

AR181109

BLA9H0912L(S)-250, 960MHz to 1215MHz

AMPLEON

v1.0 — 14th September 2018

Application
Report

Document information	
Status	Company Public
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Abstract	Measurement results of a Class-AB design for the 960MHz to 1215MHz band (TACAN) with the BLA9H0912L(S)-250

1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20180829	Initial document	Hans Mollee

2. Contents

1.	Revision History	2
2.	Contents	2
3.	List of figures	2
4.	List of tables	2
5.	General description.....	3
6.1	Performance Details.	4
7	Hardware	8
6.	Legal information	10
6.1	Definitions.....	10
6.2	Disclaimers	10
6.3	Trademarks	10
6.4	Contact information.....	10

3. List of figures

Figure 1	P_{LOAD} vs P_{IN}	4
Figure 2	Gain vs P_{LOAD}	5
Figure 3	Drain efficiency vs P_{LOAD}	5
Figure 4	Compression curve.....	6
Figure 5:	P_{XdB} curves.	6
Figure 6:	Performance at 275W.....	7

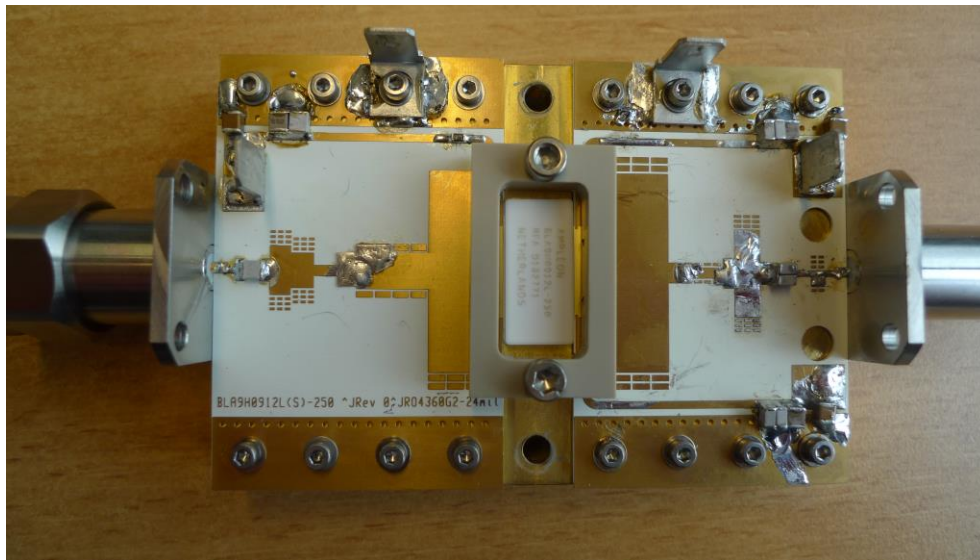
4. List of tables

Table 1:Report revisions	2
Table 2:Board specifications	9
Table 3:Device specifics.....	9

5. General description

This report presents the measurement results of the Class-AB demo AR181109. The device used is a BLA9H0912L(S)-250, 9th generation LDMOS in a ceramic SOT502-package. The demo is designed for TACAN-applications in the 960MHz to 1215MHz frequency band.

The PCB has been designed on Rogers RO4360G2, h=0.61mm, $\epsilon_R=6.15$, 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. The intention of this report is to obtain feedback from customers with respect to the (broadband) performance of the device as this is at the beginning of the development cycle.



6.1 Performance Details.

The pulse format used is for TACAN-applications that use a 128µs pulse with a duty cycle of 10%. The power sweep was performed up to 3 dB gain compression.

