

PRODUCT CHANGE NOTICE PCN Form (D4-E000-73)

PCN#14-016

NOTIFICATION DATE: October 1, 2014

MODEL(S) AFFECTED:

AVA-183+

EXTENT OF CHANGE:

Change of Die

EFFECT OF CHANGE:

Minor change in functional performance.
See attached PCN report for details

REASON FOR CHANGE:

Current die is no longer available

EFFECTIVE DATE OF CHANGE:

Immediate

DELIVERY:

Small Quantity Samples: October 24, 2014
Production Quantities: January 2015

ATTACHMENTS:

PCN report

QUESTIONS?

PLEASE CONTACT US.

ISO 9001 CERTIFIED

PROJECT REPORT

TITLE: **PRODUCT PERFORMANCE
CHANGE NOTIFICATION
REPORT**

AVA-183+

Reference: AVA-183+ (PCN#14-016)

Report Date:	Sept 10 th 2014
Report Issued by:	Mini-Circuits Engineering
File Name	\\mcl_new_york\software\users\radha\ Projects\MMIC\AVA-183+ AVA-24+ (ES2D_ES7A)\AVA-183+PCN report_Rev_1.docx
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1. Background:

- Mini-Circuits AVA-183+ is a PHEMT based MMIC
- The die utilized in this model is no longer available and Mini-Circuits has designed a new die to replace it
 - Foundry used for the new die is produced in Mini-Circuits qualified foundry
- As an alternate Mini-Circuits has a qualified part AVA-183A+ with slightly higher Gain

2. Purpose:

Propose transition of die from Fab "A" to Fab "B" for AVA-183+ or suggest use of qualified model AVA-183A+

3. Objective:

Present performance data on a representative sample of AVA-183+ with alternate Fab die (Fab "B") as compared to current production performance (Fab "A") & AVA-183A+

4. Current Electrical Specifications & Performance Summary

	Performance Data Summary										
	Frequency	Catalog Specification (Rev A)			Future Fab-B			Current Fab-A			AVA-183A+
		GHz	Min	Typ.	Max	Min	Average	Max	Min	Average	Max
Gain (dB)	6		12.5		12.1	12.2	12.3	12.0	12.2	12.5	14.3
	8	10	12.7		11.9	12.0	12.2	12.3	12.4	12.6	14.7
	10	10	12.4		11.5	11.7	11.8	11.9	12.0	12.0	13.9
	12		12.0		11.1	11.2	11.4	11.6	11.6	11.6	13.0
	14		11.7		11.2	11.3	11.4	11.7	11.7	11.7	12.9
	16		12.6		12.0	12.3	12.6	11.7	11.8	11.9	13.7
	18	10	12.6		13.0	13.4	13.7	11.6	11.6	11.7	12.6
RL-IN (dB)	6		15.6		12.5	12.6	12.7	13.9	14.8	15.7	22.3
	8		25.7		14.9	15.4	16.0	23.4	23.9	24.5	44.2
	10		17.9		20.8	20.9	21.0	13.8	15.5	17.3	14.7
	12		12.4		15.4	15.6	15.8	12.9	13.5	14.1	10.4
	14		11.3		17.4	18.0	18.5	13.6	14.3	14.9	10.4
	16		15.8		23.2	23.8	24.4	11.7	13.4	15.0	17.8
	18		11.7		14.8	15.2	15.5	11.5	12.2	12.9	9.1
RL-OUT (dB)	6		21.0		11.6	12.3	13.0	17.3	17.8	18.2	10.9
	8		25.0		11.8	12.1	12.5	23.6	27.9	32.2	25.6
	10		18.6		14.0	15.6	17.3	13.4	14.4	15.4	12.8
	12		14.3		13.4	14.3	15.2	14.2	14.3	14.4	10.0
	14		13.6		11.3	12.5	13.7	17.4	22.3	27.2	10.2
	16		20.3		9.6	9.9	10.3	17.7	21.7	25.7	13.3
	18		19.0		9.9	10.4	10.9	13.4	14.5	15.6	11.5
OIP3-dBm (8 dBm/tone)	6		27.1		30.3	30.6	30.9	30.9	31.1	31.3	34.2
	8		26.3		29.5	29.7	29.9	30.9	30.9	31.0	28.0
	10		26.5		28.3	28.5	28.6	30.7	30.9	31.0	27.1
	12		26.3		27.2	27.3	27.3	30.0	30.1	30.2	25.7
	14		26.0		26.1	26.1	26.2	29.0	29.2	29.4	28.0
	16		25.4		25.1	25.1	25.1	28.4	28.8	29.1	24.2
	18		24.5		23.3	23.4	23.5	27.8	28.1	28.4	24.2
P1dB(dBm)	6		18.9		18.2	18.3	18.3	18.6	18.8	19.1	18.0
	8		18.7		18.5	18.8	19.0	18.0	18.3	18.7	17.6
	10	16	18.6		18.1	18.3	18.5	18.0	18.3	18.5	18.7
	12		18.7		17.7	17.7	17.8	18.5	18.6	18.8	18.7
	14		18.5		18.3	18.5	18.7	17.9	18.3	18.7	19.5
	16		18.0		18.9	19.1	19.3	17.8	18.3	18.7	20.2
	18		17.4		18.7	19.0	19.3	18.1	18.3	18.5	18.2
NF(dB)	6		7.0		6.3	6.4	6.4	6.7	7.0	7.2	5.1
	8		6.3		5.3	5.3	5.4	6.2	6.3	6.5	4.2
	10		5.6		5.5	5.6	5.6	6.2	6.3	6.4	4.4
	12		6.5		6.0	6.1	6.1	6.2	6.3	6.4	4.9
	14		6.5		6.3	6.3	6.3	6.0	6.2	6.3	5.2
	16		6.1		6.3	6.3	6.3	6.0	6.0	6.1	5.3
	18		6.1		6.8	6.8	6.9	6.0	6.1	6.2	5.9
Directivity (dB)			25		22.0	22.5	23.0	27.1	27.1	27.1	22.3
DC Current (mA)			134	145	135	135	136	122	130	137	140

