

ON Semiconductor



PRODUCT/PROCESS CHANGE NOTIFICATION

31-JUL-2000

Subject: ON Semiconductor PRODUCT/PROCESS CHANGE NOTIFICATION 10216

TITLE: SOT23 ASSEMBLY/TEST TRANSFER TO LPS

EFFECTIVE DATE: 05-Nov-2000

AFFECTED CHANGE CATEGORIES

ON SEMICONDUCTOR TEST SITE
ON SEMICONDUCTOR ASSY SITE

AFFECTED PRODUCT DIVISIONS

BIPOLAR DISCRETES PRODUCTS DIV

ADDITIONAL RELIABILITY DATA: Available

REFERENCE: Contact Sales Office (RKU975)

Contact your local ON Semiconductor Sales Office.

SAMPLES: Contact Below

REFERENCE: Contact Sales Office (RKU588)

Contact your local ON Semiconductor Sales Office.

For any questions concerning this notification:

REFERENCE: Contact Sales Office (JAKE LEE)

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.

DESCRIPTION AND PURPOSE

Assembly and Test transfer of SOT-23 manufacturing to LPS (Leshan Phoenix Semiconductor), ON Semiconductor's factory in China. This change affects

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NPN/PNP General Purpose Transistors, Bias resistor transistors, Switching diodes, Schottky diodes, and JFETs.

LPS has been QS9000 certified since 1998 and has been producing all the technologies listed above in SOT-23, and SOD-323 packages for customers worldwide since 1996. This PCN is a supplement to previous notifications released in '96, '97 and '98 since those PCNs couldn't cover the entire portfolio of SOT-23 packages that ON Semiconductor produces.

Reliability Data will also be available for each qualification.

Reference:

- PCN 2518 (Feb. 1999) - SOT-23 NPN, PNP and diode manufacturing assembly and test site change to LPS
- PCN 2631 (Mar. 1997) - Addendum to PCN2518 (full reliability reports attached)
- PCN 2705 (Aug. 1997) - SOT-23 NPN/PNP high voltage, dual diode and zener diode manufacturing assembly and test site change to LPS -PCN3359 (Jan. 1998)
- SOT-23 Tuning diode, RF, JFET and TMOS manufacturing assembly and test site change to LPS

QUALIFICATION PLAN

See Reliability Data

RELIABILITY DATA SUMMARY

Reliability Testing was performed on the following qualification devices:

- MMBTA42LT1 (LQ963401) - High voltage NPN
- MMBTA92LT1 (LQ963403) - High voltage PNP
- MMBT3904LT1 (LQ960404) - General purpose NPN
- MMBT3906LT1 (LQ960907) - General purpose PNP
- MMBTH10LT1 (LQ962605) - High frequency NPN
- MMBD914LT1 (LQ960901) - Switching diode
- MMBV105CLT1 (LQ964507) - Tuning diode

Tests below were performed on each qualification vehicle referenced above, and all passed (3 lots/device).

REJECTS

TEST	TEST CONDITIONS	INTERVAL	SIZE	/CAT/LIM/DEL
AUTOCLAVE	Ta=121DegC,P=15psig, RH=100%	96 HRS 192 HRS	168 168	0/0/0 0/0/0

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TEMP CYC	Ta=-65/150 DegC, Air to Air, Dwell greater than or equal to 10 min.	500 CYC	168	0/0/0
		1000 CYC	168	0/0/0
HI TEMP	Ta=150 DegC	500 HRS	168	0/0/0
STORAGE		1000 HRS	168	0/0/0
THERMAL SHOCK		500 CYC	168	0/0/0
	Ta=-65/150 DegC, Liquid to Liquid, Dwell greater than or equal to 5 min.	1000 CYC	168	0/0/0
SOLDERABILITY		1X	66	0/0/0
	Steam age = 8 hrs, Ta=245 DegC			
SOLDER HEAT		1X	66	0/0/0
	Ta=260 DegC			
HIGHLY ACCELERATED STRESS TEST	Ta=135 DegC, RH=85%, V=rated	48 HRS	168	0/0/0
		96 HRS	168	0/0/0
HTRB	Ta=150 DegC V=rated	500 HRS	168	0/0/0
		1000 HRS	168	0/0/0
IOL	Ton=2 min, PD=225mW Toff=2 min, Ta=25 DegC	500 HRS	168	0/0/0
		1000 HRS	168	0/0/0
OL	Ta=25 DegC, PD=225mW	500 HRS	168	0/0/0
		1000 HRS	168	0/0/0
H3TRB	Ta=85 DegC, RH=85% V=rated	500 HRS	168	0/0/0
		1000 HRS	168	0/0/0

