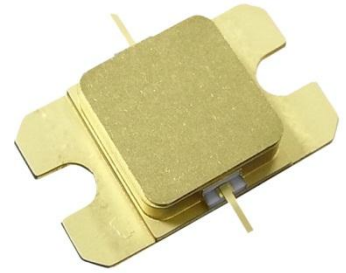


FEATURES

- High Output Power: P5dB=45.0dBm (Typ.)
- High Gain: GL=13.5dB (Typ.)
- High PAE: η_{add} =45% (Typ.)
- Broad Band: 5.85 to 6.75GHz
- Impedance Matched Zin/Zout = 50ohm
- Hermetically Sealed Package

DESCRIPTION

The SGK5867-30A is a high power GaN-HEMT that is internally matched for standard communication bands to provide optimum power and gain in a 50ohm system.



ABSOLUTE MAXIMUM RATING (Case Temperature Tc=25 deg.C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	26	V
Gate-Source Voltage	V _{GS}	-10	V
Total Power Dissipation	P _T	86.5	W
Storage Temperature	T _{STG}	-55 to +125	deg.C
Channel Temperature	T _{CH}	+250	deg.C

RECOMMENDED OPERATING CONDITION

Item	Symbol	Condition	Limit	Unit
Drain-Source Voltage	V _{DS}		≤24	V
Forward Gate Current	I _{GF}	Rg=100ohm	≤6	mA
Reverse Gate Current	I _{GR}	Rg=100ohm	≥-3	mA
Channel Temperature	T _{CH}		<+192	deg.C

ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25 deg.C)