5. Conclusion:

Performance of units made from Fab "A" and Fab "B" similar.
As an alternate, in stock, qualified, foot-print compatible AVA-183A+ can be used

6. Data Reference:

\\mcl_new_york\engineering\TESTDATA\ENGINEERING TEST DATA\Model60\ES2D_ES7A
for AVA-183+ AVA-24+\Model Characterization\TB-547+

7. APPENDIX – SWEPT PERFORMANCE CURVES

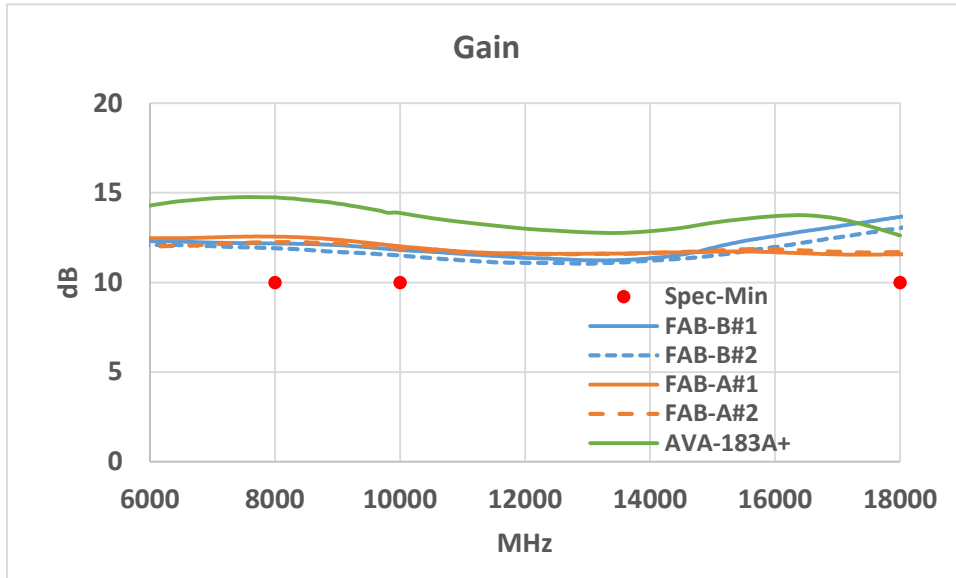


Figure 1 Gain vs. Frequency

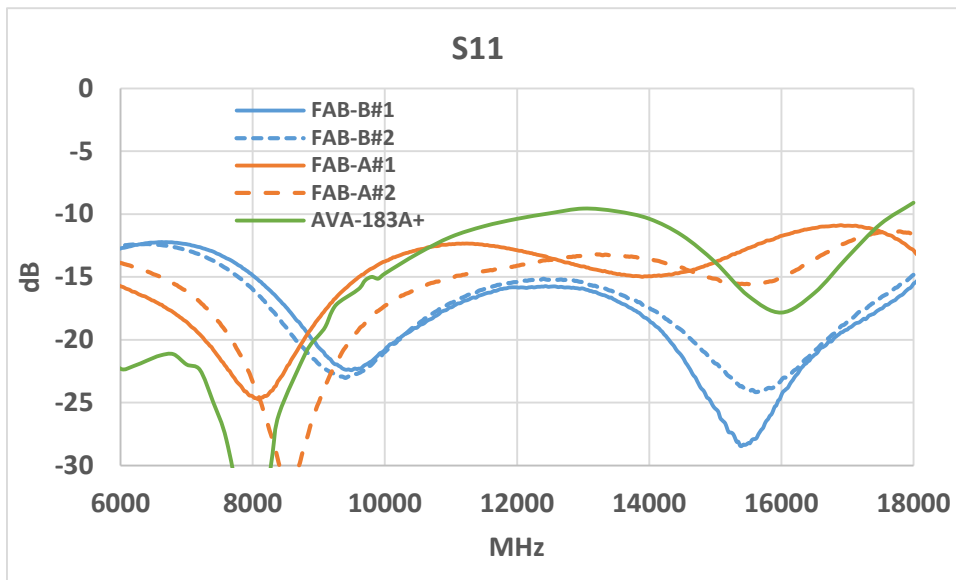


