

GHSD6P0040AT

40W, 50V, DC-6GHz GaN RF Transistor



Description

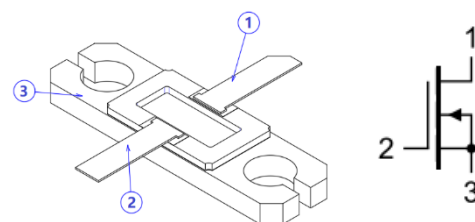
The GHSD6P0040AT is a 40W (P3dB), discrete GaN on SiC HEMT which operates from DC to 6 GHz.

Features

- Frequency: DC to 6 GHz
- Output Power(P3dB)¹: 40 W
- Linear Gain₁: 21 dB
- Typical DE(P3dB)¹: 77 %
- Operating Voltage: 50 V
- Low thermal resistance package
- CW and Pulse capable

Note 1: @ 2.6 GHz

Functional Block Diagram



1. Drain 2. Gate 3. Source

Applications

- Base station
- Radio relay station
- Military radar
- Civilian radar
- Test instrumentation
- Wideband or narrowband amplifiers
- Jammers
- Microwave oven

Ordering Information

- GHSD6P0040AT

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Recommended Operating Conditions

Parameter	Min	Type	Max	Units
Operating Temp Range	-40	+25	+85	°C
Drain Voltage Range, V_D	25	50	55	V
Drain Bias Current, I_{DQ}	—	58	—	mA
Gate Voltage, V_G^1	-3.4	-2.9	-2.3	V

Electrical performance is measured under conditions noted in the electrical specifications table.

Specifications are not guaranteed over all recommended operating conditions.

Notes:

1. To be adjusted to desired IDQ.

Absolute Maximum Ratings

Parameter	Units	Min	Typ	Max
Breakdown Voltage, BV_{DG} , $T = 25^\circ\text{C}$	V	—	—	150
Gate Voltage Range, V_G , $T = 25^\circ\text{C}$	V	-10	—	1.3
Drain Current, $T = 25^\circ\text{C}$	A	—	—	3.5
Power Dissipation, CW, P_{DISS} , 85°C, Eutectic die attach using 80/20 Au/Sn	W	—	—	TBD
RF Input Power, CW, 2.6 GHz, $T = 25^\circ\text{C}$	dBm	—	—	+34
Storage Temperature	°C	-65	—	+150

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability.

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Pulsed Characterization – Load-Pull Performance – Power Tuned

Test conditions unless otherwise noted: $V_D = +50$ V, $I_{DQ} = 58$ mA, Temp = +25 °C.

Parameter	Typical Values	Units
Frequency	2.6	GHz
Linear Gain, G_{LIN}	20	dB
Output Power at 3dB compression point, P_{3dB}	46.7	dBm
Drain-Efficiency at 3dB compression point	72	%
Gain at 3dB compression point	17	dB

Pulsed Characterization – Load-Pull Performance – Efficiency Tuned

Test conditions unless otherwise noted: $V_D = +50$ V, $I_{DQ} = 58$ mA, Temp = +25 °C.

Parameter	Typical Values	Units
Frequency	2.6	GHz
Linear Gain, G_{LIN}	21	dB
Output Power at 3dB compression point, P_{3dB}	45.7	dBm
Drain-Efficiency at 3dB compression	77	%
Gain at 3dB compression point	18	dB

Thermal and Reliability Information – DC

Parameter	Conditions	Values	Units
Thermal Resistance, $IR(\theta_{JC})$	TBD	TBD	°C/W