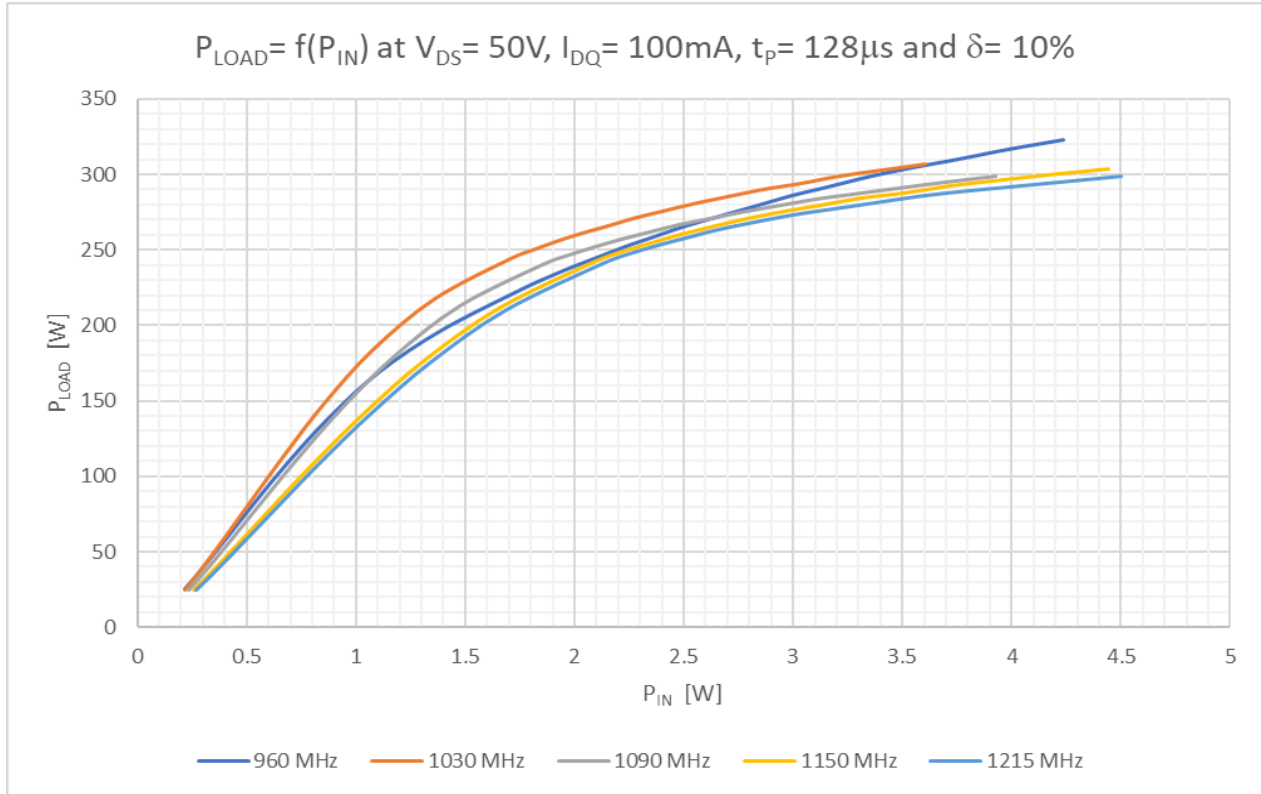


Figure 1 P_LOAD vs P_IN

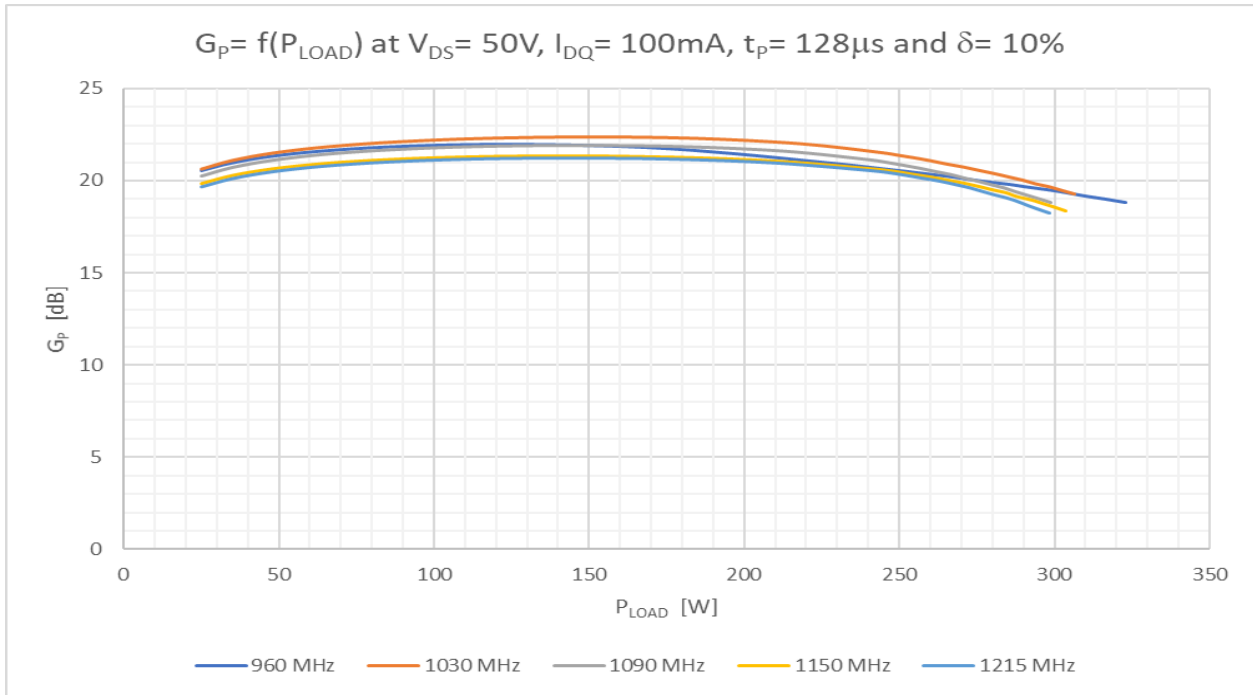


