

MMA504 DC to 4.0 GHz Amplifier



(2012)
Molded Plastic DFN

Description:

MMA504 is a fully matched amplifier fabricated in Aeroflex / Metelics' highly reliable InGaP HBT technology and housed in a low cost 1.9 X 1.1 plastic DFN package. It is designed for wireless infrastructure, test instruments and other applications from 100 MHz up to 4 GHz.

Features:

- DC - 4.0 GHz Broadband Gain Block
- ± 0.5 dB Gain Flatness DC to 2 GHz
- Better than 15 dB Return Loss

ELECTRICAL CHARACTERISTICS, $T_c = +25$ °C, $V_s = 5V$, $R_{bias} = 22$ Ohms

Parameter	Term	Minimum	Typical	Maximum	Units
3dB Bandwidth	BW	DC	---	4.0	GHz
Frequency Range	f_o	DC	---	2.0	GHz
Gain	G_p	18	19.5	---	dB
Output Power	P_{1dB}	14.5	15.5	---	dBm
Standing Wave Ratio	VSWR	---	1.25:1	2.0:1	---
3 rd Order Intercept Point	IP3	+26	+27.8	---	dBm
Noise Figure	NF	---	4.4	5.0	dB
Device Current	I_c	42	48	55	mA
Device Voltage	V_{CC}	3.8	4	4.2	V

Maximum Ratings:

Rating	Limits	Units
I_c	60	mA
Pin CW	+10	dBm
θ_{JC}	125	
T_{OP}	-40 to +85	°C
T_J	+150	°C
T_{STG}	-65 to +125	°C
T_{SOLDER}	+260 °C per JEDEC STD-J-20C	



Typical RF Performance at $T_A = 25^\circ\text{C}$, $Z_o = 50 \Omega$, Small Signal, $V_s = 5\text{V}$, $R_{\text{bias}} = 22 \Omega$:

Figure 1.

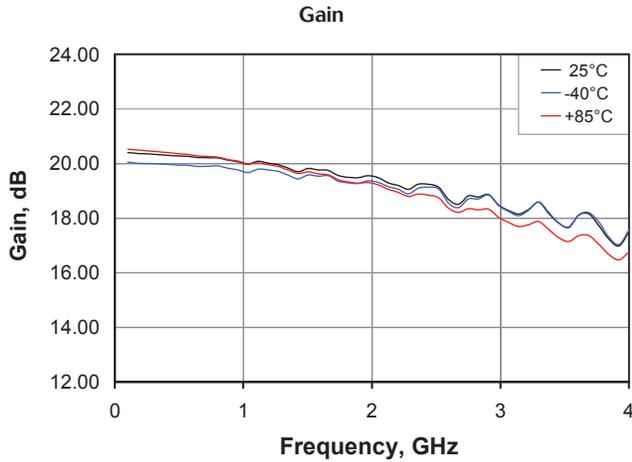


Figure 2.

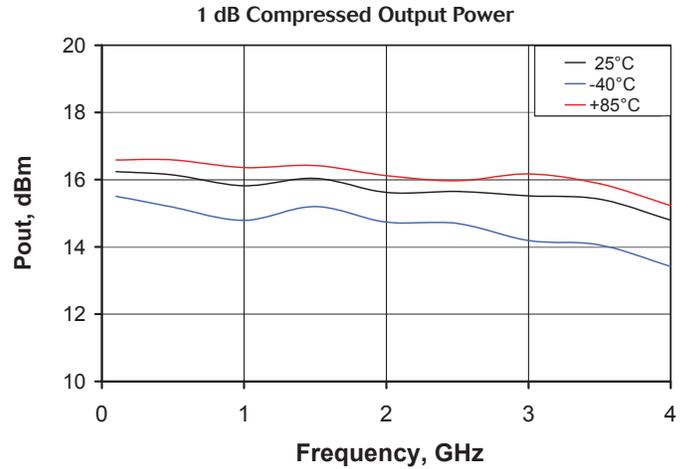


Figure 3.



Figure 4.

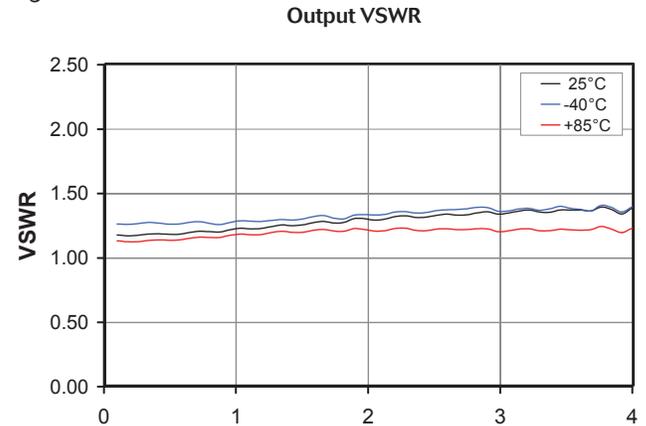


Figure 5.

