AR161065

BLS9G2735L-50, 2900 to 3300MHz

v1.0 — 12 December 2016

AMPLEON

Application Report

Document information	
Status	Company Public
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Abstract	Measurement results of a Class-AB design for the 2900 to 3300MHz band with the BLS9G2735L-50

1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20160330	Initial document	Hans Mollee

2. Contents

3. List of figures

4. List of tables

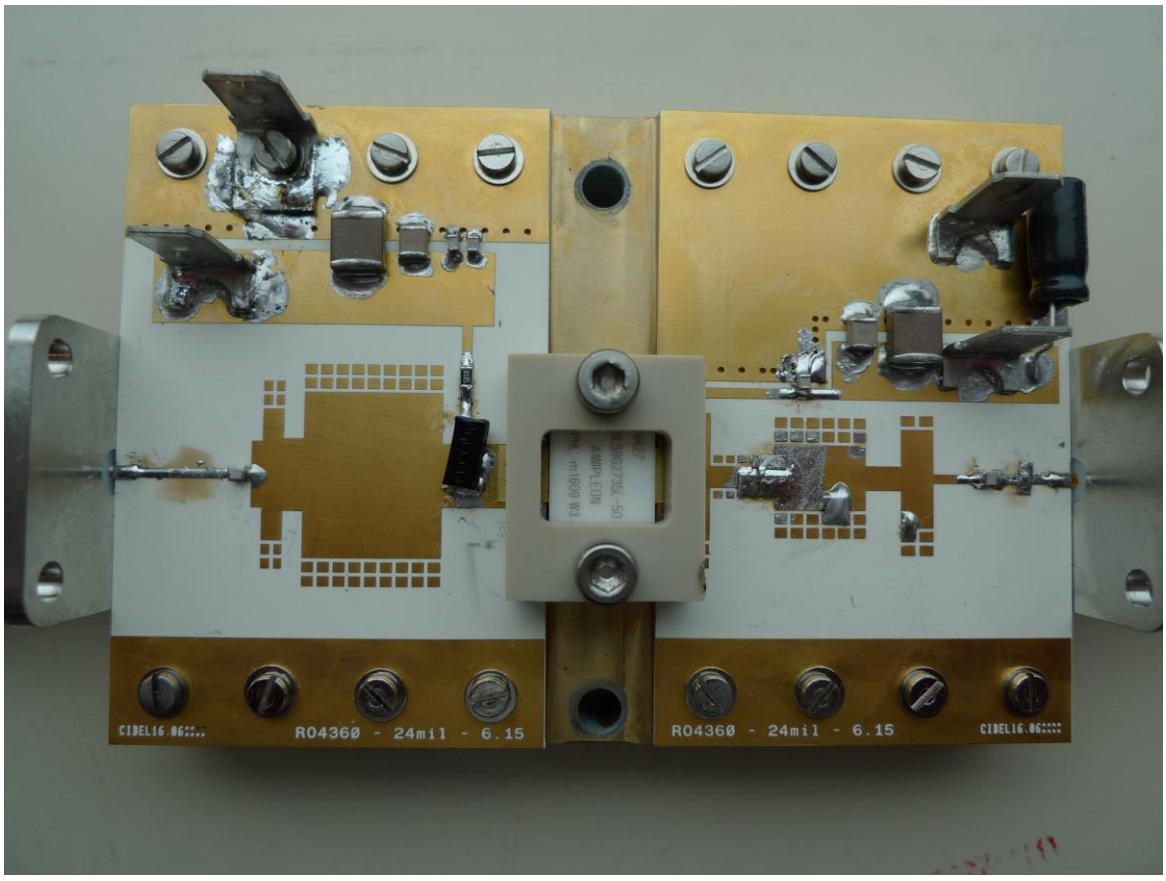
5. General description

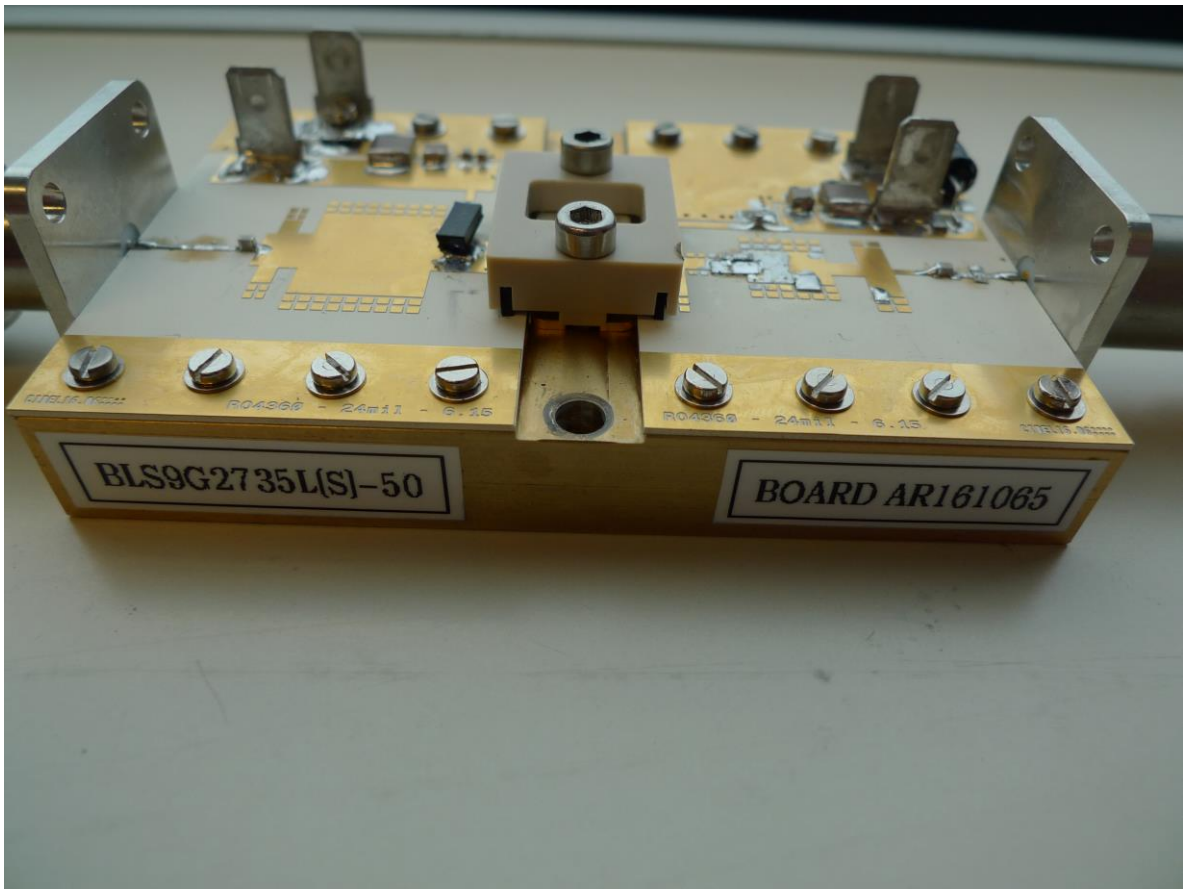
This report presents the measurement results of the Class-AB demo AR161065. The device used is a 9th generation LDMOS single ended package, the BLS9G2735L-50. The presented demo is tuned for the frequency band 2900 to 3300MHz.

The PCB has been designed on Rodgers RO4360G2, h=0.61mm, ε_R=6.2, 35um double sided copper. Supply voltage (drain-source) is 32V. 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.

When switching of the RF-pulse a spike may appear on the drain supply due to the inductance and the fall time of the pulse. When using signal with a rapid fall time this spike may become (too) large.

By placing a 10μF SMD capacitor (C8) on the drain supply. These spikes will be reduced to virtually zero.





6 Performance Details

The pulse format used is a 300 μs pulse with a duty cycle of 10%. The power sweep was performed up to 3 dB gain compression.

