

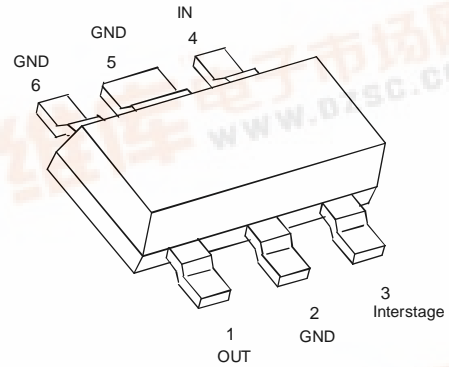
SIEMENS

GaAs MMIC

CGY 62

Datasheet

- * Two-stage microwave broadband amplifier IC
- * 50 Ω input / output
- * Operating voltage range: 2.7 to 5 V
- * High gain and output power
(typ.: G=20 dB, P_{-1dB} =17,5 dBm @ 4.5V, 1GHz)
- * Frequency range 200 MHz ... 2.5 GHz



ESD: **E**lectrostatic **d**ischarge sensitive device, observe handling precautions!

Type	Marking	Ordering code (taped)	Package 1)
CGY 62	Y6s	Q68000-A8787	MW-6

Maximum ratings	Symbol		Unit
Drain voltage	V_D	6	V
Channel temperature	T_{Ch}	150	°C
Storage temperature range	T_{stg}	-55...+150	°C
Total power dissipation ($T_S \leq 70^\circ C$) 2)	P_{tot}	800	mW
Thermal resistance			
Channel-soldering point (GND)	R_{thChS}	≤ 100	K/W
Junction-ambient 3)	R_{thJA}	< 180	K/W

1) Dimensions see chapter Package Outlines
 2) Please care for sufficient heat dissipation on the pcb!
 3) Package mounted on alumina 15 mm x 16.7 mm x 0.7 mm



Electrical characteristics

$T_A = 25^\circ\text{C}$

$V_D = 4,5\text{ V}$

$R_S = R_L = 50\ \Omega$

unless otherwise specified

Characteristics	Symbol	min	typ	max	Unit
Drain current	I_D	-	130	175	mA
Power Gain f = 200 MHz to 1800 MHz f = 2500 MHz	G	18 -	19 15	- -	dB
Gain flatness f = 200 MHz to 1800 MHz	ΔG	-	2	3.5	dB
Noise figure f = 200 MHz to 1800 MHz	F	-	3.5	4.0	dB
Input return loss f = 200 MHz to 500 MHz f = 500 MHz to 2500 MHz	RL_{in}	- 10	8 15	- -	dB
Output return loss f = 200 MHz to 2500 MHz	RL_{out}	10	13	-	dB
Third order intercept point two-tone intermodulation test f ₁ = 806 MHz f ₂ = 810 MHz P _o = -10 dBm (both carriers)	IP_3	-	30	-	dBm
Output power at 1dB gain compression f = 200 MHz to 1800 MHz	P_{-1dB}	-	17.5	-	dBm

