

■ Features

- High Output Power: $P_{sat}=51.0\text{dBm}$ (Typ.)
- High Gain: $G_p=9.0\text{dB}$ (Typ.)
- High Power Added Efficiency: $PAE=37\%$ (Typ.)
- Broad Band: 11.4 to 12.0GHz
- Hermetically Sealed Package


■ Description

The SGC1112-100B-R is a high power GaN-HEMT that is internally matched for X-band radar 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}	55	V
Gate-Source Voltage	V_{GS}	-15	V
Storage Temperature	T_{stg}	-55 to +125	deg.C
Channel Temperature	T_{ch}	+250	deg.C

RECOMMENDED OPERATING CONDITION

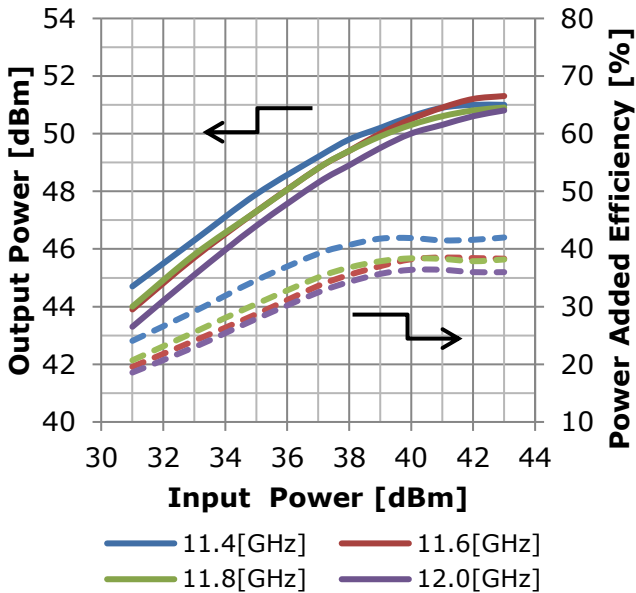
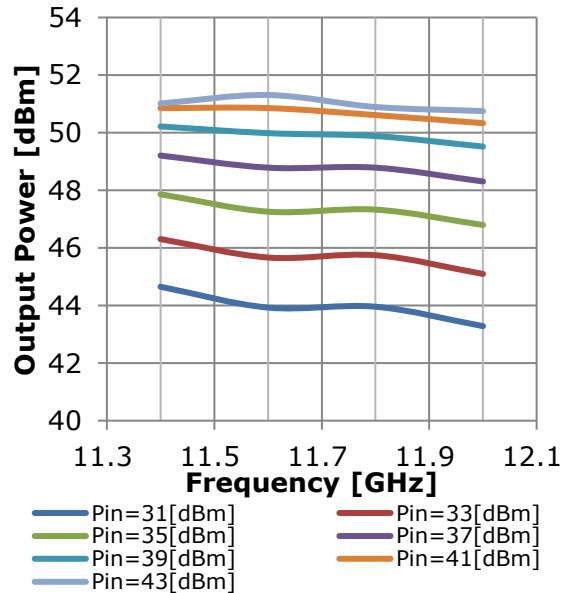
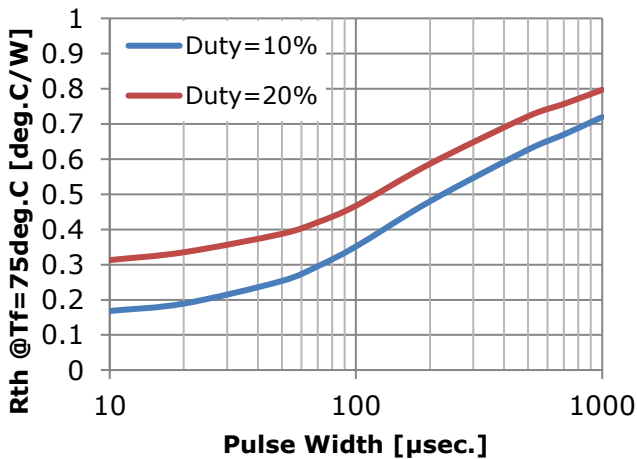
Item	Symbol	Condition	Limit	Unit
Drain-Source Voltage	V_{DS}		≤ 50	V
Forward Gate Current	I_{GF}	$R_g=100\text{ohm}$	≤ 61.7	mA
Reverse Gate Current	I_{GR}	$R_g=100\text{ohm}$	≥ -4.5	mA
Channel Temperature	T_{ch}		$< +200$	deg.C
Output Power	P_{out}		$\leq P5\text{dB}$	dBm

