

# BF1214

## Dual N-channel dual gate MOSFET

Rev. 01 — 30 October 2007

Product data sheet

## 1. Product profile

### 1.1 General description

The BF1214 is a combination of two dual gate MOSFET amplifiers with shared source and gate2 leads.

The source and substrate are interconnected. Internal bias circuits enable DC stabilization and a very good cross modulation performance during AGC. Integrated diodes between the gates and source protect against excessive input voltage surges. The transistor has a SOT363 micro-miniature plastic package.

#### CAUTION



This device is sensitive to ElectroStatic Discharge (ESD). Therefore care should be taken during transport and handling.

### 1.2 Features

- Two low noise gain controlled amplifiers in a single package; both with a partly integrated bias
- Superior cross modulation performance during AGC
- High forward transfer admittance
- High forward transfer admittance to input capacitance ratio
- Both amplifiers optimized for VHF applications, yet suitable for VHF and UHF applications

### 1.3 Applications

- Gain controlled low noise amplifiers for VHF and UHF applications with 5 V supply voltage
  - ◆ digital and analog television tuners
  - ◆ professional communication equipment

**1.4 Quick reference data**

**Table 1. Quick reference data for amplifier A and B**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{DS}$	drain-source voltage	DC	-	-	6	V
$I_D$	drain current	DC	-	-	30	mA
$P_{tot}$	total power dissipation	$T_{sp} \leq 107\text{ }^\circ\text{C}$	[1]	-	180	mW
$ y_{fs} $	forward transfer admittance	$f = 100\text{ MHz}; T_j = 25\text{ }^\circ\text{C}; I_D = 18\text{ mA}$	27	32	37	mS
$C_{iss(G1)}$	input capacitance at gate1	$f = 100\text{ MHz}$	[2]	-	2.2	2.7 pF
$C_{rss}$	reverse transfer capacitance	$f = 100\text{ MHz}$	[2]	-	20	fF
NF	noise figure	$f = 400\text{ MHz}; Y_S = Y_{S(opt)}$	-	0.9	1.5	dB
		$f = 800\text{ MHz}; Y_S = Y_{S(opt)}$	-	1.2	1.8	dB
Xmod	cross modulation	input level for $k = 1\%$ at 40 dB AGC; $f_w = 50\text{ MHz}; f_{unw} = 60\text{ MHz}$	[3]	102	105	- dB $\mu$ V
$T_j$	junction temperature		-	-	150	$^\circ\text{C}$

[1]  $T_{sp}$  is the temperature at the soldering point of the source lead.

[2] Calculated from S-parameters.

[3] Measured in [Figure 24](#) test circuit.

**2. Pinning information**

**Table 2. Discrete pinning**

Pin	Description	Simplified outline	Symbol
1	drain (AMP A)		
2	source		
3	drain (AMP B)		
4	gate1 (AMP B)		
5	gate2		
6	gate1 (AMP A)		

**3. Ordering information**

**Table 3. Ordering information**

Type number	Package		Version
	Name	Description	
BF1214	-	plastic surface-mounted package; 6 leads	SOT363

## 4. Marking

**Table 4. Marking**

Type number	Marking	Description
BF1214	SB*	* = p : made in Hong Kong * = t : made in Malaysia * = w : made in China

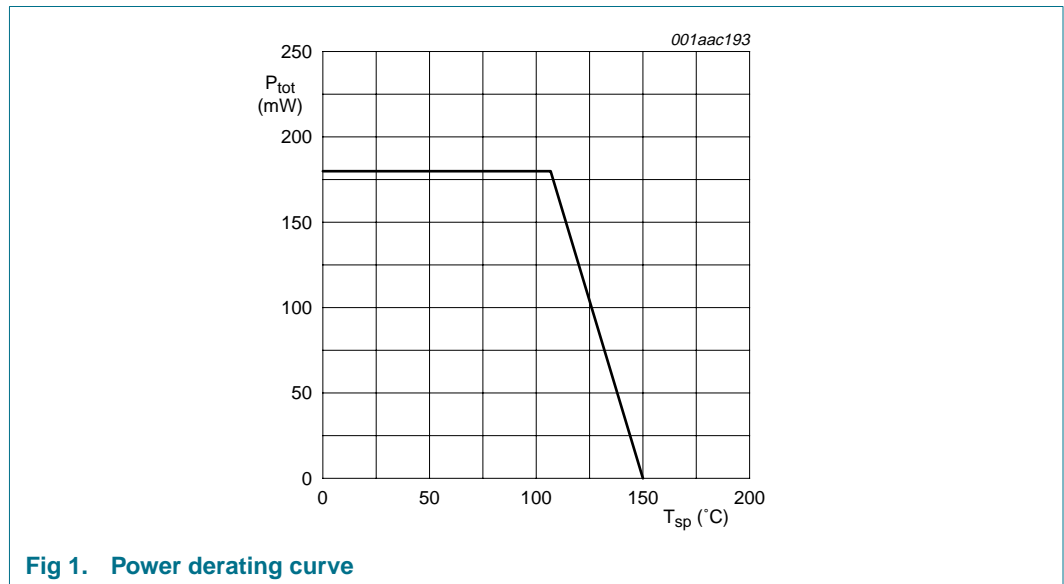
## 5. Limiting values

**Table 5. Limiting values**

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

Symbol	Parameter	Conditions	Min	Max	Unit
<b>Per MOSFET</b>					
$V_{DS}$	drain-source voltage	DC	-	6	V
$I_D$	drain current	DC	-	30	mA
$I_{G1}$	gate1 current		-	±10	mA
$I_{G2}$	gate2 current		-	±10	mA
$P_{tot}$	total power dissipation	$T_{sp} \leq 107\text{ °C}$ [1]	-	180	mW
$T_{stg}$	storage temperature		-65	+150	°C
$T_j$	junction temperature		-	150	°C

[1]  $T_{sp}$  is the temperature at the soldering point of the source lead.



**Fig 1. Power derating curve**

## 6. Thermal characteristics

**Table 6. Thermal characteristics**

Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-sp)}$	thermal resistance from junction to solder point		240	K/W

## 7. Static characteristics

**Table 7. Static characteristics**

$T_j = 25\text{ }^\circ\text{C}$ .

