

BF1206F

Dual N-channel dual gate MOSFET

Rev. 01 — 30 January 2006

Product data sheet

1. Product profile

1.1 General description

The BF1206F is a combination of two different dual gate MOSFET amplifiers with shared source and gate2 leads.

The source and substrate are interconnected. Internal bias circuits enable Direct Current (DC) stabilization and a very good cross-modulation performance during Automatic Gain Control (AGC). Integrated diodes between the gates and source protect against excessive input voltage surges. The transistor is encapsulated in a SOT666 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
- Superior cross-modulation performance during AGC
- High forward transfer admittance
- High forward transfer admittance to input capacitance ratio
- Suited for 3 volt applications

1.3 Applications

- Gain controlled low noise amplifiers for Very High Frequency (VHF) and Ultra High Frequency (UHF) applications with 3 V supply voltage, such as digital and analog television tuners

PHILIPS



1.4 Quick reference data

Table 1: Quick reference data
Per MOSFET unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{DS}	drain-source voltage (DC)		-	-	6	V
I_D	drain current (DC)		-	-	30	mA
$ y_{fs} $	forward transfer admittance	$I_D = 4\text{ mA}$				
		amplifier A	17	22	32	mS
		amplifier B	17	22	32	mS
$C_{iss(G1)}$	input capacitance at gate1	$I_D = 4\text{ mA}; f = 100\text{ MHz}$				
		amplifier A	-	2.4	2.9	pF
		amplifier B	-	1.7	2.2	pF
NF	noise figure	$I_D = 4\text{ mA}$				
		amplifier A; $f = 400\text{ MHz}$	-	1.0	1.6	dB
		amplifier B; $f = 800\text{ MHz}$	-	1.0	1.6	dB
Xmod	cross modulation	input level for $k = 1\%$ at 40 dB AGC				
		amplifier A	92	97	-	dB μ V
		amplifier B	93	98	-	dB μ V

2. Pinning information

Table 2: Discrete pinning

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

3. Ordering information

Table 3: Ordering information

Type number	Package		
	Name	Description	Version
BF1206F	-	plastic surface mounted package; 6 leads	SOT666



4. Marking

Table 4: Marking

Type number	Marking code
BF1206F	2N

5. Limiting values

Table 5: Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
Per MOSFET					
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 solder point of the source lead.

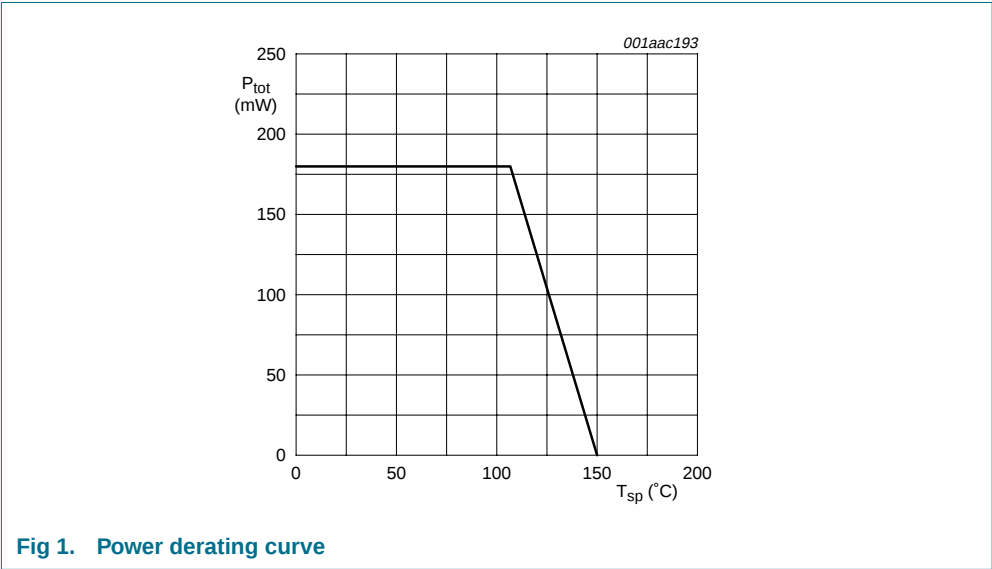


Fig 1. Power derating curve

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

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per MOSFET; unless otherwise specified						
$V_{(BR)DSS}$	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	$V_{GS} = V_{DS} = 0\text{ V}; I_{G1-S} = 10\text{ mA}$	6	-	10	V
$V_{(BR)G2-SS}$	gate2-source breakdown voltage	$V_{GS} = V_{DS} = 0\text{ V}; I_{G2-S} = 10\text{ mA}$	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	$V_{DS} = 5\text{ V}; V_{G1-S} = 5\text{ V}; I_D = 100\text{ }\mu\text{A}$	0.35	-	1.0	V
I_{DSX}	drain cut-off current	$V_{G2-S} = 2.5\text{ V}; V_{DS} = 2.8\text{ V}$ [1]				
		amplifier A; $R_{G1} = 270\text{ k}\Omega$	3	-	6.5	mA
		amplifier B; $R_{G1} = 220\text{ k}\Omega$	3	-	6.5	mA
I_{G1-S}	gate1 cut-off current	$V_{G1-S} = 5\text{ V}; V_{G2-S} = V_{DS} = 0\text{ V}$				
		amplifier A	-	-	50	nA
		amplifier B	-	-	50	nA
I_{G2-S}	gate2 cut-off current	$V_{G2-S} = 5\text{ V}; V_{G1-S} = V_{DS} = 0\text{ V};$	-	-	20	nA

[1] R_{G1} connects gate 1 to $V_{GG} = 2.8\text{ V}$.

8. Dynamic characteristics

8.1 Dynamic characteristics for amplifier A

Table 8: Dynamic characteristics for amplifier A

Common source; $T_{amb} = 25^\circ\text{C}$; $V_{G2-S} = 2.5\text{ V}$; $V_{DS} = 2.8\text{ V}$; $I_D = 4\text{ mA}$.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$ y_{fs} $	forward transfer admittance	$T_j = 25^\circ\text{C}$	17	22	32	mS
$C_{iss(G1)}$	input capacitance at gate1	$f = 100\text{ MHz}$	[1] -	2.4	2.9	pF
$C_{iss(G2)}$	input capacitance at gate2	$f = 100\text{ MHz}$	[1] -	3.2	-	pF
C_{oss}	output capacitance	$f = 100\text{ MHz}$	[1] -	1.1	-	pF
C_{rss}	reverse transfer capacitance	$f = 100\text{ MHz}$	[1] -	15	30	fF
G_{tr}	transducer power gain	$B_S = B_{S(opt)}; B_L = B_{L(opt)}$ [1]				
		$f = 200\text{ MHz}; G_S = 2\text{ mS}; G_L = 0.5\text{ mS}$	-	31	-	dB
		$f = 400\text{ MHz}; G_S = 2\text{ mS}; G_L = 1\text{ mS}$	-	28	-	dB
		$f = 800\text{ MHz}; G_S = 3.3\text{ mS}; G_L = 1\text{ mS}$	-	23	-	dB
NF	noise figure	$f = 11\text{ MHz}; G_S = 20\text{ mS}; B_S = 0$	-	3.5	-	dB
		$f = 400\text{ MHz}; Y_S = Y_{S(opt)}$	-	1.0	1.6	dB
		$f = 800\text{ MHz}; Y_S = Y_{S(opt)}$	-	1.1	1.7	dB

