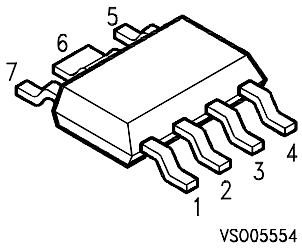
D a t a s h e e t

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

ESD: **E**lectro**s**tatic **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	°C
Storage temperature range	T_{stg}	-55...+150	°C
Total power dissipation (TS ≤ 55°C) 2) 3)	P_{tot}	1000	mW
Thermal resistance			
Channel-soldering point (GND) 2)	R_{thChS}	≤ 95	K/W
Junction-ambient 4)	R_{thJA}	< 175	K/W

1) Dimensions see chapter Package Outlines
2) TS 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°C V_D = 4.5 V RS = RL = 50Ω

unless otherwise specified

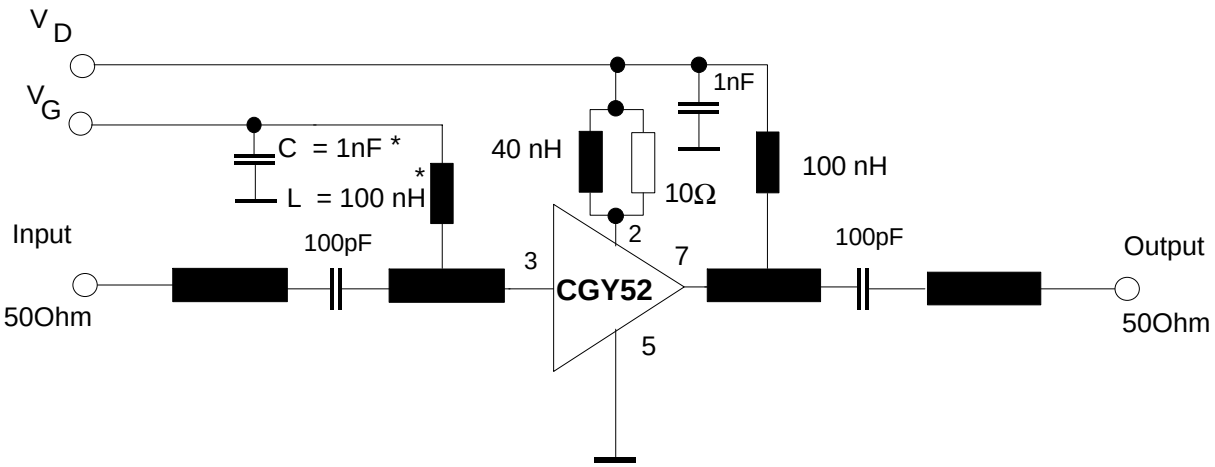
Characteristics	Symbol	min	typ	max	Unit
Drain current	I_D	-	160	220	mA
Power Gain f = 200 MHz f = 900 MHz f = 1800 MHz	G	 13 14.5 12.5	 14 15.5 13.5	 - - -	dB
Gain flatness f = 200 MHz to 1800 MHz	ΔG	-	3	4	dB
Noise figure f = 900 MHz to 1800 MHz	F	-	4.8	-	dB
Input return loss f = 200 MHz to 300 MHz f = 300 MHz to 1800 MHz f = 200 MHz f = 900 MHz f = 1800 MHz	RL_{in}	 6.5 7.5 - - -	 7.5 8.5 7.5 12.5 9	 - - - - -	dB
Output return loss f = 200 MHz to 1800 MHz f = 200 MHz f = 900 MHz f = 1800 MHz	RL_{out}	 9.5 - - -	 10.5 10.5 12.5 11.5	 - - - -	dB
Third order input intercept point two-tone intermodulation test f1 = 806 MHz, f2 = 810 MHz $P_=$ = 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 V, V_G = 0 V, Z_0 = 50Ω

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

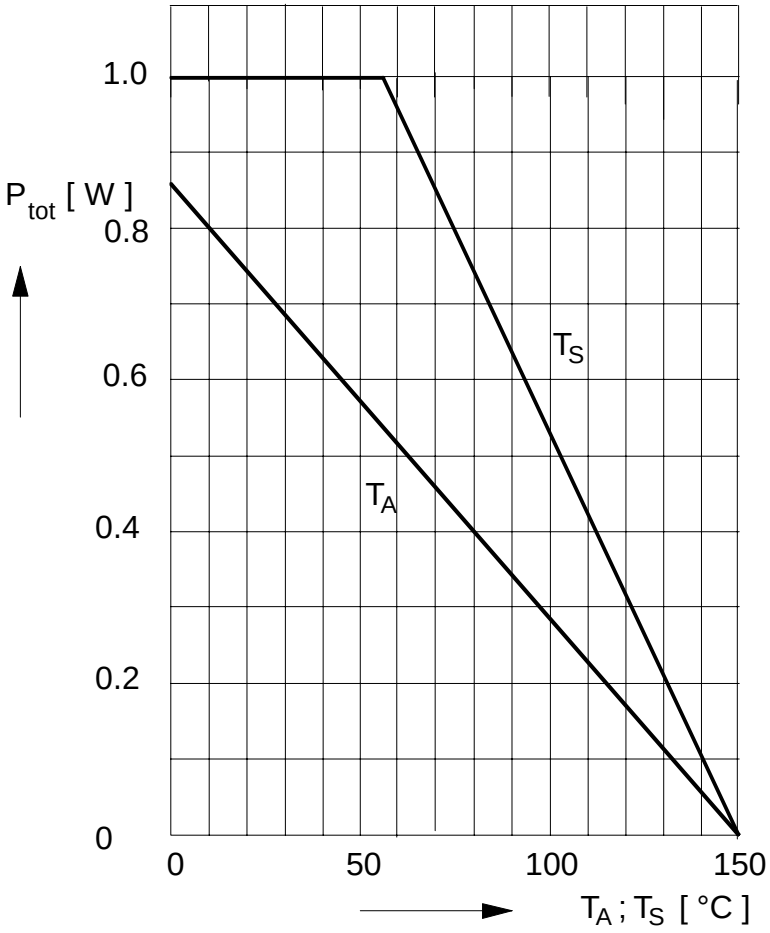
Application circuit for CGY52, f = 100 ... 1800 MHz



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