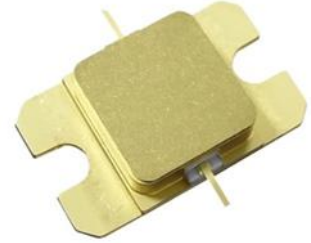


■ Features

- High Output Power: $P_{5dB}=48.0\text{dBm}$ (Typ.)
- High Gain: $GL=13.5\text{dB}$ (Typ.)
- High Power Added Efficiency: $PAE=41\%$ (Typ.)
- Broad Band: 6.4 to 7.2GHz
- Hermetically Sealed Package



■ Description

The SGK6472-60C 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 $T_c=25\text{ deg.C}$)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	26	V
Gate-Source Voltage	V_{GS}	-10	V
Total Power Dissipation	P_T	150	W
Storage Temperature	T_{stg}	-55 to +125	deg.C
Channel Temperature	T_{ch}	+250	deg.C
Case Temperature	T_c	-40 to +125	deg.C

RECOMMENDED OPERATING CONDITION

Item	Symbol	Condition	Limit	Unit
Drain-Source Voltage	V_{DS}		≤ 24	V
Forward Gate Current	I_{GF}	$R_g=51\text{ohm}$	≤ 8.8	mA
Reverse Gate Current	I_{GR}	$R_g=51\text{ohm}$	≥ -4.6	mA
Channel Temperature	T_{ch}		$< +193$	deg.C

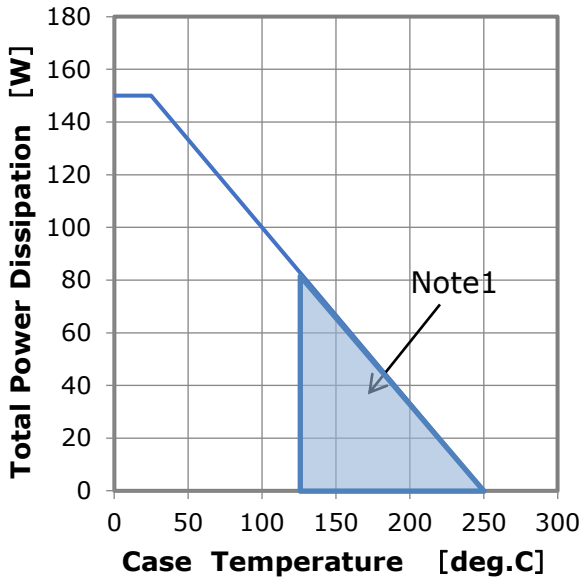
ELECTRICAL CHARACTERISTICS (Case Temperature $T_c=25\text{ deg.C}$)

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS}=10\text{V}, V_{GS}=0\text{V}$	-	16.6	-	A
Trans Conductance	G_m	$V_{DS}=24\text{V}, I_{DS}=1.92\text{A}$	-	4.4	-	S
Pinch-off Voltage	V_p	$V_{DS}=24\text{V}, I_{DS}=1.92\text{mA}$	-2.5	-4.0	-5.5	V
Output Power at 5dB G.C.P.	P_{5dB}	$V_{DS}=24\text{V}(\text{typ.})$ $I_{DS}(\text{DC})=2.6\text{A}(\text{typ.})$ $f=6.4\text{ to }7.2\text{ GHz}$ $V_{gs}=\text{constant}$	47.0	48.0	-	dBm
Linear Gain at Pin=26dBm	GL		11.0	13.5	-	dB
Drain Current at 5dB G.C.P.	I_{DSR}		-	6.4	7.0	A
Power Added Efficiency at 3dB G.C.P.	PAE		-	41	-	%
Gain Flatness	ΔG		-	-	1.6	dB
3rd Order Inter modulation Distortion	IM_3	$f=6.4\text{GHz}, 7.2\text{GHz}$ $\Delta f=10\text{MHz}, 2\text{-tone Test}$ $P_{out}=32.0\text{dBm (S.C.L.)}$	-40.0	-42.0	-	dBc
Thermal Resistance	R_{th}	Channel to Case ($T_c=25\text{deg.C}, P_{diss}=62.4\text{W}$)	-	1.3	1.5	deg.C/W
Channel Temperature Rise	ΔT_{ch}	$(V_{DS} \times I_{DSR} - P_{out} + Pin) \times R_{th}$	-	100	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