Figure 2 Gain vs P_LOAD

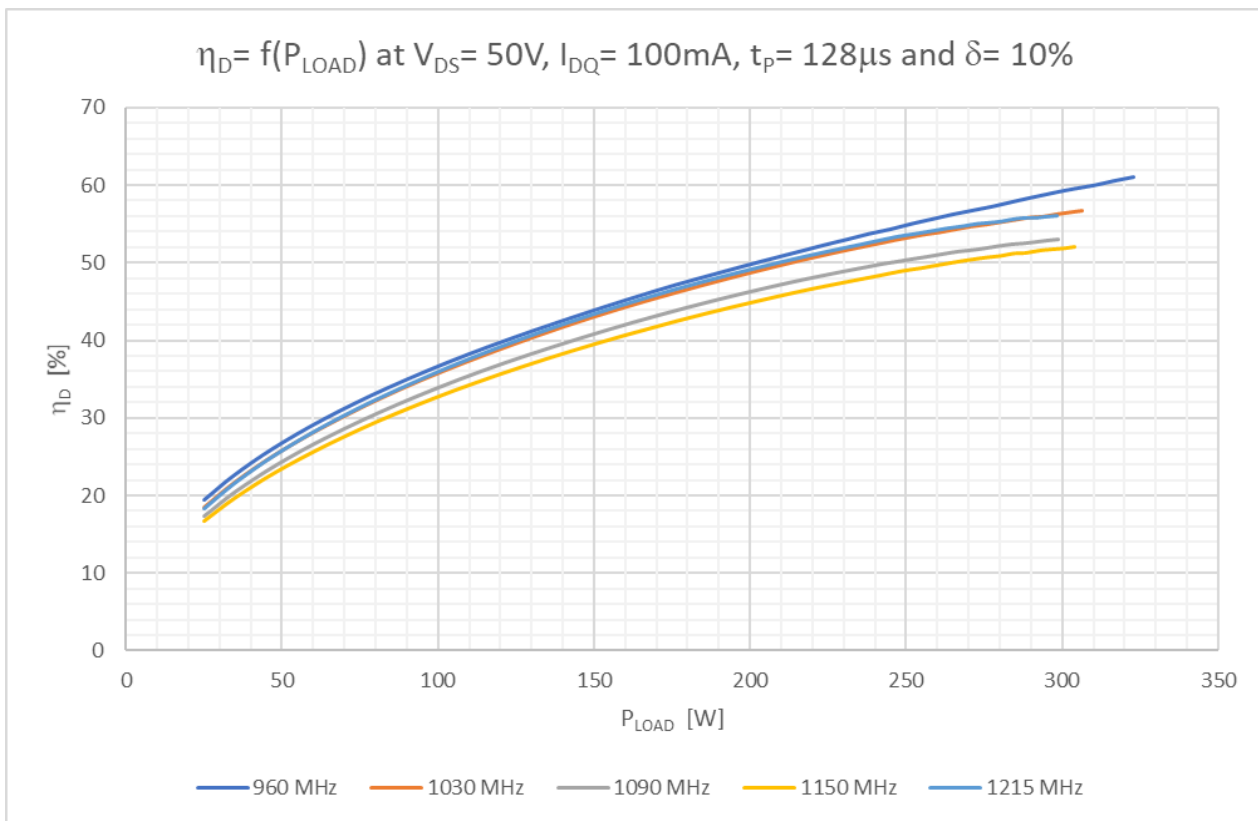


