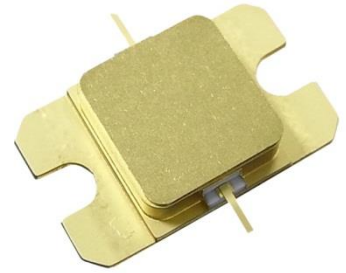


FEATURES

- High Output Power: P5dB=45.0dBm (Typ.)
- High Gain: GL=12.5dB (Typ.)
- High P.A.E.: η_{add} =40% (Typ.)
- Broad Band: 6.4 to 7.2GHz
- Impedance Matched Zin/Zout = 50ohm
- Hermetically Sealed Package

DESCRIPTION

The SGK6472-30A 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}	R _g =100ohm	≤6.1	mA
Reverse Gate Current	I _{GR}	R _g =100ohm	≥-3.2	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	-1.5	-3	-4.5	V
Output Power at 5dB G.C.P.	P _{5dB}	V _{DS} =24V(Typ.) I _{DS(DC)} =1.75A(Typ.) f=6.4 to 7.2 GHz	44.0	45.0	-	dBm
Linear Gain at Pin=22.5dBm	GL		11.5	12.5	-	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}		-	40	-	%
Gain Flatness	ΔG		-	-	1.8	dB
3 rd Order Inter modulation Distortion	IM ₃	f=6.4GHz, 7.2GHz 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}	-	85	150	deg.C

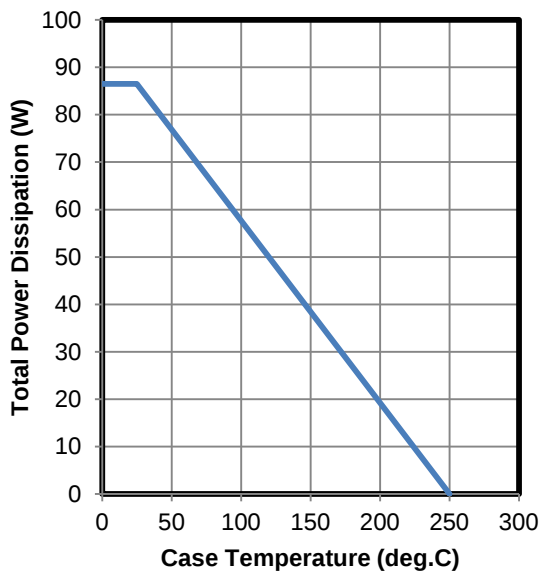
G.C.P. : Gain Compression Point, S.C.L. : Single Carrier Level

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

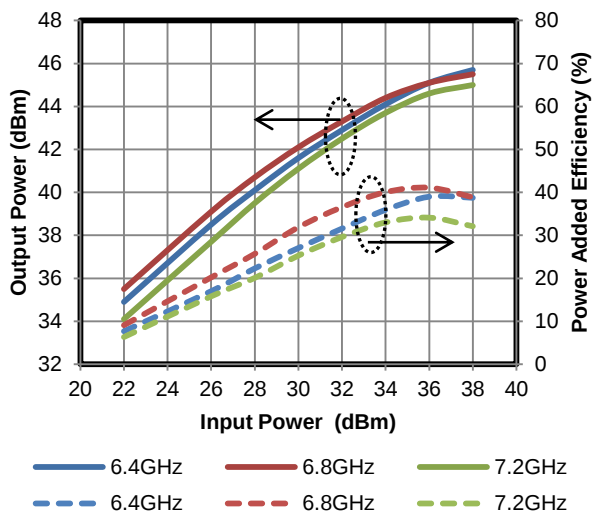
Note : Based on ANSI/ESDA/JEDEC JS-001-2012(C=100pF, R=1.5kohm)