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Per MOSFET; unless otherwise specified</b>						
$V_{(BR)DSS}$	drain-source breakdown voltage	$V_{G1-S} = V_{G2-S} = 0\text{ V}; I_D = 10\text{ }\mu\text{A}$				
		amplifier A	6	-	-	V
		amplifier B	6	-	-	V
$V_{(BR)G1-SS}$	gate1-source breakdown voltage	$V_{G2-S} = V_{DS} = 0\text{ V}; I_{G1-S} = 10\text{ mA}$	6	-	10	V
$V_{(BR)G2-SS}$	gate2-source breakdown voltage	$V_{G1-S} = V_{DS} = 0\text{ V}; I_{G2-S} = 10\text{ mA}$	6	-	10	V
$V_{F(S-G1)}$	forward source-gate1 voltage	$V_{G2-S} = V_{DS} = 0\text{ V}; I_{S-G1} = 10\text{ mA}$	0.5	-	1.5	V
$V_{F(S-G2)}$	forward source-gate2 voltage	$V_{G1-S} = V_{DS} = 0\text{ V}; I_{S-G2} = 10\text{ mA}$	0.5	-	1.5	V
$V_{G1-S(th)}$	gate1-source threshold voltage	$V_{DS} = 5\text{ V}; V_{G2-S} = 4\text{ V}; I_D = 100\text{ }\mu\text{A}$	0.3	-	1.0	V
$V_{G2-S(th)}$	gate2-source threshold voltage	$V_{DS} = 5\text{ V}; V_{G1-S} = 5\text{ V}; I_D = 100\text{ }\mu\text{A}$	0.4	-	1.0	V
$I_{DS}$	drain-source current	$V_{G2-S} = 4\text{ V}$	[1]			
		amplifier A; $V_{DS(A)} = 5\text{ V}; R_{G1(A)} = 68\text{ k}\Omega$	13	-	23	mA
		amplifier B; $V_{DS(B)} = 5\text{ V}; R_{G1(B)} = 68\text{ k}\Omega$	13	-	23	mA
$I_{G1-S}$	gate1 cut-off current	$V_{G2-S} = 0\text{ V}; V_{DS(A)} = V_{DS(B)} = 0\text{ V}$				
		amplifier A; $V_{G1-S(A)} = 5\text{ V}$	-	-	50	nA
		amplifier B; $V_{G1-S(B)} = 5\text{ V}$	-	-	50	nA
$I_{G2-S}$	gate2 cut-off current	$V_{G2-S} = 4\text{ V}; V_{DS(A)} = V_{DS(B)} = 0\text{ V}; V_{G1-S(A)} = V_{G1-S(B)} = 0\text{ V}$	-	-	20	nA

[1]  $R_{G1}$  connects gate1 to  $V_{GG} = 5\text{ V}$ .

## 8. Dynamic characteristics

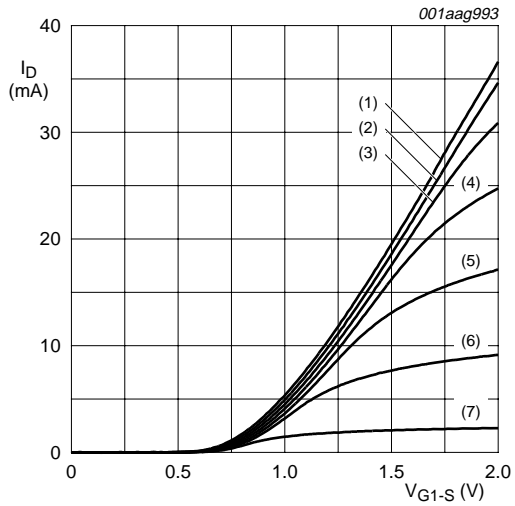
**Table 8. Dynamic characteristics for amplifier A and B**  
*Common source;  $T_{amb} = 25\text{ °C}$ ;  $V_{G2-S} = 4\text{ V}$ ;  $V_{DS} = 5\text{ V}$ ;  $I_D = 18\text{ mA}$ .*

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$ y_{fs} $	forward transfer admittance	$f = 100\text{ MHz}$ ; $T_j = 25\text{ °C}$	27	32	37	mS
$C_{iss(G1)}$	input capacitance at gate1	$f = 100\text{ MHz}$	[1] -	2.2	2.7	pF
$C_{iss(G2)}$	input capacitance at gate2	$f = 100\text{ MHz}$	[1] -	3.5	-	pF
$C_{oss}$	output capacitance	$f = 100\text{ MHz}$	[1] -	0.8	-	pF
$C_{rss}$	reverse transfer capacitance	$f = 100\text{ MHz}$	[1] -	20	-	fF
$G_{tr}$	transducer power gain	amplifier A; $B_S = B_{S(opt)}$ ; $B_L = B_{L(opt)}$	[1]			
		$f = 200\text{ MHz}$ ; $G_S = 2\text{ mS}$ ; $G_L = 0.5\text{ mS}$	31	35	39	dB
		$f = 400\text{ MHz}$ ; $G_S = 2\text{ mS}$ ; $G_L = 1\text{ mS}$	27	31	35	dB
		$f = 800\text{ MHz}$ ; $G_S = 3.3\text{ mS}$ ; $G_L = 1\text{ mS}$	22	26	30	dB
		amplifier B; $B_S = B_{S(opt)}$ ; $B_L = B_{L(opt)}$	[1]			
		$f = 200\text{ MHz}$ ; $G_S = 2\text{ mS}$ ; $G_L = 0.5\text{ mS}$	31	35	39	dB
		$f = 400\text{ MHz}$ ; $G_S = 2\text{ mS}$ ; $G_L = 1\text{ mS}$	29	33	37	dB
NF	noise figure	$f = 11\text{ MHz}$ ; $G_S = 20\text{ mS}$ ; $B_S = 0\text{ S}$	-	3.0	-	dB
		$f = 400\text{ MHz}$ ; $Y_S = Y_{S(opt)}$	-	0.9	1.5	dB
		$f = 800\text{ MHz}$ ; $Y_S = Y_{S(opt)}$	-	1.2	1.8	dB
Xmod	cross modulation	input level for $k = 1\%$ ; $f_w = 50\text{ MHz}$ ; $f_{unw} = 60\text{ MHz}$	[2]			
		at 0 dB AGC	90	-	-	dB $\mu$ V
		at 10 dB AGC	-	94	-	dB $\mu$ V
		at 20 dB AGC	-	99	-	dB $\mu$ V
		at 40 dB AGC	102	105	-	dB $\mu$ V

[1] Calculated from S-parameters.

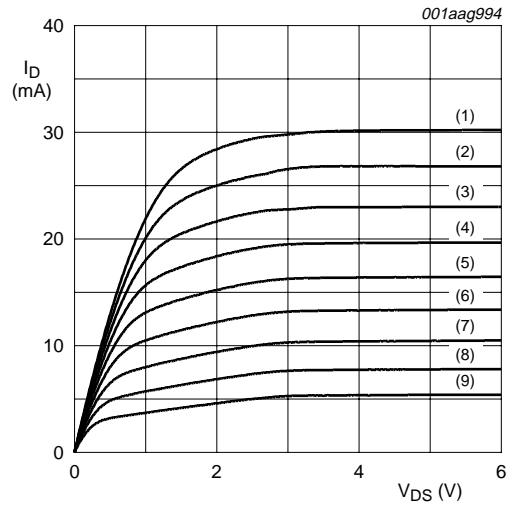
[2] Measured in [Figure 24](#) test circuit.

