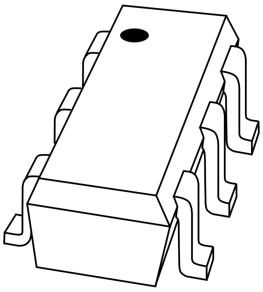
DATA SHEET



BF1206
Dual N-channel dual-gate MOS-FET

Product specification 2003 Nov 17

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.

APPLICATIONS

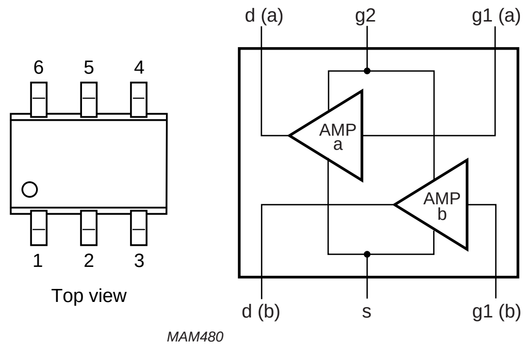
- Gain controlled low noise amplifiers for VHF and UHF applications with 5 V supply voltage, such as digital and analog television tuners.

DESCRIPTION

The BF1206 is a combination of two different dual gate MOS-FET amplifiers with shared source and gate 2 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 is encapsulated in SOT363 micro-miniature plastic package.

PINNING - SOT363

PIN	DESCRIPTION
1	drain (b)
2	source
3	gate 1 (b)
4	gate 1 (a)
5	gate 2
6	drain (a)



Marking code: L6-.

Fig.1 Simplified outline and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per MOS-FET; unless otherwise specified						
V_{DS}	drain-source voltage		–	–	6	V
I_D	drain current (DC)		–	–	30	mA
$\|y_{fs}\|$	forward transfer admittance	amp. a: I_D = 18 mA	33	38	48	mS
		amp. b: I_D = 12 mA	29	34	44	mS
C_{ig1-s}	input capacitance at gate 1	amp. a: I_D = 18 mA; f = 1 MHz	–	2.4	2.9	pF
		amp. b: I_D = 12 mA; f = 1 MHz	–	1.7	2.2	pF
C_{rss}	reverse transfer capacitance	f = 1 MHz	–	15	–	fF
X_{mod}	cross-modulation	amp. a: input level for k = 1% at 40 dB AGC	102	105	–	dBμV
		amp. b: input level for k = 1% at 40 dB AGC	100	103	–	dBμV
NF	noise figure	amp. a: f = 400 MHz; I_D = 18 mA	–	1.3	1.9	dB
		amp. b: f = 800 MHz; I_D = 12 mA	–	1.4	2.0	dB
		amp. a: f = 11 MHz; I_D = 18 mA	–	3	–	dB
		amp. b: f = 11 MHz; I_D = 12 mA	–	3.5	–	dB

CAUTION
This product is supplied in anti-static packing to prevent damage caused by electrostatic discharge during transport and handling.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BF1206	–	plastic surface mounted package; 6 leads	SOT363

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per MOS-FET; unless otherwise specified					
V_{DS}	drain-source voltage		–	6	V
I_D	drain current (DC)		–	30	mA
I_{G1}	gate 1 current		–	±10	mA
I_{G2}	gate 2 current		–	±10	mA
P_{tot}	total power dissipation	$T_s \leq 107$ °C; note 1	–	180	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C

Note

1. T_s is the temperature at the soldering point of the source lead.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j\text{-}s}$	thermal resistance from junction to soldering point	240	K/W

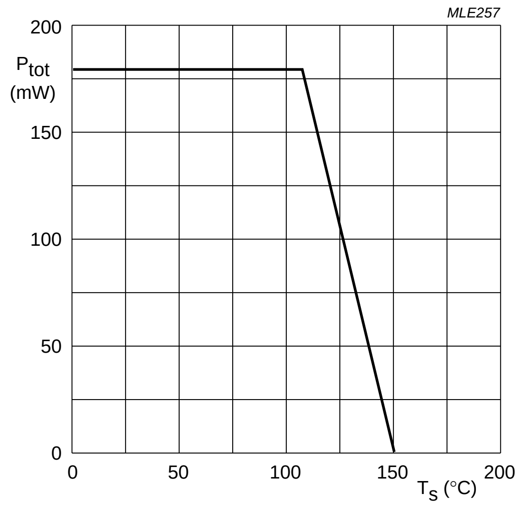


Fig.2 Power derating curve.

STATIC CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per MOS-FET unless otherwise specified					
$V_{(BR)DSS}$	drain-source breakdown voltage	$V_{G1-S} = V_{G2-S} = 0$; $I_D = 10\ \mu A$	6	–	V
$V_{(BR)G1-SS}$	gate-source breakdown voltage	$V_{GS} = V_{DS} = 0$; $I_{G1-S} = 10$ mA	6	10	V
$V_{(BR)G2-SS}$	gate-source breakdown voltage	$V_{GS} = V_{DS} = 0$; $I_{G2-S} = 10$ mA	6	10	V
$V_{(F)S-G1}$	forward source-gate voltage	$V_{G2-S} = V_{DS} = 0$; $I_{S-G1} = 10$ mA	0.5	1.5	V
$V_{(F)S-G2}$	forward source-gate voltage	$V_{G1-S} = V_{DS} = 0$; $I_{S-G2} = 10$ mA	0.5	1.5	V
$V_{G1-S(th)}$	gate-source threshold voltage	$V_{DS} = 5$ V; $V_{G2-S} = 4$ V; $I_D = 100\ \mu A$	0.3	1	V
$V_{G2-S(th)}$	gate-source threshold voltage	$V_{DS} = 5$ V; $V_{G1-S} = 5$ V; $I_D = 100\ \mu A$	0.35	1	V
I_{DSX}	drain-source current	amp. a: $V_{G2-S} = 4$ V; $V_{DS} = 5$ V; $R_G = 91\ k\Omega$; note 1	14	23	mA
		amp. b: $V_{G2-S} = 4$ V; $V_{DS} = 5$ V; $R_G = 150\ k\Omega$; note 1	9	17	mA
I_{G1-S}	gate cut-off current	$V_{G1-S} = 5$ V; $V_{G2-S} = V_{DS} = 0$	–	50	nA
I_{G2-S}	gate cut-off current	$V_{G2-S} = 5$ V; $V_{G1-S} = V_{DS} = 0$	–	20	nA