* NOTE: See Reliability Audit Program (RAP) data ATTACHMENT 1



TEMP CYCLE

DATE	LOT NO.	LINE	DEVICE	TECH	HRS/CYC	SAMPLE	RESULTS
0010	TCJ054001	MB286DL	BAT54SLT1	PN	200	56	0
0015	TCO054001	MB286DL	BAT54SLT1	PN	200	56	0
0009	LCI13S170	XT13SJ	MMBT3904LT1	NPN	200	56	0
0009	LCI13S160	XT13SJ	MMBT3904LT1	NPN	200	56	0
0010	TCJ13S037	XT13SJ	MMBT3904LT1	NPN	200	56	0
0013	TCM13S001	XT13SJ	MMBT3904LT1	NPN	200	56	0
0014	TCN13S354	XT13SJ	MMBT3904LT1	NPN	200	56	0
0017	TCQ13S510	XT13SJ	MMBT3904LT1	NPN	200	56	0
0019	TCS13S091	XT13SJ	MMBT3904LT1	NPN	200	56	0
0010	TCJ18R118	MCF08R	MMBT3906LT1	PNP	200	56	0
0016	TCP18R001	MCF08R	MMBT3906LT3	PNP	200	56	0
0024	TCX18R001	MCF08R	MMBT3906LT3	PNP	200	56	0
0015	TCO330062	MCF2330	MMBTA42LT1	NPN	200	56	0
0019	TCS330031	MCF2330	MMBTA42LT1	NPN	200	56	0
0020	TCT330001	MCF2330	MMBTA42LT1	NPN	200	56	0

HIGH TEMP STORAGE

DATE	LOT NO.	LINE	DEVICE	TECH	HRS/CYC	SAMPLE	RESULTS
0010	TCJ054001	MB286DL	BAT54SLT1	PN	96	56	0
0015	TCO054001	MB286DL	BAT54SLT1	PN	96	56	0
0009	LCI13S170	XT13SJ	MMBT3904LT1	NPN	96	56	0
0009	LCI13S160	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ13S037	XT13SJ	MMBT3904LT1	NPN	96	56	0
0013	TCM13S001	XT13SJ	MMBT3904LT1	NPN	96	56	0
0014	TCN13S354	XT13SJ	MMBT3904LT1	NPN	96	56	0
0017	TCQ13S510	XT13SJ	MMBT3904LT1	NPN	96	56	0
0019	TCS13S091	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ18R118	MCF08R	MMBT3906LT1	PNP	96	56	0
0016	TCP18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0024	TCX18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0015	TCO330062	MCF2330	MMBTA42LT1	NPN	96	56	0
0019	TCS330031	MCF2330	MMBTA42LT1	NPN	96	56	0
0020	TCT330001	MCF2330	MMBTA42LT1	NPN	96	56	0

HTRB

DATE	LOT NO.	LINE	DEVICE	TECH	HRS/CYC	SAMPLE	RESULTS
0010	TCJ054001	MB286DL	BAT54SLT1	PN	96	56	0
0015	TCO054001	MB286DL	BAT54SLT1	PN	96	56	0
0009	LCI13S170	XT13SJ	MMBT3904LT1	NPN	96	56	0
0009	LCI13S160	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ13S037	XT13SJ	MMBT3904LT1	NPN	96	56	0
0013	TCM13S001	XT13SJ	MMBT3904LT1	NPN	96	56	0
0014	TCN13S354	XT13SJ	MMBT3904LT1	NPN	96	56	0

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0017	TCQ13S510	XT13SJ	MMBT3904LT1	NPN	96	56	0
0019	TCS13S091	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ18R118	MCF08R	MMBT3906LT1	PNP	96	56	0
0016	TCP18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0024	TCX18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0015	TCO330062	MCF2330	MMBTA42LT1	NPN	96	56	0
0019	TCS330031	MCF2330	MMBTA42LT1	NPN	96	56	0
0020	TCT330001	MCF2330	MMBTA42LT1	NPN	96	56	0

