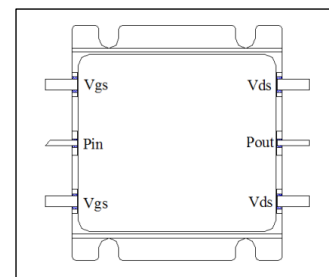


0.6-6.0GHz, 60W, 50V GaN IMFET Pulsed PA

Description

The SMCV0660-60H3 is a 60-watt, single stage integrated Power Amplifier Module, designed for pulsed amplifier applications, with frequencies from 0.6 to 6.0GHz. The module is 50 Ω input/output matched and requires minimal external components.

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

Vgs = -3.3 V; Vds = 50V; Idq = 200mA, 100us, 10%

Freq (MHz)	Psat (dBm)	Psat (W)	Ids (A)	Pin (dBm)	Gain (dB)	Eff (%)	2nd (dBc)	3rd (dBc)
600	49.49	88.9	0.4	39.23	10.26	44.46	-22.1	-18.7
1000	50.42	110.2	0.58	42.16	8.26	37.98	-16.4	-18.5
2000	48.61	72.6	0.65	41.28	7.33	22.34	-18.6	-14.8
2500	49.21	83.4	0.64	40.95	8.26	26.05	-13.4	-23.1
3000	48.81	76.0	0.67	42.5	6.31	22.70	-9.8	-23.6
3500	50.12	102.8	0.67	40.63	9.49	30.69	-21	-32
4000	49.48	88.7	0.71	42.26	7.22	24.99	/	/
4500	48.88	77.3	0.37	40.76	8.12	41.77	/	/
5000	48.53	71.3	0.47	41.35	7.18	30.33	/	/
5500	48.74	74.8	0.54	40.01	8.73	27.71	/	/
6000	48.88	77.3	0.58	40.69	8.19	26.64	/	/

Applications

- Broadband power amplifier
- L/S/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	T _{stg}	-65 to +150	°C

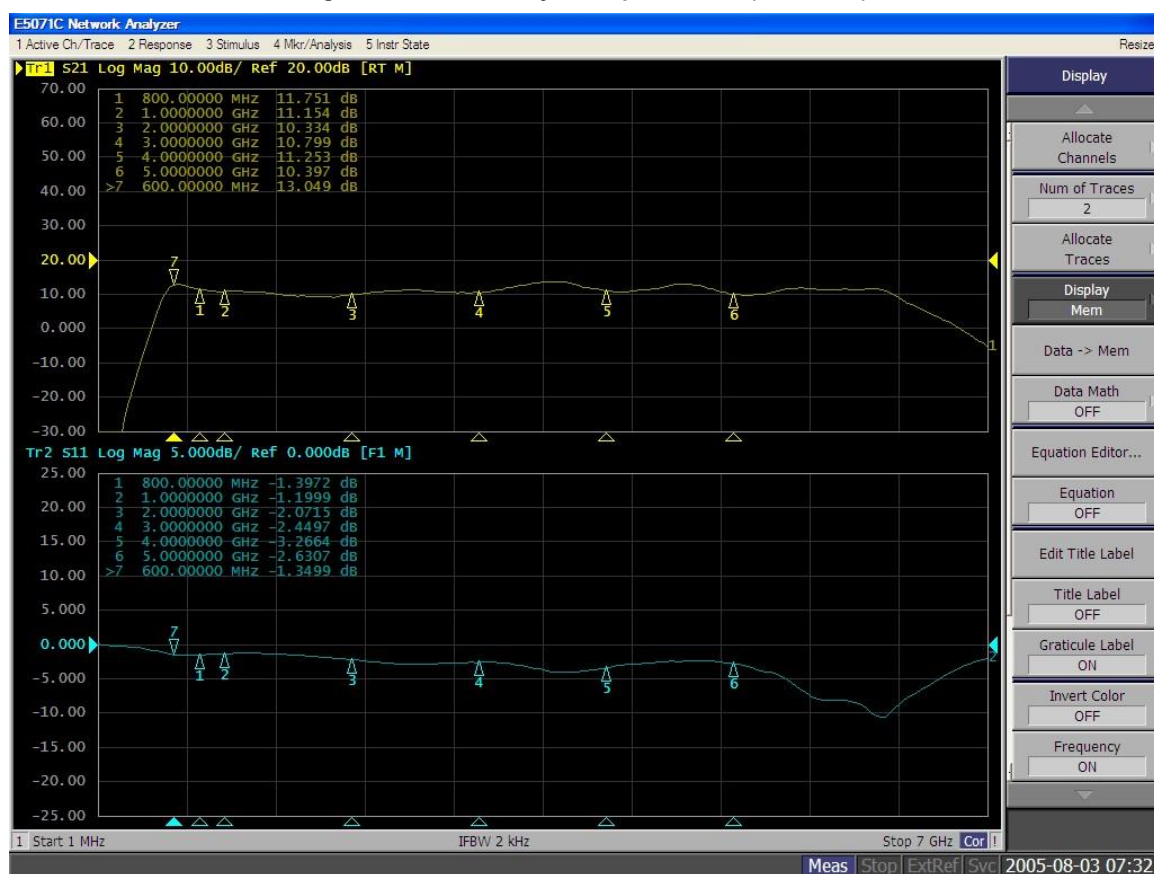
Case Operating Temperature	T_c	+150	°C
Operating Junction Temperature	T_j	+225	°C

