



PRODUCT / PROCESS CHANGE NOTIFICATION
Generic Copy

27-DEC-2000

SUBJECT: Product/Process Change Notification #10542

TITLE: SOT23 Assembly/Test Qualification At KEC-T

EFFECTIVE DATE: 07-Apr-2001

AFFECTED CHANGE CATEGORY(S):

On Semiconductor Assy Site
On Semiconductor Test Site

AFFECTED PRODUCT DIVISION: Discrete Products Division

ADDITIONAL RELIABILITY DATA: None

SAMPLES: Contact Below

Contact your local ON Semiconductor Sales Office.
or Jake Lee <R14795@onsemi.com>

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:

Contact Sales Office or Jake Lee <R14795@onsemi.com>

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:

ON Semiconductor is pleased to announce Assembly/Test qualification of SOT23 manufacturing at KEC-T(Korea Electronic Company, Thailand), ON Semiconductor's subcontractor in Thailand. This notification affects NPN/PNP General purpose transistors, and Switching diodes. KEC-T has been both QS9000 certified and AEC qualified since 1998 and has been producing all the technologies in T092 package for customers worldwide since 1996. This expansion will provide additional flexibility and capacity needed to improve responsiveness and on time delivery to our valuable customers.

There will be no change to the form, fit, and function of the devices. Device parameters will continue to meet all Data Book specifications, and reliability will continue to meet or exceed ON Semiconductor standards.



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QUALIFICATION PLAN:

*Per AEC-Q101 guidelines.

<u>TEST*</u>	<u>CONDITIONS</u>	<u>EXCEPTIONS</u>
HTRB	Va=150 degC, V=rated, 1000 hours	
TEMP. CYCLE	Air to Air, Ta=-65 to +150 degC, dwell greater than or equal to 10 mins, 1000 cycles	
AUTOCLAVE	Ta=121 degC, RH= 100%, PSIg=15, 96 hours	
H3TRB	V=rated, Ta=85 C, RH= 85%, 1000 hours	
IOL	Ta=25 degC, delta Tj =>100 C, 3.5 minutes on/off, 15000 cycles	
ESD	HBM, MM, CDM	

<u>ADDITIONAL TESTS</u>	<u>CONDITIONS</u>	<u>EXCEPTIONS</u>
SOLDERABILITY	% voiding after furnace pass	
RES. TO SOLDER HEAT	270 degC, Td=10s	Ran 77/lot vrs 30/lot

QUALIFICATION VEHICLE JUSTIFICATION:

<u>FAMILY</u>	<u>QUAL. DEVICE</u>	<u>REASON CHOSEN</u>
NPN	BCX19LT1,	Largest Die; highest voltage
PNP	BCX17LT1,	
HIGH VOLTAGE	MMBTA92LT1,	
SWITCHING DIODE	BAS21LT1	

RELIABILITY DATA SUMMARY:

RELIABILITY TESTS, ADDITIONAL TESTS AND RESULTS

Interim result after 504 hours for BCX17LT1, BAS21LT1

<u>TEST DESCRIPTION</u>	<u>RESULT</u> (504 hours)	<u>RESULT</u> (1008 hours)
HTRB	0/77	On test
TEMPERATURE CYCLE	0/77	On test
AUTOCLAVE	0/77	On test
H3TRB	0/77	On test
IOL	0/77	On test

Reliability Testing Conclusions

Interim Reliability Testing after 504 hours shows SOT23 assembly/test meet AEC-Q101 / ON Semiconductor requirements. A copy of the full Reliability Report (1008 hours data) will be available in Feb, 2001.



