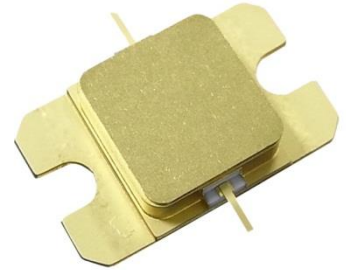


## ■ Features

- High Output Power: P5dB=45.0dBm (Typ.)
- High Linear Gain: GL=14.5dB (Typ.)
- High Power Added Efficiency: PAE=40% (Typ.)
- Broad Band: 6.4 to 7.2GHz
- Impedance Matched Zin/Zout = 50ohm
- Hermetically Sealed Package



## ■ Description

The SGK6472-30C 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 T<sub>c</sub>=25 deg.C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DS</sub>	26	V
Gate-Source Voltage	V <sub>GS</sub>	-10	V
Total Power Dissipation	P <sub>T</sub>	86.5	W
Storage Temperature	T <sub>stg</sub>	-55 to +125	deg.C
Channel Temperature	T <sub>ch</sub>	+250	deg.C
Case Temperature	T <sub>c</sub>	-40 to +125	deg.C

### RECOMMENDED OPERATING CONDITION

Item	Symbol	Condition	Limit	Unit
Drain-Source Voltage	V <sub>DS</sub>		<=24	V
Forward Gate Current	I <sub>GF</sub>	Rg=100ohm	<=4.4	mA
Reverse Gate Current	I <sub>GR</sub>	Rg=100ohm	>= -2.3	mA
Channel Temperature	T <sub>ch</sub>		<+193	deg.C

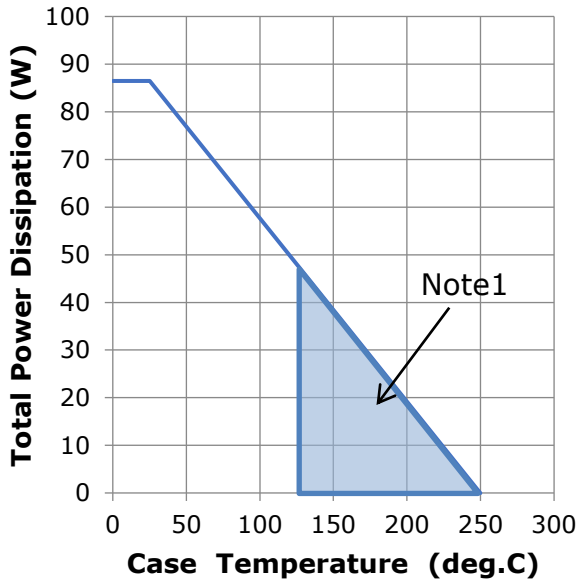
### ELECTRICAL CHARACTERISTICS (Case Temperature T<sub>c</sub>=25 deg.C)

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V	-	8.3	-	A
Trans Conductance	G <sub>m</sub>	V <sub>DS</sub> =24V, I <sub>DS</sub> =0.96A	-	2.2	-	S
Pinch-off Voltage	V <sub>P</sub>	V <sub>DS</sub> =24V, I <sub>DS</sub> =0.96mA	-2.5	-4.0	-5.5	V
Output Power at 5dB G.C.P.	P <sub>5dB</sub>	V <sub>DS</sub> =24V(typ.) I <sub>DS(DC)</sub> =1.75A(typ.) f=6.4 to 7.2 GHz Vgs-constant	44.0	45.0	-	dBm
Linear Gain at Pin=22.5dBm	GL		11.5	14.5	-	dB
Drain Current at 5dB G.C.P.	I <sub>DSR</sub>		-	3.2	4.0	A
Power Added Efficiency at 3dB G.C.P.	PAE		-	40	-	%
Gain Flatness	ΔG		-	-	1.8	dB
3rd Order Inter Modulation Distortion	IM <sub>3</sub>	f=7.2GHz Δf=10MHz, 2-tone Test Pout=29.5dBm (S.C.L.)	-40.0	-42.0	-	dBc
Thermal Resistance	R <sub>th</sub>	Channel to Case (T <sub>c</sub> =25deg.C, P <sub>diss</sub> =96W)	-	2.2	2.6	deg.C/W
Channel Temperature Rise	ΔT <sub>ch</sub>	(V <sub>DS</sub> × I <sub>DSR</sub> - Pout + Pin) × R <sub>th</sub>	-	85	150	deg.C