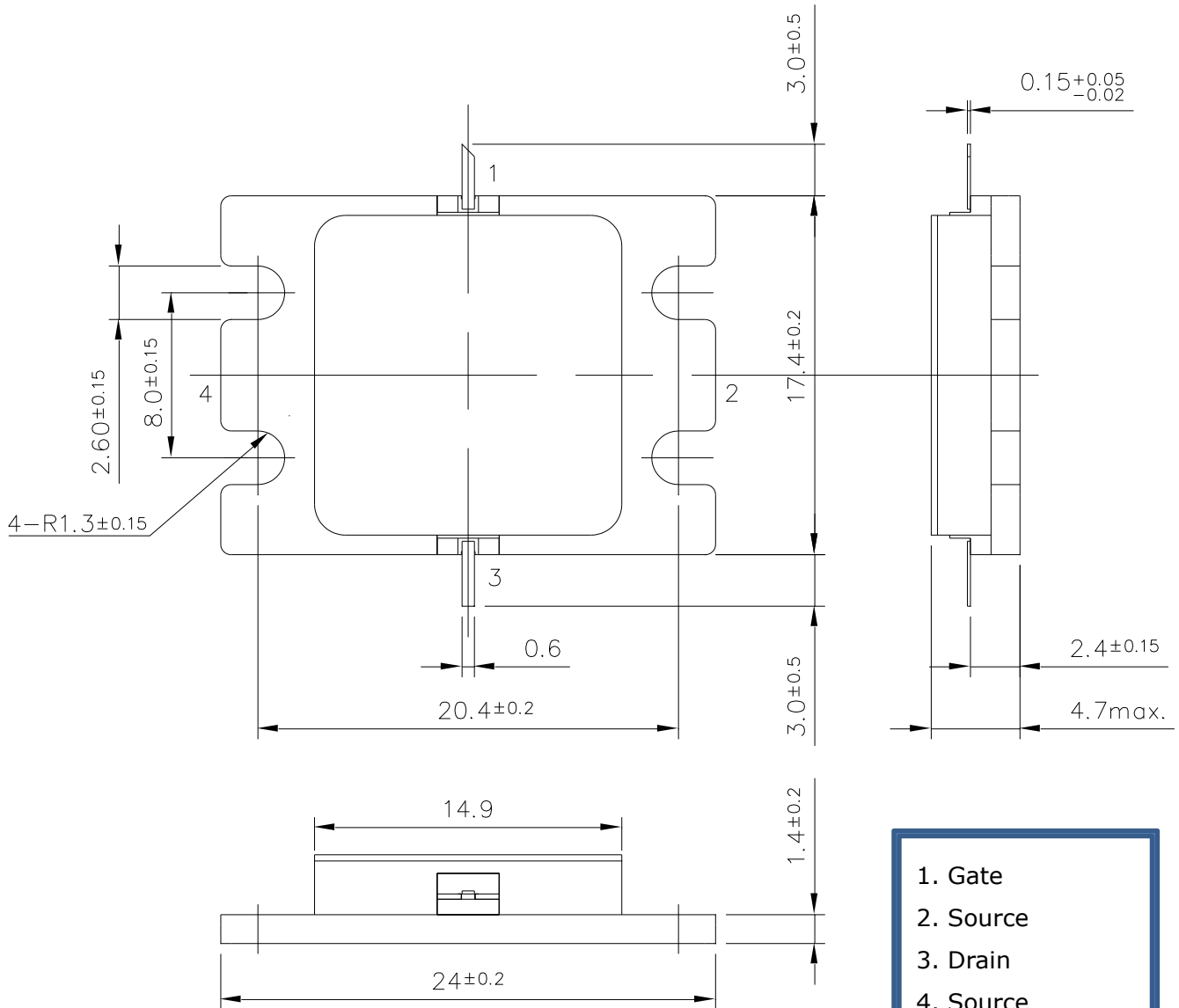
ELECTRICAL CHARACTERISTICS (Case Temperature $T_c=25$ deg.C)

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Pinch-off Voltage	V_p	$V_{DS}=50\text{V}, I_{DS}=6.5\text{mA}$	-	-4.5	-	V
Frequency Range	Freq.	$V_{DS}=50\text{V-typ.}$ $I_{DS(DC)}=1.0\text{A-typ.}$ Pulse Width=100 $\mu\text{sec.}$ Duty=10% $P_{in}=42\text{dBm}$	11.4	-	12.0	GHz
Output Power	P_{sat}		49.5	51.0	-	dBm
Power Gain	G_p		7.5	9.0	-	dB
Drain Current	I_{DSR}		-	5.9	7.9	A
Power Added Efficiency	PAE		-	37	-	%
Gain Flatness	ΔG		-	1.6	-	dB
Thermal Resistance	R_{th}	Channel to Case ($P_{diss}=100\text{W,CW}$)	-	1.4	1.8	deg.C/W

CASE STYLE	IK
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
Output Power & Power Added Efficiency vs. Input Power
 $V_{DS}=50V, I_{DS(DC)}=1.0A$
 PW=100 μ sec., Duty=10%

Output Power vs. Frequency
 $V_{DS}=50V, I_{DS(DC)}=1.0A$
 PW=100 μ sec., Duty=10%

● Thermal Characteristics In Pulsed Operation
Rth vs. Pulse Width


● Package Outline
Case Style : IK


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

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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