Note

1. R_{G1} connects gate 1 to $V_{GG} = 5$ V.

DYNAMIC CHARACTERISTICS AMPLIFIER a

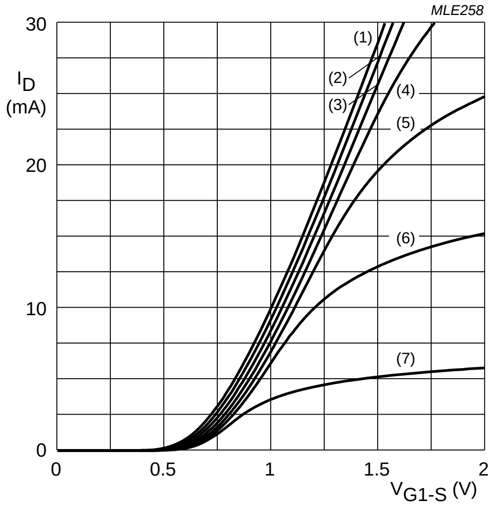
Common source; T_{amb} = 25 °C; $V_{G2\text{-}S}$ = 4 V; V_{DS} = 5 V; I_D = 18 mA; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$\lvert y_{fs} \rvert$	forward transfer admittance	pulsed; T_j = 25 °C	33	38	48	mS
$C_{ig1\text{-}ss}$	input capacitance at gate 1	f = 1 MHz	–	2.4	2.9	pF
$C_{ig2\text{-}ss}$	input capacitance at gate 2	f = 1 MHz	–	3.2	–	pF
C_{oss}	output capacitance	f = 1 MHz	–	1.1	–	pF
C_{rss}	reverse transfer capacitance	f = 1 MHz	–	15	30	fF
NF	noise figure	f = 11 MHz; G_S = 20 mS; B_S = 0	–	3	–	dB
		f = 400 MHz; $Y_S = Y_{S\ opt}$	–	1.3	1.9	dB
		f = 800 MHz; $Y_S = Y_{S\ opt}$	–	1.6	2.2	dB
G_{tr}	power gain	f = 200 MHz; G_S = 2 mS; $B_S = B_{S\ opt}$; G_L = 0.5 mS; $B_L = B_{L\ opt}$; note 1	–	35	–	dB
		f = 400 MHz; G_S = 2 mS; $B_S = B_{S\ opt}$; G_L = 1 mS; $B_L = B_{L\ opt}$; note 1	–	30	–	dB
		f = 800 MHz; G_S = 3.3 mS; $B_S = B_{S\ opt}$; G_L = 1 mS; $B_L = B_{L\ opt}$; note 1	–	23	–	dB
X_{mod}	cross-modulation	input level for k = 1%; f_w = 50 MHz; f_{unw} = 60 MHz; note 2				
		at 0 dB AGC	90	–	–	dBμV
		at 10 dB AGC	–	92	–	dBμV
		at 40 dB AGC	102	105	–	dBμV

Notes

1. Calculated from measured s-parameters.
2. Measured in Fig.35 test circuit.

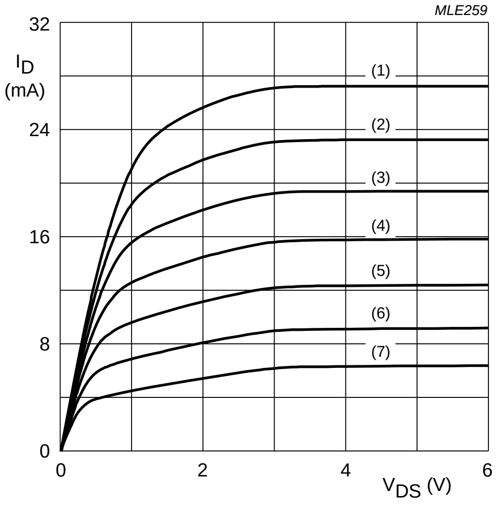
GRAPHS FOR AMPLIFIER a



V_{DS} = 5 V; T_j = 25 °C.

(1) V_{G2-S} = 4 V.
(2) V_{G2-S} = 3.5 V.
(3) V_{G2-S} = 3 V.
(4) V_{G2-S} = 2.5 V.
(5) V_{G2-S} = 2 V.
(6) V_{G2-S} = 1.5 V.
(7) V_{G2-S} = 1 V.

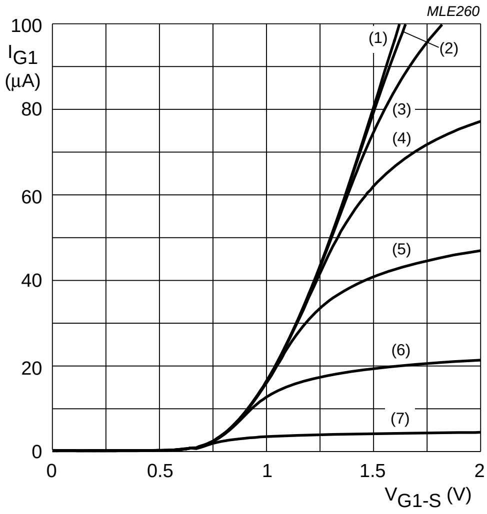
Fig.3 Transfer characteristics; typical values; amplifier a.



V_{G2-S} = 4 V; T_j = 25 °C.

(1) V_{G1-S} = 1.5 V.
(2) V_{G1-S} = 1.4 V.
(3) V_{G1-S} = 1.3 V.
(4) V_{G1-S} = 1.2 V.
(5) V_{G1-S} = 1.1 V.
(6) V_{G1-S} = 1 V.
(7) V_{G1-S} = 0.9 V.

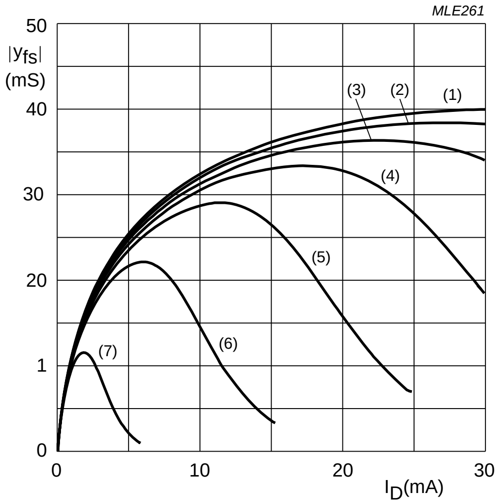
Fig.4 Output characteristics; typical values; amplifier a.



V_{DS} = 5 V; T_j = 25 °C.

(1) V_{G2-S} = 4 V.
(2) V_{G2-S} = 3.5 V.
(3) V_{G2-S} = 3 V.
(4) V_{G2-S} = 2.5 V.
(5) V_{G2-S} = 2 V.
(6) V_{G2-S} = 1.5 V.
(7) V_{G2-S} = 1 V.

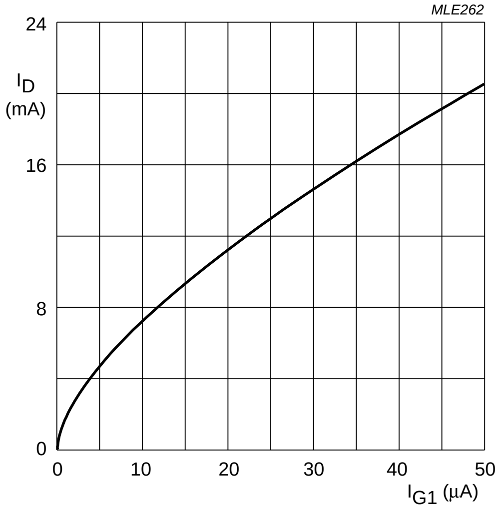
Fig.5 Gate 1 current as a function of gate 1 voltage; typical values; amplifier a.



