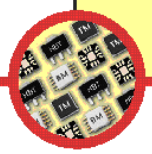
AMCOM COMMUNICATIONS
The RF Power House

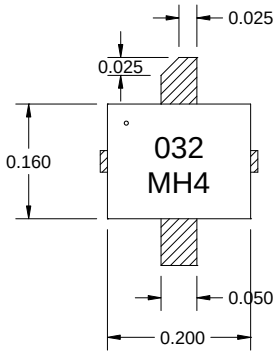
HiFET
High Voltage GaAs FET

AM032MH4-BI-R
Aug 2010
Rev 3



DESCRIPTION

AMCOM's AM032MH4-BI-R is 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 12.8mm. The AM032MH4-BI-R is designed for high power microwave applications, operating up to 6GHz. The BI series uses a specially designed ceramic package with bent or 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 HiFET is RoHS compliant.



FEATURES

- 28 Volt Drain Bias
- Broadband Partial Matching: DC – 2.4GHz
- High Frequency Operation up to 6GHz
- High Gain: G = 19dB @ 2GHz
- High Power: P_{1dB} = 35dBm @ 2.0GHz
- High Linearity: IP3 = 50dBm @ 2.0GHz
- Ceramic Package for Effective Heat Removal

APPLICATIONS

- Broadband Applications
- High Voltage 20 to 28V
- Wireless Local Loop Network
- PCS Base Stations
- WLAN, Repeaters & HYPERLAN
- C-Band VSAT
- Avionics Communications

RF PERFORMANCE @ 2.0GHz, (V_{dd} = 28V, V_{gs} =-0.95V)

Parameters	MIN	TYP
P_{1dB}* (dBm)	34	36
Eff @ P_{1dB}	30%	35%
Small Signal Gain (dB)	16	19
IP3 (dBm)	46	49

* Power typically remains the same as frequency changes.

ABSOLUTE MAXIMUM RATING

Parameters	Sym	Rating
Drain-Source Voltage (V)	V_{ds}	36
Gate-Source Voltage (V)	V_{gs}	-5
Drain Current (mA)	I_{ds}	960
Continuous Dissipation At Room Temp. (W)	P_t	16
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} (mA)	Vdd = 28V Vgs = 0V	540	750	960
Pinch-off Voltage V_p (V)	Vdd = 3V Idd= 18mA	-2.6	-2	-1.2
Negative Voltage Current (mA)		30	42	54
Drain Breakdown Voltage BV_{gd} (V)		44	60	
Drain Voltage V_{dd} (V)	Mounted on Heat Sink		28	32

