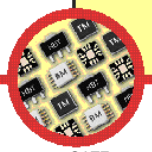
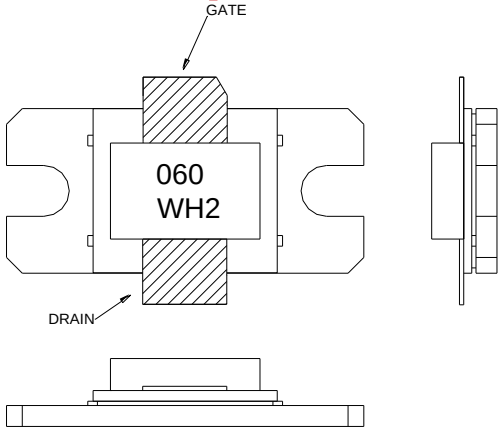
HiFET
High Voltage GaAs FET
DC-12 GHz

AM060WH2-CU-R
April 2014
Rev 0





DESCRIPTION

AMCOM's AM060WH2-CU-R is a part of the CU series of GaAs HiFETs.The HiFET is a partially matched patented device configuration for high voltage, high power and broadband applications. This part has a total device periphery of 12mm. The AM060WH2-CU-R is designed for high power microwave applications, operating up to 12 GHz. It is also an ideal driver for larger power devices. The CU series is a specially designed ceramic package with straight leads and flange in a drop-in mounting style.The flange at the bottom of the package serves simultaneously as DC ground, RF ground, and thermal path. This part is RoHS compliant.

FEATURES

- High Frequency Operation up to 12 GHz
- High Gain & High Power, P_{1dB}=38 dBm @3.5GHz
- Surface Mountable
- Bottom ground for Effective Heat Removal

APPLICATIONS

- Wireless Local Loop Network
- Cellular Radio Communications
- WLAN, Repeaters & HYPERLAN
- C-Band VSAT
- Radar

RF PERFORMANCE @ 3.5 GHz, (V_{dd} = 14V, I_{dq} = 0.9A)

Parameters	MIN	TYP
P_{1dB}* (dBm)	36	38
Eff @ P_{1dB}	35%	45%
Small Signal Gain (dB)	15.5	17
IP3 (dBm)	-	47

* Power typically remains the same as frequency changes.

ABSOLUTE MAXIMUM RATING

Parameters	Symbol	Rating
Drain-Source Voltage (V)	V_{dd}	18
Gate-Source Voltage (V)	V_{gs}	-5
Drain Current (A)	I_{ds}	2.4
Continuous Dissipation At Room Temp. (W)	P_t	16.6
Operating Temp. (^oC)	T_A	-55 to +85
Max. Channel Temp. (^oC)	T_{ch}	+175

DC PARAMETERS

Parameters	Conditions	MIN	TYP	MAX
Saturation Current I_{dss} (A)	V_{dd}=6V, Vgs=0V	1.2	1.8	2.4
Pinch-off Voltage V_p (V)	V_{dd}=6V, Ids=2.5% Idss	-2.2	-1.7	-1.2
Drain to Gate Breakdown Voltage BV_{gd} (V)	I_{dg} = 1mA/mm	22	30	
Thermal Resistance ($^oC/W$)			8.5	

*Note: There is an internal DC resistor from output to ground,therefore leakage gate current should be measured only at input lead.

