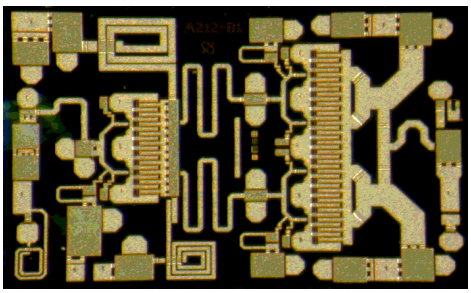
13.75 - 14.75 GHz 1W MMIC

FEATURES

- P_{-1} dB: 30.5 dBm
- Small Signal Gain: 14 dB
- IP3: 40 dBm
- DC Power: 600mA@8V

PHOTO ENLARGEMENT



DESCRIPTION

The TC1953P is a two stages PHEMT power amplifier MMIC that operates from 13.75 to 14.75 GHz. The amplifier provides a minimum of 14 dB gain and delivers 1 watt output power from 13.75 to 14.75 GHz. The MMIC is fabricated using Transcom's proprietary matured GaAs PHEMT process. The process features full passivation for increased performance and reliability. All devices are 100 % DC tested to assure consistent quality. Bond pads are gold plated for either thermocompression or thermosonic wire bonding. Backside gold plating is compatible with standard AuSn die-attach.

ELECTRICAL SPECIFICATIONS (Ta = 25 °C)

SYMBOL	DESCRIPTION	MIN	TYP	MAX	UNITS
FREQ	Frequency Range	13.75		14.75	GHz
SSG	Small Signal Gain	13	14		dB
P1 dB	Output Power at 1 dB Gain Compression	29.5	30.5		dBm
P3 dB	Output Power at 3 dB Gain Compression	30	31		dBm
IP3	Third Order Intercept Point	39	40		dBm
VSWR, IN	Input Return Loss	8	2:1		
VSWR, OUT	Output Return Loss	8	2:1		
VDD	Supply Voltage	8	8	10	Volt
Vg	Gate Voltage	-1.8	-1.0	-0.5	Volt
IDD	Bias Current	500	600	750	mA
ID_P$_{-1}$ dB	Current Supply @ Pout = P_{-1} dB	500	600	750	mA
ηa	Power Added Efficiency		20		%

ABSOLUTE MAXIMUM RATINGS at 25 °C

Symbol	Parameter	Rating
V_{DS}	Drain-Source Voltage	10 V
V_{GS}	Gate-Source Voltage	-5 V
I_D	Drain Current	1500 mA
P_T	Continuous Dissipation	7.5 W
P_{in}	Input Power, CW	10 dBm
T_{CH}	Channel Temperature	175 °C
T_{STG}	Storage Temperature	- 65 °C to +175 °C

