
GPCN FORMAT: CUSTOMER

DO NOT REPLY TO THIS MESSAGE.

PRODUCT/PROCESS CHANGE NOTIFICATION

ISSUE DATE: 30-Sep-1999

NOTIFICATION #:10048

EFFECTIVE DATE: 29-Nov-1999

ISSUING DIVISION:PHX-PPD

DESCRIPTION AND PURPOSE

In order to provide additional capacity to service our customers' increasing demand of our Schottky Rectifier product, On Semiconductor has qualified a new wafer fab in our Guadalajara, Mexico facility. The new Guadalajara facility's wafer-processing technology is the same as the current Phoenix facility. A major capacity benefit of the Guadalajara facility is it's production of 6-inch wafers, instead of the 4-inch wafers currently produced in the Phoenix fab. There will be no change in electrical performance with product from the new wafer-processing facility. The Guadalajara Rectifier fab is part of Motorola/ON Semiconductor's previously-announced manufacturing restructuring program, which will dramatically increase ON's Rectifier manufacturing capacity. In order to expedite this additional capacity to service our customers, we will start shipping product from the new fab after 60 days from the PCN release date.

QUALIFICATION PLAN

See Rel Data

RELIABILITY DATA SUMMARY

500hrs (interim) reports will be available for all qualification vehicles after Oct. 29th.
Full 1000hrs reports will be available for all qualification vehicles after Dec. 13th.
Samples will be made available upon request.

Interim Reliability Results:

MBR0530, VR Rating=30V, Package=SOD-123

Test	Conditions	Interval	size	Rejects
Autoclave	Ta=121, P=15 PSIG, RH=100%	192 Hrs	3 x 84	0
Temp Cycle	-55 to 150, Td >15 min	500 Cyc	3 x 84	0

MBRS340T3, VR Rating=40V, Package=SMC

Test	Conditions	Interval	size	Rejects
H3TRB	Ta=85, RH=85%, VR=32V	500 Hrs	3 x 77	0
IOL	Ta=25, Tj=125, Ton/off=3.5	500 Hrs	3 x 77	0
Autoclave	Ta=121, P=15 PSIG, RH=100%	192 Hrs	3 x 77	0
Temp Cycle	-55 to 150, Td >15 min	500 Cyc	3 x 77	0

MBR1100, VR Rating=100V, Package=1A Surmetic

Test	Conditions	Interval	size	Rejects
HTRB	Tj=150, VR=80V	500 Hrs	3 x 80	0
H3TRB	Ta=85, RH=85%, VR=80V	500 Hrs	3 x 80	0
IOL	Ta=25, Tj=125, Ton/off=2.0	500 Hrs	3 x 80	0
Autoclave	Ta=121, P=15 PSIG, RH=100%	96 Hrs	3 x 80	0
Temp Cycle	-55 to 150, Td >15 min	500 Cyc	3 x 80	0

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MBR20200CT, VR Rating=200V, Package=TO-220

Test	Conditions	Interval	size	Rejects
HTRB	Tj=150, VR=160V	500 Hrs	3 x 80	0
H3TRB	Ta=85, RH=85%, VR=100V	500 Hrs	3 x 80	0
IOL	Ta=25, Tj=125, Ton/off=3.5	500 Hrs	3 x 80	0
Autoclave	Ta=121, P=15 PSIG, RH=100%	96 Hrs	3 x 80	0
Temp Cycle	-55 to 150, Td >15 min	500 Cyc	3 x 80	0

MBRP400100CTL, VR RATING=100V, PACKAGE=POWERTAPII

Test	Conditions	Interval	size	Rejects
HTRB	Tj=150, VR=80V	168 Hrs	3 x 80	0
Autoclave	Ta=121, P=15 PSIG, RH=100%	96 Hrs	3 X 80	0
Temp Cycle	-55 to 150, Td>15 min	100 Cyc	3 x 80	0

ELECTRICAL CHARACTERISTIC SUMMARY

MBR0530, VR Rating=30V, Package=SOD-123

VF (volts) at IF=0.1A at 25 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	0.375	0.375	0.375	0.375
Min	0.330	0.330	0.328	0.332
Max	0.332	0.332	0.33	0.334
Average	0.331	0.331	0.329	0.333
Std Dev	0.000450	0.000584	0.000421	0.000486
cpk	32.70	25.20	36.40	28.80

VF (volts) at IF=0.5A at 25 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	0.430	0.430	0.430	0.430
Min	0.408	0.403	0.402	0.407
Max	0.412	0.41	0.408	0.411
Average	0.410	0.406	0.405	0.409
Std Dev	0.001030	0.001640	0.001300	0.000961
cpk	6.51	4.92	6.43	7.19

IR (uA) at VR=30V at 25 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	130	130	130	130
Min	8.27	9.02	9.45	8.65
Max	9.84	13.10	13.30	10.50
Average	8.55	9.98	10.50	9.49
Std Dev	0.312	1.07	0.855	0.489
cpk	130.00	37.30	46.60	82.10

