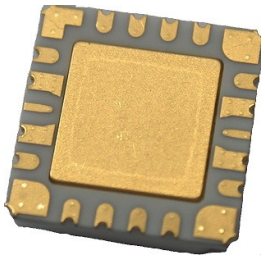
TC5285P

PRE.3_07/30/2021

27 – 29.5 GHz 2W PA MMIC(Package Form)

FEATURES

- Psat : +33.0dBm
- P1dB : +32.5dBm
- IMD3 : +41.0dBc @ Pscl +20dBm
- Small Signal Gain: 13.0dB
- Bias Condition: 1800mA @ +6V



APPLICATIONS

- New 5G Radio Link
- VSAT
- Sat-Com
- Point-to-Point Radio

DESCRIPTION

The TC5285P is a two-stages PHEMT high power amplifier package form MMIC that operates from 27 to 29.5 GHz. The amplifier provides a typical 13 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	27		29.5	GHz
SSG	Small Signal Gain		13		dB
Psat	Saturation Output Power		33.0		dBm
P1dB	1dB Compression Output Power		32.5		dBm
IMD3	The Third Intermodulation level at Pout +20dBm/tone, △f=1MHz		41.0		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		1,800		mA
IDRF	Current Supply @ Pout		2,150		mA

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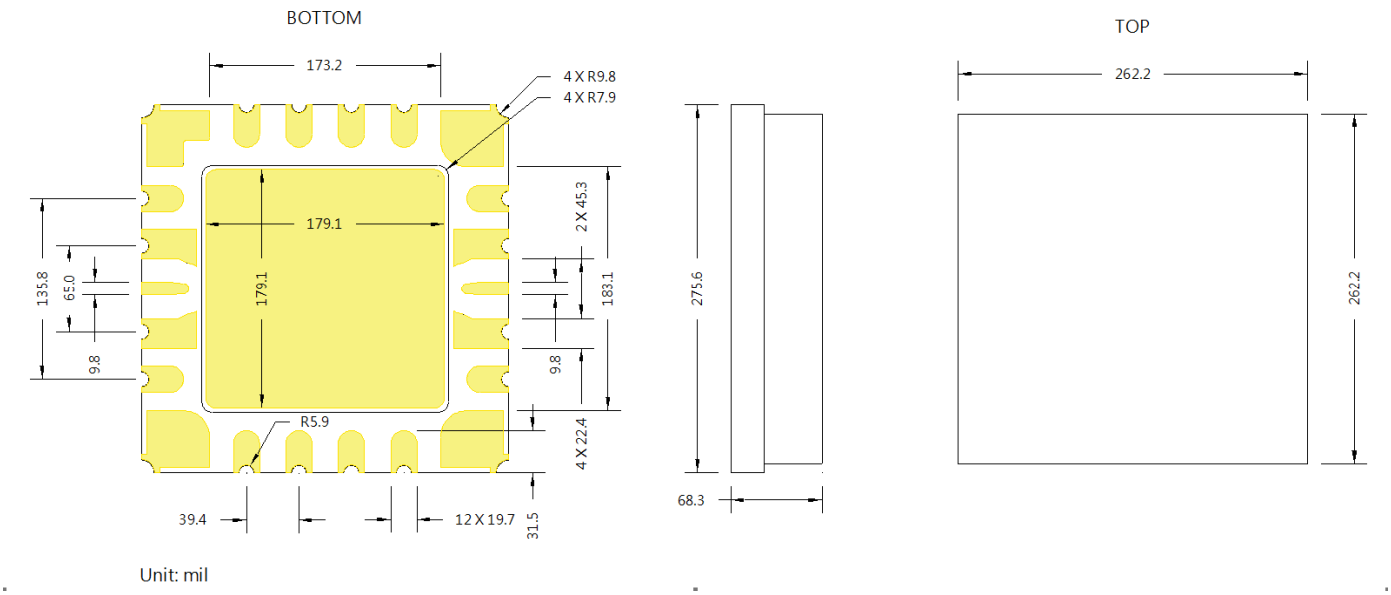
ABSOLUTE MAXIMUM RATINGS

