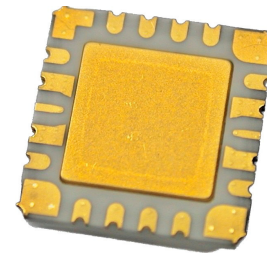


26.5 – 30.0 GHz 3-Stages 2W PA MMIC(Package Form)

FEATURES

- Psat : +33.0dBm
- P1dB : +31.5dBm
- IMD3 : +43dBc @ Pscl +20dBm
- Small Signal Gain: 21.5dB
- Bias Condition: 1400mA @ +6V



APPLICATIONS

- New 5G Radio Link
- VSAT
- Sat-Com, LEO/UT/Gateway
- Point-to-Point Radio

DESCRIPTION

The TC5287P is a three-stages PHEMT high power amplifier package form MMIC that operates from 26.5 to 30.0GHz. The amplifier provides a typical 21.5 dB of gain and delivers +33 dBm of Pout. 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.

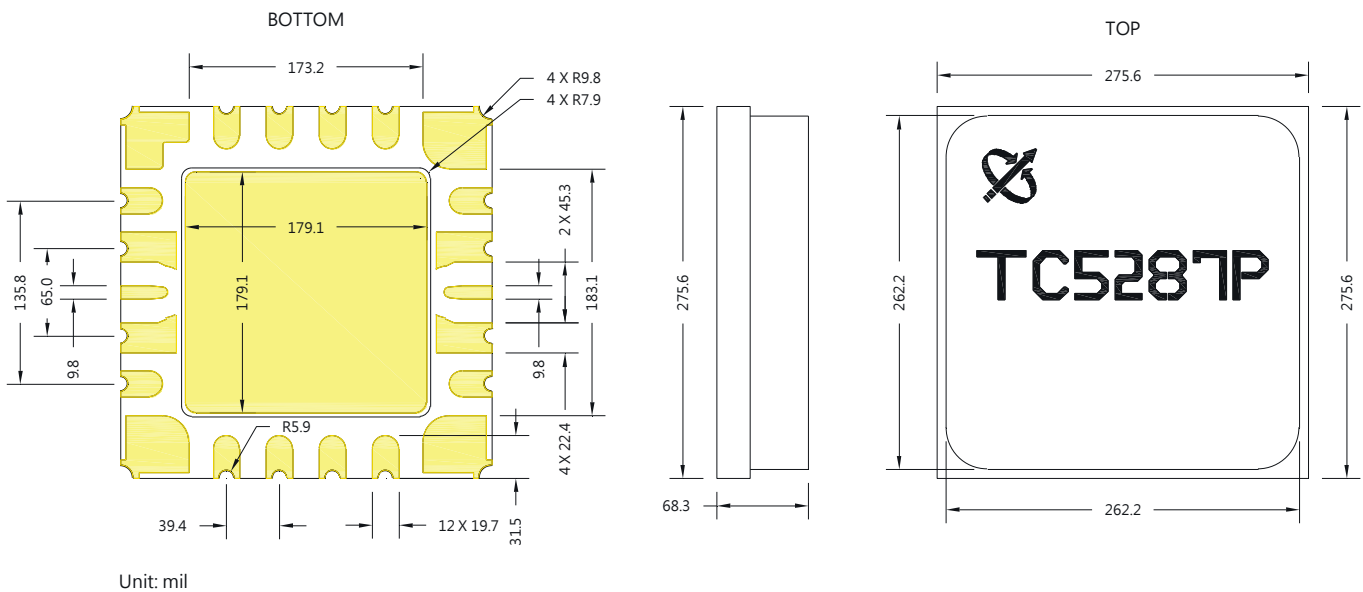
ELECTRICAL SPECIFICATIONS (Ta = 25 °C)

