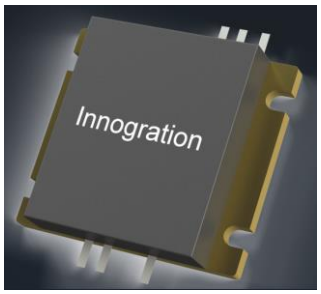
1.0-2.5GHz, 80W , 2 stages GaN Fully matched PA



Description

The S2MBV1025-80H3P is a 80-watt Psat capable，2 stage integrated IMFET, designed for broad band applications, with frequencies from 1.0 to 2.5GHz. The module is 50 Ω input/output matched and requires minimal external components，with DC block capacitor integrated inside The module implements multiple GaN active dice and its matching network within highly compact 30.8*27.4mm metal RF package with excellent capability for heat dissipation.
It is recommended to be used for pulsed CW only

V_{DS}= 50V, V_{gs1}= -3.26V, I_{dq1}=100mA, V_{gs2}= -2.6V, I_{dq2}=20mA pulsed CW： 20us,10%					
Freq (MHz)	P1(dBm)	P1 Gain（dB）	P4dB(dBm)	P4dB(W)	EFF (%)
1000	47.53	26.0	49.13	81.8	43.4
1100	47.89	26.0	49.35	86.1	44.6
1200	48.21	25.7	49.63	91.7	47.0
1300	48.03	24.8	49.24	84.0	42.0
1400	48.19	24.1	50.18	104.3	43.3
1500	47.36	24.6	50.08	101.8	44.9
1600	47.12	25.0	49.80	95.4	44.8
1700	47.01	25.5	49.37	86.5	43.4
1800	47.19	25.9	49.08	81.0	43.1
1900	48.31	26.8	49.25	84.2	47.3
2000	48.45	27.0	49.54	90.0	47.4
2100	48.06	26.7	49.47	88.4	42.6
2200	47.60	26.3	49.33	85.6	42.6
2300	47.09	26.9	49.17	82.5	43.4
2400	46.79	27.4	4913	81.8	42.8
2500	48.20	26.8	49.37	86.5	46.2

Applications

- L/S band power amplifier
- Avionics power amplifier

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	200	Vdc
Gate--Source Voltage	V_{GS}	-10 to +2	Vdc
Operating Voltage	V_{DD}	+55	Vdc
Storage Temperature Range	Tstg	-65 to +150	°C
Case Operating Temperature	T_C	+150	°C
Operating Junction Temperature	T_J	+225	°C

TYPICAL CHARACTERISTICS

Figure 1. Network analyzer output S11/S21 (Pin=0dBm, Idq=200mA)

