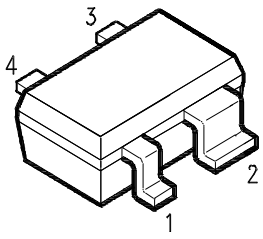
Preliminary Datasheet

Features

- Low noise figure and high associated gain for high IP3 receiver stages up to 4GHz
  Suitable for PCS CDMA and UMTS applications
  (F = 0.50dB; Ga = 17dB @ 3V; 30mA; f=1.8GHz)
- Low cost miniature package SOT343
- L_G = 0.4µm; W_G = 800µm
- Tape and Reel packaging



Pin assignment:
1 = gate
2 = source
3 = drain
4 = source

ESD: Electrostatic discharge sensitive device, observe handling precautions!

Type	Marking	Ordering code (taped)	Package 1)
CFH 800	**N8s**	**on request**	**SOT343**

Maximum ratings	**Symbol**		**Unit**
Drain-source voltage	V_{DS}	5.5	V
Drain-gate voltage	V_{DG}	6.5	V
Gate-source voltage	V_{GS}	-2.0	V
Drain current	I_D	160	mA
Channel temperature	T_{Ch}	150	°C
Storage temperature range	T_{stg}	-65...+150	°C
Total power dissipation ($T_S \leq$ tbd°C) 2)	P_{tot}	350	mW
Thermal resistance			
Channel-soldering point source	R_{thChS}	198	K/W

1) Dimensions see page 7

2) T_S: Temperature measured at soldering point

Electrical characteristics at T_A = 25°C

unless otherwise specified

Characteristics	Symbol	min	typ	max	Unit
Drain-source saturation current V_{DS} = 3 V V_{GS} = 0 V	I_{DSS}	0	80	140	mA
Pinch-off voltage V_{DS} = 3 V I_D = 1 mA	$V_{GS(P)}$	-0.7	-0.25	0.0	V
Gate leakage current V_{DS} = 3 V I_D = 30 mA	I_G	-	-	10	µA
Transconductance V_{DS} = 3 V I_D = 30 mA	g_m	140	200	-	mS
Noise figure* V_{DS} = 3 V I_D = 10 mA f = 1.8 GHz V_{DS} = 3 V I_D = 30 mA f = 1.8 GHz	F	-	0.56 0.50	- 1	dB
Associated gain* V_{DS} = 3 V I_D = 10 mA f = 1.8 GHz V_{DS} = 3 V I_D = 30 mA f = 1.8 GHz	G_a	- 16	15 17	-	dB
IIP3* V_{DS} = 3 V I_D = 10 mA f = 1.8 GHz V_{DS} = 3 V I_D = 30 mA f = 1.8 GHz	$IIP3$	-	8.5 13	-	dBm

* Parameters are measured for input impedance for minimum noise figure and output impedance for maximum gain.

