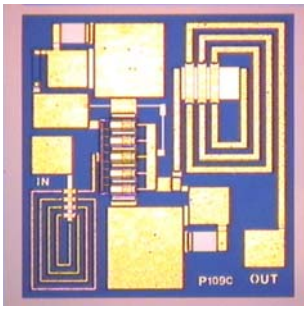
EMA109

UPDATED 11/11/2004

0.5 – 3.0 GHz High Linearity Power MMIC

FEATURES

- **0.5 – 3.0 GHz BANDWIDTH**
- **24.0dBm TYPICAL OUTPUT POWER**
- **-45dBc OIMD3 @ 14dBm EACH TONE Pout**
- **11.0 dB TYPICAL POWER GAIN**
- **SINGLE BIAS SUPPLY**
- **100% DC TESTED**



Dimension: 760um X 700um

Caution! ESD sensitive device.

ELECTRICAL CHARACTERISTICS (T_a = 25°C)

SYMBOL	PARAMETER/TEST CONDITIONS[1]	MIN	TYP	MAX	UNITS
F	Operating Frequency Range	0.5		3.0	GHz
P_{1dB}	Power at 1dB Compression V_{DD} = 8.0V, F = 2.4G	23.0	24.0		dBm
Gss	Small Signal Gain V_{DD} = 8.0V, F = 2.4G	10.0	11.0		dB
IMD3	Output 3rd Order Intermodulation Distortion @Δf=10MHz, Each Tone Pout 14dBm V_{DD} = 8.0V, F = 2.4G		-45	-42	dBc
RL_{IN}	Input Return Loss V_{DD} = 8.0V		-12	-8	dB
RL_{OUT}	Output Return Loss V_{DD} = 8.0V		-12	-8	dB
I_{DD}	Drain Current	90	120	150	mA
R_{TH}	Thermal Resistance[1]		70		°C/W

Note: 1. Overall Rth depends on die attach.

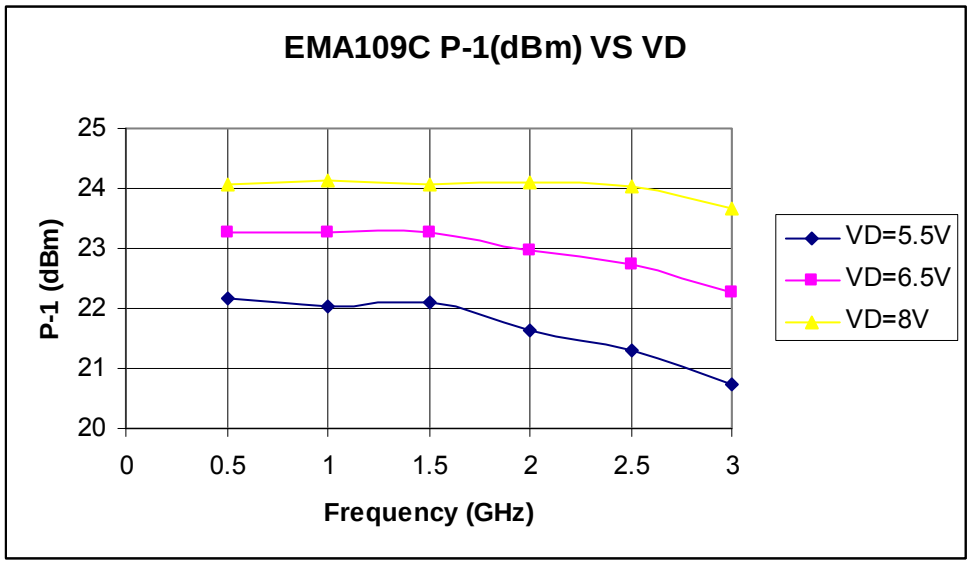
ABSOLUTE MAXIMUM RATINGS FOR CONTINUOUS OPERATION[1,2]

SYMBOL	CHARACTERISTIC	VALUE
V_{DD}	Power Supply Voltage	8 V
V_{GG}	Gate Voltage	-3 V
I_{DD}	Drain Current	IDSS
I_{GSF}	Forward Gate Current	10 mA
P_{IN}	Input Power	@ 3dB compression
P_T	Total Power Dissipation	1.4 W
T_{CH}	Channel Temperature	150°C
T_{STG}	Storage Temperature	-65/+150°C