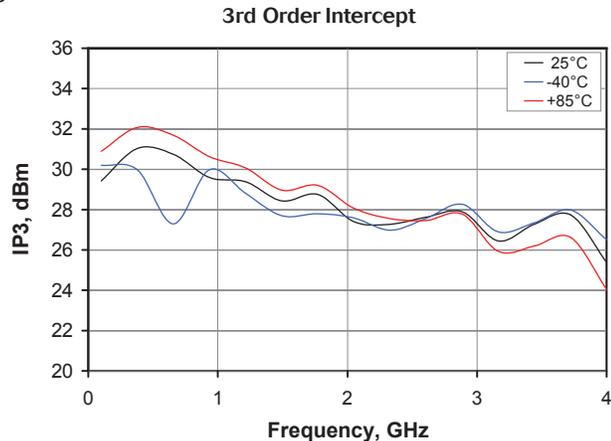
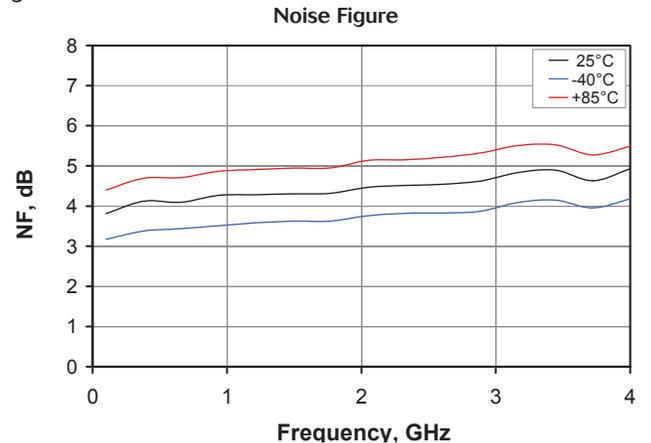
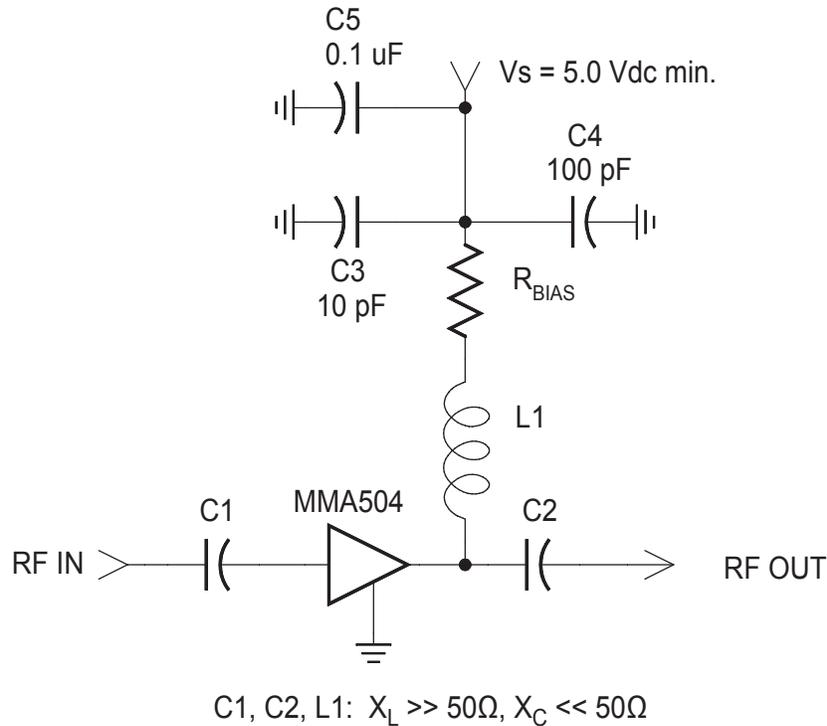


Figure 6.



Application Circuit:



R_{BIAS} vs. V_S

V_S (V)	5.0	6.0	10.0	10.0	15.0
R_{BIAS} (Ω)	22	43	100	130	180
Power Dissipation (W)	0.05	0.1	0.2	0.3	0.4

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