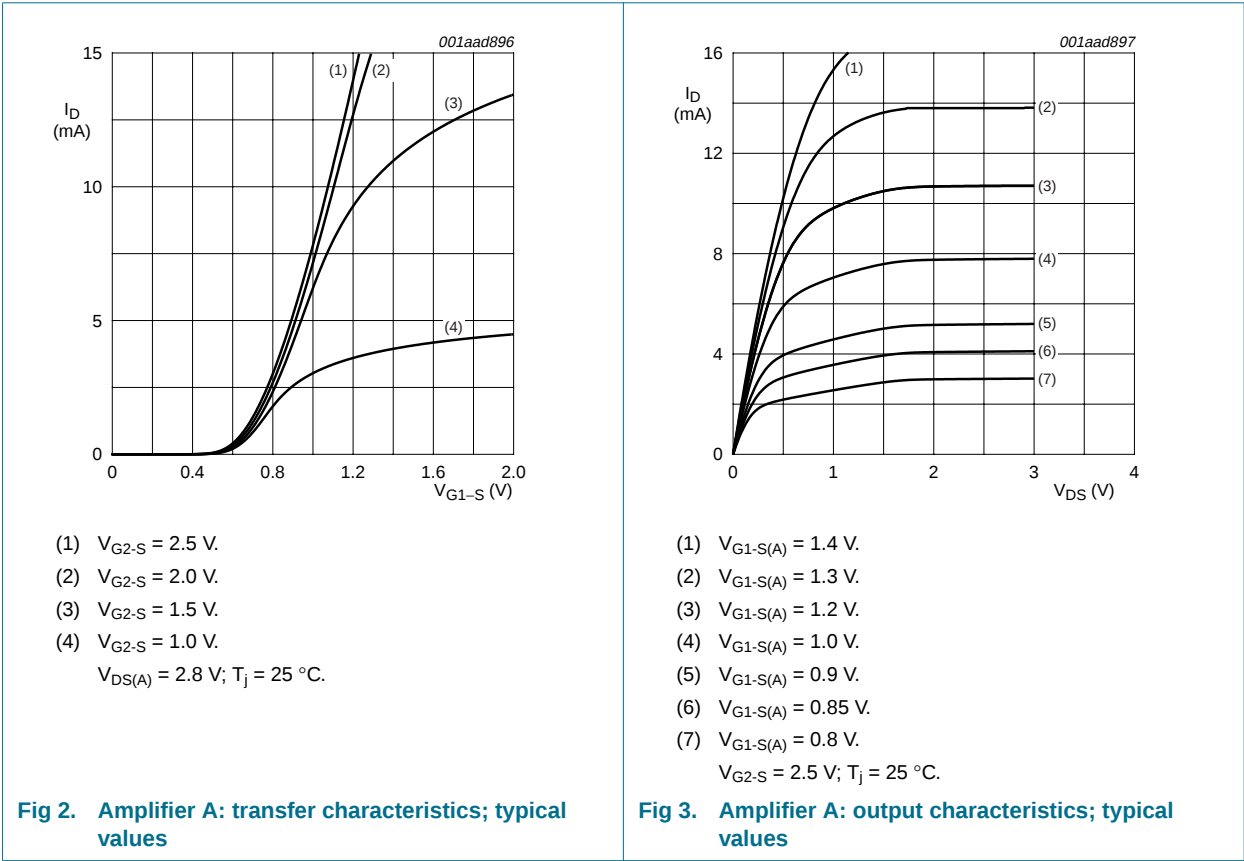
Table 8: Dynamic characteristics for amplifier A ...continued
Common source; $T_{amb} = 25\text{ }^{\circ}\text{C}$; $V_{G2-S} = 2.5\text{ V}$; $V_{DS} = 2.8\text{ V}$; $I_D = 4\text{ mA}$.

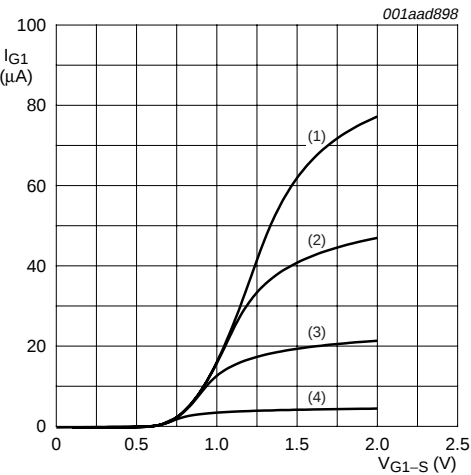
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Xmod	cross modulation	input level for $k = 1\text{ }\%$; $f_w = 50\text{ MHz}$; $f_{unw} = 60\text{ MHz}$	[2]			
		at 0 dB AGC	88	-	-	dB μ V
		at 10 dB AGC	-	85	-	dB μ V
		at 40 dB AGC	92	97	-	dB μ V

[1] Calculated from measured S-parameters.

[2] Measured in [Figure 32](#) test circuit.

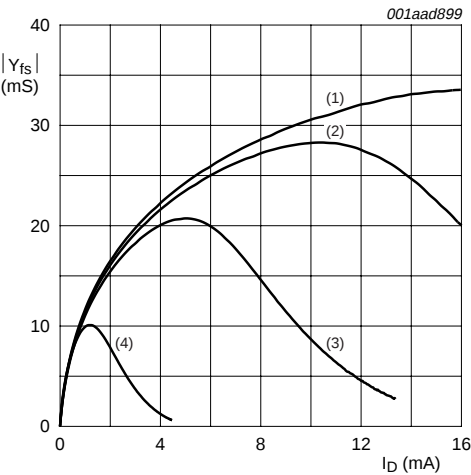
8.1.1 Graphs for amplifier A





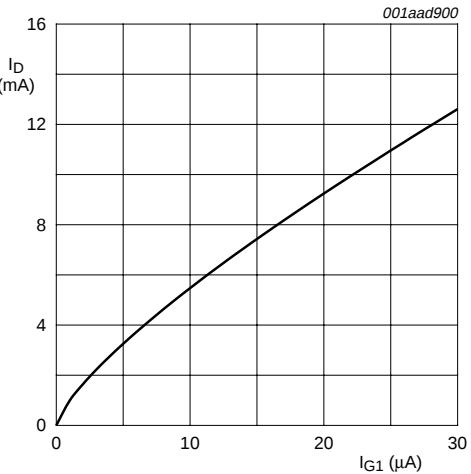
- (1) $V_{G2-S} = 2.5\text{ V}$.
 - (2) $V_{G2-S} = 2.0\text{ V}$.
 - (3) $V_{G2-S} = 1.5\text{ V}$.
 - (4) $V_{G2-S} = 1.0\text{ V}$.
- $V_{DS(A)} = 2.8\text{ V}$; $T_j = 25\text{ }^{\circ}\text{C}$.

