

# AR181126

BLA9H0912L(S)-700, 1030 to 1090MHz

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**AMPLEON**

Application  
Report

## Document information

**Status** Company Public

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**Abstract** Measurement results of a Class-AB design for the 1030 to 1090MHz band (TACAN) with the BLA9H0912L(S)-700

## 1. Revision History

*Table 1: Report revisions*

Revision	Date	Description	Author
1.0	20180829	Initial document	Hans Mollee

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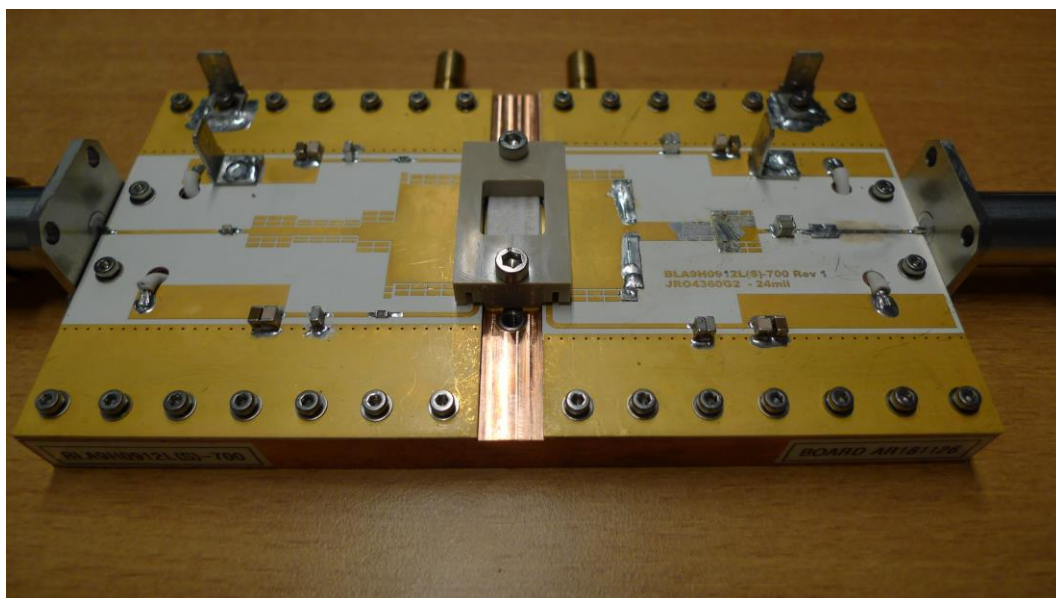
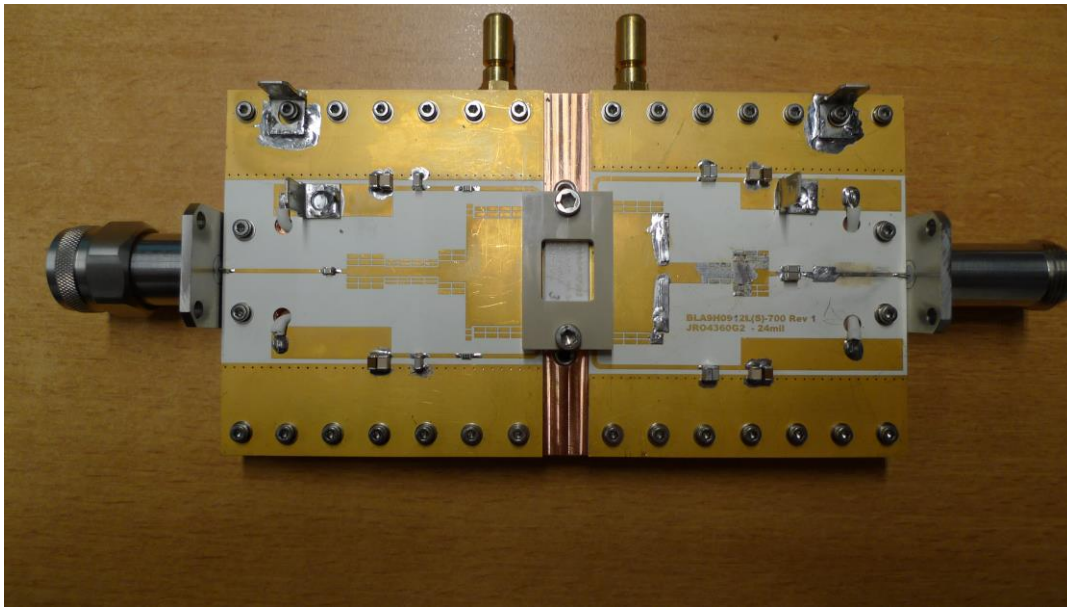
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## 5. General description

