

BLM8G0710S-15PB; BLM8G0710S-15PBG

LDMOS 2-stage power MMIC

Rev. 5 — 28 September 2018

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 $T_{case} = 25\text{ }^{\circ}\text{C}$; $I_{Dq1} = 15\text{ mA}$; $I_{Dq2} = 60\text{ mA}$.

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 _{DS}	P _{L(AV)}	G _p	η_D	ACPR _{5M}
	(MHz)	(V)	(W)	(dB)	(%)	(dBc)
single carrier W-CDMA	957.5	28	1.5	36	27	-41

1.2 Features and benefits

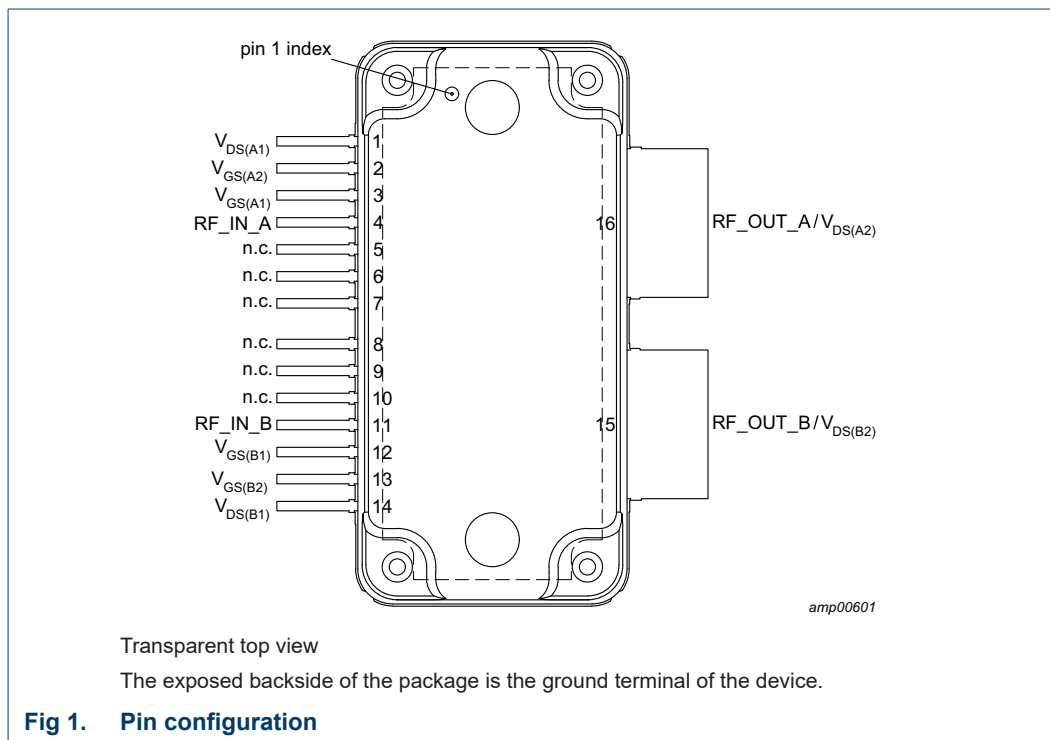
- Designed for broadband operation (frequency 700 MHz to 1000 MHz)
- High section-to-section isolation enabling multiple combinations
- Integrated temperature compensated bias
- Biasing of individual stages is externally accessible
- Integrated ESD protection
- Excellent thermal stability
- High power gain
- On-chip matching for ease of use
- For RoHS compliance see the product details on the Ampleon website

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

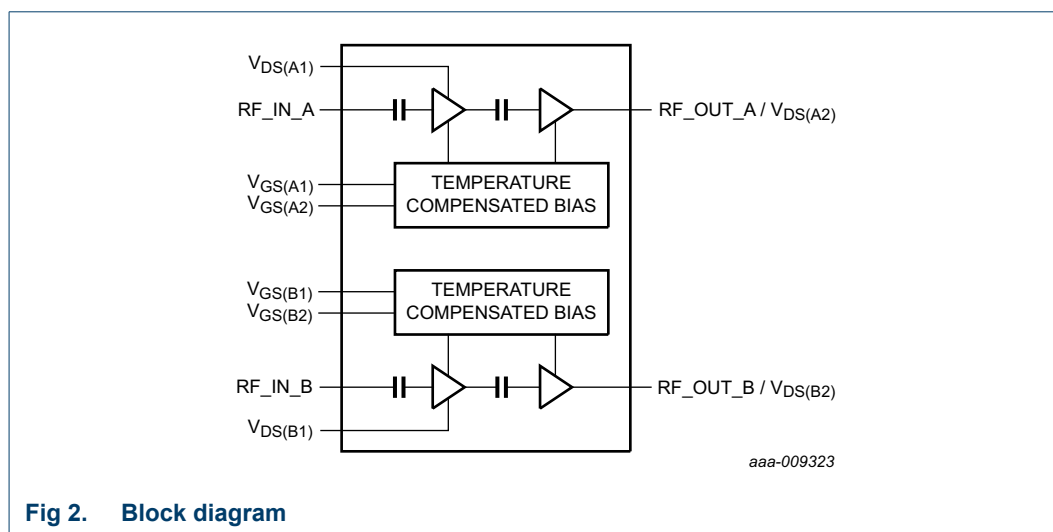
Symbol	Pin	Description
RF_OUT_B/ $V_{DS(B2)}$	15	RF output section B / drain-source voltage of stage (B2)
RF_OUT_A/ $V_{DS(A2)}$	16	RF output section A / drain-source voltage of stage (A2)
GND	flange	RF ground

3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BLM8G0710S-15PB	-	plastic, heatsink small outline package; 16 leads (flat)	SOT1211-3
BLM8G0710S-15PBG	-	plastic, heatsink small outline package; 16 leads	SOT1212-3

4. 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
$R_{th(j-c)}$	thermal resistance from junction to case	final stage; $T_{case} = 90\text{ °C}$; $P_L = 1.26\text{ W}$ [1]	2.41	K/W
		driver stage; $T_{case} = 90\text{ °C}$; $P_L = 1.26\text{ W}$ [1]	7.5	K/W

[1] When operated with a CW signal.

