DOCUMENT CHANGE REQUEST

DCR number 640	Changes required for: N/A	Originator: Juergen Tetzlaff
Date: 2011/05/30	Date sent: 2010/12/22	Organisation: DLR
Status: IMPLEMENTED		

Title:	Transistors Microwave Small Signal Silicon Bipolar, based on types BFY180 thru BFY183 BFY193		
Number:	5611/006	Issue:	4

Other documents affected:

Page:

Table 1(a), page 6
and
Table 2, page 16

Paragraph:

Table 1(a), page 6
and
Table 2, page 16

Original wording:

Proposed wording:

Addition of the new variant 08 (BFY 193C) in table 1(a), all entries for variant 06 are also valid for variant 08.

Introducing a new row in Tab. 2 for 1/f Noise which will be measured according LTPD15 sample testing per wafer.
Limit < 300 nV/Hz
The following details apply to this DCR:

Page 1 & 5, Spec Title & Para 1.1: add "BFY193C" to the list of types.

Page 5, Para 1.7: change to read "Variants 04 to 08" (was "04 to 07").

Page 6 Table 1(a): Add new Variant 08 to table with row details:
08, BFY193C, MICRO-X1, 2, D2

Page 7, Table 1(b):
Nos. 1, 2, 3: change to read "Variants 03 to 08" (was "03 to 07")

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Nos. 5, 6, 7: change to read "Variants 06, 08" (was "Variant 06")

Page 8, Figure 1: change to read "Variants 06, 08 (104C) " (was "Variant 06 (104C)")

Add to Notes: "Variant 08: 165C/W"

Page 11, Para 4.3.4(b): change to read "Variants 06 to 08" (was "06 and 07")

Page 11, Para 4.3.5(a): change to read "Variants 01 to 06 and 08" (was "01 to 06")

Page 14, 15, 16, Table 2:
Nos. 1, 2 & Note 1: change to read "Variants 03 to 08" (was "03 to 07")

Nos. 5, 6, 8, 9, 10, 11, 12, 13, 14: change to read "Variants 06, 08" (was "Variant 06")

No. 7: change to read "Variants 05, 06, 08" (was "Variants 05-06")

Page 16, Table 2: Add new characteristic No. 15, 1/f Noise, as follows:
.....
No.: 15

Characteristic: 1/f Noise

Symbol: F10Hz

Test Fig.: -

Test Conditions:
f = 10Hz, VCE = 3V
IC = 8mA, R = 2kOhm
Variant 08
(Notes 12 , 13)

Limits: - min, 300 max

Unit: nV/root Hz
.....

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Add new notes 12 & 13:

"12. Measured using a suitable noise analyser."

"13. LTPD15 per wafer, sample testing. In case of failure, 100% testing shall be applied."

Page 17, Table 3(a) No. 2: change to read "Variants 03 to 08" (was "03 to 07")

Page 17, Table 3(b) No. 6: change to read "Variants 06, 08" (was "Variant 06")

Page 20, Table 5(a) No. 2: change to read "Variants 03 to 08" (was "03 to 07")

Page 20, Table 5(b):
No. 1: change to read "Variants 04 to 08" (was "04 to 07")

No. 3: change to read "Variants 06, 08" (was "Variant 06")

No. 4: change to read "Variants 03 to 08" (was "03 to 07")

Page 24, Table 6 No. 6: change to read "Variants 06, 08" (was "Variant 06")

Justification:
for clarification of the changes required for DCR implementation.

Justification:

Infineon wants to add the BFY 193C with better noise behaviour.

Documents were already sent per Mail to Marie Genevieve Perichaud and Lionel Bonora 12.1.2010

Attachments:

BFY193C_to_ESCC_Detail_Specification.pdf, null

Modifications:

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Page 5, Para 1.7: change to read "Variants 04 to 08" (was "04 to 07").

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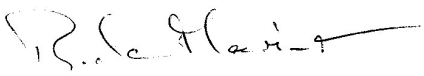
Approval signature:



Date signed:

2011-05-30

BFY193C to ESCC Detail Specification

- BFY193C contains 6” die T359C
- BFY193 is already in ESCC Detail Specification
- For Comparison refer to similarity matrix:

Similarity matrix

- All parameters currently covered by ESCC Detail Specification are identical for BFY193 and BFY193C
- Some customers prefer BFY193C due to much better 1/f noise
- Measurement of 1/f noise:

BFY193	[nV/√Hz]:	205 – 1650	(88 pcs.)
BFY193C	[nV/√Hz]:	110 – 170	(50 pcs.)

Proposal:

Attach BFY193C to ESCC Detail Specification 5611 006:

- Implement new variant 08 in the document, all entries for variant 06 are also valid for variant 08

ESCC	ESCC Detail Specification No. 5611/006		PAGE 6 ISSUE 3

TABLE 1(a) - TYPE VARIANTS

(1) VARIANT	(2) TYPE	(3) CASE	(4) FIGURE	(5) LEAD MATERIAL AND FINISH
01	BFY180	MICRO-X1	2	D2
02	BFY280	MICRO-X1	2	D2
03	BFY181	MICRO-X1	2	D2
04	BFY182	MICRO-X1	2	D2
05	BFY183	MICRO-X1	2	D2
06	BFY193	MICRO-X1	2	D2
07	BFY196	MICRO-X1	2	D2

Proposal:

- Document only difference between BFY193 and BFY193C by introducing a new row in Tab. 2 for 1/f Noise which will be measured according LTPD15 sample testing per wafer. Limit < 300 nV/Hz

14	Output Power	P_{OUT}	4(b)	f = 2GHz, V_{CE} = 5V Variant 05: I_C = 30mA, P_{IN} = 7dBm Variant 06: I_C = 50mA, P_{IN} = 10dBm Variant 07: I_C = 80mA, P_{IN} = 15dBm (Notes 5 and 11)	 13.5 16.5 18.5	 - - -	dBm

NOTES

1. This is an alternative method of establishing $V_{(BR)CEO}$ and assures that $V_{(BR)CEO}$ for Variants 01 and 02 is >8V and for Variants 03 to 07 is >12V, if the stated base current is not exceeded.
2. Pulsed measurement: Pulse Duration, <1 second. For the purpose of V_{FBE} measurement, I_{Bmax} may be exceeded during a pulsed measurement provided that the pulse length duration <1 second and I_C = 0mA.
3. The emitter is connected to the ground terminal.
4. The collector is connected to the ground terminal.
5. Measured in a 50Ω system.
6. Small signal measurement.
7. Input tuned for NF_{min}.
8. MAG if K≥1;MSG if K<1.
9. $f_T = f \times |h_{21}|$, $h_{21} = \dfrac{-2.S_{21}}{(1-S_{11})(1+S_{22}) + S_{12}.S_{21}}$.
10. LTPD15 sample testing with the maximum allowed limit reduced by 0.2dB. In case of failure, 100% testing shall be applied.
11. LTPD15 sample testing with the minimum allowed limit increased by 0.5dB. In case of failure, 100% testing shall be applied.