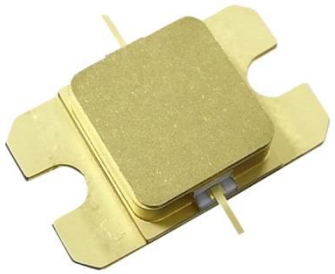
■ Features

- High Output Power: P5dB=45.0dBm (Typ.)
- High Linear Gain: GL=15.0dB (Typ.)
- High Power Added Efficiency: PAE=41% (Typ.)
- Broad Band: 5.85 to 6.75GHz
- Impedance Matched Zin/Zout = 50ohm
- Hermetically Sealed Package



■ Description

The SGK5867-30C 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_c=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
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}	Rg=100ohm	<=4.4	mA
Reverse Gate Current	I_{GR}	Rg=100ohm	>=-2.3	mA
Channel Temperature	T_{ch}		<+193	deg.C

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

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS}=10V, V_{GS}=0V	-	8.3	-	A
Trans Conductance	G_m	V_{DS}=24V, I_{DS}=0.96A	-	2.2	-	S
Pinch-off Voltage	V_P	V_{DS}=24V, I_{DS}=0.96mA	-2.5	-4.0	-5.5	V
Output Power at 5dB G.C.P.	P_{5dB}	V_{DS}=24V(typ.) $I_{DS(DC)}$=1.75A(typ.) f=5.85 to 6.75 GHz Vgs-constant	44.0	45.0	-	dBm
Linear Gain at Pin=21.5dBm	GL		12.5	15.0	-	dB
Drain Current at 5dB G.C.P.	I_{DSR}		-	3.2	4.0	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=6.75GHz Δf=10MHz, 2-tone Test Pout=29.5dBm (S.C.L.)	-40.0	-42.0	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	2.2	2.6	deg.C/W
Channel Temperature Rise	ΔT_{ch}	(V_{DS} x I_{DSR} – Pout + Pin) x R_{th}	-	83	150	deg.C

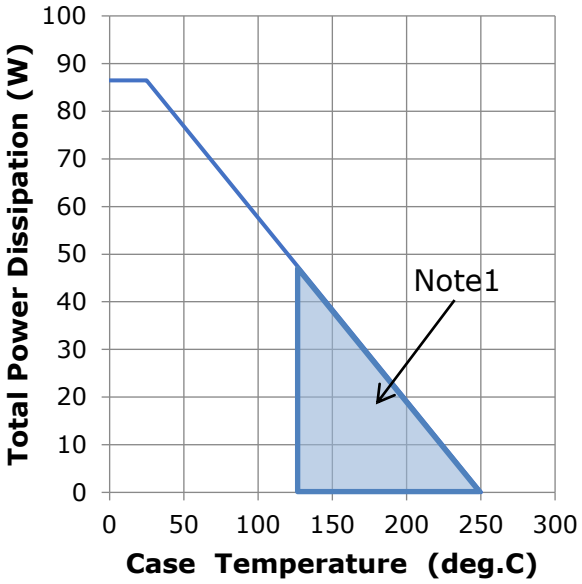
G.C.P. : Gain Compression Point, S.C.L. : Single Carrier Level

