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# BLM8G0710S-15PB; BLM8G0710S-15PBG

LDMOS 2-stage power MMIC

Rev. 3 — 9 September 2015

AMPLEON

Product data sheet

## 1. Product profile

### 1.1 General description

The BLM8G0710S-15PB(G) is a dual section, 2-stage power MMIC using Ampleon's state of the art GEN8 LDMOS technology. This multiband device is perfectly suited as general purpose driver or small cell final in the frequency range from 700 MHz to 1000 MHz. Available in gull wing or straight lead outline.

**Table 1. Performance**

Typical RF performance at  $T_{case} = 25\text{ °C}$ ;  $I_{Dq1} = 15\text{ mA}$ ;  $I_{Dq2} = 60\text{ mA}$ .

Test signal: 3GPP test model 1; 64 DPCH; PAR = 9.9 dB at 0.01 % probability on CCDF; per section unless otherwise specified in a class-AB production circuit.

Test signal	f	V <sub>DS</sub>	P <sub>L(AV)</sub>	G <sub>p</sub>	η <sub>D</sub>	ACPR <sub>5M</sub>
	(MHz)	(V)	(W)	(dB)	(%)	(dBc)
single carrier W-CDMA	957.5	28	1.5	36	27	-41

### 1.2 Features and benefits

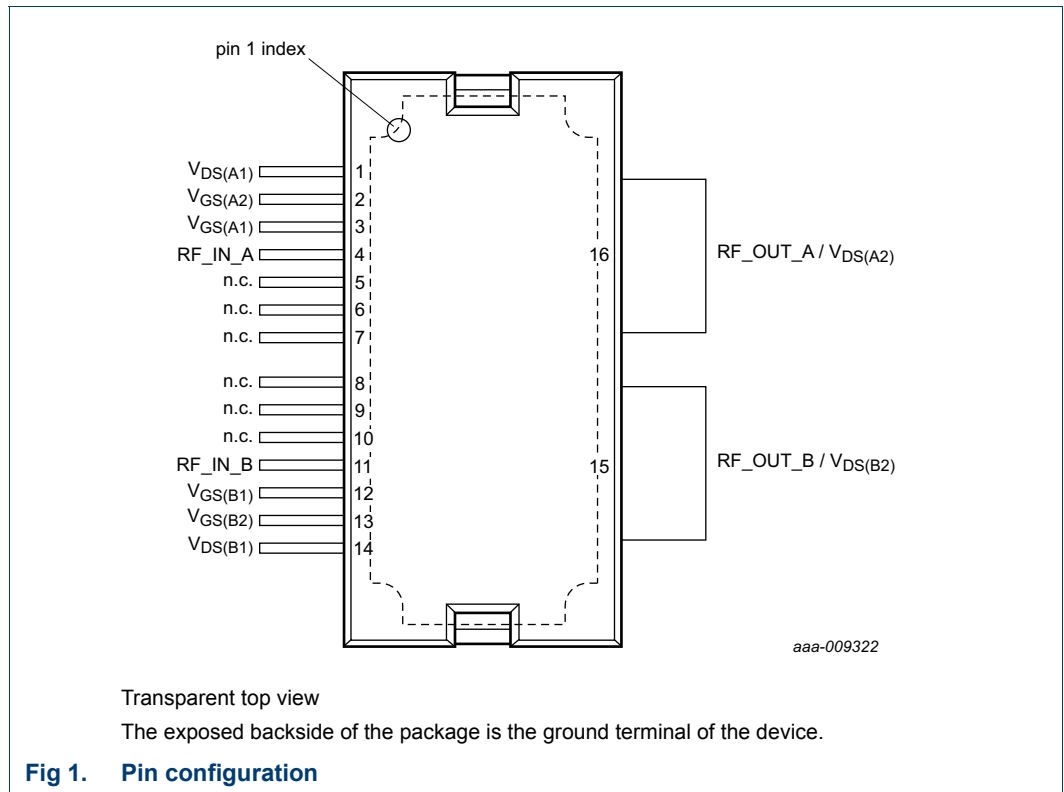
- Designed for broadband operation (frequency 700 MHz to 1000 MHz)
- High section-to-section isolation enabling multiple combinations
- Integrated temperature compensated bias
- Biasing of individual stages is externally accessible
- Integrated ESD protection
- Excellent thermal stability
- High power gain
- On-chip matching for ease of use
- Compliant to Directive 2002/95/EC, regarding restriction of hazardous substances (RoHS)

### 1.3 Applications

- RF power MMIC for W-CDMA base stations in the 700 MHz to 1000 MHz frequency range. Possible circuit topologies are the following as also depicted in [Section 8.1](#):
  - ◆ Dual section or single ended
  - ◆ Doherty
  - ◆ Quadrature combined
  - ◆ Push-pull

## 2. Pinning information

### 2.1 Pinning



### 2.2 Pin description

Table 2. Pin description

Symbol	Pin	Description
$V_{DS(A1)}$	1	drain-source voltage of stage (A1)
$V_{GS(A2)}$	2	gate-source voltage of stage (A2)
$V_{GS(A1)}$	3	gate-source voltage of stage (A1)
RF_IN_A	4	RF input section A
n.c.	5	not connected
n.c.	6	not connected
n.c.	7	not connected
n.c.	8	not connected
n.c.	9	not connected
n.c.	10	not connected
RF_IN_B	11	RF input section B
$V_{GS(B1)}$	12	gate-source voltage of stage (B1)
$V_{GS(B2)}$	13	gate-source voltage of stage (B2)
$V_{DS(B1)}$	14	drain-source voltage of stage (B1)

Table 2. Pin description ...continued

Symbol	Pin	Description
RF_OUT_B/ $V_{DS(B2)}$	15	RF output section B / drain-source voltage of stage (B2)
RF_OUT_A/ $V_{DS(A2)}$	16	RF output section A / drain-source voltage of stage (A2)
GND	flange	RF ground

### 3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BLM8G0710S-15PB	HSOP16F	plastic, heatsink small outline package; 16 leads(flat)	SOT1211-2
BLM8G0710S-15PBG	HSOP16	plastic, heatsink small outline package; 16 leads	SOT1212-2

### 4. Block diagram

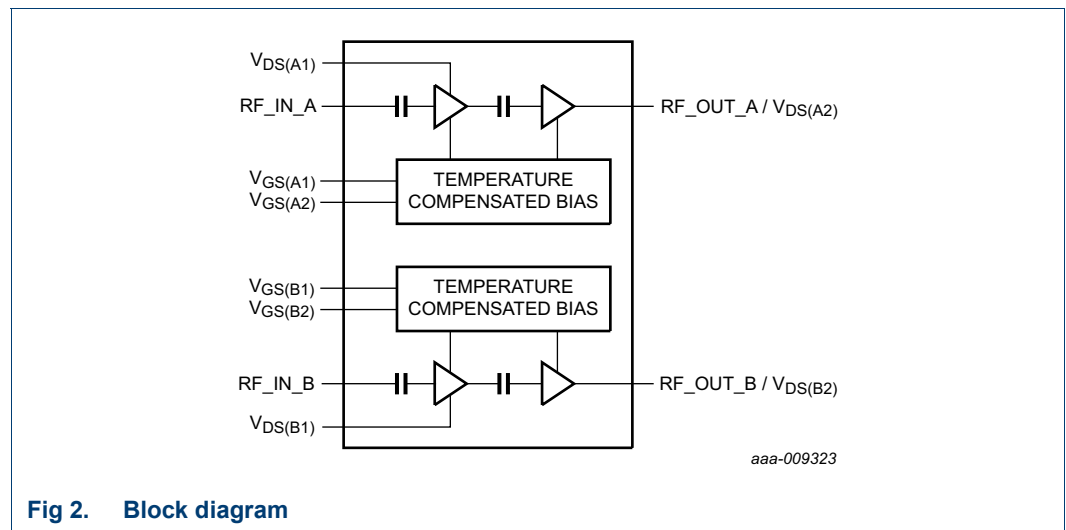


Fig 2. Block diagram

### 5. Limiting values

Table 4. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{DS}$	drain-source voltage		-	65	V
$V_{GS}$	gate-source voltage		-0.5	+13	V
$T_{stg}$	storage temperature		-65	+150	°C
$T_j$	junction temperature	[1]	-	225	°C
$T_{case}$	case temperature		-	150	°C

[1] Continuous use at maximum temperature will affect the reliability. For details refer to the online MTF calculator.