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ISSUING DIVISION:PHX-PPD

IR (uA) at VR=20V at 25 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	20	20	20	20
Min	3.28	3.38	3.57	3.14
Max	3.51	4.24	4.11	3.73
Average	3.34	3.62	3.77	3.40
Std Dev	0.0473	0.2220	0.1540	0.1320
Cpk *	117.00	24.60	35.20	42.00

* Note: ON's spec limit of 20uA is at VR=15V. However,
devices were tested at VR=20V

MBRS340T3, VR Rating=40V, Package=SMC

VF (volts) at IF=3.0A at 25 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	0.525	0.525	0.525	0.525
Min	0.391	0.401	0.405	0.386
Max	0.397	0.413	0.417	0.401
Average	0.394	0.409	0.413	0.397
Std Dev	0.00116	0.00248	0.00249	0.00315
cpk	37.6	15.6	15.1	13.5

IR (mA) at VR=40V at 25 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	2	2	2	2
Min	0.183	0.157	0.146	0.212
Max	0.255	0.217	0.241	0.364
Average	0.211	0.175	0.166	0.24
Std Dev0.	0.0177	0.0132	0.0191	0.03
cpk	33.7	46.1	31.9	19.5

MBRD660CT VR Rating=60V, Package=DPACK

VF (volts) at IF=3.0A at 25 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	0.700	0.700	0.700	0.700
Min	0.560	0.513	0.566	0.548
Max	0.581	0.523	0.584	0.562
Average	0.577	0.518	0.575	0.556
Std Dev	0.00483	0.00311	0.00518	0.0039
cpk	8.50	19.40	8.04	12.30

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VF (volts) at IF=6.0A at 25 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	0.900	0.900	0.900	0.900
Min	0.688	0.635	0.687	0.669
Max	0.710	0.647	0.703	0.689
Average	0.704	0.641	0.696	0.679
Std Dev	0.00484	0.00386	0.00480	0.00607
cpk	13.50	22.30	14.10	12.10

IR (uA) at VR=60V at 25 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	100	100	100	100
Min	1.39	7.15	1.16	2.47
Max	2.41	9.76	2.12	3.80
Average	1.64	8.54	1.69	3.16
Std Dev	0.261	0.790	0.241	0.292
cpk	126.00	38.60	136.00	111.00

VF (volts) at IF=3.0A at 125 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	0.650	0.650	0.650	0.650
Min	0.497	0.465	0.498	0.488
Max	0.517	0.476	0.517	0.507
Average	0.510	0.470	0.506	0.498
Std Dev	0.00404	0.00286	0.00402	0.00453
cpk	11.50	20.90	11.90	11.20

VF (volts) at IF=6.0A at 125 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	0.850	0.850	0.850	0.850
Min	0.592	0.575	0.587	0.582
Max	0.608	0.585	0.604	0.604
Average	0.600	0.580	0.593	0.593
Std Dev	0.00367	0.00240	0.00375	0.00471
cpk	22.70	37.60	22.80	18.20

IR (mA) at 60V at 125 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	15.00	15.00	15.00	15.00
Min	1.00	4.15	0.79	1.21
Max	2.33	6.37	1.56	2.22
Average	1.48	5.36	1.27	1.75
Std Dev	0.260	0.550	0.173	0.229
cpk	17.30	5.84	26.40	19.30

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ISSUING DIVISION:PHX-PPD

MBR1100, VR Rating=100V, Package=1A Surmetic

VF (volts) at IF=1.0A at 25 degrees C.

	Control Group	Qualification Groups (GDL Fab)		
	(PHX Z/R Fab)	Lot 1	Lot 2	Lot 3
Max Limit	0.79	0.79	0.79	0.79
Min	0.609	0.627	0.622	0.613
Max	0.653	0.665	0.659	0.671
Average	0.637	0.652	0.645	0.655
Std Dev	0.01170	0.00877	0.01010	0.01370
cpk	4.36	5.26	4.78	3.29

IR (uA) at VR=100V at 25 degrees C.

	Control Group	Qualification Groups (GDL Fab)		
	(PHX Z/R Fab)	Lot 1	Lot 2	Lot 3
Max Limit	500	500	500	500
Min	1.84	2.99	2.58	1.91
Max	4.7	7.11	5.77	4.88
Average	2.17	3.95	3.54	2.66
Std Dev	0.519	0.974	0.764	0.647
cpk	320	170	217	256

MBR20200CT

VF (volts) at IF=10A at 25 degrees C.

	Control Group	Qualification Groups (GDL Fab)		
	(PHX Z/R Fab)	Lot 1	Lot 2	Lot 3
Max Limit	.900	.900	.900	.900
Min	.783	.778	.777	.774
Max	.788	.786	.783	.786
Average	.785	.782	.779	.781
Std Dev	.00117	.00215	.00147	.00253
cpk	32.8	18.3	27.5	15.7

VF (volts) at IF=20A at 25 degrees C.