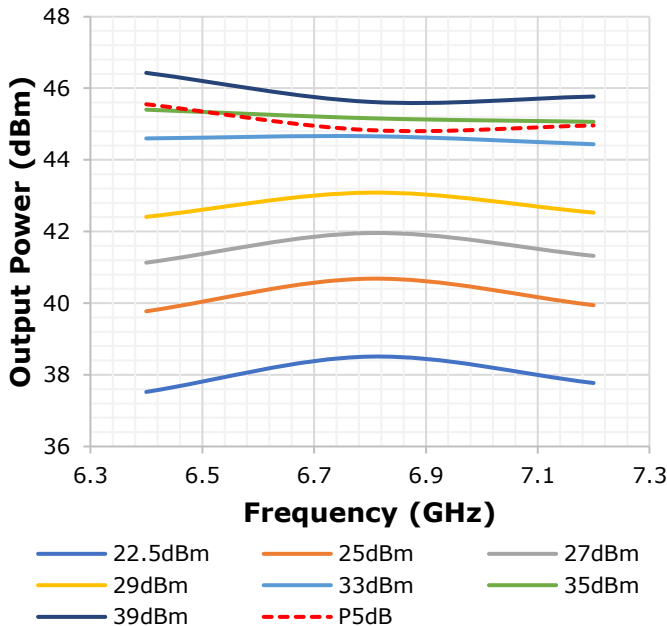
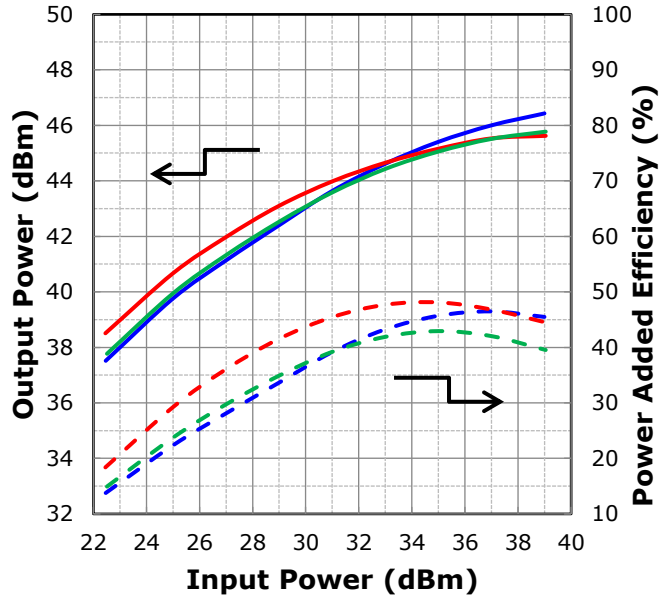
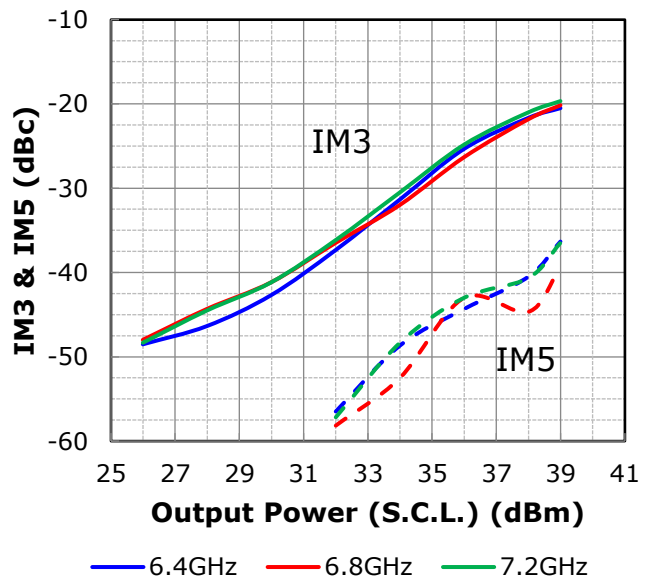
G.C.P. : Gain Compression Point, S.C.L. : Single Carrier Level