This report presents the measurement results of the Class-AB demo AR181126. The device used is a BLA9H0912L(S)-700, 9<sup>th</sup> generation LDMOS in a ceramic SOT502-package. The demo is designed for the frequency band 1030 to 1090MHz

The PCB has been designed on Rogers RO4360G2,  $h=0.61\text{mm}$ ,  $\epsilon_R=6.15$ , 35um double sided copper. Supply voltage (drain-source) is 50V. The gate bias voltage is connected to the Vg terminals on the input board. To set the drain quiescent current, slowly increase  $V_{GS}$  until the  $I_{DQ}$  will be 100 mA, starting at about 1V. In this report tuning options are presented for TACAN applications.



### 6.1 Performance Details

The pulse format used is for Mode-S Interrogator application that use a 10 μs pulse with a duty cycle of 1%. The power sweep was performed up to 3 dB gain compression.

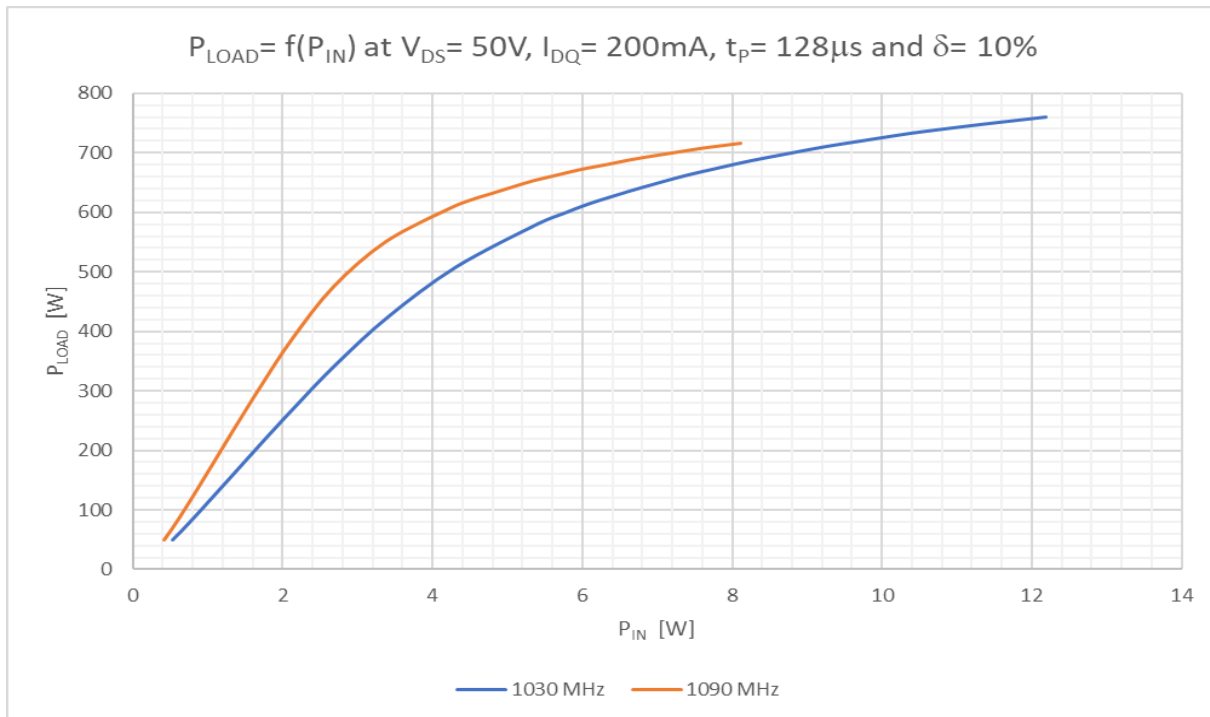


Figure 1 P\_LOAD vs P\_IN

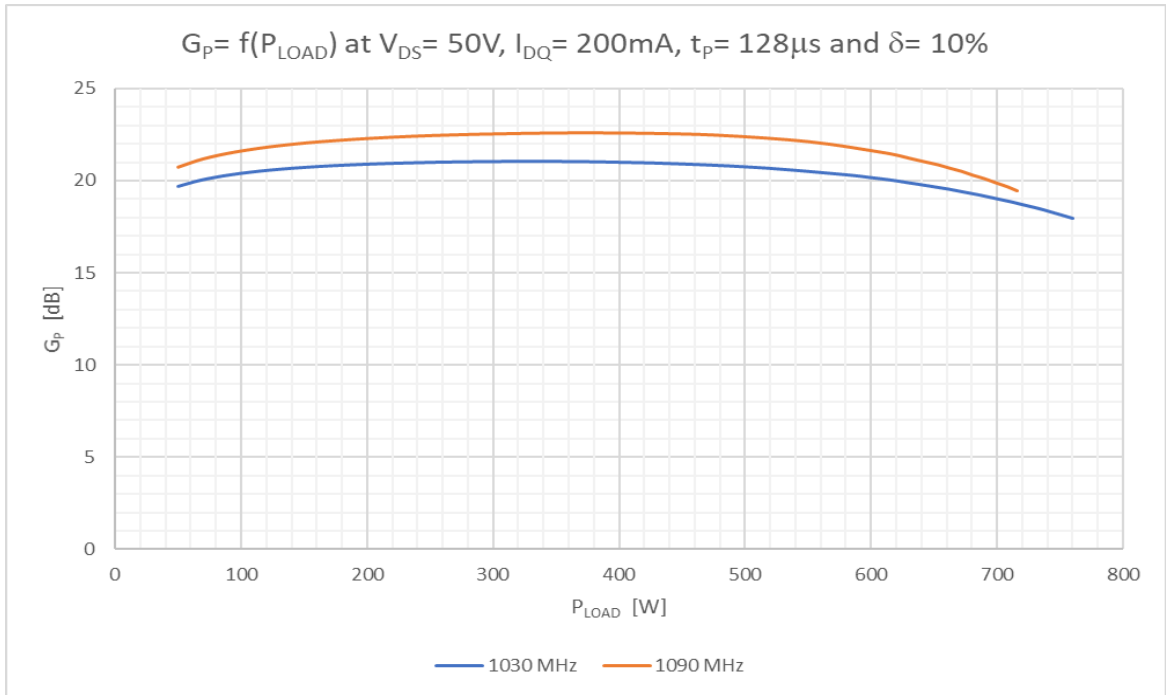


Figure 2 Gain vs P<sub>LOAD</sub>

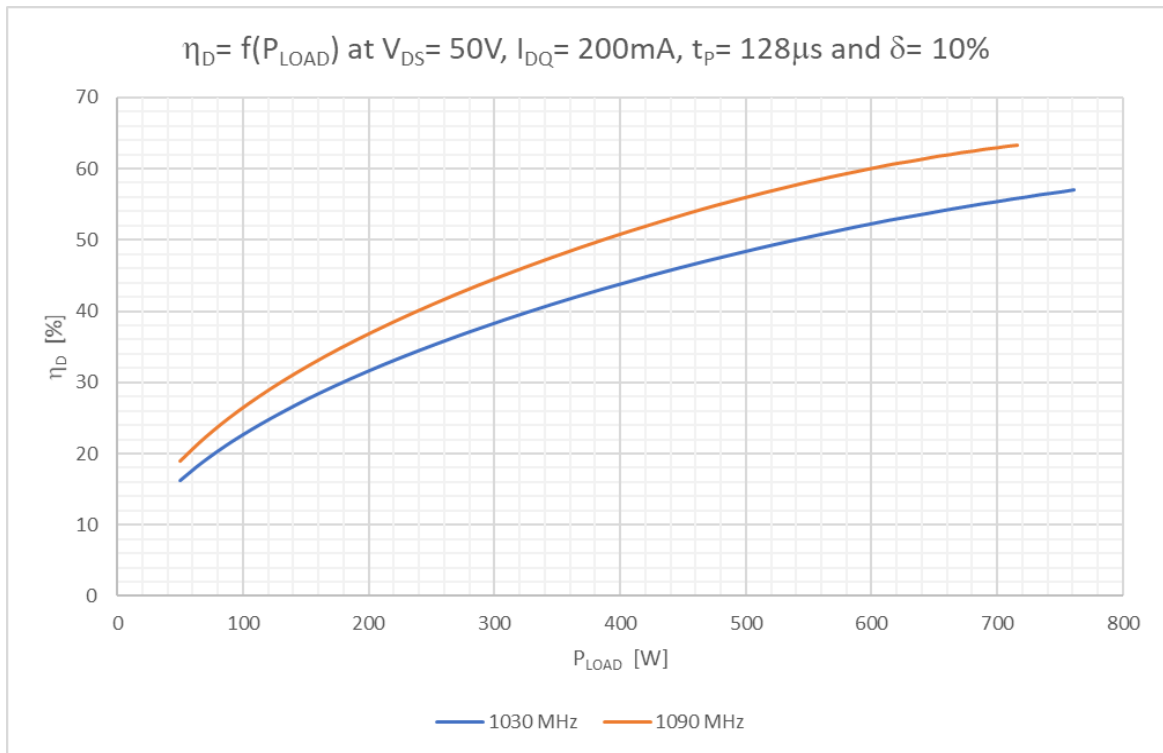


Figure 3 Drain efficiency vs P<sub>LOAD</sub>

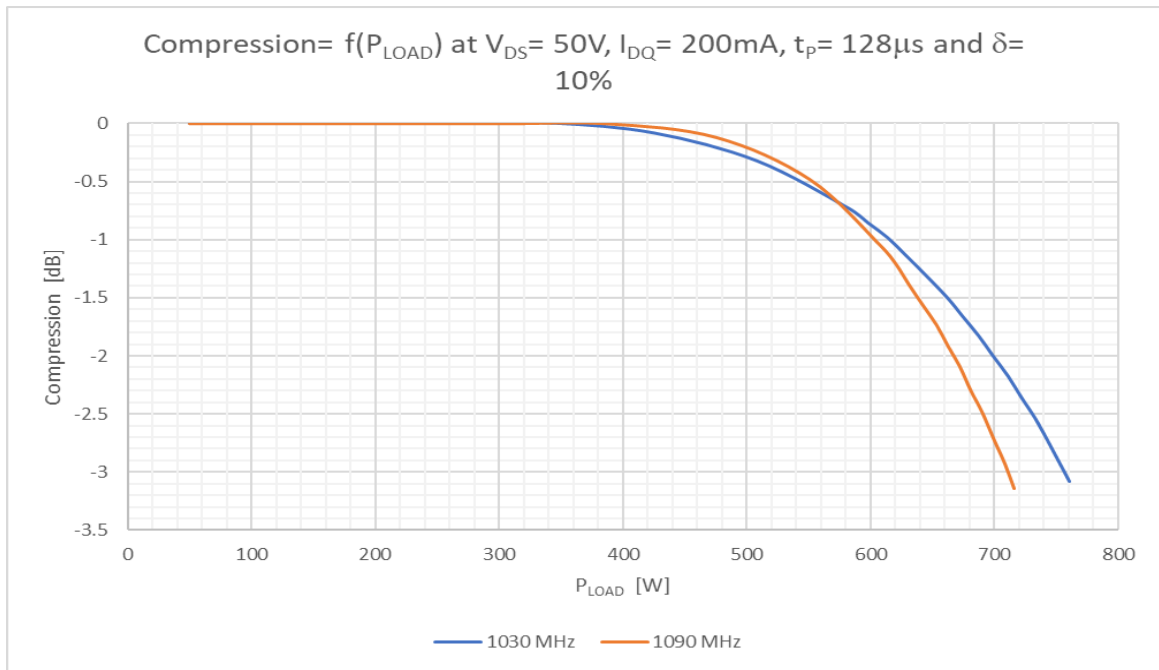


Figure 4 Compression curve

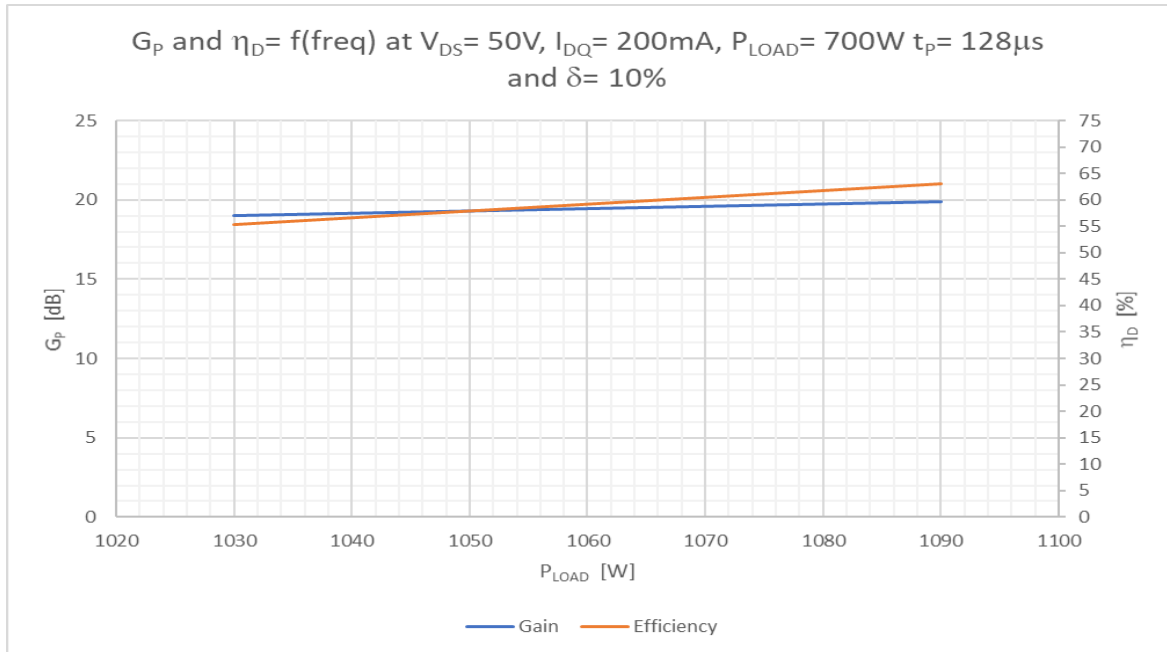


Figure 5: Performance at  $P_{LOAD} = 700W$ .