Electrical characteristics

at $T_A = 25^\circ\text{C}$

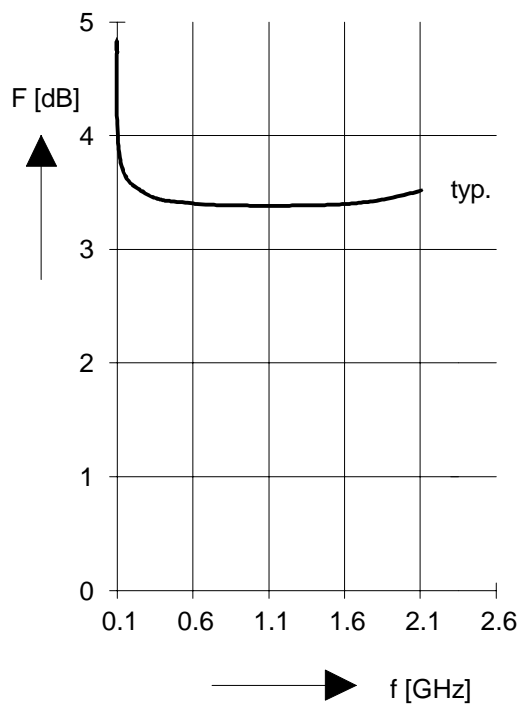
$V_D = 4.5\text{ V}$

$R_S = R_L = 50\ \Omega$

unless otherwise specified

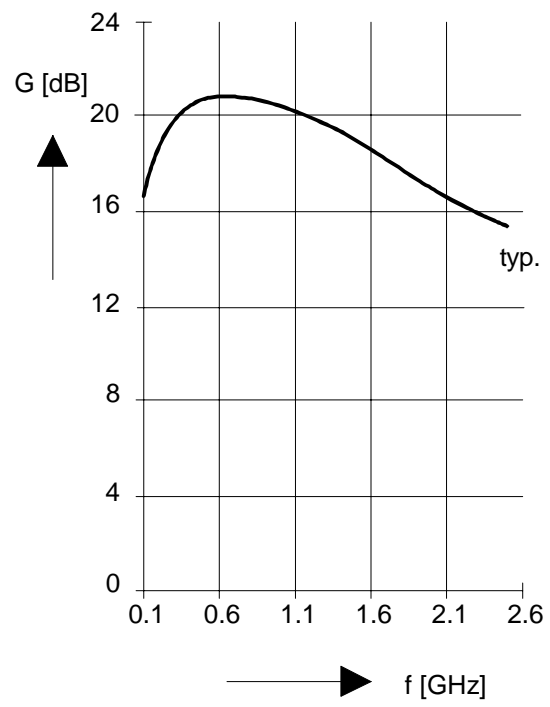
Noise figure $F=f(f)$

$V_s = 4.5\text{V}$



Power gain $G=f(f)$

$V_s = 4.5\text{V}$



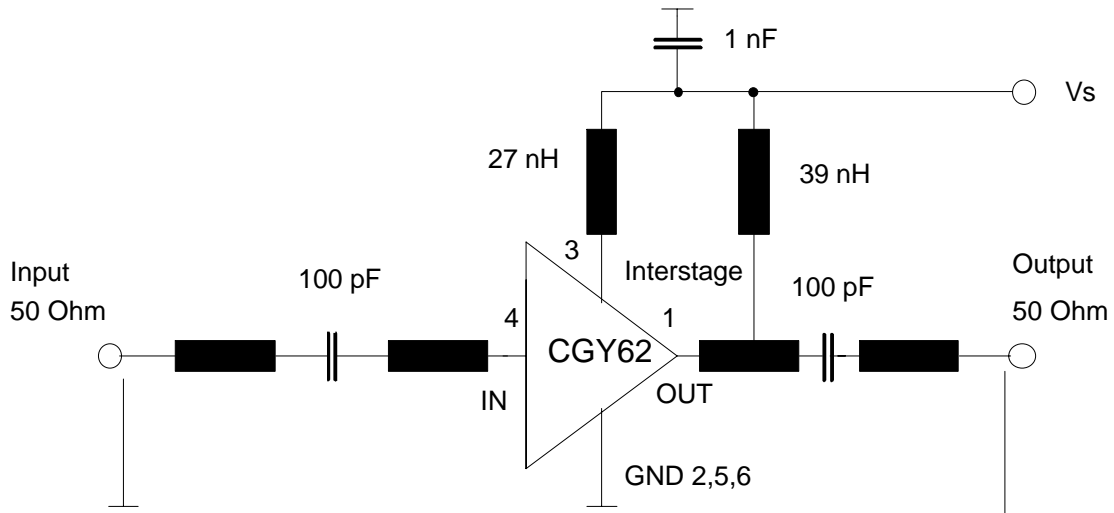
Typical S-Parameters

($V_D = 4.5 \text{ V}$ $V_G = 0 \text{ V}$ $Z_O = 50 \Omega$)

f/GHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.1	0.81	-42	6.64	48	0.006	107.0	0.29	-19
0.3	0.41	-84	10.06	4	0.010	40.0	0.21	-31
0.5	0.28	-105	10.75	-19	0.011	30.0	0.18	-34
0.7	0.21	-118	10.82	-38	0.011	31.0	0.17	-32
0.9	0.17	-124	10.66	-54	0.012	30.0	0.17	-32
1.1	0.13	-128	10.37	-71	0.013	31.0	0.17	-29
1.3	0.11	-129	9.95	-86	0.013	33.0	0.16	-24
1.5	0.08	-131	9.41	-101	0.014	33.0	0.16	-17
1.7	0.06	-134	8.80	-116	0.015	34.0	0.17	-9
1.9	0.04	-141	8.10	-130	0.015	33.0	0.19	-2
2.1	0.03	-141	7.29	-143	0.015	39.0	0.20	-3
2.3	0.05	-172	6.61	-155	0.016	42.0	0.20	0
2.5	0.07	163	6.04	-166	0.018	44.0	0.19	3
2.7	0.09	152	5.46	-178	0.019	44.0	0.19	4
2.9	0.11	149	4.92	172	0.021	45.0	0.18	4
3.1	0.14	149	4.45	161	0.022	45.0	0.17	1
3.3	0.16	150	4.00	152	0.024	45.0	0.16	-4
3.5	0.18	150	3.61	142	0.026	44.0	0.15	-10
3.7	0.18	151	3.21	132	0.027	44.0	0.16	-17
3.9	0.19	156	2.84	126	0.028	43.0	0.17	-29

Application Circuit

f = 800 MHz to 1800 MHz



50 Ohm Microstripline

Pin assignment:

Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
OUT	GND	Interstage	IN	GND	GND