Fig 4. Amplifier A: gate1 current as a function of gate1 voltage; typical values



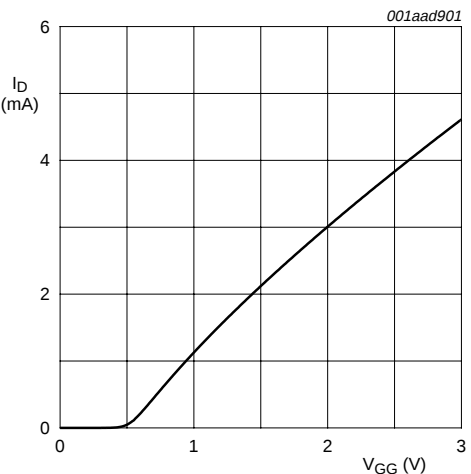
- (1) $V_{G2-S} = 2.5\text{ V}$.
 - (2) $V_{G2-S} = 2.0\text{ V}$.
 - (3) $V_{G2-S} = 1.5\text{ V}$.
 - (4) $V_{G2-S} = 1.0\text{ V}$.
- $V_{DS(A)} = 2.8\text{ V}$; $T_j = 25\text{ }^{\circ}\text{C}$.

Fig 5. Amplifier A: forward transfer admittance as a function of drain current; typical values



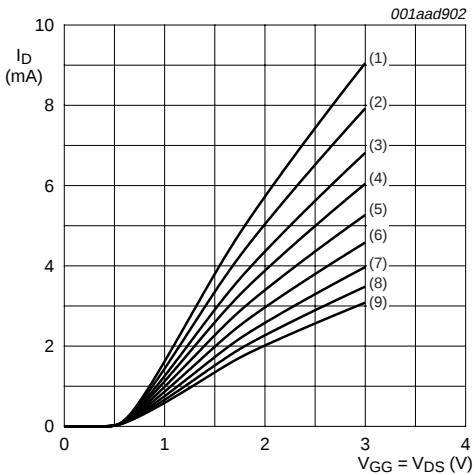
$V_{DS(A)} = 2.8\text{ V}$; $V_{G2-S} = 2.5\text{ V}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$.

Fig 6. Amplifier A: drain current as a function of gate1 current; typical values



$V_{DS(A)} = 2.8\text{ V}$; $V_{G2} = 2.5\text{ V}$; $R_{G1(A)} = 270\text{ k}\Omega$; see [Figure 32](#).

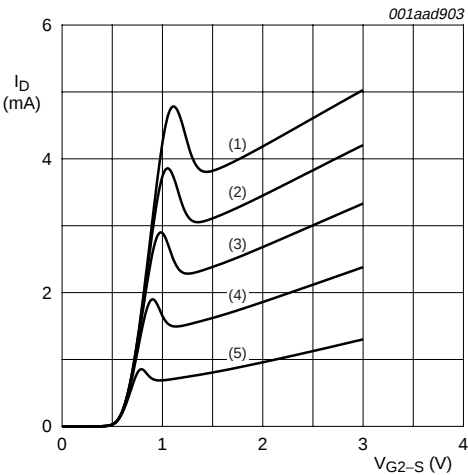
Fig 7. Amplifier A: drain current as a function of gate1 supply voltage (=VGG); typical values



- (1) $R_{G1} = 100\text{ k}\Omega$.
- (2) $R_{G1} = 120\text{ k}\Omega$.
- (3) $R_{G1} = 150\text{ k}\Omega$.
- (4) $R_{G1} = 180\text{ k}\Omega$.
- (5) $R_{G1} = 220\text{ k}\Omega$.
- (6) $R_{G1} = 270\text{ k}\Omega$.
- (7) $R_{G1} = 330\text{ k}\Omega$.
- (8) $R_{G1} = 390\text{ k}\Omega$.
- (9) $R_{G1} = 470\text{ k}\Omega$.

$V_{G2-S} = 2.5\text{ V}$; $T_j = 25\text{ }^\circ\text{C}$; see [Figure 32](#).

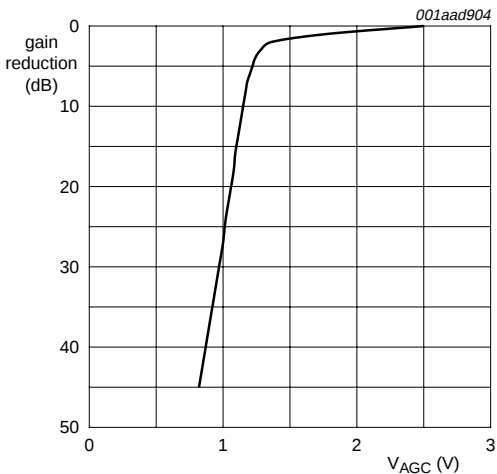
Fig 8. Amplifier A: drain current as a function of V_{DS} and V_{GG} ; typical values



- (1) $V_{GG} = 1.0\text{ V}$
- (2) $V_{GG} = 1.5\text{ V}$
- (3) $V_{GG} = 2.0\text{ V}$
- (4) $V_{GG} = 2.5\text{ V}$
- (5) $V_{GG} = 3.0\text{ V}$

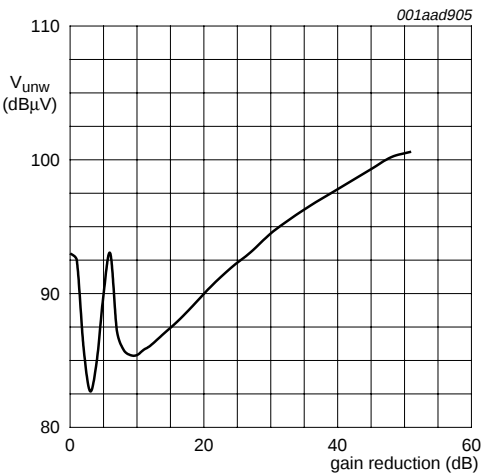
$T_j = 25\text{ }^\circ\text{C}$; $R_{G1(A)} = 270\text{ k}\Omega$ (connected to V_{GG}); see [Figure 32](#).

Fig 9. Amplifier A: drain current as a function of gate2 voltage; typical values



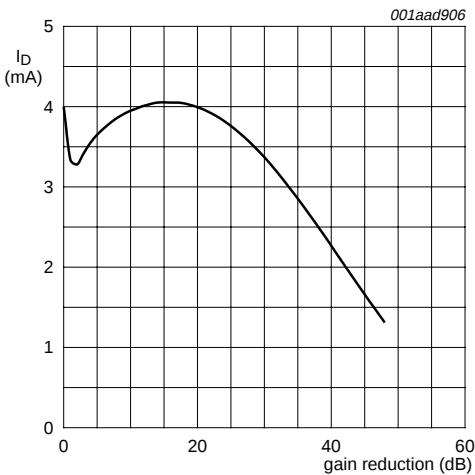
$V_{DS(A)} = 2.8$ V; $V_{GG} = 2.8$ V; $I_{D(nom)} = 4$ mA;
 $T_{amb} = 25$ °C.