## 6. Thermal characteristics

**Table 5. Thermal characteristics**

Measured for total device.

Symbol	Parameter	Conditions	Value	Unit
R <sub>th(j-c)</sub>	thermal resistance from junction to case	final stage; T <sub>case</sub> = 90 °C; P <sub>L</sub> = 1.26 W <a href="#">[1]</a>	2.41	K/W
		driver stage; T <sub>case</sub> = 90 °C; P <sub>L</sub> = 1.26 W <a href="#">[1]</a>	7.5	K/W

[1] When operated with a CW signal.

## 7. Characteristics

**Table 6. DC characteristics**

T<sub>case</sub> = 25 °C; per section unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Final stage</b>						
V <sub>(BR)DSS</sub>	drain-source breakdown voltage	V <sub>GS</sub> = 0 V; I <sub>D</sub> = 0.12 mA	65	-	-	V
V <sub>GSq</sub>	gate-source quiescent voltage	V <sub>DS</sub> = 28 V; I <sub>D</sub> = 60 mA	1.6	2.1	2.5	V
		V <sub>DS</sub> = 28 V; I <sub>D</sub> = 60 mA <a href="#">[1]</a>	1.6	2.6	3.6	V
ΔI <sub>Dq</sub> /ΔT	quiescent drain current variation with temperature	-40 °C ≤ T <sub>case</sub> ≤ +85 °C <a href="#">[1]</a>	-	2	-	%
I <sub>DSS</sub>	drain leakage current	V <sub>GS</sub> = 0 V; V <sub>DS</sub> = 28 V	-	-	1.4	μA
I <sub>DSX</sub>	drain cut-off current	V <sub>GS</sub> = 5.65 V; V <sub>DS</sub> = 10 V	-	2.2	-	A
I <sub>GSS</sub>	gate leakage current	V <sub>GS</sub> = 1 V; V <sub>DS</sub> = 0 V	-	-	140	nA
<b>Driver stage</b>						
V <sub>(BR)DSS</sub>	drain-source breakdown voltage	V <sub>GS</sub> = 0 V; I <sub>D</sub> = 0.03 mA	65	-	-	V
V <sub>GSq</sub>	gate-source quiescent voltage	V <sub>DS</sub> = 28 V; I <sub>D</sub> = 15 mA	1.6	2.1	2.5	V
		V <sub>DS</sub> = 28 V; I <sub>D</sub> = 15 mA <a href="#">[2]</a>	1.6	2.6	3.5	V
ΔI <sub>Dq</sub> /ΔT	quiescent drain current variation with temperature	-40 °C ≤ T <sub>case</sub> ≤ +85 °C <a href="#">[2]</a>	-	2	-	%
I <sub>DSS</sub>	drain leakage current	V <sub>GS</sub> = 0 V; V <sub>DS</sub> = 28 V	-	-	1.4	μA
I <sub>GSS</sub>	gate leakage current	V <sub>GS</sub> = 1 V; V <sub>DS</sub> = 0 V	-	-	140	nA

[1] In production circuit with 1.3 kΩ gate feed resistor.

[2] In production circuit with 1.2 kΩ gate feed resistor.

**Table 7. RF Characteristics**

Typical RF performance at f = 957.5 MHz; T<sub>case</sub> = 25 °C; V<sub>DS</sub> = 28 V; I<sub>Dq1</sub> = 15 mA (driver stage); I<sub>Dq2</sub> = 60 mA (final stage); P<sub>L(AV)</sub> = 1.5 W. Unless otherwise specified, measured in an Ampleon straight lead production circuit.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Test signal: single carrier W-CDMA <a href="#">[1]</a></b>						
G <sub>p</sub>	power gain	f = 730.5 MHz	-	36	-	dB
		f = 957.5 MHz	34.5	36	37.5	dB
η <sub>D</sub>	drain efficiency	f = 730.5 MHz	-	23	-	%
		f = 957.5 MHz	22.5	27	-	%

**Table 7. RF Characteristics ...continued**

Typical RF performance at  $f = 957.5$  MHz;  $T_{case} = 25$  °C;  $V_{DS} = 28$  V;  $I_{Dq1} = 15$  mA (driver stage);  $I_{Dq2} = 60$  mA (final stage);  $P_{L(AV)} = 1.5$  W. Unless otherwise specified, measured in an Ampleon straight lead production circuit.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
RL <sub>in</sub>	input return loss	f = 730.5 MHz	-	-18	-	dB
		f = 957.5 MHz	-	-16	-10	dB
ACPR <sub>5M</sub>	adjacent channel power ratio (5 MHz)	f = 730.5 MHz	-	-38.7	-	dBc
		f = 957.5 MHz	-	-41	-36	dBc
PAR <sub>O</sub>	output peak-to-average ratio	f = 730.5 MHz	-	8.8	-	dB
		f = 957.5 MHz	7	8.1	-	dB
<b>Test signal: CW [2]</b>						
$\Delta\phi_{s21}$	phase response difference	between sections	-10	-	+10	deg
$\Delta s_{21} ^2$	insertion power gain difference	between sections	-0.5	-	+0.5	dB

[1] 3GPP test model 1; 64 DPCH; PAR = 9.9 dB at 0.01 % probability on CCDF.

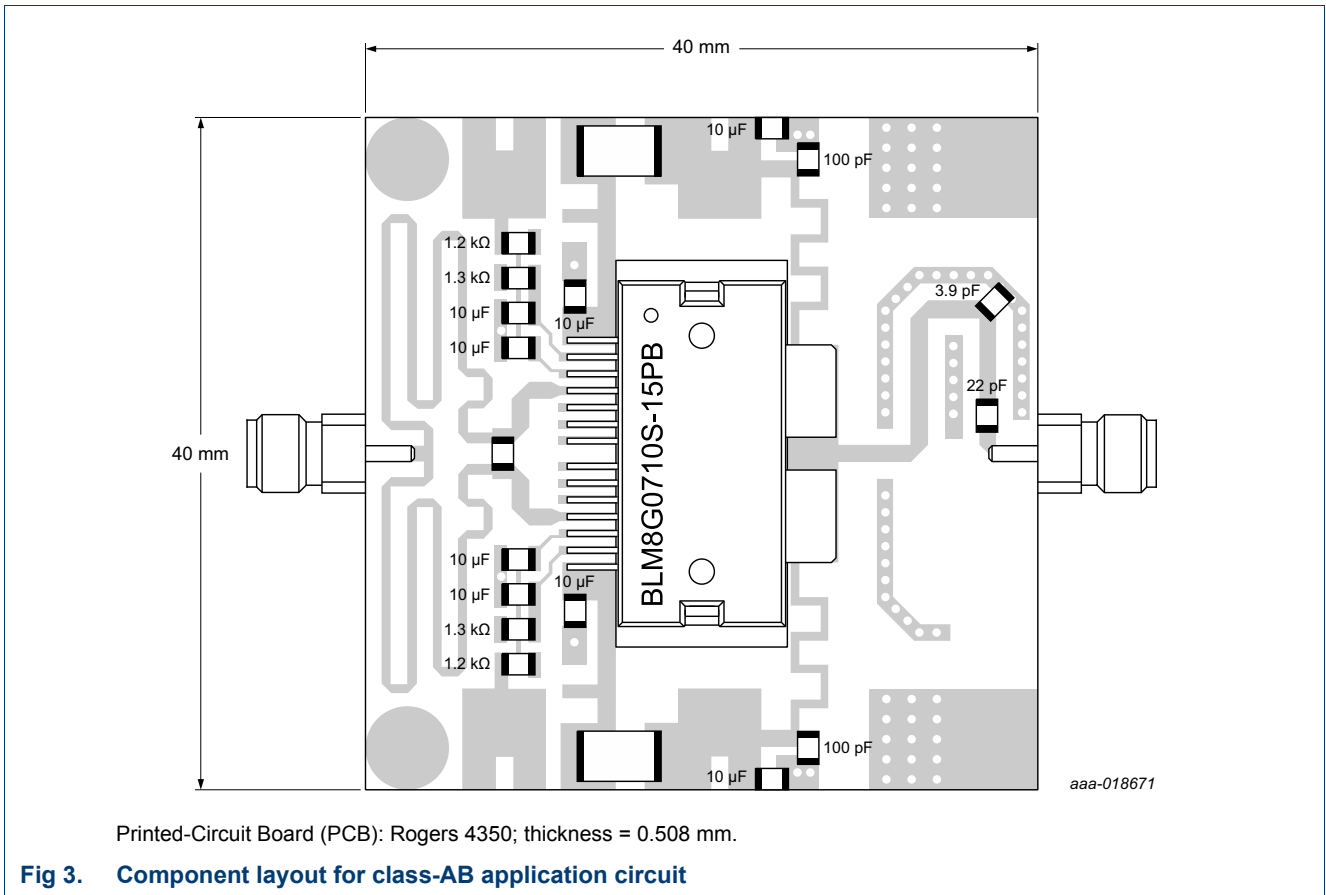
[2] f = 957.5 MHz.

