

■ Features

- High Output Power: $P_{sat}=48.0\text{dBm}$ (Typ.)
- High Gain: $G_p=13.0\text{dB}$ (Typ.)
- Drain Efficiency: $DE=50\%$ (Typ.)
- Broad Band: 5.2 to 5.9GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\text{ohm}$
- Hermetically Sealed Package

■ Description

The SGC5259-50A-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}		≤ 50	V
Forward Gate Current	I_{GF}	$R_g=100\text{ohm}$	≤ 37.4	mA
Reverse Gate Current	I_{GR}	$R_g=100\text{ohm}$	≥ -2.2	mA
Channel Temperature	T_{ch}		$\leq +200$	deg.C

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

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Pinch-off Voltage	V_p	$V_{DS}=50\text{V}$, $I_{DS}=3\text{mA}$	-	-4.5	-	V
Frequency Range	Freq.	$V_{DS}=50\text{V}$	5.2	-	5.9	GHz
Output Power	P_{sat}	$I_{DS(DC)}=0.17\text{A}$	46.5	48.0	-	dBm
Power Gain	G_p	Pulse Width=100μsec.	11.5	13.0	-	dB
Drain Current	I_{DSR}	Duty=10%	-	2.5	-	A
Drain Efficiency	DE	Pin=35dBm	-	50	-	%
Thermal Resistance	R_{th}	Channel to Case ($P_{diss}=50\text{W}$, CW)	-	2.4	2.8	deg.C/W

CASE STYLE	IBK
RoHS Compliance	YES
ESD	Class 2

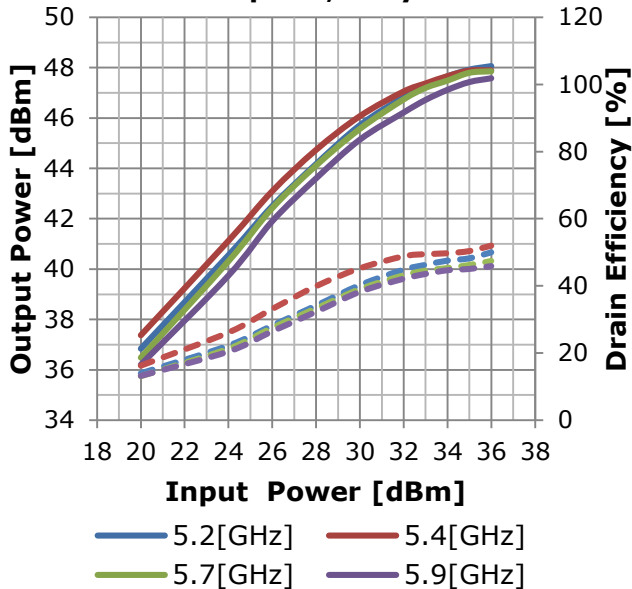
Note: Based on ANSI/ESDA/JEDEC JS-001-2012(C=100pF, R=1.5kohm)



● RF Characteristics

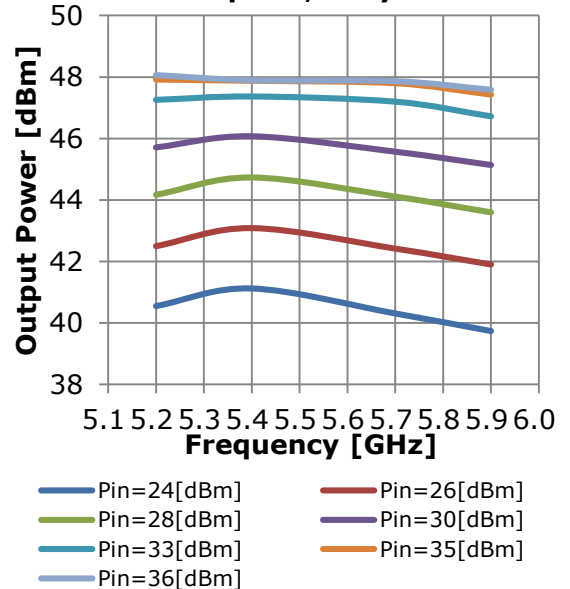
**Output Power &
Drain Efficiency vs. Input Power**