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

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

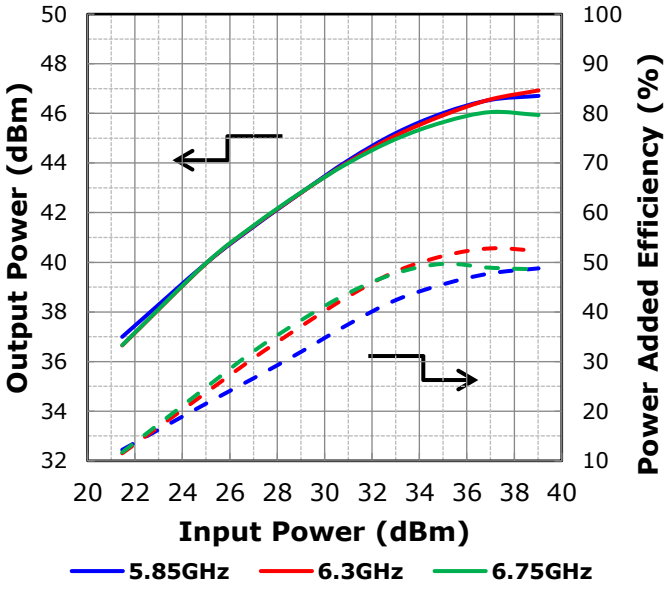
● RF Characteristics

Power Derating Curve

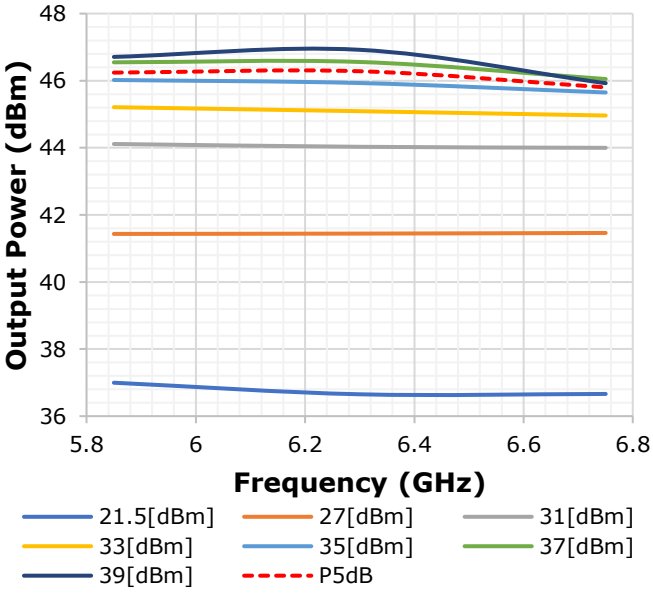


Note 1: Shaded area exceeds Maximum Case Operating Temperature (See Page1)

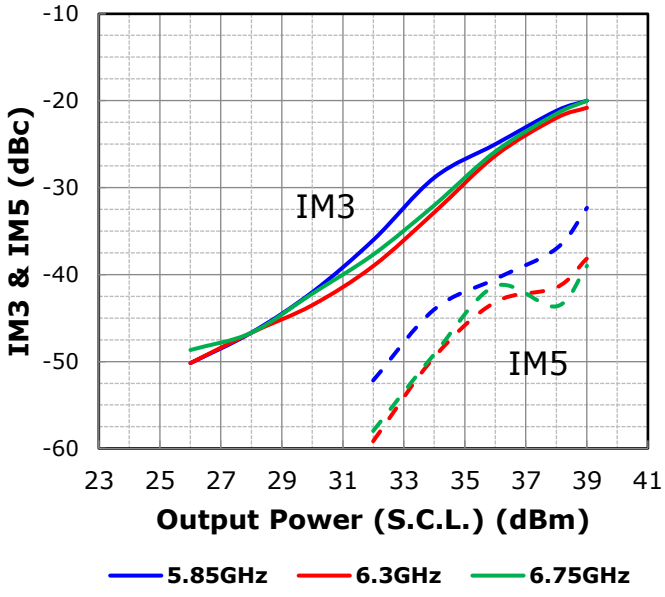
Input Power vs. Output Power and Power Added Efficiency
V_{DS}=24V, $I_{DS(DC)}$=1.75A