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



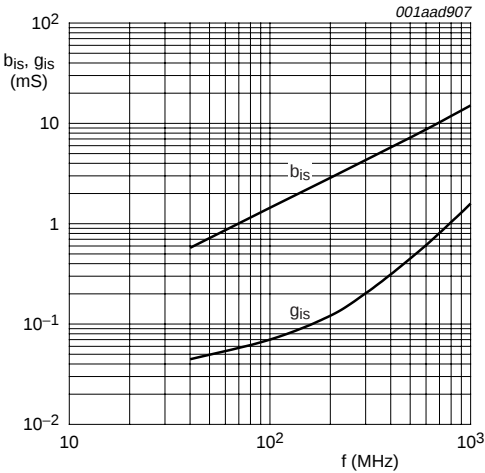
$V_{DS(A)} = 2.8$ V; $V_{GG} = 2.8$ V; $V_{G2(nom)} = 2.5$ V;
 $f_w = 50$ MHz; $f_{unw} = 60$ MHz; $I_{D(nom)} = 4$ mA;
 $T_{amb} = 25$ °C.

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



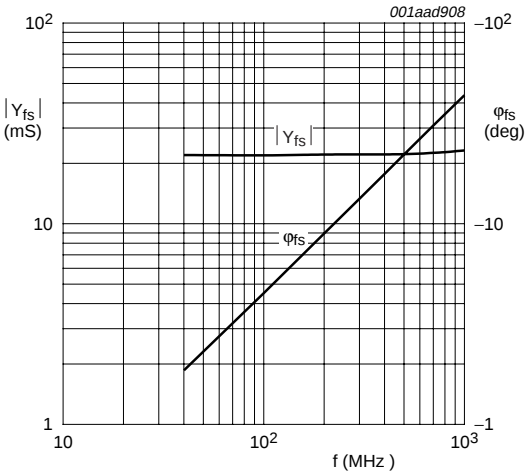
$V_{DS(A)} = 2.8$ V; $V_{GG} = 2.8$ V; $V_{G2(nom)} = 2.5$ V; $R_{G1(A)} = 270$ k Ω ; $f = 50$ MHz; $T_{amb} = 25$ °C.

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



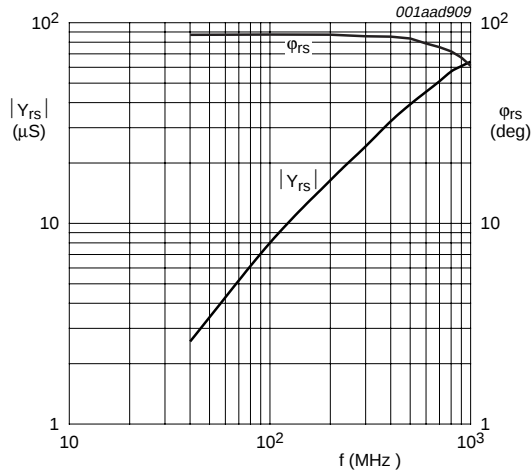
$V_{DS(A)} = 2.8$ V; $V_{G2-S} = 2.5$ V; $V_{DS(B)} = 0$ V;
 $I_{D(A)} = 4$ mA.

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



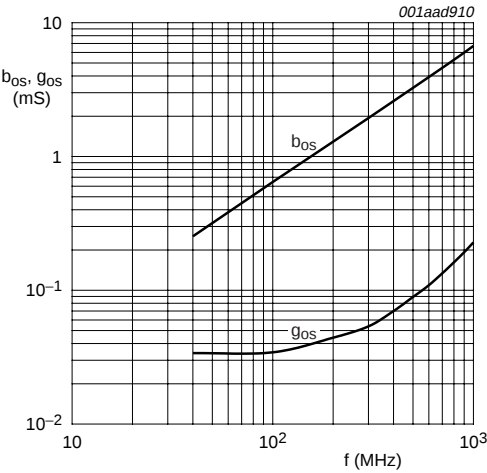
$V_{DS(A)} = 2.8$ V; $V_{G2-S} = 2.5$ V; $V_{DS(B)} = 0$ V;
 $I_{D(A)} = 4$ mA.

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



$V_{DS(A)} = 2.8$ V; $V_{G2-S} = 2.5$ V; $V_{DS(B)} = 0$ V;
 $I_{D(A)} = 4$ mA.

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



$V_{DS(A)} = 2.8$ V; $V_{G2-S} = 2.5$ V; $V_{DS(B)} = 0$ V;
 $I_{D(A)} = 4$ mA.

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

8.1.2 Scattering parameters for amplifier A

Table 9: Scattering parameters for amplifier A

$V_{DS(A)} = 2.8\text{ V}$; $V_{G2-S} = 2.5\text{ V}$; $I_{D(A)} = 4\text{ mA}$; $V_{DS(B)} = 0\text{ V}$; $V_{G1-S(B)} = 0\text{ V}$; $T_{amb} = 25\text{ °C}$; typical values.

f (MHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	Magnitude (ratio)	Angle (deg)	Magnitude (ratio)	Angle (deg)	Magnitude (ratio)	Angle (deg)	Magnitude (ratio)	Angle (deg)
50	0.9923	-4.11	2.18	174.68	0.00038	102.27	0.995	-1.83
100	0.9930	-8.29	2.18	169.51	0.00080	85.65	0.996	-3.75
200	0.9877	-16.41	2.16	159.20	0.00161	80.93	0.995	-7.49
300	0.9802	-24.48	2.12	149.04	0.00233	76.76	0.994	-11.22
400	0.9705	-32.34	2.07	138.99	0.00303	73.21	0.992	-14.96
500	0.9596	-39.91	2.01	129.15	0.00354	69.83	0.989	-18.68
600	0.9483	-47.34	1.94	119.45	0.00394	67.19	0.987	-22.39
700	0.9361	-54.59	1.87	109.95	0.00426	65.26	0.984	-26.11
800	0.9239	-61.64	1.79	100.69	0.00453	63.89	0.981	-29.82
900	0.9129	-68.28	1.72	91.66	0.00457	64.06	0.979	-33.57
1000	0.9018	-74.57	1.64	82.86	0.00456	65.60	0.976	-37.31

8.2 Noise data for amplifier A

Table 10: Noise data for amplifier A

$V_{DS(A)} = 2.8\text{ V}$; $V_{G2-S} = 2.5\text{ V}$; $I_{D(A)} = 4\text{ mA}$.

f (MHz)	NF _{min} (dB)	Γ _{opt}		r _n (ratio)
		ratio	(deg)	
400	1.0	0.78	26	0.84
800	1.1	0.87	53	0.87