7. Characteristics

Table 6. DC characteristics

$T_{case} = 25\text{ °C}$; per section unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Final stage						
$V_{(BR)DSS}$	drain-source breakdown voltage	$V_{GS} = 0\text{ V}$; $I_D = 0.12\text{ mA}$	65	-	-	V
V_{GSq}	gate-source quiescent voltage	$V_{DS} = 28\text{ V}$; $I_D = 60\text{ mA}$	1.6	2.1	2.5	V
		$V_{DS} = 28\text{ V}$; $I_D = 60\text{ mA}$ [1]	1.6	2.6	3.6	V
$\Delta I_{Dq}/\Delta T$	quiescent drain current variation with temperature	$-40\text{ °C} \leq T_{case} \leq +85\text{ °C}$ [1]	-	2	-	%
I_{DSS}	drain leakage current	$V_{GS} = 0\text{ V}$; $V_{DS} = 28\text{ V}$	-	-	1.4	μA
I_{DSX}	drain cut-off current	$V_{GS} = 5.65\text{ V}$; $V_{DS} = 10\text{ V}$	-	2.2	-	A
I_{GSS}	gate leakage current	$V_{GS} = 1\text{ V}$; $V_{DS} = 0\text{ V}$	-	-	140	nA
Driver stage						
$V_{(BR)DSS}$	drain-source breakdown voltage	$V_{GS} = 0\text{ V}$; $I_D = 0.03\text{ mA}$	65	-	-	V
V_{GSq}	gate-source quiescent voltage	$V_{DS} = 28\text{ V}$; $I_D = 15\text{ mA}$	1.6	2.1	2.5	V
		$V_{DS} = 28\text{ V}$; $I_D = 15\text{ mA}$ [2]	1.6	2.6	3.5	V
$\Delta I_{Dq}/\Delta T$	quiescent drain current variation with temperature	$-40\text{ °C} \leq T_{case} \leq +85\text{ °C}$ [2]	-	2	-	%
I_{DSS}	drain leakage current	$V_{GS} = 0\text{ V}$; $V_{DS} = 28\text{ V}$	-	-	1.4	μA
I_{GSS}	gate leakage current	$V_{GS} = 1\text{ V}$; $V_{DS} = 0\text{ V}$	-	-	140	nA

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

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

Table 7. RF Characteristics

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Test signal: single carrier W-CDMA [1]						
G_p	power gain	$f = 730.5\text{ MHz}$	-	36	-	dB
		$f = 957.5\text{ MHz}$	34.5	36	37.5	dB
η_D	drain efficiency	$f = 730.5\text{ MHz}$	-	23	-	%
		$f = 957.5\text{ MHz}$	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 _{in}	input return loss	f = 730.5 MHz	-	−18	-	dB
		f = 957.5 MHz	-	−16	−10	dB
ACPR _{5M}	adjacent channel power ratio (5 MHz)	f = 730.5 MHz	-	−38.7	-	dBc
		f = 957.5 MHz	-	−41	−36	dBc
PAR _O	output peak-to-average ratio	f = 730.5 MHz	-	8.8	-	dB
		f = 957.5 MHz	7	8.1	-	dB
Test signal: CW [2]						
Δφ _{s21}	phase response difference	between sections	−10	-	+10	deg
Δ 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.

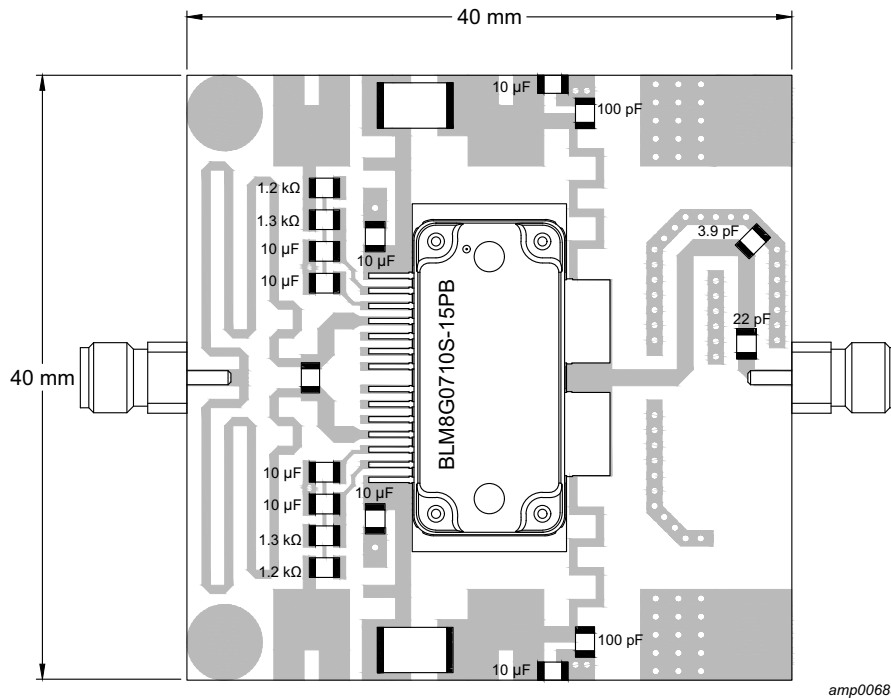
[2] $f = 957.5$ MHz.

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 _{L(1dB)}	output power at 1 dB gain compression	$f = 800$ MHz	-	23.3	-	W
η_D	drain efficiency	at P _{L(1dB)} ; $f = 800$ MHz	-	55	-	%
G _p	power gain	P _{L(AV)} = 4 W; $f = 800$ MHz	-	35	-	dB
B _{video}	video bandwidth	2-tone CW; P _{L(AV)} = 10 W; $f = 800$ MHz	-	190	-	MHz
G _{flat}	gain flatness	P _{L(AV)} = 4 W	-	1	-	dB
$\Delta G/\Delta T$	gain variation with temperature	$f = 800$ MHz	-	0.022	-	dB/°C
s ₁₂ ²	isolation	between sections A and B; P _{L(AV)} = 4 W; $f = 800$ MHz	-	29	-	dB
K	Rollett stability factor	T = -40 °C; $f = 0.1$ GHz to 3 GHz	-	3	-	



Printed-Circuit Board (PCB): Rogers 4350; thickness = 0.508 mm.

