

**■ 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.)
- Frequency Band: 9.3 to 9.5GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\text{ohm}$
- Hermetically Sealed Package


**■ Description**

The SGC9395-50B-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**

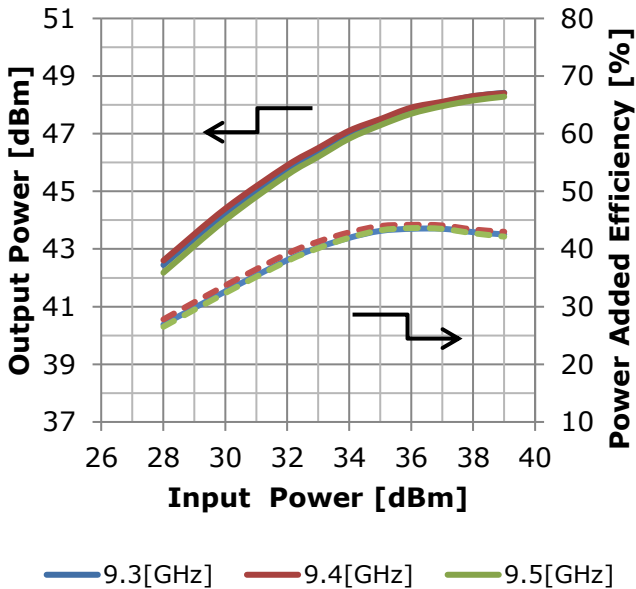
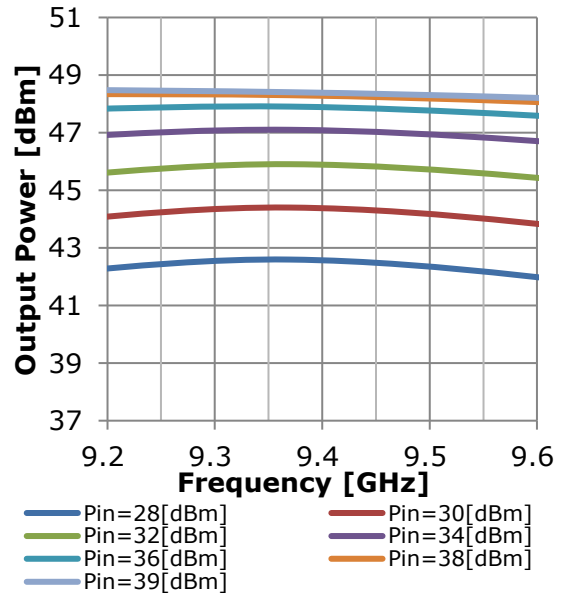
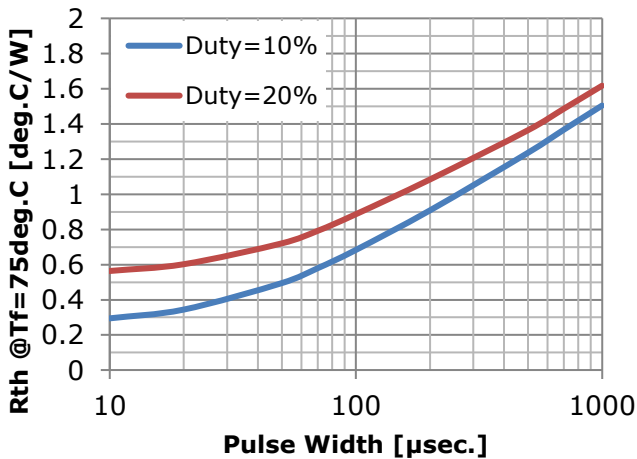
| Item                 | Symbol    | Condition           | Limit              | Unit  |
|----------------------|-----------|---------------------|--------------------|-------|
| Drain-Source Voltage | $V_{DS}$  |                     | $\leq 50$          | V     |
| Forward Gate Current | $I_{GF}$  | $R_g=100\text{ohm}$ | $\leq 30.8$        | mA    |
| Reverse Gate Current | $I_{GR}$  | $R_g=100\text{ohm}$ | $\geq -2.2$        | 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.      | $V_{DS}=50\text{V-typ.}$<br>$I_{DS(DC)}=0.17\text{A-typ.}$<br>Pulse Width=100μsec.<br>Duty=10% | 9.3   | -    | 9.5  | 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                                   | $\Delta G$ |  | -     | 1.6  | -    | dB      |
| Thermal Resistance                              | $R_{th}$   | Channel to Case<br>( $P_{diss}=50\text{W,CW}$ )  | -     | 2.4  | 3.0  | deg.C/W |