8.3 Dynamic characteristics for amplifier B

Table 11: Dynamic characteristics for amplifier B

Common source; $T_{amb} = 25\text{ °C}$; $V_{G2-S} = 2.5\text{ V}$; $V_{DS} = 2.8\text{ V}$; $I_D = 4\text{ mA}$.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Y _{fs}	forward transfer admittance	T _j = 25 °C	-	22	-	mS
C _{iss(G1)}	input capacitance at gate1	f = 100 MHz	[1]	1.7	2.2	pF
C _{iss(G2)}	input capacitance at gate2	f = 100 MHz	[1]	4.0	-	pF
C _{oss}	output capacitance	f = 100 MHz	[1]	0.85	-	pF
C _{rss}	reverse transfer capacitance	f = 100 MHz	[1]	30	45	fF
G _{tr}	transducer power gain	B _S = B _{S(opt)} ; B _L = B _{L(opt)}	[1]			
		f = 200 MHz; G _S = 2 mS; G _L = 0.5 mS	-	32	-	dB
		f = 400 MHz; G _S = 2 mS; G _L = 1 mS	-	29	-	dB
		f = 800 MHz; G _S = 3.3 mS; G _L = 1 mS	-	25	-	dB
NF	noise figure	f = 11 MHz; G _S = 20 mS; B _S = 0	-	4.5	-	dB
		f = 400 MHz; Y _S = Y _{S(opt)}	-	0.9	1.5	dB
		f = 800 MHz; Y _S = Y _{S(opt)}	-	1.0	1.6	dB

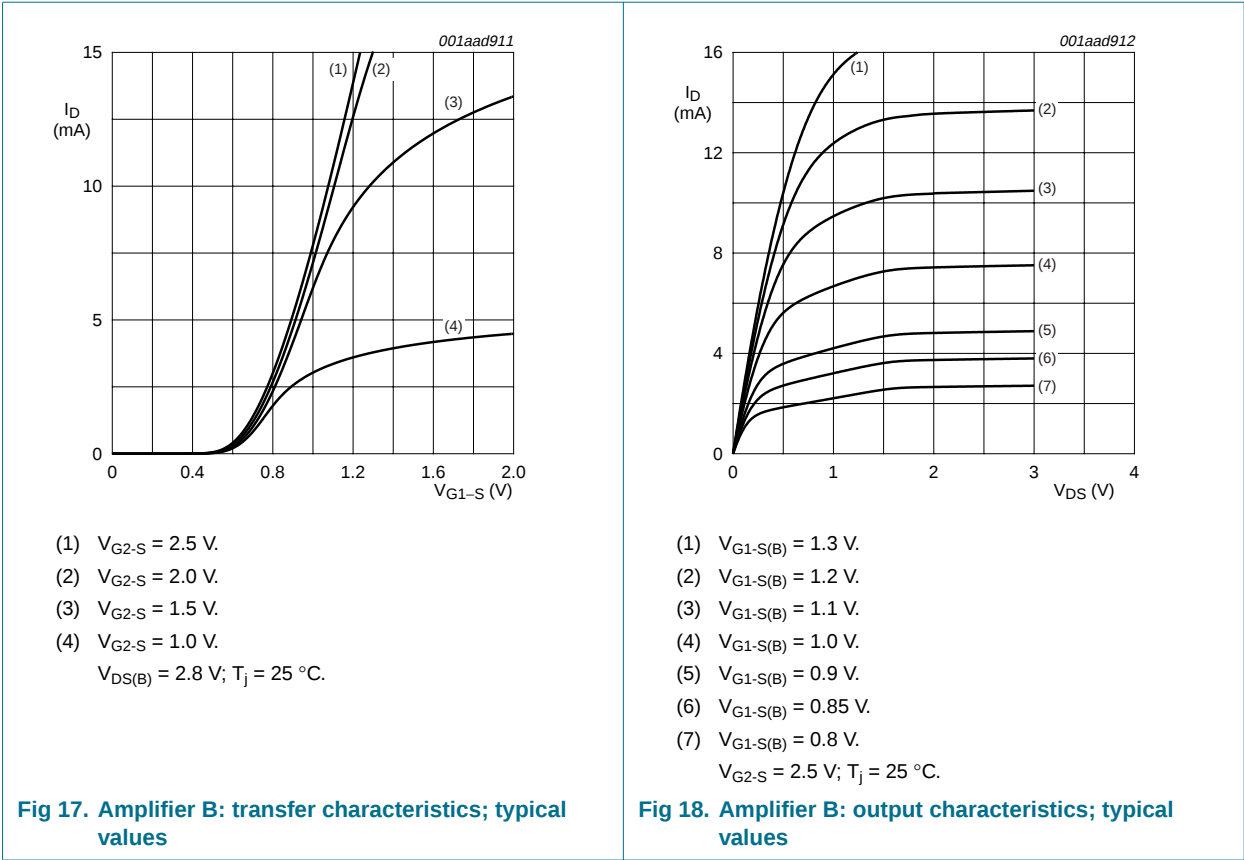
Table 11: Dynamic characteristics for amplifier B ...continued
Common source; $T_{amb} = 25\text{ }^{\circ}\text{C}$; $V_{G2-S} = 2.5\text{ V}$; $V_{DS} = 2.8\text{ V}$; $I_D = 4\text{ mA}$.

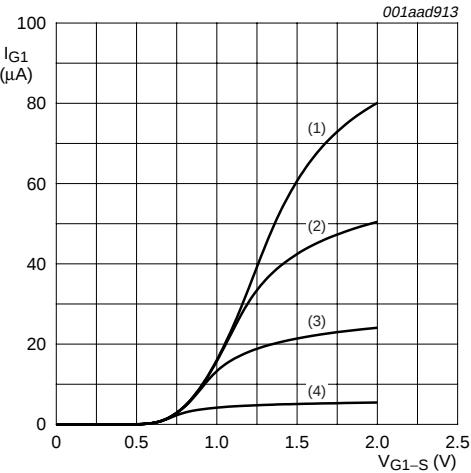
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Xmod	cross modulation	input level for $k = 1\text{ }%$; $f_w = 50\text{ MHz}$; $f_{unw} = 60\text{ MHz}$ [2]				
		at 0 dB AGC	89	-	-	dB μ V
		at 10 dB AGC	-	85	-	dB μ V
		at 40 dB AGC	93	98	-	dB μ V

[1] Calculated from measured S-parameters.

[2] Measured in [Figure 32](#) test circuit.

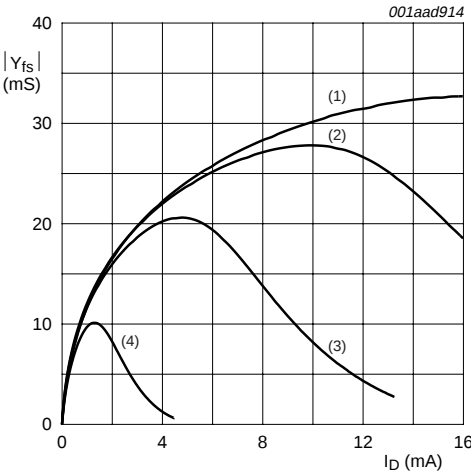
8.3.1 Graphs for amplifier B





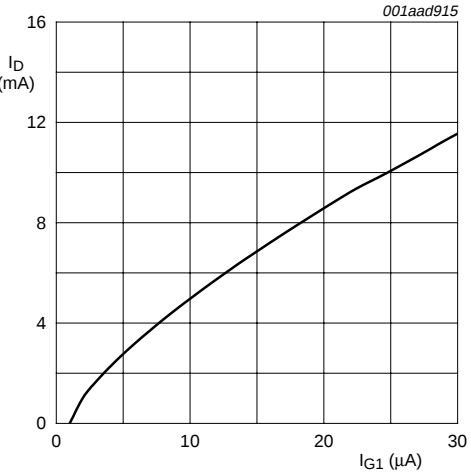
(1) $V_{G2-S} = 2.5\text{ V}$.
(2) $V_{G2-S} = 2.0\text{ V}$.
(3) $V_{G2-S} = 1.5\text{ V}$.
(4) $V_{G2-S} = 1.0\text{ V}$.
 $V_{DS(B)} = 2.8\text{ V}$; $T_j = 25\text{ }^{\circ}\text{C}$.