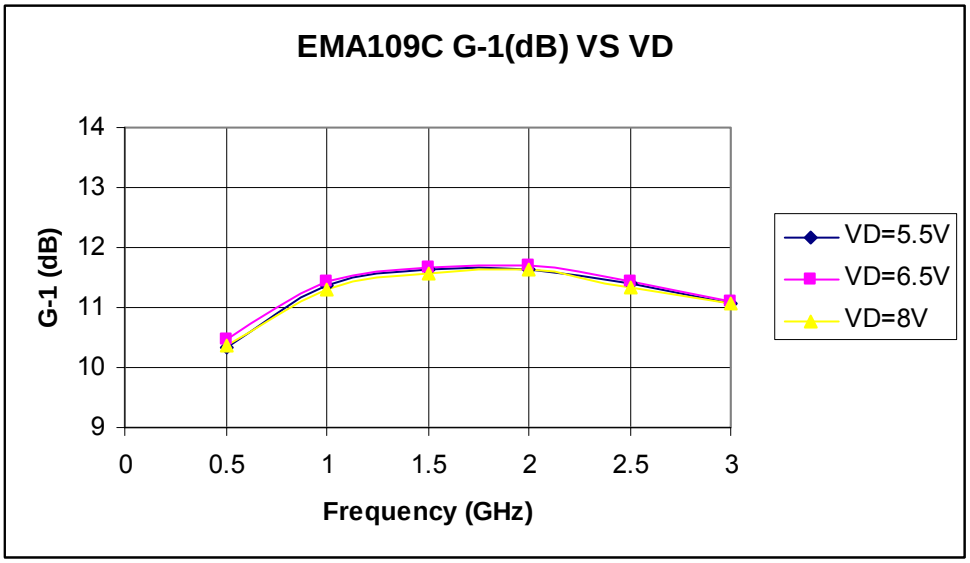
Notes: 1. Operating the device beyond any of the above ratings may result in permanent damage or reduction of MTTF.
2. Bias conditions must also satisfy the following equation $P_T < (T_{CH} - T_{HS})/R_{TH}$; where T_{HS} = temperature of heatsink, and $P_T = (V_{DD} * I_{DD}) - (P_{OUT} - P_{IN})$.

Typical Performance:

1. P-1 VS VD

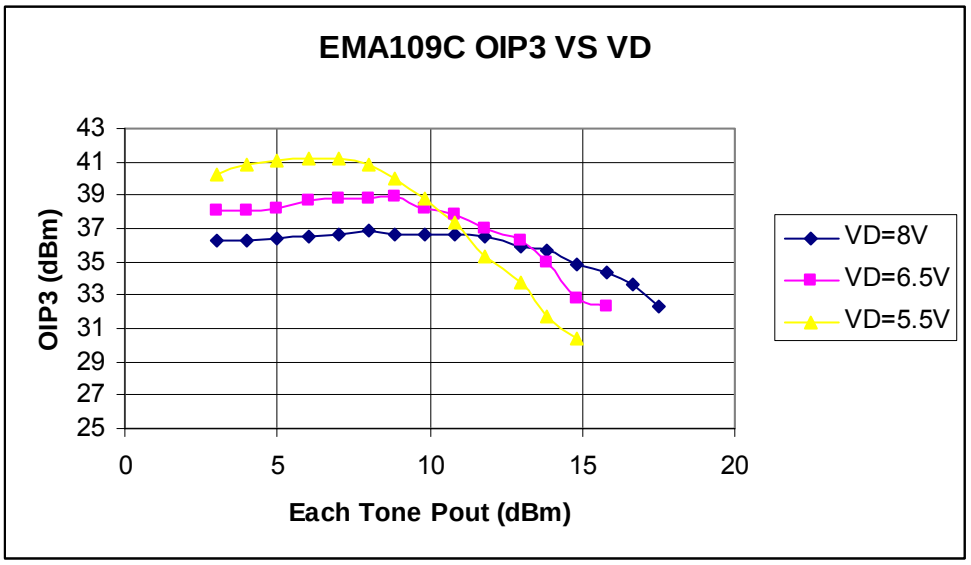


2. G-1 VS VD



Typical Performance:

3. OIP3 VS VD



4. Small Signal Performance