Typical Common Source S – Parameters
@ 3V; 10mA; Zo = 50Ω

f[GHz]	S11 Mag	S11 Ang	S21 Mag	S21 Ang	S12 Mag	S12 Ang	S22 Mag	S22 Ang
0.1	0.9625	-14.2	11.1164	168.7	0.0338	73.6	0.6449	-15.7
0.2	0.9396	-22	10.9663	163.1	0.0385	72.1	0.6334	-22.4
0.3	0.9166	-33.4	10.6984	155	0.0481	68.9	0.6178	-32.7
0.4	0.8861	-44.6	10.2628	146.9	0.0607	64.2	0.594	-42.2
0.5	0.8513	-54.8	9.74	139.7	0.0725	59.8	0.5711	-51.3
0.6	0.8163	-64.6	9.2192	132.8	0.0825	55.8	0.5428	-59.5
0.7	0.7865	-73.6	8.7366	126.7	0.092	52.8	0.5211	-67.5
0.8	0.7582	-82.5	8.2519	121.1	0.0982	50.2	0.494	-75
0.9	0.7312	-90.6	7.7566	116	0.1035	48.2	0.472	-81.9
1	0.708	-98.4	7.3039	111.1	0.1072	45.4	0.4472	-88.7
1.1	0.6843	-105.7	6.8673	106.4	0.1117	43.5	0.4253	-94.7
1.2	0.6665	-112.8	6.4912	102.1	0.1159	41.1	0.3995	-100.6
1.3	0.6535	-119.1	6.1071	98.1	0.1194	39.9	0.379	-106.3
1.4	0.6451	-125.2	5.7901	94.3	0.1225	38.7	0.3581	-112.7
1.5	0.6368	-130.7	5.4939	90.6	0.1245	37.7	0.3445	-118.4
1.6	0.6299	-136.3	5.2283	87.1	0.1262	36.6	0.3277	-124.5
1.7	0.6246	-141.4	4.9491	83.9	0.1274	35.6	0.3156	-130.7
1.8	0.6208	-146.4	4.7146	80.8	0.1286	35	0.3044	-138
1.9	0.6164	-151.1	4.4907	77.5	0.1302	34.4	0.3001	-144.8
2	0.6147	-155.6	4.2842	74.7	0.1314	34	0.2953	-151.5
2.1	0.6145	-160	4.081	72.1	0.1324	33.3	0.2966	-157.7
2.2	0.6151	-163.8	3.9114	69.3	0.1328	32.9	0.2982	-163.8
2.3	0.6162	-167.7	3.7677	66.3	0.1342	32.6	0.3056	-169.5
2.4	0.6171	-171.1	3.6238	63.5	0.1345	32.5	0.3107	-174.2
2.5	0.6184	-174.8	3.4535	61.1	0.1361	32	0.3205	-178.8
3	0.6168	171.5	2.8397	50.5	0.1374	31.8	0.3641	166.2
3.5	0.612	160.2	2.4102	40.2	0.1387	34	0.3952	158.3
4	0.6154	150.8	2.1095	32.1	0.1422	37.4	0.4028	154.3
4.5	0.6081	142.7	1.9033	23.7	0.1523	40.5	0.3976	150.6
5	0.6042	134.8	1.7615	15	0.1667	41.9	0.3967	145.2
5.5	0.6158	127	1.6573	5.5	0.1839	41	0.3972	137.2
6	0.6341	118.7	1.5577	-5	0.1931	38	0.4	123

Typical Common Source Noise – Parameters
@ 3V; 10mA; Zo = 50Ω

f[GHz]	F_{min} [dB]	G_a [dB]	Mag (Γopt)	Phase(Γopt) [deg]	$R_n/50$
0.9	0.41	18.7	0.33	23	0.14
1.8	0.56	15.6	0.37	98	0.10
2.4	0.61	13.5	0.37	136	0.10
3.0	0.69	11.4	0.38	170	0.06