Table 2. Thermal Characteristics

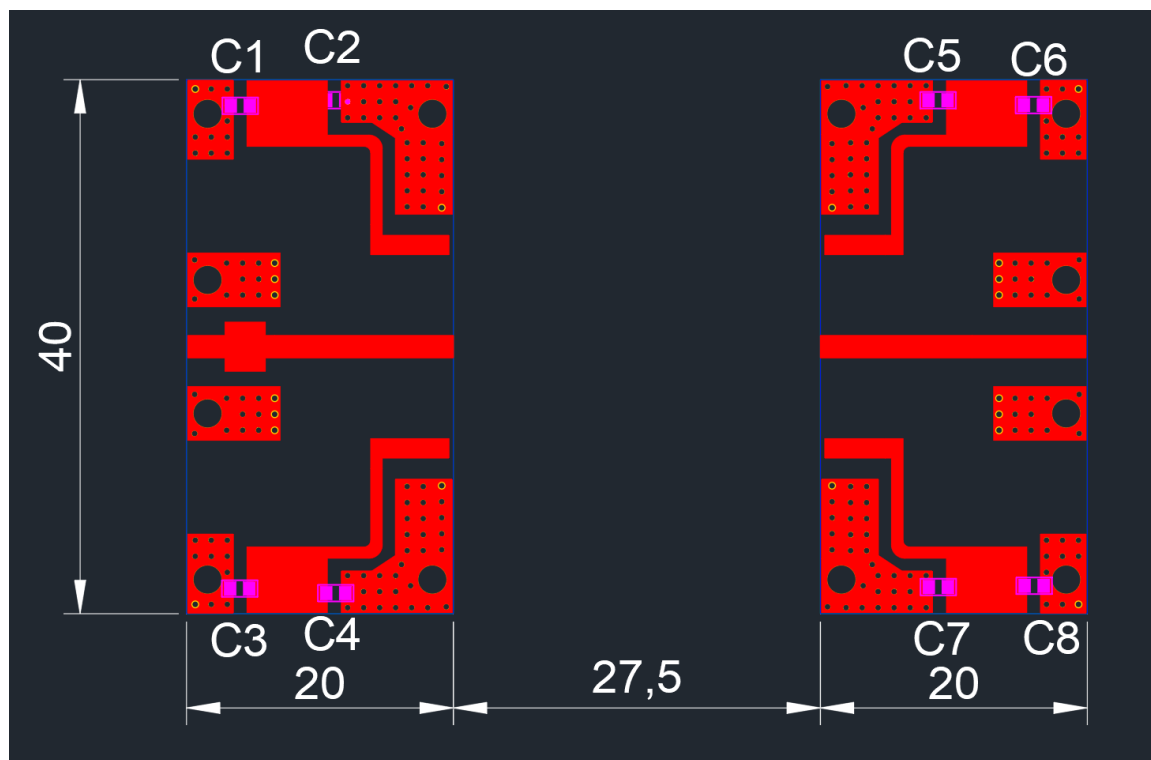
Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case $T_c = 25^\circ\text{C}$, $P_{out} = 60\text{W}$ Pulsed CW, FEA	$R_{\theta JC}$	TBD	°C/W

TYPICAL CHARACTERISTICS

Figure 3. Network analyzer output S11/S21 (Pin=0dBm)

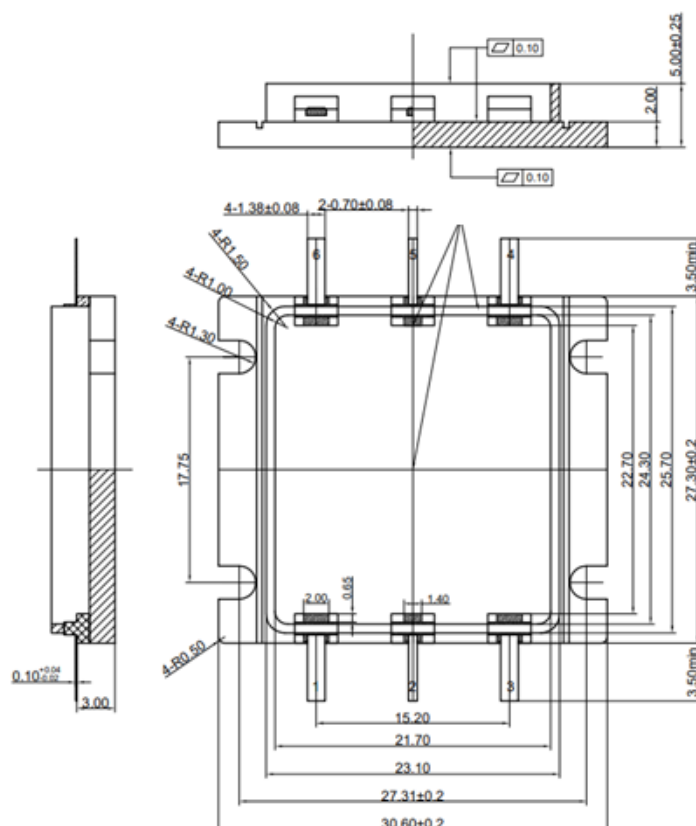


Reference Circuit of Test Fixture Assembly Diagram



C1,C3,C6,C8	10uF/1210	/
C2,C4,C5,C7	200pF/MQ30-0805	
PCB	RO4350B 30Mils	

Package Dimensions (Unit:mm)



Revision history

Table 6. Document revision history

Date	Revision	Datasheet Status
2026/8/3	Rev 1.0	Preliminary Datasheet

Application data based on SJJ-26-17