## 8. Application information

**Table 8. Typical performance**

Test signal: 1-tone CW; RF performance at  $T_{case} = 25$  °C;  $V_{DS} = 28$  V;  $I_{Dq1} = 15$  mA;  $I_{Dq2} = 60$  mA unless otherwise specified, measured in an Ampleon wideband f = 700 MHz to 1000 MHz class AB application circuit.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
P <sub>L(1dB)</sub>	output power at 1 dB gain compression	f = 800 MHz	-	23.3	-	W
$\eta_D$	drain efficiency	at P <sub>L(1dB)</sub> ; f = 800 MHz	-	55	-	%
G <sub>p</sub>	power gain	P <sub>L(AV)</sub> = 4 W; f = 800 MHz	-	35	-	dB
B <sub>video</sub>	video bandwidth	2-tone CW; P <sub>L(AV)</sub> = 10 W; f = 800 MHz	-	190	-	MHz
G <sub>flat</sub>	gain flatness	P <sub>L(AV)</sub> = 4 W	-	1	-	dB
$\Delta G/\Delta T$	gain variation with temperature	f = 800 MHz	-	0.022	-	dB/°C
s <sub>12</sub>   <sup>2</sup>	isolation	between sections A and B; P <sub>L(AV)</sub> = 4 W; f = 800 MHz	-	29	-	dB
K	Rollett stability factor	T = -40 °C; f = 0.1 GHz to 3 GHz	-	3	-	