Typical Common Source S – Parameters
@ 3V; 20mA; Zo = 50Ω

f[GHz]	S11 Mag	S11 Ang	S21 Mag	S21 Ang	S12 Mag	S12 Ang	S22 Mag	S22 Ang
0.1	0.957	-19.4	15.4898	166.1	0.0257	92.3	0.513	-19.7
0.2	0.9263	-28.6	15.0437	159.5	0.0298	78.5	0.5015	-29.5
0.3	0.8912	-42	14.4003	150	0.0383	67.6	0.4911	-43.3
0.4	0.8527	-55.1	13.5077	141.1	0.0511	63.3	0.4705	-55.8
0.5	0.8069	-66.9	12.5367	133.1	0.0606	58.9	0.4496	-67
0.6	0.7669	-78	11.5987	126	0.0687	54.3	0.4276	-77.2
0.7	0.7328	-87.8	10.7466	119.8	0.0753	51.6	0.4104	-86
0.8	0.7028	-97.3	9.9389	114.3	0.0793	49.2	0.391	-94.7
0.9	0.6782	-105.6	9.2058	109.4	0.0833	47.6	0.3741	-102.2
1	0.6559	-113.5	8.5522	104.6	0.0862	45.5	0.357	-110.1
1.1	0.6367	-120.5	7.967	100.4	0.0899	44.5	0.3423	-116.6
1.2	0.6228	-127.4	7.4486	96.5	0.0927	43.9	0.3275	-123.6
1.3	0.6148	-133.5	6.9662	92.9	0.0958	43.4	0.3147	-129.8
1.4	0.6095	-139.1	6.5399	89.4	0.0981	42.6	0.3029	-137.2
1.5	0.6056	-144.3	6.166	86.1	0.1006	42.1	0.2957	-143.2
1.6	0.6036	-149.4	5.8202	82.9	0.1028	41.9	0.2893	-149.9
1.7	0.603	-153.9	5.5013	79.9	0.1046	41.7	0.2874	-155.7
1.8	0.6027	-158.3	5.2209	77.1	0.1062	41.1	0.2873	-162.7
1.9	0.6031	-162.5	4.9601	74.3	0.1085	40.9	0.2905	-168.5
2	0.6038	-166.5	4.7314	71.6	0.1107	41	0.2939	-174.5
2.1	0.6071	-170.2	4.5082	69.1	0.1126	41	0.3017	-179.4
2.2	0.6095	-173.4	4.3096	66.8	0.1142	40.9	0.3098	175.8
2.3	0.6137	-176.9	4.1146	64.2	0.1156	40.8	0.3214	171.6
2.4	0.6161	179.9	3.9305	61.5	0.1171	41.1	0.3296	167.8
2.5	0.6193	176.7	3.7486	59.2	0.1183	41.2	0.3432	164.4
3	0.6317	164.5	3.0678	49.6	0.1262	42	0.3936	154
3.5	0.6319	154	2.5974	40.6	0.1312	44.1	0.4201	148.5
4	0.6312	145	2.2788	33	0.1405	47.1	0.4252	144.9
4.5	0.6218	137.3	2.0568	24.9	0.1557	49.2	0.4164	141
5	0.6144	129.7	1.8964	16.6	0.1744	49.7	0.4099	135.7
5.5	0.6215	122.6	1.7717	7.3	0.1943	47.7	0.4095	127.8
6	0.6389	115	1.6692	-3.5	0.2042	42.8	0.4137	114

Typical Common Source Noise – Parameters
@ 3V; 20mA; Zo = 50Ω

f[GHz]	F_{min} [dB]	G_a [dB]	Mag (Γopt)	Phase(Γopt) [deg]	$R_n/50$
0.9	0.39	20.4	0.28	36	0.11
1.8	0.52	16.5	0.36	115	0.09
2.4	0.57	13.6	0.38	134	0.08
3.0	0.69	12	0.40	175	0.06

Typical Common Source S – Parameters
@ 3V; 30mA; Zo = 50Ω

f[GHz]	S11 Mag	S11 Ang	S21 Mag	S21 Ang	S12 Mag	S12 Ang	S22 Mag	S22 Ang
0.1	0.9654	-20	18.0171	164.6	0.0133	29.7	0.4513	-22.9
0.2	0.9138	-30.7	17.3207	157.5	0.0222	56.2	0.4306	-34.6
0.3	0.8673	-46.5	16.3632	147.3	0.0373	65.4	0.4156	-51.6
0.4	0.8224	-61	15.1455	138	0.0472	61.9	0.405	-65.2
0.5	0.7789	-73.5	13.8972	129.8	0.0555	58.7	0.3886	-77.3
0.6	0.7403	-85.1	12.708	122.7	0.0619	54.9	0.3734	-88.4
0.7	0.7062	-95.1	11.6667	116.5	0.0663	52.3	0.3624	-97.8
0.8	0.6772	-104.5	10.683	111.1	0.0712	50.5	0.3507	-106.9
0.9	0.6531	-112.7	9.828	106.4	0.0748	49.1	0.3377	-114.3
1	0.6348	-120.4	9.0566	102	0.079	47.4	0.3262	-122.3
1.1	0.6211	-127.3	8.3928	98	0.0818	46.5	0.3153	-129.1
1.2	0.6105	-133.9	7.8152	94.1	0.0842	46	0.305	-136
1.3	0.6033	-139.5	7.2867	90.5	0.0872	45.9	0.2968	-142.2
1.4	0.5994	-145	6.8305	87.1	0.09	45.2	0.2902	-149.2
1.5	0.597	-149.9	6.4218	84	0.0928	45.4	0.2884	-155.1
1.6	0.5958	-154.8	6.0636	81.1	0.0948	45	0.2853	-161.6
1.7	0.5955	-159.1	5.7329	78.2	0.0973	45.3	0.2866	-167.2
1.8	0.5967	-163.3	5.4261	75.4	0.0996	45.3	0.2892	-173.6
1.9	0.5991	-167.2	5.1489	72.6	0.1012	45.8	0.2968	-178.7
2	0.6022	-170.9	4.8835	70.2	0.1029	45.9	0.3037	176.3
2.1	0.6071	-174.4	4.6448	67.8	0.1049	45.8	0.3129	172
2.2	0.6114	-177.4	4.4241	65.4	0.1074	45.3	0.3223	167.9
2.3	0.6159	179.4	4.2115	63.1	0.1092	45.1	0.3351	164.2
2.4	0.6176	176.5	4.0336	60.8	0.1116	44.9	0.3455	161
2.5	0.6201	173.5	3.8571	58.7	0.1131	45.4	0.3592	158.3
3	0.6346	161.8	3.1643	49.3	0.1225	47.1	0.4066	149.6
3.5	0.6381	151.7	2.6828	40.4	0.1314	49	0.4351	144.5
4	0.6421	142.7	2.3404	33.2	0.1407	51.4	0.44	141.5
4.5	0.6281	135.1	2.1167	25.4	0.158	52.7	0.4268	137.7
5	0.6189	127.5	1.9576	17.4	0.1779	52.4	0.4206	132
5.5	0.6244	120.8	1.8288	7.7	0.1996	49.9	0.4179	124
6	0.6394	113.5	1.7148	-2.4	0.2085	44.3	0.4245	110.7