Fig 19. Amplifier B: gate1 current as a function of gate1 voltage; typical values



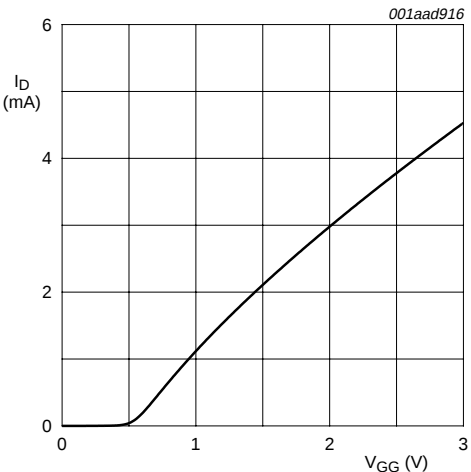
(1) $V_{G2-S} = 2.5\text{ V}$.
(2) $V_{G2-S} = 2.0\text{ V}$.
(3) $V_{G2-S} = 1.5\text{ V}$.
(4) $V_{G2-S} = 1.0\text{ V}$.
 $V_{DS(B)} = 2.8\text{ V}$; $T_j = 25\text{ }^{\circ}\text{C}$.

Fig 20. Amplifier B: forward transfer admittance as a function of drain current; typical values



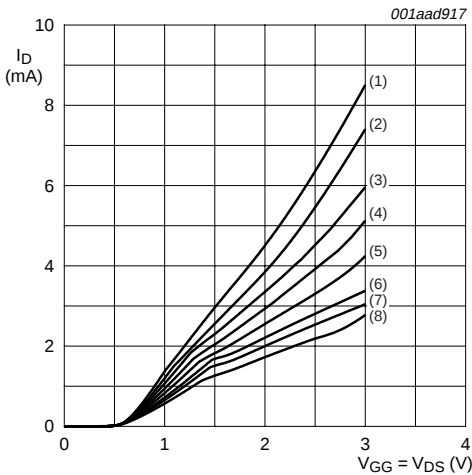
$V_{DS(B)} = 2.8\text{ V}$; $V_{G2-S} = 2.5\text{ V}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$.

Fig 21. Amplifier B: drain current as a function of gate1 current; typical values



$V_{DS(B)} = 2.8\text{ V}$; $V_{G2-S} = 2.5\text{ V}$; $R_{G1(B)} = 220\text{ k}\Omega$; see [Figure 32](#).

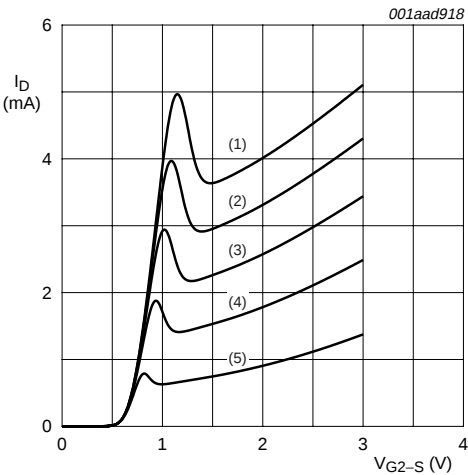
Fig 22. Amplifier B: drain current as a function of gate1 supply voltage (=VGG); typical values



- (1) $R_{G1} = 120\text{ k}\Omega$.
- (2) $R_{G1} = 150\text{ k}\Omega$.
- (3) $R_{G1} = 180\text{ k}\Omega$.
- (4) $R_{G1} = 220\text{ k}\Omega$.
- (5) $R_{G1} = 270\text{ k}\Omega$.
- (6) $R_{G1} = 330\text{ k}\Omega$.
- (7) $R_{G1} = 390\text{ k}\Omega$.
- (8) $R_{G1} = 470\text{ k}\Omega$.

$V_{G2-S} = 2.5\text{ V}$; $R_{G1(B)}$ connected to V_{GG} ;
see [Figure 32](#).

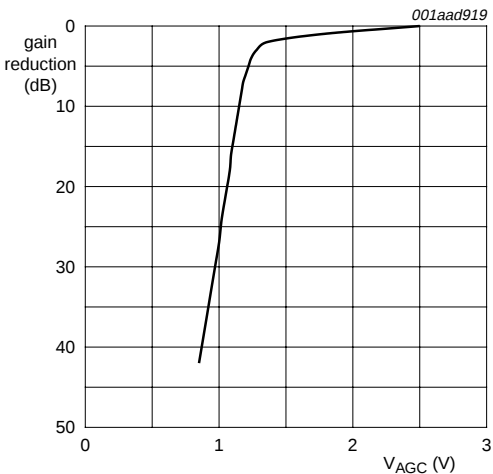
Fig 23. Amplifier B: drain current as a function of V_{DS} and V_{GG} ; typical values



- (1) $V_{GG} = 3.0\text{ V}$.
- (2) $V_{GG} = 2.5\text{ V}$.
- (3) $V_{GG} = 2.0\text{ V}$.
- (4) $V_{GG} = 1.5\text{ V}$.
- (5) $V_{GG} = 1.0\text{ V}$.

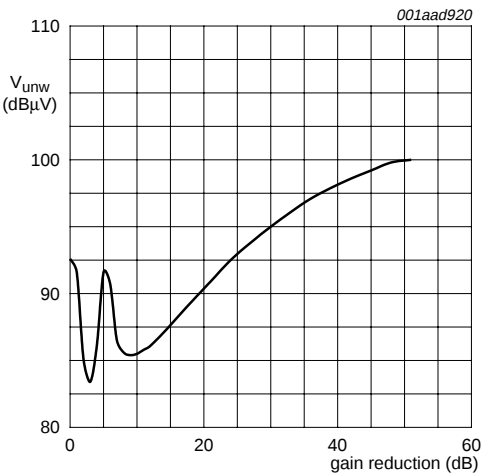
$R_{G1(B)} = 220\text{ k}\Omega$; $T_j = 25\text{ }^\circ\text{C}$; see [Figure 32](#).

Fig 24. Amplifier B: drain current as a function of gate2 voltage; typical values



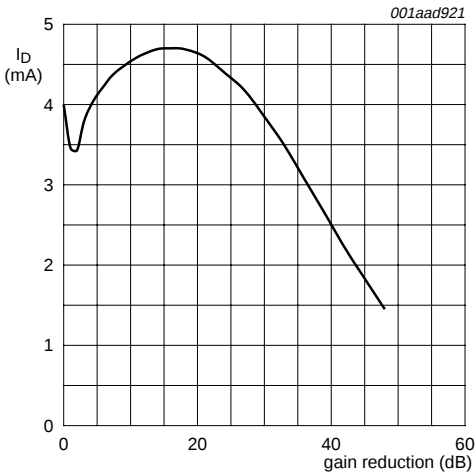
$V_{DS(A)} = 2.8$ V; $V_{G2(nom)} = 2.5$ V; $I_{D(nom)} = 4$ mA;
 $T_{amb} = 25$ °C.