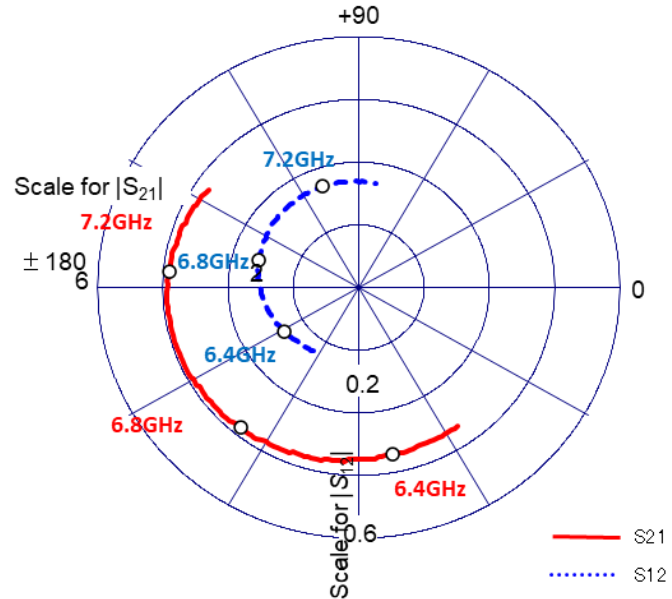
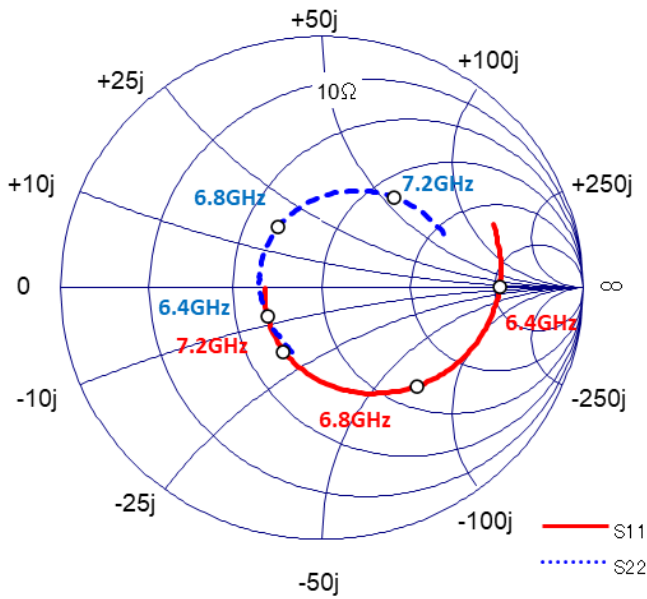
CASE STYLE	IBK
RoHS Compliance	YES
ESD *1	Class 2
	2000V to < 4000V

Note : \*1 Based on ANSI/ESDA/JEDEC JS-001-2012(C=100pF, R=1.5kohm)

**● RF Characteristics**
**Power Derating Curve**


Note 1: Shaded area exceeds Maximum Case Operating Temperature (See Page1)

