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## BLF369 LDMOS Transistor Model

Rev. 01 — 02-03-2006

Application note

### Document information

Info	Content
Keywords	BLF369, LDMOS, model
Abstract	This document describes the performance of the BLF369 model. The model response is shown for DC, 1-tone and 2-tone signals.

pre-liminary



## Revision history

Rev	Date	Description
01	20060302	Initial revision

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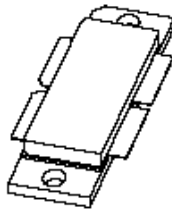
## 1. Introduction

This document describes the performance and usage of the BLF369 LDMOS transistor model. The BLF369 is a 500W push-pull LDMOS RF Power transistor for broadcast transmitter applications and industrial applications in the HF/VHF band.

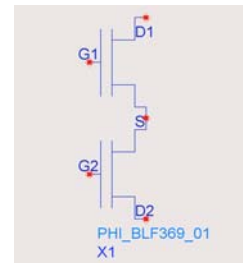
## 2. Model Description

### 2.1 Model Information

The model referenced to in this document is the PHI\_BLF369\_01. This model is made available in Agilent Technologies Advanced Design System™ (ADS). Within ADS, the model is represented by the schematic symbol as shown in [Fig 1](#).



a. BLF369 transistor.



b. BLF369 model representation in ADS.

**Fig 1. BLF369 model representation.**

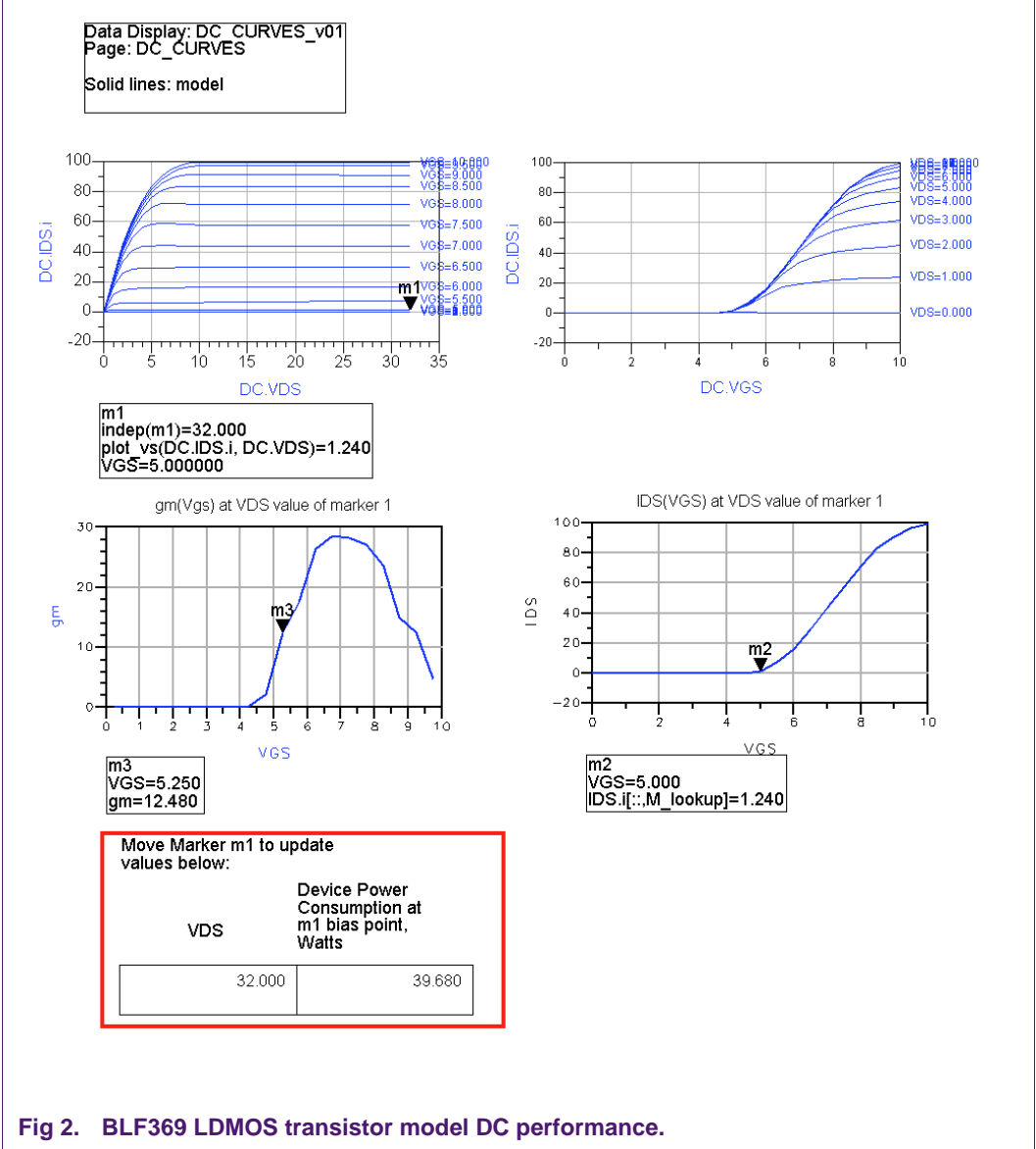
- The model includes the package parasitics.
- The intrinsic nonlinear model is extracted from DC and LF C(V) measurements.  
The DC measurements are carried out in the range from [0,10] V. From 10V onwards, the data is extrapolated.  
The CV measurements are carried out for Vgs: [0,10] V and Vds: [0,50] V.
- The model has been validated at several hierarchical levels in order to ensure proper operation.

