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**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION**  
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**04-FEB-2002**

**SUBJECT: ON Semiconductor Final Product/Process Change Notification #12279**

**TITLE: Final Notification – Phase#4 - Bipolar Power Wafer Fab Transfer TLS-BP6 to PHX- BP/ZR Fab**

**EFFECTIVE DATE: 05-Apr-2002**

**AFFECTED CHANGE CATEGORY(S): On Semiconductor Fab Site**

**AFFECTED PRODUCT DIVISION: Bipolar Discrete Products**

**ADDITIONAL RELIABILITY DATA:** Available

Contact your local ON Semiconductor Sales Office or Terry Franks <RDMM60@onsemi.com>

**SAMPLES:** Contact your local ON Semiconductor Sales Office or Jose Ramirez <RVEG40@onsemi.com>

**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**

Contact Sales Office or Jose Ramirez <RVEG40@onsemi.com>

**DISCLAIMER:**

Final Product/Process Change Notification (FPCN) - Final Notification completing the notification process. Distributed at least 60 days from the effective date of the change. 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.

**DESCRIPTION AND PURPOSE:**

ON Semiconductor wishes to notify its Customers that the 4th Phase of the Bipolar Power Wafer Manufacturing Operation Transfer from Toulouse-France to Phoenix-Arizona is taking place as announced in IPCN # 10863, and Product Lines using the High Voltage Planar SIPOS Technology will be transferred as indicated. ON Semiconductor continues to make substantial investments in both new technologies and improved manufacturing capabilities to provide you the highest quality and reliability in the Semiconductor industry. We believe these actions will also improve our ability to serve you better in the future.

**QUALIFICATION PLAN:**

<b>TEST</b>	<b>CONDITIONS</b>	<b>EXCEPTIONS</b>
Parametric verification	Per device specification @ 25DegC	
HTRB	1000 hrs Vcb=80% T=150DegC	
H3TRB	1000 hrs Vcb=100V 85DegC/85%RH	
Autoclave	96hrs Ta=121DegC Rh=100% 15psig	
Temp Cycle	1K cycles - 65DegC to 150DegC	
Thermal Resistance		Delta VBE
Die Shear	Pre & Post process change comp.	
Wire Bond Strength	Pre & Post process change comp.	
Wire Bond Shear	Method 3	



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**RELIABILITY DATA SUMMARY:**

**MJW18008**

<u>Test Description</u>	<u>Interval</u>	<u>Control</u>	<u>DZ46631</u>	<u>DZ43472</u>
HTRB	168 hrs	0/77	0/77	0/77
H3TRB	168 hrs	0/77	0/77	0/77
Temp Cycle	500 cyc			
Autoclave	96hrs	0/77	0/77	2/77

**TIP50**

<u>Test Description</u>	<u>Interval</u>	<u>DZ45572</u>
HTRB	168 hrs	0/77
H3TRB	168 hrs	0/77
Temp. Cycle	500 cyc	
Autoclave	96hrs	0/77

The above data only represents interim reliability data. Testing is continuing on to 1000 hours for final reliability data and readouts will also occur at 500 hours. Data expected to be available by 20Feb02 for 500 hrs and by 15Mar02 for final reliability report.