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

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

**IMD vs. Output Power (S.C.L.)**
 $V_{DS}=24V, I_{DS(DC)}=1.75A, \Delta f=10MHz$ 


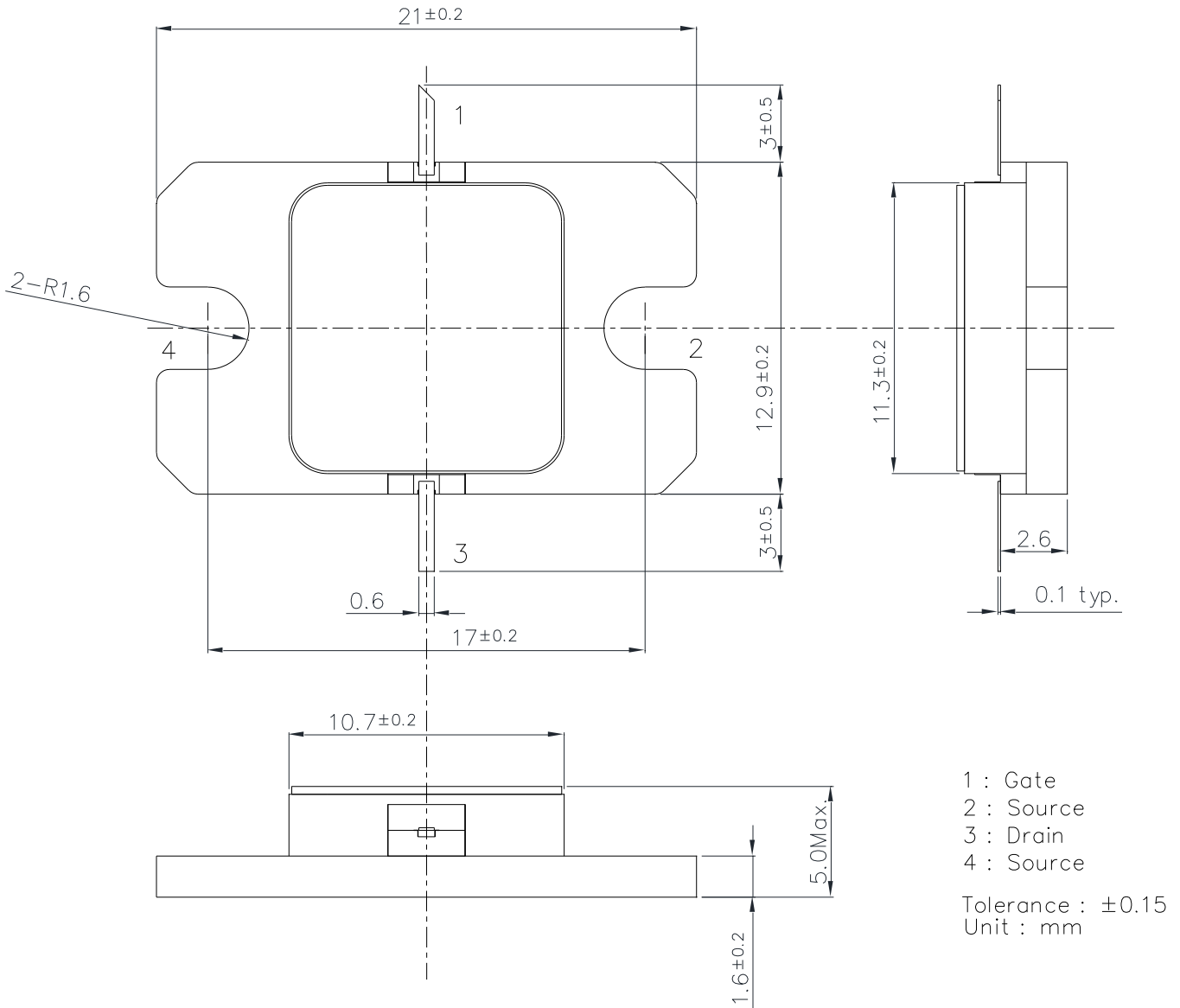
**● S-Parameter**


Bias Condition  $V_{DS}=24V$ ,  $I_{DS(DC)}=1.75A$   
 $R_g = 100\text{ohm}$

Freq.	S11		S21		S12		S22	
	mag	phase	mag	phase	mag	phase	mag	phase
6.2GHz	0.705	20.9	5.370	-55.7	0.061	-125.0	0.279	-114.0
6.3GHz	0.696	10.6	5.370	-67.3	0.064	-137.0	0.251	-131.0
6.4GHz	0.680	0.3	5.433	-79.1	0.067	-148.0	0.237	-151.0
6.5GHz	0.659	-10.3	5.495	-91.0	0.070	-159.0	0.234	-172.0
6.6GHz	0.628	-21.4	5.623	-103.0	0.073	-171.0	0.245	166.0
6.7GHz	0.586	-33.5	5.689	-116.0	0.077	177.0	0.266	144.0
6.8GHz	0.534	-47.0	5.754	-129.0	0.079	164.0	0.295	124.0
6.9GHz	0.477	-61.6	5.821	-143.0	0.081	151.0	0.331	105.0
7GHz	0.414	-78.1	5.888	-157.0	0.084	137.0	0.372	86.4
7.1GHz	0.351	-97.2	5.888	-171.0	0.085	123.0	0.414	69.0
7.2GHz	0.292	-120.0	5.821	175.0	0.085	109.0	0.456	52.4
7.3GHz	0.243	-147.0	5.754	160.0	0.085	95.2	0.493	36.6
7.4GHz	0.216	-180.0	5.559	146.0	0.084	81.0	0.521	21.5

● Package Out line

Case Style : IBK



## **For Safety, Observe the Following Procedures Environmental Management**

- Do not put this product into the mouth.
- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
- Respect all applicable laws of the country when discarding this product.  
This product must be disposed in accordance with methods specified by applicable hazardous waste procedures.

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