Typical Common Source Noise – Parameters
@ 3V; 30mA; Zo = 50Ω

f[GHz]	F_{min} [dB]	G_a [dB]	Mag (Γopt)	Phase(Γopt) [deg]	$R_n/50$
0.9	0.38	21.1	0.30	45	0.09
1.8	0.52	16.8	0.39	125	0.08
2.4	0.56	14.0	0.42	145	0.07
3.0	0.65	12.2	0.43	179	0.06

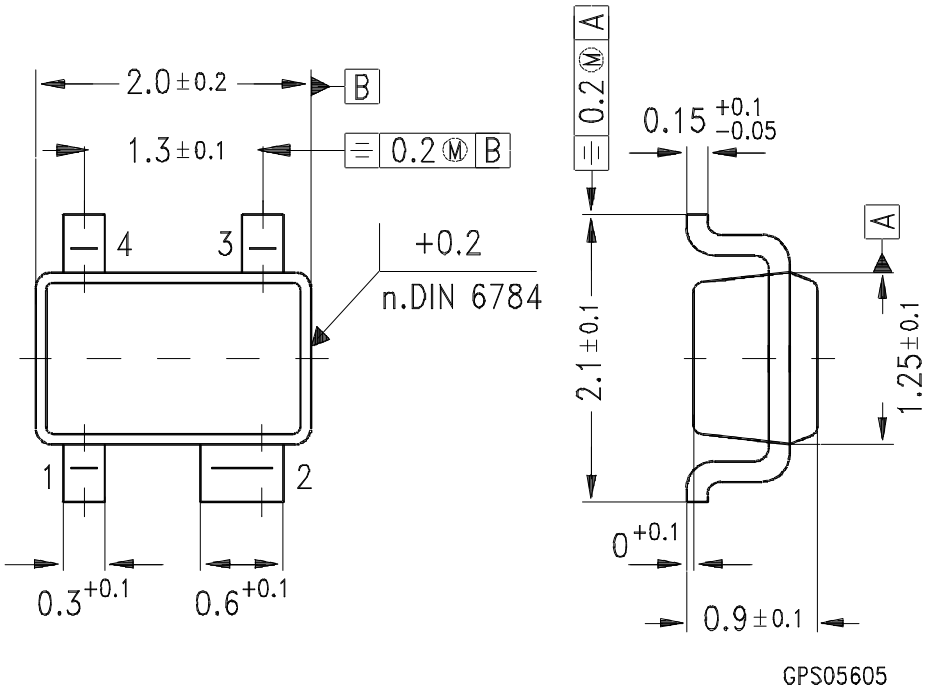
Typical Common Source S – Parameters
@ 5V; 50mA; Zo = 50Ω