**8.1 Graphs for amplifier A and B**



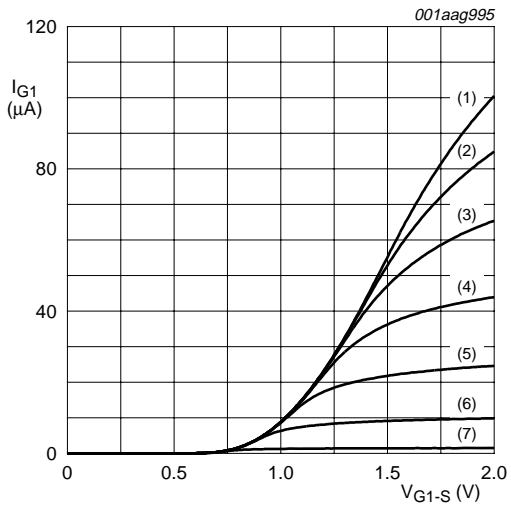
- (1)  $V_{G2-S} = 4.0 \text{ V}$ .
  - (2)  $V_{G2-S} = 3.5 \text{ V}$ .
  - (3)  $V_{G2-S} = 3.0 \text{ V}$ .
  - (4)  $V_{G2-S} = 2.5 \text{ V}$ .
  - (5)  $V_{G2-S} = 2.0 \text{ V}$ .
  - (6)  $V_{G2-S} = 1.5 \text{ V}$ .
  - (7)  $V_{G2-S} = 1.0 \text{ V}$ .
- $V_{DS} = 5 \text{ V}; T_j = 25 \text{ }^\circ\text{C}$ .

**Fig 2. Transfer characteristics; typical values**



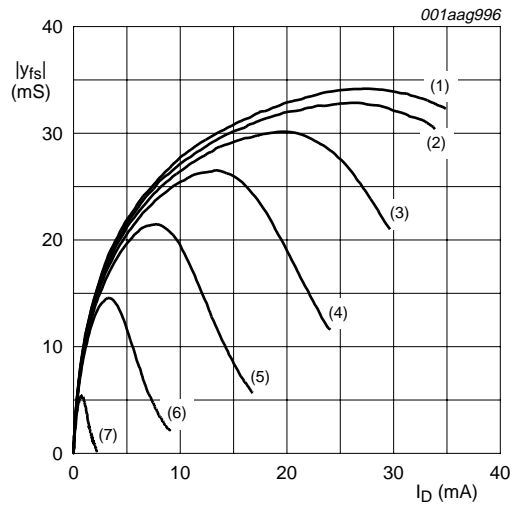
- (1)  $V_{G1-S} = 1.8 \text{ V}$ .
  - (2)  $V_{G1-S} = 1.7 \text{ V}$ .
  - (3)  $V_{G1-S} = 1.6 \text{ V}$ .
  - (4)  $V_{G1-S} = 1.5 \text{ V}$ .
  - (5)  $V_{G1-S} = 1.4 \text{ V}$ .
  - (6)  $V_{G1-S} = 1.3 \text{ V}$ .
  - (7)  $V_{G1-S} = 1.2 \text{ V}$ .
  - (8)  $V_{G1-S} = 1.1 \text{ V}$ .
  - (9)  $V_{G1-S} = 1.0 \text{ V}$ .
- $V_{G2-S} = 4 \text{ V}; T_j = 25 \text{ }^\circ\text{C}$ .

**Fig 3. Output characteristics; typical values**



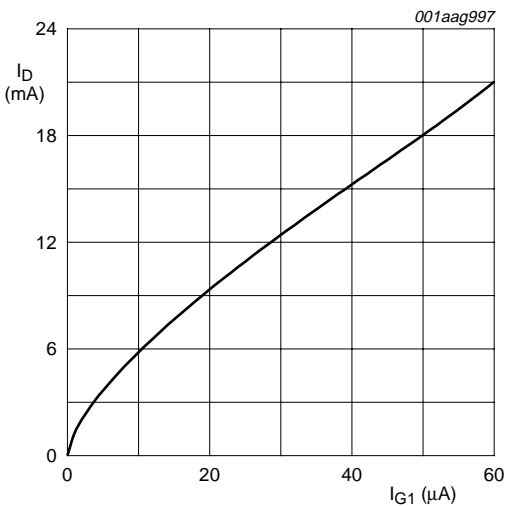
- (1)  $V_{G2-S} = 4.0 \text{ V}$ .
  - (2)  $V_{G2-S} = 3.5 \text{ V}$ .
  - (3)  $V_{G2-S} = 3.0 \text{ V}$ .
  - (4)  $V_{G2-S} = 2.5 \text{ V}$ .
  - (5)  $V_{G2-S} = 2.0 \text{ V}$ .
  - (6)  $V_{G2-S} = 1.5 \text{ V}$ .
  - (7)  $V_{G2-S} = 1.0 \text{ V}$ .
- $V_{DS} = 5 \text{ V}; T_j = 25 \text{ }^\circ\text{C}$ .

**Fig 4. Gate1 current as a function of gate1 voltage; typical values**



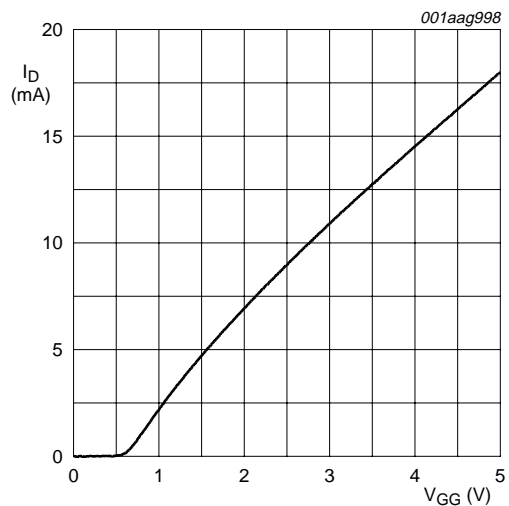
- (1)  $V_{G2-S} = 4.0 \text{ V}$ .
  - (2)  $V_{G2-S} = 3.5 \text{ V}$ .
  - (3)  $V_{G2-S} = 3.0 \text{ V}$ .
  - (4)  $V_{G2-S} = 2.5 \text{ V}$ .
  - (5)  $V_{G2-S} = 2.0 \text{ V}$ .
  - (6)  $V_{G2-S} = 1.5 \text{ V}$ .
  - (7)  $V_{G2-S} = 1.0 \text{ V}$ .
- $V_{DS} = 5 \text{ V}; T_j = 25 \text{ }^\circ\text{C}$ .