H3TRB

DATE	LOT NO.	LINE	DEVICE	TECH	HRS/CYC	SAMPLE	RESULTS
0010	TCJ054001	MB286DL	BAT54SLT1	PN	96	56	0
0015	TCO054001	MB286DL	BAT54SLT1	PN	96	56	0
0009	LCI13S170	XT13SJ	MMBT3904LT1	NPN	96	56	0
0009	LCI13S160	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ13S037	XT13SJ	MMBT3904LT1	NPN	96	56	0
0013	TCM13S001	XT13SJ	MMBT3904LT1	NPN	96	56	0
0014	TCN13S354	XT13SJ	MMBT3904LT1	NPN	96	56	0
0017	TCQ13S510	XT13SJ	MMBT3904LT1	NPN	96	56	0
0019	TCS13S091	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ18R118	MCF08R	MMBT3906LT1	PNP	96	56	0
0016	TCP18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0024	TCX18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0015	TCO330062	MCF2330	MMBTA42LT1	NPN	96	56	0
0019	TCS330031	MCF2330	MMBTA42LT1	NPN	96	56	0
0020	TCT330001	MCF2330	MMBTA42LT1	NPN	96	56	0

SSOL

DATE	LOT NO.	LINE	DEVICE	TECH	HRS/CYC	SAMPLE	RESULTS
0010	TCJ054001	MB286DL	BAT54SLT1	PN	96	56	0
0015	TCO054001	MB286DL	BAT54SLT1	PN	96	56	0
0009	LCI13S170	XT13SJ	MMBT3904LT1	NPN	96	56	0
0009	LCI13S160	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ13S037	XT13SJ	MMBT3904LT1	NPN	96	56	0
0013	TCM13S001	XT13SJ	MMBT3904LT1	NPN	96	56	0
0014	TCN13S354	XT13SJ	MMBT3904LT1	NPN	96	56	0
0017	TCQ13S510	XT13SJ	MMBT3904LT1	NPN	96	56	0
0019	TCS13S091	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ18R118	MCF08R	MMBT3906LT1	PNP	96	56	0
0016	TCP18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0015	TCO330062	MCF2330	MMBTA42LT1	NPN	96	56	0
0019	TCS330031	MCF2330	MMBTA42LT1	NPN	96	56	0
0020	TCT330001	MCF2330	MMBTA42LT1	NPN	96	56	0

IOL

DATE	LOT NO.	LINE	DEVICE	TECH	HRS/CYC	SAMPLE	RESULTS
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0010	TCJ054001	MB286DL	BAT54SLT1	PN	96	56	0
0015	TCO054001	MB286DL	BAT54SLT1	PN	96	56	0
0009	LCI13S170	XT13SJ	MMBT3904LT1	NPN	96	56	0
0009	LCI13S160	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ13S037	XT13SJ	MMBT3904LT1	NPN	96	56	0
0013	TCM13S001	XT13SJ	MMBT3904LT1	NPN	96	56	0
0014	TCN13S354	XT13SJ	MMBT3904LT1	NPN	96	56	0
0017	TCQ13S510	XT13SJ	MMBT3904LT1	NPN	96	56	0
0019	TCS13S091	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ18R118	MCF08R	MMBT3906LT1	PNP	96	56	0
0016	TCP18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0024	TCX18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0015	TCO330062	MCF2330	MMBTA42LT1	NPN	96	56	0
0019	TCS330031	MCF2330	MMBTA42LT1	NPN	96	56	0
0020	TCT330001	MCF2330	MMBTA42LT1	NPN	96	56	0

AUTOCLAVE

DATE	LOT NO.	LINE	DEVICE	TECH	HRS/CYC	SAMPLE	RESULTS
0010	TCJ054001	MB286DL	BAT54SLT1	PN	96	56	0
0015	TCO054001	MB286DL	BAT54SLT1	PN	96	56	0
0009	LCI13S170	XT13SJ	MMBT3904LT1	NPN	96	56	0
0009	LCI13S160	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ13S037	XT13SJ	MMBT3904LT1	NPN	96	56	0
0013	TCM13S001	XT13SJ	MMBT3904LT1	NPN	96	56	0
0014	TCN13S354	XT13SJ	MMBT3904LT1	NPN	96	56	0
0017	TCQ13S510	XT13SJ	MMBT3904LT1	NPN	96	56	0
0019	TCS13S091	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ18R118	MCF08R	MMBT3906LT1	PNP	96	56	0
0016	TCP18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0024	TCX18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0015	TCO330062	MCF2330	MMBTA42LT1	NPN	96	56	0
0019	TCS330031	MCF2330	MMBTA42LT1	NPN	96	56	0
0020	TCT330001	MCF2330	MMBTA42LT1	NPN	96	56	0