Figure 2 S11 vs. Frequency

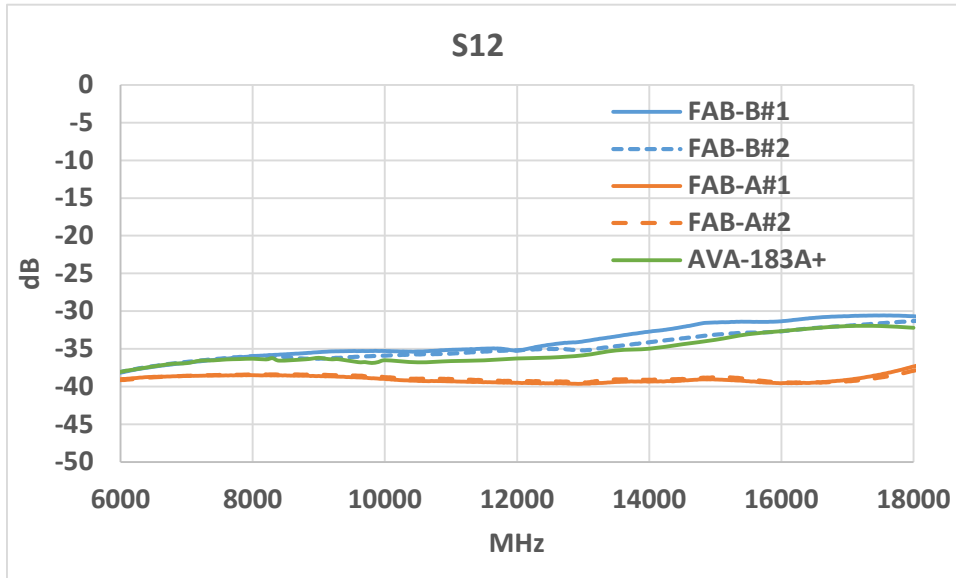


Figure 3 S12 vs. Frequency

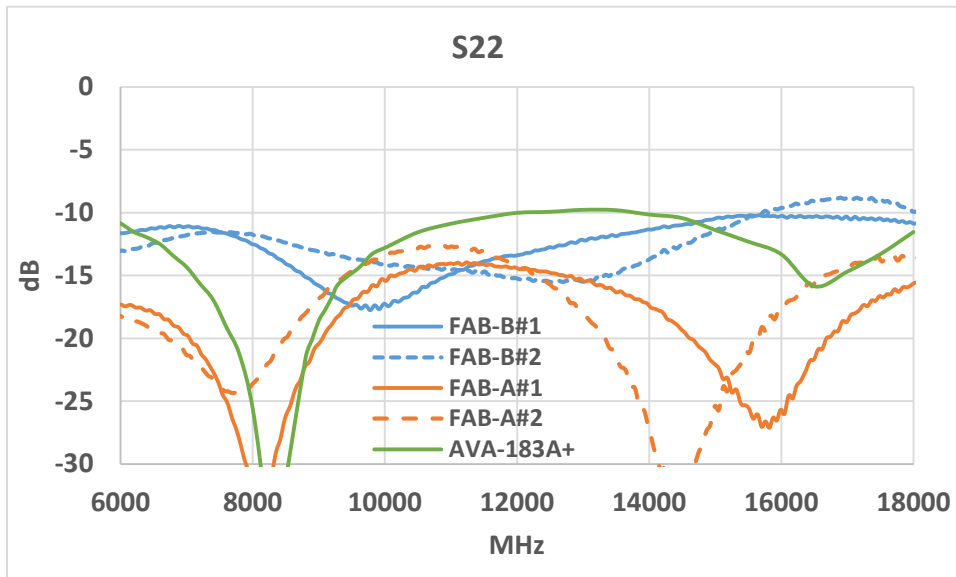


Figure 4 S22 vs. Frequency

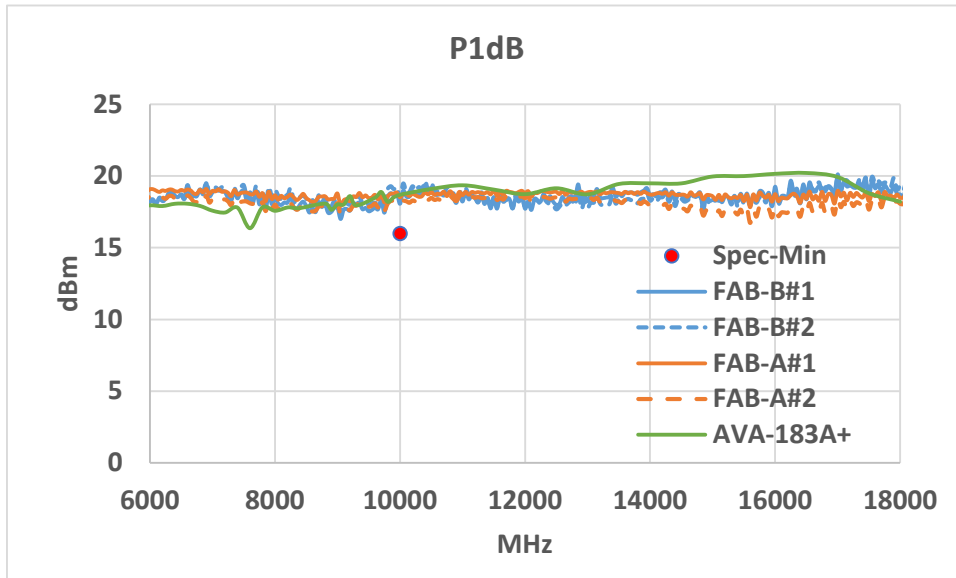


Figure 5 P1dB vs. Frequency