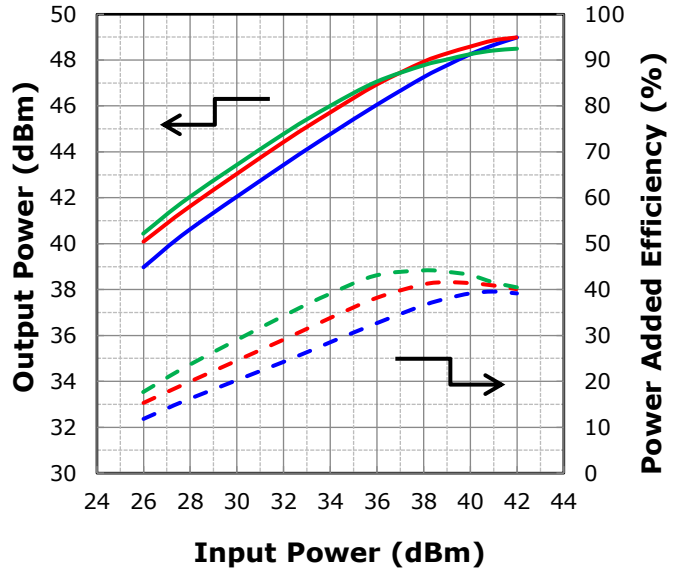
Note : *1 Based on ANSI/ESDA/JEDEC JS-001-2012(C=100pF, R=1.5kohm)