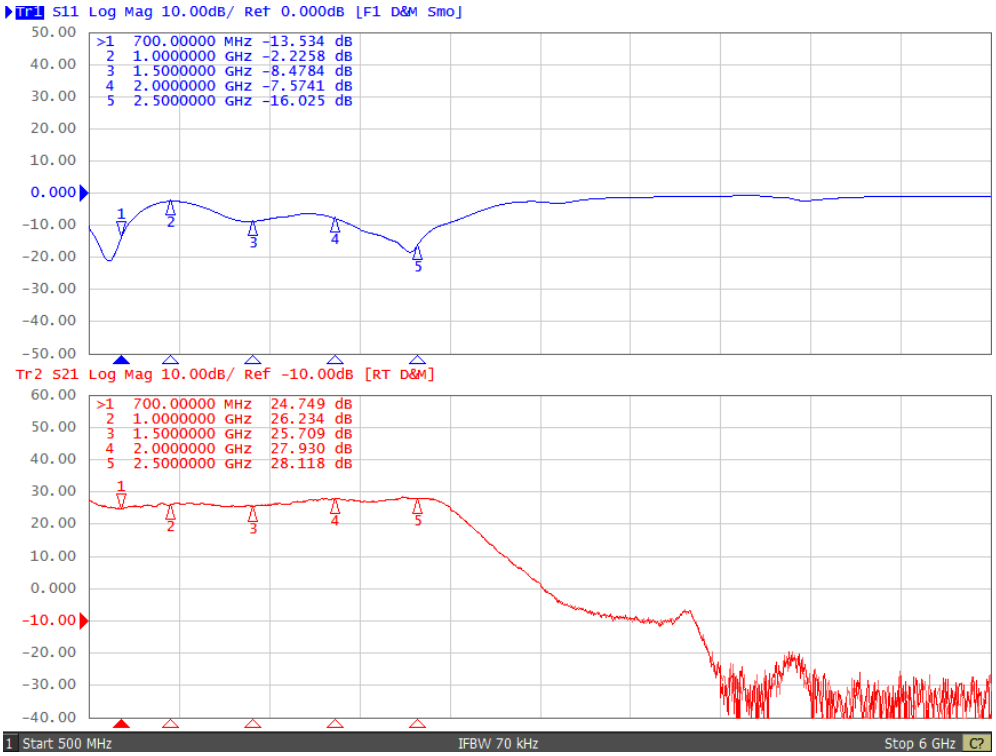
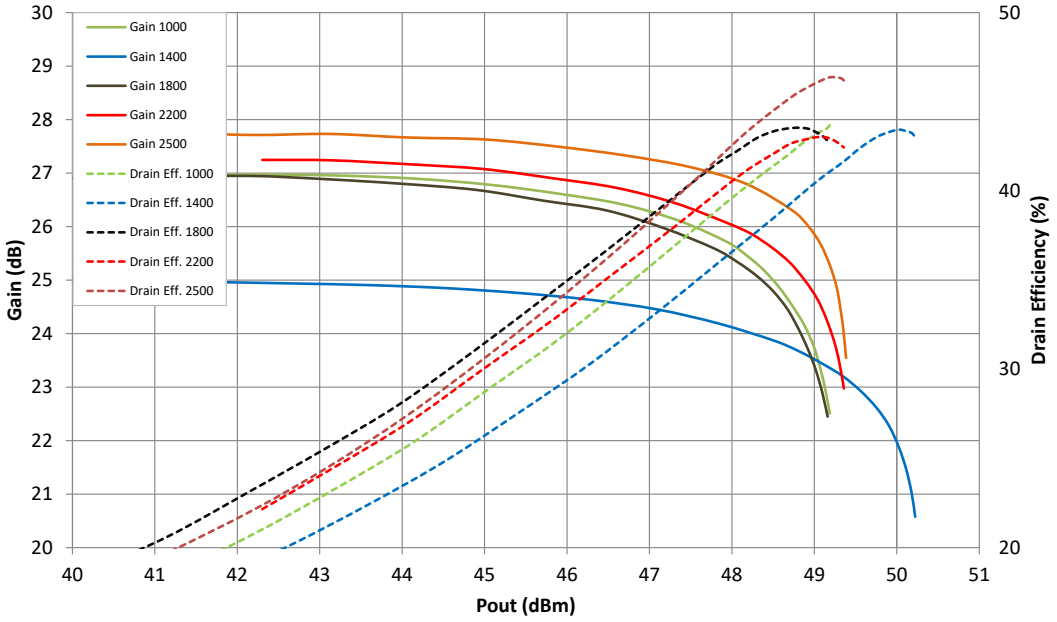
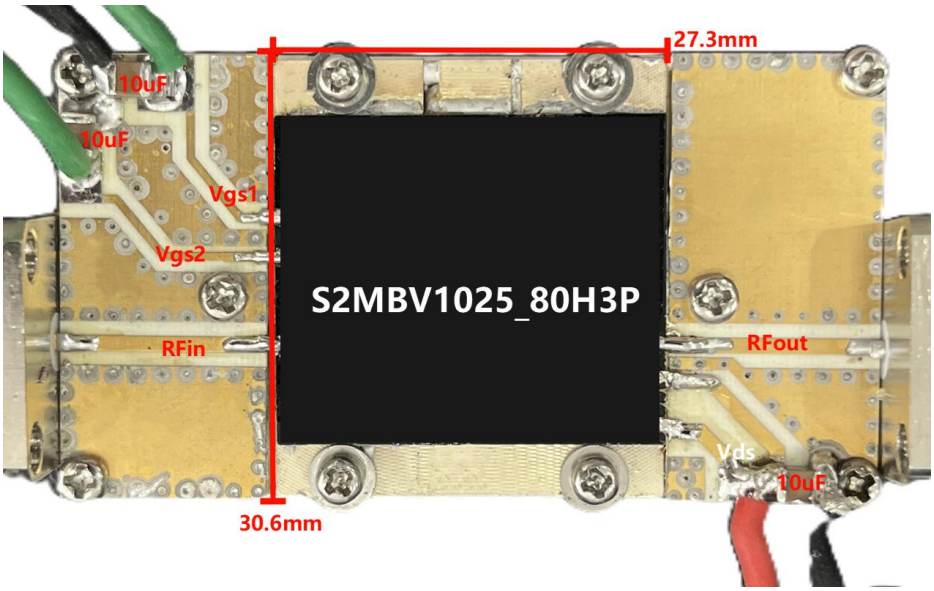