● RF Characteristics

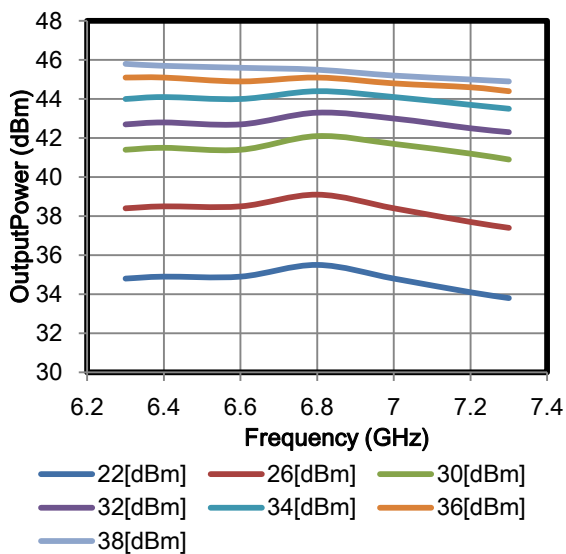
Power Derating Curve



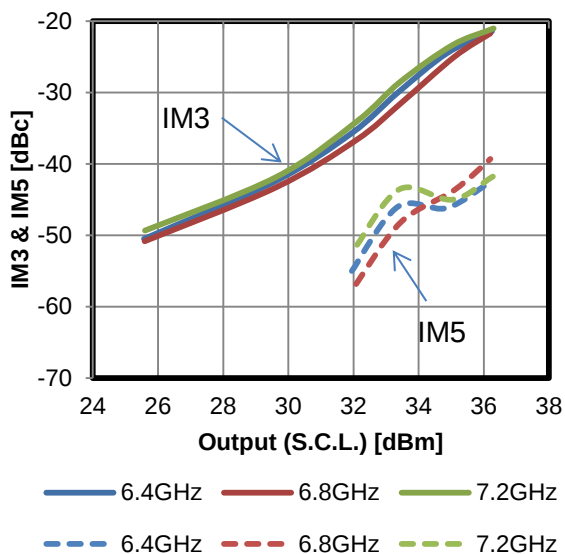
Output Power & Power Added Efficiency vs. Input Power
V_{DS}=24V, I_{DS(DC)}=1.75A



Output Power vs. Frequency
V_{DS}=24V, I_{DS(DC)}=1.75A



IMD vs. Output Power(S.C.L.)
V_{DS}=24V, I_{DS(DC)}=1.75A

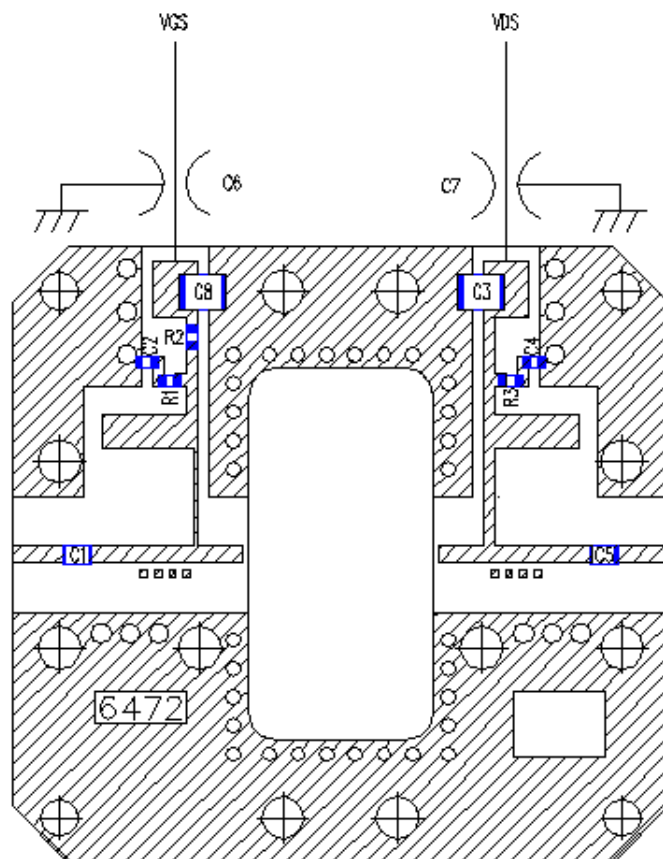


● S-Parameter

Freq.	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
6200MHz	0.603	14.8	4.461	-58.1	0.086	-132.7	0.154	-135.6
6300MHz	0.573	4.1	4.484	-69.8	0.089	-144.0	0.154	-161.7
6400MHz	0.531	-7.0	4.519	-81.6	0.092	-155.7	0.175	173.6
6500MHz	0.483	-18.4	4.560	-93.9	0.095	-167.5	0.209	152.3
6600MHz	0.424	-30.4	4.603	-106.5	0.097	-179.6	0.253	134.2
6700MHz	0.355	-43.6	4.621	-119.3	0.099	167.5	0.302	118.4
6800MHz	0.279	-58.5	4.635	-132.7	0.101	154.8	0.356	103.5
6900MHz	0.197	-77.6	4.616	-146.5	0.101	141.3	0.410	89.7
7000MHz	0.118	-107.8	4.568	-160.4	0.102	128.1	0.461	76.3
7100MHz	0.079	-173.7	4.461	-174.5	0.101	114.5	0.507	63.0
7200MHz	0.126	128.5	4.307	171.6	0.098	100.8	0.544	49.9
7300MHz	0.198	102.2	4.135	158.0	0.096	87.6	0.569	37.1
7400MHz	0.264	86.0	3.952	145.2	0.092	75.0	0.582	25.3