**Fig 5. Forward transfer admittance as a function of drain current; typical values**



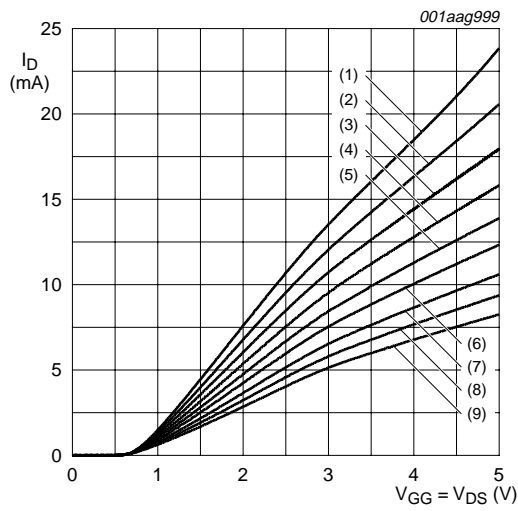
$V_{DS} = 5 \text{ V}; V_{G2-S} = 4 \text{ V}; T_j = 25 \text{ }^\circ\text{C}$ .

**Fig 6. Drain current as a function of gate1 current; typical values**



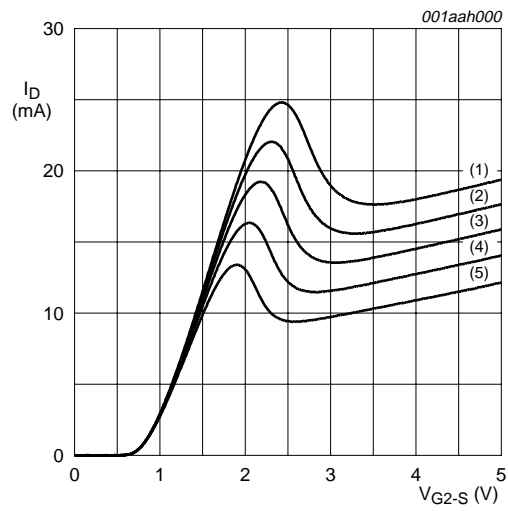
$V_{DS} = 5 \text{ V}; V_{G2-S} = 4 \text{ V}; R_{G1} = 68 \text{ k}\Omega; T_j = 25 \text{ }^\circ\text{C}$ .

**Fig 7. Drain current as a function of gate1 supply voltage ( $V_{GG}$ ); typical values**



- (1)  $R_{G1} = 47 \text{ k}\Omega$ .
  - (2)  $R_{G1} = 56 \text{ k}\Omega$ .
  - (3)  $R_{G1} = 68 \text{ k}\Omega$ .
  - (4)  $R_{G1} = 82 \text{ k}\Omega$ .
  - (5)  $R_{G1} = 100 \text{ k}\Omega$ .
  - (6)  $R_{G1} = 120 \text{ k}\Omega$ .
  - (7)  $R_{G1} = 150 \text{ k}\Omega$ .
  - (8)  $R_{G1} = 180 \text{ k}\Omega$ .
  - (9)  $R_{G1} = 220 \text{ k}\Omega$ .
- $V_{G2-S} = 4 \text{ V}$ ;  $T_j = 25 \text{ }^\circ\text{C}$ .

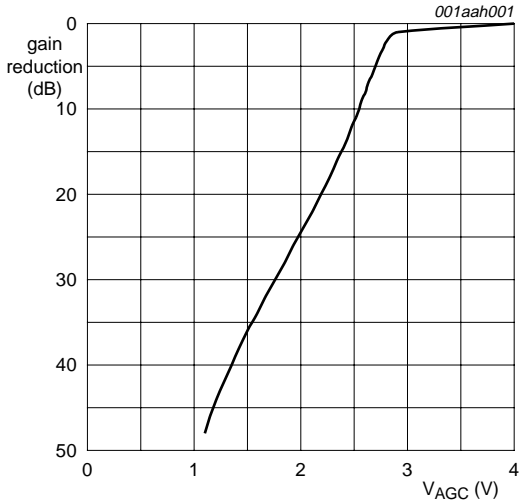
**Fig 8. Drain current as a function of  $V_{DS}$  and  $V_{GG}$ ; typical values**



- (1)  $V_{GG} = 5.0 \text{ V}$ .
  - (2)  $V_{GG} = 4.5 \text{ V}$ .
  - (3)  $V_{GG} = 4.0 \text{ V}$ .
  - (4)  $V_{GG} = 3.5 \text{ V}$ .
  - (5)  $V_{GG} = 3.0 \text{ V}$ .
- $T_j = 25 \text{ }^\circ\text{C}$ ;  $R_{G1} = 68 \text{ k}\Omega$  (connected to  $V_{GG}$ ).

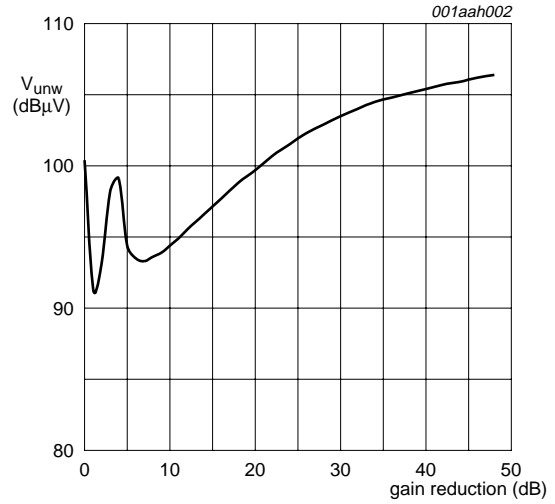
**Fig 9. Drain current as a function of gate2 voltage; typical values**

8.2 Graphs for amplifier A



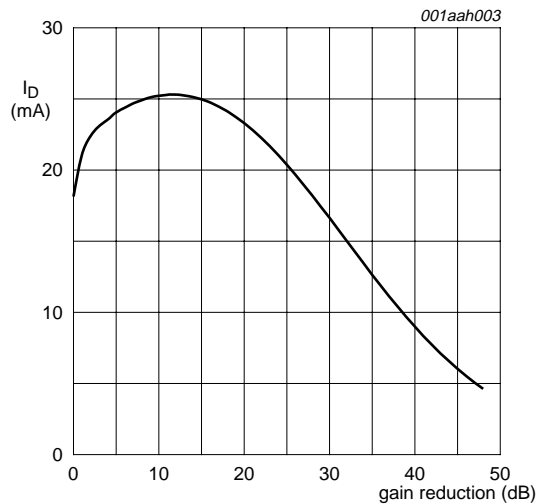
$V_{DS(A)} = 5\text{ V}; V_{GG} = 5\text{ V}; I_{D(nom)(A)} = 18\text{ mA};$   
 $R_{G1(A)} = 68\text{ k}\Omega; f_w = 50\text{ MHz}; T_{amb} = 25\text{ }^\circ\text{C};$   
 see [Figure 24](#).