Figure 3 Drain efficiency vs P_LOAD

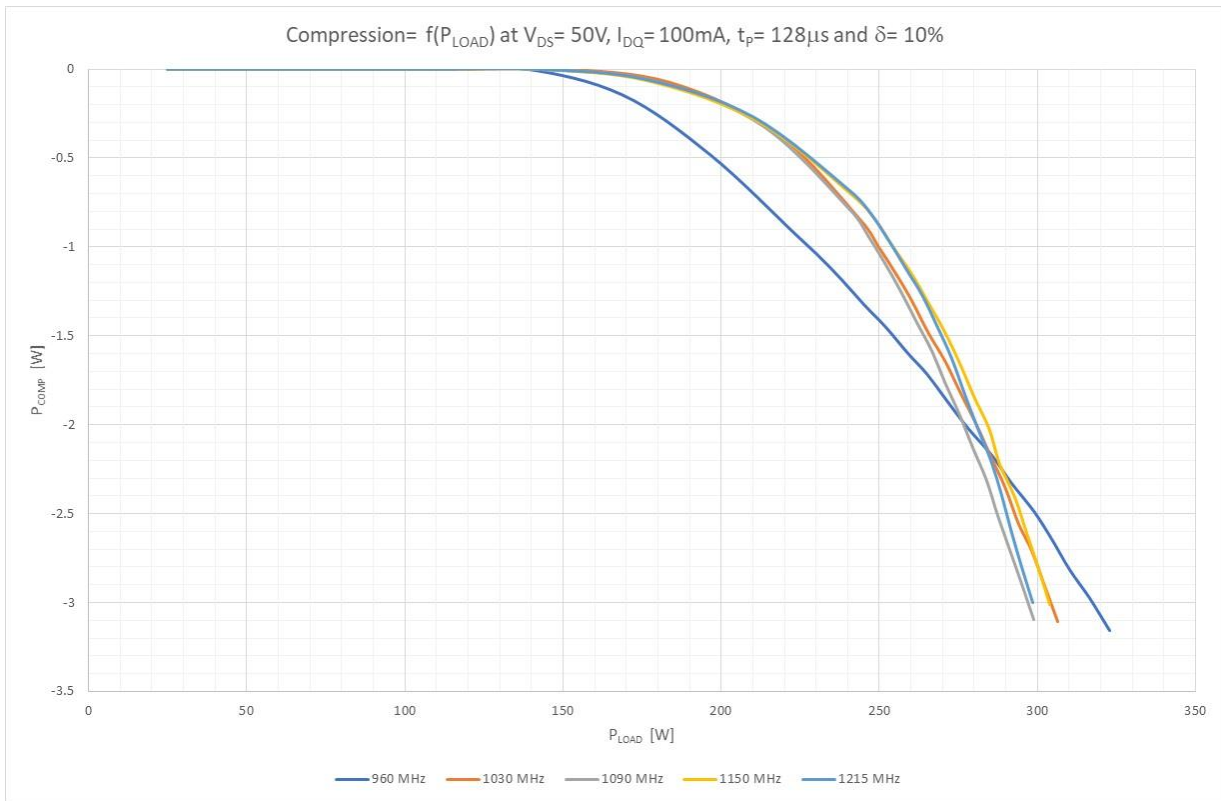