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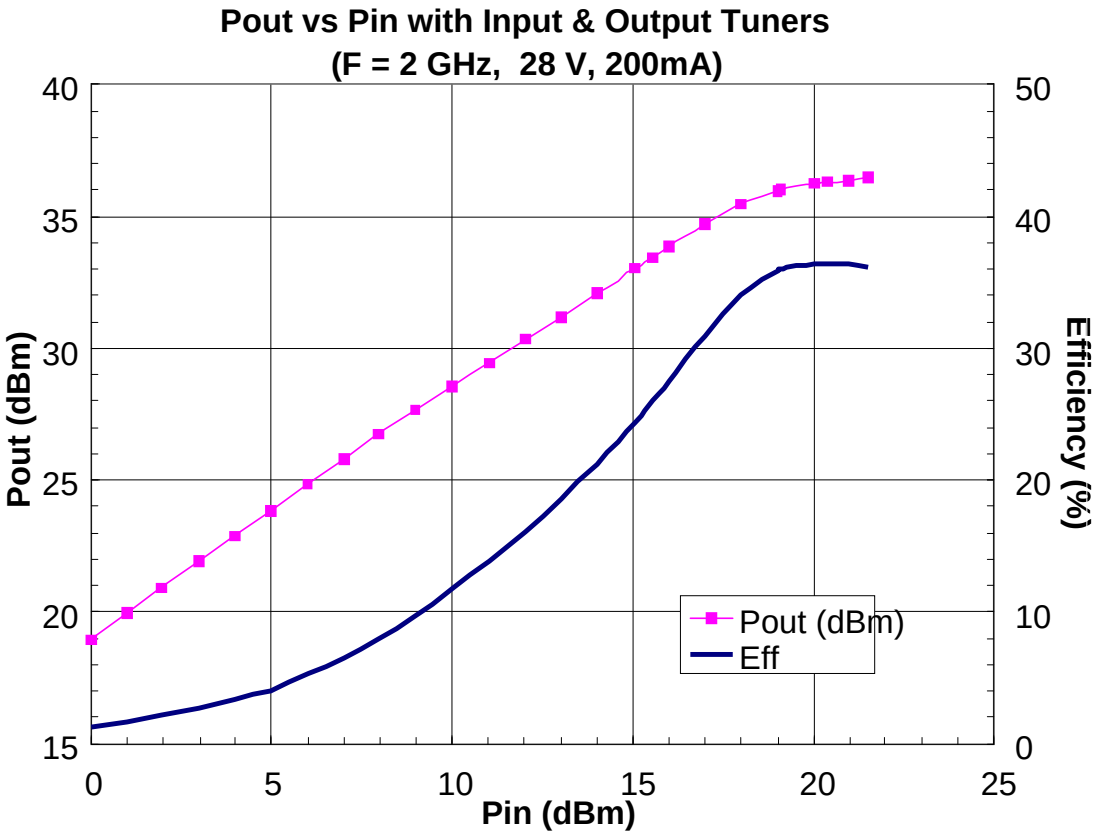
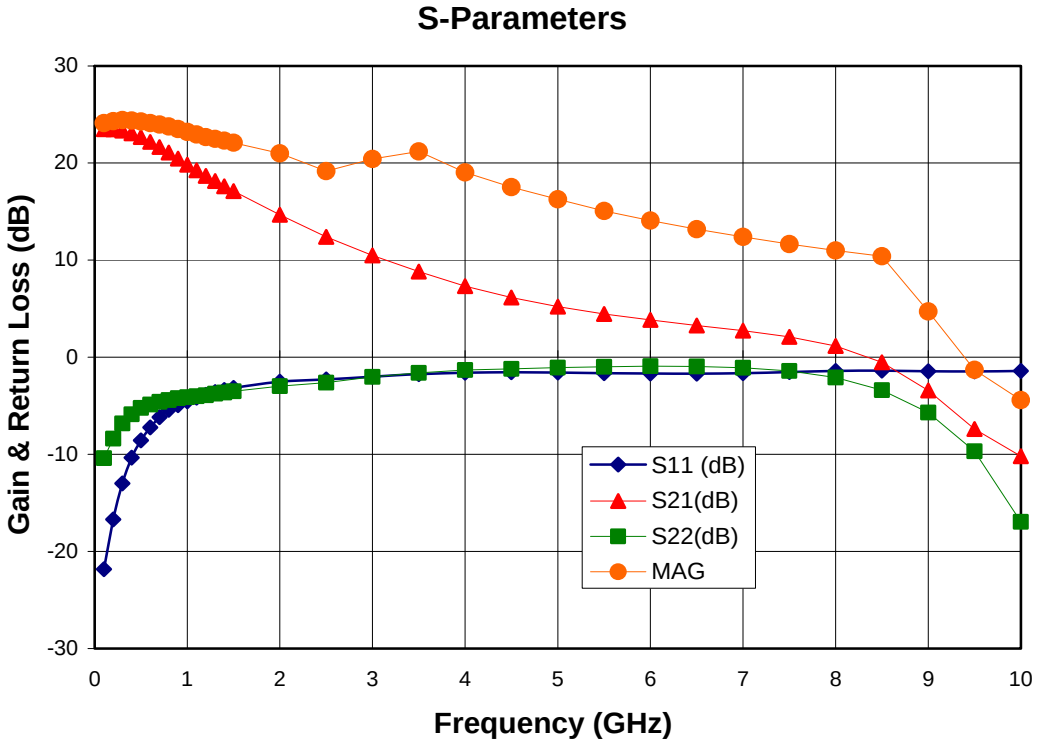
Thermal Resistance (^{o}C/W)	9

Freq (GHz)	MAG (S11)	ANG (S11)	MAG (S21)	ANG (S21)	MAG (S12)	ANG (S12)	MAG (S22)	ANG (S22)
100	0.081	-148.9	14.950	170.9	0.045	-15.0	0.302	126.2
200	0.146	-118.8	14.934	160.8	0.040	-29.4	0.381	86.1
300	0.224	-116.2	14.706	150.4	0.035	-41.4	0.456	56.9
400	0.304	-118.7	14.243	140.0	0.030	-50.9	0.508	34.4
500	0.373	-123.4	13.600	130.4	0.025	-57.8	0.548	16.4
600	0.435	-128.2	12.856	121.1	0.021	-62.8	0.570	1.7
700	0.491	-133.2	12.085	112.6	0.018	-66.4	0.589	-10.7
800	0.536	-137.5	11.313	104.5	0.015	-69.6	0.601	-21.5
900	0.566	-141.7	10.535	96.9	0.013	-71.0	0.615	-30.9
1000	0.592	-144.7	9.801	90.0	0.011	-72.3	0.622	-39.3
1500	0.695	-157.4	7.157	61.3	0.006	-78.1	0.668	-70.7
2000	0.748	-168.6	5.411	36.5	0.003	-95.1	0.710	-93.8
2500	0.768	-178.8	4.160	14.8	0.006	-149.2	0.739	-111.6
3000	0.794	173.4	3.344	-3.5.0	0.017	136.8	0.792	-124.2
3500	0.818	163.9	2.761	-21.7	0.021	110.4	0.830	-136.7
4000	0.832	154.5	2.320	-38.4	0.029	96.6	0.859	-146.3
4500	0.837	148.5	2.028	-54.5	0.036	82.1	0.871	-158.6
5000	0.834	138.1	1.821	-70.3	0.043	71.3	0.884	-166.9
5500	0.828	125.3	1.669	-86.6	0.052	60.3	0.892	-174.6
6000	0.824	110.2	1.556	-104.0	0.061	48.7	0.900	177.1
6500	0.822	93.0	1.457	-122.9	0.070	35.3	0.895	167.3
7000	0.827	74.6	1.369	-143.7	0.079	20.1	0.882	154.0
7500	0.838	56.0	1.272	-167.1	0.087	2.4	0.849	135.9
8000	0.849	37.8	1.141	166.6	0.091	-18.5	0.786	110.6
8500	0.853	20.9	0.941	137.7	0.086	-42.7	0.677	77.5
9000	0.847	5.5	0.674	110.4	0.069	-67.2	0.519	39.3
9500	0.844	-8.1	0.427	93.5	0.041	-81.0	0.328	4.5
10000	0.854	-21.1	0.309	92.4	0.028	-53.0	0.142	-7.6

