

**■ Features**

- High Output Power:  $P_{sat}=55.8\text{dBm}$  (Typ.)
- High Gain:  $G_p=13.8\text{dB}$  (Typ.)
- High Drain Efficiency:  $DE=51\%$  (Typ.)
- Broad Band: 5.2 to 5.9GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\text{ohm}$
- Hermetically Sealed Package


**■ Description**

The SGC5259-300B-R is a high power GaN-HEMT that is internally matched for C-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**

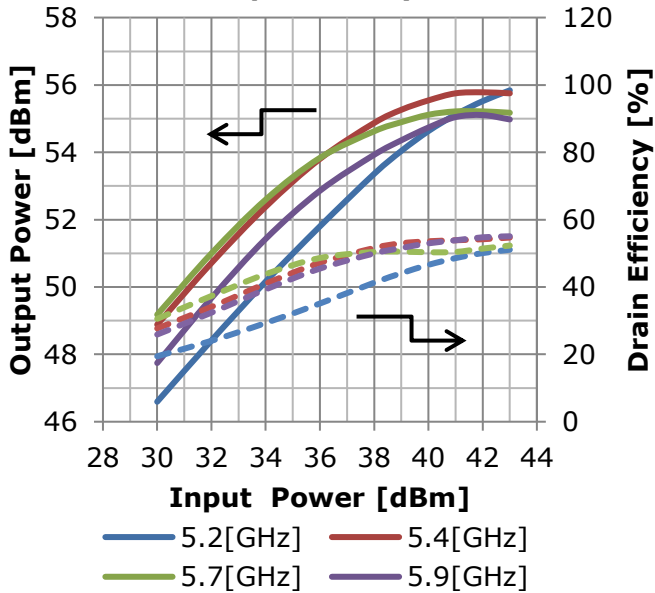
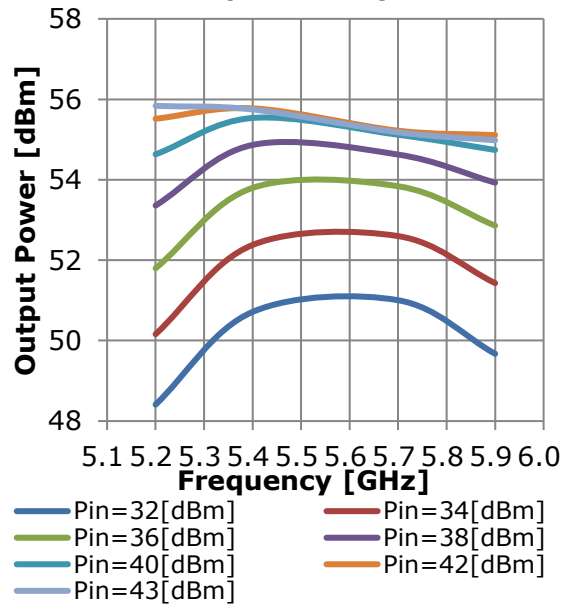
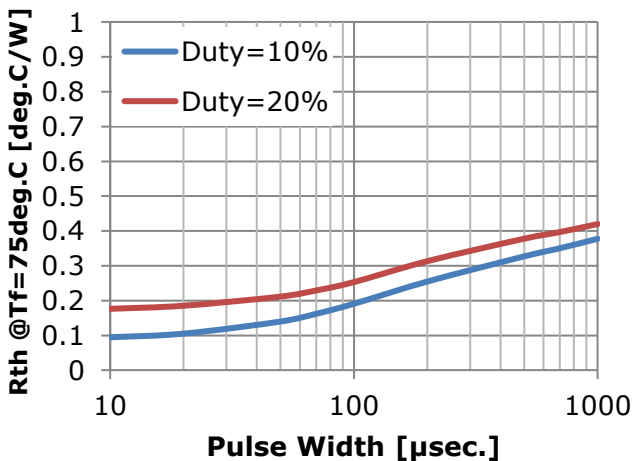
Item	Symbol	Condition	Limit	Unit
Drain-Source Voltage	$V_{DS}$		$\leq 50$	V
Forward Gate Current	$I_{GF}$	$R_g=10\text{ohm}$	$\leq 187.2$	mA
Reverse Gate Current	$I_{GR}$	$R_g=10\text{ohm}$	$\geq -13.6$	mA
Channel Temperature	$T_{ch}$		$< +200$	deg.C
Output Power	$P_{out}$		$\leq P5\text{dB}$	dBm