V_{DS} = 5 V; T_j = 25 °C.

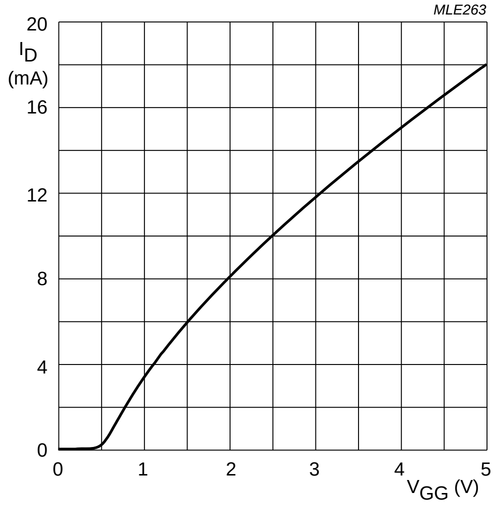
(1) V_{G2-S} = 4 V.
(2) V_{G2-S} = 3.5 V.
(3) V_{G2-S} = 3 V.
(4) V_{G2-S} = 2.5 V.
(5) V_{G2-S} = 2 V.
(6) V_{G2-S} = 1.5 V.
(7) V_{G2-S} = 1 V.

Fig.6 Forward transfer admittance as a function of drain current; typical values; amplifier a.



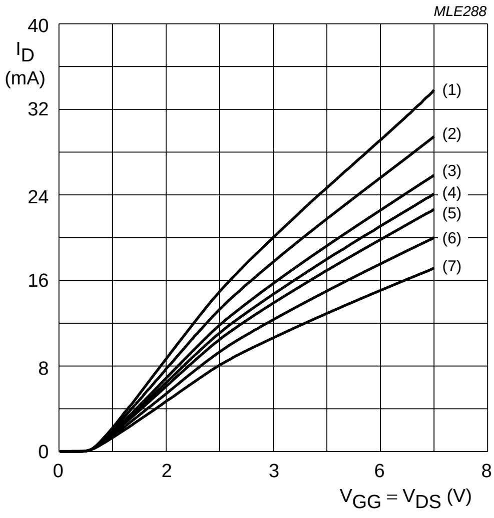
V_{DS} = 5 V; V_{G2-S} = 4 V; T_j = 25 °C.

Fig.7 Drain current as a function of gate 1 current; typical values; amplifier a.



V_{DS} = 5 V; V_{G2-S} = 4 V; T_j = 25 °C.
R_{G1} = 91 kΩ (connected to V_{GG}); see Fig.35.

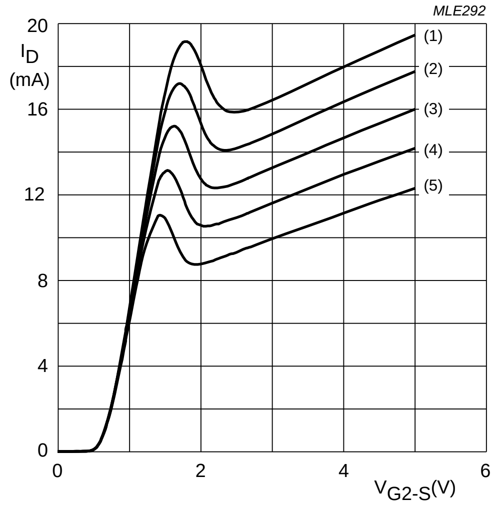
Fig.8 Drain current as a function of gate 1 supply voltage (V_{GG}); typical values; amplifier a.



$V_{G2\text{-}S}$ = 4 V; T_j = 25 °C; R_{G1} = 150 kΩ (connected to V_{GG}); see Fig.35.

(1) R_{G1} = 56 kΩ.	(5) R_{G1} = 100 kΩ.
(2) R_{G1} = 68 kΩ.	(6) R_{G1} = 120 kΩ.
(3) R_{G1} = 82 kΩ.	(7) R_{G1} = 150 kΩ.
(4) R_{G1} = 91 kΩ.	

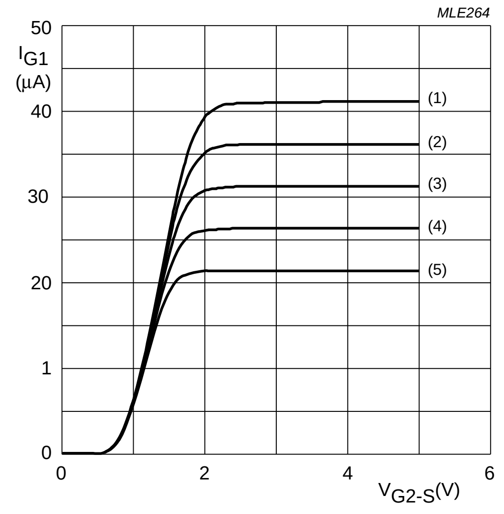
Fig.9 Drain current as a function of gate 1 (V_{GG}) and drain supply voltage; typical values; amplifier a.



V_{DS} = 5 V; T_j = 25 °C; R_{G1} = 91 kΩ (connected to V_{GG}); see Fig.35.

(1) V_{GG} = 5 V.	(4) V_{GG} = 3.5 V.
(2) V_{GG} = 4.5 V.	(5) V_{GG} = 3 V.
(3) V_{GG} = 4 V.	

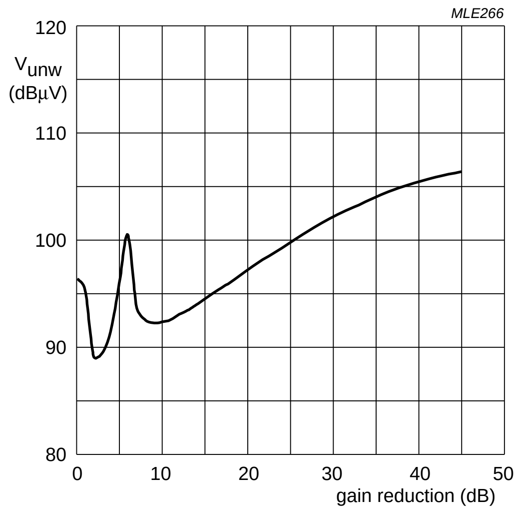
Fig.10 Drain current as a function of gate 2 voltage; typical values; amplifier a.



V_{DS} 5 V; T_j = 25 °C.
R_{G1} = 91 kΩ (connected to V_{GG}); see Fig.35.

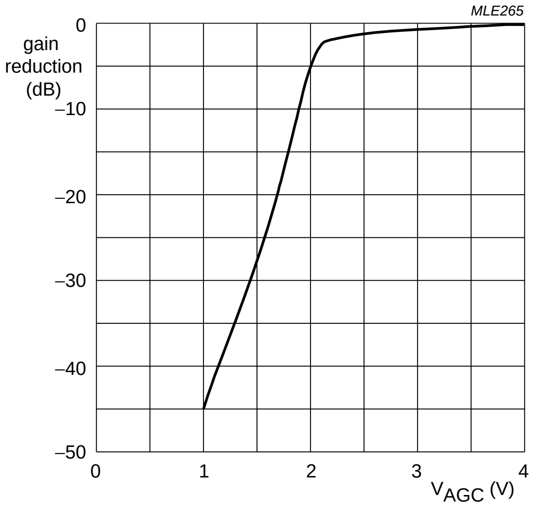
(1) V_{GG} = 5 V.
(2) V_{GG} = 4.5 V.
(3) V_{GG} = 4 V.
(4) V_{GG} = 3.5 V.
(5) V_{GG} = 3 V.

