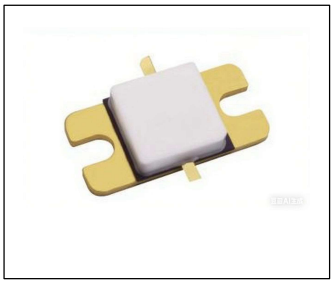
6.0-8.0GHz, 80W, 50V GaN IMFET Pulsed PA



Description

The SMCV6080-80A2T is a 80-watt,single stage integrated Power Amplifier Module, designed for pulsed amplifier applications, with frequencies from 6.0 to 8.0GHz. The module is 50 Ω input/output matched and requires minimal external components.

It is only recommended to be used as pulsed CW, Not CW operation allowed

Vgs =-3.25 V； Vds=50V；Idq =200mA, 100us, 10%

Freq(MHz)	Pin(dBm)	Psat(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)
5500	39.20	50.10	102.4	0.58	10.90	40
6000	41.23	49.95	98.8	0.63	8.72	39
6500	41.94	50.43	110.3	0.57	8.48	47
7000	39.82	50.20	104.7	0.55	10.38	46
7500	40.99	50.23	105.5	0.64	9.24	41
8000	39.93	49.25	84.1	0.55	9.31	38

Applications

- Broadband power amplifier
- C band power amplifier

Important Note: Proper Biasing Sequence for GaN HEMT Transistors

Turning the device ON

1. Set VGS to the pinch--off (VP) voltage, typically –5 V
2. Turn on VDS to nominal supply voltage (50V)
3. Increase VGS until IDS current is attained
4. Apply RF input power to desired level

Turning the device OFF

1. Turn RF power off
2. Reduce VGS down to VP, typically –5 V
3. Reduce VDS down to 0 V
4. Turn off VGS

Table 1. Maximum Ratings

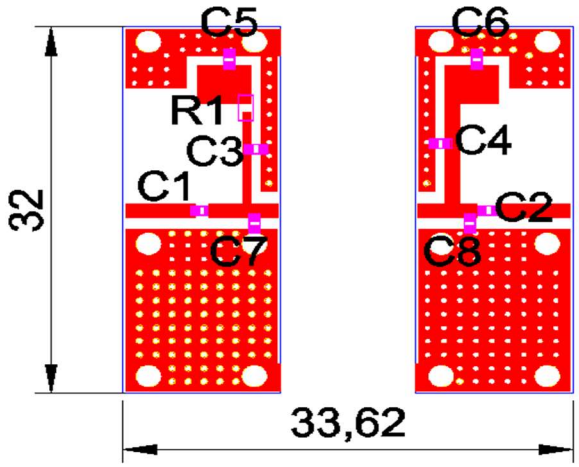
Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	200	Vdc
Gate--Source Voltage	V_{GS}	-10 to +2	Vdc
Operating Voltage	V_{DD}	+55	Vdc
Storage Temperature Range	Tstg	-65 to +150	°C
Case Operating Temperature	T_C	+150	°C
Operating Junction Temperature	T_J	+225	°C

Table 2. Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case T_C= 25°C, Pout=300W Pulsed CW, FEA	$R_{\theta JC}$	TBD	°C/W