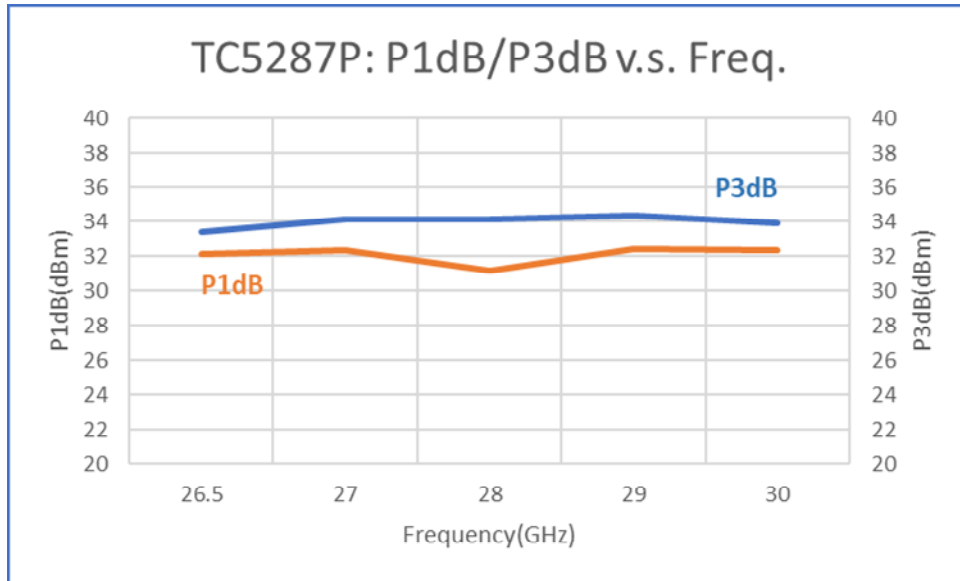
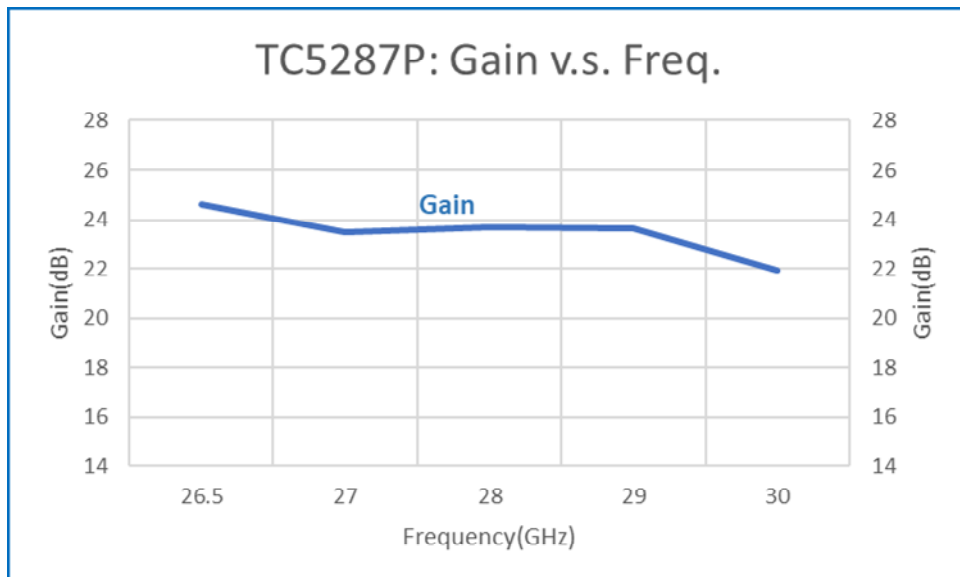
SYMBOL	DESCRIPTION	MIN	TYP	MAX	UNITS
FREQ	Frequency Range	26.5		30.0	GHz
SSG	Small Signal Gain	@26.5-29.5GHz	21.5		dB
		@29.5-30.0GHz	20.5		dB
Psat	Saturation Output Power		33.0		dBm
P1dB	1dB Compression Output Power		31.5		dBm
IMD3	Third Intermodulation level (Pout +20dBm/tone, Δf=1MHz)		43.0		dBc
I.L., IN	Input Return Loss		8		dB
I.L., OUT	Output Return Loss		10		dB
VDD	Supply Voltage		+6		Volt
IDQ	Current Supply Without RF		1,400		mA
IDRF	Current Supply @ Pout		2,600		mA
Vg	Supply Gate Voltage		-1.1		Volt