Fig 10. Amplifier A: typical gain reduction as a function of the AGC voltage; typical values



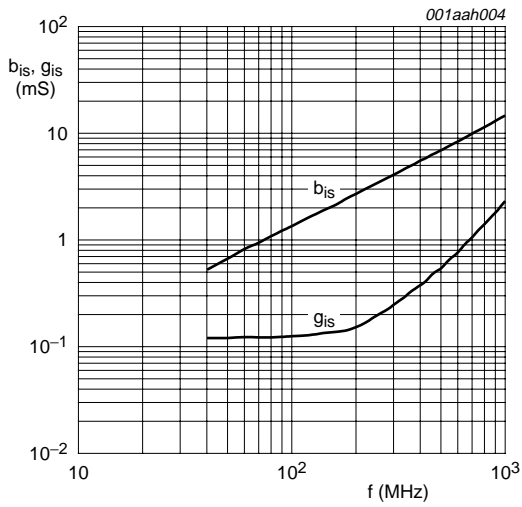
$V_{DS(A)} = 5\text{ V}; V_{GG} = 5\text{ V}; V_{G2-S(nom)} = 4\text{ V};$   
 $R_{G1(A)} = 68\text{ k}\Omega; f_w = 50\text{ MHz}; f_{unw} = 60\text{ MHz};$   
 $I_{D(nom)(A)} = 18\text{ mA}; T_{amb} = 25\text{ }^\circ\text{C};$  see [Figure 24](#).

Fig 11. Amplifier A: unwanted voltage for 1% cross modulation as a function of gain reduction; typical values



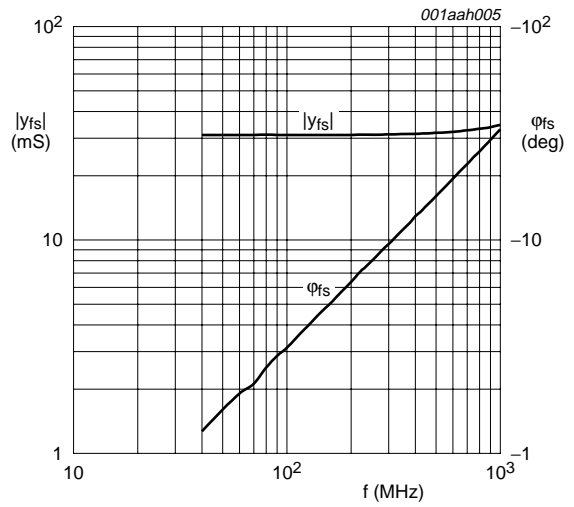
$V_{DS(A)} = 5\text{ V}; V_{GG} = 5\text{ V}; V_{G2-S(nom)} = 4\text{ V}; R_{G1(A)} = 68\text{ k}\Omega; f_w = 50\text{ MHz}; I_{D(nom)(A)} = 18\text{ mA}; T_{amb} = 25\text{ }^\circ\text{C};$  see [Figure 24](#).

Fig 12. Amplifier A: typical drain current as a function of gain reduction; typical values



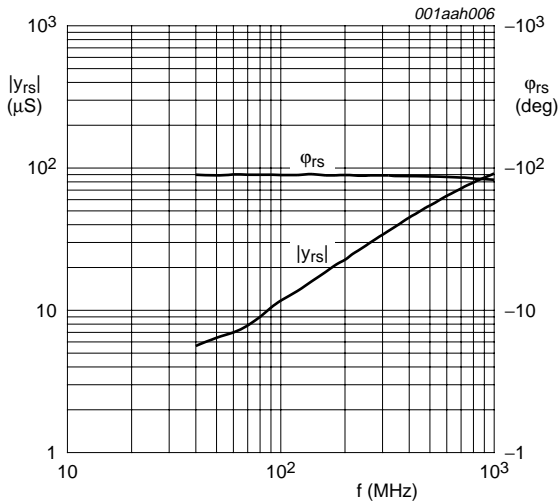
$V_{DS(A)} = 5\text{ V}; V_{G2-S} = 4\text{ V}; V_{DS(B)} = 0\text{ V};$   
 $I_{D(A)} = 18\text{ mA}.$

**Fig 13. Amplifier A: input admittance as a function of frequency; typical values**



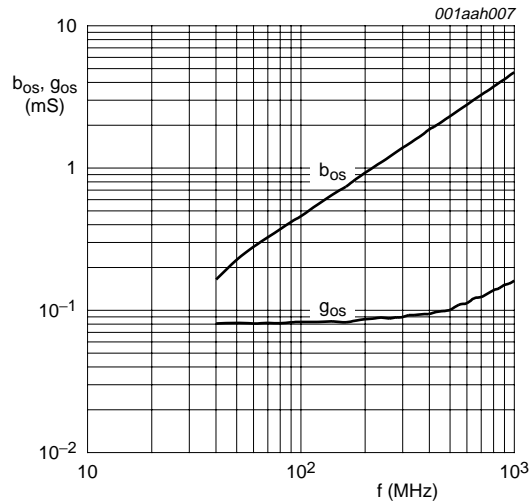
$V_{DS(A)} = 5\text{ V}; V_{G2-S} = 4\text{ V}; V_{DS(B)} = 0\text{ V};$   
 $I_{D(A)} = 18\text{ mA}.$

**Fig 14. Amplifier A: forward transfer admittance and phase as a function of frequency; typical values**



$V_{DS(A)} = 5\text{ V}; V_{G2-S} = 4\text{ V}; V_{DS(B)} = 0\text{ V};$   
 $I_{D(A)} = 18\text{ mA}.$

**Fig 15. Amplifier A: reverse transfer admittance and phase as a function of frequency; typical values**



$V_{DS(A)} = 5\text{ V}; V_{G2-S} = 4\text{ V}; V_{DS(B)} = 0\text{ V};$   
 $I_{D(A)} = 18\text{ mA}.$

**Fig 16. Amplifier A: output admittance as a function of frequency; typical values**

### 8.2.1 Scattering parameters for amplifier A

**Table 9. Scattering parameters for amplifier A**

$V_{DS(A)} = 5\text{ V}$ ;  $V_{G2-S} = 4\text{ V}$ ;  $I_{D(A)} = 18\text{ mA}$ ;  $V_{DS(B)} = 0\text{ V}$ ;  $V_{G1-S(B)} = 0\text{ V}$ ;  $T_{amb} = 25\text{ °C}$ ; typical values.