● Amplifier Circuit Outline

SGK6472-30A



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

Substrate : Rogers RO4003C

h=0.542mm, $\epsilon_r=3.38$

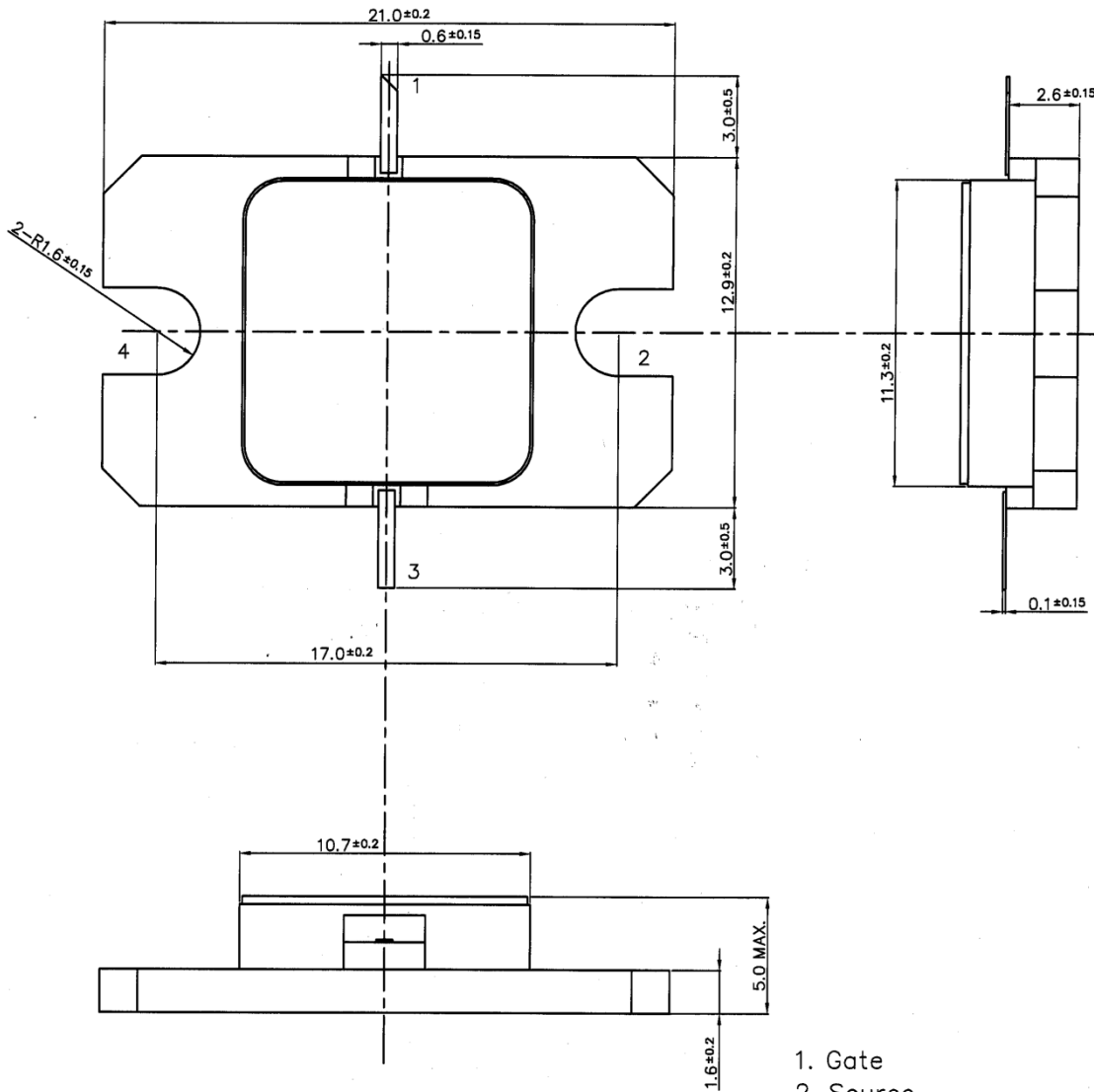
Cu=18um

C1, C5 : ATC600L(size:0805), +/- 0.1pF

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

- Package Out line

Case Style : IBK



1. Gate
 2. Source
 3. Drain
 4. Source
- Unit: mm
Tolerance : ± 0.15



SGK6472-30A

C-Band Internally Matched GaN-HEMT

For further information please contact:

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