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**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION**  
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**21-NOV-2001**

**SUBJECT: ON Semiconductor Final Product/Process Change Notification #12082**

**TITLE: Final Notification: Motorola BMC To Tesla: LM285, MC33030, MC33160, MC3488A, UC3844 and UC3845**

**EFFECTIVE DATE: 20-Jan-2002**

**AFFECTED CHANGE CATEGORY: On Semiconductor Fab Site**

**AFFECTED PRODUCT DIVISION: Analog Products**

**ADDITIONAL RELIABILITY DATA:** Available

Contact your local ON Semiconductor Sales Office or Joe Duffalo <FFBH9W@onsemi.com>

**SAMPLES:** Contact your local ON Semiconductor Sales Office or Alan Garlington <RPR180@onsemi.com>

**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**

Contact Sales Office or Alan Garlington <RPR120@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:**

This is a Final PCN (Product Change Notice) to notify customers of the qualification of certain Analog devices being transferred to the Tesla Wafer Fab in the Czech Republic. An initial PCN (# 11528) was published on 19 July 2001 providing information on all the devices being transferred and the overall scope of the program. The devices listed below have been fully qualified and are now ready to transfer to Tesla from the Motorola BMC wafer fab. The existing design database in use at BMC was transferred to Tesla with no change to the functional circuit design. No change in the device functionality nor electrical distributions have been found but it is recommended that customers evaluate the devices in their applications to insure proper operation. Samples are available upon request. At the expiration of this PCN(60 Days), fabrication of these devices will occur at either the Tesla Wafer Fab or the BMC Fab depending on capacity and demand requirements.



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**QUALIFICATION PLAN:**

**Reliability Testing Requirements Summary:**

<b>Test Name</b>	<b>Test</b>	<b>Test Conditions</b>	<b>Accept</b>	<b>Read Point</b>	<b>SS</b>	<b>Lots</b>
High Temp Operating Life	HTOL	Ta=150	c=0	504	80	10
Preconditioning	PC	PC devices prior to TC, AC, and HAST.	c=0	0 & End Point		
Highly Accelerated Stress Test	HAST	Ta=131; RH=85% Biased		0, 96	80	3
Autoclave	AC	Ta=121; RH=100%		0, 96	80	3
Temperature Cycle	TC	Ta=-65 to +150 C For 500 cycles		500	80	9
Electrostatic Discharge	ESD	HBM; MM & CDM		3 Units/voltage level		1

Reliability testing will be performed on 7 different device types which represent the greatest volume or die size within each category. Specific devices (\*\*\*) to be tested are:

LP2950	1 lot
MC33074	3 lots
MC33269	3 lots
MC34161P	1 lot
MC79xx	1 lot
NCP1117	1 lot
TL431	1 lot

\*\*\* Reliability data will also be supplemented by ON Semiconductors ongoing Reliability Audit Program.

**RELIABILITY DATA SUMMARY:**

**BMC to Tesla Wafer Fab Transfer -- Reliability Data**

<b>Technology</b>	<b>Flow</b>	<b>Device</b>	<b>Fab</b>	<b>Test Conditions</b>	<b>Rej</b>	<b>Samp Size</b>
Std Linear	EPI 85/92	MC33033P	Tesla	HTOL 150C; Biased, 1008 Hrs	0	240
Std Linear	EPI 85/92	MC33033P	Tesla	TC -65C to +150C, 1000 Cyc	0	240
Std Linear	EPI 85/92	MC33033P	Tesla	HTS 150C; No Bias, 1008 Hrs	0	80
Std Linear	EPI 85/92	MC33033P	Tesla	AC 121C; 100% RH, 144 Hrs	0	240
Std Linear	EPI 85/92	MC33064D	Tesla	HTOL 150C; Biased, 1008 Hrs	0	240
Std Linear	EPI 85/92	MC33064D	Tesla	TC-65C to +150C, 1000 Cyc	0	240
Std Linear	EPI 85/92	MC33064D	Tesla	HTS 150C; No Bias, 1008 Hrs	0	80
Std Linear	EPI 85/92	MC33064D	Tesla	AC 121C; 100% RH, 144 Hrs	0	240