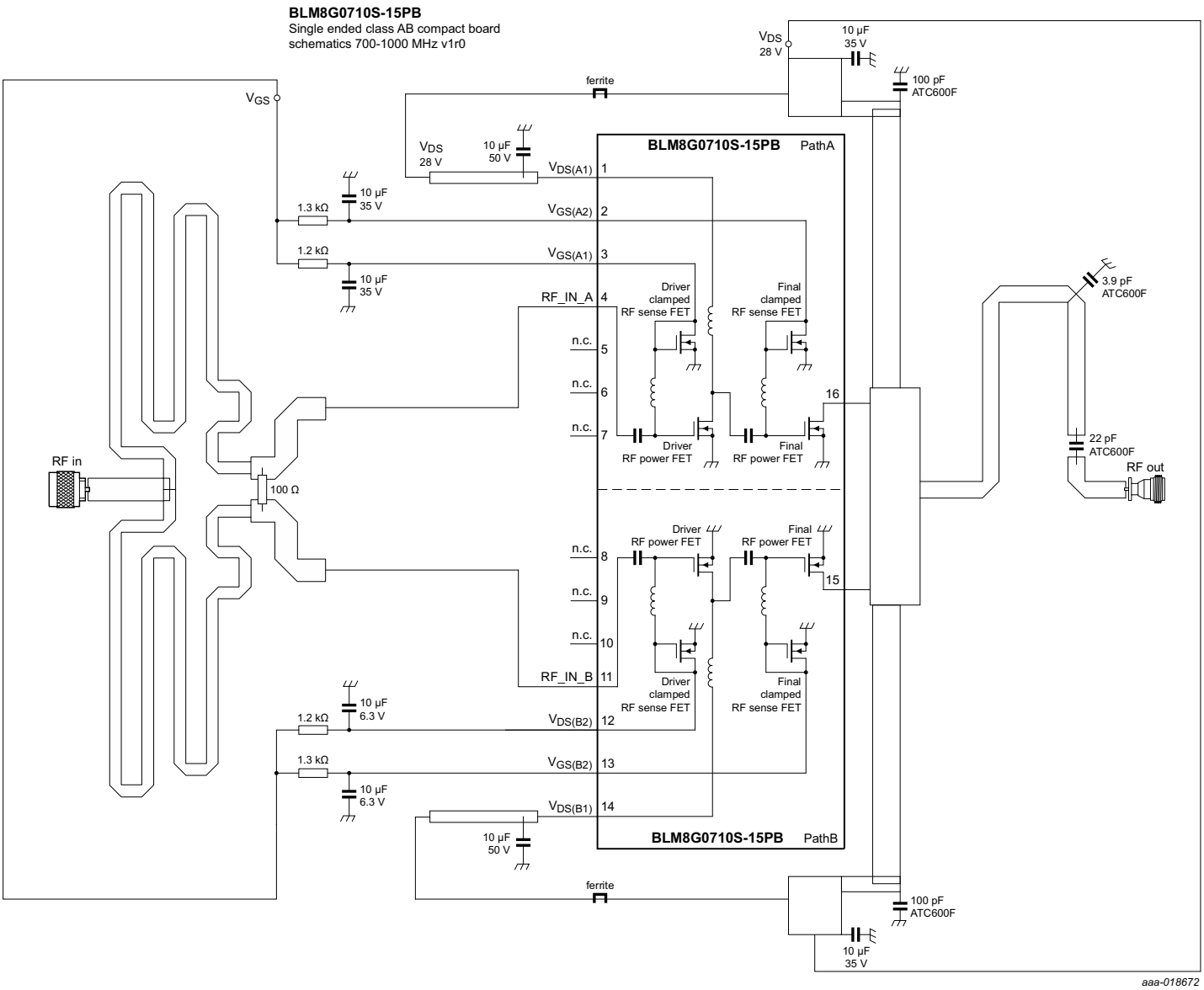


Fig 4. Electrical schematic



8.1 Possible circuit topologies

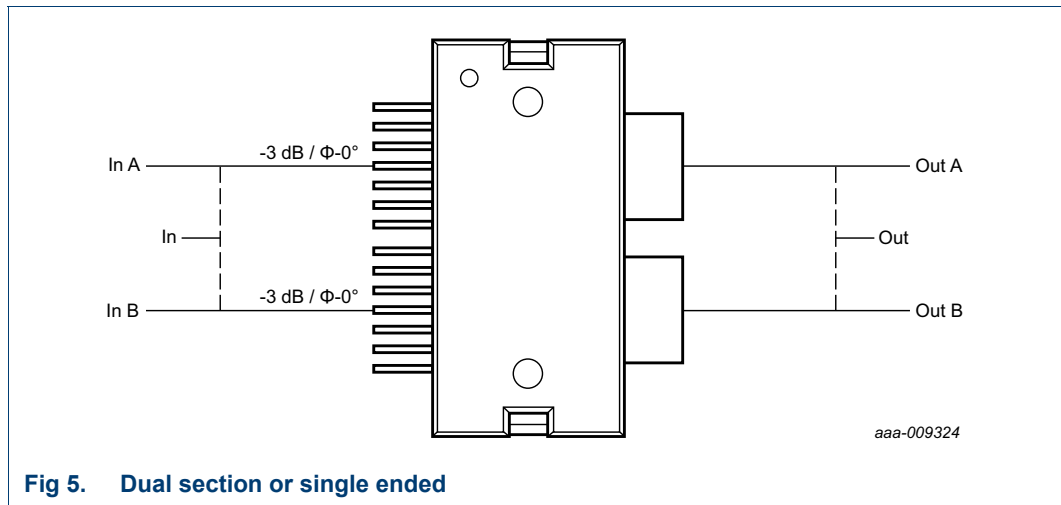


Fig 5. Dual section or single ended

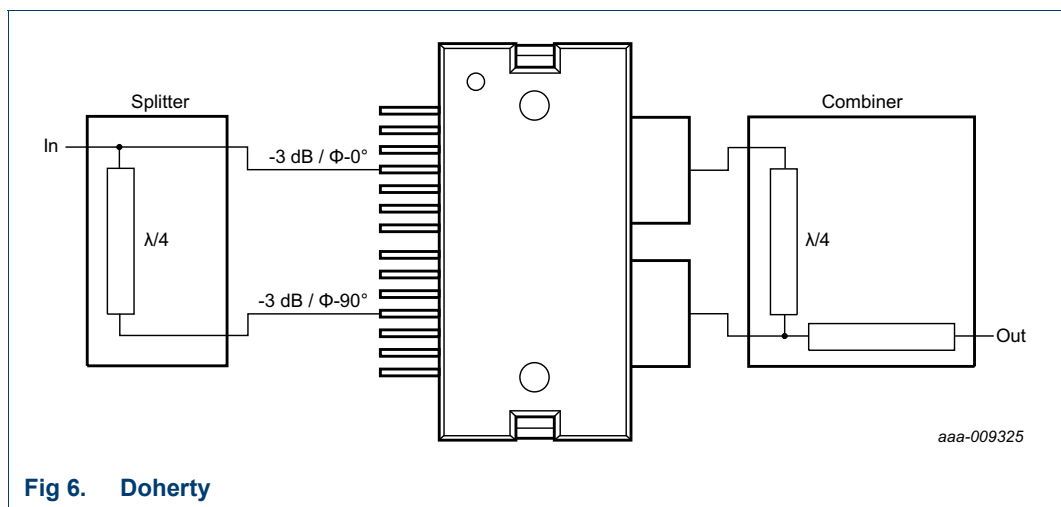


Fig 6. Doherty

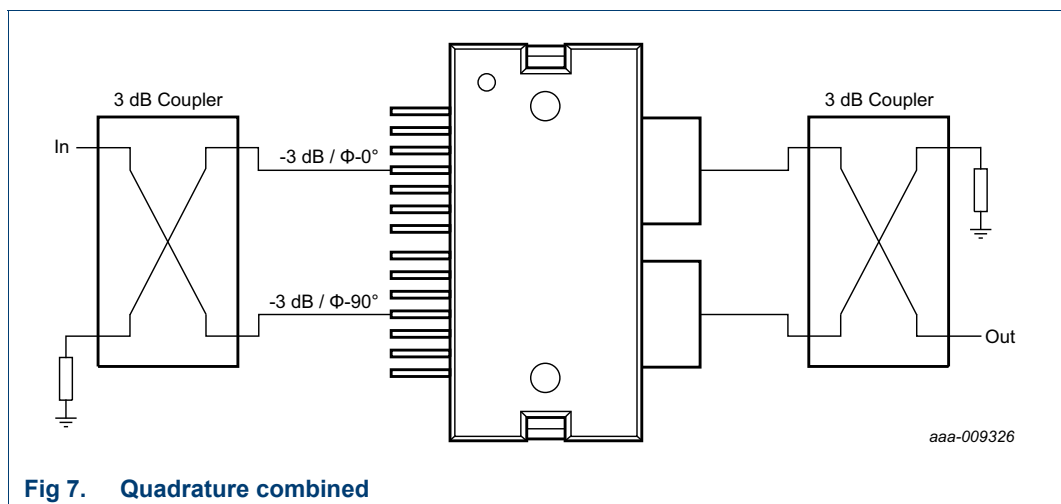


Fig 7. Quadrature combined

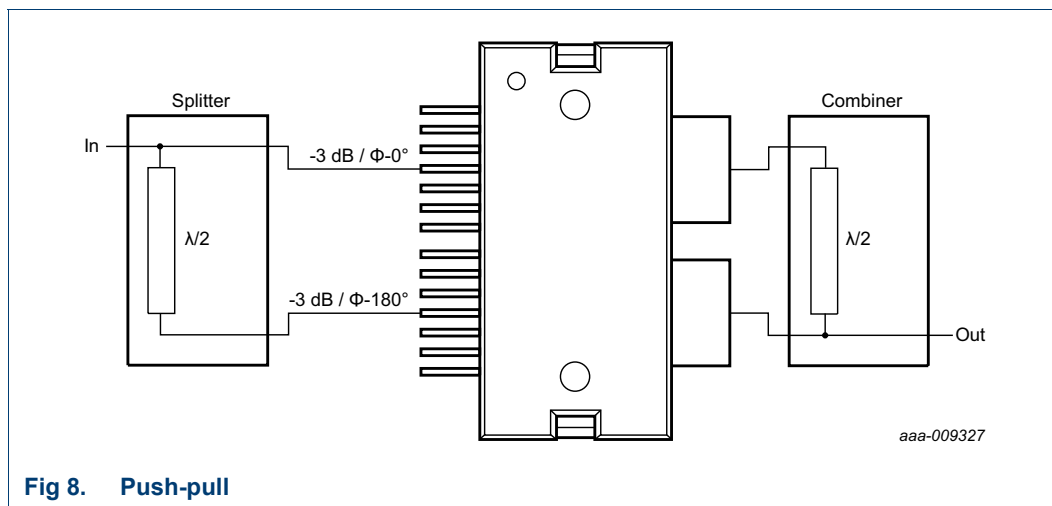


Fig 8. Push-pull

### 8.2 Ruggedness in class-AB operation

The BLM8G0710S-15PB and BLM8G0710S-15PBG are capable of withstanding a load mismatch corresponding to VSWR = 10 : 1 through all phases under the following conditions:  $V_{DS} = 32\text{ V}$ ;  $I_{DQ1} = 15\text{ mA}$ ;  $I_{DQ2} = 60\text{ mA}$ ;  $P_i$  is corresponding to  $P_{L(3dB)}$  under  $Z_S = 50\ \Omega$  load;  $f = 840\text{ MHz}$ .

### 8.3 Impedance information

Table 9. Typical impedance tuned for maximum output power

Measured load-pull data per section; test signal: pulsed CW;  $T_{case} = 25\text{ }^\circ\text{C}$ ;  $V_{DS} = 28\text{ V}$ ;  $I_{DQ1} = 15\text{ mA}$ ;  $I_{DQ2} = 60\text{ mA}$ ;  $t_p = 100\ \mu\text{s}$ ;  $\delta = 10\%$ ;  $Z_S = 50\ \Omega$ . Typical values unless otherwise specified.

f (MHz)	at 1dB gain compression point					at 3dB gain compression point				
	$Z_L$ ( $\Omega$ )	$G_{p(max)}$ (dB)	$P_L$ (W)	$\eta_{add}$ (%)	AM-PM conversion (deg)	$Z_L$ ( $\Omega$ )	$G_{p(max)}$ (dB)	$P_L$ (W)	$\eta_{add}$ (%)	AM-PM conversion (deg)
<b>BLM8G0710S-15PB</b>										
680	17.5 + j5.9	36.4	40.9	57.9	-11.1	14.2 + j6.0	36.1	41.7	58.6	-12.5
700	14.3 + j5.8	36.4	40.7	53.9	-9.9	16.1 + j4.4	36.4	41.6	58.6	-10.6
720	14.3 + j5.7	36.3	40.6	53.4	-9	16.3 + j4.1	36.3	41.6	58.1	-9.5
740	15.4 + j7.2	36.4	40.7	57	-8.7	14.2 + j5.9	36	41.6	58	-9.7
760	15.4 + j7.2	35.9	40.6	57.2	-8.5	16.1 + j4.6	35.6	41.6	58.4	-9
780	16.1 + j4.6	35.2	40.7	54.3	-6.9	16.1 + j4.6	35.2	41.6	58.5	-7.6
800	14.2 + j5.9	34.9	40.6	53.4	-6.2	16.0 + j4.5	34.9	41.6	58.3	-6.2
820	14.1 + j5.9	34.8	40.7	54.4	-5.4	16.0 + j4.5	34.7	41.7	58.9	-5.4
840	14.1 + j5.9	34.8	40.8	54.7	-5.2	16.0 + j4.6	34.7	41.7	58.8	-5.3
860	16.0 + j4.6	34.7	40.8	54.7	-4.2	18.3 + j3.7	34.7	41.8	59.8	-3.7
880	18.3 + j3.6	34.7	40.9	55.4	-3.4	18.3 + j3.6	34.7	41.8	59.8	-3
900	18.2 + j3.6	34.9	40.9	55.4	-2.9	18.2 + j3.6	34.9	41.8	59.4	-2.4
920	18.2 + j3.7	35	40.9	54.8	-3	18.2 + j3.7	35	41.8	58.9	-2.6
940	18.2 + j3.8	35.2	40.8	54.7	-4.1	18.2 + j3.8	35.2	41.8	58.7	-4.1
960	18.3 + j3.8	35.2	40.8	54	-4.5	16.0 + j4.7	35.3	41.7	58.5	-5.2