f (MHz)	S <sub>11</sub>		S <sub>21</sub>		S <sub>12</sub>		S <sub>22</sub>	
	Magnitude (ratio)	Angle (deg)	Magnitude (ratio)	Angle (deg)	Magnitude (ratio)	Angle (deg)	Magnitude (ratio)	Angle (deg)
40	0.9877	-3.07	3.07	176.73	0.0006	88.01	0.9902	-1.00
100	0.9888	-7.81	3.07	171.67	0.0012	85.54	0.9918	-2.74
200	0.9852	-15.61	3.04	163.23	0.0022	80.05	0.9910	-5.50
300	0.9766	-23.41	3.00	154.91	0.0033	75.66	0.9896	-8.22
400	0.9643	-31.14	2.95	146.63	0.0042	71.57	0.9881	-10.93
500	0.9504	-38.62	2.89	138.57	0.0050	67.10	0.9859	-13.61
600	0.9339	-45.96	2.82	130.61	0.0056	63.38	0.9836	-16.28
700	0.9151	-53.13	2.74	122.79	0.0061	59.74	0.9813	-18.96
800	0.8960	-60.18	2.66	115.17	0.0064	56.44	0.9790	-21.60
900	0.8766	-67.00	2.57	107.66	0.0065	53.53	0.9769	-24.20
1000	0.8564	-73.58	2.49	100.35	0.0066	50.29	0.9753	-26.88

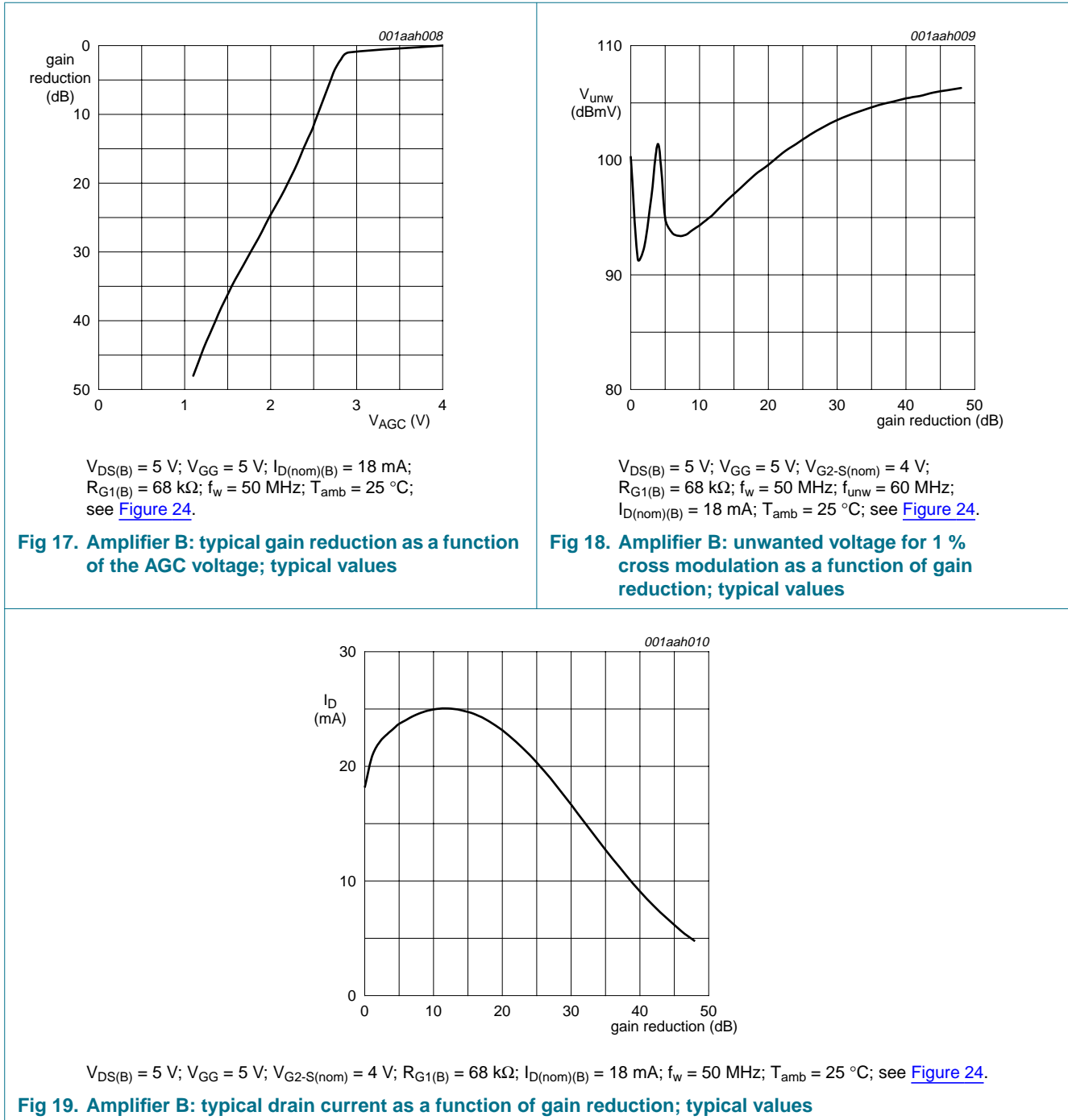
### 8.2.2 Noise data for amplifier A

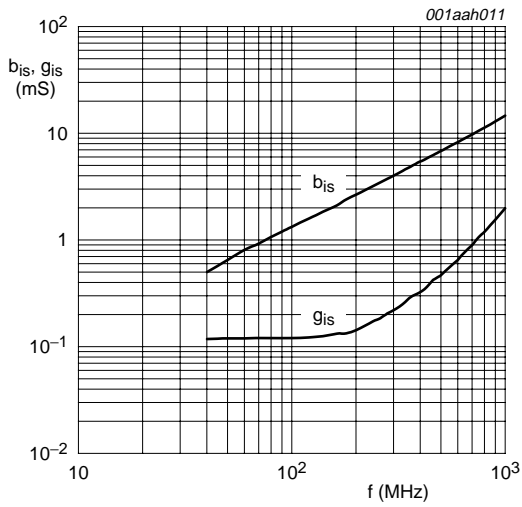
**Table 10. Noise data for amplifier A**

$V_{DS(A)} = 5\text{ V}$ ;  $V_{G2-S} = 4\text{ V}$ ;  $I_{D(A)} = 18\text{ mA}$ ;  $T_{amb} = 25\text{ °C}$ ; typical values.

f (MHz)	NF <sub>min</sub> (dB)	Γ <sub>opt</sub>		r <sub>n</sub> (ratio)
		(ratio)	(deg)	
400	0.91	0.76	23.60	0.677
800	1.23	0.71	48.91	0.620