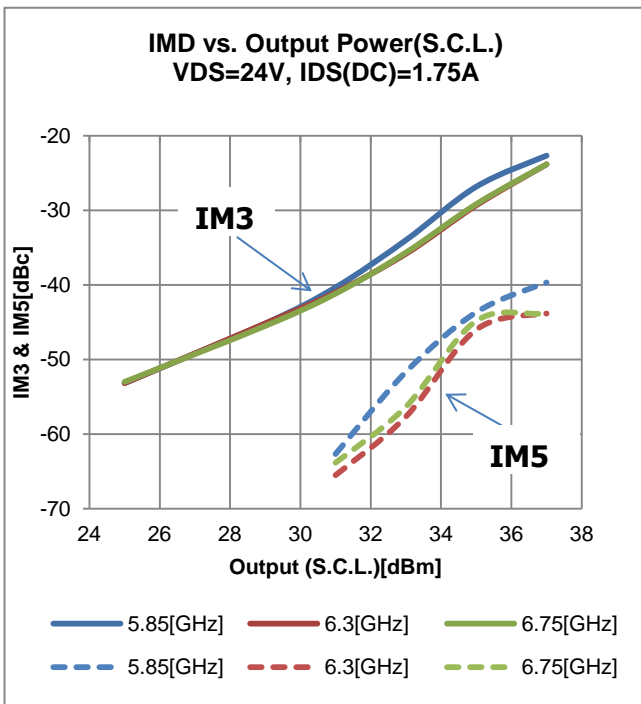
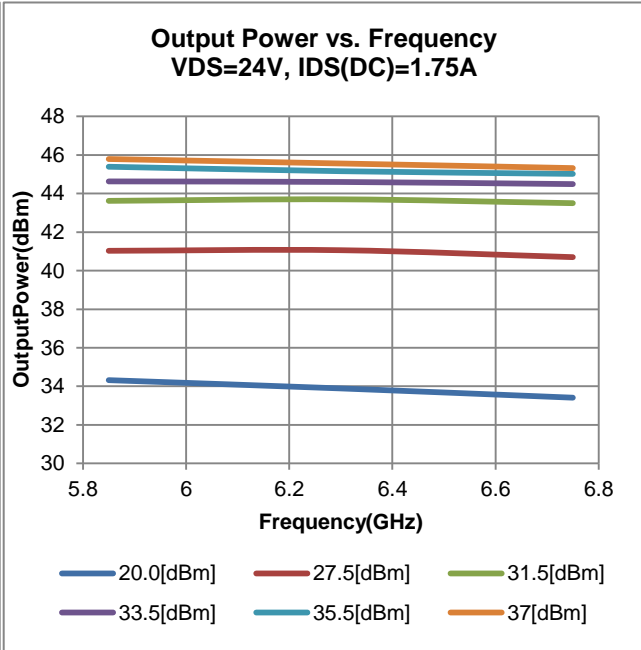
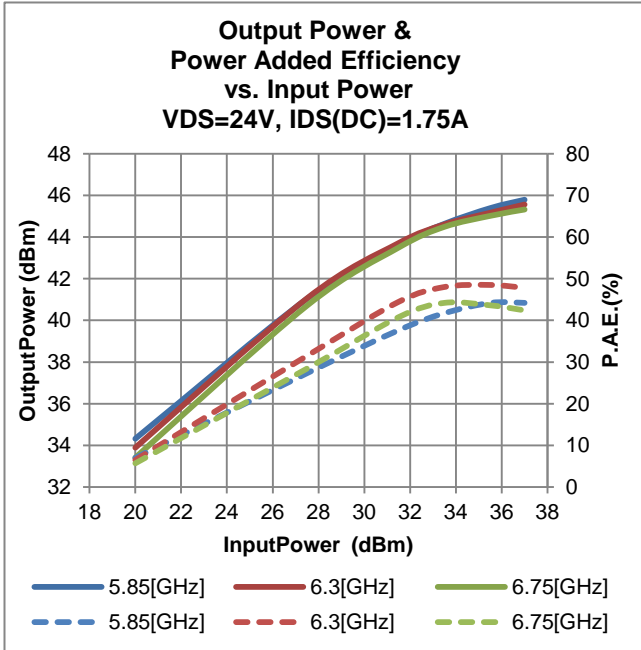
Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I _{dss}	V _{ds} =10V, V _{gs} =0V		6.5		A
Trans Conductance	G _m	V _{ds} =24V, I _{ds} =1.3A	-	3.0	-	S
Pinch-off Voltage	V _p	V _{ds} =10V, I _{ds} =1.3mA	-	-3	-	V
Output Power at 5dB G.C.P.	P _{5dB}	V _{DS} =24V(Typ.) I _{DSDC} =1.75A(Typ.) f=5.85 to 6.75 GHz	44.0	45.0	-	dBm
Linear Gain at Pin=21.5dBm	GL		12.5	13.5	-	dB
Drain Current at 5dB G.C.P.	I _{dSr}		-	2.7	4.0	A
Power Added Efficiency at 3dB G.C.P.	η_{add}		-	45	-	%
Gain Flatness	ΔG		-	-	1.6	dB
3 rd Order Inter modulation Distortion	IM ₃	f=6.75GHz Δf =10MHz, 2-tone Test P _{out} =29.5dBm (S.C.L.)	-40.0	-45.0	-	dBc
Thermal Resistance	R _{th}	Channel to Case	-	2.2	2.6	deg.C/W
Channel Temperature Rise	ΔT_{ch}	(V _{DS} × I _{dSr} - P _{out} + P _{in}) × R _{th}	-	75	150	deg.C

G.C.P. : Gain Compression Point, S.C.L. : Single Carrier Level

CASE STYLE	IBK		
RoHS Compliance	YES		
ESD	Class 1C	1000V to 2000V	

Note : Based on EIAJ ED-4701 C-111A(C=100pF, R=1.5kohm)