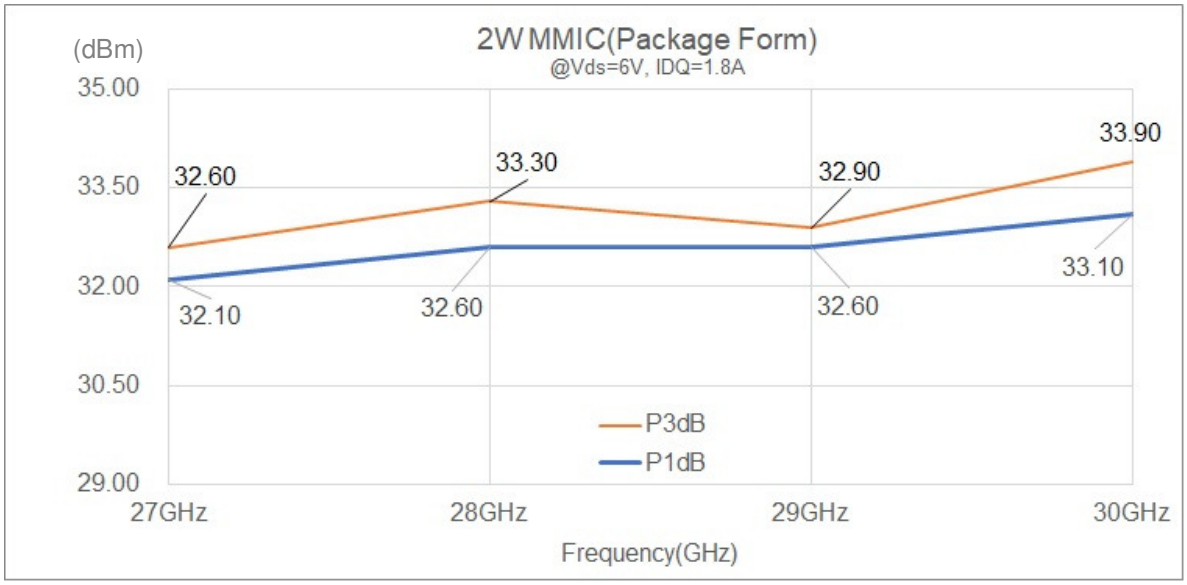
Symbol	Parameter	Rating
V_{DS}	Drain-Source Voltage	7.0 V
I_D	Drain Current	2.5 A
P_T	Continuous Dissipation	18 W
P_{in}	Input Power, CW	+25 dBm
Tch	Channel Temperature	+175
T_{STG}	Storage Temperature	- 50 °C to +150 °C

PHYSICAL DIMENSIONS (unit : mil)