● RF Characteristics
Power Derating Curve


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

Input Power vs. Output Power and Power Added Efficiency

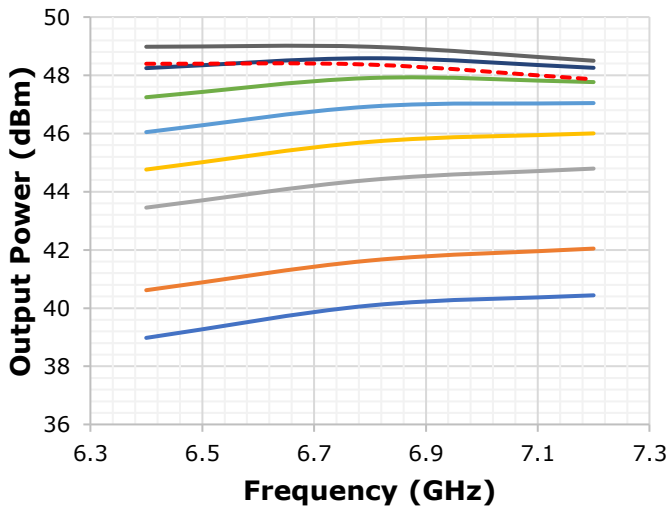
$$V_{DS}=24V, I_{DS(DC)}=2.6A$$



— 6.4GHz — 6.8GHz — 7.2GHz

Output Power vs. Frequency

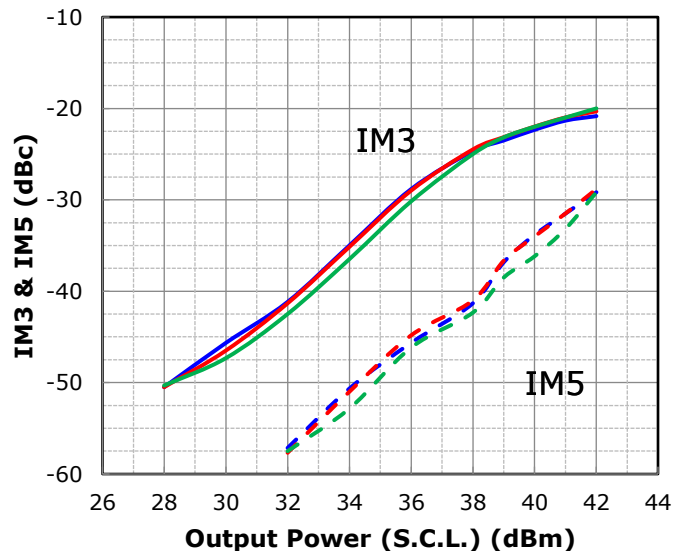
$$V_{DS}=24V, I_{DS(DC)}=2.6A$$



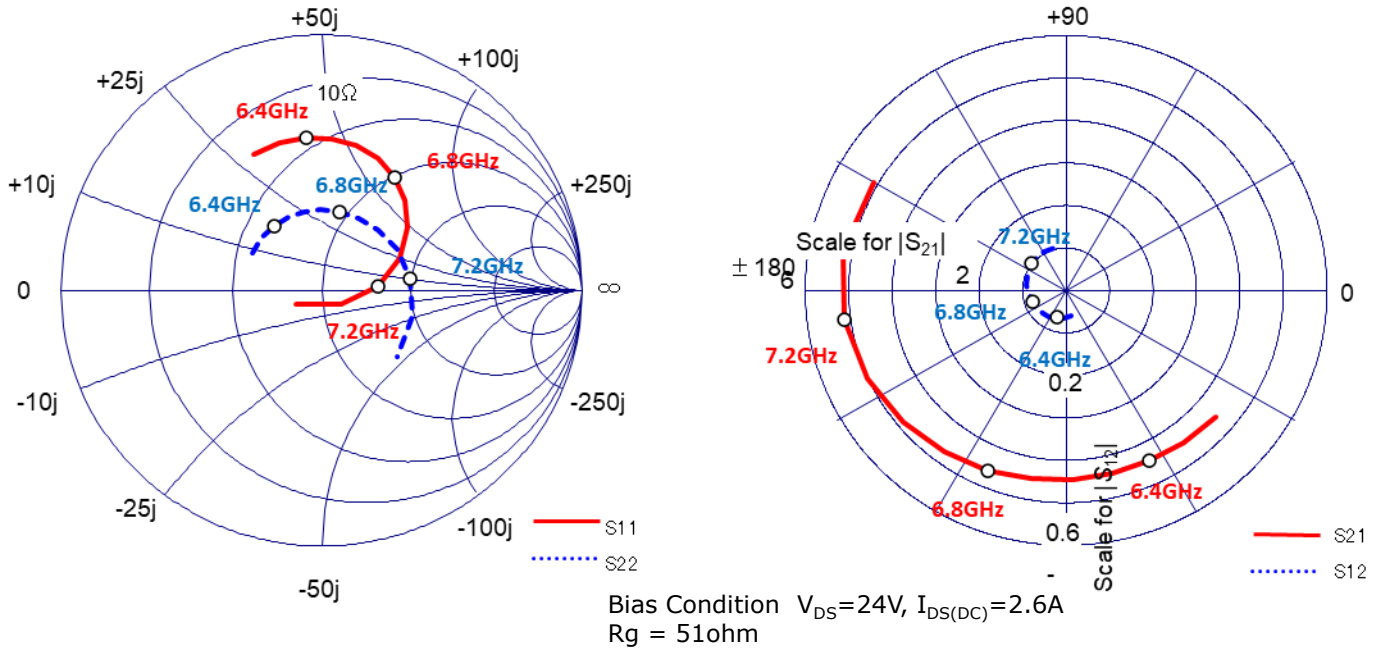
— 26[dBm] — 28[dBm] — 32[dBm]
 — 34[dBm] — 36[dBm] — 38[dBm]
 — 40[dBm] — 42[dBm] - - - P5dB

IMD vs. Output Power (S.C.L.)