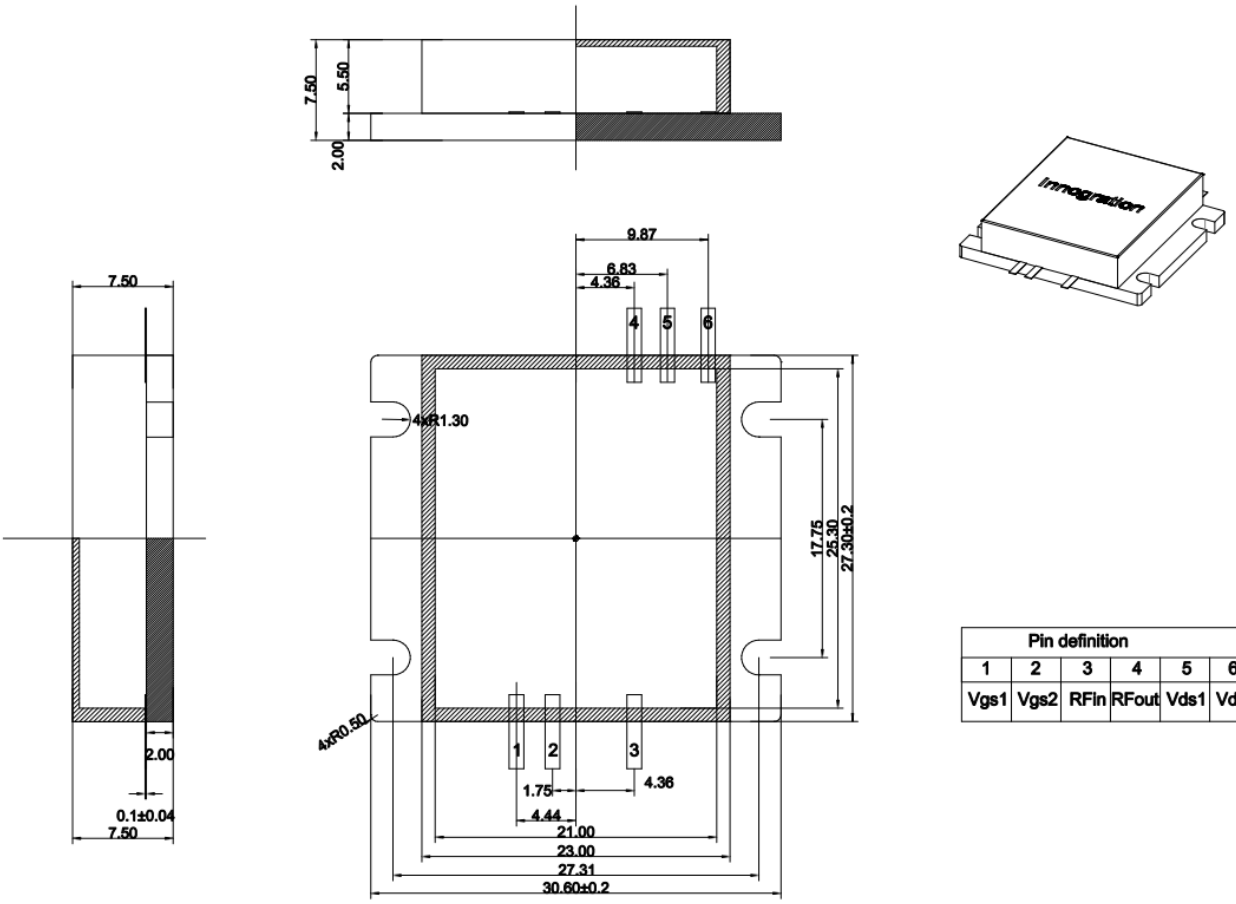
Figure 3. Pout, Eff, Gain，drain current Vs Frequency @50V ,Pulsed 20us 20%



Typical application board



Package Dimensions （Unit:mm）



Pin definition					
1	2	3	4	5	6
Vgs1	Vgs2	RFin	RFout	Vds1	Vds2

Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2025/8/27	Rev 1.0	Advanced Datasheet

Application data based on HJ-25-12

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