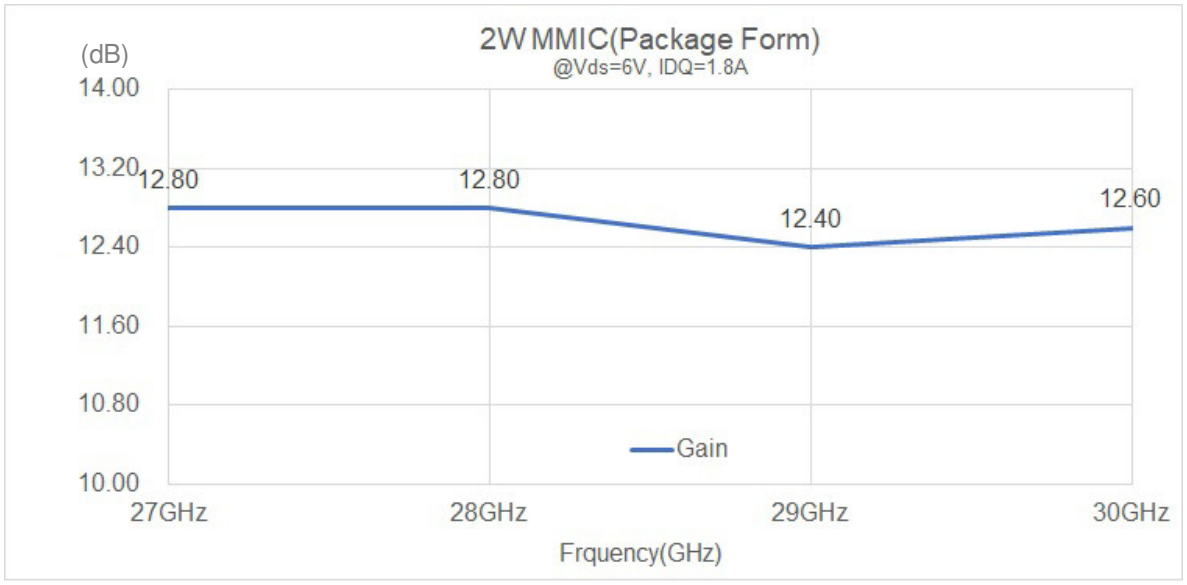


TYPICAL CHARACTERISTICS

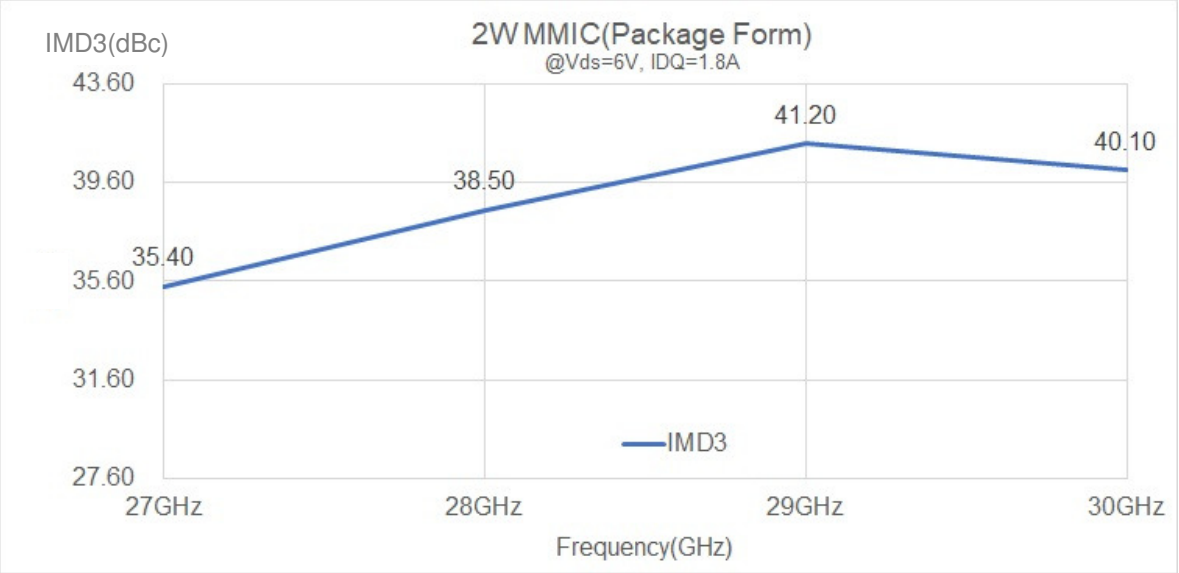
Pout vs Freq.