Fig 3. Component layout for class-AB application circuit

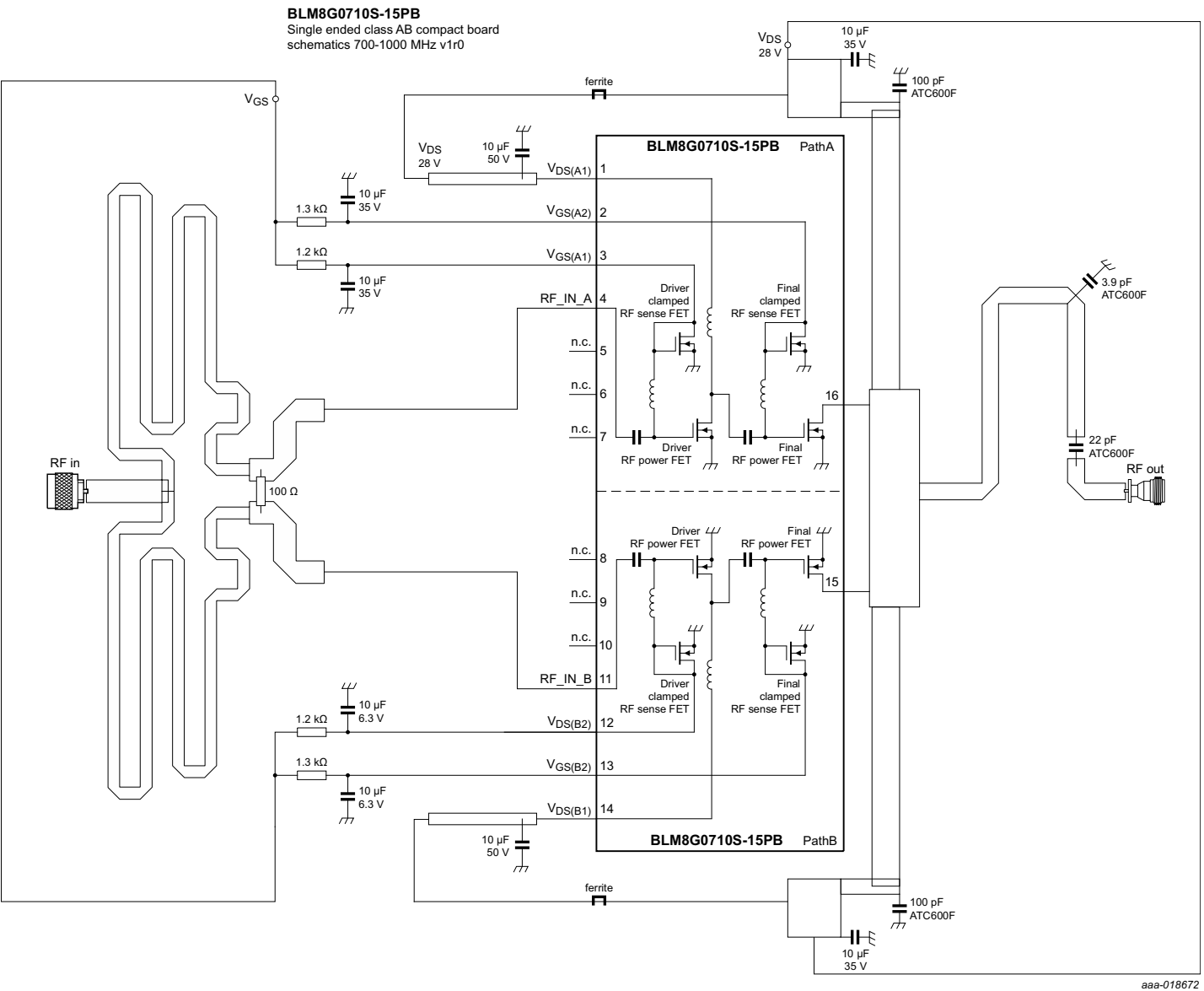


Fig 4. Electrical schematic

8.1 Possible circuit topologies

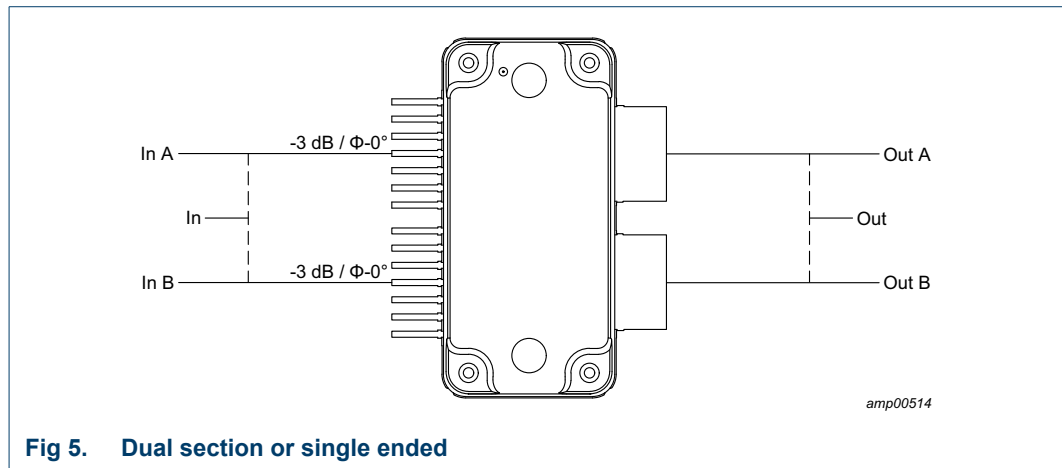


Fig 5. Dual section or single ended

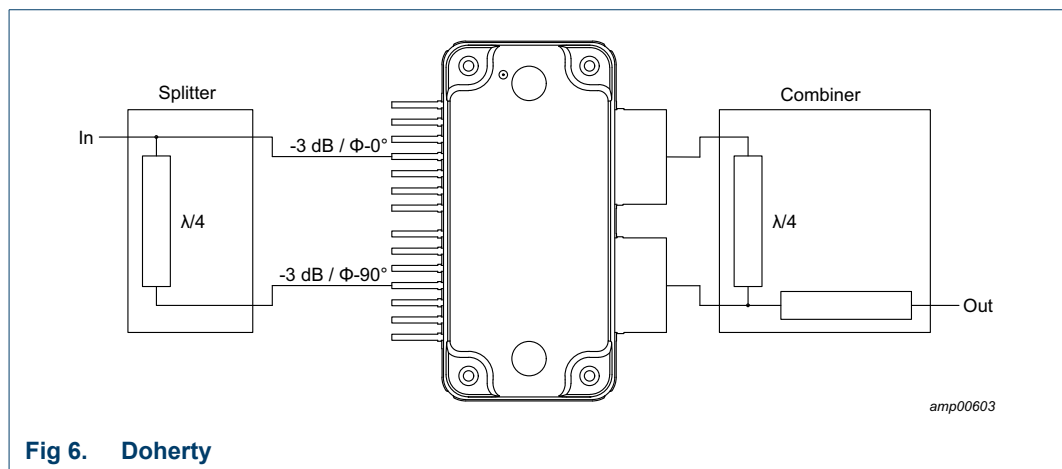


Fig 6. Doherty

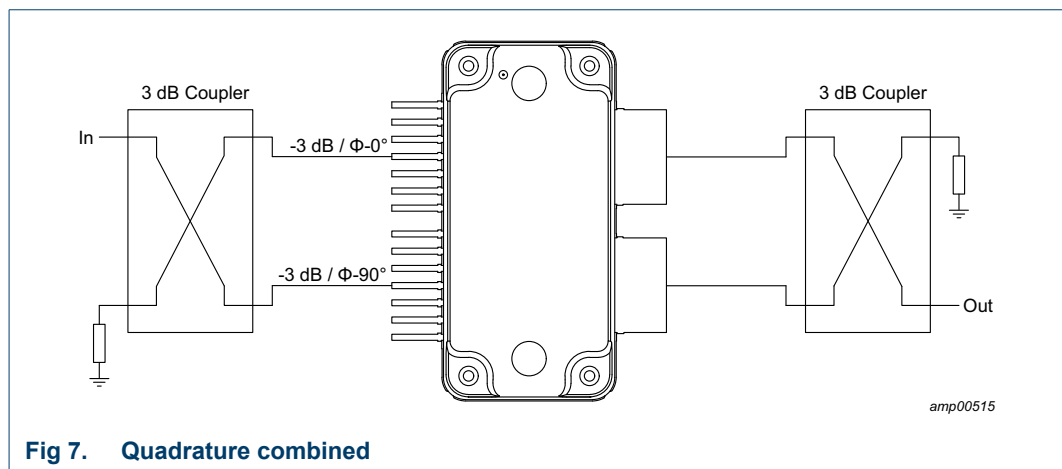


Fig 7. Quadrature combined

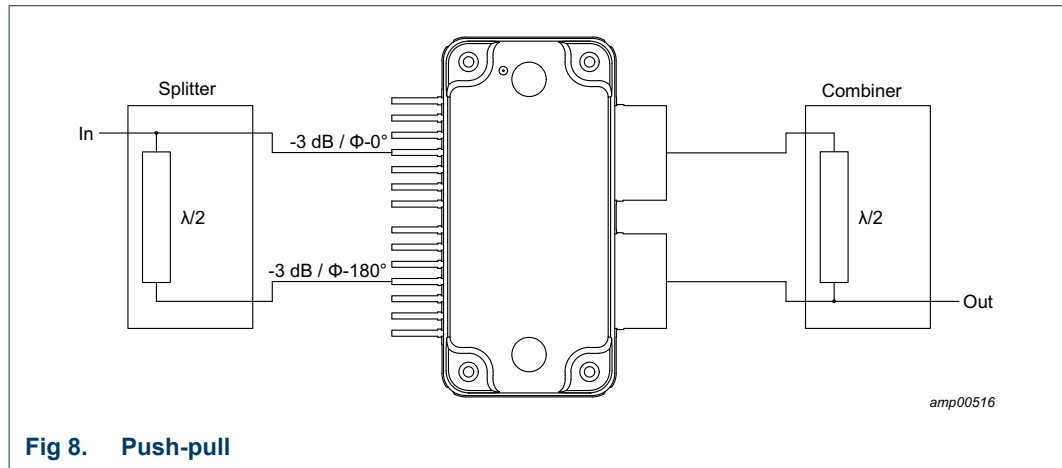


Fig 8. Push-pull

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; $T_{case} = 25^\circ \text{C}$; $V_{DS} = 28 \text{ V}$; $I_{Dq1} = 15 \text{ mA}$; $I_{Dq2} = 60 \text{ mA}$; $t_p = 100 \mu\text{s}$; $\delta = 10 \%$; $Z_S = 50 \Omega$. Typical values unless otherwise specified.

f (MHz)	at 1dB gain compression point					at 3dB gain compression point				