● RF Characteristics

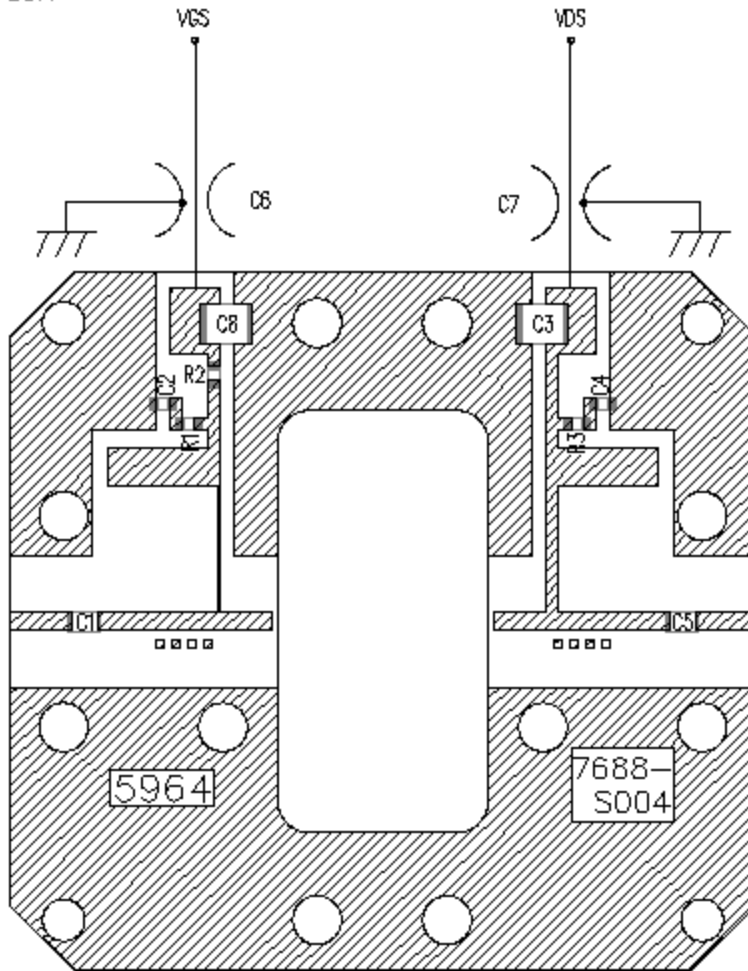


● **S-Parameter**

Freq.	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5600 MHz	0.592	54.5	5.086	-11.9	0.075	-89.6	0.146	-93.6
5700 MHz	0.592	42.9	5.010	-24.1	0.078	-101.6	0.123	-113.1
5850 MHz	0.583	25.9	4.999	-41.6	0.082	-119.4	0.102	-149.7
6000 MHz	0.556	7.7	4.952	-60.1	0.086	-136.8	0.109	168.2
6100 MHz	0.532	-5.0	5.012	-72.2	0.088	-148.7	0.131	143.7
6200 MHz	0.500	-19.4	5.067	-85.2	0.092	-160.9	0.166	123.4
6300 MHz	0.453	-35.5	5.063	-98.8	0.094	-173.5	0.212	106.5
6400 MHz	0.397	-53.7	5.081	-113.0	0.096	173.5	0.264	92.0
6500 MHz	0.333	-75.8	5.079	-127.4	0.098	160.0	0.328	78.4
6600 MHz	0.267	-103.8	4.962	-142.1	0.098	146.0	0.388	65.1
6750 MHz	0.219	-160.1	4.705	-164.4	0.096	124.4	0.478	46.0
6900 MHz	0.266	145.2	4.388	174.0	0.091	103.6	0.553	27.9
7000 MHz	0.332	119.8	4.113	160.0	0.087	89.5	0.583	15.6

● Amplifier Circuit Outline

SGK5867-30A



C1	3.0pF
C2	1000pF
C3	0.1uF
C4	1000pF
C5	3.0pF
C6	1000pF
C7	1000pF
C8	0.1uF
R1	51Ω
R2	100Ω
R3	51Ω

Rogers RO4003C

h=0.542mm $\epsilon_r=3.38$

Cu=18um Unit:mm

C1, C5 : ATC 600F(0805), +/- 0.1pF

C6, C7 : EMI FILTER MARUWA (FTA352AR102S-S)



SGK5867-30A
C-Band Internally Matched GaN-HEMT

For further information please contact:

<http://global-sei.com/Electro-optic/about/office.html>