ON Semiconductor

PRODUCT/PROCESS CHANGE NOTIFICATION
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14-SEP-2001

SUBJECT: ON Semiconductor Product/Process Change Notification #11743

TITLE: Final Notification: Motorola BMC To Tesla: MC33060, MC33063, MC33077

EFFECTIVE DATE: 14-Nov-2001

AFFECTED CHANGE CATEGORY: On Semiconductor Fab Site & Subcontractor 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

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:
Contact Sales Office or Alan Garlington <RPR120 @onsemi.com>

DISCLAIMER:
Initial Product/Process Change Notification (IPCN) -First Notification distributed to customers. Distributed at least 120 days from the effective date of the change.

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:

Test Name	Test	Test Conditions	Accept	Read Point	SS	Lots
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

Technology	Flow	Device	Fab	Test Conditions	Rej	Samp Size
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 Hr	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:
The following data summary from Tesla lots are comparable with lots processed in the BMC fab.

MC34060 - 1 lot Characterization data, Major parameters

						Specification	
Parameter	Unit	Mean	S.D.	Min.	Max.	Min.	Max.
Drain Current	ma	6.806	0.063	6.705	6.967		15.00
Reference Voltage	V	4.997	0.011	4.972	5.018	4.925	5.075
Frequency	KHz	10.19	0.031	10.113	10.247	9.7	11.3
Output Current (Sink)	ma	0.656	0.011	0.62	0.68	0.3	
Output Current (Source)	ma	-6.38	0.105	-6.54	-6.07	-2.0	
Output VSat CE	V	1.17	0.002	1.16	1.17		1.50
Error Amp Vio	mv	0.32	0.52	-1.08	1.13	-10.00	10.00

MC34063 - 1 lot Characterization data, Major parameters

						Specification	
Parameter	Unit	Mean	S.D.	Min.	Max.	Min.	Max.
Supply Current	ma	3.55	0.033	3.49	3.61		4.0
Comparator Threshold	V	1.246	0.002	1.242	1.251	1.21	1.29
Oscillator Charg Current	ua	-32.1	0.43	-33.4	-31.5	-42.0	-24.0
Oscillator Discha Current	ua	215.2	3.2	209.1	223.6	140.0	260.0

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Parameter	Unit	Mean	S.D.	Min.	Max.	Specification Min.	Max.
Frequency	KHz	32.8	0.35	33.6	43.3	24.0	42.0
Switch Sat. Voltage	V	1.012	0.069	0.91	1.401		1.3

MC33077 -- 1 lot Characterization data, Major parameters

Parameter	Unit	Mean	S.D.	Min.	Max.	Specification Min.	Max.
Power Supply Current	ma	3.939	0.047	3.841	4.018		4.5
Input offset voltage	mv	0.39	0.15	0.146	0.714	-1.0	1.0
Output Voltage (10K)	V	13.99	0.006	13.99	14.01	13.4	
Slew Rate	V/us	11.81	0.114	11.61	12.06	8.0	
Gain Bandwidth	Mhz	36.5	0.49	33.8	37.6	25.0	
Output Short Circuit Current (sink)	ma	-33.6	0.73	-35.1	-32.4	-60.0	-20.0
Output Short Circuit Current (Source)	ma	22.6	0.64	22.3	27.6	10.0	60.0

CHANGED PART IDENTIFICATION:
No change to standard device marking. Normal assembly lot traceability codes can be used to identify wafer fab source.

RELATED NOTIFICATIONS:

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

AFFECTED DEVICE LIST (WITHOUT SPECIALS):

PART

MC33060AD, MC33060ADR2, MC33060AP, MC33063AD, MC33063ADR2, MC33063AP1, MC33063AVD, MC33063AVDR2, MC33063AVP, MC33077D, MC33077DR2, MC33077P, MC34060AD, MC34060ADR2, MC34060AP, MC34063AD, MC34063ADR2, MC34063AM, MC34063AMEL, MC34063AP1, MC34063BD, MC34063BDR2