	Z_L (Ω)	$G_{p(max)}$ (dB)	P_L (dBm)	η_{add} (%)	AM-PM conversion (deg)	Z_L (Ω)	$G_{p(max)}$ (dB)	P_L (dBm)	η_{add} (%)	AM-PM conversion (deg)
BLM8G0710S-15PB										
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_L	$G_{p(max)}$	P_L	η_{add}	AM-PM conversion	Z_L	$G_{p(max)}$	P_L	η_{add}	AM-PM conversion
(MHz)	(Ω)	(dB)	(dBm)	(%)	(deg)	(Ω)	(dB)	(dBm)	(%)	(deg)
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
BLM8G0710S-15PBG										
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.

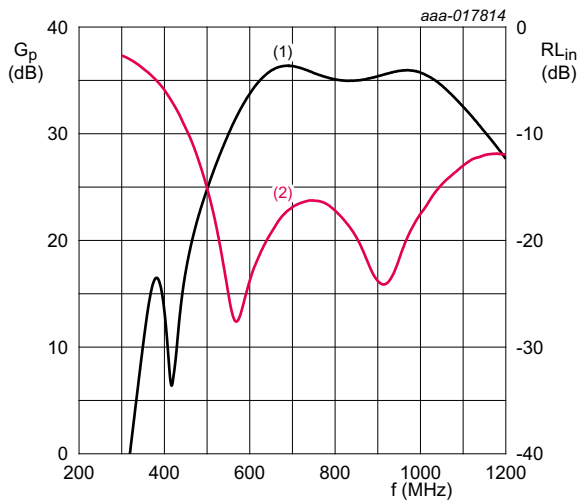
f	at 1dB gain compression point					at 3dB gain compression point				
	Z_L	$G_{p(max)}$	P_L	η_{add}	AM-PM conversion	Z_L	$G_{p(max)}$	P_L	η_{add}	AM-PM conversion
(MHz)	(Ω)	(dB)	(dBm)	(%)	(deg)	(Ω)	(dB)	(dBm)	(%)	(deg)
BLM8G0710S-15PB										
680	$21.4 + j15.6$	37.4	39.7	63.9	-11.6	$18.4 + j18.2$	37.7	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.