	Control Group	Qualification Groups (GDL Fab)		
	(PHX Z/R Fab)	Lot 1	Lot 2	Lot 3
Max Limit	1.0	1.0	1.0	1.0
Min	0.868	0.864	0.860	0.860
Max	0.875	0.873	0.870	0.874
Average	0.871	0.867	0.863	0.866
Std Dev	0.002	0.002	0.002	0.003
cpk	24.3	18.9	22.1	15.5

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ISSUING DIVISION:PHX-PPD

IR (uA) at VR=200V at 25 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	1000	1000	1000	1000
Min	0.033	0.038	0.055	0.042
Max	0.048	0.071	0.113	0.090
Average	0.039	0.053	0.076	0.055
Std Dev	0.003	0.008	0.013	0.012
cpk	109860.7	42467.0	25194.4	27618.5

MBRP400100CTL

VF (volts) at IF=200A at 25 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	0.830	0.830	0.830	0.830
Min	0.753	0.765	0.762	0.738
Max	0.765	0.778	0.772	0.773
Average	0.760	0.770	0.766	0.763
Std Dev	0.004	0.002	0.003	0.009
cpk	6.37	8.48	8.38	2.56

IR (uA) at VR=100V at 25 degrees C.

	Control Group (PHX Z/R Fab)	Qualification Groups (GDL Fab)		
		Lot 1	Lot 2	Lot 3
Max Limit	6000	6000	6000	6000
Min	1.70	1.16	1.92	1.22
Max	22.10	16.80	4.46	6.21
Average	4.49	2.78	2.33	1.91
Std Dev	5.03	3.23	0.54	0.95
cpk	397.0	618.4	3710.2	2109.7

CHANGED PART IDENTIFICATION

Customers may receive product from wafers processed at either the
Guadalajara or Phoenix facility starting with datecode 9948.

FILE FORMAT: ASCII TEXT

FONT - Courier

SIZE - 12 Point

LINE - 70 characters/line

PAGE - 55 lines/page

PAGEBREAK CHARACTER - ^L (Control L)

AFFECTED DEVICE LIST (WITHOUT SPECIALS)

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1C5822WP      , 1N5817      , 1N5817RL    , 1N5818
1N5818RL     , 1N5819     , 1N5819RL    , 1N5820
1N5820RL     , 1N5821     , 1N5821RL    , 1N5822
1N5822RL     , DEVICE1    , ENGRSAMPABB , MBR0520LT1
MBR0520LT3  , MBR0530T1  , MBR0530T3   , MBR0540T1
MBR0540T3   , MBR10100   , MBR1035     , MBR1045
MBR1060     , MBR1080    , MBR1090     , MBR1100
MBR1100RL   , MBR120P    , MBR130P     , MBR130PRL
MBR140PRL   , MBR150     , MBR150RL    , MBR1535CT
MBR1545CT   , MBR160     , MBR160RL    , MBR1635
MBR1645     , MBR20100CT , MBR20200CT  , MBR2030CTL
MBR2045CT   , MBR2060CT  , MBR2080CT   , MBR2090CT
MBR2515L    , MBR2535CT  , MBR2535CTL  , MBR2545CT
MBR3045PT   , MBR3045ST  , MBR3045WT   , MBR3100
MBR3100RL   , MBR340     , MBR340P     , MBR340PRL
MBR340RL    , MBR350RL   , MBR360      , MBR360RL
MBR390      , MBR4015LWT , MBR4045PT   , MBR4045WT
MBR5025L    , MBR6045PT  , MBR6045WT   , MBR7030WT
MBR735      , MBR745     , MBRA130LT3  , MBRA140T3
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MBRB20100CTT4 , MBRB20200CT , MBRB20200CTT4 , MBRB2045CT-001
MBRB2045CT1 , MBRB2060CT  , MBRB2060CTT4 , MBRB2515L
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MBRD660CTRL , MBRD660CTT4 , MBRD835L    , MBRD835LT4
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MBRF2545CT  , MBRF745    , MBRM120ET3  , MBRM120LT3
MBRM140T3   , MBRP20030CTL , MBRP20035L  , MBRP20045CT
MBRP20060CT , MBRP30035L , MBRP30045CT , MBRP30060CT
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MBSR1540T3  , MBSR190T3   , MBSR2040LT3 , MBSR230LT3
MBSR240LT3  , MBSR320T3   , MBSR330T3   , MBSR340T3
MBSR360T3   , SBR5571-002 , SBRB1545CT  , SBRB1545CTT4
SBRB20100CT , SBRB20100CTT4 , SBRB20200CT , SBRB20200CTT4
SBRB2060CT  , SBRB2060CTT4 , SBRB2515L   , SBRB2515LT4
SBRB2535CTL , SBRB2535CTLT4 , SBRB2545CT  , SBRB2545CTT4
SBRB3030CT  , SBRB3030CTL , SBRB3030CTLT4 , SBRB3030CTT4
SBRB4030    , SBRB4030T4  , SBR5652T3   , TBRAC1645PF
XAMPB100    , XBRD3100

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