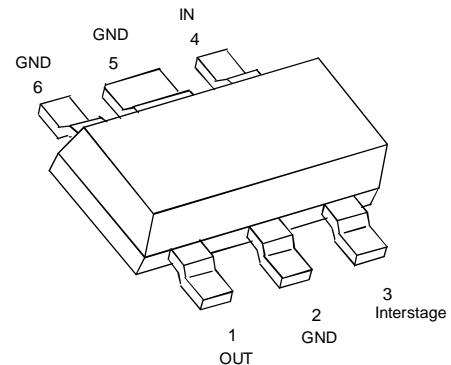


# Datasheet

- \* Two-stage microwave broadband amplifier IC
- \* 50  $\Omega$  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	$^{\circ}C$
Storage temperature range	$T_{stg}$	-55...+150	$^{\circ}C$
Total power dissipation ( $T_S \leq 70^{\circ}C$ ) <sup>2)</sup>	$P_{tot}$	800	mW
<b>Thermal resistance</b>			
Channel-soldering point (GND)	$R_{thChS}$	$\leq 100$	K/W
Junction-ambient <sup>3)</sup>	$R_{thJA}$	$< 180$	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	$\Delta G$	-	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 <sub>1</sub> = 806 MHz f <sub>2</sub> = 810 MHz P <sub>o</sub> = -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

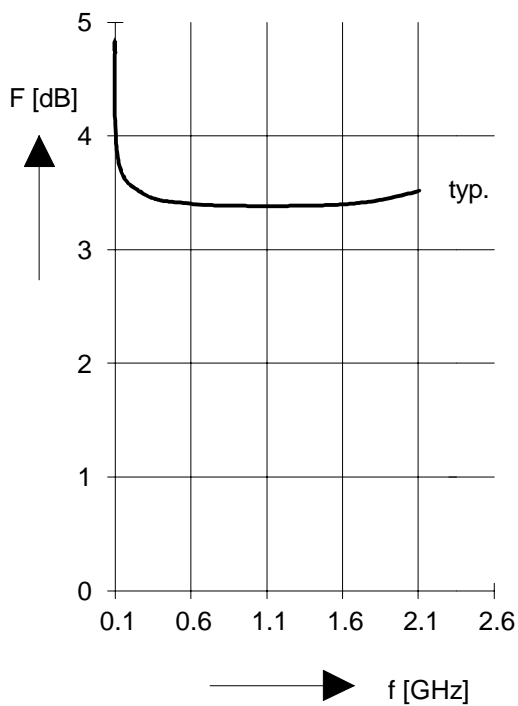
at  $T_A = 25^\circ\text{C}$

$V_D = 4.5\text{ V}$

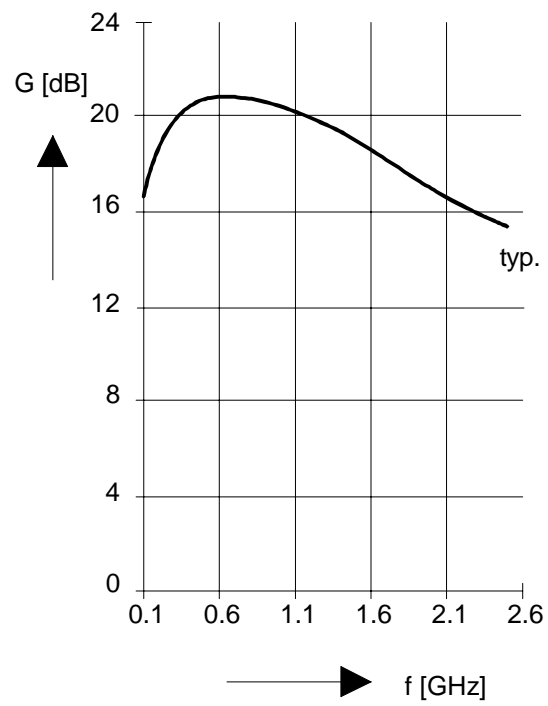
$R_S = R_L = 50\ \Omega$

unless otherwise specified

Noise figure  $F=f(f)$   
 $V_s = 4.5\text{V}$



Power gain  $G=f(f)$   
 $V_s = 4.5\text{V}$



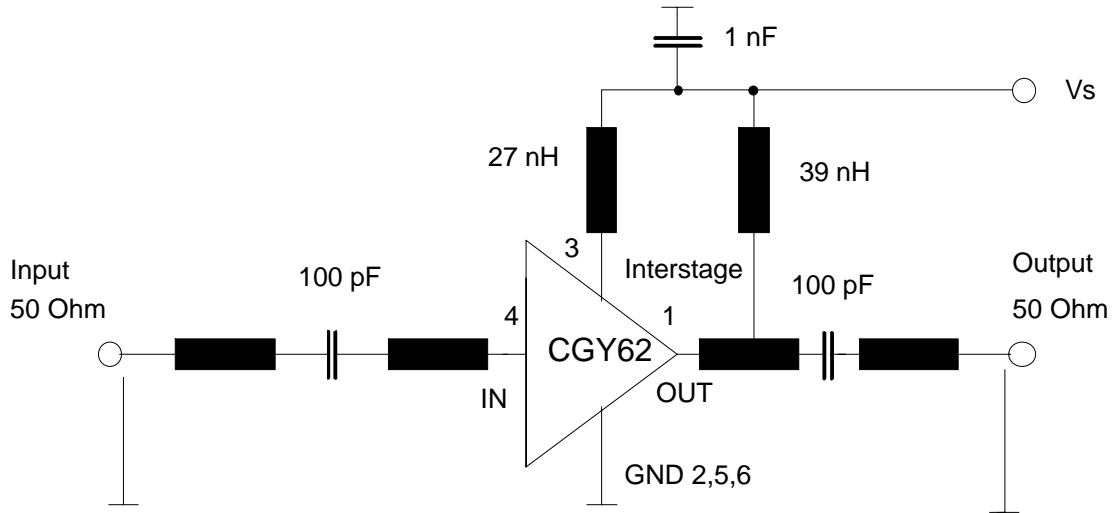
## Typical S-Parameters

$$(V_D = 4.5 \text{ V} \quad V_G = 0 \text{ V} \quad Z_0 = 50 \Omega)$$

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