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ELECTRICAL CHARACTERIZATION SUMMARY:

BAS21LT1

PARAMETER	VF1(V)	VF2(V)	IR1(nA)	IR2(nA)
CONDITION	If=100mA	If=200mA	Vr=250V	Vr=200V
MIN.	.913	.980	3.88	3.54
MAX.	.918	.996	8.97	9.63
AVERAGE	.915	.993	6.63	6.26
STD. DEV.	.001	.003	1.45	1.64
CPK	28.598	26.65	22938.97	18.99

BCX17LT1

PARAM.	Bvces (V)	Bvceo (V)	Iebo (nA)	Icbo (nA)	Vce (sat)(V)	Vbe (on)(V)	Hfe1	Hfe2	Hfe3
CNDT.	Ic=10uA	Ic=10mA	Veb=5V	Vce=20V	500mA/50mA	1V/500mA	1V/100mA	1V/300mA	1V/50mA
MIN	80.5	70.5	3.01	4.74	.228	.887	272	180.0	77.1
MAX	89.8	73.6	3.97	9.80	.280	.931	299	201.0	97.2
AVG	85.0	71.4	3.46	6.73	.239	.894	286	192.1	88.0
S.Dev	2.47	.77	1.88	1.46	.010	.008	6.6	5.14	4.83
CPK	4.73	11.48	17747.98	226.03	13.27	12.11	12.54	7.90	3.31

BCX19LT1

PARAM.	Bvces (V)	Bvceo (V)	Iebo (nA)	Icbo (nA)	Vce (sat)(V)	Vbe (on)(V)	Hfe1	Hfe2	Hfe3
CNDT.	Ic=10uA	Ic=10mA	Veb=5V	Vce=20V	500mA/50mA	1V/500mA	1V/100mA	1V/300mA	1V/50mA
MIN	150	65.1	3.48	5.60	.187	.877	154	121	80.9
MAX	158	72.1	8.44	7.78	.283	.960	175	144	96.3
Avrg	154	70.8	4.20	5.38	.199	.886	160	126	84.4
S.Dev	1.86	1.55	9.18	1.72	.0019	.016	5.4	5.45	3.65
CPK	18.63	5.54	3396	18.88	7.48	6.50	15.43	3.46	4.06

MMBTA92LT1

PARAM.	Bvceo (V)	Bvcb0 (V)	Bvceo (V)	Iebo (nA)	Icbo (nA)	Vce (sat)(V)	Vbe (sat)(V)	Hfe1	Hfe2	Hfe3
CNDT.	Ie=100uA	Ic=100uA	Ic=1mA	Veb=3v	Vce=200V	20mA/2mA	2mA	20mA/1mA	2mA/10mA	10V/1mA 10
Min	7.43	432	423	.59	7.14	.127	.766	154	151	147
Max	7.46	451	452	1.27	32.8	.146	.769	162	158	155
Avrg	7.45	445	444	.90	22.1	.139	.768	157	153	151
S.Dev	.008	6.68	10.23	.16	13.9	.006	.001	2.23	2.31	2.21
CPK	98.21	7.23	4.67	204.91	5.45	18.74	57.78	19.75	16.39	18.88

CHANGED PART IDENTIFICATION:

For site identification purpose, the date code character will be rotated 90 degrees counterclockwise and have a bar on the top with respect to the device marking.

Selected sample builds are available after ww02 and complete samples will be after ww06, 2001. Customers may receive these products manufactured starting with data code 0106 or later.



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AFFECTED DEVICE LIST:

PART
BAS16LT1
BAS21LT1
BAV70LT1
BAV99LT1
BAV99LT3
BAW56LT1
BC807-25LT1
BC807-40LT1
BC817-25LT1
BC817-40LT1
BC846BLT1
BC847BLT1
BC847BLT3
BC847CLT1
BC847CLT3
BC848BLT1
BC848CLT1
BC856BLT1
BC857BLT1
BC857BLT3
BC858BLT1
BC858CLT1
MMBD6050LT1
MMBD7000LT1
MMBD914LT1
MMBD914LT3
MMBT2222ALT1
MMBT2222ALT3
MMBT2222LT1
MMBT2907ALT1
MMBT2907ALT3
MMBT3904LT1
MMBT3904LT3
MMBT3906LT1
MMBT3906LT3
MMBT4401LT1
MMBT4403LT1
MMBT5551LT1
MMBTA06LT1
MMBTA06LT3
MMBTA42LT1
MMBTA56LT1
MMBTA92LT1