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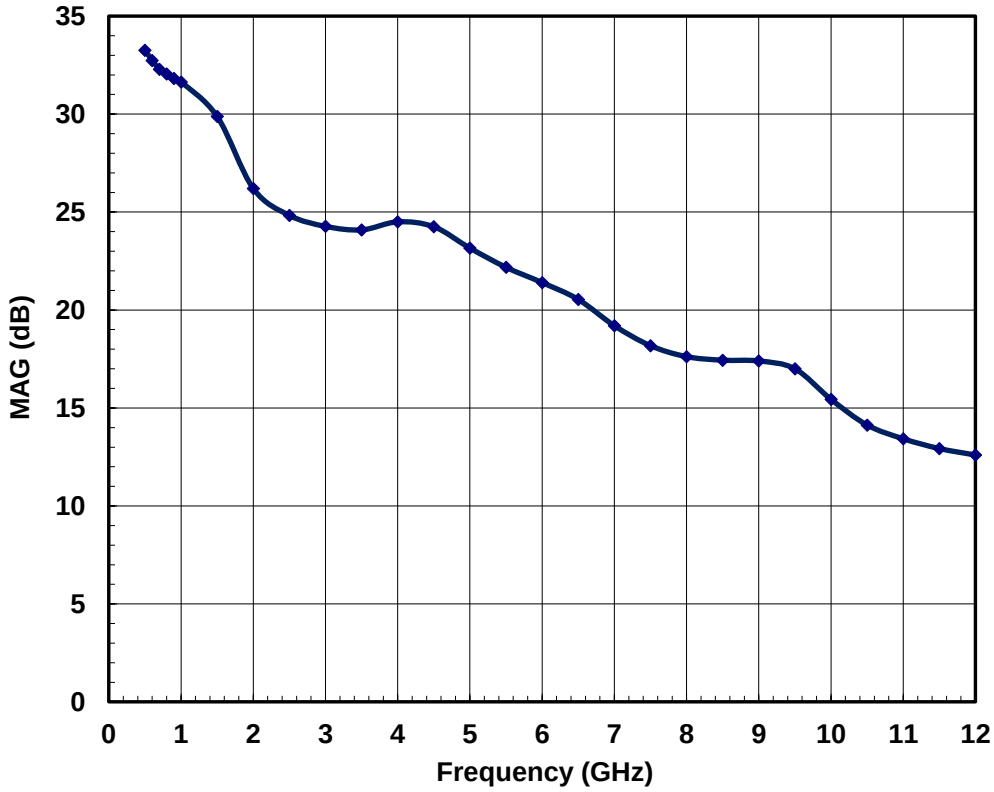
S- Parameters for AM060WH2-CU-R @ 14V / 0.9A (S2P file downloadable from the Web)

Freq(GHz)	MAG(S11)	ANG(S11)	MAG(S21)	ANG(S21)	MAG(S12)	ANG(S12)	MAG(S22)	ANG(S22)
0.5	0.892	-153.8	17.38	82.51	0.008	-13.60	0.336	-138.26
0.6	0.899	-158.81	14.672	74.19	0.008	-21.63	0.371	-135.52
0.7	0.906	-162.71	12.487	66.44	0.007	-28.65	0.417	-134.62
0.8	0.913	-166.12	10.71	59.02	0.007	-34.69	0.475	-134.9
0.9	0.923	-168.99	9.249	51.6	0.006	-38.00	0.540	-136.26
1	0.927	-171.14	8.033	45.06	0.005	-47.22	0.595	-138.12
1.5	0.944	-178.35	4.66	22.24	0.003	-55.81	0.768	-148.39
2	0.942	176.49	3.209	6.73	0.002	-46.20	0.843	-157.12
2.5	0.934	170.32	2.592	-6.57	0.001	-17.70	0.880	-163.19
3	0.917	162.54	2.336	-19.09	0.002	14.26	0.899	-168.61
3.5	0.891	153.61	2.202	-32.39	0.003	29.71	0.913	-174.14
4	0.846	142.91	2.189	-46.86	0.005	26.60	0.924	-179.19
4.5	0.756	127.9	2.363	-64.45	0.008	16.33	0.934	176.42
5	0.542	100.95	2.749	-89.37	0.012	-3.12	0.947	172.32
5.5	0.204	-1.73	3.103	-127.96	0.017	-34.94	0.965	167.22
6	0.549	-105.9	2.733	-168.16	0.018	-72.20	0.961	159.51
6.5	0.774	-134.01	2.268	163.21	0.018	-96.29	0.929	149.63
7	0.862	-148.48	2.068	140.88	0.019	-112.62	0.878	135.88
7.5	0.903	-158.41	2.049	118.36	0.021	-127.92	0.788	115.57
8	0.931	-166.57	2.093	91.2	0.025	-146.21	0.611	82.01
8.5	0.964	-173.97	2.038	56.02	0.030	-176.92	0.405	7.37
9	0.985	178.64	1.569	14.86	0.026	139.25	0.598	-92.22
9.5	0.979	172.95	0.998	-16.15	0.017	104.03	0.828	-137.41
10	0.970	168.29	0.677	-35.94	0.010	81.69	0.916	-158.4
10.5	0.962	163.01	0.529	-50.27	0.006	64.52	0.945	-170.73
11	0.951	156.05	0.467	-63.59	0.003	53.30	0.955	179.41
11.5	0.939	147.51	0.439	-77.26	0.001	93.82	0.955	169.49
12	0.927	138.39	0.422	-91.34	0.004	-154.27	0.949	158.7

* Download S-parameters file from website: http://www.amcomusa.com

Note: The device is conditional stable at high frequencies, please pay attention to amplifier design.

