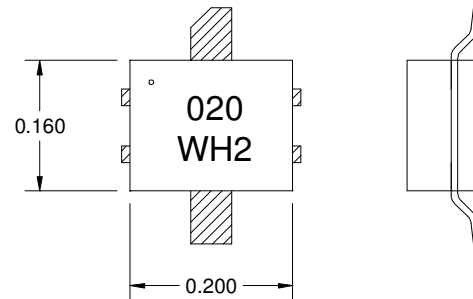


## DESCRIPTION

AMCOM's AM020WH2-BI-R is a part of the BI 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 4mm. The AM020WH2-BI-R is designed for high power microwave applications, operating up to 12 GHz. It is also an ideal driver for larger power devices. The BI series uses a specially designed ceramic package with bent or straight leads 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.



\* All Dimensions are in inch

## FEATURES

- High Frequency Operation up to 12 GHz
- High Gain & High Power,  $P_{1dB}=33$  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, ( $V_{ds} = 14V$ , $I_{ds} = 0.3A$ )

Parameters	MIN	TYP
$P_{1dB}$ * (dBm)	32	33
Eff @ $P_{1dB}$	35%	40%
Small Signal Gain (dB)	12	14.6
IP3 (dBm)	43	46

\* Power typically remains the same as frequency changes.

## ABSOLUTE MAXIMUM RATING

Parameters	Symbol	Rating
Drain-Source Voltage (V)	$V_{ds}$	18
Gate-Source Voltage (V)	$V_{gs}$	-5
Drain Current (A)	$I_{ds}$	0.8
Continuous Dissipation At Room Temp. (W)	$P_t$	5.5
Operating Temp. (°C)	$T_A$	-55 to +85
Max. Channel Temp. (°C)	$T_{ch}$	+175

## DC PARAMETERS

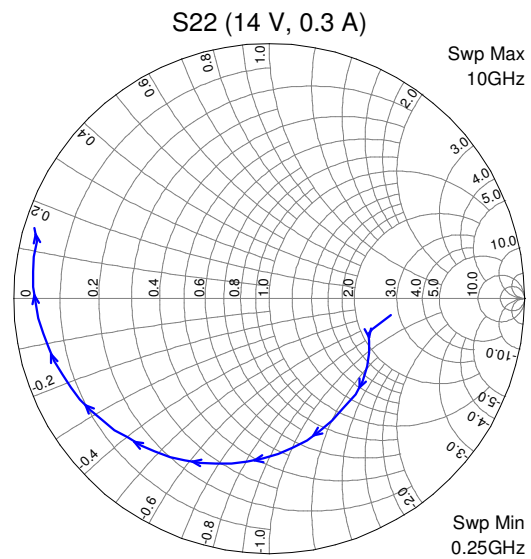
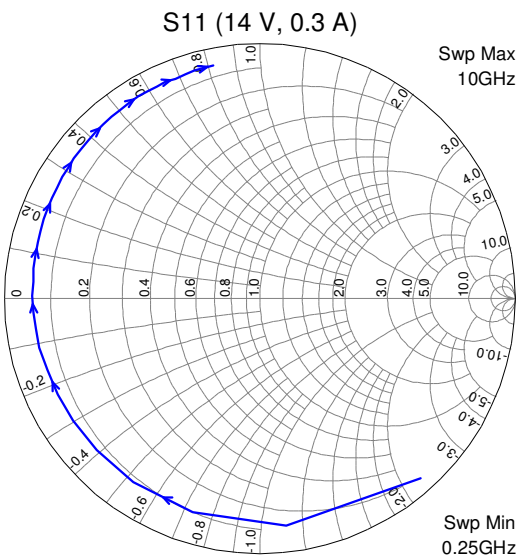
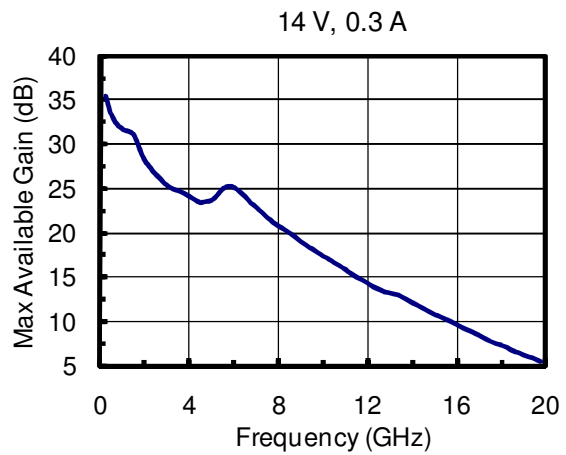
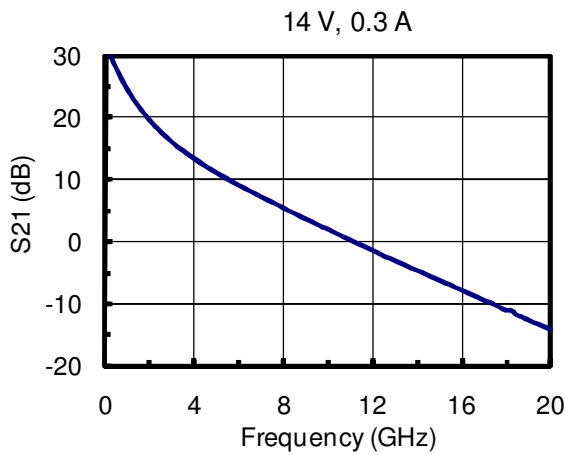
Parameters	Conditions	MIN	TYP	MAX
Saturation Current $I_{dss}$ (A)	$V_{ds}=14V$ , $V_{gs}=0V$	0.4	0.6	0.8
Pinch-off Voltage $V_p$ (V)	$V_{ds}=3V$ , $I_{ds}=2.5\% I_{dss}$	-2.2	-1.7	-1.2
Drain to Gate Breakdown Voltage $BV_{gd}$ (V)	$I_{dg} = 1mA/mm$	22	30	
Thermal Resistance (°C/W)			26	

