

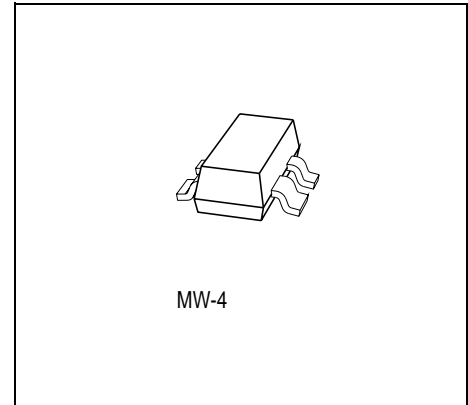
GaAs HEMT

Target Data Sheet

CFH 77

- Very low noise
- Very high gain
- For low noise front end amplifiers up to 20 GHz
- For DBS down converters

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



Type	Marking	Ordering Code (taped)	Package ¹⁾
CFH 77	t.b.d.	Q62702-G117	MW-4

¹⁾ Dimensions see **Page 5**.

Maximum Ratings	Symbol	Value	Unit
Drain-source voltage	V_{DS}	3.5	V
Drain-gate voltage	V_{DG}	4.5	V
Gate-source voltage	V_{GS}	- 3.0	V
Drain current	I_D	60	mA
Channel temperature	T_{Ch}	150	°C
Storage temperature range	T_{stg}	- 65 ... + 150	°C
Total power dissipation ($T_S \leq 51 \text{ °C}$) ¹⁾	P_{tot}	180	mW

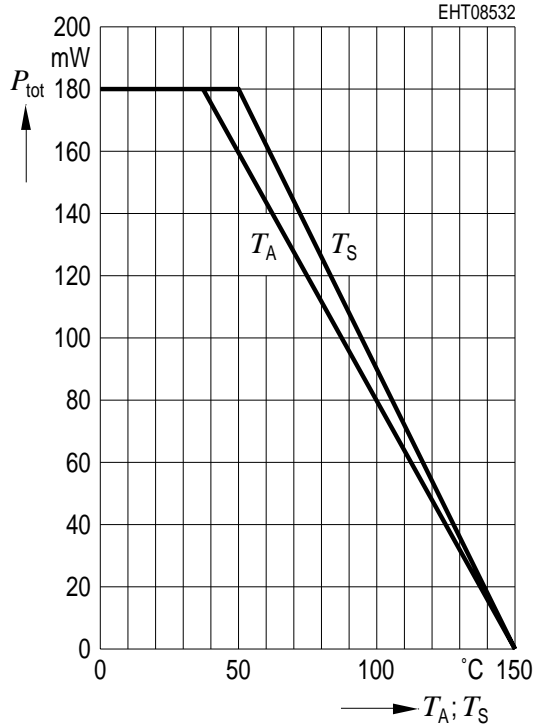
¹⁾ T_S : Temperature measured at soldering point.

Thermal Resistance	Symbol	Value	Unit
Channel-soldering point source	R_{thChS}	550	K/W

Electrical Characteristics
 $T_A = 25\text{ °C}$, unless otherwise specified

Characteristics	Symbol	Limit Values			Unit	Test Conditions
		min.	typ.	max.		
Drain-source saturation current	I_{DSS}	15	30	60	mA	$V_{DS} = 2\text{ V}$ $V_{GS} = 0\text{ V}$
Pinch-off voltage	$V_{GS(P)}$	- 2	- 0.7	- 0.2	V	$V_{DS} = 2\text{ V}$ $I_D = 1\text{ mA}$
Gate leakage current	I_G	-	0.05	2	μA	$V_{DS} = 2\text{ V}$ $I_D = 15\text{ mA}$
Transconductance	g_m	50	65	-	mS	$V_{DS} = 2\text{ V}$ $I_D = 15\text{ mA}$
Noise figure	F	-	0.7	-	dB	$V_{DS} = 2\text{ V}$ $I_D = 15\text{ mA}$ $f = 12\text{ GHz}$
Associated gain	G_a	-	10.5	-	dB	$V_{DS} = 2\text{ V}$ $I_D = 15\text{ mA}$ $f = 12\text{ GHz}$

Total Power Dissipation $P_{\text{tot}} = f(T_S; T_A)$,
package mounted on alumina



