

Features:

- Designed for single voltage operations
- Excellent performance up to 12GHz in Frequency Range
- Typical RF Performance @ 10GHz:
 - 11 dB Gain
 - +25 dBm P1dB
 - Single Positive Bias
 - QFN Package

Description:

Designed specifically for single voltage operations (i.e. no negative voltage is required), the MwT-PH15QACSB is a medium power AlGaAs/InGaAs PHEMT device in a low cost 3mm X 3mm QFN package with excellent RF performance up to 12 GHz. The chip is produced using reliable metal systems and all devices from each wafer are screened to insure reliability. All chips are passivated using MwT 's patented "Diamond-Like Carbon" process for increased durability.

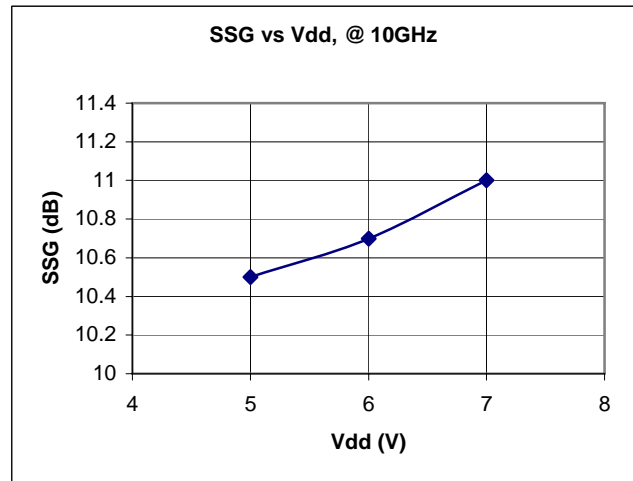
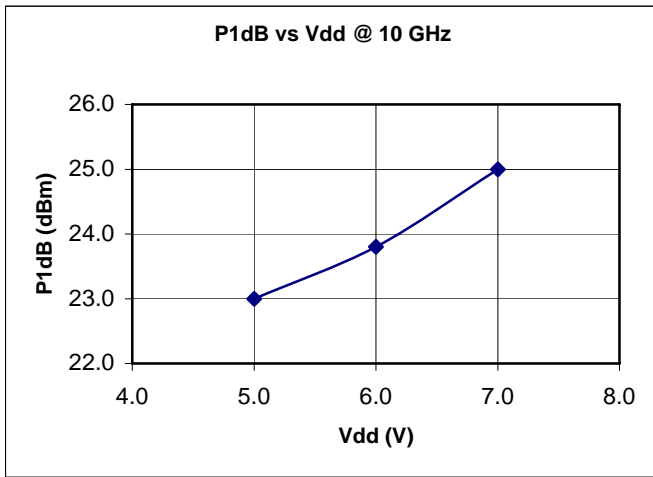
Electrical Specifications⁽¹⁾: at $V_{dd}=7V$, $I_{ds}\sim 130mA$, $T_a=25\text{ }^\circ\text{C}$

SYMBOL	PARA. & CONDITIONS	FREQ	UNIT	TYP
SSG	Small Signal Gain	10GHz	dB	11
P1dB	Output Power @ 1 dB Compression	10GHz	dBm	25
PAE	Power Added Efficiency	10GHz	%	35
IDS	Current for Optimum P1dB		mA	140

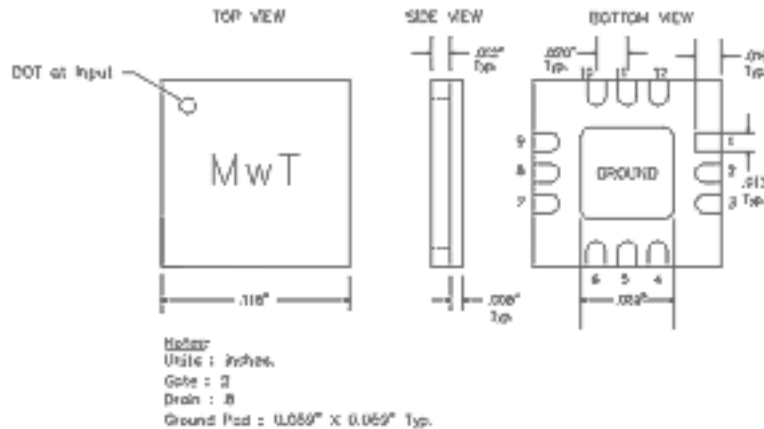
(1) With tuners at input and output.

