

■ Features

- High Output Power: $P_{sat}=48.0\text{dBm}$ (Typ.)
- High Gain: $G_p=11.0\text{dB}$ (Typ.)
- High Power Added Efficiency: $PAE=41\%$ (Typ.)
- Broad Band: 8.5 to 9.8GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\text{ohm}$
- Hermetically Sealed Package


■ Description

The SGC8598-50B-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 $T_c=25\text{ deg.C}$)

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

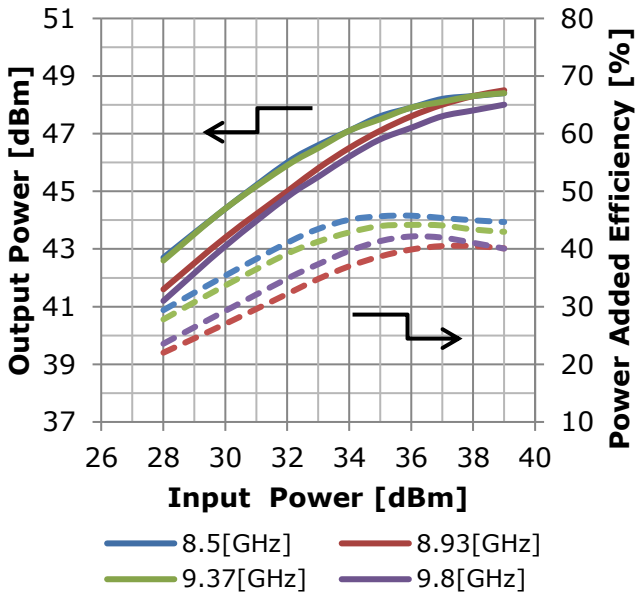
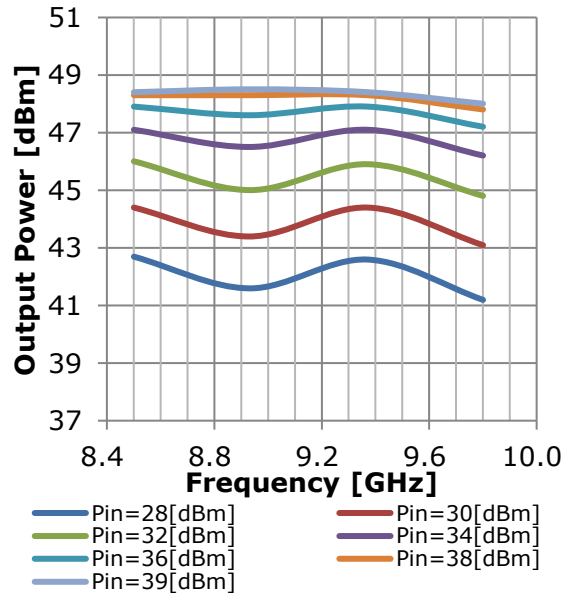
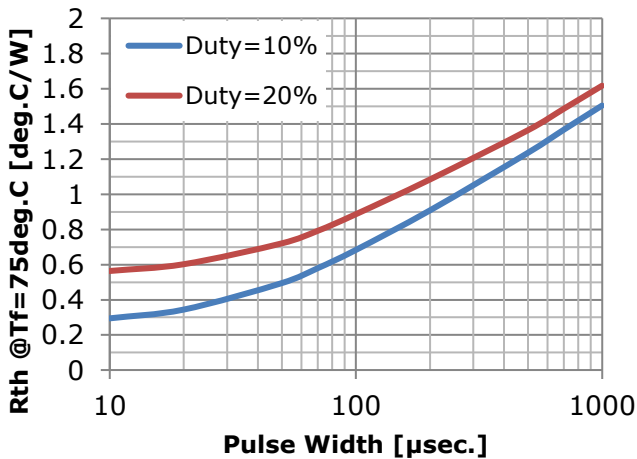
Item	Symbol	Condition	Limit	Unit
Drain-Source Voltage	V_{DS}		≤ 50	V
Forward Gate Current	I_{GF}	$R_g=100\text{ohm}$	≤ 30.8	mA
Reverse Gate Current	I_{GR}	$R_g=100\text{ohm}$	≥ -2.2	mA
Channel Temperature	T_{ch}		$< +200$	deg.C
Output Power	P_{out}		$\leq P5\text{dB}$	dBm