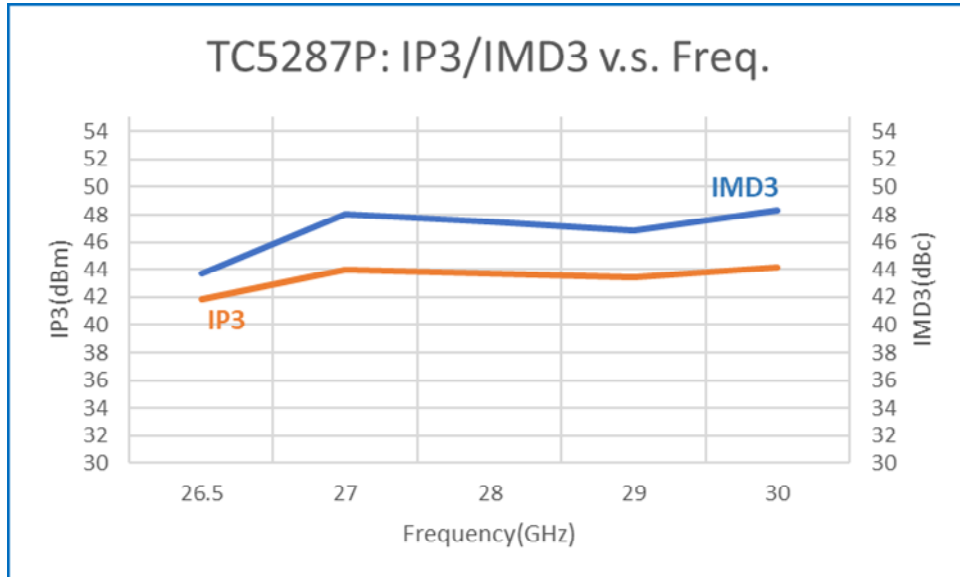
Note – the performance shown above is measured with the PCB to be “soldered” on the metal baseplate for ensuring the good heat dissipation and electrical conductivity.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Rating
V _{DS}	Drain-Source Voltage	7.0 V
I _D	Drain Current	4.0 A
P _T	Continuous Dissipation	20 W
P _{in}	Input Power, CW	+25 dBm
T _{ch}	Channel Temperature	+175
T _{STG}	Storage Temperature	- 50 °C to +150 °C

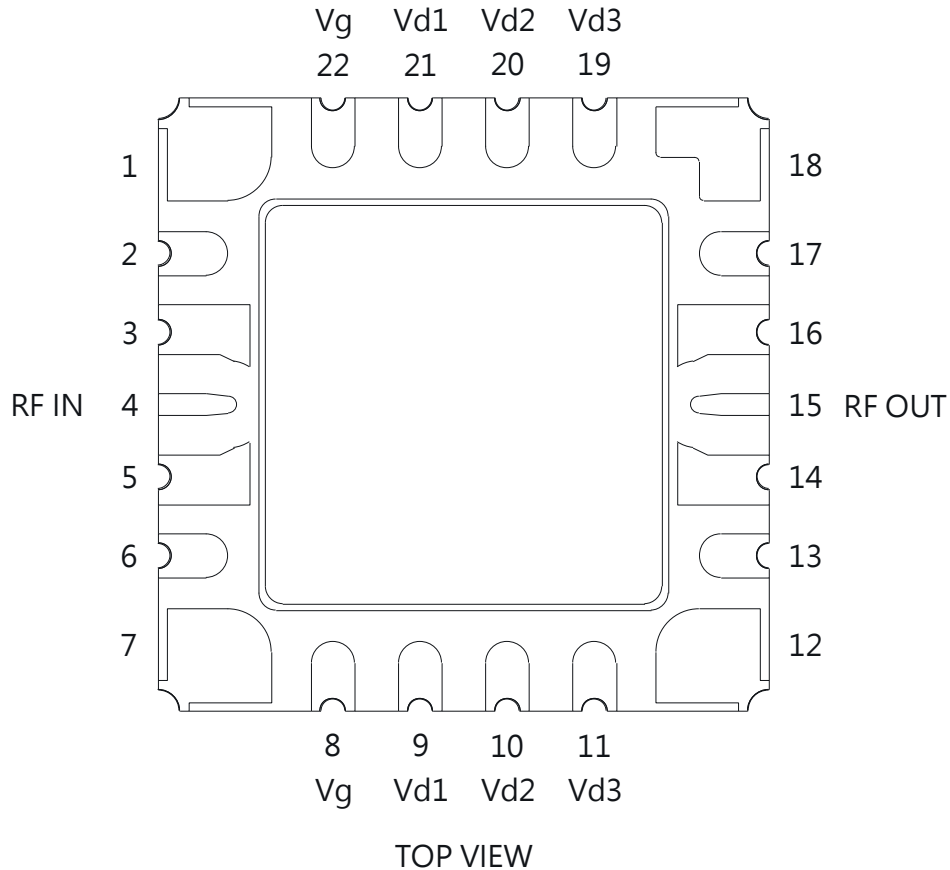
PHYSICAL DIMENSIONS (unit : mil)