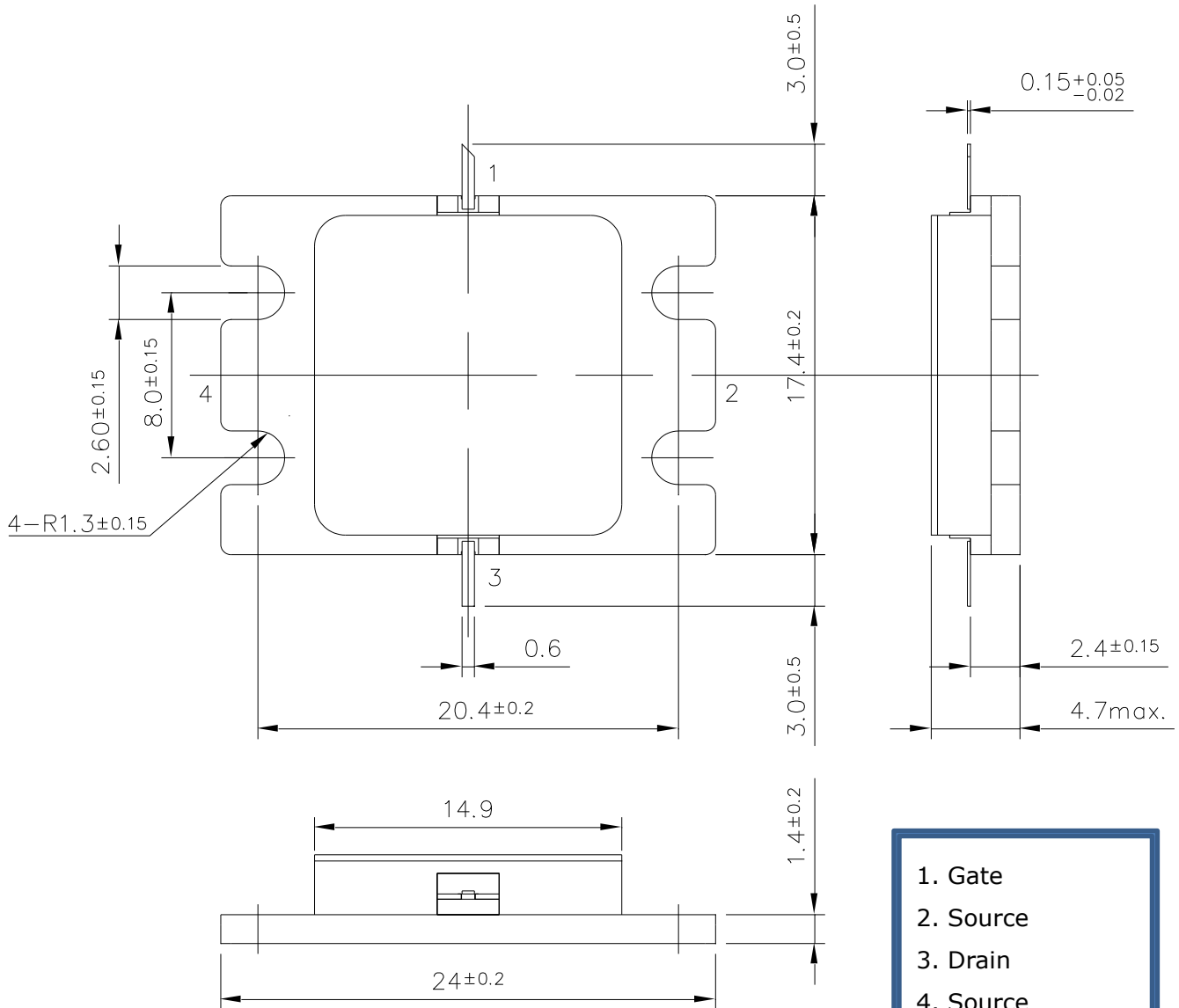
**ELECTRICAL CHARACTERISTICS (Case Temperature  $T_c=25\text{ deg.C}$ )**

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Pinch-off Voltage	$V_p$	$V_{DS}=50\text{V}, I_{DS}=20.0\text{mA}$	-	-4.5	-	V
Frequency Range	Freq.	$V_{DS}=50\text{V-tp.}$ $I_{DS(DC)}=1.0\text{A-tp.}$ Pulse Width=100 $\mu\text{sec.}$ Duty=10% *1: $f=5.2\text{ to }5.7\text{GHz}$ *2: $f=5.7\text{ to }5.9\text{GHz}$ $P_{in}=42\text{dBm}$	5.2	-	5.9	GHz
Output Power*1	$P_{sat}$		54.8	55.8	-	dBm
Output Power*2	$P_{sat}$		54.5	55.4	-	dBm
Power Gain*1	$G_p$		12.8	13.8	-	dB
Power Gain*2	$G_p$		12.5	13.4	-	dB
Drain Current	$I_{DSR}$		-	14.9	-	A
Drain Efficiency	DE	-	51	-	%	
Thermal Resistance	$R_{th}$	Channel to Case ( $P_{diss}=100\text{W,CW}$ )	-	0.7	0.8	deg.C/W

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

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

**● RF Characteristics**
**Output Power &  
Drain Efficiency vs. Input Power**
 $V_{DS}=50V, I_{DS(DC)}=1.0A$   
 PW=100 $\mu$ sec., Duty=10%

**Output Power vs. Frequency**
 $V_{DS}=50V, I_{DS(DC)}=1.0A$   
 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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