	at 1dB gain compression point					at 3dB gain compression point				
f	Z _L	G _{p(max)}	P _L	η _{add}	AM-PM conversion	Z _L	G _{p(max)}	P _L	η _{add}	AM-PM conversion
(MHz)	(Ω)	(dB)	(dBm)	(%)	(deg)	(Ω)	(dB)	(dBm)	(%)	(deg)
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
BLM8G0710S-15PBG										
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

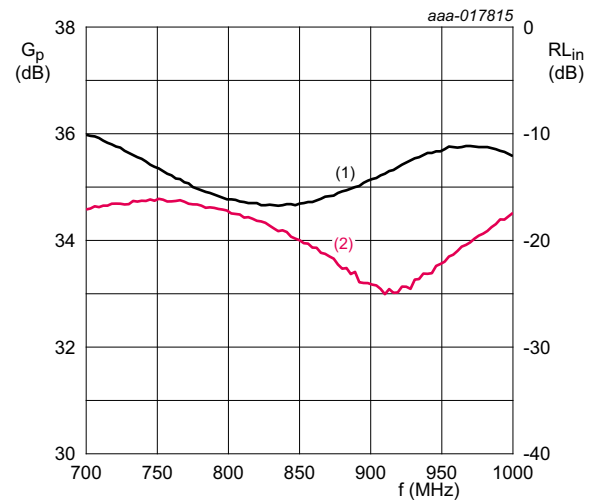
8.4 Graphs



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

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

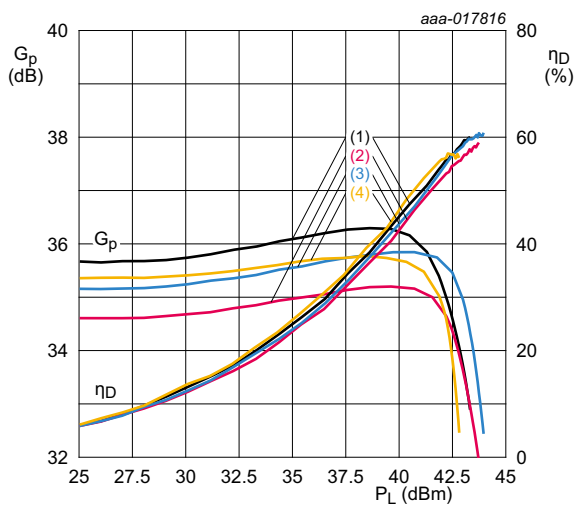
Fig 9. Wideband power gain and input return loss as function of frequency; typical values



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

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

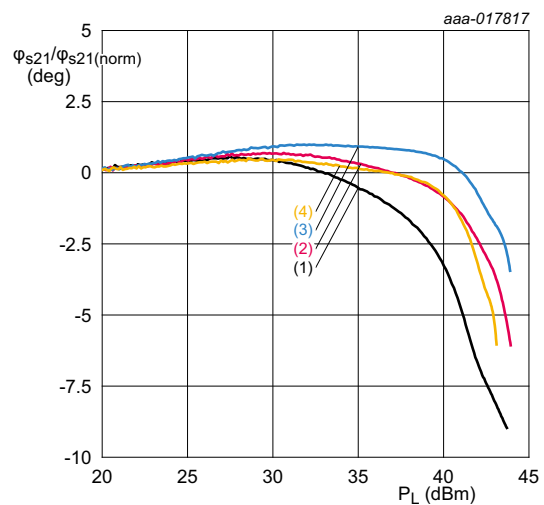
Fig 10. In-band power gain and input return loss as function of frequency; typical values



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

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

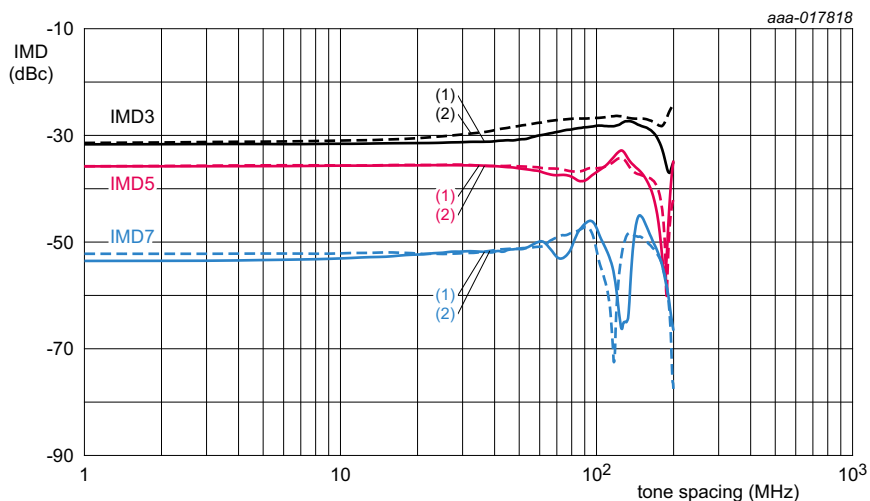
Fig 11. Power gain and drain efficiency as function of output power; typical values



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) $f = 1000\text{ MHz}$

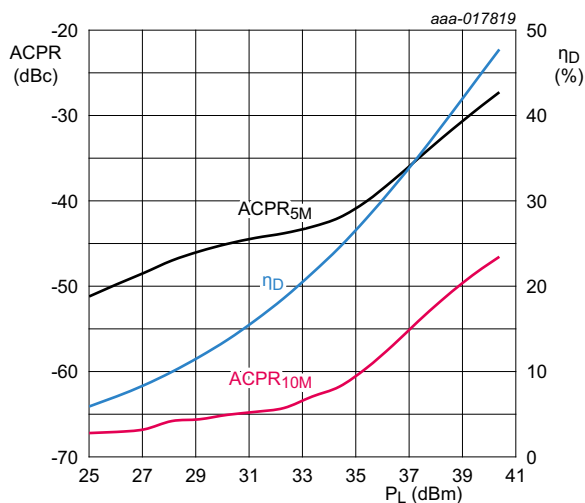
Fig 12. Normalized phase response as a function of output power; typical values



$T_{\text{case}} = 25\text{ }^{\circ}\text{C}$; $V_{\text{DS}} = 28\text{ V}$; $I_{\text{DQ1}} = 15\text{ mA}$; $I_{\text{DQ2}} = 60\text{ mA}$; $f = 881\text{ MHz}$; 2-tone CW; $P_L = 5\text{ W}$. Per section.

