



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION
Generic Copy

05-OCT-2004

SUBJECT: ON Semiconductor Final Product/Process Change Notification #13698

TITLE: Phase #5 Die Design Change for Bipolar Power Products

EFFECTIVE DATE: 05-Dec-2004

AFFECTED CHANGE CATEGORY: Die Shrink

AFFECTED PRODUCT DIVISION: Discretes Products

ADDITIONAL RELIABILITY DATA: Available

Contact your local ON Semiconductor Sales Office or Laura Rivers <S20636@onsemi.com>

SAMPLES: Contact your local ON Semiconductor Sales Office
or Mike Schager <RMF150@onsemi.com>

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:

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

NOTIFICATION TYPE:

Final Product/Process Change Notification (FPCN)

Final change notification sent to customers. FPCNs are issued at least 60 days prior to implementation 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 the Final Notification for the 5th Phase of Bipolar Power Product die design changes detailed in IPCN#12868 available at www.onsemi.com. ON Semiconductor wishes to notify its Customers that the listed Bipolar Power Transistors have completed a Die size reduction. Electrical characterization and qualification data have been completed, and device parametric specifications and ratings have not changed.



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RELIABILITY DATA SUMMARY:

Mask#1

TIP31C		
TEST	Qual Lot	Control
HTRB	0/77	0/77
H3TRB	0/77	0/77
AC	0/77	0/77
IOL	0/77	0/77
TC	0/77	0/77

Mask#2

BD440		
TEST	Qual Lot	Control
HTRB	0/77	0/77
H3TRB	0/77	0/77
AC	0/77	0/77
IOL	0/77	0/77
TC	0/77	0/77

ELECTRICAL CHARACTERISTIC SUMMARY:

Mask#1

					25DegC	
					TIP31C - NPN	
Test	Condition	Limit	Unit	Stat	QUAL LOT	CONTROL
Iebo	VEB= 5V	<1.00E-3	Amp	Avg/Sd	7.32E-10/8.68E-11	9.11E-11/3.90E-11
Iceo	VCE= 60V	<3.00E-4	Amp	Avg/Sd	1.16E-07/2.51E-08	7.13E-09/2.83E-09
Ices	VCE= 100V	<2.00E-4	Amp	Avg/Sd	3.03E-09/1.43E-10	2.13E-09/1.33E-10
BVceo	IC=50mA	>100V	Volt	Avg/Sd	135.4 / 1.4	136.6 / 2.4
hFE	1A / 4V	<25		Avg/Sd	162.6 / 8.2	127.6 / 6.4
hFE	3A / 4V	10 to 50		Avg/Sd	16.7 / 1.2	23.3 / 1.3
VCE (sat)	3A/0.375A	<1.2	Volt	Avg/Sd	0.4024 / 0.0235	0.4090/0.0095
VBE (on)	3A / 4V	<1.8V	Volt	Avg/Sd	1.0132 / 0.0117	1.0824/0.0065

Mask#2

					25DegC	
					BD440 - PNP	
Test	Condition	Limit	Unit	Stat	QUAL LOT	CONTROL
Iebo	VEB= 5V	<1.00E-3	Amp	Avg/Sd	3.03E-10/2.16E-10	2.87E-10/2.37E-10
Icbo	VCB= 80V	<1.00E-4	Amp	Avg/Sd	2.15E-09/3.44E-10	2.06E-09/2.42E-09
BVebo	IE= 100uA	>5	Volt	Avg/Sd	12.08 / 0.18	12.32 / 0.29
BVcbo	IC=100uA	>60	Volt	Avg/Sd	100.4 / 8.9	137.8 / 10.9
BVceo	IC= 50mA	>80	Volt	Avg/Sd	92.8 / 7.6	109.9 / 4.3
hFE	0.5A/1V	40 to 475		Avg/Sd	371.1 / 22.7	222.5 / 14.3
hFE	2A / 1V	>25		Avg/Sd	84.3 / 6.2	62.2 / 4.2
VCE (sat)	3A/0.3A	<0.8	Volt	Avg/Sd	0.3376 / 0.0077	0.4149 / 0.0080
VBE (on)	2A/1V	<1.5	Volt	Avg/Sd	0.8502 / 0.0040	0.8736 / 0.0045



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CHANGED PART IDENTIFICATION:

No changes in marking.

Product marked with date code 0449 might have new Die design.

AFFECTED DEVICE LIST (WITHOUT SPECIALS):

PART

2N4921
2N4922
2N4923
2N5194
2N5195
BD179
BD237
BD241C
BD436
BD436T
BD436TG
BD438
BD440
BD442
MJD31C
MJD31C1
MJD31CRL
MJD31CT4
MJD31CT4G
MJD31T4
MJE371
MJF31C
SJD31CT4
SJD4080RL
TIP29
TIP29A
TIP29B
TIP29C
TIP29CG
TIP31
TIP31A
TIP31B
TIP31C
TIP31CG