HAST

DATE	LOT NO.	LINE	DEVICE	TECH	HRS/CYC	SAMPLE	RESULTS
0010	TCJ054001	MB286DL	BAT54SLT1	PN	96	56	0
0015	TCO054001	MB286DL	BAT54SLT1	PN	96	56	0
0009	LCI13S170	XT13SJ	MMBT3904LT1	NPN	96	56	0
0009	LCI13S160	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ13S037	XT13SJ	MMBT3904LT1	NPN	96	56	0
0013	TCM13S001	XT13SJ	MMBT3904LT1	NPN	96	56	0
0014	TCN13S354	XT13SJ	MMBT3904LT1	NPN	96	56	0
0017	TCQ13S510	XT13SJ	MMBT3904LT1	NPN	96	56	0
0019	TCS13S091	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ18R118	MCF08R	MMBT3906LT1	PNP	96	56	0
0016	TCP18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0024	TCX18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0015	TCO330062	MCF2330	MMBTA42LT1	NPN	96	56	0
0019	TCS330031	MCF2330	MMBTA42LT1	NPN	96	56	0
0020	TCT330001	MCF2330	MMBTA42LT1	NPN	96	56	0

HIGH TEMP STORAGE LIFE (HTSL)

DATE	LOT NO.	LINE	DEVICE	TECH	HRS/CYC	SAMPLE	RESULTS
0010	TCJ054001	MB286DL	BAT54SLT1	PN	96	56	0
0015	TCO054001	MB286DL	BAT54SLT1	PN	96	56	0
0009	LCI13S170	XT13SJ	MMBT3904LT1	NPN	96	56	0
0009	LCI13S160	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ13S037	XT13SJ	MMBT3904LT1	NPN	96	56	0
0013	TCM13S001	XT13SJ	MMBT3904LT1	NPN	96	56	0
0014	TCN13S354	XT13SJ	MMBT3904LT1	NPN	96	56	0
0017	TCQ13S510	XT13SJ	MMBT3904LT1	NPN	96	56	0
0019	TCS13S091	XT13SJ	MMBT3904LT1	NPN	96	56	0
0010	TCJ18R118	MCF08R	MMBT3906LT1	PNP	96	56	0
0016	TCP18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0024	TCX18R001	MCF08R	MMBT3906LT3	PNP	96	56	0
0015	TCO330062	MCF2330	MMBTA42LT1	NPN	96	56	0
0019	TCS330031	MCF2330	MMBTA42LT1	NPN	96	56	0
0020	TCT330001	MCF2330	MMBTA42LT1	NPN	96	56	0

ELECTRICAL CHARACTERISTIC SUMMARY

Electrical Characterization indicates parametric distribution remains unchanged with respect to electrical limits.

CHANGED PART IDENTIFICATION

For site identification purposes, the Date Code character will be rotated 90 degrees counter clockwise with respect to the device marking. Products from LPS may be received prior to expiration date with written customer approval.

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AFFECTED DEVICE LIST

BAS20LT1
BAS21LT1
BAS21LT3
BAS40-04LT1
BAS40-06LT1
BAS40LT1
BAS70-04LT1
BAS70LT1
BAT54ALT1
BAT54LT1
BAT54SLT1
BAV199LT1
BC807-40LT1
BC817-40LT1
MMBD101LT1
MMBD301LT1
MMBD301LT3
MMBD352LT1
MMBD353LT1
MMBD353LT3
MMBD354LT1
MMBD355LT1
MMBD452LT1
MMBD701LT1
MMBD701LT3
MMBT1010LT1
MMBT2369ALT1
MMBT2369LT1
MMBT2907ALT1
MMBT2907ALT3
MMBT4403LT1
MMBT4403LT3
MMBT5087LT1
MMBT5089LT1
MMBT589LT1
MMBT6427LT1
MMBT6429LT1
MMBT918LT1
MMBTA13LT1
MMBTA14LT1
MMUN2111LT1
MMUN2112LT1
MMUN2113LT1
MMUN2114LT1
MMUN2115LT1
MMUN2116LT1
MMUN2130LT1
MMUN2131LT1
MMUN2132LT1

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MMUN2133LT1
MMUN2134LT1
MMUN2211LT1
MMUN2212LT1
MMUN2213LT1
MMUN2214LT1
MMUN2215LT1
MMUN2216LT1
MMUN2230LT1
MMUN2231LT1
MMUN2232LT1
MMUN2233LT1
MMUN2234LT1
SMBD1511LT3
SMBT1516LT3
TMBT0104LT1