GaAs MMIC

CGY 62

*Data Sheet*

- 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, $P_{-1\,dB}$ = 17.5 dBm @ 4.5 V, 1 GHz)
- Frequency range 200 MHz … 2.5 GHz

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

MW-6
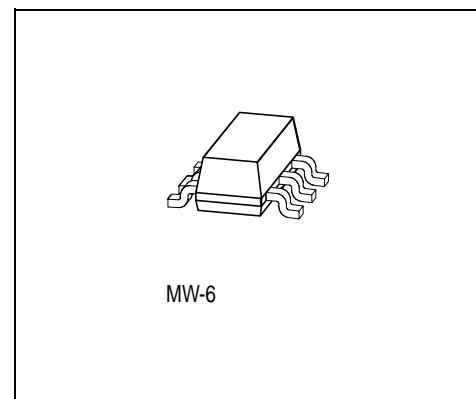
Type	Marking	Ordering Code (taped)	Package[1]
CGY 62	Y6s	Q68000-A8797	MW-6

[1] Dimensions see **Page 7**.

Maximum Ratings	Symbol	Value	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 °C)[1]	P_{tot}	800	mW

[1] Please care for sufficient heat dissipation on the pcb!

Thermal Resistance	Symbol	Value	Unit
Channel-soldering point (GND)	R_{thChS}	≤ 100	K/W
Junction-ambient[1]	R_{thJA}	< 180	K/W

[1] Package mounted on alumina 15 mm × 16.7 mm × 0.7 mm.

Electrical Characteristics

$T_A = 25\ °C$, $V_D = 4.5$ V, $R_S = R_L = 50\ \Omega$, unless otherwise specified.

Characteristics	Symbol	Limit Values			Unit
		min.	typ.	max.	
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 1 dB gain compression f = 200 MHz to 1800 MHz	$P_{-1\ dB}$	–	17.5	–	dBm

Electrical Characteristics at
$T_A = 25\ °C$, $V_D = 4.5$ V, $R_S = R_L = 50\ \Omega$,
unless otherwise specified.

**Noise Figure** $F = f(f)$
$V_S = 4.5$ V
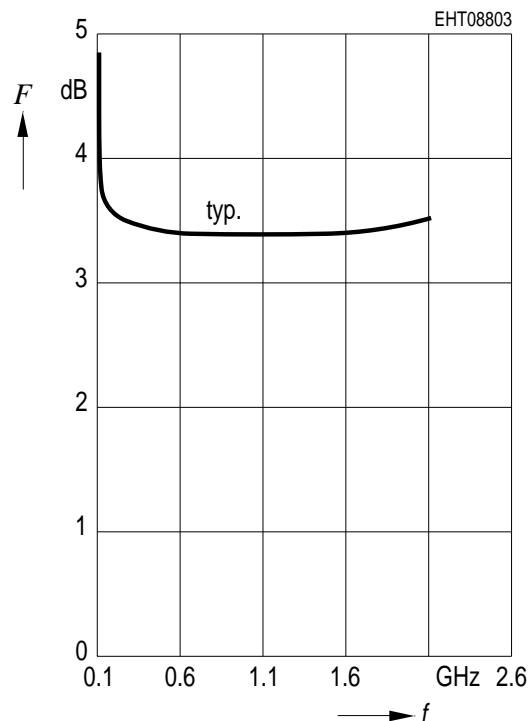
Power Gain $G = f(f)$
$V_S = 4.5$ V
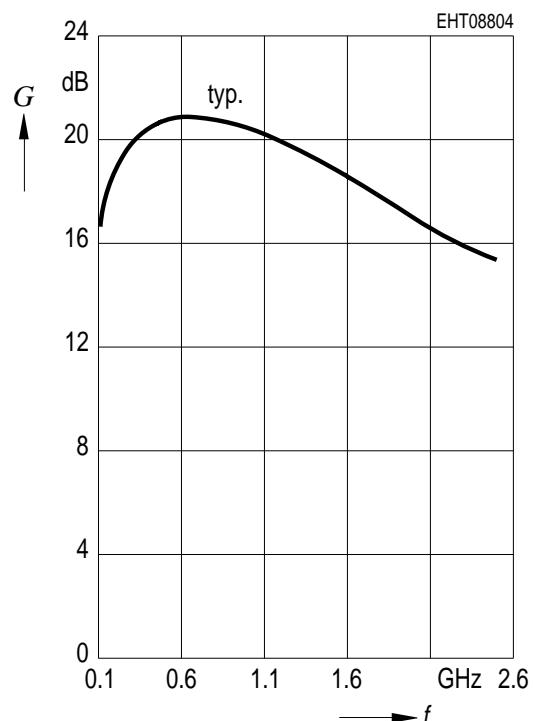
Typical S-Parameters

