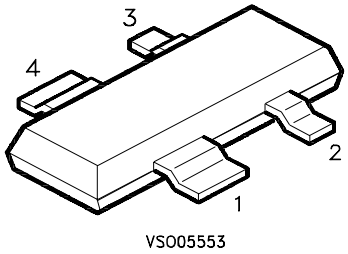
D a t a s h e e t

* Low noise
* High gain
* For low-noise front end amplifiers
* For DBS down converters



ESD: **E**lectro**s**tatic **d**ischarge sensitive device, observe handling precautions!

Type	Marking	Ordering code (tape and reel)	Pin Configuration 1	2	3	4	Package 1)
CFY 35-20	NA	Q62702-F1393	S	D	S	G	MW-4
CFY 35-23	NB	Q62702-F1394					

Maximum ratings	**Symbol**	**Value**	**Unit**
Drain-source voltage	V_{DS}	5	V
Drain-gate voltage	V_{DG}	6	V
Gate-source voltage	V_{GS}	-4 ... 0	V
Drain current	I_D	60	mA
Channel temperature	T_{Ch}	150	°C
Storage temperature range	T_{stg}	-40...+150	°C
Total power dissipation (TS ≤ 53°C) 2)	P_{tot}	180	mW
Thermal resistance			
Channel-soldering point 2)	R_{thChS}	540	K/W

1) Dimensions see chapter Package Outlines
2) T_S is measured on the source 1 lead at the soldering point to the PCB.

Electrical characteristics at T_A = 25°C, unless otherwise specified

Characteristics	Symbol	min	typ	max	Unit
Drain-source saturation current V_{DS} = 2.5 V, V_{GS} = 0 V	I_{DSS}	10	25	45	mA
Pinch-off voltage V_{DS} = 2.5 V I_D = 1 mA	$V_{GS(P)}$	-0.2	-1.2	-2.5	V
Transconductance V_{DS} = 2.5 V I_D = 10 mA	g_m	20	30	-	mS
Gate leakage current V_{DS} = 2.5 V I_D = 10 mA	I_G	-	0.1	2	µA
Noise figure V_{DS} = 2.5 V I_D = 10 mA f = 12 GHz	F				dB
CFY 35-20		-	1.9	2.0	
CFY 35-23		-	2.2	2.3	
Associated gain V_{DS} = 2.5 V I_D = 10 mA f = 12 GHz	G_a	8	8.5	-	dB