Fig.11 Gate 1 current as a function of gate 2 voltage; typical values; amplifier a.



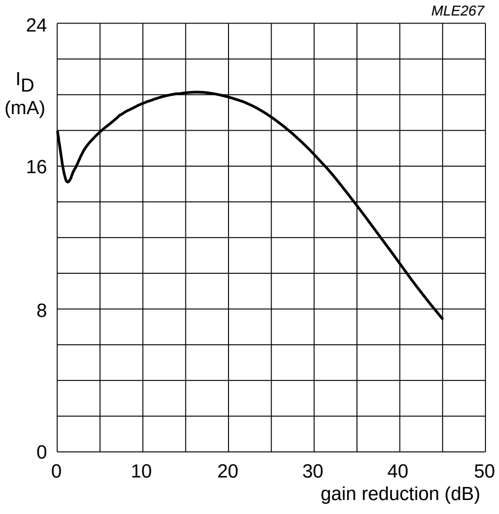
V_{DS} = 5 V; V_{GG} = 5 V; R_{G1} = 91 kΩ; f = 50 MHz; f_{unw} = 60 MHz;
T_{amb} = 25 °C; see Fig.35.

Fig.12 Unwanted voltage for 1% cross-modulation as a function of gain reduction; typical values; amplifier a.



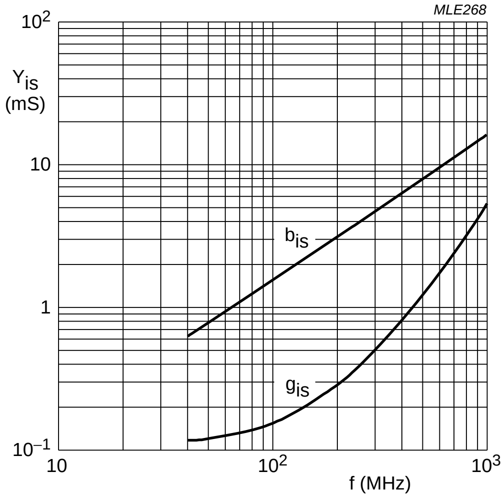
V_{DS} = 5 V; V_{GG} = 5 V; R_{G1} = 91 kΩ; f = 50 MHz; T_{amb} = 25 °C;
see Fig.35.

Fig.13 Typical gain reduction as a function of AGC voltage; typical values; amplifier a.



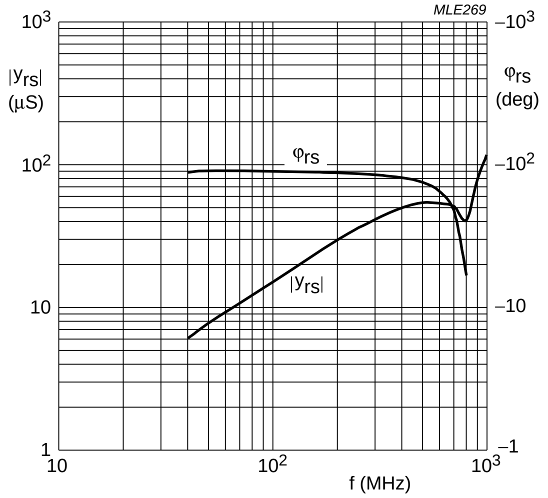
V_{DS} = 5 V; V_{GG} = 5 V; R_{G1} = 91 kΩ; f = 50 MHz; T_{amb} = 25 °C;
see Fig.35.

Fig.14 Drain current as a function of gain reduction; typical values; amplifier a.



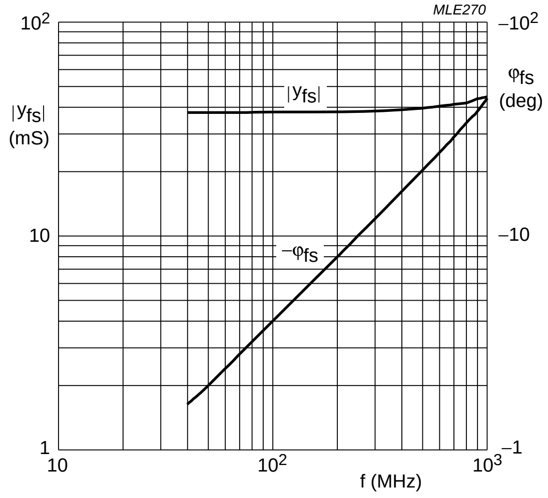
V_{DS} = 5 V; V_{G2} = 4 V; I_D = 18 mA; T_{amb} = 25 °C.

Fig.15 Input admittance as a function of frequency; typical values; amplifier a.



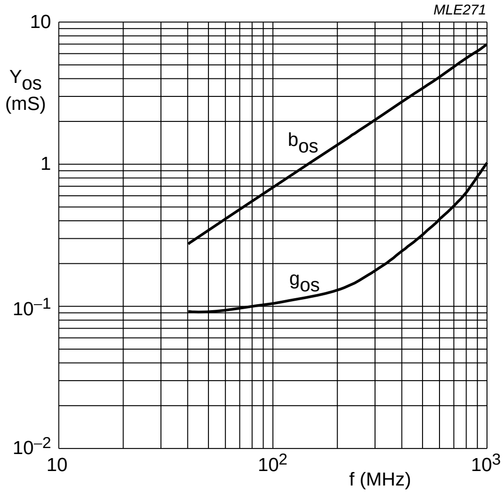
V_{DS} = 5 V; V_{G2} = 4 V; I_D = 18 mA; T_{amb} = 25 °C.

Fig.16 Reverse transfer admittance and phase as a function of frequency; typical values; amplifier a.



V_{DS} = 5 V; V_{G2} = 4 V; I_D = 18 mA; T_{amb} = 25 °C.

Fig.17 Forward transfer admittance and phase as a function of frequency; typical values; amplifier a.



V_{DS} = 5 V; V_{G2} = 4 V; I_D = 18 mA; T_{amb} = 25 °C.

Fig.18 Output admittance as a function of frequency; typical values; amplifier a.