**Table 9. Typical impedance tuned for maximum output power ...continued**

Measured load-pull data per section; test signal: pulsed CW;  $T_{case} = 25\text{ }^{\circ}\text{C}$ ;  $V_{DS} = 28\text{ V}$ ;  $I_{Dq1} = 15\text{ mA}$ ;  $I_{Dq2} = 60\text{ mA}$ ;  $t_p = 100\text{ }\mu\text{s}$ ;  $\delta = 10\text{ }\%$ ;  $Z_S = 50\text{ }\Omega$ . Typical values unless otherwise specified.

f	at 1dB gain compression point					at 3dB gain compression point				
	Z <sub>L</sub>	G <sub>p(max)</sub>	P <sub>L</sub>	$\eta_{add}$	AM-PM conversion	Z <sub>L</sub>	G <sub>p(max)</sub>	P <sub>L</sub>	$\eta_{add}$	AM-PM conversion
	(MHz)	( $\Omega$ )	(dB)	(W)	(%)	(deg)	( $\Omega$ )	(dB)	(W)	(%)
980	18.3 + j3.7	35.1	40.7	53.5	-5.1	18.3 + j3.7	35.1	41.7	57.7	-5.6
1000	18.2 + j3.7	34.9	40.6	52.7	-5.6	18.2 + j3.7	34.9	41.6	57.2	-6.7
<b>BLM8G0710S-15PBG</b>										
700	14.6 + j5.2	35.8	40.7	53.7	-10.5	15.3 + j4.0	35.7	41.7	56.7	-11.7
720	14.1 + j6.2	35.8	40.7	54.7	-9	15.8 + j4.3	35.7	41.6	57.8	-9.6
740	14.2 + j5.1	35.7	40.7	52.9	-8	15.8 + j3.9	35.6	41.6	56.7	-9.2
760	15.0 + j4.1	35.3	40.6	52.5	-8.1	14.9 + j3.3	35.2	41.6	55.2	-9.3
780	14.9 + j4.2	34.6	40.6	52.1	-7.7	15.5 + j2.9	34.4	41.6	54.9	-8.5
800	14.7 + j4.7	34.5	40.8	53.6	-7	15.5 + j3.3	34.3	41.7	56.3	-7.3
820	14.8 + j4.1	34.2	40.8	52.7	-5.7	15.7 + j3.4	34.1	41.7	56.3	-5.9
0.84	15.4 + j4.1	34.2	40.9	54	-4.3	16.1 + j2.5	34	41.8	56.1	-4.7
860	16.1 + j3.0	34.1	40.9	52.6	-4	16.1 + j3.0	34.1	41.8	56.3	-4.3
880	17.5 + j3.4	34.3	40.8	53.4	-4	16.0 + j2.8	34.2	41.8	55.4	-4.5
900	17.8 + j2.7	34.3	40.8	52.4	-3.7	17.9 + j1.7	34.2	41.7	54.8	-4.1
920	17.3 + j2.8	34.5	40.8	52.7	-3.6	17.3 + j1.9	34.4	41.8	55	-4.1
940	17.4 + j2.7	34.6	40.7	51.8	-4	17.3 + j1.8	34.4	41.7	54.4	-4.2
960	17.6 + j3.5	34.8	40.7	52.4	-4.1	16.8 + j2.5	34.7	41.7	54.9	-4.8
980	18.5 + j3.0	34.7	40.6	51.5	-4.5	16.9 + j2.5	34.7	41.6	54.6	-5.6
1000	19.3 + j1.9	34.2	40.6	50.3	-5	17.6 + j2.5	34.3	41.6	54.9	-6.1

**Table 10. Typical impedance tuned for maximum power added efficiency**

Measured load-pull data per section; test signal: pulsed CW;  $T_{case} = 25\text{ }^{\circ}\text{C}$ ;  $V_{DS} = 28\text{ V}$ ;  $I_{Dq1} = 15\text{ mA}$ ;  $I_{Dq2} = 60\text{ mA}$ ;  $t_p = 100\text{ }\mu\text{s}$ ;  $\delta = 10\text{ }\%$ ;  $Z_S = 50\text{ }\Omega$ . Typical values unless otherwise specified.

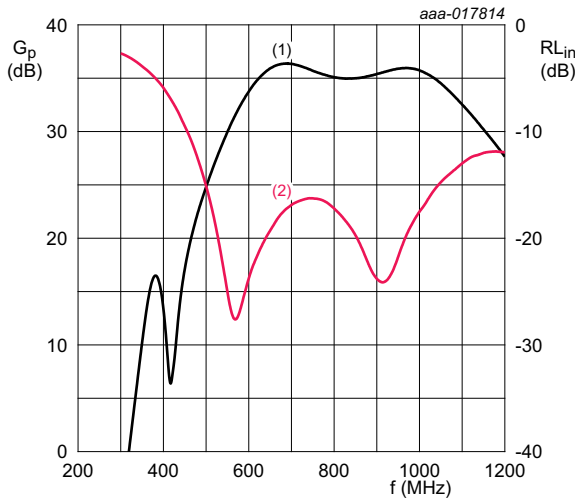
f	at 1dB gain compression point					at 3dB gain compression point				
	Z <sub>L</sub>	G <sub>p(max)</sub>	P <sub>L</sub>	$\eta_{add}$	AM-PM conversion	Z <sub>L</sub>	G <sub>p(max)</sub>	P <sub>L</sub>	$\eta_{add}$	AM-PM conversion
	(MHz)	( $\Omega$ )	(dB)	(W)	(%)	(deg)	( $\Omega$ )	(dB)	(W)	(%)
<b>BLM8G0710S-15PB</b>										
680	21.4 + j15.6	37.4	39.7	63.9	-11.6	18.4 + j18.2	37.7	40	66.4	-14.8
700	20.7 + j20.5	38	38.8	63.7	-10.6	23.8 + j16.8	37.7	40.2	66.6	-9.6
720	20.1 + j22.8	38	38.3	63.5	-9.6	21.1 + j18.1	37.7	40	66.5	-10.1
740	18.4 + j18.1	37.6	39.1	64	-9.7	21.1 + j18.1	37.5	40	66.9	-9.3
760	21.1 + j18.1	37.1	39.1	63.8	-7.9	18.7 + j16.1	37.1	40.3	67	-10
780	21.1 + j18.1	36.8	39.1	63.3	-6.6	21.1 + j18.1	36.8	40	66.2	-6.4
800	17.9 + j20.2	36.8	38.6	62.8	-6.5	20.6 + j20.5	36.7	39.6	66.2	-4.7
820	17.8 + j20.2	36.6	38.8	63.7	-5.8	18.6 + j16.0	36.3	40.4	67.3	-5.5
840	18.2 + j18.1	36.4	39.2	64	-5.3	21.0 + j18.1	36.3	40.2	67.4	-3.4
860	18.7 + j16.1	36.2	39.7	64.3	-4.6	18.3 + j18.2	36.4	40.1	67.6	-4.2

