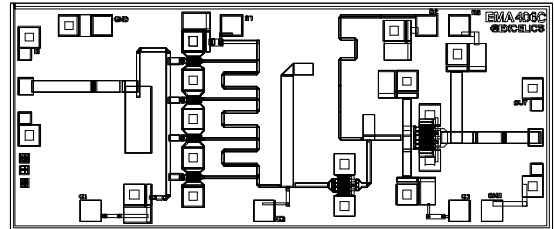


TENTATIVE DATA SHEET
26 - 32 GHz Low Noise MMIC
FEATURES

- 26 -32 GHz BANDWIDTH
- +20.0 dBm TYPICAL OUTPUT POWER
- 21 dB $\pm$ 1.5 dB TYPICAL POWER GAIN
- FOUR 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 2500 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	26		32	GHz
P_{1dB}	Output Power at 1dB Gain Compression		20		dBm
G_{ss}	Small Signal Gain		21		dB
ΔG_{ss}	Small Signal Gain Flatness		$\pm$ 1.5		dB
NF	Noise Figure		6		dB
VSWR_{in}	Input VSWR		2.0:1		
VSWR_{out}	Output VSWR		3.0:1		
I_{dd}	Power Supply Current		140		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}	215mA
I_{gf}	Forward Gate Current	50 mA	8.5mA
P_{in}	Input Power	15dBm	@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 W	0.85 W