**LINEAR DATA**

S-parameters at 14 V, 0.3 A \*

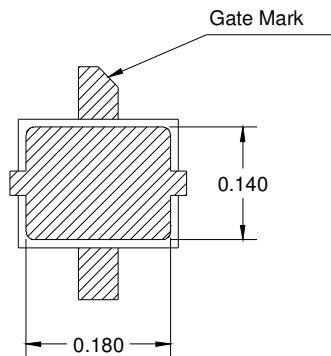
Freq(GHz)	MagS11	AngS11	MagS21	AngS21	MagS12	AngS12	MagS22	AngS22
1.00	0.87	-124.46	16.76	102.82	0.01	5.05	0.43	-23.18
2.00	0.88	-161.32	9.51	68.95	0.01	-6.88	0.51	-47.84
3.00	0.89	179.31	6.33	43.00	0.01	-2.93	0.58	-75.18
4.00	0.90	165.79	4.64	20.73	0.01	12.05	0.65	-97.75
5.00	0.90	154.20	3.57	-0.09	0.01	35.07	0.72	-117.50
6.00	0.91	142.87	2.83	-20.06	0.01	44.57	0.78	-135.47
7.00	0.92	131.90	2.29	-39.38	0.01	46.45	0.84	-151.90
8.00	0.92	120.93	1.86	-58.43	0.02	38.47	0.89	-167.57
9.00	0.92	110.91	1.52	-76.61	0.02	29.99	0.92	177.23
10.00	0.93	101.33	1.25	-93.75	0.02	21.81	0.96	163.19

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

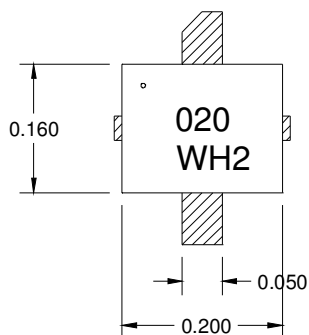


**PACKAGE OUTLINE**

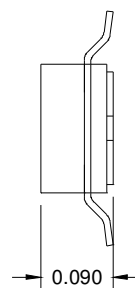
Bottom View



Top View



Side View

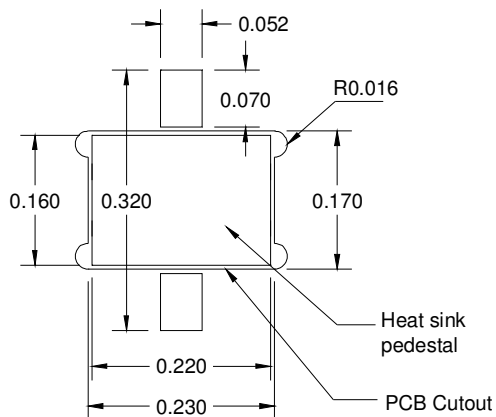


\* All Dimensions are in inch

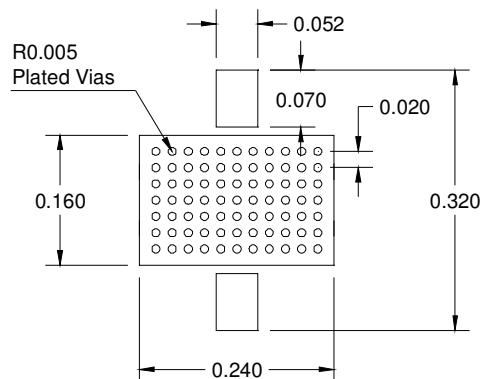
**MOUNTING INSTRUCTIONS**

The device may dissipate several watts of power. It is important to provide a good heat sink to dissipate the heat. There are two options of mounting the device, as shown below. The most effective way is to mount the device to a heat sink pedestal (Option 1). We strongly recommend this way for high power device. The other option, which is mounted directly on PCB, is to add sufficient number of plated through via holes to the PCB. The base of the device is soldered to the PCB (Option 2). The via hole wall should be plated by at least 1 oz thick (1.5 mil) of high thermal conductivity copper to conduct the heat from the top of PCB to the bottom of PCB. Also fill the via holes with solder to help conducting the heat.

Option 1 (Recommended)



Option 2



\* All Dimensions are in inch