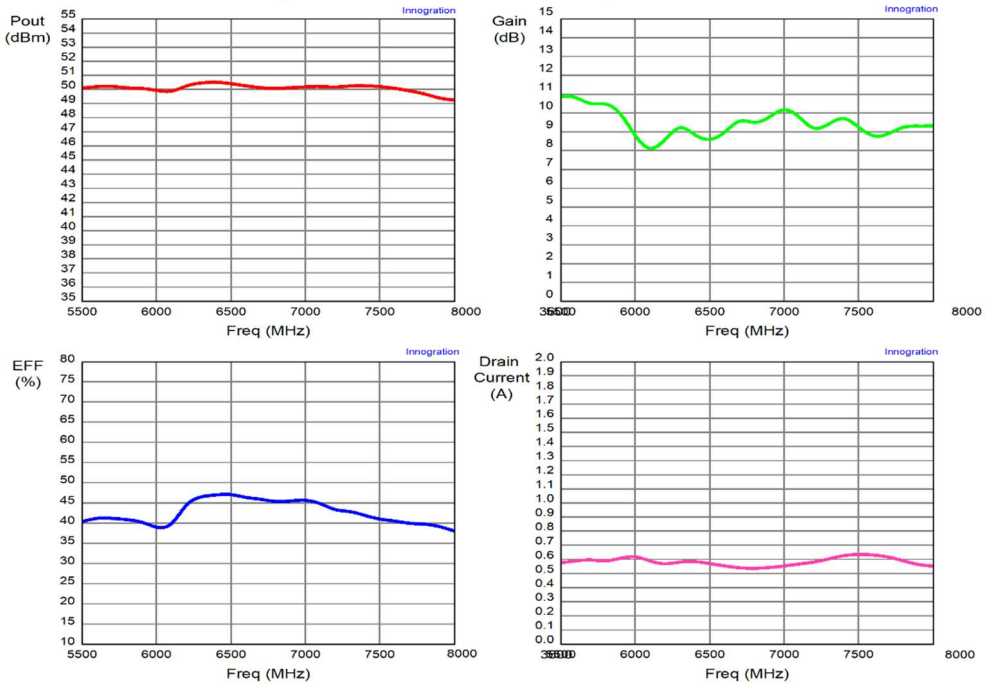
TYPICAL CHARACTERISTICS

Reference Circuit of Test Fixture Assembly Diagram

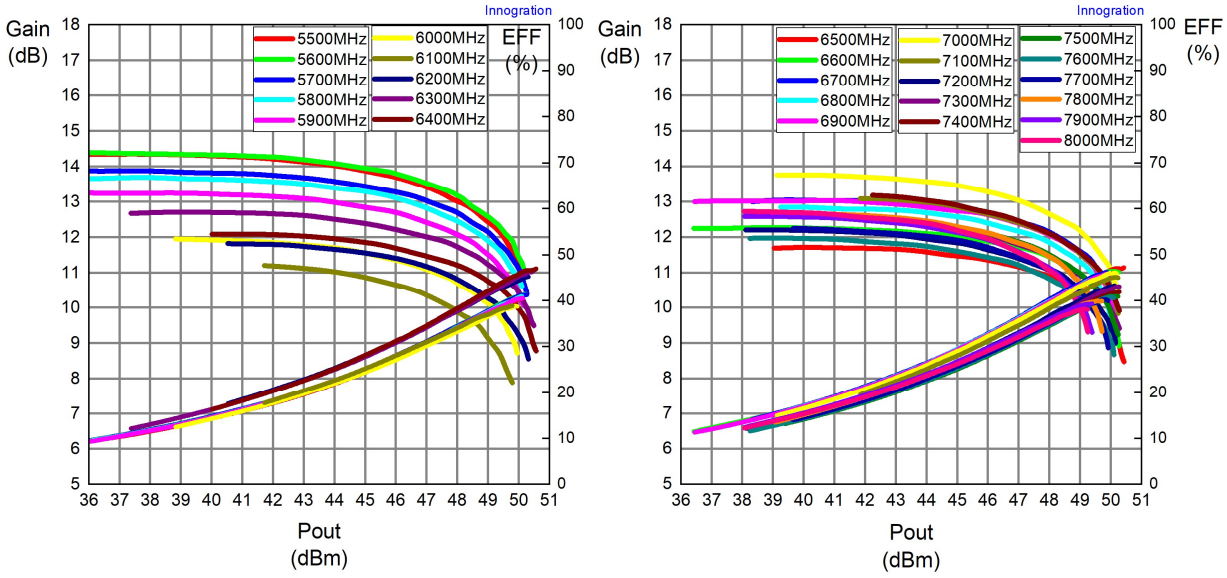


Component	Description	Suggested Manufacturer / Series Number
C1	2.2 pF	
C2	3 pF	
C3 C4	100 pF	
C5 C6	1 uF	
C7 C8	0.2 pF	
R1	10 Ohm	Open suppliers. 1206 SMD Resistor
PCB	20Mil Rogers 4350	Rogers

SMCV6080-80A2TS Pulse 100us 10%
Vgs=-3.23V Vds=50V Idq=220mA

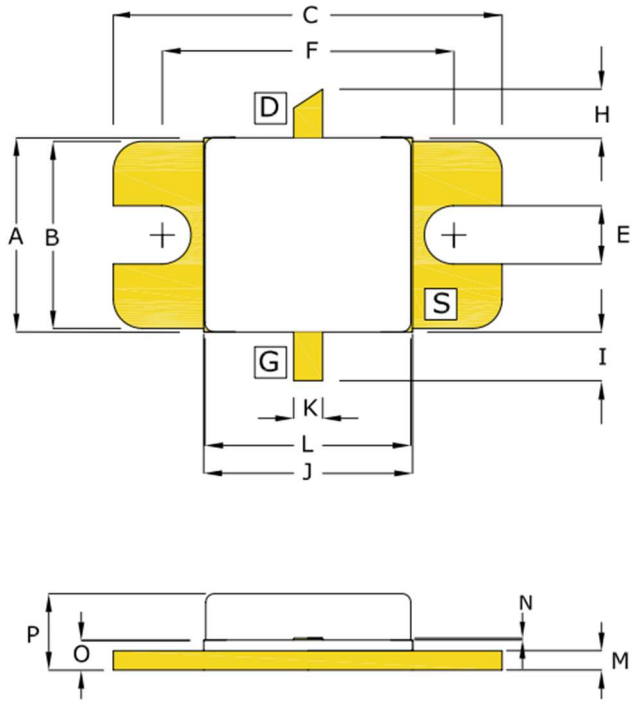


SMCV6080-80A2TS Pulse 100us 10%
Vgs=-3.23V Vds=50V Idq=220mA



Package Dimensions （Unit:mm）

Package Dimensions



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.395	0.405	10.03	10.29
B	0.380	0.390	9.65	9.91
C	0.795	0.805	20.19	20.45
E	0.115	0.125	2.92	3.18
F	0.595	0.605	15.11	15.37
H	0.090	0.110	2.29	2.79
I	0.090	0.110	2.29	2.79
J	0.425	0.435	10.80	11.05
K	0.055	0.065	1.40	1.65
L	0.420	0.428	10.67	10.87
M	0.035	0.045	0.89	1.14
N	0.004	0.007	0.10	0.18
O	0.053	0.067	1.35	1.70
P	0.143	0.179	3.63	4.55

PIN SCHEDULE	
D	DRAIN
S	SOURCE
G	GATE

Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2026/11/6	**Rev 1.0**	**Preliminary Datasheet**

Application data based on JF-26-31