Amplifier a scattering parameters

V_{DS} = 5 V; $V_{G2\text{-}S}$ = 4 V; I_D = 18 mA; T_{amb} = 25 °C

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	0.988	–4.62	3.72	174.72	0.0008	86.73	0.991	–2.07
100	0.984	–9.23	3.71	169.42	0.0015	84.39	0.989	–4.16
200	0.971	–18.33	3.66	159.05	0.0029	79.96	0.986	–8.24
300	0.951	–27.32	3.58	148.77	0.0038	76.62	0.980	–12.32
400	0.926	–36.04	3.47	138.74	0.0044	74.42	0.973	–16.33
500	0.896	–44.50	3.36	129.05	0.0046	74.84	0.965	–20.25
600	0.865	–52.63	3.23	119.67	0.0043	79.73	0.958	–24.20
700	0.832	–60.47	3.09	110.43	0.0038	92.63	0.951	–28.14
800	0.797	–67.66	2.91	101.40	0.0028	118.47	0.937	–32.14
900	0.769	–75.01	2.83	93.09	0.0051	146.61	0.940	–35.76
1000	0.732	–81.73	2.67	84.05	0.0071	159.78	0.937	–39.86

Noise data

V_{DS} = 5 V; $V_{G2\text{-}S}$ = 4 V; I_D = 18 mA; T_{amb} = 25 °C

f (MHz)	**F_{min} (dB)**	**Γ_{opt}**		**R_n (Ω)**
		(ratio)	**(deg)**	
400	1.3	0.618	22.7	26.7
800	1.6	0.593	44.1	29.7

DYNAMIC CHARACTERISTICS AMPLIFIER b

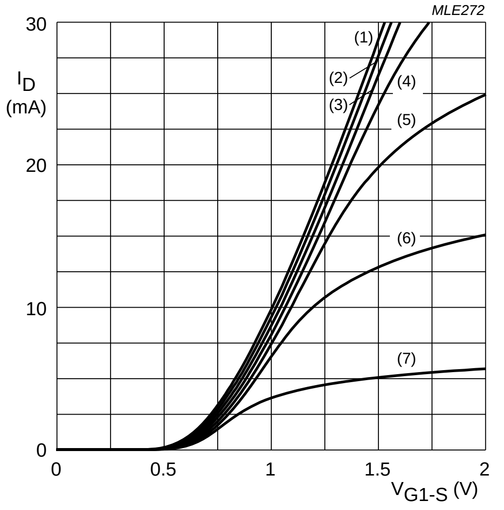
Common source; T_{amb} = 25 °C; $V_{G2\text{-}S}$ = 4 V; V_{DS} = 5 V; I_D = 12 mA; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$\lvert y_{fs} \rvert$	forward transfer admittance	pulsed; T_j = 25 °C	29	34	44	mS
$C_{ig1\text{-}ss}$	input capacitance at gate 1	f = 1 MHz	–	1.7	2.2	pF
$C_{ig2\text{-}ss}$	input capacitance at gate 2	f = 1 MHz	–	4.2	–	pF
C_{oss}	output capacitance	f = 1 MHz	–	0.85	–	pF
C_{rss}	reverse transfer capacitance	f = 1 MHz	–	15	30	fF
F	noise figure	f = 11 MHz; G_S = 20 mS; B_S = 0	–	3.5	–	dB
		f = 400 MHz; $Y_S = Y_{S\ opt}$	–	1.3	1.9	dB
		f = 800 MHz; $Y_S = Y_{S\ opt}$	–	1.4	2	dB
G_{tr}	power gain	f = 200 MHz; G_S = 2 mS; $B_S = B_{S\ opt}$; G_L = 0.5 mS; $B_L = B_{L\ opt}$; note 1	–	35	–	dB
		f = 400 MHz; G_S = 2 mS; $B_S = B_{S\ opt}$; G_L = 1 mS; $B_L = B_{L\ opt}$; note 1	–	31	–	dB
		f = 800 MHz; G_S = 3.3 mS; $B_S = B_{S\ opt}$; G_L = 1 mS; $B_L = B_{L\ opt}$; note 1	–	27	–	dB
X_{mod}	cross-modulation	input level for k = 1%; f_w = 50 MHz; f_{unw} = 60 MHz; note 2				
		at 0 dB AGC	90	–	–	dBμV
		at 10 dB AGC	–	90	–	dBμV
		at 40 dB AGC	100	103	–	dBμV

Notes

1. Calculated from measured s-parameters.
2. Measured in Fig.35 test circuit.

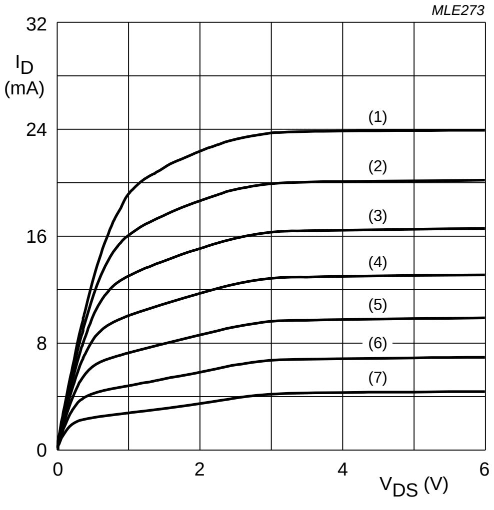
GRAPHS FOR AMPLIFIER b



V_{DS} = 5 V; T_j = 25 °C.

(1) V_{G2-S} = 4 V.
(2) V_{G2-S} = 3.5 V.
(3) V_{G2-S} = 3 V.
(4) V_{G2-S} = 2.5 V.
(5) V_{G2-S} = 2 V.
(6) V_{G2-S} = 1.5 V.
(7) V_{G2-S} = 1 V.

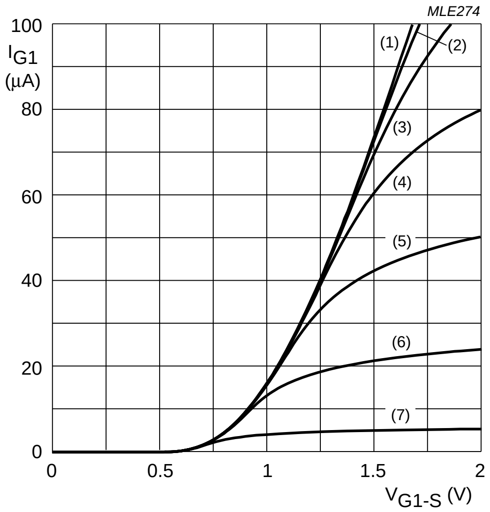
Fig.19 Transfer characteristics; typical values; amplifier b.



V_{G2-S} = 4 V; T_j = 25 °C.

(1) V_{G1-S} = 1.5 V.
(2) V_{G1-S} = 1.4 V.
(3) V_{G1-S} = 1.3 V.
(4) V_{G1-S} = 1.2 V.
(5) V_{G1-S} = 1.1 V.
(6) V_{G1-S} = 1 V.
(7) V_{G1-S} = 0.9 V.

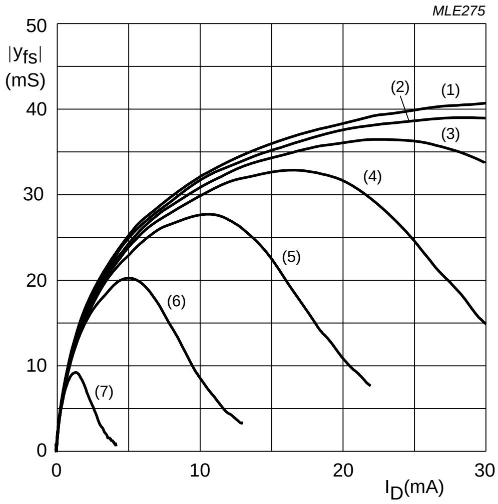
Fig.20 Output characteristics; typical values; amplifier b.