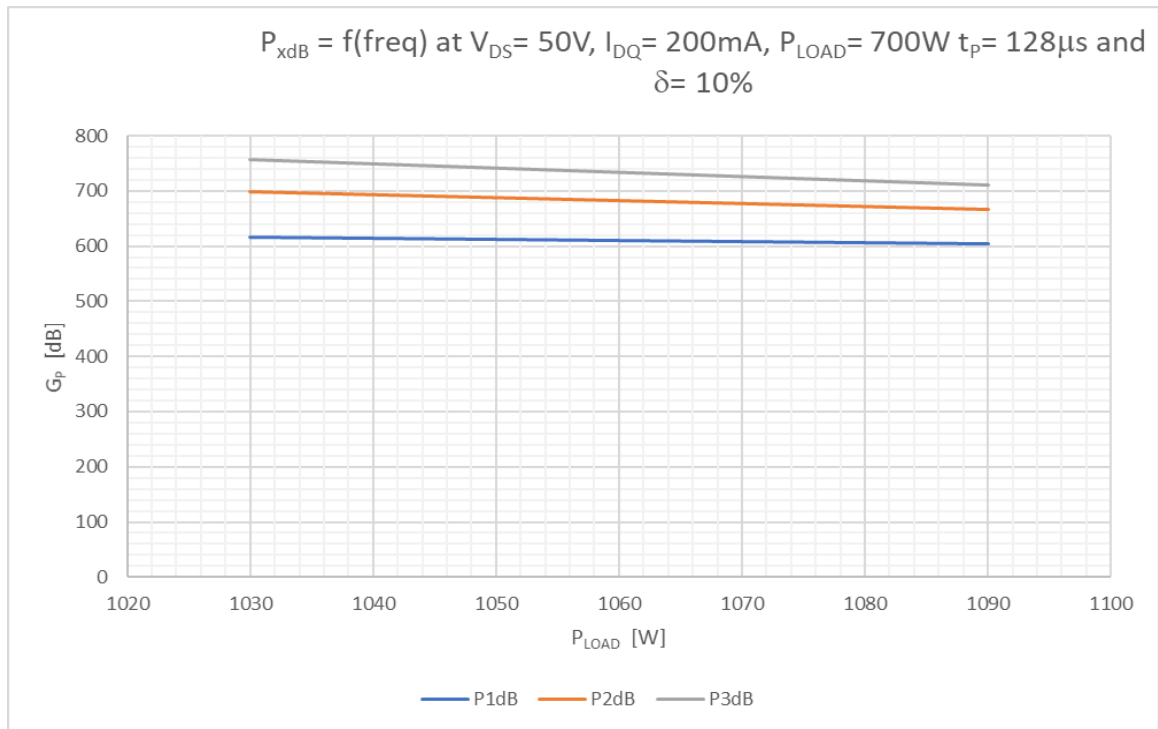
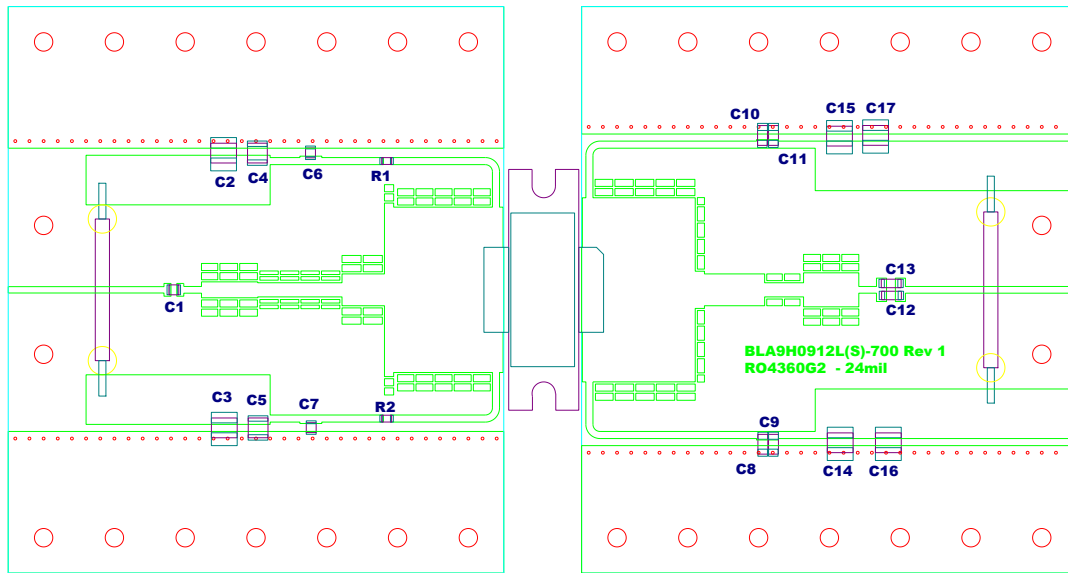


Figure 6: Compression level.

## 7 Hardware



### Components list application circuit.

C1	62 pF	ATC100A
C6, C7	200 pF	ATC800B
C8, C9, C10, C11, C12, C13	68 pF	ATC800B
C4, C5, C14, C15	1 nF	ATC100B
C2, C3, C16, C17	4.7 $\mu$ F – 100V	GMR42 258K7S 475K 100 H53
C30, C31	100 $\mu$ F	63 V, Electrolytic capacitor
R1, R2	5.1 $\Omega$	0603 SMD Resistor

PCB Material: Rogers 4360G2, thickness 0.61 mm (24 mil) or equivalent,  $\epsilon_R = 6.15$ , Cu = 35 micron



*Table 2: Board specifications*

Parameter	Value
<b>Manufacturer</b>	Rogers
<b>Type</b>	RO4360G
<b>Thickness</b>	24 mil, 0.61 mm
<b>Layers</b>	2, top/bottom. Bottom all copper

*Table 3: Device specifics*

Parameter	Value
<b>Manufacturer</b>	Ampleon
<b>Device</b>	BLA9H0912L(S)-700
<b>Marking</b>	BLA9H0912L(S)-700, RFA D183051
<b>Comments</b>	Engineering sample

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