**Table 10. Typical impedance tuned for maximum power added efficiency ...continued**

Measured load-pull data per section; test signal: pulsed CW;  $T_{case} = 25\text{ }^{\circ}\text{C}$ ;  $V_{DS} = 28\text{ V}$ ;  $I_{Dq1} = 15\text{ mA}$ ;  $I_{Dq2} = 60\text{ mA}$ ;  $t_p = 100\text{ }\mu\text{s}$ ;  $\delta = 10\text{ }\%$ ;  $Z_S = 50\text{ }\Omega$ . Typical values unless otherwise specified.

f	at 1dB gain compression point					at 3dB gain compression point				
	Z <sub>L</sub>	G <sub>p(max)</sub>	P <sub>L</sub>	$\eta_{add}$	AM-PM conversion	Z <sub>L</sub>	G <sub>p(max)</sub>	P <sub>L</sub>	$\eta_{add}$	AM-PM conversion
	(MHz)	( $\Omega$ )	(dB)	(W)	(%)	(deg)	( $\Omega$ )	(dB)	(W)	(%)
880	17.9 + j20.1	36.6	39	64.4	-4.3	17.9 + j20.1	36.6	39.8	67.3	-3.5
900	18.3 + j18.1	36.6	39.4	64.4	-3.8	16.4 + j14.9	36.4	40.7	67.1	-4.1
920	16.3 + j14.9	36.6	39.8	63.4	-4.6	18.6 + j16.0	36.5	40.5	66.2	-2.7
940	15.4 + j19.2	37	38.9	63.3	-5.5	15.9 + j17.2	36.9	40.1	65.7	-4.7
960	15.4 + j19.2	37	38.9	63.2	-5.6	15.4 + j19.2	37	39.7	66.1	-4.7
980	15.9 + j17.2	36.7	39.2	62.5	-5.6	15.9 + j17.2	36.7	40.1	65.5	-4.9
1000	13.6 + j17.6	36.6	38.7	61.4	-6.3	16.4 + j14.9	36.3	40.5	65.3	-5.5
680	21.4 + j15.6	37.4	39.7	63.9	-11.6	18.4 + j18.2	37.7	40	66.4	-14.8
700	20.7 + j20.5	38	38.8	63.7	-10.6	23.8 + j16.8	37.7	40.2	66.6	-9.6
720	20.1 + j22.8	38	38.3	63.5	-9.6	21.1 + j18.1	37.7	40	66.5	-10.1
740	18.4 + j18.1	37.6	39.1	64	-9.7	21.1 + j18.1	37.5	40	66.9	-9.3
760	21.1 + j18.1	37.1	39.1	63.8	-7.9	18.7 + j16.1	37.1	40.3	67	-10
780	21.1 + j18.1	36.8	39.1	63.3	-6.6	21.1 + j18.1	36.8	40	66.2	-6.4
<b>BLM8G0710S-15PBG</b>										
700	18.8 + j16.8	37.2	39.2	60.9	-11.4	19.8 + j14.0	37	40.5	63.4	-11.8
720	19.3 + j17.3	37	39.1	61.7	-9.8	19.8 + j15.2	36.9	40.4	64.4	-10.3
740	18.3 + j16.0	37.1	39.3	61.2	-9.3	19.0 + j14.7	37	40.4	63.9	-10.4
760	18.5 + j16.6	36.9	39.1	60.8	-8.7	19.7 + j17.0	36.9	40	63.6	-8.6
780	18.3 + j16.1	36.1	39.2	60.4	-8.1	18.3 + j16.1	36.1	40.1	63.2	-8.4
800	17.0 + j15.1	36	39.5	61.1	-7.7	18.0 + j15.6	36	40.3	64.1	-7.6
820	18.1 + j16.5	35.8	39.3	61.1	-6	19.0 + j16.0	35.7	40.3	64.2	-5
840	16.9 + j16.1	35.7	39.4	62.1	-5.4	17.7 + j15.6	35.6	40.4	64.8	-4.3
860	16.8 + j16.1	35.8	39.4	61.6	-4.8	15.9 + j15.7	35.8	40.2	64.1	-5.6
880	16.1 + j15.4	35.9	39.4	60.7	-5.3	15.9 + j14.7	35.8	40.4	63	-5.6
900	15.7 + j16.2	36.1	39.2	60.5	-5.1	15.6 + j15.4	36	40.2	62.9	-5
920	16.0 + j15.5	36.2	39.4	60.7	-4.6	15.9 + j14.7	36.1	40.4	63.1	-4.1
940	16.2 + j15.7	36.2	39.3	59.9	-4.6	16.0 + j14.8	36.2	40.3	62.4	-4
960	15.6 + j15.3	36.3	39.3	59.3	-4.5	15.5 + j14.4	36.3	40.3	62.3	-4.3
980	15.7 + j15.2	36.2	39.3	59.1	-4.7	14.8 + j14.7	36.2	40.2	62.5	-4
1000	14.8 + j15.6	35.8	39.1	59.2	-4.5	14.6 + j14.0	35.8	40.4	62.8	-4.5

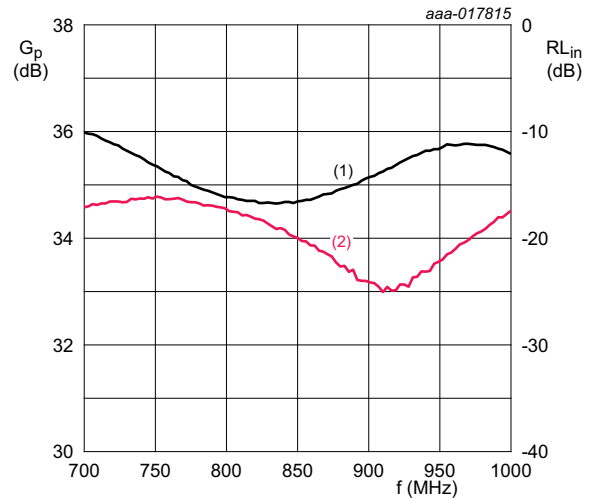
8.4 Graphs



$T_{case} = 25\text{ }^{\circ}\text{C}$ ;  $V_{DS} = 28\text{ V}$ ;  $I_{Dq1} = 15\text{ mA}$ ;  $I_{Dq2} = 60\text{ mA}$ ;  $P_L = 0.2\text{ W}$ . Per section.

- (1) magnitude of  $G_p$
- (2) magnitude of  $RL_{in}$

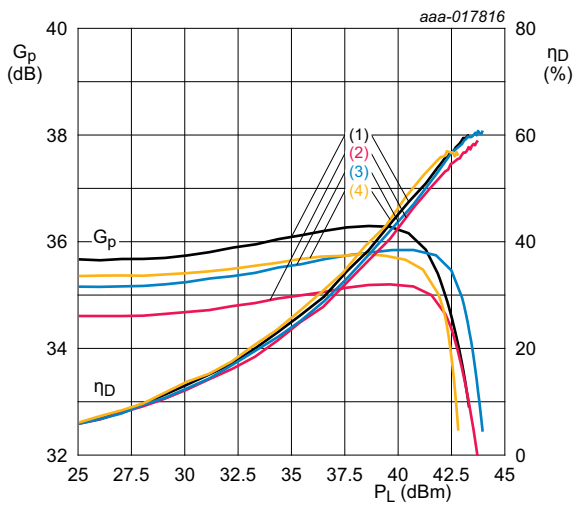
Fig 9. Wideband power gain and input return loss as function of frequency; typical values



$T_{case} = 25\text{ }^{\circ}\text{C}$ ;  $V_{DS} = 28\text{ V}$ ;  $I_{Dq1} = 15\text{ mA}$ ;  $I_{Dq2} = 60\text{ mA}$ ;  $P_L = 0.2\text{ W}$ . Per section.