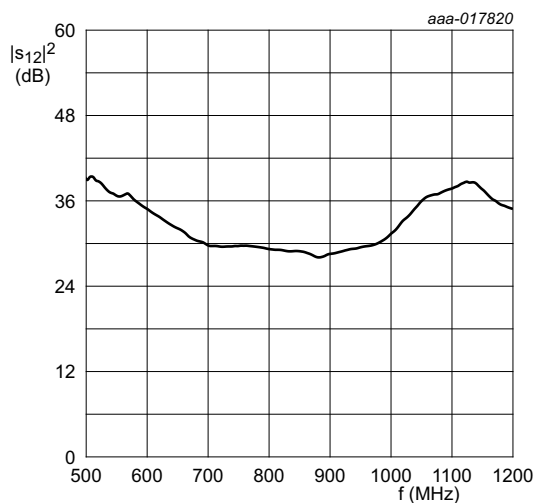
- (1) IMD low
- (2) IMD high

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



$T_{\text{case}} = 25\text{ }^{\circ}\text{C}$; $V_{\text{DS}} = 28\text{ V}$; $I_{\text{DQ1}} = 16\text{ mA}$; $I_{\text{DQ2}} = 60\text{ mA}$;
 $f = 900\text{ MHz}$; 1-carrier W-CDMA; test model 1;
 $\text{PAR} = 9.9\text{ dB}$ at 0.01 % probability on CCDF. Per section.

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



$T_{\text{case}} = 25\text{ }^{\circ}\text{C}$; $V_{\text{DS}} = 28\text{ V}$; $I_{\text{DQ1}} = 15\text{ mA}$; $I_{\text{DQ2}} = 60\text{ mA}$;
 measured on evaluation board.

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

9. Package outline

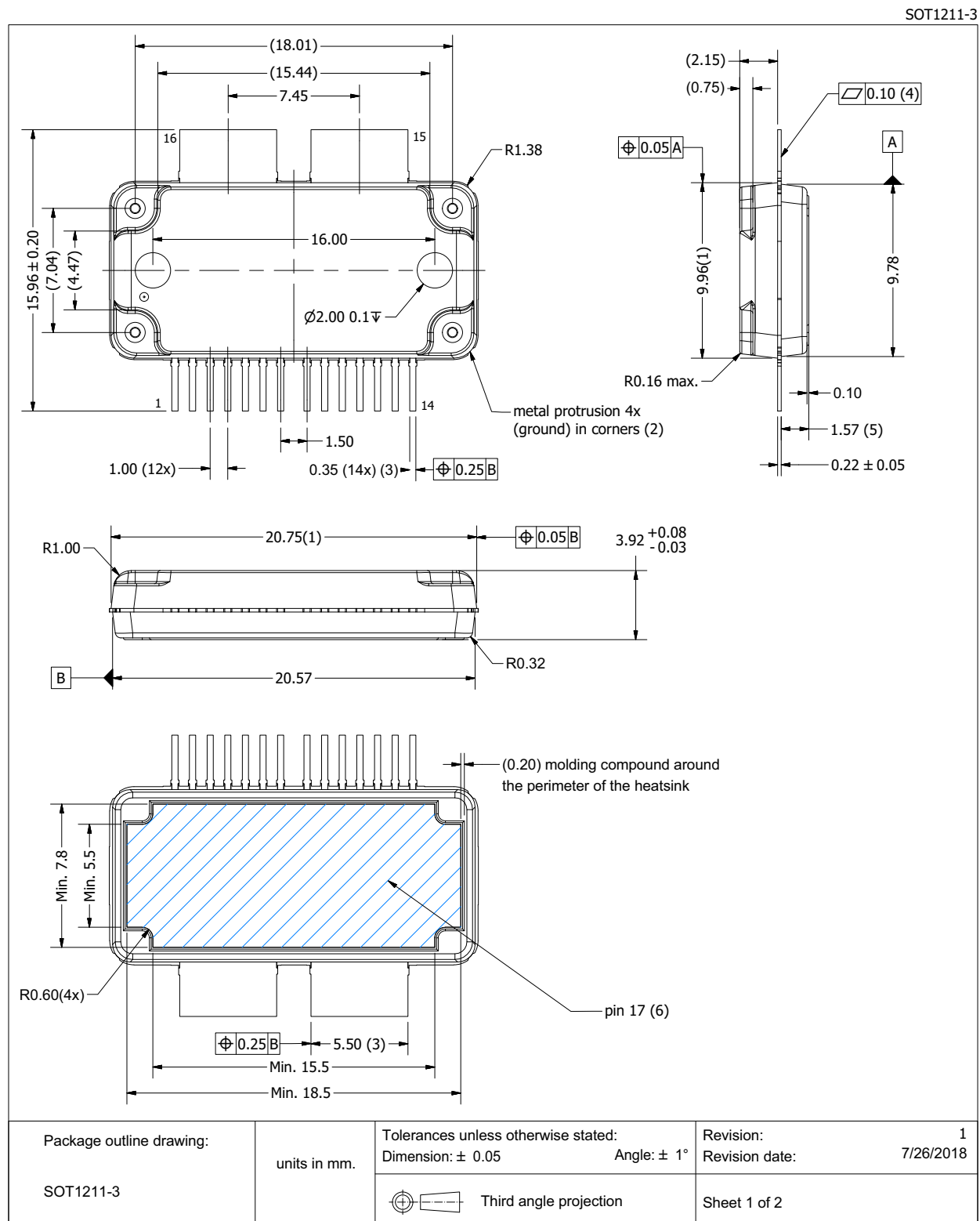
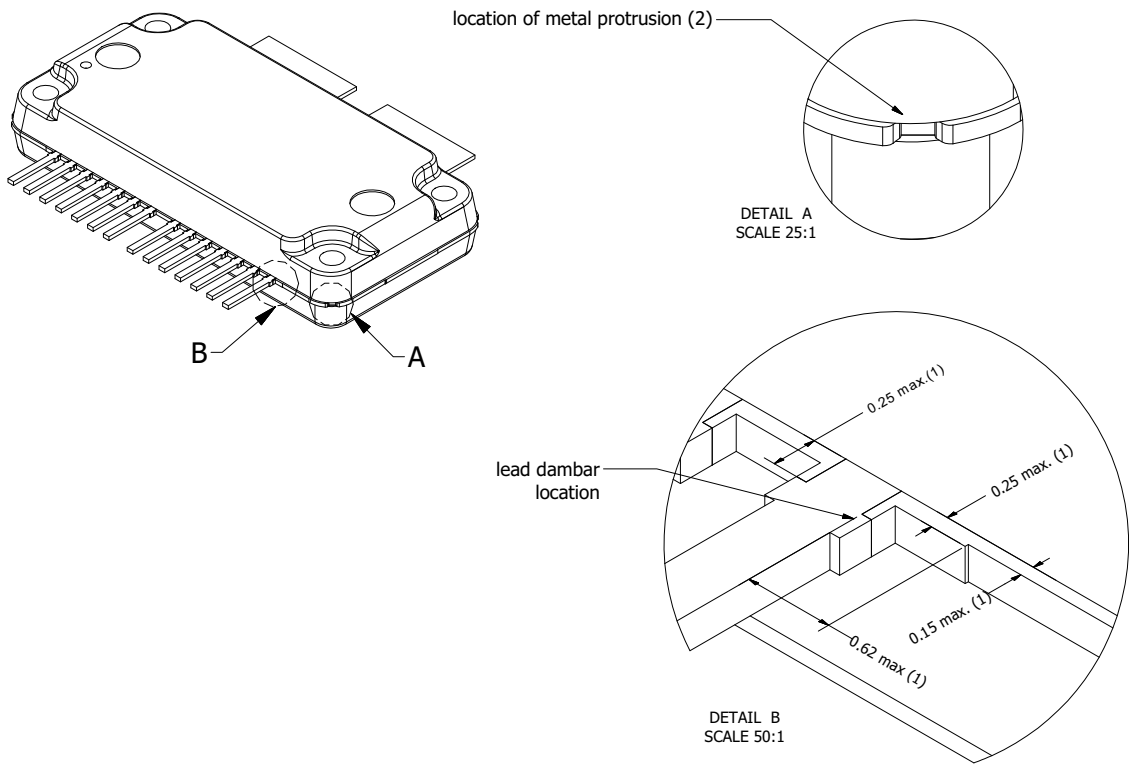