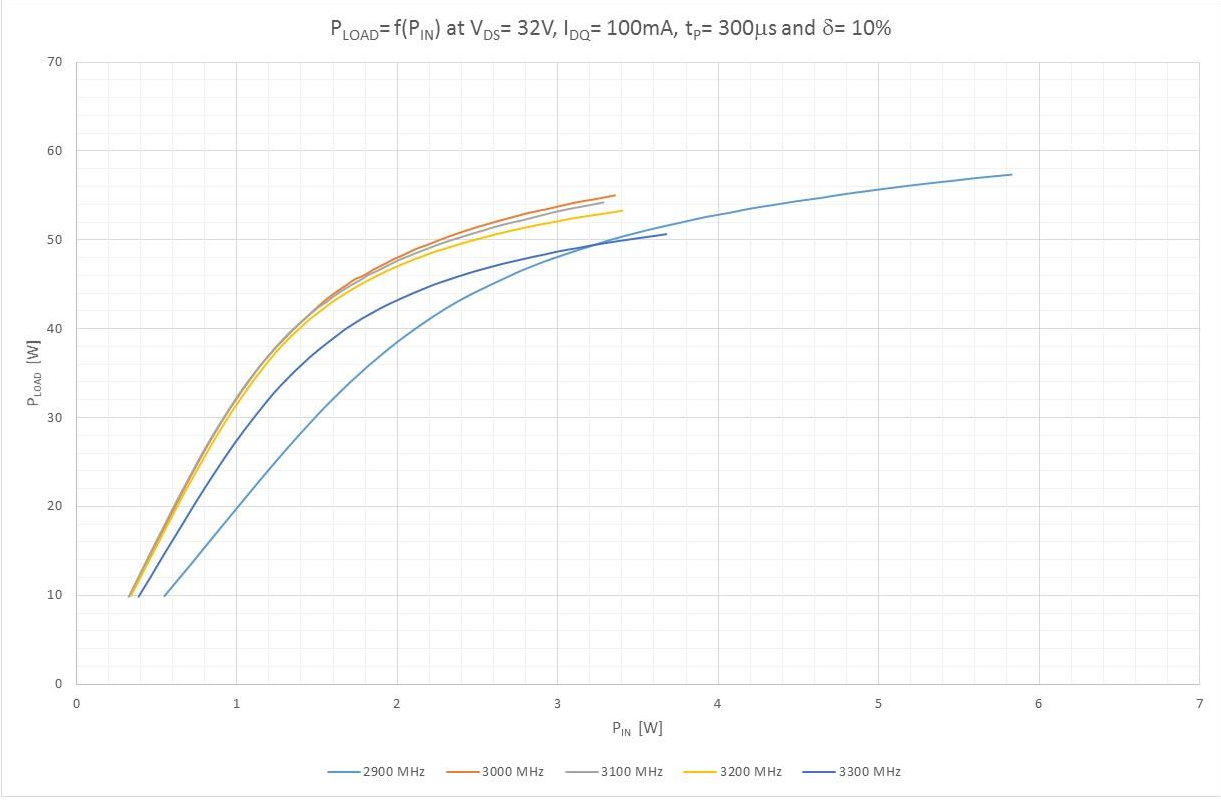


Figure 1 P_{LOAD} vs P_{IN}

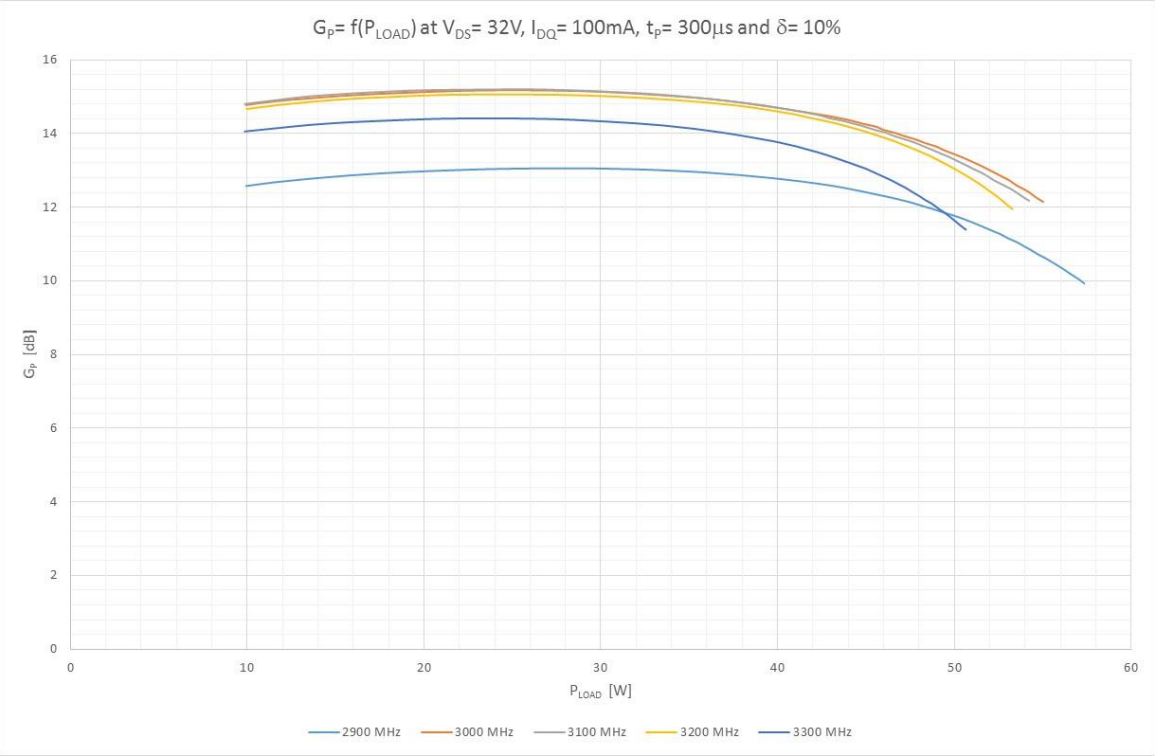


Figure 2 Gain vs P_{LOAD}

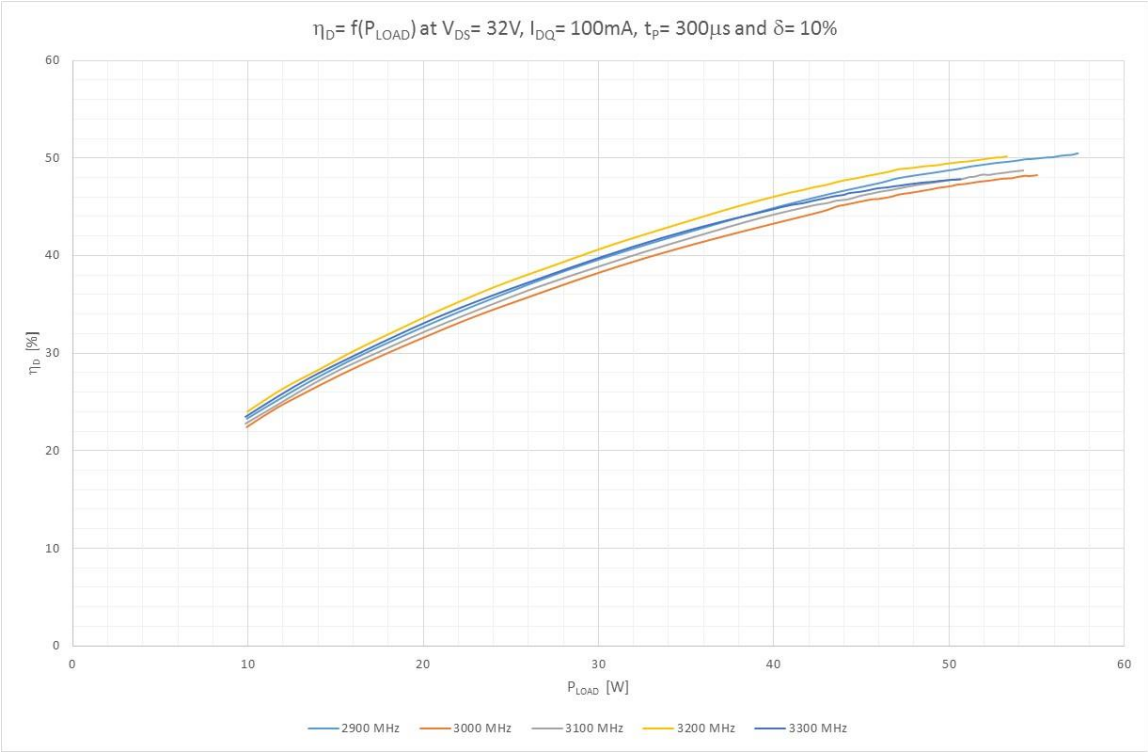


Figure 3 Drain efficiency vs P_{LOAD}

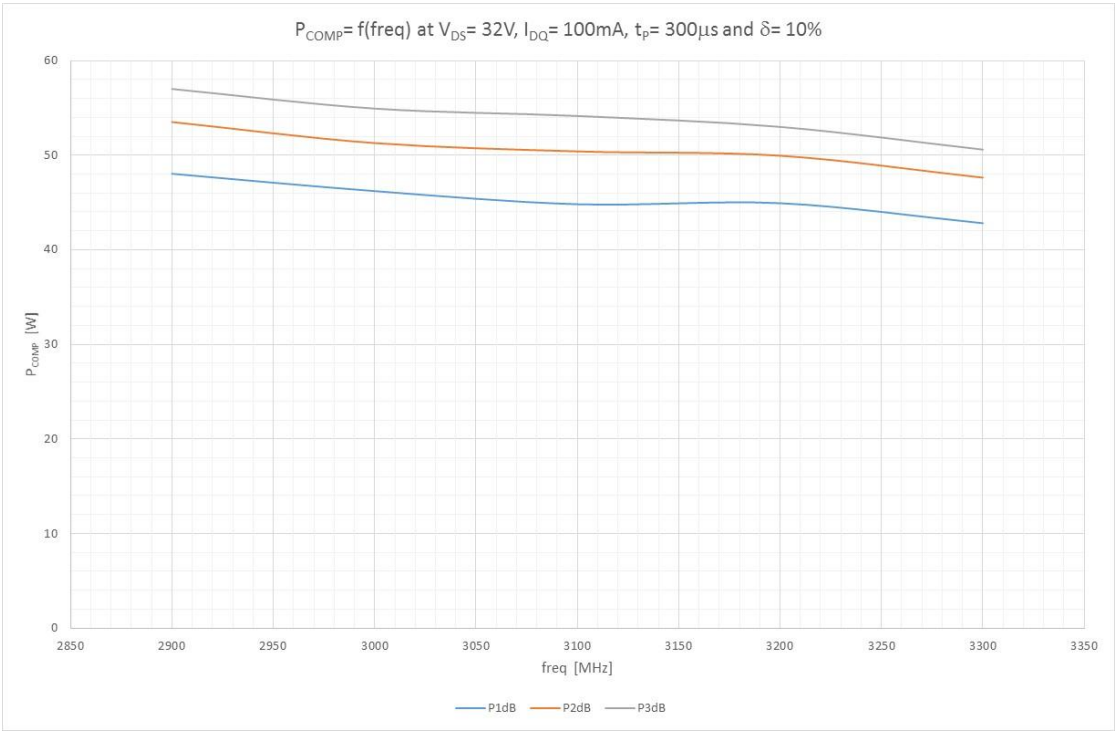