V_{DS} = 5 V; T_j = 25 °C.

(1) V_{G2-S} = 4 V.
(2) V_{G2-S} = 3.5 V.
(3) V_{G2-S} = 3 V.
(4) V_{G2-S} = 2.5 V.
(5) V_{G2-S} = 2 V.
(6) V_{G2-S} = 1.5 V.
(7) V_{G2-S} = 1 V.

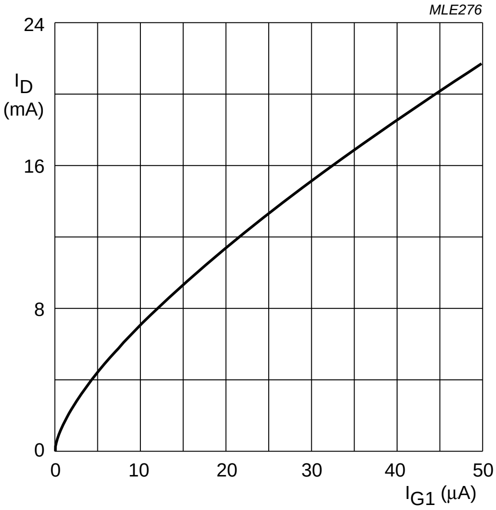
Fig.21 Gate 1 current as a function of gate 1 voltage; typical values; amplifier b.



V_{DS} = 5 V; T_j = 25 °C.

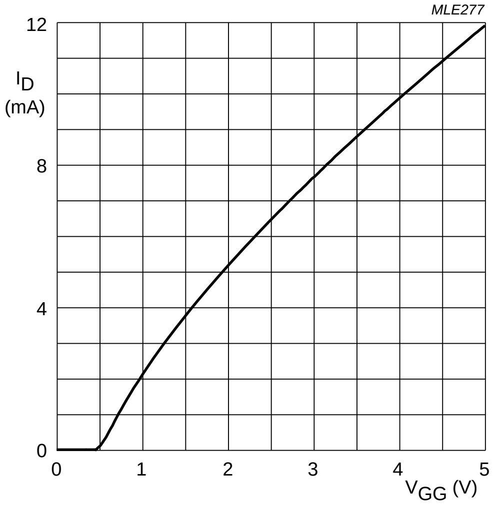
(1) V_{G2-S} = 4 V.
(2) V_{G2-S} = 3.5 V.
(3) V_{G2-S} = 3 V.
(4) V_{G2-S} = 2.5 V.
(5) V_{G2-S} = 2 V.
(6) V_{G2-S} = 1.5 V.
(7) V_{G2-S} = 1 V.

Fig.22 Forward transfer admittance as a function of drain current; typical values; amplifier b.



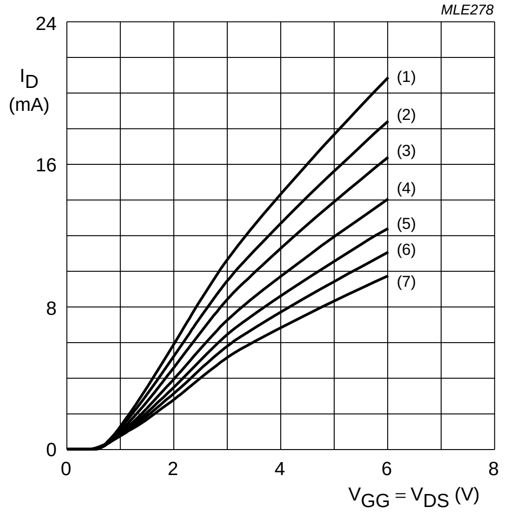
V_{DS} = 5 V; V_{G2-S} = 4 V; T_j = 25 °C.

Fig.23 Drain current as a function of gate 1 current; typical values; amplifier b.



V_{DS} = 5 V; V_{G2-S} = 4 V; T_j = 25 °C.
R_{G1} = 150 kΩ (connected to V_{GG}); see Fig.35.

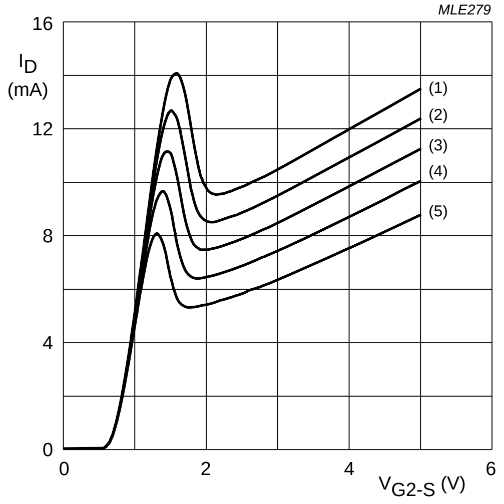
Fig.24 Drain current as a function of gate 1 supply voltage (V_{GG}); typical values; amplifier b.



$V_{G2\text{-}S}$ = 4 V; T_j = 25 °C.
R_{G1} = 150 kΩ (connected to V_{GG}); see Fig.35.

(1) R_{G1} = 270 kΩ.
(2) R_{G1} = 220 kΩ.
(3) R_{G1} = 180 kΩ.
(4) R_{G1} = 150 kΩ.
(5) R_{G1} = 120 kΩ.
(6) R_{G1} = 100 kΩ.
(7) R_{G1} = 82 kΩ.

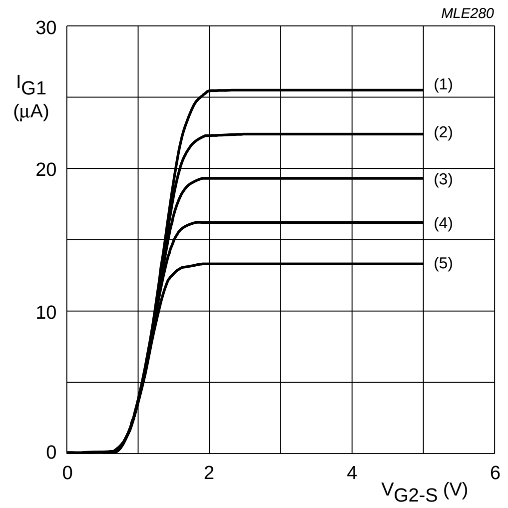
Fig.25 Drain current as a function of gate 1 (V_{GG}) and drain supply voltage; typical values; amplifier b.



V_{DS} = 5 V; T_j = 25 °C.
R_{G1} = 150 kΩ (connected to V_{GG}); see Fig.35.

(1) V_{GG} = 5 V.
(2) V_{GG} = 4.5 V.
(3) V_{GG} = 4 V.
(4) V_{GG} = 3.5 V.
(5) V_{GG} = 3 V.