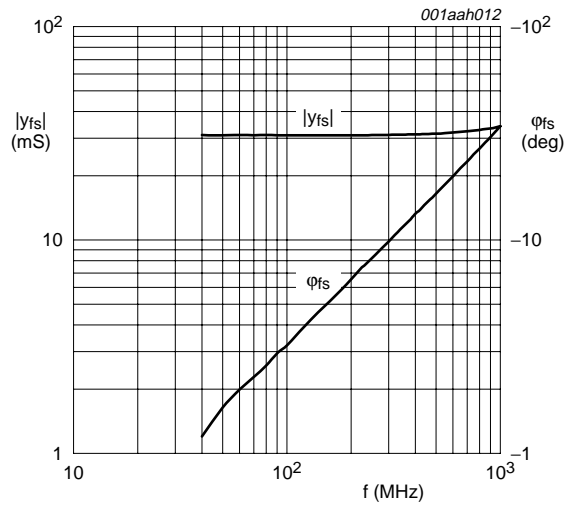
8.3 Graphs for amplifier B





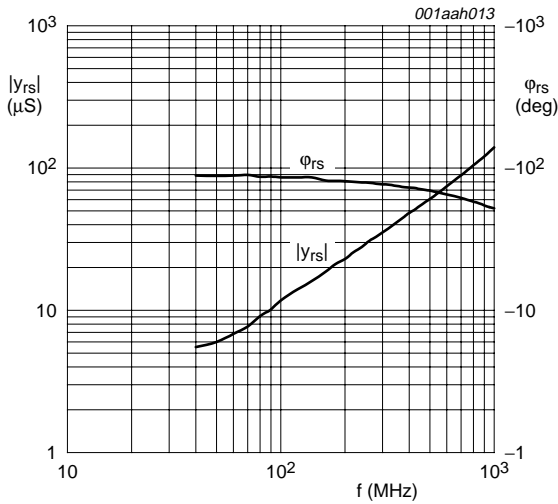
$V_{DS(B)} = 5\text{ V}; V_{G2-S} = 4\text{ V}; V_{DS(A)} = 0\text{ V};$   
 $I_{D(B)} = 18\text{ mA}.$

**Fig 20. Amplifier B: input admittance as a function of frequency; typical values**



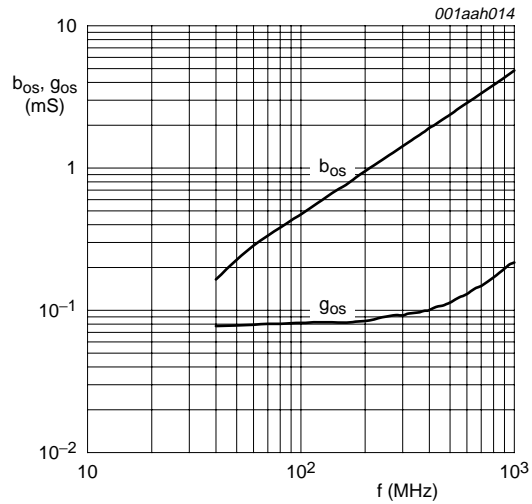
$V_{DS(B)} = 5\text{ V}; V_{G2-S} = 4\text{ V}; V_{DS(A)} = 0\text{ V};$   
 $I_{D(B)} = 18\text{ mA}.$

**Fig 21. Amplifier B: forward transfer admittance and phase as a function of frequency; typical values**



$V_{DS(B)} = 5\text{ V}; V_{G2-S} = 4\text{ V}; V_{DS(A)} = 0\text{ V};$   
 $I_{D(B)} = 18\text{ mA}.$

**Fig 22. Amplifier B: reverse transfer admittance and phase as a function of frequency; typical values**



$V_{DS(B)} = 5\text{ V}; V_{G2-S} = 4\text{ V}; V_{DS(A)} = 0\text{ V};$   
 $I_{D(B)} = 18\text{ mA}.$

**Fig 23. Amplifier B: output admittance as a function of frequency; typical values**

**8.3.1 Scattering parameters for amplifier B**

**Table 11. Scattering parameters for amplifier B**

$V_{DS(B)} = 5\text{ V}$ ;  $V_{G2-S} = 4\text{ V}$ ;  $I_{D(B)} = 18\text{ mA}$ ;  $V_{DS(A)} = 0\text{ V}$ ;  $V_{G1-S(A)} = 0\text{ V}$ ;  $T_{amb} = 25\text{ }^\circ\text{C}$ ; typical values.

f (MHz)	S <sub>11</sub>		S <sub>21</sub>		S <sub>12</sub>		S <sub>22</sub>	
	Magnitude (ratio)	Angle (deg)	Magnitude (ratio)	Angle (deg)	Magnitude (ratio)	Angle (deg)	Magnitude (ratio)	Angle (deg)
40	0.9836	-2.92	3.06	176.89	0.0005	89.71	0.9897	-0.98
100	0.9890	-7.68	3.06	171.63	0.0012	92.19	0.9920	-2.79
200	0.9869	-15.32	3.03	163.14	0.0023	88.94	0.9914	-5.62
300	0.9801	-23.00	2.99	154.74	0.0034	87.64	0.9902	-8.42
400	0.9704	-30.69	2.94	146.34	0.0045	86.52	0.9889	-11.21
500	0.9595	-38.13	2.88	138.13	0.0056	85.29	0.9869	-14.01
600	0.9458	-45.45	2.81	129.99	0.0066	84.60	0.9845	-16.81
700	0.9300	-52.67	2.73	121.93	0.0075	83.78	0.9818	-19.64
800	0.9132	-59.82	2.65	114.01	0.0085	82.86	0.9786	-22.44
900	0.8959	-66.74	2.56	106.18	0.0093	81.97	0.9750	-25.22
1000	0.8775	-73.43	2.47	98.51	0.0101	80.62	0.9717	-28.10