**ELECTRICAL CHARACTERISTIC SUMMARY:**

**TABLE - I**

<b>MJE18008 Test</b>	<b>IEBO</b>	<b>ICEO</b>	<b>ICES</b>	<b>BVCEO</b>	<b>HFE</b>	<b>HFE</b>	<b>hFE</b>	<b>hFE</b>
	Cond1 Vbe=	Vce=	Vce=	Ic=	Ic=1A	Ic=4.5A	Ic=2A	Ic=10mA
Group	Cond2 9V	450V	1000V	1mA	Vce=5V	Vce=1V	Vce=1V	Vce=5V
	Limit=<100uA	<100uA	<100uA	>450V	14-34	>6	>11	>10
Control	Mean 0.08uA	0.17uA	500nA	673V	25.4	9.4	16.4	23.8
Lot	StDev 0.03	0.04	130	12	1.4	0.5	0.8	2.1
	Cpk 1235	741	255	6.2	2.1	2.4	2.2	2.2
Eval	Mean 0.02uA	0.14uA	680nA	630V	23.7	8.9	15	22.6
Lot #1	StDev 0.05	0.19	108	2.6	0.5	0.4	0.76	0.66
	Cpk 709	173	152	22.7	6.9	2.4	1.7	6.3
Eval	Mean 0.16uA	0.19uA	480nA	605V	27.3	11.2	18.5	26.9
Lot #2	StDev 0.43	0.07	853	4.1	0.96	0.41	0.67	1.32
	Cpk 78	462	19	12.7	2.3	4.2	3.7	4.3
Eval	Mean 0.09uA	0.27uA	894nA	610V	27.5	11.3	18.6	26.8
Lot #3	StDev 0.16	0.27	46	3.2	0.6	0.2	0.36	0.73
	Cpk 203	125	344	16.7	3.7	8.7	7.1	7.7

**TABLE - II**

<b>MJE18008 Test</b>	<b>ICES</b>	<b>VCE(sat)</b>	<b>VCE(sat)</b>	<b>VBE(sat)</b>	<b>VBE(sat)</b>	<b>VCE(sat)</b>	<b>VCE(sat)</b>	<b>hFE</b>
	Cond1 Vce=	Ic=2.0A	Ic=4.5A	Ic=2.0A	Ic=4.5A	Ic=2A	Ic=4.5A	Ic=4.5A
Group	Cond2 800V	Ib=0.2A	Ib=0.9A	Ib=0.2A	Ib=0.9A	Ib=0.2A	Ib=0.9A	Vce=1V
	150C					150C	150C	150C
	Limit= <500uA	<0.6V	<0.7V	<1.1V	<1.25V	<0.65V	<0.8V	>5
Control	Mean 130uA	282mV	358mV	814mV	914mV	365mV	583mV	6.2
Lot	StDev 60	16	13	0.5	1	31	84	0.36
	Cpk	6.7	9.0	212	100.2			
Eval	Mean 111uA	238mV	273mV	815mV	924mV	343mV	521mV	6.4
Lot #1	StDev 33	38	24	2	2	41	55	0.2
	Cpk	3.2	6.9	47.5	54.3			
Eval	Mean 50uA	154mV	197mV	809mV	906mV	247mV	337mV	7.6
Lot #2	StDev 17	10	10	0.7	2	14	27	0.2
	Cpk	14.9	18.6	13	57.3			

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Eval	Mean	45uA	157mV	204mV	813mV	913mV	256mV	352mV	7.6
Lot #3	StDev	11	4	3	0.8	2	8	11	0.2
	Cpk		36.9	55.1	127	56.2			

**CHANGED PART IDENTIFICATION:**

Customers may receive Bipolar Power- High Voltage SIPOS Planar devices with the silicon Chip manufactured at the Phoenix BP/ZR Fab starting with product marked with Date Code 0215.

**AFFECTED DEVICE LIST(WITHOUT SPECIALS):****PART**

2N6497  
BU323Z  
BUB323Z  
BUB323ZT4  
BUD42D  
BUD42D-001  
BUD43D2-001  
BUD43D2T4  
BUD44D2-001  
BUH100  
BUH150  
BUH50  
BUH51  
BUL146  
BUL146F  
BUL147  
BUL42D  
BUL44  
BUL45  
BUL45D2  
BUL642D2  
BUX85  
MJB18004D2T4  
MJD18002D2T4  
MJD47  
MJD47T4  
MJD50  
MJD50-001  
MJD50T4  
MJE13003  
MJE13005  
MJE13007  
MJE13009  
MJE18002  
MJE18004  
MJE18004D2  
MJE18006  
MJE18008  
MJE5740  
MJE5742  
MJF18004  
MJF18008  
MJF47



MJW18020  
SJEC13003WP  
TE02570  
TEC0193APF  
TEC0193BPF  
TIP47  
TIP48  
TIP50