$V_D = 4.5$ V, $V_G = 0$ V, $Z_o = 50$ Ω

f	S11		S21		S12		S22	
GHZ	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
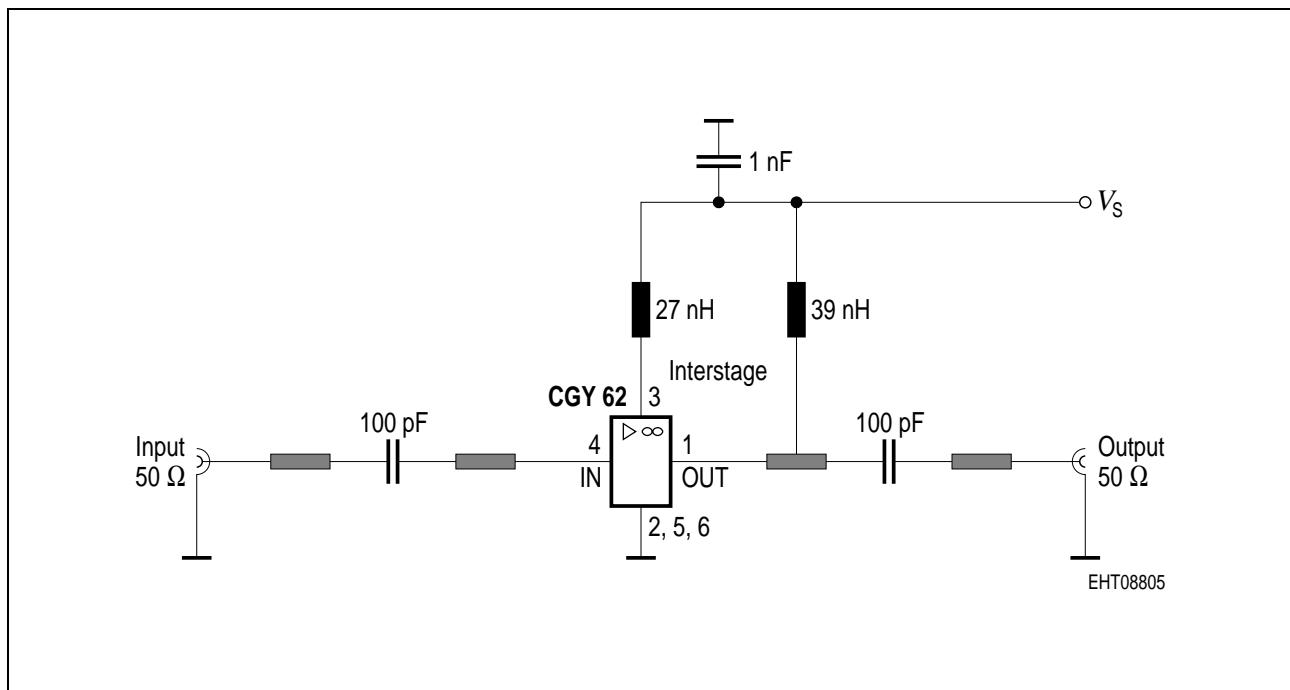
Figure 1   50 Ω Microstripline

Pin Assignment

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

Package Outlines

Dim.	min.	nom.	max.	Gradient	Remark
A	–	–	1.1	–	–
A_1	–	–	0.1	–	–
A_2	–	–	1.0	–	–
b	–	0.3	–	–	–
b_1	–	0.6	–	–	–
c	0.08	–	0.15	–	–
D	2.8	–	3.0	–	–
E	1.2	–	1.4	–	–
$|e|$	–	0.95	–	–	–
$|e_1|$	–	1.9	–	–	–
H_E	–	–	2.6	–	–
L_E	–	–	0.6	–	–
a	–	–	–	max 10°	[1]
q	–	–	–	2° … 30°	–

[1] Applicable on all case top sides.

Package Outlines

MW-6
(Special Package)

2.9 ±0.1

0.6 +0.1 -0.05

B

A

6 5 4

+0.2
acc. to
DIN 6784

1 2 3

0.3 +0.1 -0.05

1.9

⊕ 0.25 Ⓜ B

1.1 max

0.1 max

2.6 max

10° max

10° max

1.3 ±0.1

0.08...0.15

2°... 30°

☰ 0.20 Ⓜ A
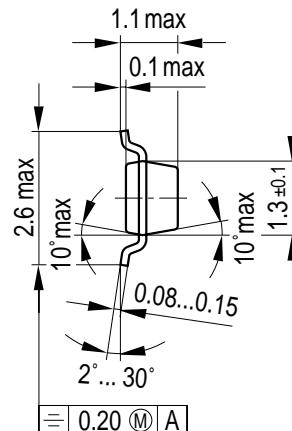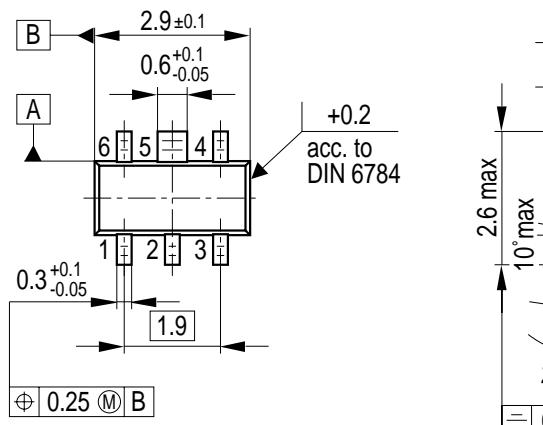
GPW05794

Sorts of Packing
Package outlines for tubes, trays etc. are contained in
our Data Book "Package Information".

SMD = Surface Mounted Device

Dimensions in mm