TYPICAL CHARACTERISTICS
Pout vs Freq.

Gain vs Freq.


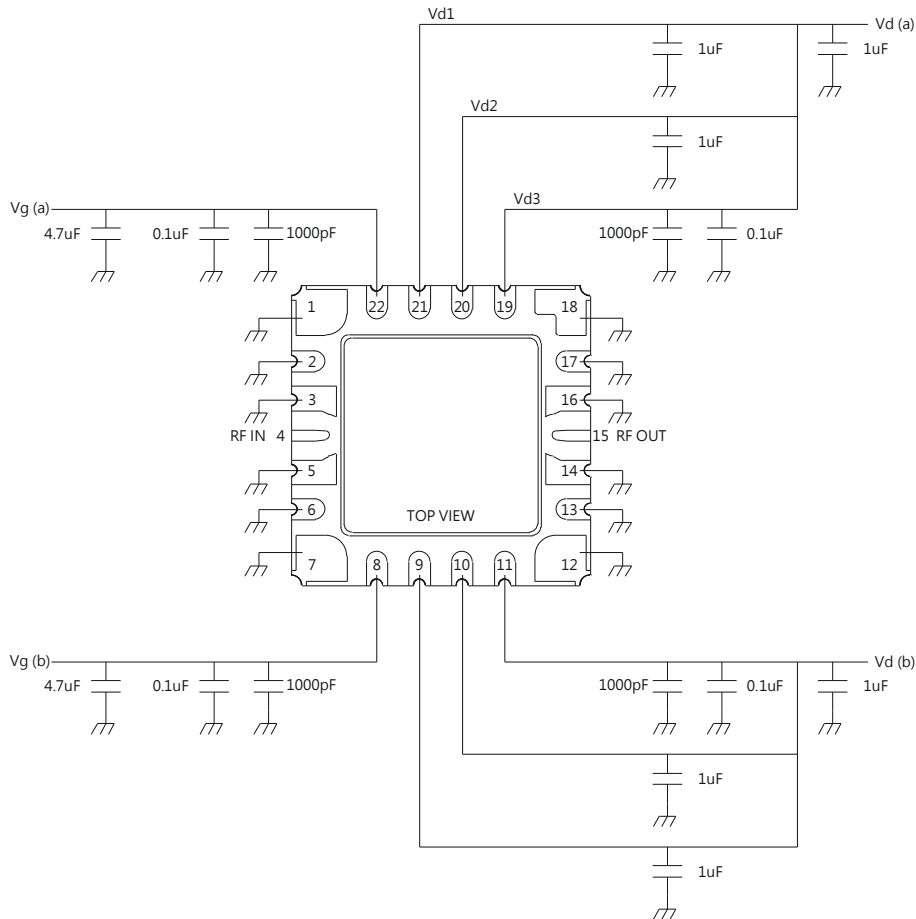
IMD3 / IP3 vs Freq (IMD3@Psc1 = +20dBm)

CONNECTION DIAGRAM AND PIN DESCRIPTIONS

(Top-View)


PIN ASSIGNMENT

Pin No.	Symbol	Description
1-3, 5-7, 12-14, 16-18	GND	Ground.
4	RF IN	RF Input, matched to 50 Ω.
8、22	Vg	Negative Gate voltage.
9、21	Vd1	Positive Drain voltage.
10、20	Vd2	Positive Drain voltage.
11、19	Vd3	Positive Drain voltage.
15	RF OUT	RF Output, matched to 50 Ω.