Fig 16. Package outline SOT1211-3 (sheet 1 of 2)

SOT1211-3

Drawing Notes	
Items	Description
(1)	Dimensions are excluding mold protrusion. Areas located adjacent to the leads have a maximum mold protrusion of 0.25 mm (per side) and 0.62 mm max. in length. In between the 14 leads the protrusion is 0.25 mm. max. At all other areas the mold protrusion is maximum 0.15 mm per side. See also detail B.
(2)	The metal protrusion (tie bars) in the corner will not stick out of the molding compound protrusions (detail A).
(3)	The lead dambar (metal) protrusions are not included. Add 0.14 mm max to the total lead dimension at the dambar location.
(4)	The lead coplanarity over all leads is 0.1 mm maximum.
(5)	Dimension is measured 0.5 mm from the edge of the top package body.
(6)	The hatched area indicates the exposed metal heatsink.
(7)	The leads and exposed heatsink are plated with matte Tin (Sn).



Package outline drawing:	units in mm.	Tolerances unless otherwise stated: Dimension: ± 0.05 Angle: $\pm 1^\circ$	Revision: 1 Revision date: 7/26/2018
SOT1211-3		 Third angle projection	Sheet 2 of 2

Fig 17. Package outline SOT1211-3 (sheet 2 of 2)