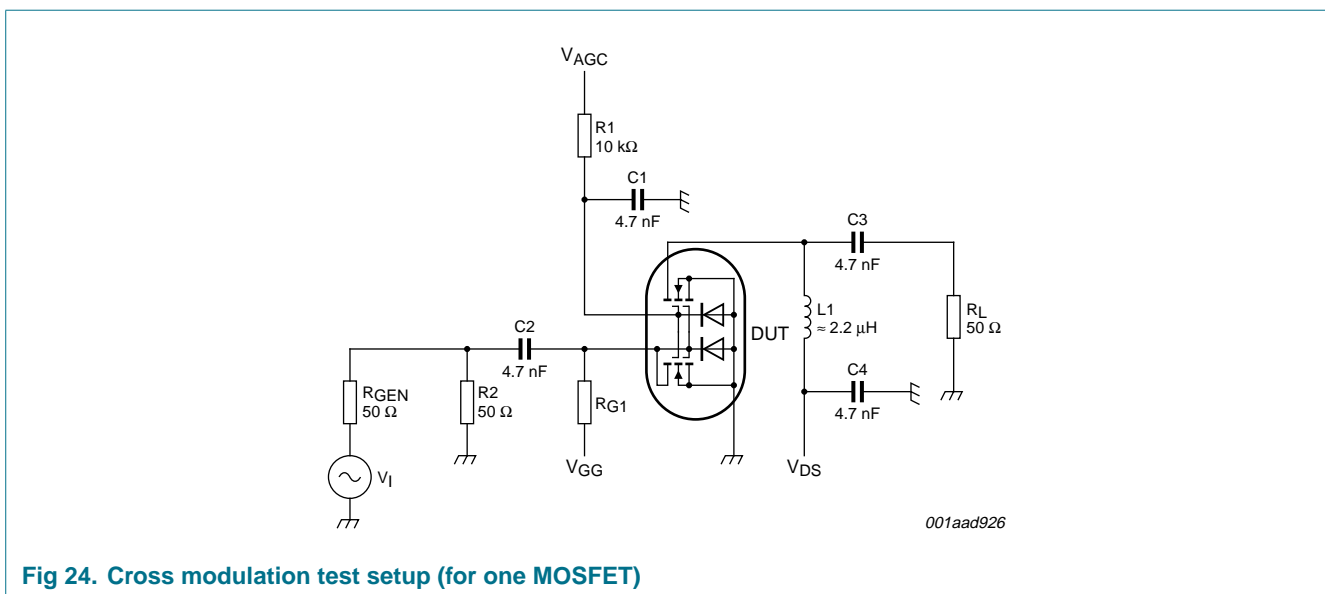
**8.3.2 Noise data for amplifier B**

**Table 12. Noise data for amplifier B**

$V_{DS(B)} = 5\text{ V}$ ;  $V_{G2-S} = 4\text{ V}$ ;  $I_{D(B)} = 18\text{ mA}$ ;  $T_{amb} = 25\text{ }^\circ\text{C}$ ; typical values.

f (MHz)	NF <sub>min</sub> (dB)	$\Gamma_{opt}$		r <sub>n</sub> (ratio)
		(ratio)	(deg)	
400	0.91	0.76	22.58	0.690
800	1.24	0.71	47.34	0.620

**9. Test information**



**Fig 24. Cross modulation test setup (for one MOSFET)**

**10. Package outline**

Plastic surface-mounted package; 6 leads

SOT363

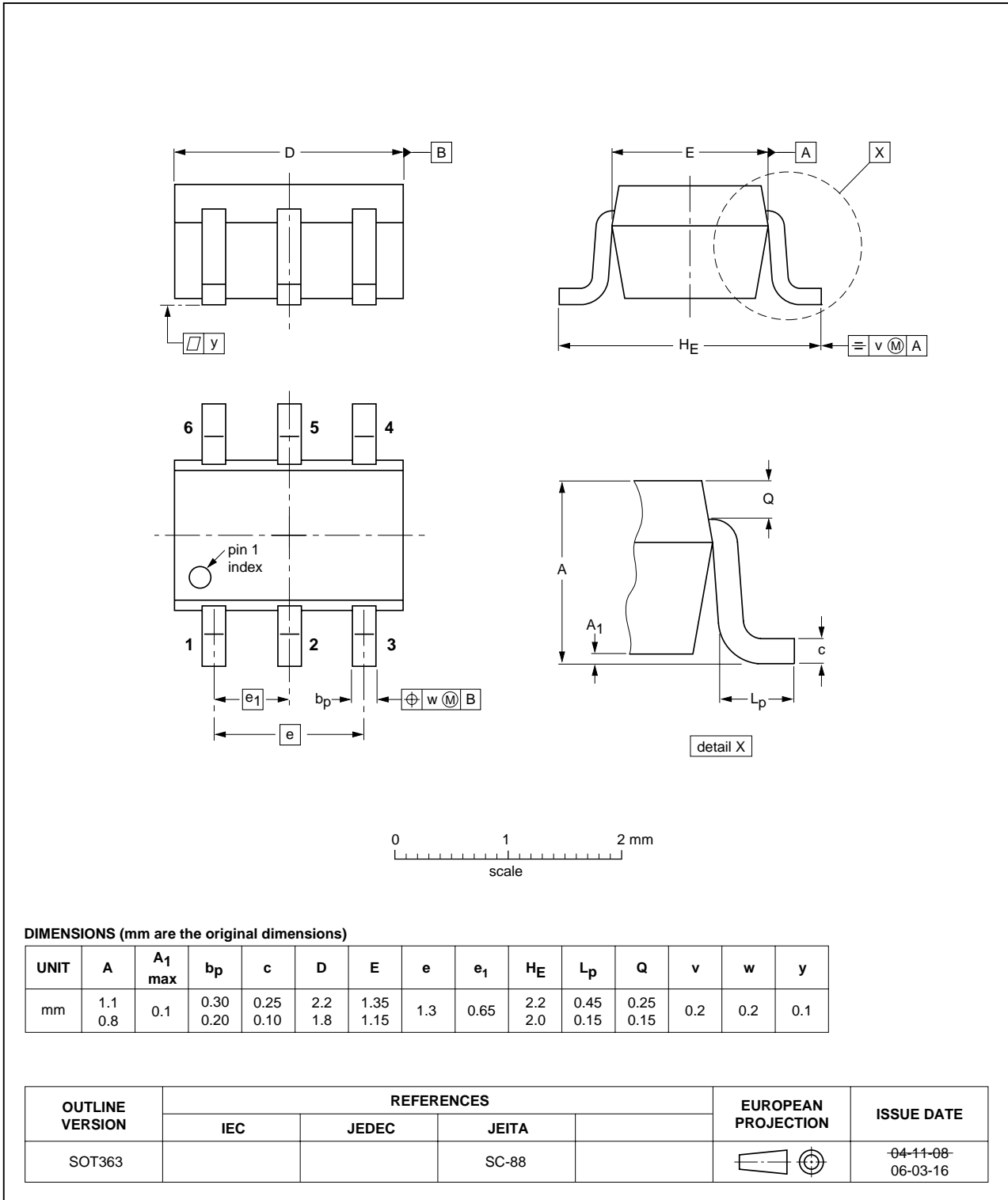


Fig 25. Package outline SOT363

## 11. Abbreviations

Table 13. Abbreviations

Acronym	Description
AGC	Automatic Gain Control
DC	Direct Current
MOSFET	Metal-Oxide-Semiconductor Field-Effect Transistor
UHF	Ultra High Frequency
VHF	Very High Frequency

## 12. Revision history

Table 14. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BF1214_1	20071030	Product 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".

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