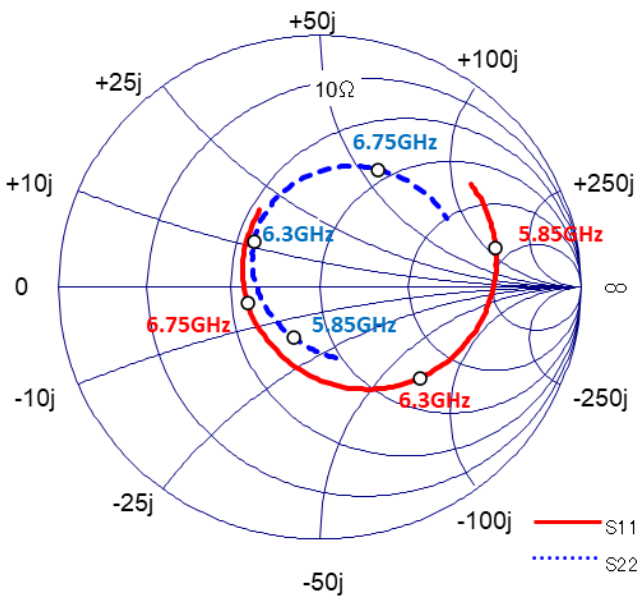
Output Power vs. Frequency
V_{DS}=24V, $I_{DS(DC)}$=1.75A

