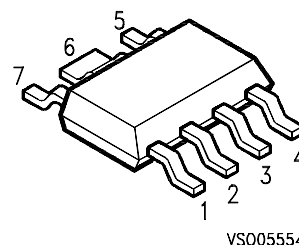


*Datasheet*

- \* Two stages monolithic microwave IC (MMIC-Amplifier)
- \* All gold metallisation
- \* Chip fully passivated
- \* Operating voltage range: 2.7 to 5 V
- \* 50  $\Omega$  input / output

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



Type	Marking	Ordering code (taped)	Package 1)
CGY 52	CGY52	Q68000-A8615	MW-7

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 ( $T_S \leq 55^{\circ}C$ ) <sup>2) 3)</sup>	$P_{tot}$	1000	mW
<b>Thermal resistance</b>			
Channel-soldering point (GND) <sup>2)</sup>	$R_{thChS}$	$\leq 95$	K/W
Junction-ambient <sup>4)</sup>	$R_{thJA}$	$< 175$	K/W

1) Dimensions see chapter Package Outlines

2)  $T_S$  is measured on the source 2 lead at the soldering point of the pcb.

3) Please care for sufficient heat dissipation on the pcb!

4) Package mounted on alumina 15mm x16.7 mm x0.7 mm

**Electrical characteristics**

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

$V_D = 4.5\text{ V}$

$R_S = R_L = 50\Omega$

unless otherwise specified

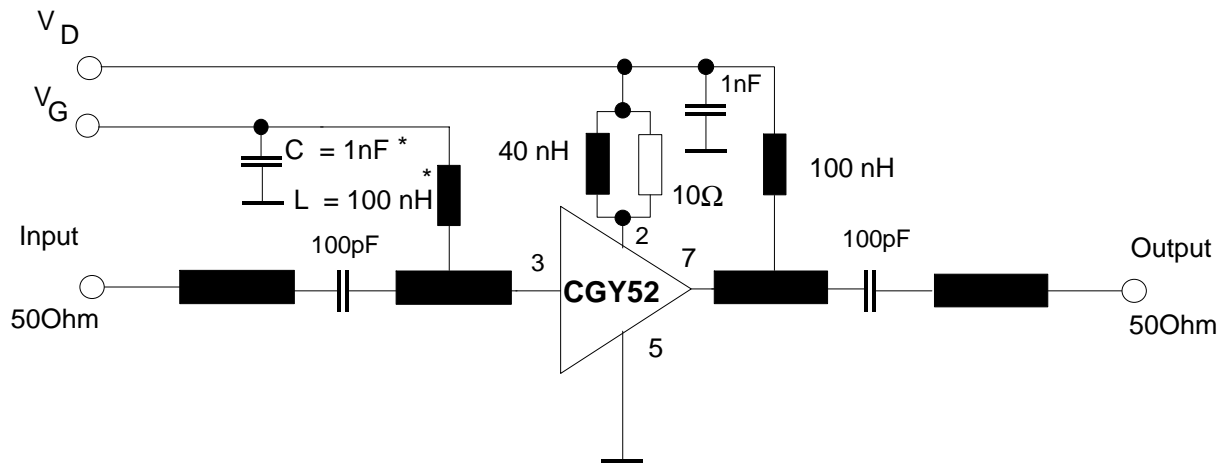
Characteristics	Symbol	min	typ	max	Unit			
Drain current	$I_D$	-	160	220	mA			
Power Gain	$G$	13	14	-	dB			
f = 200 MHz								
f = 900 MHz								
f = 1800 MHz								
Gain flatness	$\Delta G$	-	3	4	dB			
f = 200 MHz to 1800 MHz								
Noise figure	$F$	-	4.8	-	dB			
f = 900 MHz to 1800 MHz								
Input return loss	$RL_{in}$	6.5	7.5	-	dB			
f = 200 MHz to 300 MHz								
f = 300 MHz to 1800 MHz		7.5	8.5	-				
f = 200 MHz		-	7.5	-				
f = 900 MHz		-	12.5	-				
f = 1800 MHz		-	9	-				
Output return loss	$RL_{out}$	9.5	10.5	-	dB			
f = 200 MHz to 1800 MHz								
f = 200 MHz						-	10.5	-
f = 900 MHz						-	12.5	-
f = 1800 MHz	-	11.5	-					
Third order input intercept point two-tone intermodulation test f1 = 806 MHz, f2 = 810 MHz P <sub>in</sub> = 10 dBm (both carriers)	$IP_3$	-	32	-	dBm			
1dB gain compression f = 200 MHz to 1800 MHz	$P_{-1dB}$	-	19	-	dBm			