CONNECTION SCHEMATIC AND PIN DESCRIPTIONS


Note : Either the configuration of Vg (a) and Vd (a) or the configuration of Vg (b) and Vd (b) can be designed and used, as per the system design convenience.

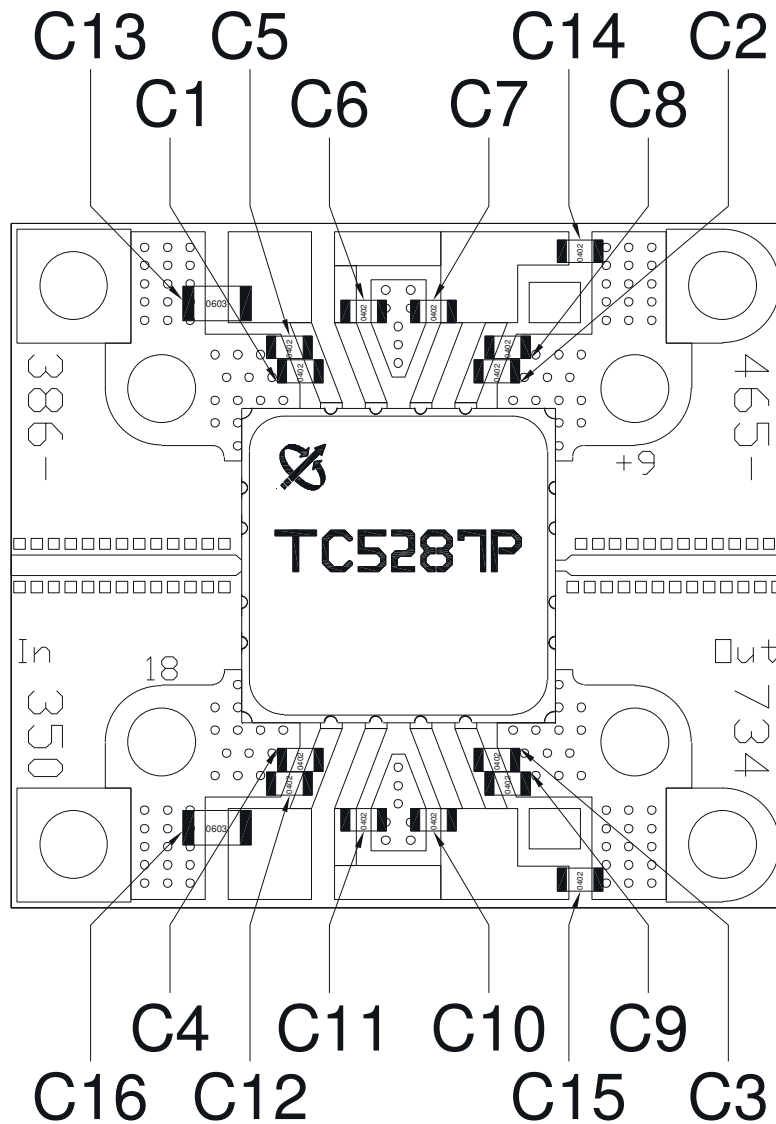
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EVALUATION BOARD

Substrate material : RO4003

Substrate thickness : 8 mils



Ref. Designator	Value	Description	Manuf.	Part Number
C1, C2, C3, C4	1000pF	0402, $\pm 5\%$, +50 V, C0G	Murata	GRM1885C1H102JA01
C5, C8, C9, C12	0.1uF	0402, $\pm 10\%$, +50V, X7R	Murata	GRM1555C1H102JA01#
C6, C7, C10, C11, C14, C15	1uF	0402, $\pm 10\%$, +25V, X7R	Murata	GRT155R61E105KE01D
C13, C16	4.7uF	0603, $\pm 10\%$, +10V, X7S	Murata	GRM188C71A475KE11D