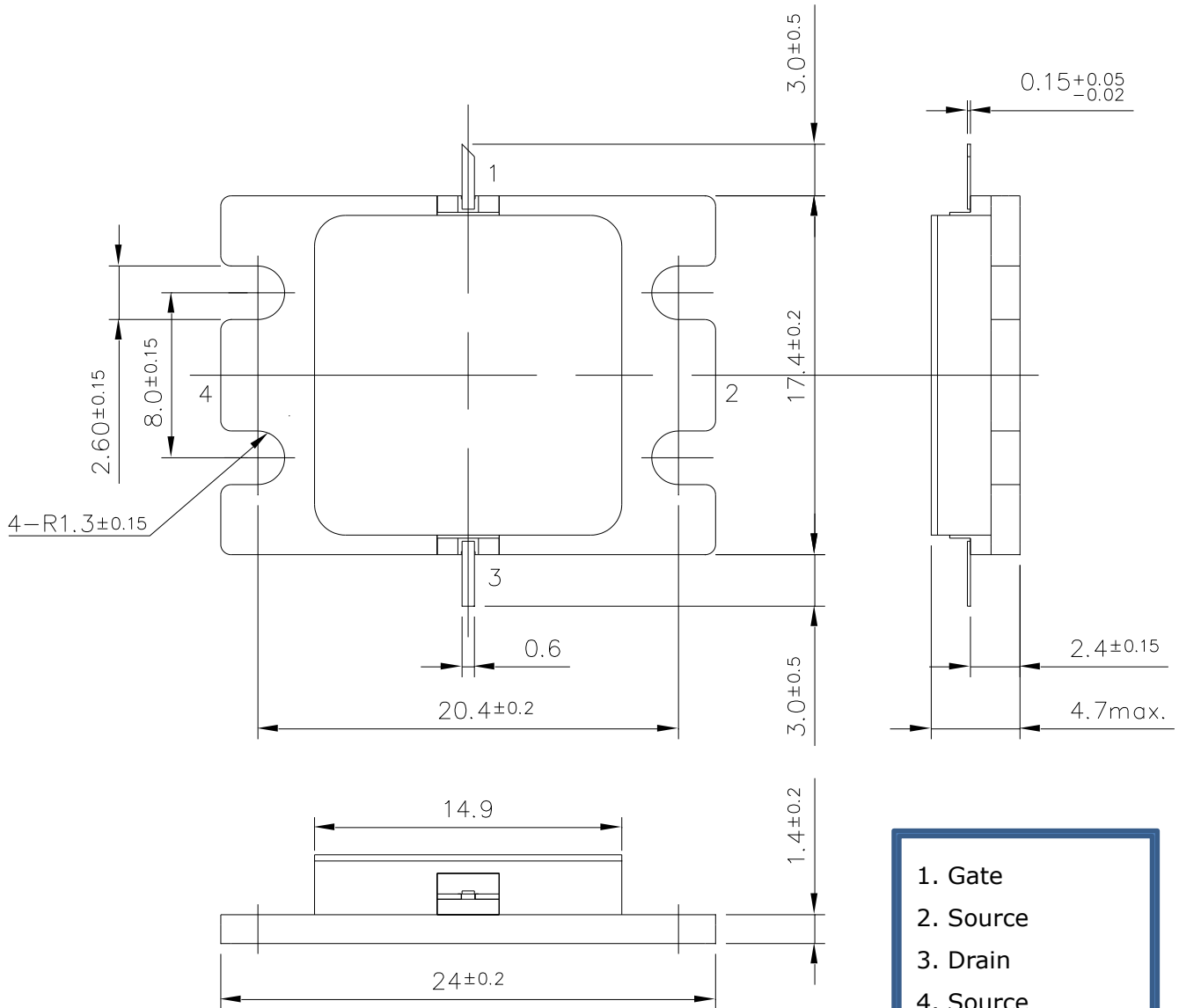
|                 |                         |
|-----------------|-------------------------|
| CASE STYLE      | IK                      |
| RoHS Compliance | YES                     |
| ESD             | Class 2 2000V to <4000V |

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

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

**Output Power vs. Frequency**
 $V_{DS}=50V, I_{DS(DC)}=0.17A$   
 PW=100 $\mu$ 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: $\pm 0.15$ |

## **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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