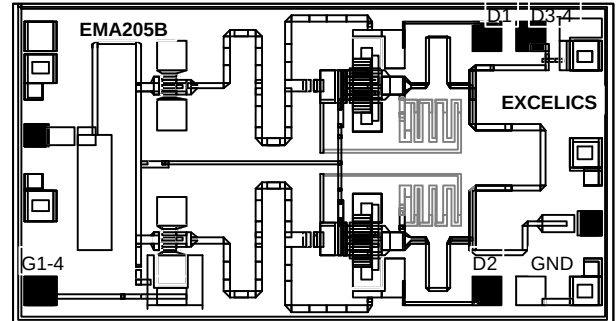


TENTATIVE DATA SHEET
9-16 GHz Low Noise MMIC
FEATURES

- 9-16 GHz BANDWIDTH
- +18.0 dBm TYPICAL OUTPUT POWER
- 14 dB $\pm$ 1.5 dB TYPICAL POWER GAIN
- TWO SECTION, DISTRIBUTED AMPLIFIER
- DUAL BIAS SUPPLY
- 0.3 MICRON RECESSED "MUSHROOM" GATE
- Si₃N₄ PASSIVATION
- ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY



Chip Size 1060 x 2000 microns
 Chip Thickness: 75 $\pm$ 13 microns
 All Dimensions In Microns

ELECTRICAL CHARACTERISTICS¹ (T_a = 25 °C)

SYMBOL	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
F	Operating Frequency Range	9		16	GHz
P_{1dB}	Output Power at 1dB Gain Compression		18		dBm
G_{ss}	Small Signal Gain		14		dB
ΔG_{ss}	Small Signal Gain Flatness		$\pm$ 1.5		dB
NF	Noise Figure		4		dB
VSWR_{in}	Input VSWR		1.5:1		
VSWR_{out}	Output VSWR		2.0:1		
I_{dd}	Power Supply Current		160		mA
V_{dd}	Power Supply Voltage		5	8	V

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE ¹	CONTINUOUS ²
V_{ds}	Drain-Source Voltage	12V	8V
V_{gs}	Gate-Source Voltage	-8V	-3V
I_{ds}	Drain Current	I _{dss}	225mA
I_{gf}	Forward Gate Current	55 mA	9mA
P_{in}	Input Power	13dBm	@3dB Compression
T_{ch}	Channel Temperature	175°C	150°C
T_{stg}	Storage Temperature	-65/175°C	-65/150°C
P_t	Total Power Dissipation	1.1 W	900 mW

- Note: 1. Exceeding any of the above ratings may result in permanent damage.
 2. Exceeding any of the above ratings may reduce MTTF below design goals.

TENTATIVE DATA SHEET

9-16 GHz Medium Power MMIC

S-PARAMETERS (On wafer Sij measurements)