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Technology	Flow	Device	Fab	Test Conditions		Rej	Samp Size
Std Linear	Epi 85 DL	MC44603A	Tesla	HTOL 125C; Biased,	1000 Hrs	0	231
Std Linear	Epi 85 DL	MC44603A	Tesla	TC -65C to +150C,	500 Cyc	0	231
Std Linear	Epi 85 DL	MC44603A	Tesla	AC 121C;100% RH;15 psi,	96 Hrs	0	231
Std Linear	Epi 85 DL	MC44603A	Tesla	HAST 130C; 85%RH biased,	96 Hrs	0	231
Std Linear	Epi 78/79	MC1413D	Tesla	HTOL 150C; Biased,	1008 Hrs	0	154
Std Linear	Epi 78/79	MC1413	Tesla	TC -65C to +150C,	500 Cyc	0	154
Std Linear	Epi 78/79	MC1413	Tesla	AC 121C; 100% RH,	96 Hrs	0	154
Std Linear	Epi 78/79	MC1413	Tesla	HAST 130C; 85%RH; Biased,	96 Hrs	0	154
Std Linear	Epi 78/79	MC1413	Tesla	THB 85C; 85%RH; Biased,	1008 Hrs	0	154
Std Linear	Epi 78/79	MC1413	Tesla	HTS 150C; No Bias,	1008 Hrs	0	154
Std Linear	Epi 78/79	MC33079P	Tesla	HTOL 150C; Biased,	1008 Hrs	0	240
Std Linear	Epi 78/79	MC33079P	Tesla	TC -65C to +150C,	1000, Cyc	0	240
Std Linear	Epi 78/79	MC33079P	Tesla	HTS 150C; No Bias,	1008 Hrs	0	240
Std Linear	Epi 78/79	MC33079P	Tesla	AC 121C; 100% RH,	96 Hrs	0	240
Std Linear	Epi 78/79	MC33079P	Tesla	HAST 130C; 85% RH; Biased,	96 Hrs	0	240
Std Linear	Epi 78/79	MC33079P	Tesla	THB 85C; 85% RH; Biased,	1008 Hrs	0	240
Std Linear	Epi 78/79	UC3843AN	Tesla	HTOL 150C; Biased,	1008 Hrs	0	240
Std Linear	Epi 78/79	UC3843AN	Tesla	TC -65C to +150C,	1000 Cycles	0	240
Std Linear	Epi 78/79	UC3843AN	Tesla	HTS 150C; No Bias,	1008 Hrs	0	240
Std Linear	Epi 78/79	UC3843AN	Tesla	AC 121C; 100% RH,	96 Hrs	0	240
Std Linear	Epi 78/79	UC3843AN	Tesla	HAST 130C; 85% RH; Biased,	96 Hrs	0	240
Std Linear	Epi 78/79	UC3843AN	Tesla	THB 85C; 85% RH; Biased,	1008 Hrs	0	240

**ELECTRICAL CHARACTERISTIC SUMMARY:**

MC34160 - 1 lot Characterization data, Major parameters

Parameter	Unit	Mean	S.D.	Min.	Max.	Specification	
						Min.	Max.
Drain Current(active)	ma	1.563	.010	1.536	1.582		3.0
Drain Current(standby)	ua	198.2	2.09	195.3	206.5		350.
Ref Output Voltage	V	2.62	.006	2.62	2.64	2.47	2.73
Regulator Output V	V	5.05	.016	5.02	5.10	4.75	5.25
Reg Line Regulation	mv	3.3	.137	2.8	3.6		40.
Reg Load Regulation	mv	13.3	.642	12.2	14.6		50.
Comp. Offset Voltage	mv	3.58	2.08	.051	8.246	-20.	20.
Comp. Output (Low)	mv	148.5	1.31	145.5	150.8		400.
Chip Disable	KOhms	121.1	.974	118.1	123.0	50.	250.
Chip Disable Input	ua	22.4	.224	21.9	22.9		100.

MC3488A - 1 lot Characterization data, Major parameters

Parameter	Unit	Mean	S.D.	Min.	Max.	Specification	
						Min.	Max.
Power Supply Current	ma	9.181	.067	9.050	9.320		18.0
Output Leakage Current	ua	-6.55	.016	-6.90	-6.20		-100.
Output Voltage(High state)	V	5.397	.013	5.380	5.440	4.0	6.0
Output Voltage(Low State)	V	-5.061	.012	-5.091	-5.040	-6.0	-4.0
Output Resistance	ohm	28.5	.189	28.14	28.84		50.0
Output Short Current	ma	28.7	.657	27.7	30.4	15.0	150.0
Transition Time (100k)	us	10.0	.099	9.83	10.35	8.0	14.0
Low to High							
Transition Time (100K)	us	10.2	.066	10.1	10.32	8.0	14.0
High to Low							



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MC33030 -- 1 lot Characterization data, Major parameters