Figure 4 Compressed Power

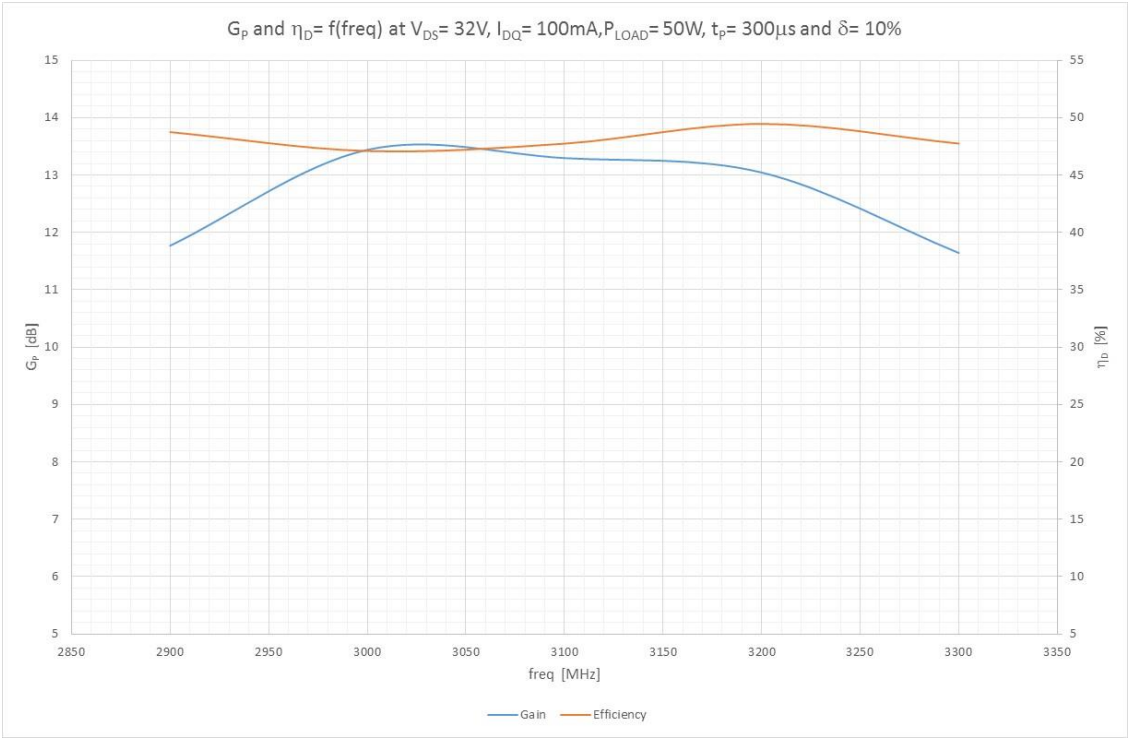
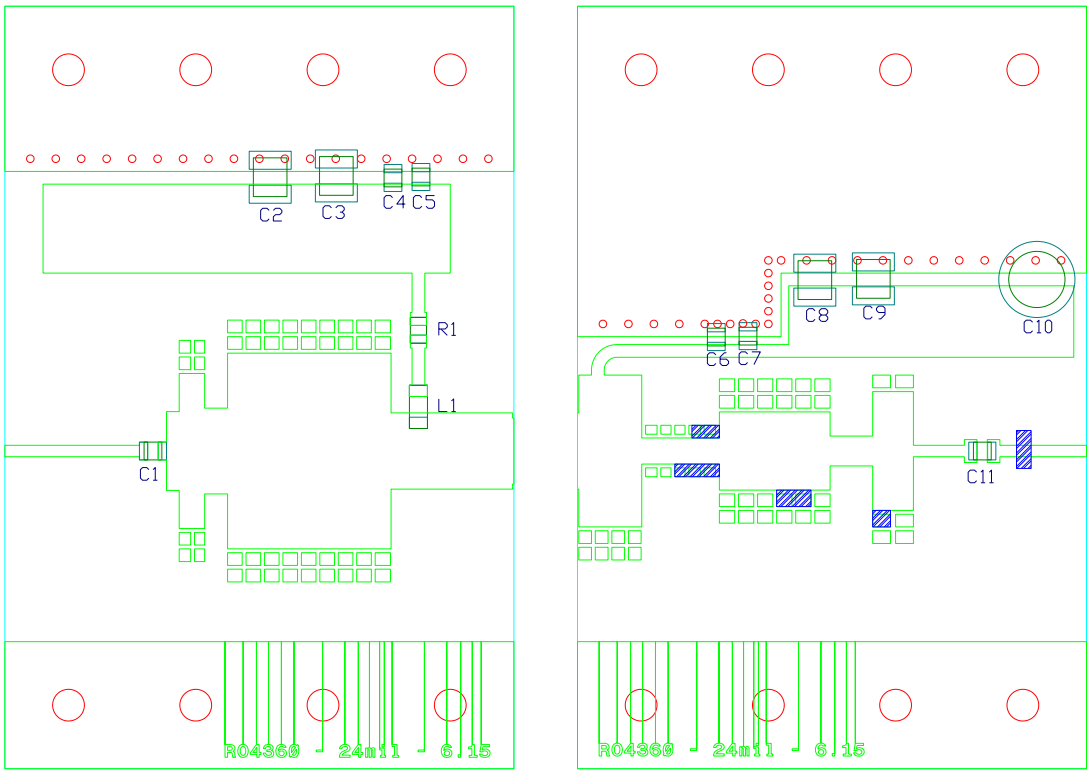


Figure 5 Performance at 50 W

5.1 Hardware



Components list application circuit.

C1, C5, C6	5.1 pF	ATC800A
C4, C7	10 pF	ATC800A
C3, C8	910 pF	ATC800B
C11	4.7pF	ATC800A
C2, C9	10 μF – 50V	GRM55DR61H106KA88L
C10	100 μF – 63V	Electrolytic capacitor
L1	43 nH	Coilcraft
R1	5 Ω	0805 SMD Resistor

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

5.2 Board material

Table 2: Board specifications

Parameter	Value
Manufacturer	Rogers
Type	RO4360G2
Thickness	24 mil, 0.61 mm
Layers	2, top/bottom. Bottom all copper

5.3 Device markings

Table 3: Device specifics

Parameter	Value
Manufacturer	Ampleon
Device	BLS9G2735LS-50
Marking	BLS9G2735LS-50, m1609 w3
Comments	Engineering sample

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