$V_{DS}=50V$, $I_{DS(DC)}=0.17A$
 $PW=100\mu sec.$, Duty=10%



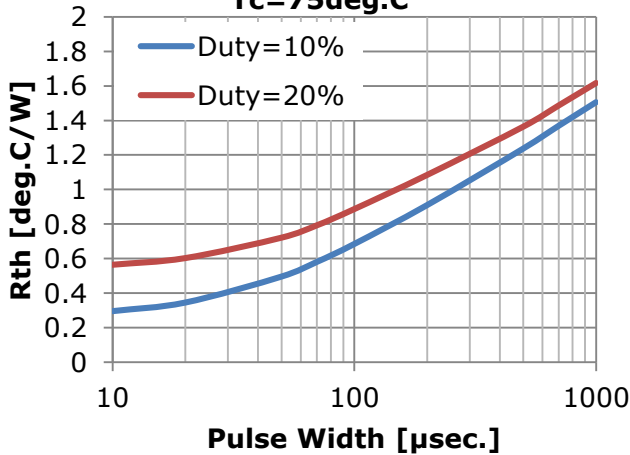
Output Power vs. Frequency

$V_{DS}=50V$, $I_{DS(DC)}=0.17A$
 $PW=100\mu sec.$, Duty=10%

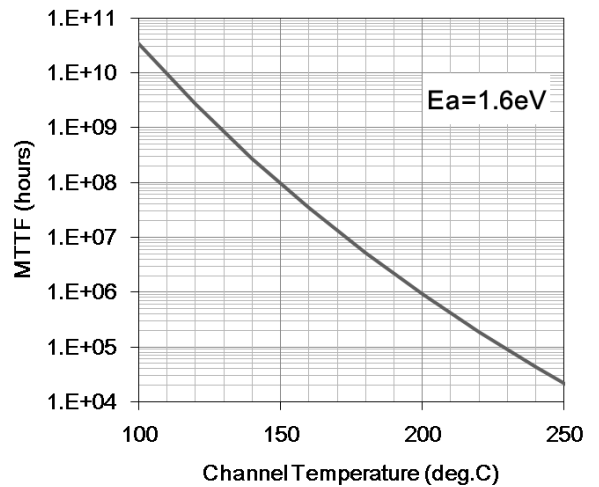


● Thermal Characteristics In Pulsed Operation

Rth vs. Pulse Width
 $T_c=75deg.C$



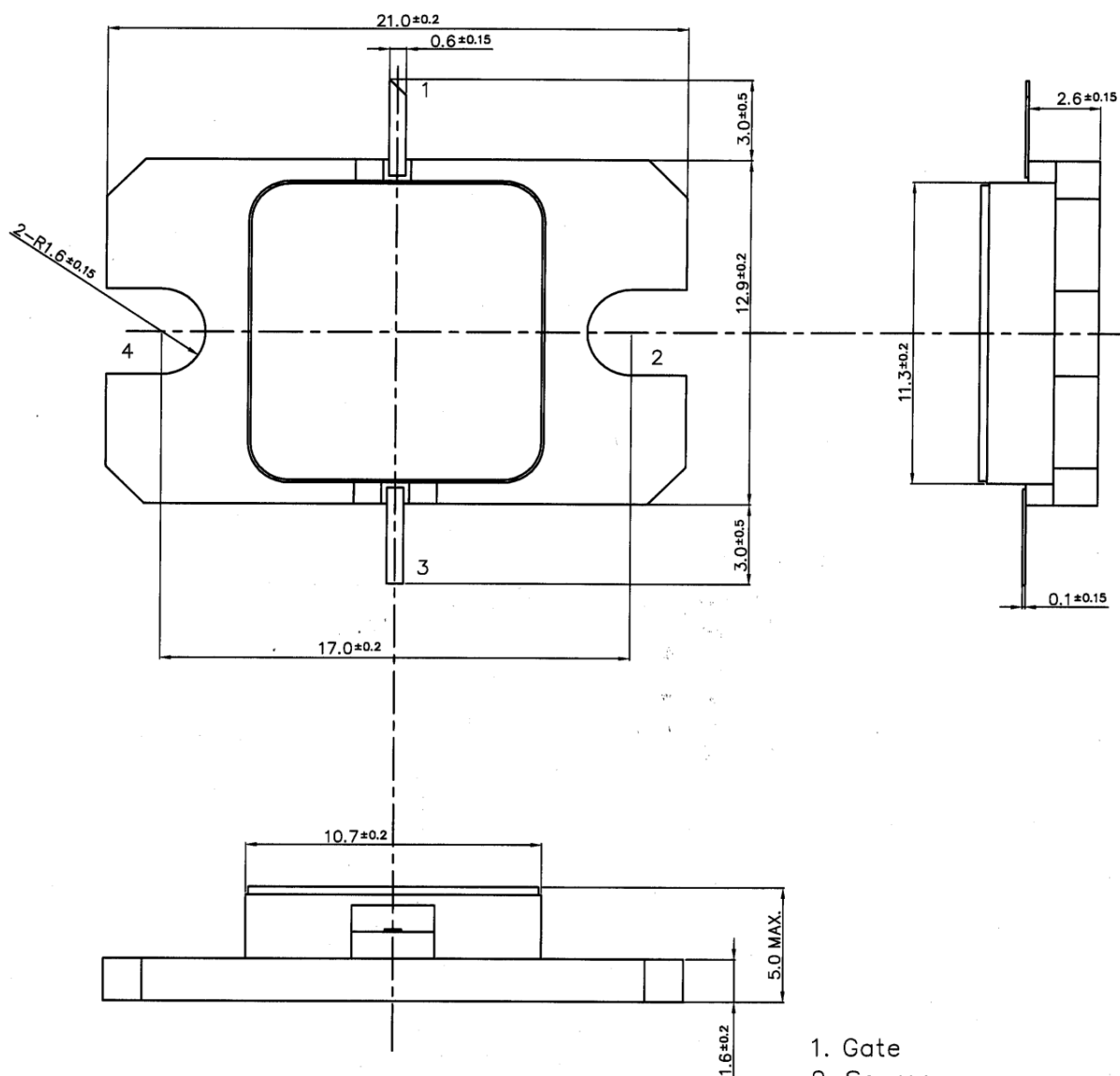
MTTF vs. Tch





● **Package Outline**

Case Style : IBK



- 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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