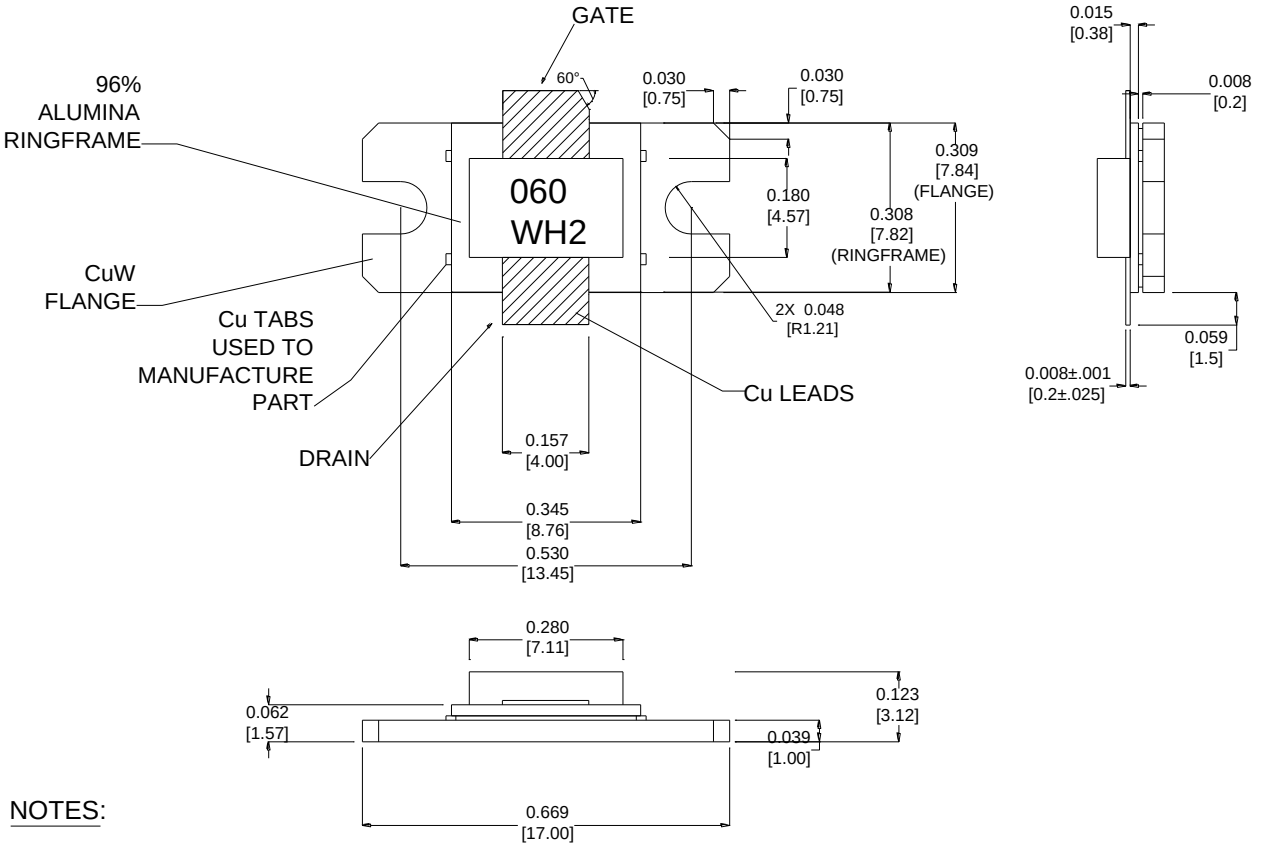
MAXIMUM AVAILABLE GAIN (14V,0.9 A)



Optimum Load (14V,0.9A)

Freq (GHz)	MAG(Γ_L)	ANG(Γ_L)
0.1	0.554	179.13
0.2	0.555	178.26
0.3	0.559	177.41
0.4	0.559	176.59
0.5	0.563	175.8
0.6	0.567	175.05
0.7	0.571	174.36
0.8	0.576	173.71
0.9	0.582	173.12
1	0.588	172.59
1.5	0.622	170.81
2	0.658	170.34
2.5	0.692	170.82
3	0.720	171.93
3.5	0.743	173.41
4	0.760	175.12
4.5	0.772	176.95
5	0.779	178.87
5.5	0.781	-179.17
6	0.778	-177.16

CU PACKAGE OUTLINE



NOTES:

1. ALL DIMENSIONS AND TOLERANCE BOX IN INCHES (mm IN PARENTHESIS).