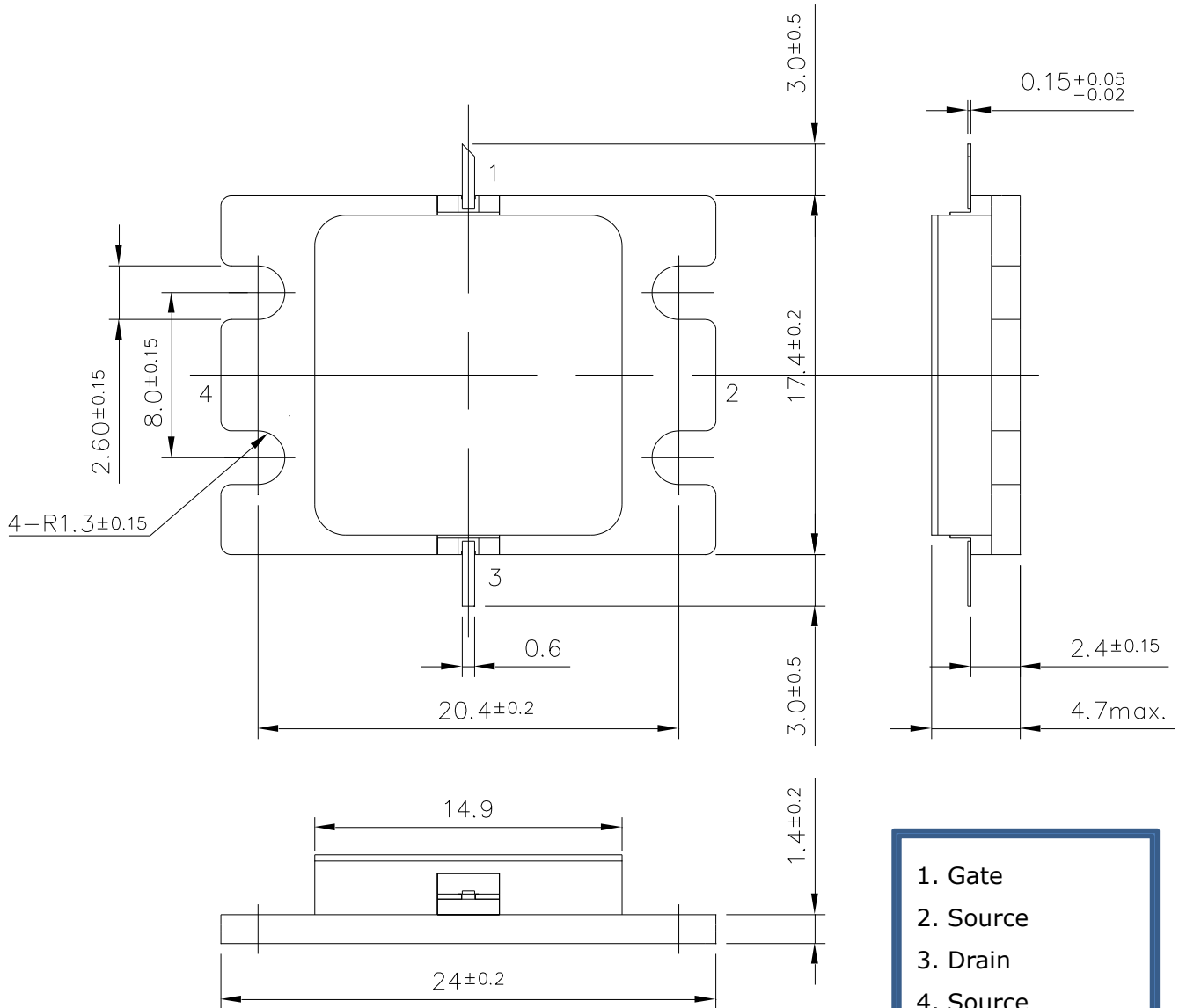
ELECTRICAL CHARACTERISTICS (Case Temperature $T_c=25\text{ deg.C}$)

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Pinch-off Voltage	V_p	$V_{DS}=50\text{V}, I_{DS}=3.0\text{mA}$	-	-4.5	-	V
Frequency Range	Freq.	$V_{DS}=50\text{V-typ.}$ $I_{DS(DC)}=0.17\text{A-typ.}$ Pulse Width=100μsec. Duty=10%	8.5	-	9.8	GHz
Output Power at $P_{in}=38\text{dBm}$	P_{sat}		47.0	48.0	-	dBm
Power Gain at $P_{out}=47\text{dBm}$	G_p		10.0	11.0	-	dB
Drain Current at $P_{in}=38\text{dBm}$	I_{DSR}		-	2.8	4.1	A
Power Added Efficiency at $P_{in}=38\text{dBm}$	PAE		-	41	-	%
Gain Flatness	ΔG		-	1.6	-	dB
Thermal Resistance	R_{th}	Channel to Case ($P_{diss}=50\text{W,CW}$)	-	2.4	3.0	deg.C/W

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

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

● RF Characteristics
Output Power & Power Added Efficiency vs. Input Power
 $V_{DS}=50V, I_{DS(DC)}=0.17A$
 PW=100 μ sec., Duty=10%

Output Power vs. Frequency
 $V_{DS}=50V, I_{DS(DC)}=0.17A$
 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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