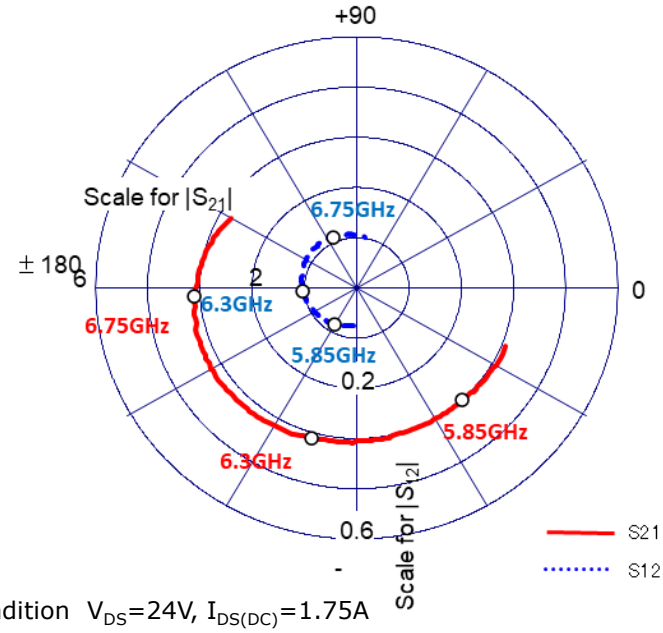


IMD vs. Output Power (S.C.L.)
V_{DS}=24V, $I_{DS(DC)}$=1.75A, Δf=10MHz



● S-Parameter



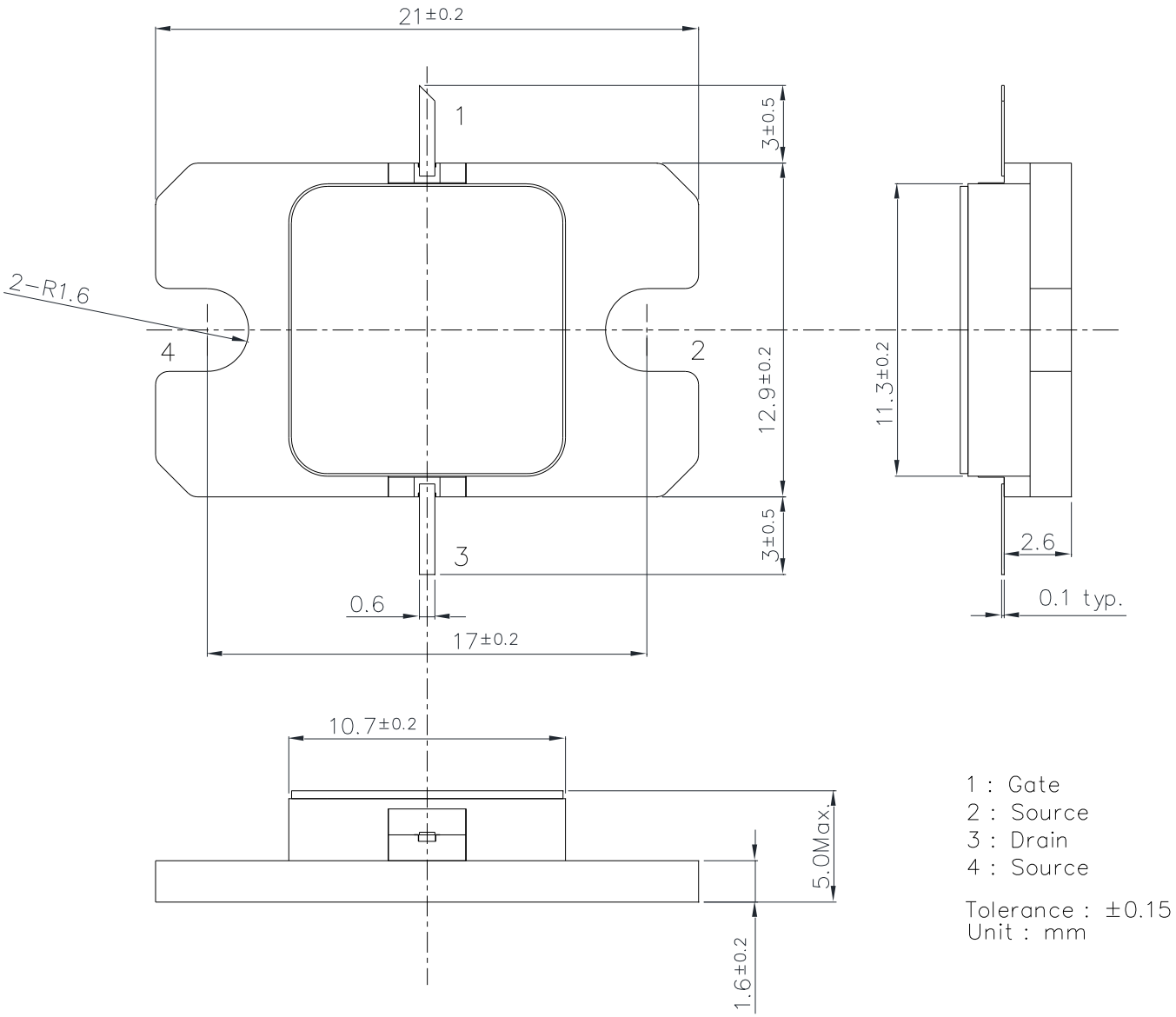


Bias Condition V_{DS}=24V, $I_{DS(DC)}$=1.75A

Freq.	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.65GHz	0.708	35.3	6.166	-22.2	0.060	-95.2	0.288	-77.9
5.7GHz	0.710	29.7	6.166	-28.8	0.062	-101.0	0.266	-86.4
5.85GHz	0.692	13.0	6.026	-47.8	0.067	-120.0	0.224	-116.0
6.0GHz	0.653	-3.8	6.026	-66.7	0.072	-139.0	0.216	-152.0
6.1GHz	0.621	-16.0	6.095	-79.4	0.076	-151.0	0.234	-175.0
6.2GHz	0.578	-28.9	6.166	-92.7	0.079	-164.0	0.266	164.0
6.3GHz	0.528	-43.4	6.237	-106.0	0.082	-177.0	0.309	144.0
6.4GHz	0.463	-60.4	6.310	-121.0	0.086	169.0	0.356	127.0
6.5GHz	0.393	-81.7	6.383	-136.0	0.089	154.0	0.408	109.0
6.6GHz	0.324	-110.0	6.383	-152.0	0.090	138.0	0.457	91.1
6.75GHz	0.282	-167.0	6.237	-177.0	0.089	114.0	0.519	64.4
6.9GHz	0.348	140.0	5.754	158.0	0.084	89.2	0.555	37.9
6.95GHz	0.384	127.0	5.559	150.0	0.082	81.2	0.558	29.2

- **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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