Parameter	Unit	Mean	S.D.	Min.	Max.	Specification	
						Min.	Max.
Power Supply Current	ma	16.74	.11	16.54	16.96		25.0
Input offset voltage	mv	-1.69	.61	-2.80	-4.40	-10.0	10.0
Over Voltage Shutdown	V	17.51	.038	17.5	17.6	16.5	20.5
Over Voltage Hysteresis	V	.65	.031	.60	.70	.3	1.0
Op Voltage Low Thresh.	V	7.19	.002	7.19	7.19		8.0
Input Hysteresis	mv	30.35	1.03	27.0	34.4	25.	45.
Over Current Threshold	V	7.45	.013	7.43	7.49	6.8	8.2
Delay Pin Source Cur.	Ua	5.12	.071	4.90	5.26		6.9

UC3844N -- 1 lot Characterization data, Major parameters

Parameter	Unit	Mean	S.D.	Min.	Max.	Specification	
						Min.	Max.
Power Supply Current	ma	14.35	.187	14.0	14.8		17.0
Supply Zener Voltage	V	35.05	.070	34.9	35.2	30.0	
V Reference	V	5.001	.012	4.97	5.02	4.95	5.05
Output Short Circuit	ma	-98.92	.569	-100.2	-97.4	-180.	-30.0
Oscillator Freq	KHz	50.94	.339	50.2	51.8	47.0	57.0
Error Amp input Voltage	V	2.50	.007	2.48	2.52	2.45	2.55
Output voltage (low)	V	1.64	.008	1.62	1.66		2.20
Output voltage (High)	V	13.65	.004	13.64	13.66	12.0	
Duty cycle (Max)	%	48.69	.048	48.6	48.8	46.0	50.0

UC3845 -- 1 lot Characterization data, Major parameters

Parameter	Unit	Mean	S.D.	Min.	Max.	Specification	
						Min.	Max.
Power Supply Current	ma	14.51	.202	14.2	15.2		17.0
Supply Zener Voltage	V	35.00	.071	34.8	35.2	30.0	
V Reference	V	5.001	.011	4.97	5.04	4.95	5.05
Output Short Circuit	ma	-102.12	.791	-103.5	-98.8	-180.	-30.0
Oscillator Freq	KHz	51.12	.335	50.3	52.0	47.0	57.0
Error Amp input Voltage	V	2.50	.007	2.48	2.52	2.45	2.55
Output voltage (low)	V	1.64	.006	1.63	1.66		2.20
Output voltage (High)	V	13.65	.004	13.64	13.66	12.0	
Duty cycle (Max)	%	48.67	.043	48.6	48.7	46.0	50.0

LM385D-1.2 -- 1 lot Characterization data, Major parameters

Parameter	Unit	Mean	S.D.	Min.	Max.	Specification	
						Min.	Max.
Breakdown Voltage	V	1.236	.002	1.232	1.240	1.205	1.260
Breakdown V Chg @ 1ma	mv	.373	.047	.232	.458		1.0
Breakdown V Chg @ 20ma	mv	5.61	.184	5.215	5.974		20.0

**CHANGED PART IDENTIFICATION:**

Normal assembly lot traceability codes can be used to identify the wafer fab source.

**RELATED NOTIFICATIONS:**

11528 - INITIAL NOTIFICATION FOR TRANSFER OF ANALOG DEVICES FROM MOTOROL A BMC TO TESLA

**Final Product/Process Change Notification #12082****AFFECTED DEVICE LIST (WITHOUT SPECIALS):****PART**

FLM285D-1.2, FLM285D-1.2R2, FLM285D-2.5, FLM285D-2.5R2,  
FLM385BD-2.5, FLM385BD-2.5R2, LM285D-1.2, LM285D-1.2R2,  
LM285D-2.5, LM285D-2.5R2, LM285Z-1.2, LM285Z-1.2RA,  
LM285Z-2.5, LM285Z-2.5RA, LM285Z-2.5RP, LM385BD-1.2,  
LM385BD-1.2R2, LM385BD-2.5, LM385BD-2.5R2, LM385BZ-1.2,  
LM385BZ-1.2RA, LM385BZ-1.2RP, LM385BZ-2.5, LM385BZ-2.5RA,  
LM385D-1.2, LM385D-1.2R2, LM385D-2.5, LM385D-2.5R2,  
LM385Z-1.2, LM385Z-1.2RA, LM385Z-1.2RP, LM385Z-2.5,  
LM385Z-2.5RA, LM385Z-2.5RP, MC33030DW, MC33030DWR2,  
MC33030P, MC33160DW, MC33160DWR2, MC33160P,  
MC34160DW, MC34160DWR2, MC34160P, MC3488AD,  
MC3488ADR2, MC3488AP1, UC2844D, UC2844DR2, UC2844N,  
UC2845D, UC2845DR2, UC2845N, UC3844D, UC3844DR2,  
UC3844N, UC3845D, UC3845DR2, UC3845N