SOT1212-3

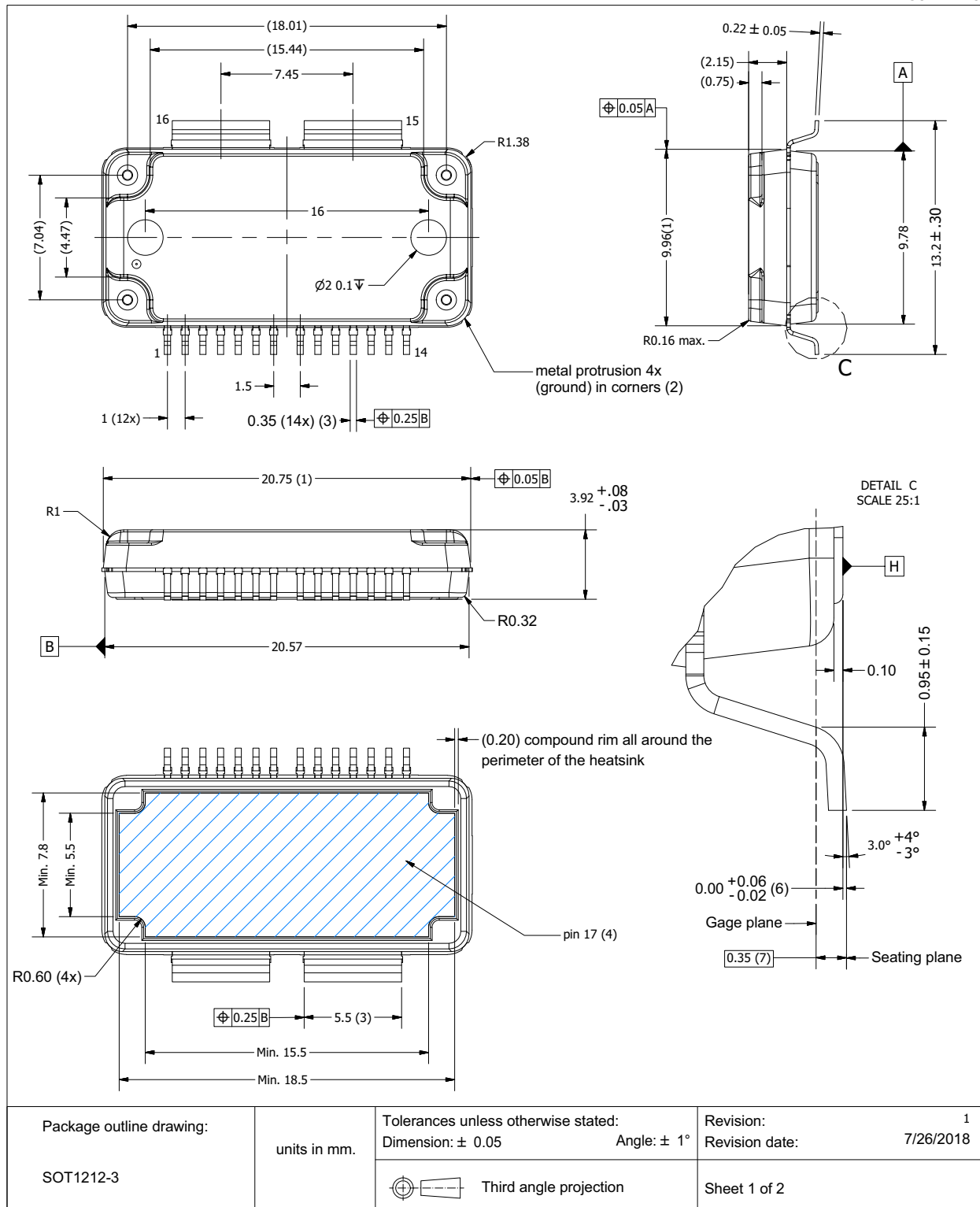
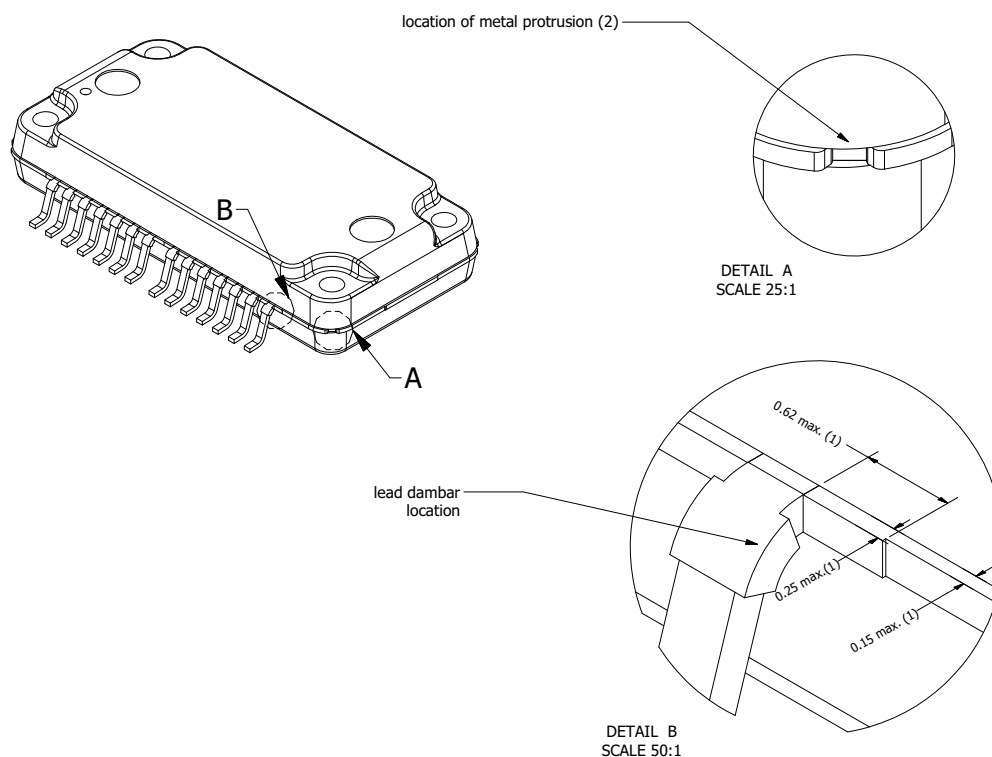


Fig 18. Package outline SOT1212-3 (sheet 1 of 2)

SOT1212-3

Drawing Notes	
Items	Description
(1)	Dimensions are excluding mold protrusion. Areas located adjacent to the leads have a maximum mold protrusion of 0.25 mm (per side) and 0.62 mm max. in length. In between the 14 leads the protrusion is 0.25 mm max. At all other areas the mold protrusion is maximum 0.15 mm per side. See also detail B.
(2)	The metal protrusion (tie bars) in the corner will not stick out of the molding compound protrusions (detail A).
(3)	The lead dambar (metal) protrusions are not included. Add 0.14 mm max to the total lead dimension at the dambar location.
(4)	The hatched area indicated the exposed heatsink.
(5)	The leads and exposed heatsink are plated with matte Tin (Sn).
(6)	Dimension is measured with respect to the bottom of the heatsink Datum H. Positive value means that the bottom of the heatsink is higher than the bottom of the lead.
(7)	Gage plane (foot length) to be measured from the seating plane.



Package outline drawing:	units in mm.	Tolerances unless otherwise stated: Dimension: ± 0.05 Angle: $\pm 1^\circ$	Revision: 1 Revision date: 7/26/2018
SOT1212-3		 Third angle projection	Sheet 2 of 2

Fig 19. Package outline SOT1212-3 (sheet 2 of 2)

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.

Table 11. ESD sensitivity

ESD model	Class
Charged Device Model (CDM); According to ANSI/ESDA/JEDEC standard JS-002	C0B [1]
Human Body Model (HBM); According to ANSI/ESDA/JEDEC standard JS-001	1B [2]

[1] CDM classification C0B is granted to any part that passes after exposure to an ESD pulse of 125 V.

[2] HBM classification 1B is granted to any part that passes after exposure to an ESD pulse of 500 V.

11. Abbreviations

Table 12. 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
RoHS	Restriction of Hazardous Substances
VSWR	Voltage Standing Wave Ratio
W-CDMA	Wideband Code Division Multiple Access

12. Revision history

Table 13. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BLM8G0710S-15PB_S-15PBG v.5	20180928	Product data sheet	-	BLM8G0710S-15PB_S-15PBG v.4
Modifications	Section 9 on page 14: package outline versions updated			
BLM8G0710S-15PB_S-15PBG v.4	20180418	Product data sheet	-	BLM8G0710S-15PB_S-15PBG v.3
BLM8G0710S-15PB_S-15PBG v.3	20150909	Product data sheet	-	BLM8G0710S-15PB_S-15PBG#2
BLM8G0710S-15PB_S-15PBG#2	20150901	Product data sheet	-	BLM8G0710S-15PB_S-15PBG v.2
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 ^{[1][2]}	Product status ^[3]	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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