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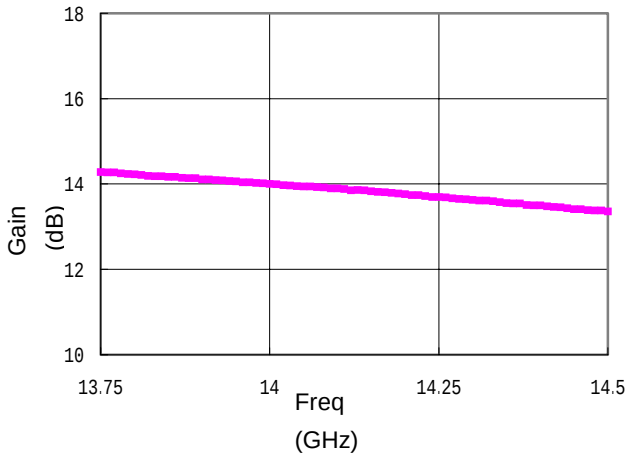
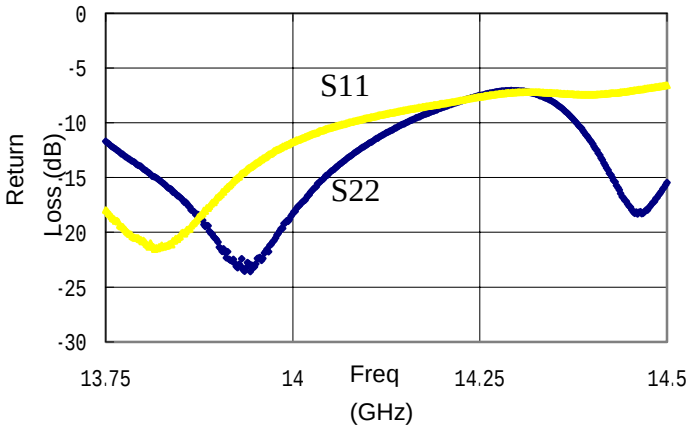
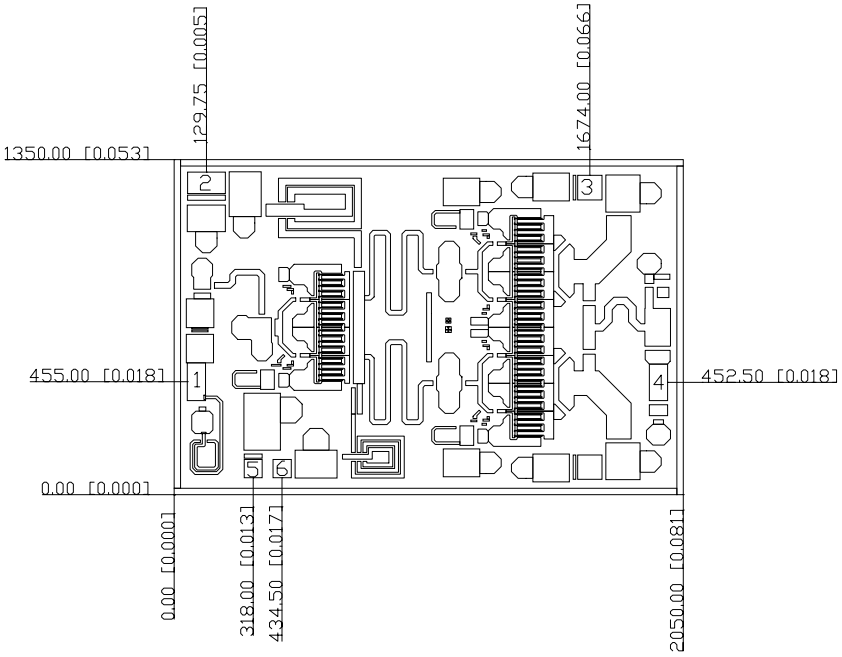
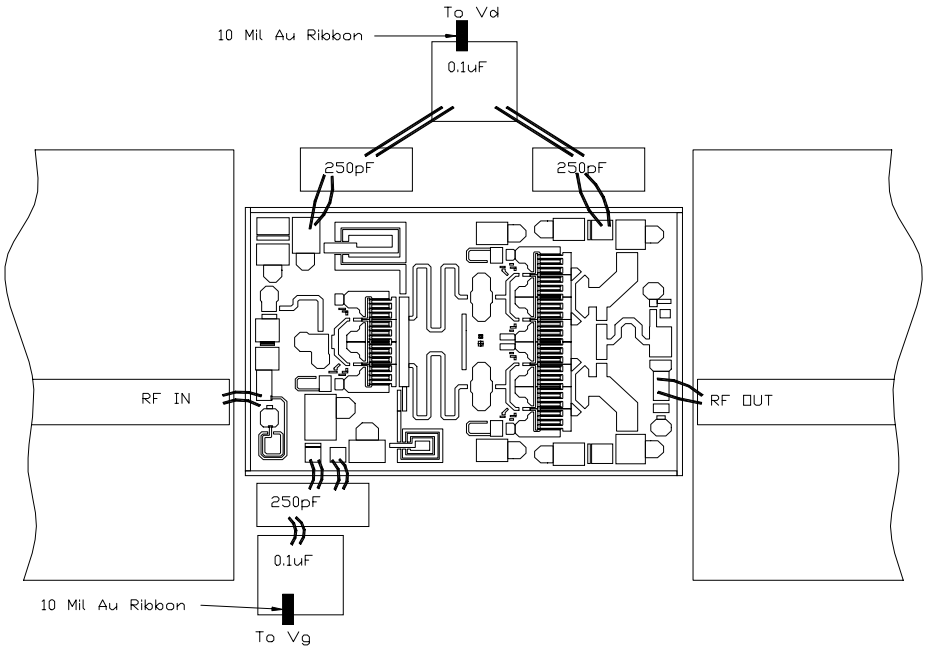
TYPICAL PERFORMANCE





MECHANICAL OUTLINE (in um)



ASSEMBLY DIAGRAM