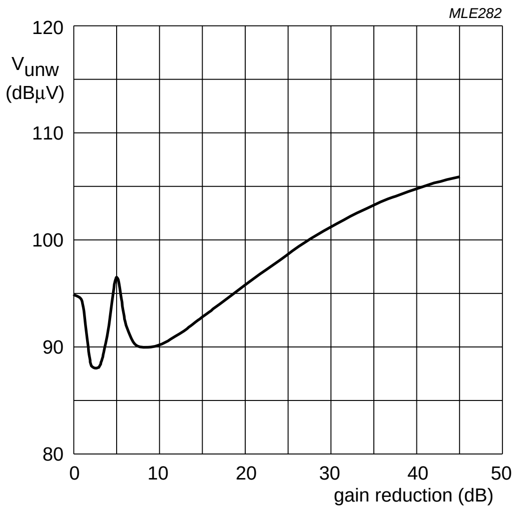
Fig.26 Drain current as a function of gate 2 voltage; typical values; amplifier b.



V_{DS} 5 V; T_j = 25 °C.
R_{G1} = 150 kΩ (connected to V_{GG}); see Fig.35.

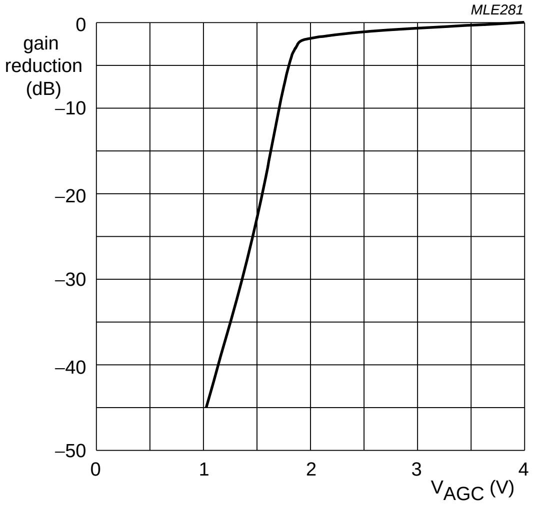
(1) V_{GG} = 5 V.
(2) V_{GG} = 4.5 V.
(3) V_{GG} = 4 V.
(4) V_{GG} = 3.5 V.
(5) V_{GG} = 3 V.

Fig.27 Gate 1 current as a function of gate 2 voltage; typical values; amplifier b.



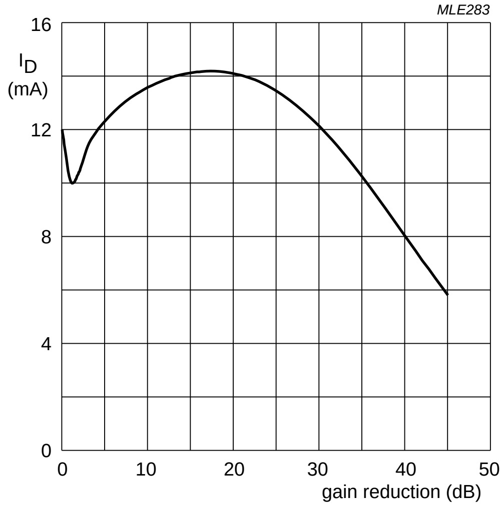
V_{DS} = 5 V; V_{GG} = 5 V; R_{G1} = 150 kΩ; f = 50 MHz; f_{unw} = 60 MHz; T_{amb} = 25 °C; see Fig.35.

Fig.28 Unwanted voltage for 1% cross-modulation as a function of gain reduction; typical values; amplifier b.



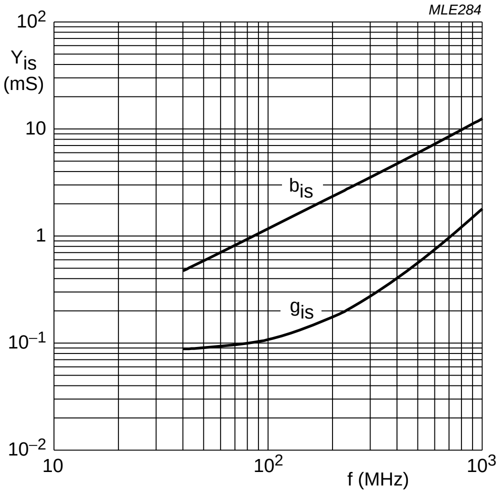
V_{DS} = 5 V; V_{GG} = 5 V; R_{G1} = 150 kΩ; f = 50 MHz; T_{amb} = 25 °C; see Fig.35.

Fig.29 Typical gain reduction as a function of AGC voltage; typical values; amplifier b.



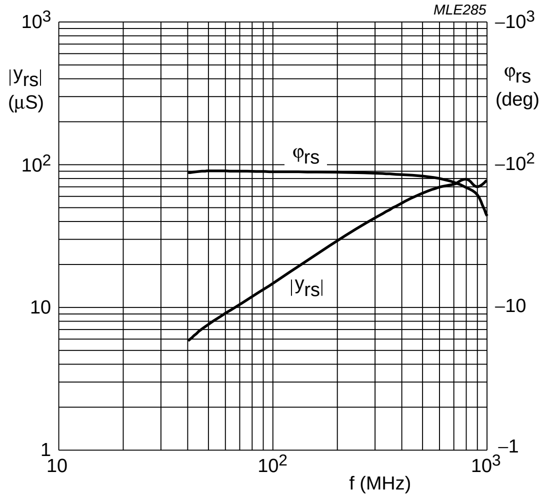
V_{DS} = 5 V; V_{GG} = 5 V; R_{G1} = 150 kΩ; f = 50 MHz; T_{amb} = 25 °C; see Fig.35.

Fig.30 Drain current as a function of gain reduction; typical values; amplifier b.



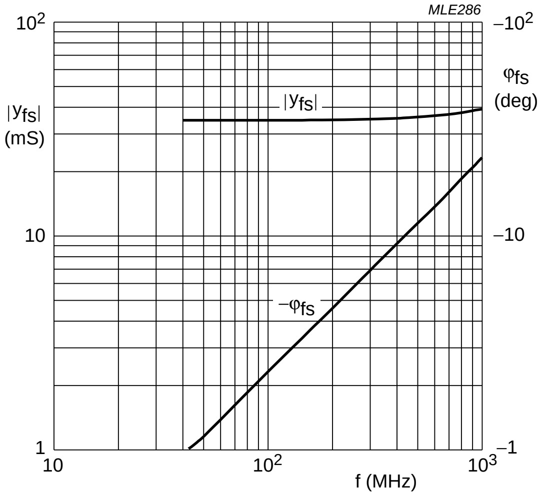
V_{DS} = 5 V; V_{G2} = 4 V; I_D = 12 mA; T_{amb} = 25 °C.

Fig.31 Input admittance as a function of frequency; typical values; amplifier b.