Fig 25. Amplifier B: typical gain reduction as a function of the AGC voltage; typical values



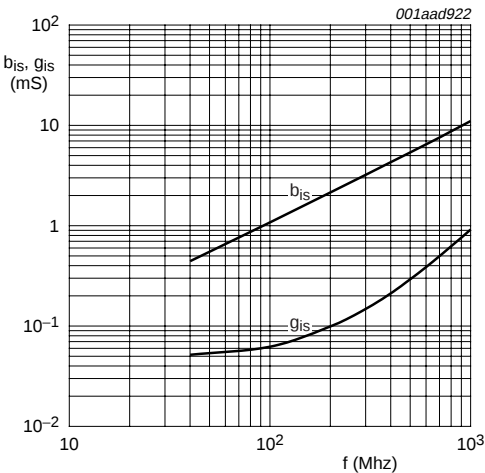
$V_{DS(B)} = 2.8$ V; $V_{G2} = 2.5$ V; $I_{D(nom)} = 4$ mA;
 $f_w = 50$ MHz; $f_{unw} = 60$ MHz; $T_{amb} = 25$ °C.

Fig 26. Amplifier B: unwanted voltage for 1 % cross-modulation as a function of gain reduction; typical values



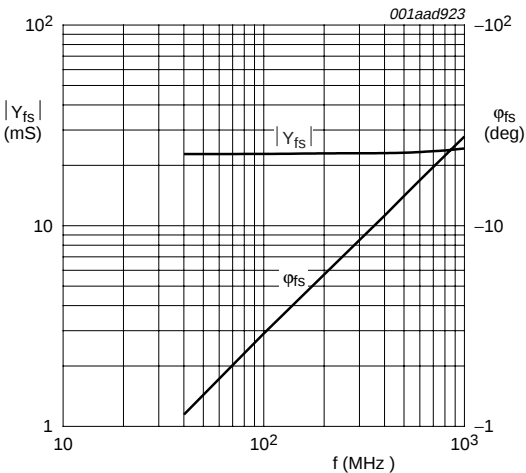
$V_{DS(B)} = V_{GG} = 2.8$ V; $V_{G2(nom)} = 2.5$ V; $R_{G1(B)} = 220$ kW; $f = 50$ MHz; $T_{amb} = 25$ °C.

Fig 27. Amplifier B: typical drain current as a function of gain reduction; typical values



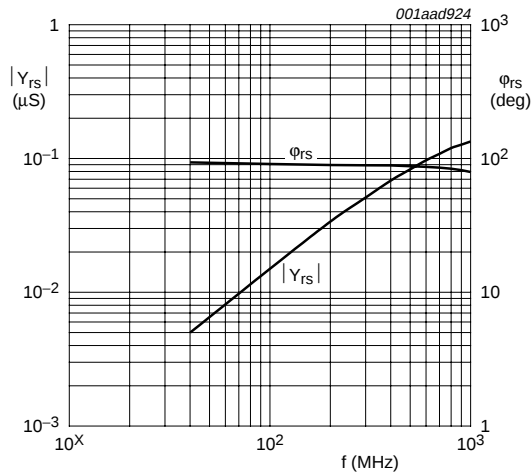
$V_{DS(B)} = 2.8\text{ V}$; $V_{G2-S} = 2.5\text{ V}$; $V_{DS(A)} = 0\text{ V}$;
 $I_{D(B)} = 4\text{ mA}$.

Fig 28. Amplifier B: input admittance and phase as a function of frequency; typical values



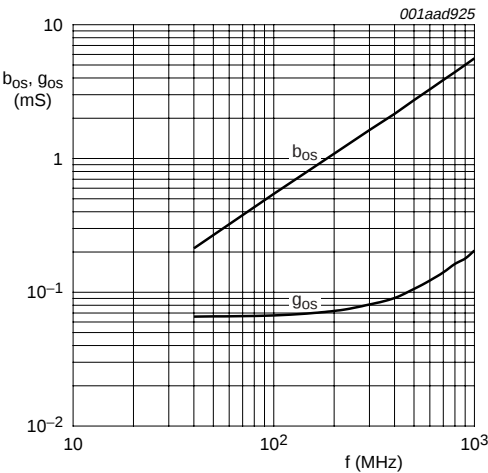
$V_{DS(B)} = 2.8\text{ V}$; $V_{G2-S} = 2.5\text{ V}$; $V_{DS(A)} = 0\text{ V}$;
 $I_{D(B)} = 4\text{ mA}$.

Fig 29. Amplifier B: forward transfer admittance and phase as a function of frequency; typical values



$V_{DS(B)} = 2.8\text{ V}$; $V_{G2-S} = 2.5\text{ V}$; $V_{DS(A)} = 0\text{ V}$;
 $I_{D(B)} = 4\text{ mA}$.

Fig 30. Amplifier B: reverse transfer admittance and phase as a function of frequency; typical values



$V_{DS(B)} = 2.8\text{ V}$; $V_{G2-S} = 2.5\text{ V}$; $V_{DS(A)} = 0\text{ V}$;
 $I_{D(B)} = 4\text{ mA}$.

Fig 31. Amplifier B: output admittance and phase as a function of frequency; typical values

8.3.2 Scattering parameters for amplifier B

Table 12: Scattering parameters for amplifier B

$V_{DS(B)} = 2.8\text{ V}$; $V_{G2-S} = 2.5\text{ V}$; $I_{D(B)} = 4\text{ mA}$; $V_{DS(A)} = 0\text{ V}$; $V_{G1-S(A)} = 0\text{ V}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$; typical values.

f (MHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	Magnitude (ratio)	Angle (deg)	Magnitude (ratio)	Angle (deg)	Magnitude (ratio)	Angle (deg)	Magnitude (ratio)	Angle (deg)
50	0.9939	-3.12	2.27	176.11	0.00089	94.68	0.993	-1.62
100	0.9936	-6.29	2.26	172.41	0.00170	84.37	0.993	-3.23
200	0.9896	-12.47	2.25	164.98	0.00336	81.29	0.992	-6.44
300	0.9845	-18.59	2.23	157.64	0.00503	77.17	0.990	-9.65
400	0.9779	-24.66	2.20	150.35	0.00642	73.23	0.988	-12.85
500	0.9703	-30.55	2.16	143.16	0.00769	69.72	0.986	-16.00
600	0.9620	-36.37	2.13	136.02	0.00873	66.28	0.983	-19.18
700	0.9529	-42.10	2.08	129.01	0.00967	63.19	0.980	-22.37
800	0.9439	-47.79	2.04	122.01	0.01024	60.51	0.977	-25.50
900	0.9353	-53.24	1.99	115.30	0.01058	58.52	0.975	-28.66
1000	0.9266	-58.46	1.94	108.64	0.01074	57.24	0.973	-31.85