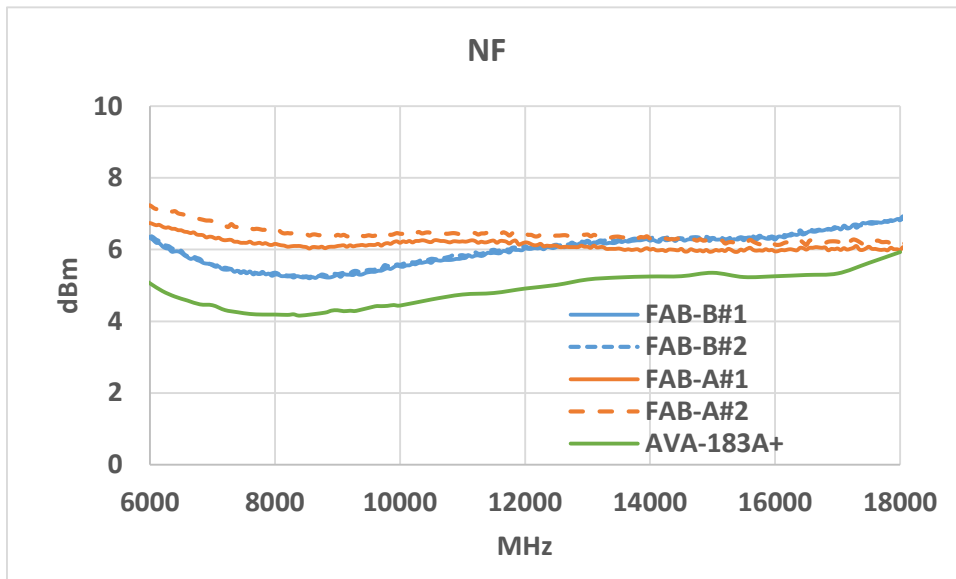


Figure 6 Noise Figure vs. Frequency

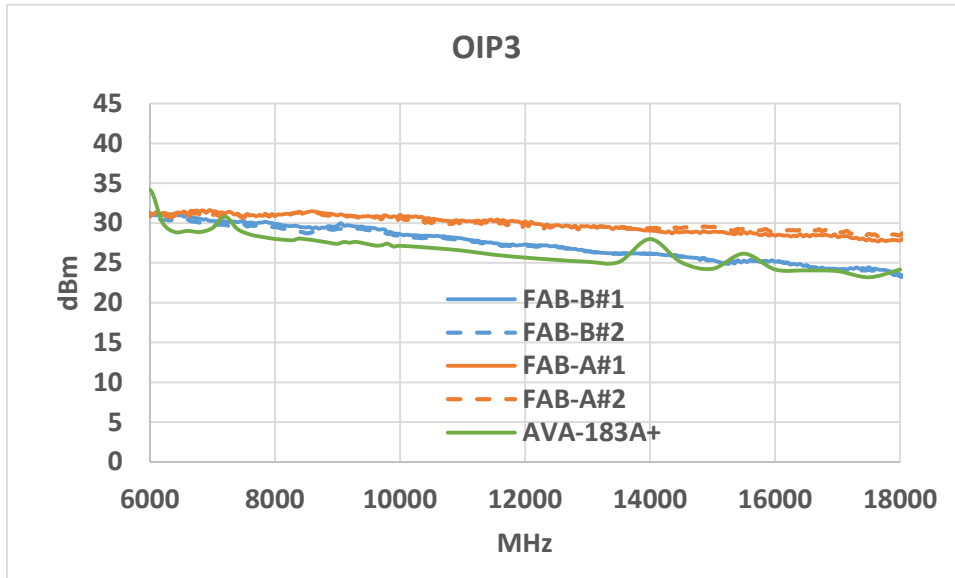


Figure 7 OIP3 vs. Frequency

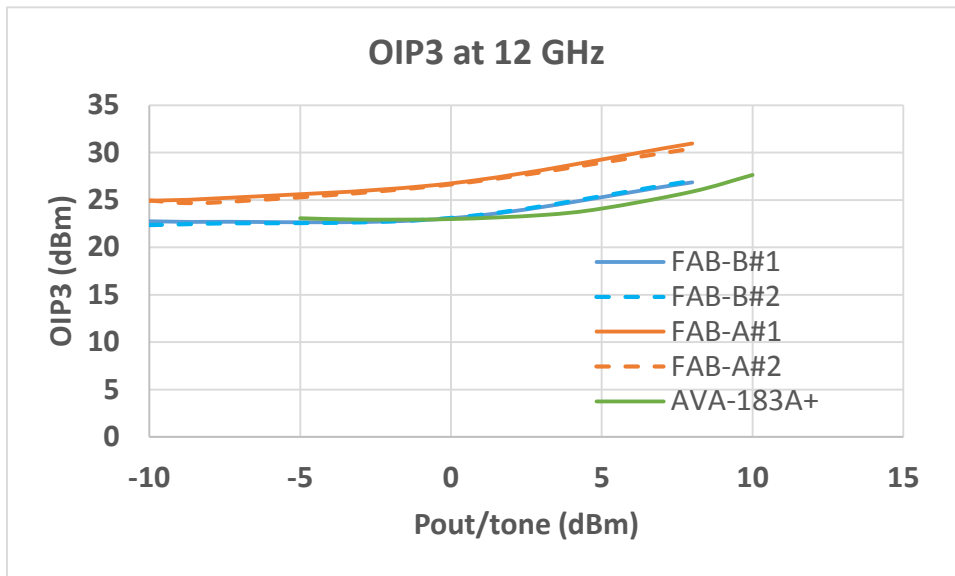


Figure 8 OIP3 vs. Pout