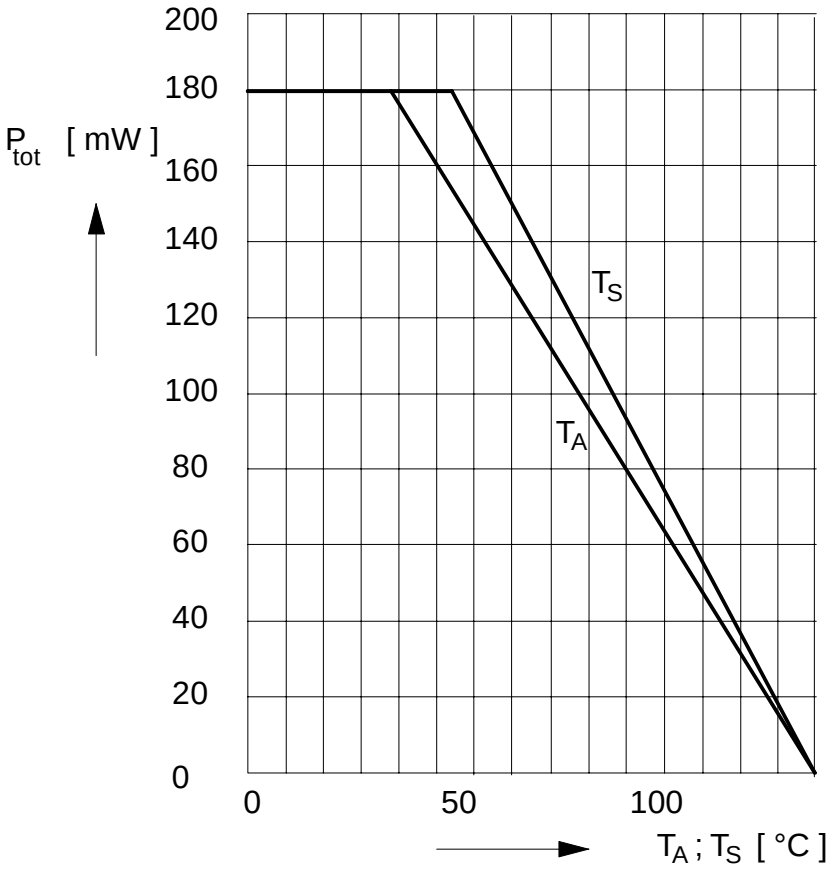
Typical Common Source Noise Parameters

I_D = 10 mA V_{DS} = 2.5 V Z_0 = 50 Ω

f	F_{min}	G_a	Γ_{opt}		R_n	r_n	N	$F_{50\Omega}$	$G(F_{50\ \Omega})$
GHz	dB	dB	MAG	ANG	Ω	–	-	dB	dB
2	0.60	17.6	0.82	32	35	0.7	0.08	2.35	12.9
4	0.83	14.2	0.73	65	25	0.5	0.11	2.30	11.2
6	1.10	11.8	0.65	105	14	0.28	0.14	2.35	9.5
8	1.38	10.5	0.60	146	5.5	0.11	0.19	2.55	7.8
10	1.64	9.4	0.58	-177	3	0.06	0.22	2.80	6.5
12	1.90	8.5	0.61	-139	10	0.2	0.28	3.50	4.9
14	2.15	7.9	0.62	-110	26	0.52	0.33	3.95	3.8

Total Power Dissipation $P_{tot} = f(T_s;T_A)$

* package mounted on alumina



Typical Common Source S-Parameters

I_D = 10 mA V_{DS} = 2.5 V Z_0 = 50 Ω

f	S11		S21		S12		S22	
GHz	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
0.5	0.99	-9.3	2.930	170.9	0.014	82.6	0.76	-6.1
1.0	0.98	-19.1	2.938	161.8	0.026	75.9	0.76	-12.6
1.5	0.97	-29.2	2.948	152.4	0.039	67.8	0.75	-19.4
2.0	0.95	-39.8	2.936	142.7	0.051	60.3	0.73	-26.5
2.5	0.93	-50.5	2.904	133.0	0.062	52.7	0.71	-33.5
3.0	0.91	-60.8	2.859	123.7	0.072	45.7	0.69	-40.0
3.5	0.89	-70.9	2.818	114.8	0.082	39.0	0.67	-46.2
4.0	0.87	-81.2	2.791	105.9	0.090	32.6	0.64	-52.5
4.5	0.85	-91.9	2.770	96.7	0.098	26.1	0.61	-59.1
5.0	0.82	-103.2	2.736	87.1	0.104	18.9	0.58	-66.5
5.5	0.79	-114.9	2.672	77.4	0.108	11.8	0.54	-74.6
6.0	0.77	-126.2	2.586	68.0	0.111	5.3	0.51	-83.0
6.5	0.75	-136.8	2.489	59.0	0.111	-0.9	0.48	-91.6
7.0	0.74	-146.7	2.392	50.4	0.110	-6.5	0.46	-100.0
7.5	0.73	-155.7	2.299	42.1	0.108	-11.3	0.45	-107.8
8.0	0.72	-164.1	2.211	34.2	0.106	-15.5	0.44	-114.9
8.5	0.71	-172.1	2.133	26.7	0.104	-19.1	0.42	-121.7
9.0	0.70	180.0	2.065	19.3	0.101	-22.4	0.41	-128.8
9.5	0.70	172.1	2.007	12.1	0.099	-25.2	0.39	-136.7
10.0	0.70	163.8	1.960	4.5	0.096	-27.3	0.37	-146.1
10.5	0.70	155.0	1.907	-3.6	0.094	-29.5	0.36	-157.2
11.0	0.70	146.3	1.837	-11.9	0.092	-31.7	0.36	-169.1
11.5	0.70	138.1	1.751	-19.8	0.088	-33.2	0.36	179.0
12.0	0.70	130.9	1.664	-26.9	0.085	-33.2	0.37	168.0
12.5	0.72	124.9	1.589	-33.5	0.084	-32.3	0.39	158.6
13.0	0.73	118.8	1.526	-40.2	0.085	-31.1	0.41	150.2
13.5	0.74	112.3	1.462	-47.1	0.086	-30.5	0.43	142.3
14.0	0.75	106.0	1.399	-54.0	0.089	-31.3	0.44	134.1
14.5	0.76	100.0	1.339	-60.7	0.093	-32.0	0.46	125.7
15.0	0.77	94.3	1.275	-67.1	0.096	-32.6	0.47	116.8
15.5	0.78	89.3	1.209	-73.2	0.099	-33.2	0.49	108.3
16.0	0.80	85.3	1.156	-78.7	0.103	-34.1	0.52	101.3
16.5	0.82	81.4	1.113	-84.3	0.107	-35.6	0.55	95.5
17.0	0.82	77.4	1.073	-90.1	0.114	-37.9	0.57	90.1
17.5	0.82	72.5	1.036	-96.0	0.120	-40.6	0.58	84.1
18.0	0.82	69.9	1.010	-99.4	0.129	-41.2	0.58	80.3