8.3.3 Noise data for amplifier B

Table 13: Noise data for amplifier B

$V_{DS(B)} = 2.8\text{ V}$; $V_{G2-S} = 2.5\text{ V}$; $I_{D(B)} = 4\text{ mA}$.

f (MHz)	NF _{min} (dB)	Γ_{opt}		r _n (ratio)
		ratio	(deg)	
400	0.9	0.8	19	0.9
800	1.0	0.83	46	0.96

9. Test information

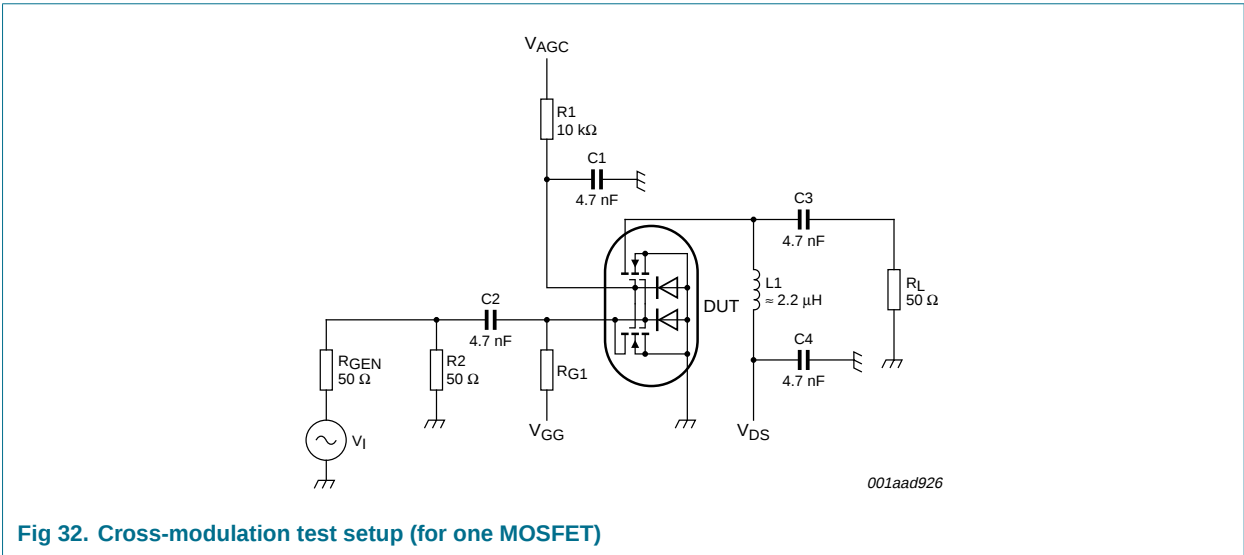


Fig 32. Cross-modulation test setup (for one MOSFET)

10. Package outline

Plastic surface mounted package; 6 leads

SOT666

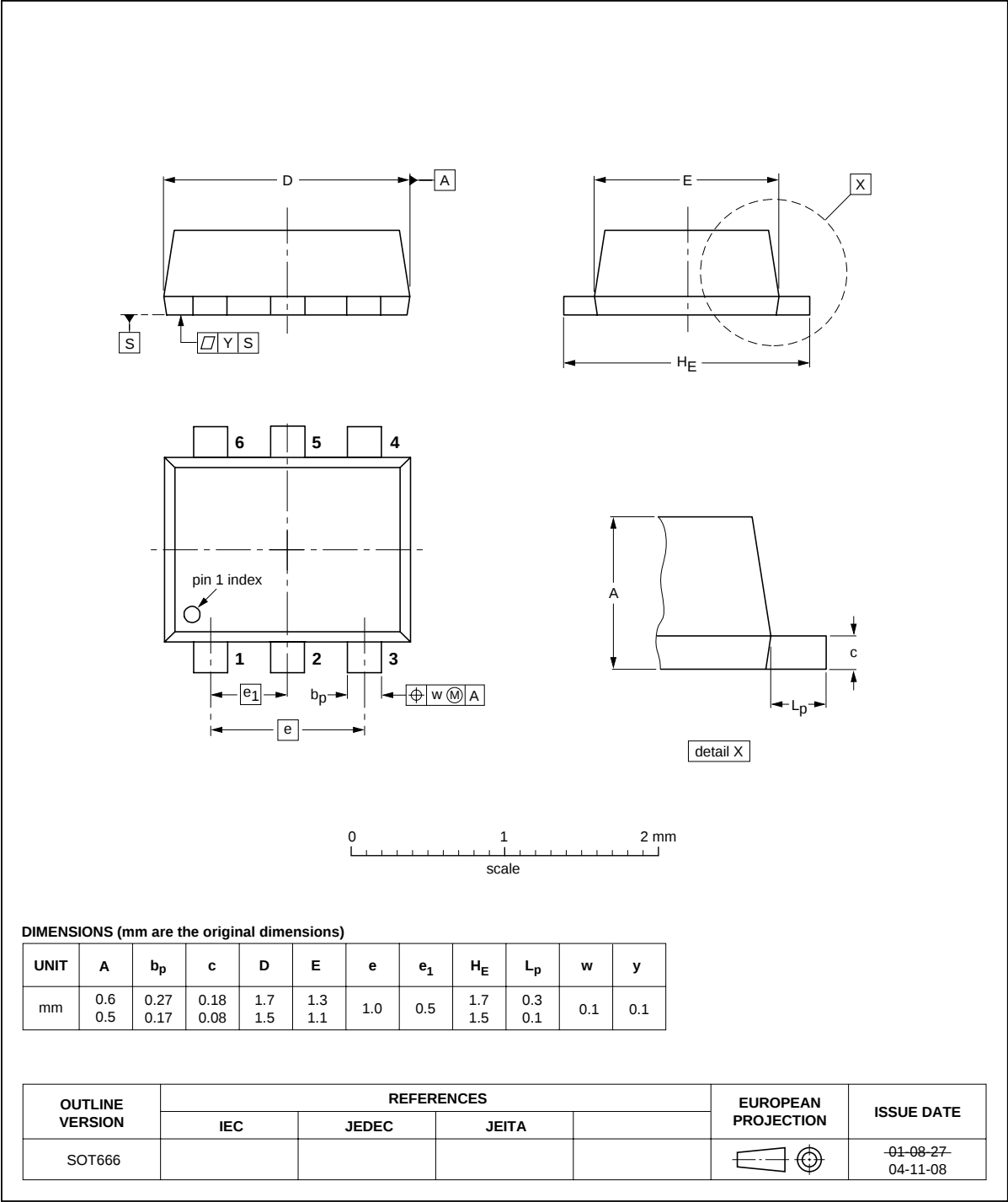


Fig 33. Package outline SOT666



11. Revision history

Table 14: Revision history

Document ID	Release date	Data sheet status	Change notice	Doc. number	Supersedes
BF1206F_1	20060130	product data sheet	-	BF1206F_1	-

12. Data sheet status

Level	Data sheet status ^[1]	Product status ^{[2] [3]}	Definition
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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