DC Specifications: at $T_a= 25\text{ }^\circ\text{C}$

SYMBOL	PARAMETERS & CONDITIONS	UNITS	MIN	TYP
IDS	Drain-to-Source Current $V_{dd}= 5.0V$	mA	130	150
Gm	Transconductance $V_{ds}=2.0\text{ V}$ $V_{gs}=0.0\text{ V}$	mS	130	200
Rth	Thermal Resistance	$^\circ\text{C/W}$		65



PH15QACSB OUTLINE



MAXIMUM RATINGS AT Ta = 25 °C

Symbol	Parameter	Units	Absolute Maximum
VdS	Drain-Ground Voltage	V	8
Vgs	Gate-Ground Voltage	V	-6 to +0.8
Ids	Drain Current	mA	200
Igs	Gate Current	mA	1
Pdiss	DC Power Dissipation	W	1.6
Pin max	RF Input Power	dBm	+23
Tch	Channel Temperature	°C	150
Tstg	Storage Temperature	°C	-65 to 150

Notes: Operation of this device above any one of these parameters may cause permanent damage.

Typical Scattering Parameters:

(Vdd=5.0V Ids ~ 135mA Ta = 25°C Reference Planes at Leads)

Freq	S11		S21		S12		S22	
	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
1.00	0.87	-80.02	7.39	117.52	0.05	42.79	0.71	-58.40
1.20	0.89	-90.89	6.32	111.54	0.06	33.67	0.72	-69.65
1.40	0.96	-101.95	5.92	111.58	0.07	24.86	0.75	-81.86
1.60	1.05	-114.44	6.22	109.63	0.08	12.78	0.76	-94.79
1.80	1.15	-129.41	6.39	104.02	0.09	-2.19	0.75	-109.40
2.00	1.22	-145.58	7.28	94.06	0.09	-12.42	0.73	-123.86
2.20	1.25	-161.42	6.97	82.52	0.09	-28.31	0.68	-137.07
2.40	1.25	-176.48	6.88	73.91	0.09	-37.08	0.63	-149.16
2.60	1.23	170.03	6.84	61.58	0.10	-43.19	0.58	-158.97
2.80	1.19	157.31	6.24	52.97	0.09	-57.90	0.54	-167.29
3.00	1.17	146.03	6.21	43.81	0.09	-65.03	0.51	-175.63
3.20	1.14	135.37	5.47	35.97	0.08	-70.88	0.49	176.83
3.40	1.11	125.39	5.37	31.14	0.07	-80.10	0.47	170.13
3.60	1.09	115.80	5.52	22.29	0.08	-77.85	0.46	163.04
3.80	1.06	106.65	5.10	13.91	0.08	-87.33	0.44	155.80
4.00	1.04	97.49	4.93	6.17	0.07	-94.42	0.43	148.73
4.50	1.01	76.31	4.20	-11.77	0.07	-103.85	0.42	116.59
5.00	0.97	55.76	3.95	-25.73	0.07	-121.34	0.40	100.46
5.50	0.95	35.84	3.44	-42.83	0.06	-129.57	0.38	82.13
6.00	0.93	15.75	3.37	-55.82	0.07	-149.15	0.36	64.51
6.50	0.92	-4.16	3.12	-73.86	0.06	-160.32	0.36	52.07
7.00	0.89	-23.91	2.91	-87.48	0.05	176.08	0.35	39.03
7.50	0.88	-42.38	2.77	-102.04	0.05	171.91	0.33	19.33
8.00	0.89	-61.67	2.67	-117.26	0.05	164.27	0.32	-0.08
8.50	0.90	-81.97	2.58	-132.47	0.05	154.06	0.32	-14.49
9.00	0.90	-102.70	2.48	-149.36	0.05	139.22	0.31	-30.31
9.50	0.90	-123.24	2.38	-164.05	0.05	125.41	0.26	-54.20
10.00	0.89	-143.65	2.37	178.35	0.05	109.32	0.22	-34.10
10.50	0.89	-164.30	2.26	162.02	0.05	92.25	0.21	-76.34
11.00	0.87	175.23	2.17	143.58	0.05	81.10	0.19	-88.89
11.50	0.86	153.91	1.99	128.08	0.05	60.30	0.12	-100.03
12.00	0.84	131.60	1.95	11.400	0.06	48.56	0.04	-133.34