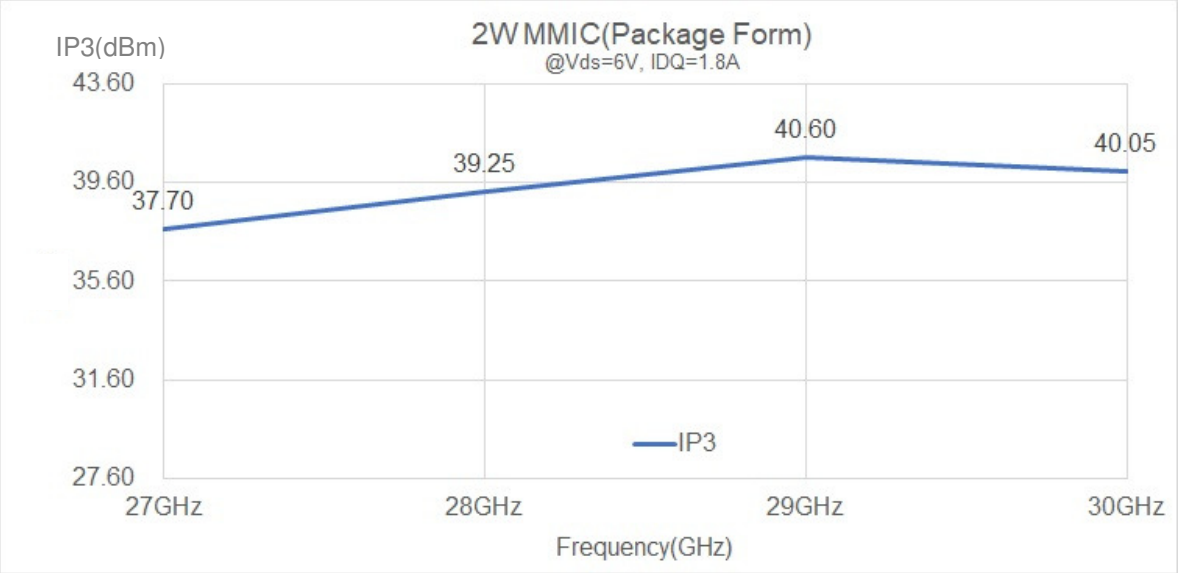
Gain vs Freq.



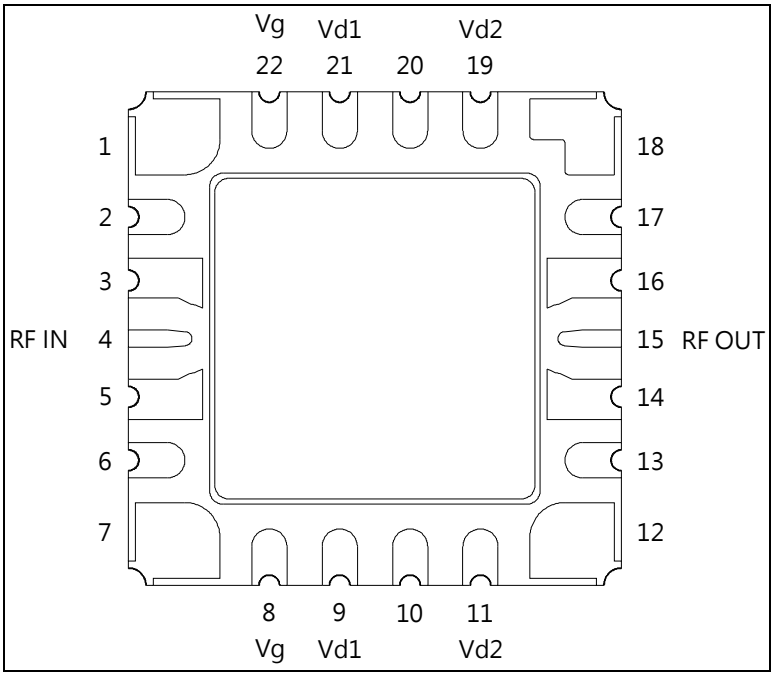
IMD3 vs Freq (@Pscl = +20dBm)



IP3 vs Freq



CONNECTION DIAGRAM AND PIN DESCRIPTIONS



PIN ASSIGNMENT

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