f[GHz]	S11 Mag	S11 Ang	S21 Mag	S21 Ang	S12 Mag	S12 Ang	S22 Mag	S22 Ang
0.1	0.9304	-23.8	20.5744	162.4	0.0224	99.5	0.4514	-30.4
0.2	0.8794	-34.8	19.5344	155	0.028	78.6	0.4204	-41
0.3	0.8331	-51.1	18.1654	144.2	0.0388	64.1	0.3928	-57.1
0.4	0.7848	-66.2	16.6331	134.5	0.0451	58.3	0.3777	-71.1
0.5	0.7407	-79.4	15.0631	126.5	0.0519	56	0.3613	-83.4
0.6	0.7021	-91.1	13.6278	119.6	0.0564	52.8	0.3467	-94.6
0.7	0.6735	-101.2	12.3385	113.5	0.0602	51.2	0.3358	-104.2
0.8	0.6475	-110.5	11.2236	108.2	0.0638	50	0.3252	-113.1
0.9	0.6272	-118.7	10.2679	103.5	0.0675	50	0.3148	-120.6
1	0.6112	-126.5	9.4523	99.4	0.0712	49.1	0.3054	-128.5
1.1	0.6001	-133.2	8.7468	95.6	0.0735	48	0.296	-135.3
1.2	0.5925	-139.6	8.1191	92	0.0765	48.1	0.2882	-142.2
1.3	0.5881	-144.9	7.5775	88.7	0.0788	47.9	0.2813	-148.2
1.4	0.5854	-150	7.0782	85.6	0.0824	48.2	0.2768	-154.7
1.5	0.5851	-154.6	6.6593	82.4	0.0847	48.2	0.275	-160.4
1.6	0.5855	-159.2	6.2687	79.4	0.0877	48.4	0.2741	-166.6
1.7	0.5877	-163.2	5.921	76.6	0.0891	48.6	0.2766	-172.2
1.8	0.589	-167.1	5.5885	74.1	0.091	48.8	0.2803	-178
1.9	0.5924	-170.9	5.2758	71.4	0.0921	49.1	0.2885	177.1
2	0.5962	-174.4	5.0084	69	0.0953	49.1	0.295	172.2
2.1	0.6024	-177.6	4.7644	66.8	0.0986	48.8	0.3049	168.1
2.2	0.6069	179.6	4.5556	64.6	0.1016	48.9	0.3143	164
2.3	0.6123	176.6	4.351	62.3	0.1045	49.4	0.3278	160.9
2.4	0.6156	174	4.1578	59.8	0.1065	49.6	0.338	158.1
2.5	0.618	171	3.9735	57.7	0.1088	49.4	0.3511	155.9
3	0.6359	160.1	3.238	48.8	0.119	50.2	0.4005	147.7
3.5	0.6397	150.2	2.7451	40.4	0.1285	52.1	0.4286	143.1
4	0.6464	141.4	2.4056	33.1	0.1404	54.1	0.4319	140.4
4.5	0.6341	134.1	2.1792	25.5	0.1573	55.6	0.421	136.8
5	0.6227	126.4	2.0069	17.3	0.1778	55.2	0.4123	131.3
5.5	0.627	120	1.8774	7.7	0.1994	51.8	0.4089	123.4
6	0.6456	112.5	1.7629	-2.4	0.2098	46.9	0.4157	110.2

Typical Common Source Noise – Parameters
@ 5V; 50mA; Zo = 50Ω

f[GHz]	F_{min} [dB]	G_a [dB]	Mag (Γopt)	Phase(Γopt) [deg]	$R_n/50$
0.9	0.44	21.3	0.32	44	0.08
1.8	0.53	16.9	0.45	122	0.07
2.4	0.59	14.1	0.47	144	0.07
3.0	0.69	12.3	0.44	178	0.06

Semiconductor Device Outline SOT343



Pin assignment:

1 = gate
2 = source
3 = drain
4 = source

Published by Infineon Technologies AG, Marketing-Communication, St.-Martin-Strasse 53, D-81541 München.