Typical Common Source Noise Parameters

$I_D = 15 \text{ mA}$, $U_{DS} = 2.0 \text{ V}$, $Z_0 = 50 \Omega$

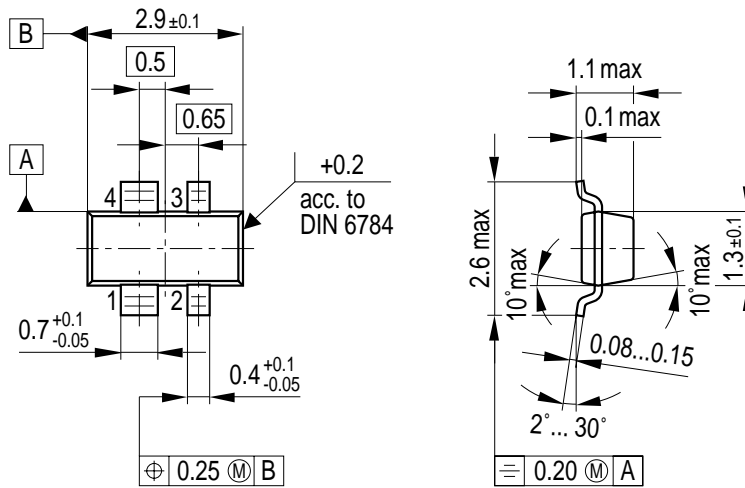
f GHz	F_{min} dB	G_a dB	G_{opt}		R_n Ω	r_n -	N -	$F_{50 \Omega}$ dB
			MAG	ANG				
2	0.36	19.4	0.79	27	13.7	0.274	0.03	1.2
4	0.44	15.9	0.72	60	10.1	0.202	0.04	1.1
6	0.51	13.9	0.63	92	5.85	0.117	0.05	1.05
8	0.58	12.4	0.56	134	2.35	0.047	0.06	1.0
10	0.65	11.2	0.52	180	1.1	0.022	0.07	1.0
12	0.72	10.4	0.54	- 135	2.9	0.058	0.08	1.1
14	0.80	9.7	0.59	- 108	7.15	0.143	0.10	1.5

Typical Common Source S-Parameters
 $I_D = 15 \text{ mA}, U_D = 2.0 \text{ V}, Z_0 = 50 \Omega$

<i>f</i>	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1	0.98	- 22.8	5.55	159.6	0.030	87.5	0.633	- 16.3
2	0.94	- 46.1	5.40	139.3	0.053	57.8	0.60	- 32.5
3	0.88	- 68.4	5.09	120.1	0.074	44.9	0.54	- 48.0
4	0.82	- 90.6	4.77	101.2	0.089	30.7	0.48	- 63.3
5	0.77	- 110.8	4.45	84.0	0.101	18.1	0.42	- 77.5
6	0.72	- 131.4	4.16	67.3	0.112	7.9	0.35	- 92.6
7	0.66	- 153.6	3.88	50.2	0.119	- 3.3	0.28	- 110.8
8	0.63	- 175.2	3.58	34.5	0.122	- 12.7	0.22	- 132.0
9	0.62	164.4	3.29	18.9	0.120	- 22.0	0.16	- 157.3
10	0.62	145.0	3.01	4.0	0.119	- 29.5	0.14	177.3
11	0.64	128.3	2.76	- 10.3	0.119	- 37.4	0.15	136.2
12	0.64	113.1	2.51	- 23.5	0.114	- 44.0	0.18	115.4
13	0.66	101.3	2.32	- 35.7	0.114	- 47.3	0.23	100.9
14	0.67	89.4	2.18	- 48.2	0.116	- 53.1	0.25	91.0
15	0.69	73.6	2.06	- 62.4	0.116	- 58.6	0.28	75.4
16	0.73	59.2	1.85	- 75.9	0.115	- 65.8	0.36	57.1
17	0.76	51.7	1.65	- 86.5	0.112	- 69.4	0.39	53.1
18	0.78	45.4	1.56	- 96.7	0.115	- 72.3	0.42	43.8
19	0.77	36.2	1.51	- 108.6	0.121	- 76.7	0.44	38.8

Package Outlines

MW-4
(Special Package)



GSO05553

Pin assignment:

- 1 = Source
- 2 = Drain
- 3 = Source
- 4 = Gate

Sorts of Packing

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

SMD = Surface Mounted Device

Dimensions in mm