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	0.63	-36	4.36	20	0.003	69.0	0.30	-12
0.3	0.36	-38	5.17	-13	0.006	54.0	0.27	-17
0.5	0.30	-35	5.27	-32	0.008	54.0	0.27	-24
0.7	0.26	-33	5.44	-51	0.009	61.0	0.26	-30
0.9	0.24	-29	5.64	-70	0.012	60.0	0.23	-35
1.1	0.22	-20	5.80	-90	0.015	64.0	0.19	-36
1.3	0.23	-10	5.81	-112	0.017	64.0	0.15	-25
1.5	0.26	0	5.59	-135	0.019	64.0	0.14	4
1.7	0.31	5	5.15	-157	0.021	61.0	0.19	24
1.9	0.37	5	4.54	-178	0.024	59.0	0.27	28
2.1	0.40	4	3.88	163	0.026	57.0	0.33	28
2.3	0.43	2	3.34	147	0.031	58.0	0.38	25
2.5	0.43	2	2.91	132	0.033	56.0	0.40	23

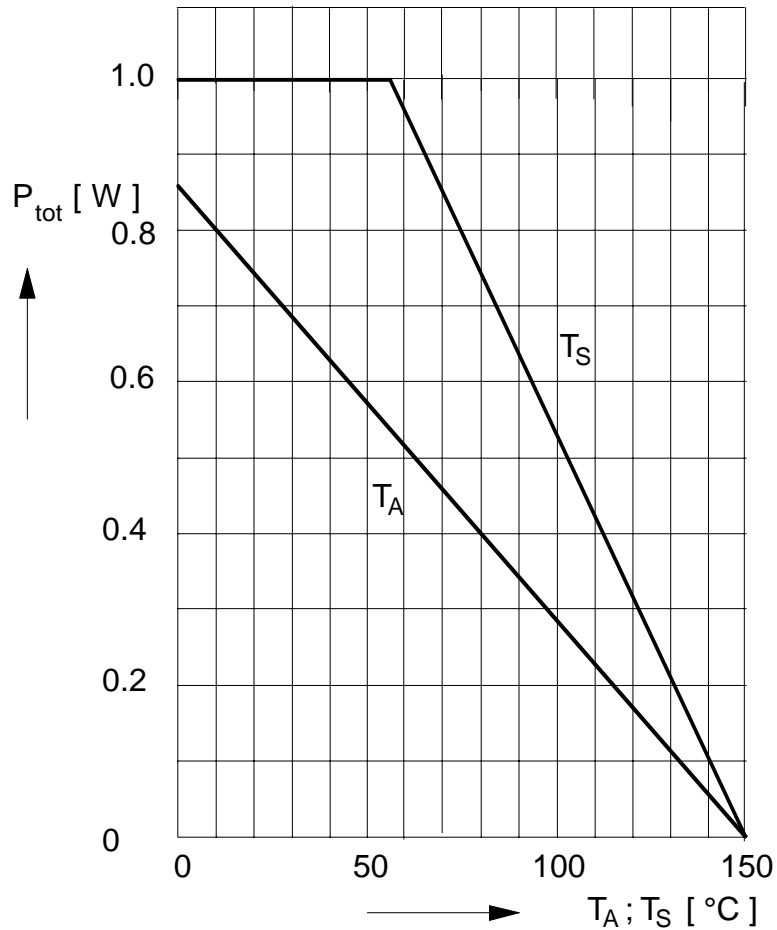
Application circuit for CGY52, f = 100 ... 1800 MHz



50 Ohm Microstripline

\*) L, C are optional, only needed when gain control via  $V_G$  is used

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



Terminal identification:

1	n.c.
2	Interstage
3	IN
4	n.c.
5	GND (1)
6	GND (2)
7	OUT