- (1) magnitude of  $G_p$
- (2) magnitude of  $RL_{in}$

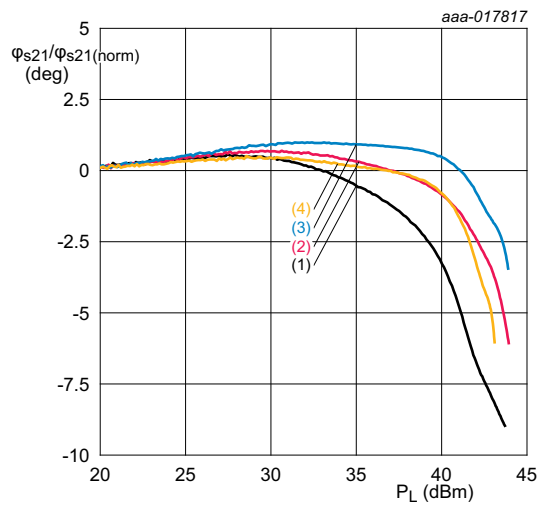
Fig 10. In-band power gain and input return loss as function of frequency; typical values



$T_{case} = 25\text{ }^{\circ}\text{C}$ ;  $V_{DS} = 28\text{ V}$ ;  $I_{Dq1} = 15\text{ mA}$ ;  $I_{Dq2} = 60\text{ mA}$ . Per section.

- (1)  $f = 700\text{ MHz}$
- (2)  $f = 800\text{ MHz}$
- (3)  $f = 900\text{ MHz}$
- (4)  $f = 1000\text{ MHz}$

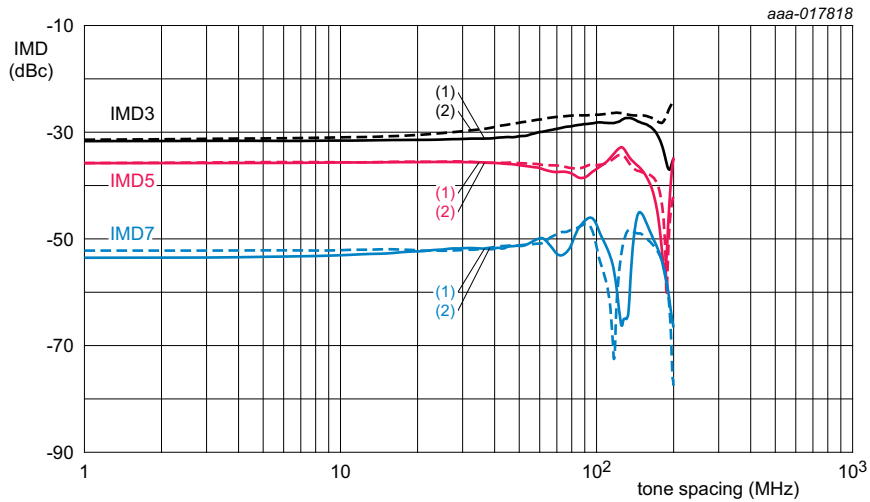
Fig 11. Power gain and drain efficiency as function of output power; typical values



Normalized at  $P_L = 26\text{ dBm}$ ;  $T_{case} = 25\text{ }^{\circ}\text{C}$ ;  $V_{DS} = 28\text{ V}$ ;  $I_{Dq1} = 15\text{ mA}$ ;  $I_{Dq2} = 60\text{ mA}$ . Per section.

- (1)  $f = 700\text{ MHz}$
- (2)  $f = 800\text{ MHz}$
- (3)  $f = 900\text{ MHz}$
- (4)  $f = 1000\text{ MHz}$

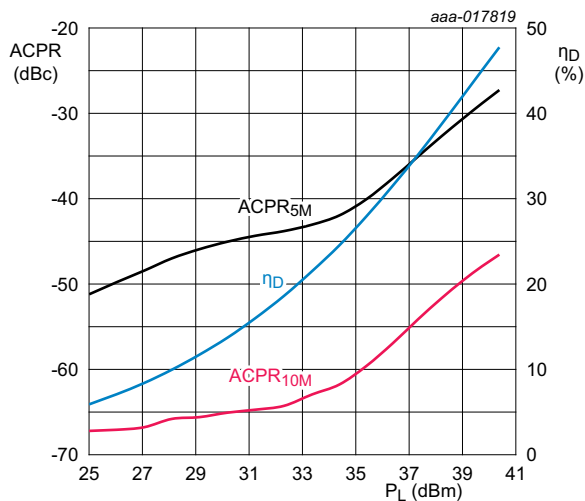
Fig 12. Normalized phase response as a function of output power; typical values



$T_{case} = 25\text{ }^{\circ}\text{C}$ ;  $V_{DS} = 28\text{ V}$ ;  $I_{Dq1} = 15\text{ mA}$ ;  $I_{Dq2} = 60\text{ mA}$ ;  $f = 881\text{ MHz}$ ; 2-tone CW;  $P_L = 5\text{ W}$ . Per section.

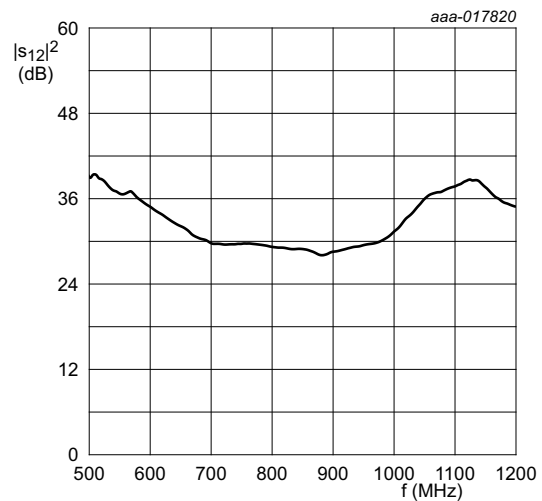
- (1) IMD low
- (2) IMD high

**Fig 13. Intermodulation distortion as a function of tone spacing; typical values**



$T_{case} = 25\text{ }^{\circ}\text{C}$ ;  $V_{DS} = 28\text{ V}$ ;  $I_{Dq1} = 16\text{ mA}$ ;  $I_{Dq2} = 60\text{ mA}$ ;  
 $f = 900\text{ MHz}$ ; 1-carrier W-CDMA; test model 1;  
 PAR = 9.9 dB at 0.01 % probability on CCDF. Per section.

**Fig 14. Adjacent channel power ratio and drain efficiency as function of output power; typical values**



$T_{case} = 25\text{ }^{\circ}\text{C}$ ;  $V_{DS} = 28\text{ V}$ ;  $I_{Dq1} = 15\text{ mA}$ ;  $I_{Dq2} = 60\text{ mA}$ ;  
 measured on evaluation board.

**Fig 15. Isolation as a function of frequency; typical values**

9. Package outline

HSOP16F: plastic, heatsink small outline package; 16 leads(flat)