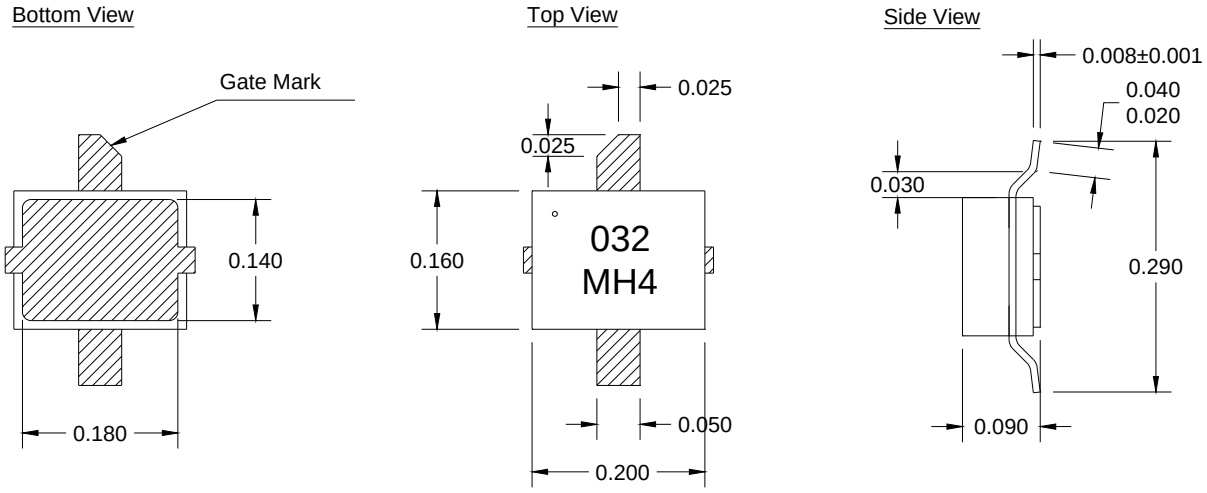
S- Parameters for AM032MH4-BI-R @ 28V / 405mA (S2P file downloadable from the Web)





Specifications subject to change without notice

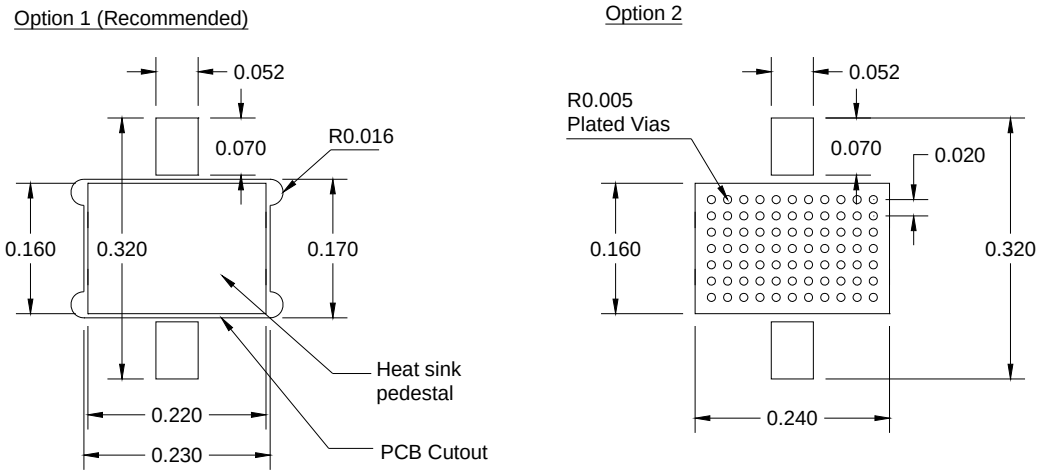
PACKAGE OUTLINE



* All Dimensions are in inches

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.



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