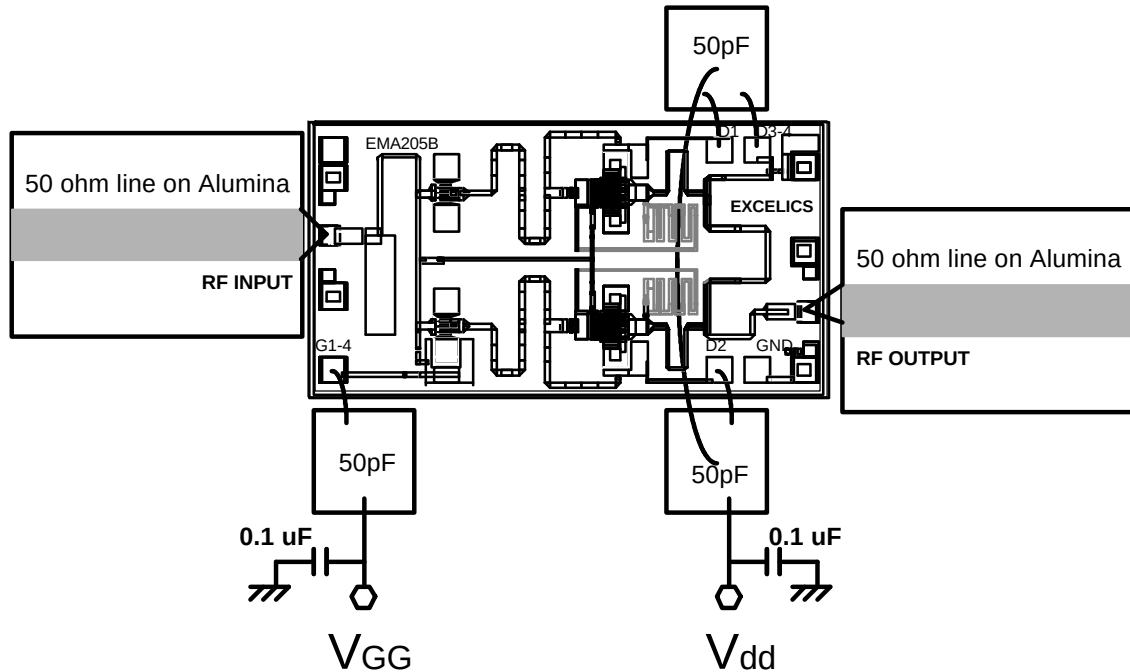
5V, 1/2 Idss_6

FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1	0.365	-129.2	0.276	82.1	0.0038	-28.6	0.620	-112.2
2	0.471	-172.2	0.441	47.4	0.0011	-88.5	0.844	-167.7
3	0.450	172.4	0.416	3.6	0.0008	-125.9	0.810	158.0
4	0.422	162.0	0.389	16.1	0.0006	-139.8	0.732	130.9
5	0.389	154.2	0.826	35.4	0.0007	-175.1	0.614	104.5
6	0.350	148.0	1.825	8.7	0.0011	160.0	0.430	73.8
7	0.312	143.6	3.185	-29.7	0.0020	139.7	0.185	34.2
8	0.276	141.4	4.559	-73.3	0.0030	97.5	0.078	-139.8
9	0.250	138.6	5.385	-117.5	0.0037	58.0	0.245	168.1
10	0.234	136.9	5.626	-159.0	0.0045	18.1	0.300	137.5
11	0.226	139.7	5.497	166.2	0.0052	-10.6	0.275	115.0
12	0.221	141.9	5.350	136.0	0.0052	-34.2	0.214	99.9
13	0.222	140.6	5.326	107.4	0.0060	-54.4	0.149	95.2
14	0.220	135.3	5.360	79.5	0.0067	-76.5	0.092	109.1
15	0.235	131.2	5.594	50.3	0.0077	-103.0	0.088	149.1
16	0.271	127.6	6.062	18.7	0.0101	-130.2	0.132	172.4
17	0.385	119.2	6.709	-17.2	0.0122	-160.7	0.205	176.3
18	0.511	89.3	6.771	-59.4	0.0122	160.1	0.314	172.1
19	0.577	53.6	5.973	-105.7	0.0111	115.1	0.457	159.6
20	0.577	21.6	4.309	-151.4	0.0072	74.4	0.608	141.4
21	0.564	-2.5	2.567	171.8	0.0022	33.0	0.711	119.8
22	0.589	-23.7	1.423	155.1	0.0004	127.1	0.733	98.4
23	0.606	-42.8	1.095	146.8	0.0018	108.7	0.686	81.3
24	0.623	-58.4	0.917	130.5	0.0021	87.5	0.628	69.0
25	0.6426	-70.4	0.754	112.2	0.0023	72.2	0.585	59.3
26	0.664	-79.7	0.607	94.3	0.0027	75.1	0.555	50.8
27	0.694	-88.2	0.487	76.6	0.0031	76.8	0.531	42.8
28	0.732	-98.1	0.399	58.6	0.0026	68.9	0.511	34.9
29	0.761	-106.2	0.330	41.6	0.0015	58.9	0.496	27.0
30	0.791	-114.1	0.271	24.2	0.0014	23.6	0.480	19.1

EMA205B

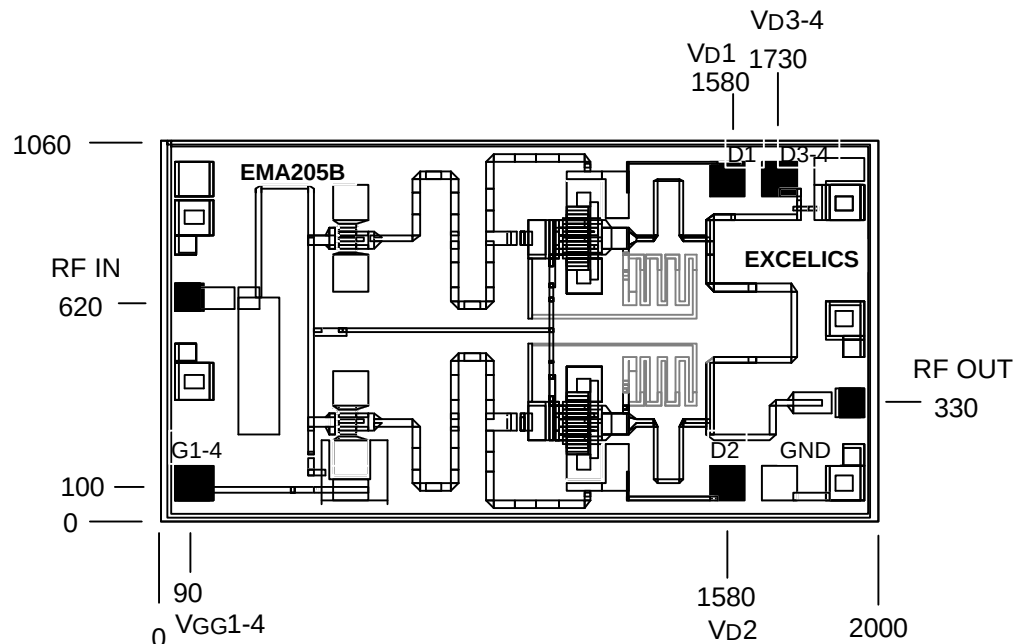
TENTATIVE DATA SHEET 9-16 GHz Low Noise MMIC

ASSEMBLY DRAWING



The length of RF wires should be as short as possible. Use at least two wires between RF pad and 50 ohm line and separate the wires to minimize the mutual inductance.

CHIP OUTLINE



Chip Size 1060 x 2000 microns
Chip Thickness: 75 ± 13 microns
PAD Dimensions: 1. DC 100 x 100 microns
2. RF 80 x 68 microns
All Dimensions In Microns

TENTATIVE DATA SHEET 9-16 GHz Low Noise MMIC

TYPICAL APPLICATION PERFORMANCE