Figure 4 Compression curve

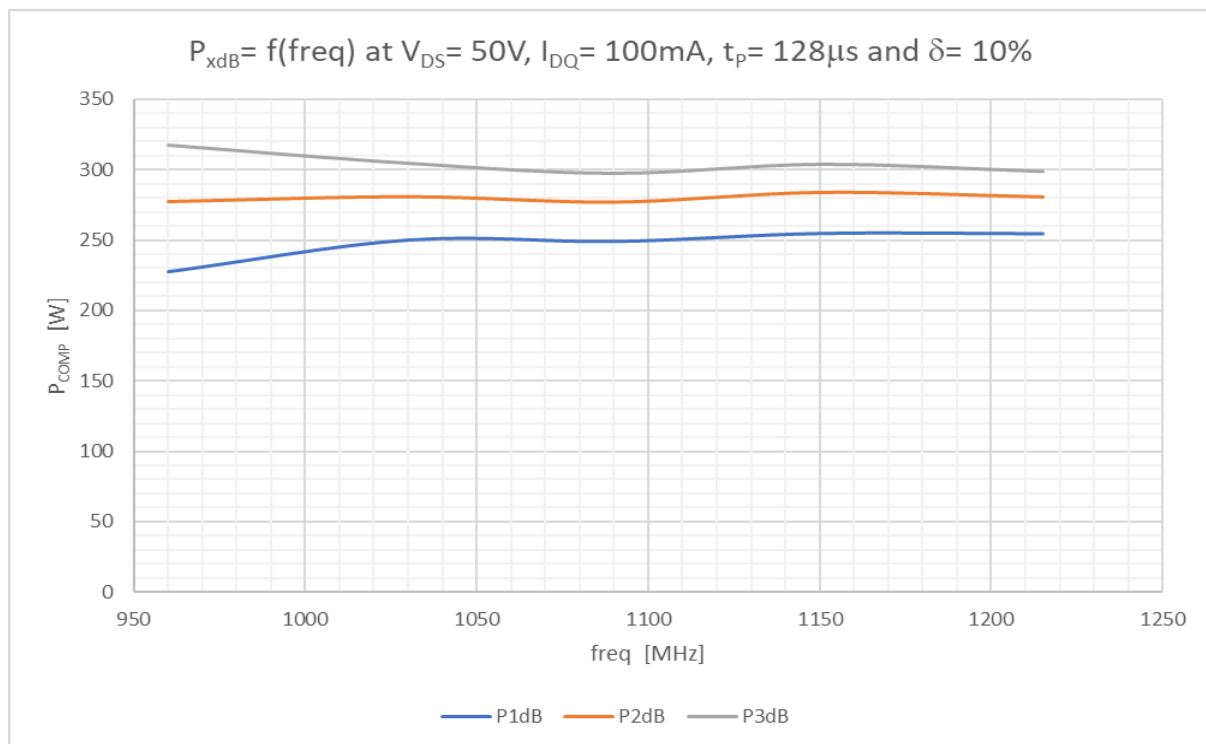


Figure 5: P_{xdB} curves.