SOT1211-2

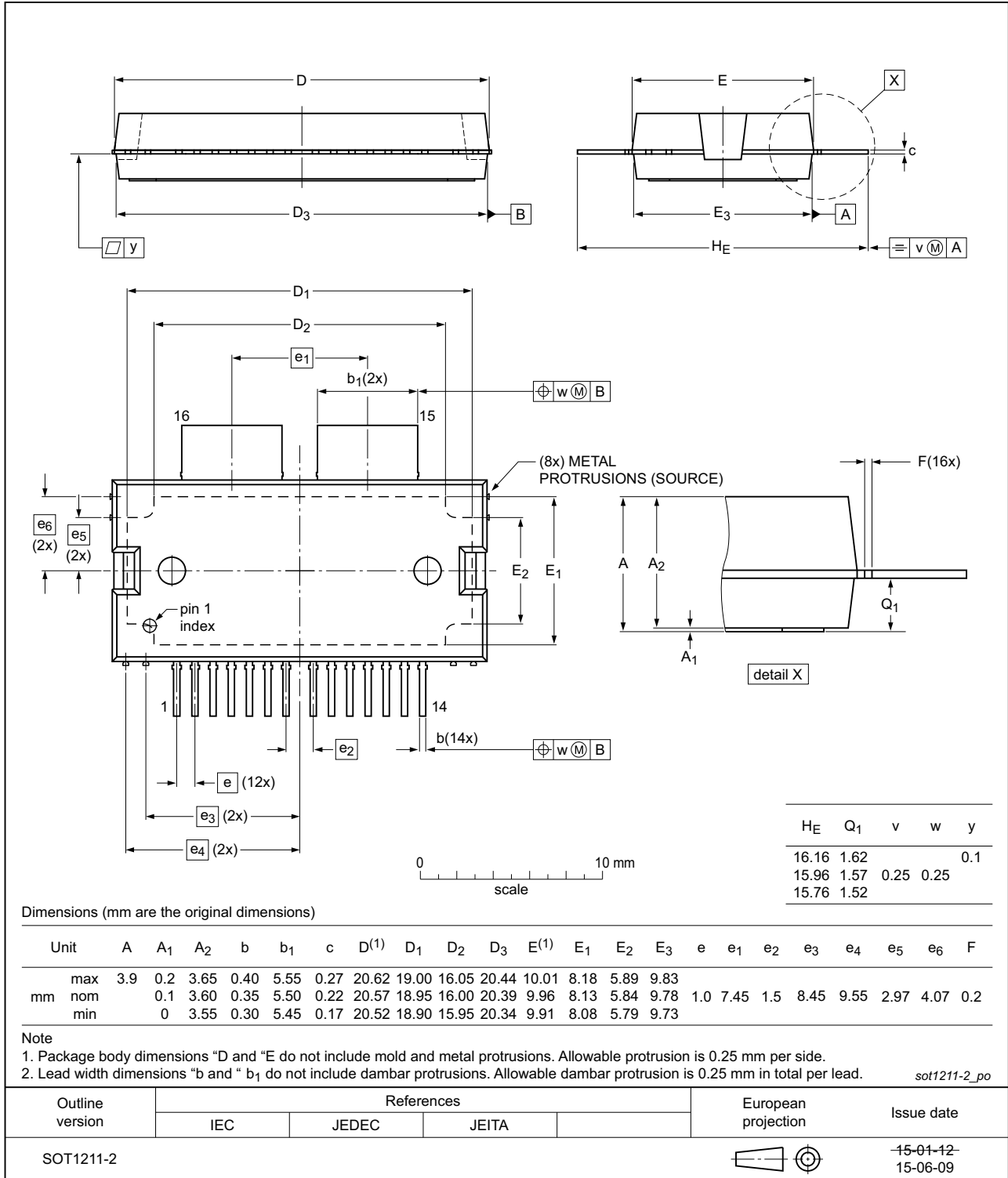


Fig 16. Package outline SOT1211-2 (HSOP16F)

HSOP16: plastic, heatsink small outline package; 16 leads

SOT1212-2

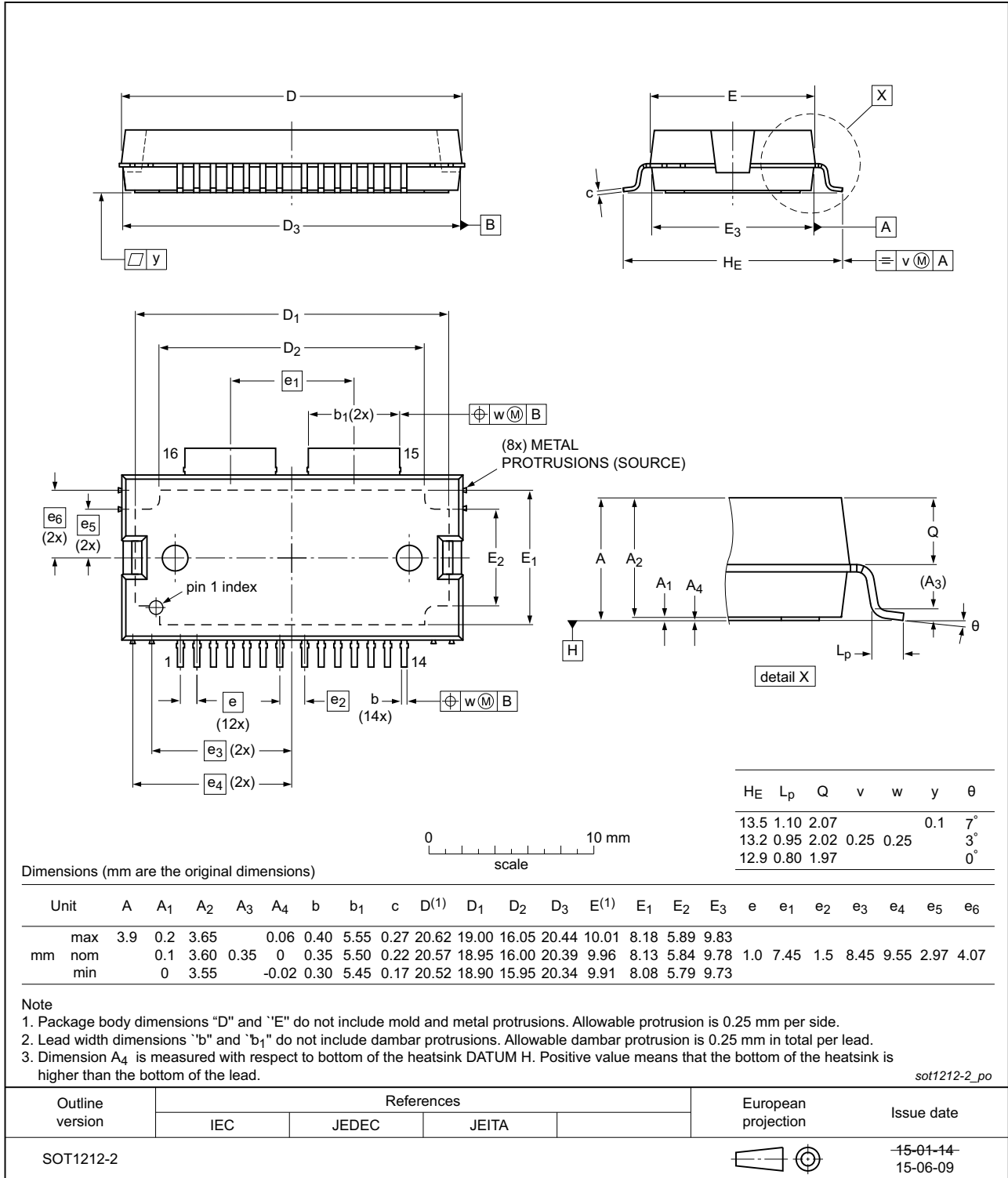


Fig 17. Package outline SOT1212-2 (HSOP16)



## 10. Handling information

**CAUTION**



This device is sensitive to ElectroStatic Discharge (ESD). Observe precautions for handling electrostatic sensitive devices.

Such precautions are described in the *ANSI/ESD S20.20*, *IEC/ST 61340-5*, *JESD625-A* or equivalent standards.

## 11. Abbreviations

**Table 11. Abbreviations**

Acronym	Description
AM	Amplitude Modulation
3GPP	3rd Generation Partnership Project
CCDF	Complementary Cumulative Distribution Function
CW	Continuous Wave
DPCH	Dedicated Physical CHannel
ESD	ElectroStatic Discharge
GEN8	Eighth Generation
LDMOS	Laterally Diffused Metal Oxide Semiconductor
MMIC	Monolithic Microwave Integrated Circuit
MTF	Median Time to Failure
PAR	Peak-to-Average Ratio
PM	Phase Modulation
VSWR	Voltage Standing-Wave Ratio
W-CDMA	Wideband Code Division Multiple Access

## 12. Revision history

**Table 12. Revision history**

Document ID	Release date	Data sheet status	Change notice	Supersedes
BLM8G0710S-15PB_S-15PBG v.3	20150909	Product data sheet	-	BLM8G0710S-15PB_S-15PBG#2
Modifications	<ul style="list-style-type: none"> <li><a href="#">Table 1 on page 1</a>: table updated</li> <li><a href="#">Table 7 on page 4</a>: table updated</li> </ul>			
BLM8G0710S-15PB_S-15PBG#2	20150901	Product data sheet	-	BLM8G0710S-15PB_S-15PBG v.2
Modifications:	<ul style="list-style-type: none"> <li>The format of this document has been redesigned to comply with the new identity guidelines of Ampleon</li> <li>Legal texts have been adapted to the new company name where appropriate</li> </ul>			
BLM8G0710S-15PB_S-15PBG v.2	20150831	Product data sheet	-	BLM8G0710S-15PB_S-15PBG v.1
BLM8G0710S-15PB_S-15PBG v.1	20150702	Preliminary data sheet	-	-

## 13. Legal information

### 13.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.ampleon.com>.

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## 14. Contact information

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