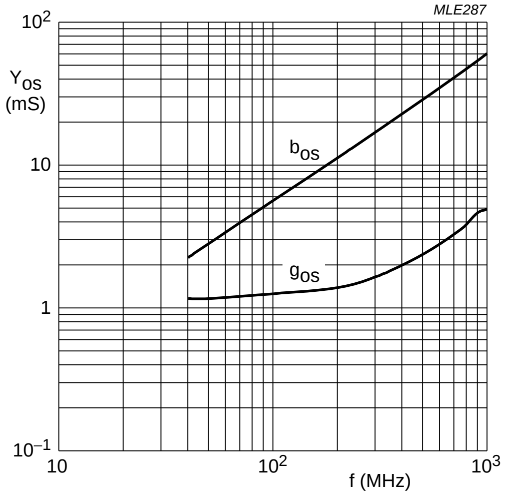
V_{DS} = 5 V; V_{G2} = 4 V; I_D = 12 mA; T_{amb} = 25 °C.

Fig.32 Reverse transfer admittance and phase as a function of frequency; typical values; amplifier b.



V_{DS} = 5 V; V_{G2} = 4 V; I_D = 12 mA; T_{amb} = 25 °C.

Fig.33 Forward transfer admittance and phase as a function of frequency; typical values; amplifier b.



V_{DS} = 5 V; V_{G2} = 4 V; I_D = 12 mA; T_{amb} = 25 °C.

Fig.34 Output admittance as a function of frequency; typical values; amplifier b.

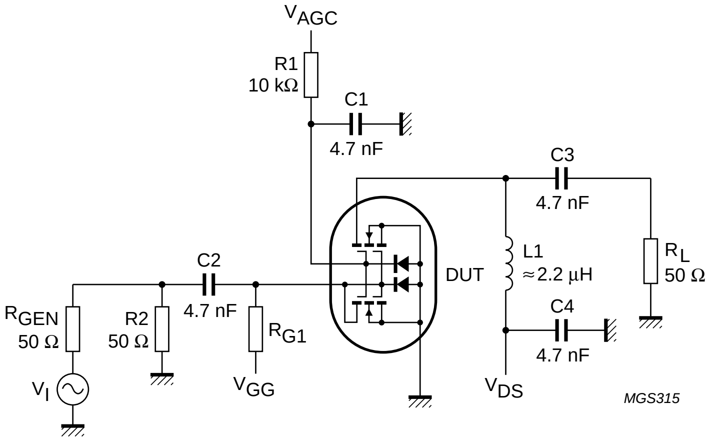


Fig.35 Cross-modulation test set-up (for one MOS-FET).

Amplifier b scattering parameters

V_{DS} = 5 V; $V_{G2\text{-}S}$ = 4 V; I_D = 12 mA; T_{amb} = 25 °C

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	0.991	−3.43	3.44	176.33	0.0008	86.54	0.988	−1.69
100	0.989	−6.84	3.43	172.66	0.0015	84.92	0.987	−3.38
200	0.982	−13.61	3.41	165.44	0.0029	80.95	0.985	−6.72
300	0.973	−20.37	3.38	158.20	0.0041	77.63	0.982	−10.08
400	0.961	−27.05	3.34	151.04	0.0051	74.43	0.978	−13.46
500	0.947	−33.68	3.29	144.02	0.0058	71.86	0.973	−16.83
600	0.933	−40.17	3.23	137.12	0.0062	70.28	0.969	−20.25
700	0.919	−46.54	3.16	130.22	0.0063	70.72	0.965	−23.68
800	0.905	−52.86	3.09	123.22	0.0065	72.37	0.960	−27.22
900	0.890	−58.60	3.02	116.84	0.0055	75.91	0.958	−30.57
1000	0.881	−64.34	2.94	110.20	0.0058	89.82	0.958	−34.14

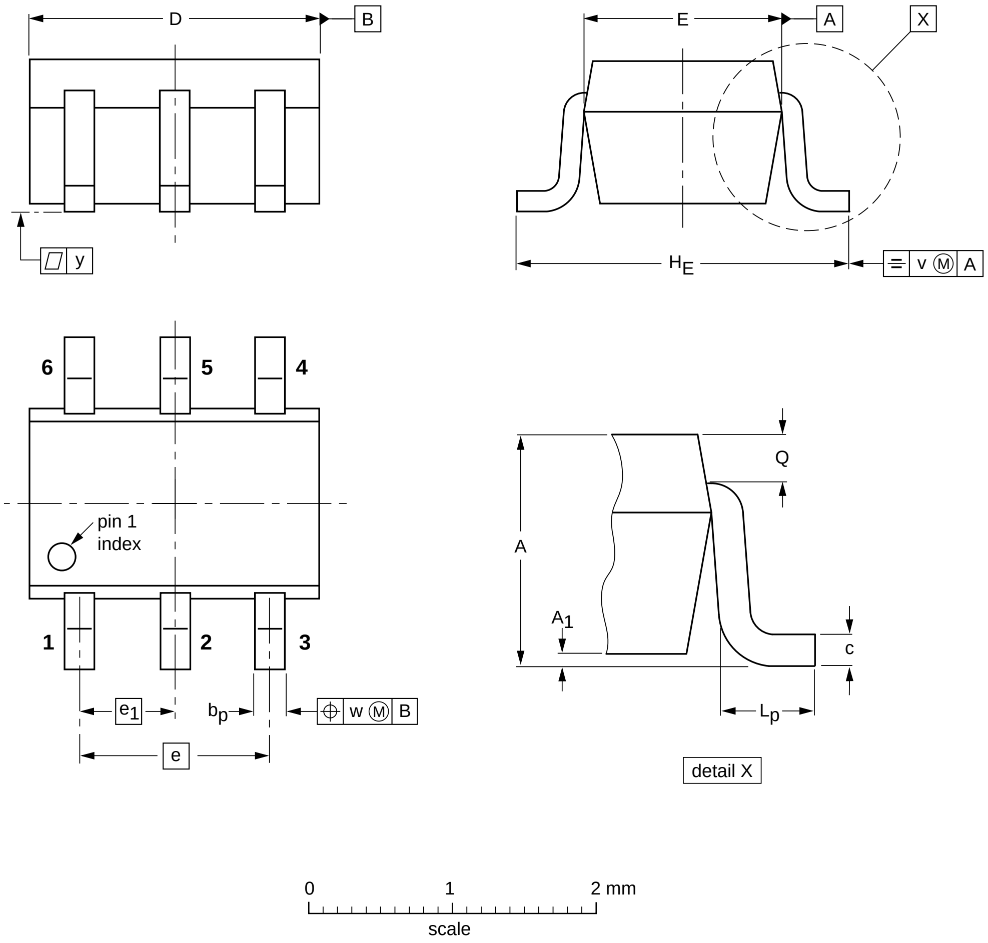
Noise data

V_{DS} = 5 V; $V_{G2\text{-}S}$ = 4 V; I_D = 12 mA; T_{amb} = 25 °C

f (MHz)	F_{min} (dB)	Γ_{opt}		R_n (Ω)
		(ratio)	**(deg)**	
400	1.3	0.648	14.4	28.8
800	1.4	0.604	31.1	27.9

PACKAGE OUTLINE

Plastic surface-mounted package; 6 leads SOT363



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT363			SC-88			~~04-11-08~~ 06-03-16

DATA SHEET STATUS

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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