### 2.2 Model Usability

- The model provides good prediction of P1dB.
- The gain performance shows nominal behavior.
- The drain efficiency behavior is described well.
- The non-linear behavior is in general described well.

3. Model Performance

3.1 DC Characteristics (1-section)



### 3.2 One Tone Performance

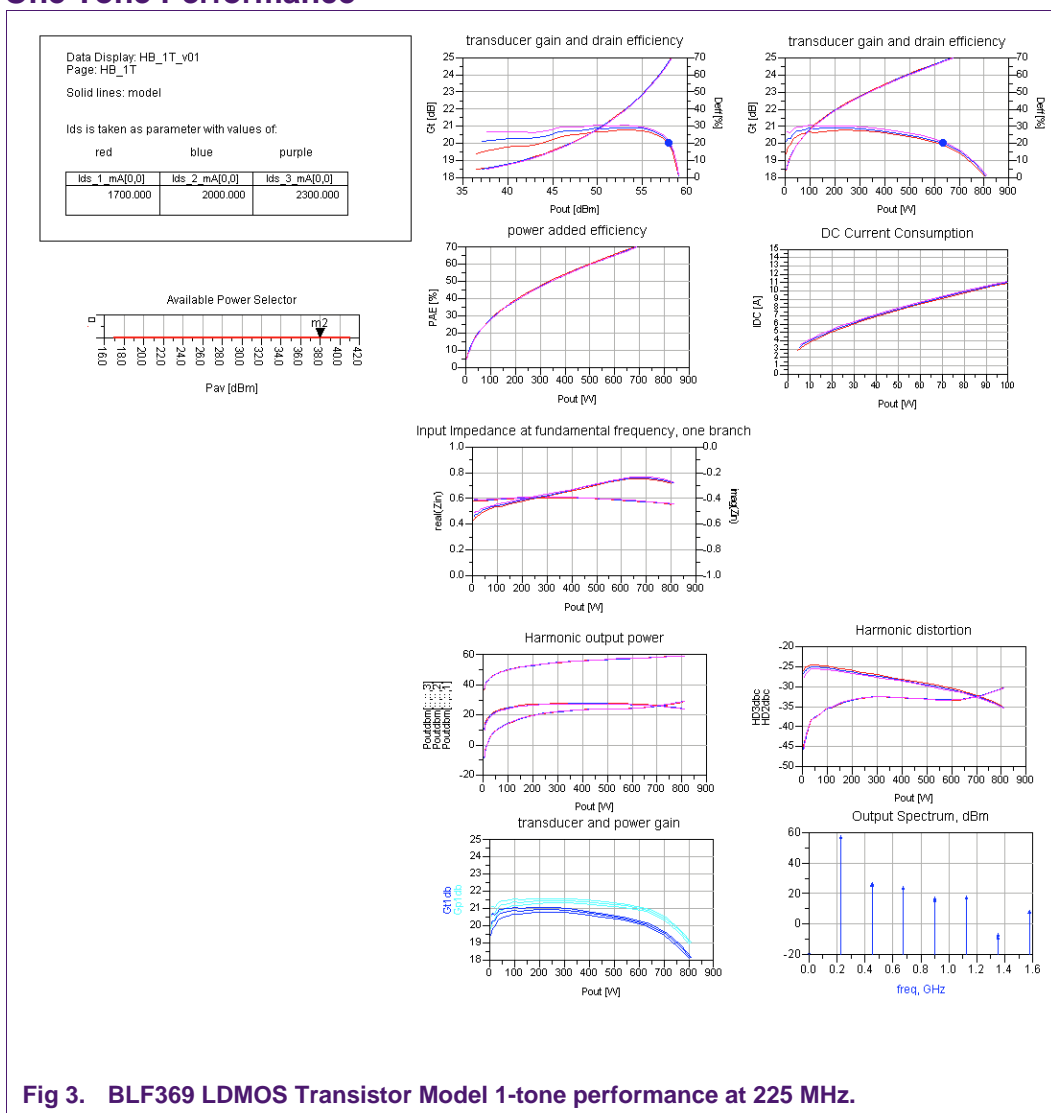


Fig 3. BLF369 LDMOS Transistor Model 1-tone performance at 225 MHz.