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

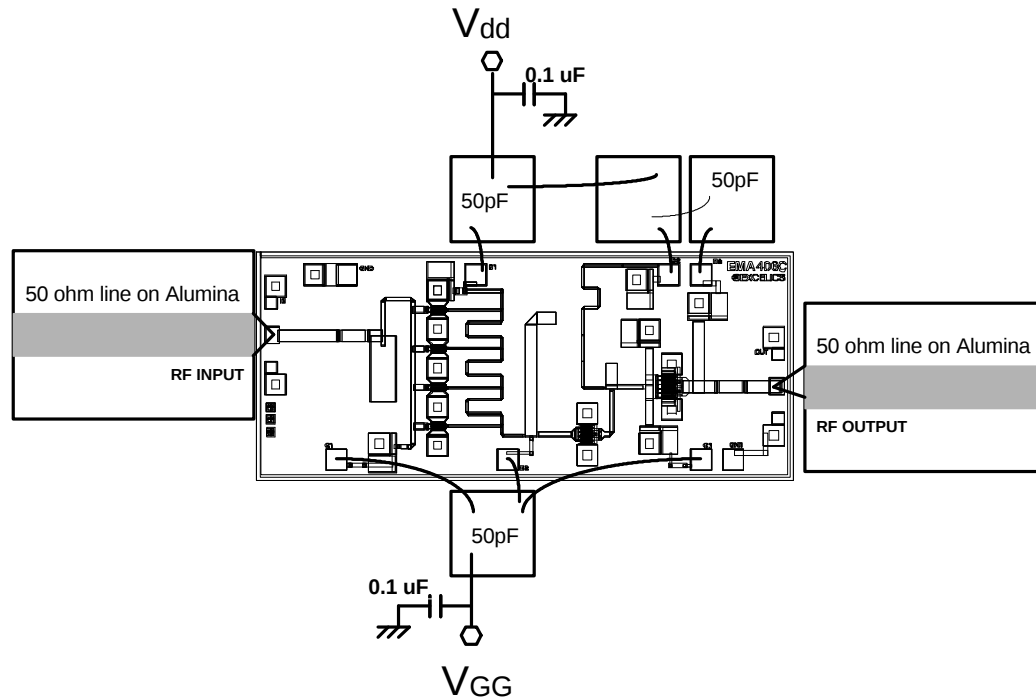
26 - 32 GHz Low Noise MMIC

S-PARAMETERS (On wafer Sij measurements)								
5V, 1/2 Idss								
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
20.00	0.33	77.79	1.28	-95.95	0.0008	44.60	0.96	85.42
20.50	0.32	68.81	1.41	-106.07	0.0011	42.01	0.96	80.89
21.00	0.30	59.18	1.57	-115.93	0.0010	52.46	0.97	75.97
21.50	0.29	48.60	1.79	-125.92	0.0014	89.17	0.97	70.79
22.00	0.27	37.50	2.09	-136.41	0.0016	91.70	0.98	65.27
22.50	0.25	25.58	2.49	-147.65	0.0006	98.47	0.99	59.31
23.00	0.24	11.90	3.02	-159.81	0.0003	98.74	1.00	52.73
23.50	0.23	-3.74	3.72	-173.45	0.0010	34.03	1.00	45.39
24.00	0.22	-20.84	4.67	171.42	0.0012	26.69	1.00	36.93
24.50	0.22	-38.46	5.89	153.98	0.0009	64.11	1.00	26.90
25.00	0.23	-56.48	7.47	134.19	0.0018	35.00	1.00	15.59
25.50	0.24	-74.69	9.29	111.36	0.0017	23.11	1.00	2.57
26.00	0.24	-92.54	11.07	86.85	0.0020	3.86	0.93	-11.48
26.50	0.25	-110.29	12.61	60.91	0.0028	-2.64	0.83	-25.69
27.00	0.25	-127.45	13.95	34.87	0.0030	-33.85	0.70	-40.01
27.50	0.26	-143.64	14.79	8.57	0.0034	-33.53	0.56	-52.60
28.00	0.25	-158.95	15.29	-17.59	0.0034	-46.81	0.43	-61.28
28.50	0.24	-173.35	15.27	-43.11	0.0019	-76.82	0.33	-63.93
29.00	0.22	171.21	15.04	-67.65	0.0023	-138.41	0.27	-60.16
29.50	0.19	155.15	14.71	-90.91	0.0029	-169.26	0.25	-54.40
30.00	0.15	138.97	14.44	-113.14	0.0042	173.19	0.26	-51.72
30.50	0.11	119.25	14.21	-135.14	0.0045	168.43	0.27	-53.13
31.00	0.05	89.26	14.12	-157.28	0.0050	138.57	0.30	-57.53
31.50	0.03	-10.38	14.03	-179.93	0.0066	110.64	0.33	-63.39
32.00	0.08	-63.92	14.02	156.67	0.0067	104.86	0.36	-71.39
32.50	0.14	-86.84	13.83	132.18	0.0074	104.16	0.40	-81.21
33.00	0.18	-103.57	13.45	106.66	0.0071	104.21	0.44	-91.19
33.50	0.21	-117.45	12.82	80.81	0.0071	116.13	0.48	-102.55
34.00	0.25	-129.30	12.12	53.53	0.0086	114.18	0.53	-114.85
34.50	0.26	-140.80	10.88	26.05	0.0100	99.52	0.55	-128.52
35.00	0.26	-149.75	9.50	-1.43	0.0112	90.23	0.55	-141.63
35.50	0.25	-153.15	8.12	-27.78	0.0099	72.51	0.54	-152.84
36.00	0.25	-156.29	6.90	-54.90	0.0141	24.34	0.50	-163.71
36.50	0.26	-151.97	5.53	-80.97	0.0137	8.68	0.46	-170.54
37.00	0.30	-149.76	4.37	-105.16	0.0128	-3.35	0.43	-175.21
37.50	0.36	-151.29	3.44	-126.85	0.0108	-11.68	0.43	-178.10
38.00	0.42	-156.26	2.71	-148.14	0.0046	-2.18	0.44	178.29
38.50	0.48	-162.95	2.14	-168.76	0.0019	54.40	0.44	173.94
39.00	0.52	-170.50	1.66	170.83	0.0036	74.41	0.44	170.08
39.50	0.56	-176.61	1.35	152.84	0.0051	78.45	0.44	166.96
40.00	0.59	178.86	1.17	138.10	0.0054	78.89	0.44	164.74

TENTATIVE DATA SHEET

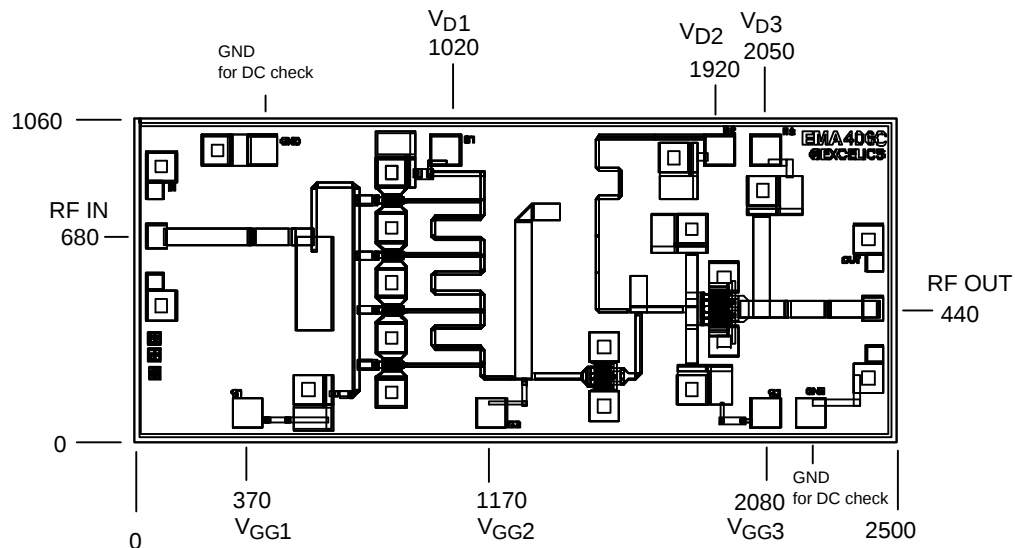
26 - 32 GHz Low Noise MMIC

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 2500 microns
 Chip Thickness: 75 $\pm$ 13 microns
 PAD Dimensions: 1. DC 100 x 100 microns
 2. RF 80 x 68 microns
 All Dimensions In Microns

TENTATIVE DATA SHEET
26 - 32 GHz Low Noise MMIC

TYPICAL APPLICATION PERFORMANCE