$$V_{DS}=24V, I_{DS(DC)}=2.6A, \Delta f=10MHz$$



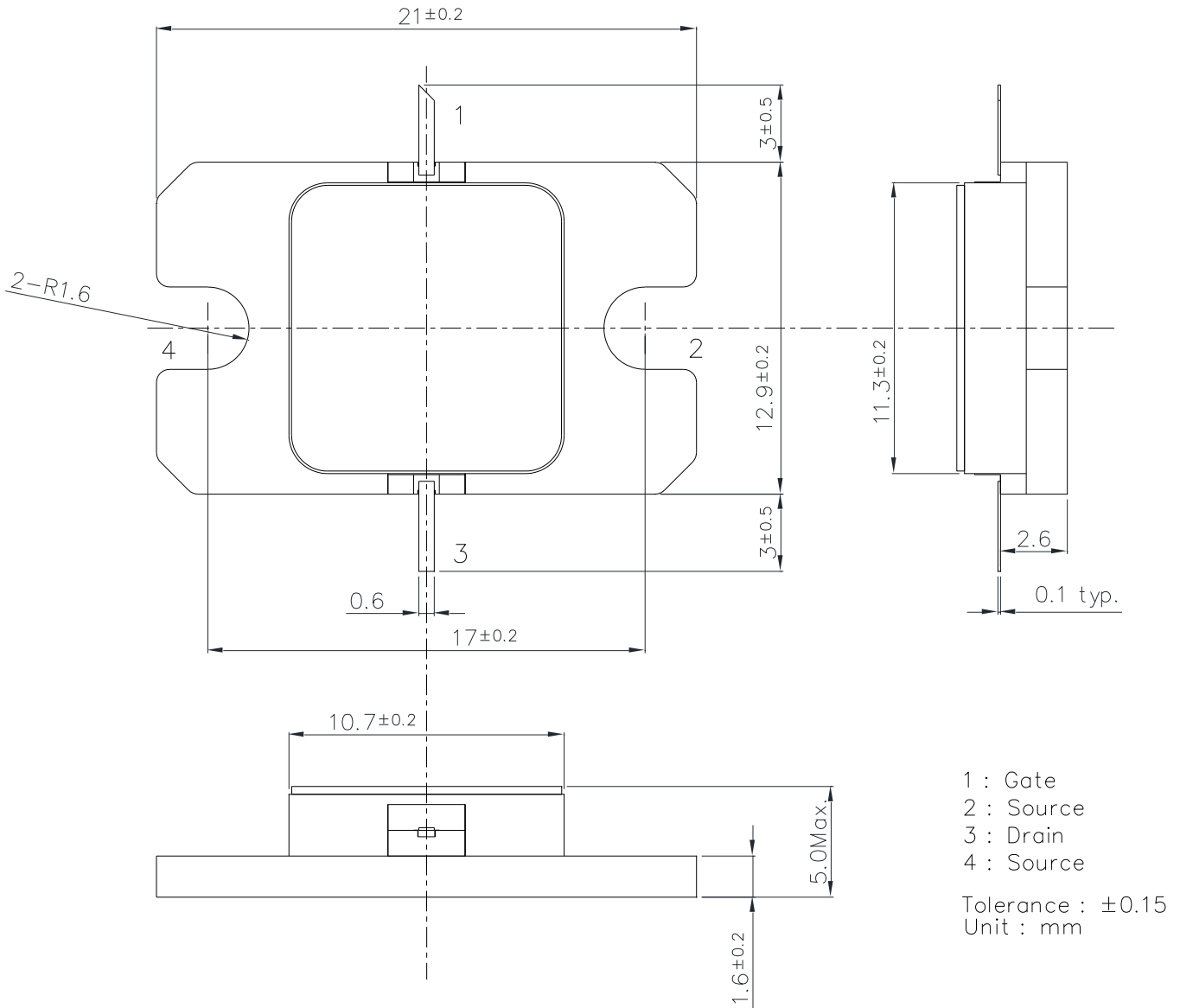
— 6.4GHz — 6.8GHz — 7.2GHz

● S-Parameter


Freq.	S11		S21		S12		S22	
	mag	phase	mag	phase	mag	phase	mag	phase
6.2GHz	0.595	116.1	4.561	-40.8	0.041	-80.6	0.302	151.2
6.3GHz	0.600	105.5	4.489	-52.7	0.043	-95.3	0.308	138.0
6.4GHz	0.600	95.6	4.439	-64.6	0.045	-108.8	0.311	126.2
6.5GHz	0.596	86.1	4.430	-76.3	0.048	-122.0	0.314	114.3
6.6GHz	0.582	76.9	4.456	-88.2	0.050	-135.0	0.315	102.4
6.7GHz	0.559	67.6	4.508	-100.4	0.053	-147.8	0.316	90.5
6.8GHz	0.523	58.0	4.607	-113.1	0.055	-160.7	0.315	77.5
6.9GHz	0.475	48.0	4.714	-126.3	0.058	-173.9	0.317	63.4
7GHz	0.409	37.1	4.864	-140.3	0.062	172.4	0.322	47.4
7.1GHz	0.323	23.4	5.007	-155.5	0.065	157.6	0.329	29.1
7.2GHz	0.215	5.0	5.140	-172.3	0.068	141.3	0.343	8.1
7.3GHz	0.093	-35.8	5.202	169.6	0.070	123.9	0.363	-15.8
7.4GHz	0.114	-151.5	5.104	150.2	0.069	105.3	0.387	-41.8

● Package Outline

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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