- Note that the BLF369 RF test-circuit impedances have been applied to the model.

### 3.3 Two Tone Performance

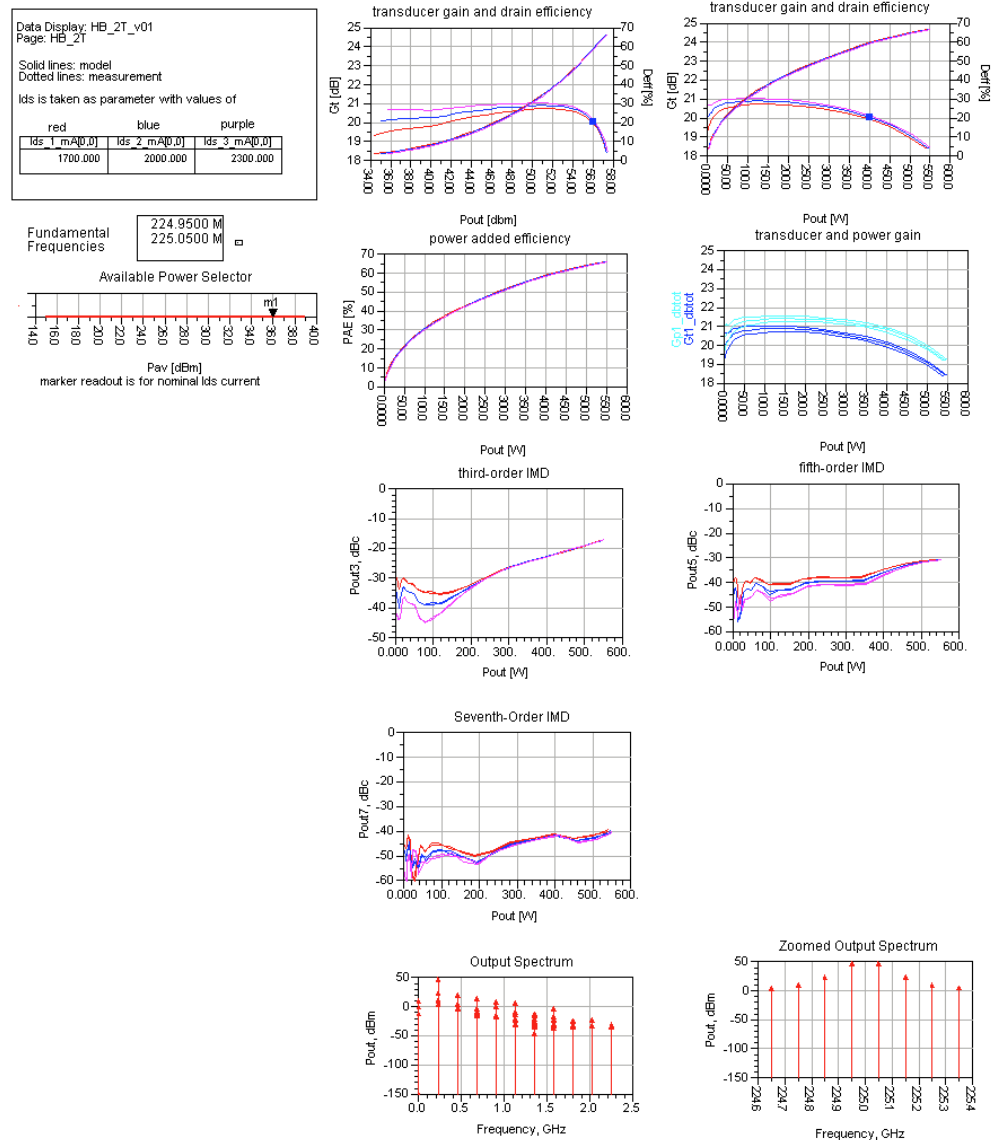


Fig 4. BLF369 LDMOS Transistor Model 2-tone performance at 225 MHz,  $\Delta$ freq: 100kHz.

- Note that the BLF369 RF test-circuit impedances have been applied to the model.
- The video bandwidth frequencies have been terminated with zero Ohm.
- The harmonic impedances have been terminated with 50 Ohm.



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Date of release:02-03-2006

Document number:

Published in The Netherlands