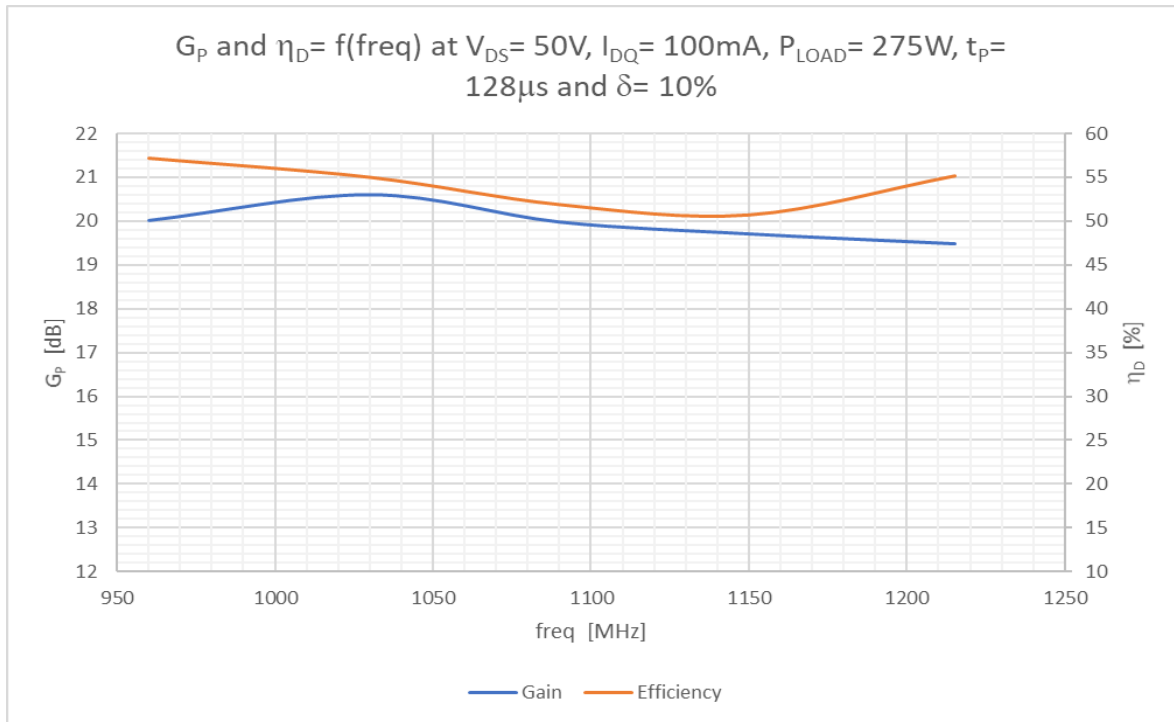
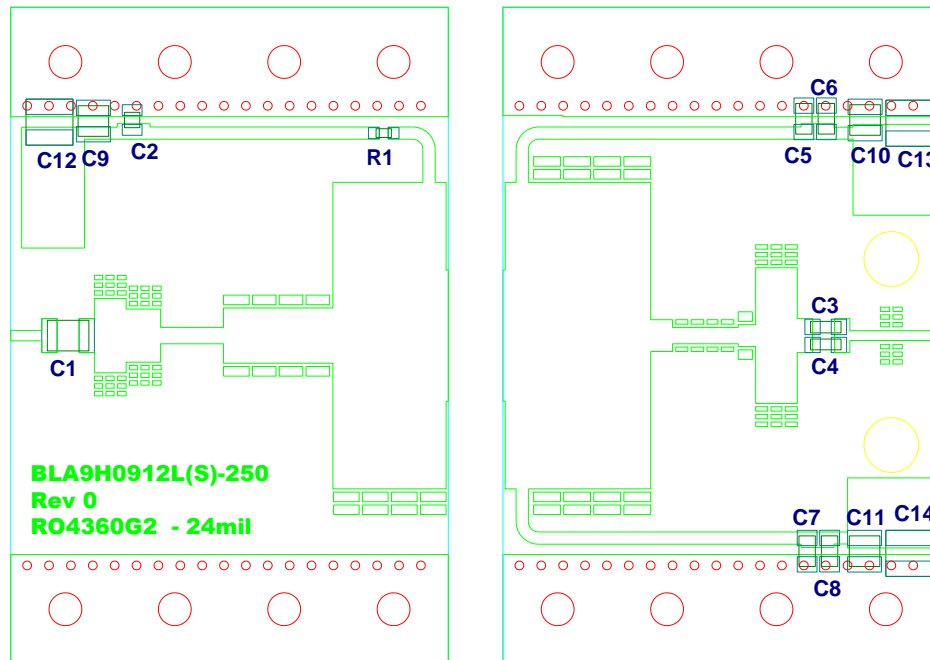


Figure 6: Performance at 275W.

7 Hardware



Components list application circuit.

C1, C2	200 pF	ATC800B
C3, C4	180 pF	ATC800B
C5, C6, C7, C8	75 pF	ATC800B
C9, C10, C11	1 nF	ATC100B
C12, C13, C14	4.7 μ F – 100V	GMR42 258K7S 475K 100 H53
R1	5.1 Ω	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
Manufacturer	Rogers
Type	RO4360G
Thickness	24 mil, 0.61 mm
Layers	2, top/bottom. Bottom all copper

Table 3: Device specifics

Parameter	Value
Manufacturer	Ampleon
Device	BLA9H0912L(S)-250
Marking	BLA9H0912L(S)-250, RFA D182771
Comments	Engineering sample

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