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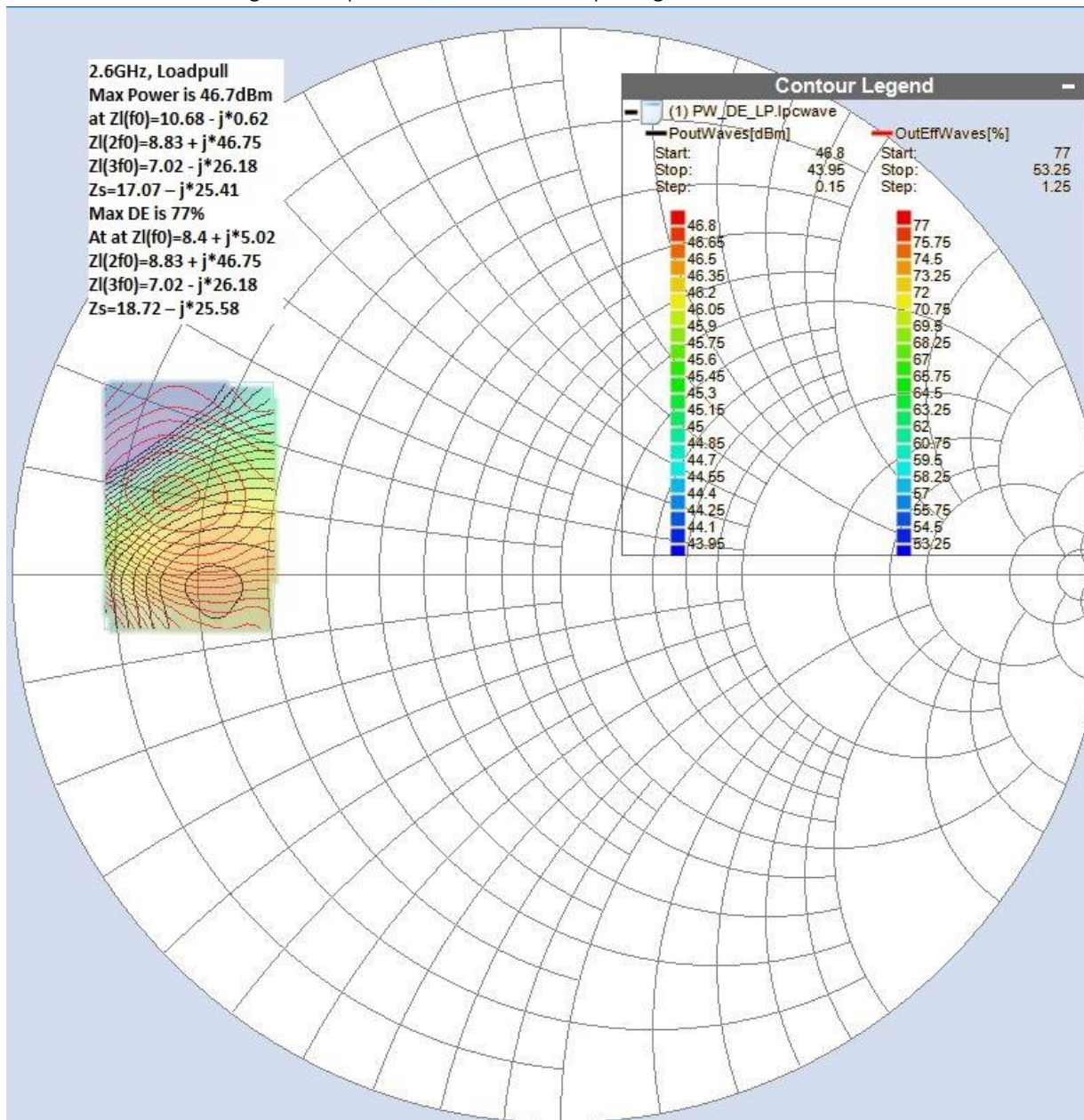
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Load-Pull Smith Charts

Test conditions: $V_D = 50\text{ V}$, $I_{DQ} = 58\text{ mA}$, $100\text{ }\mu\text{s PW}$, 10% DC pulsed.

Performance is at 3dB gain compression referenced to peak gain.



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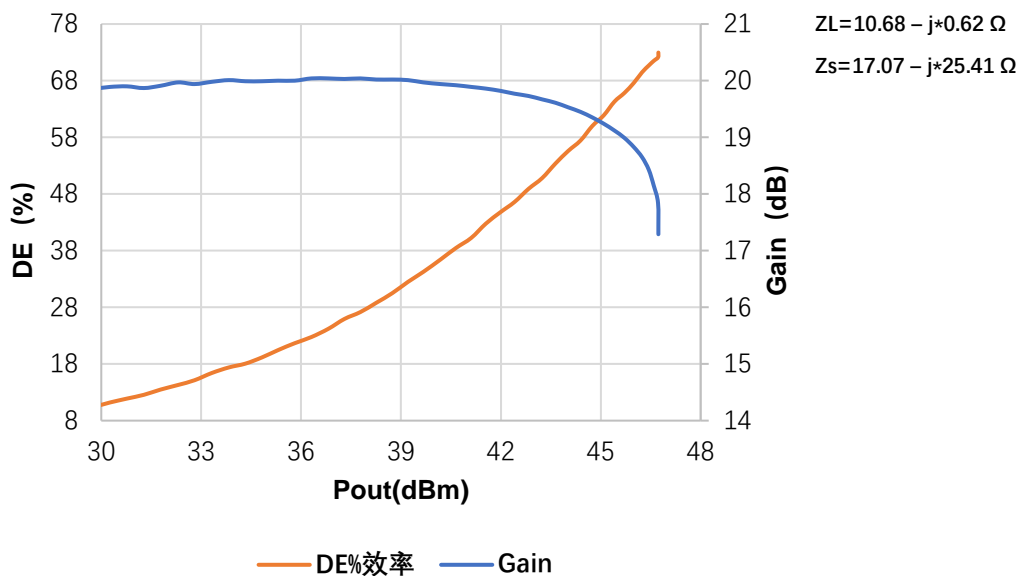


Typical Performance – Load-Pull Drive-up

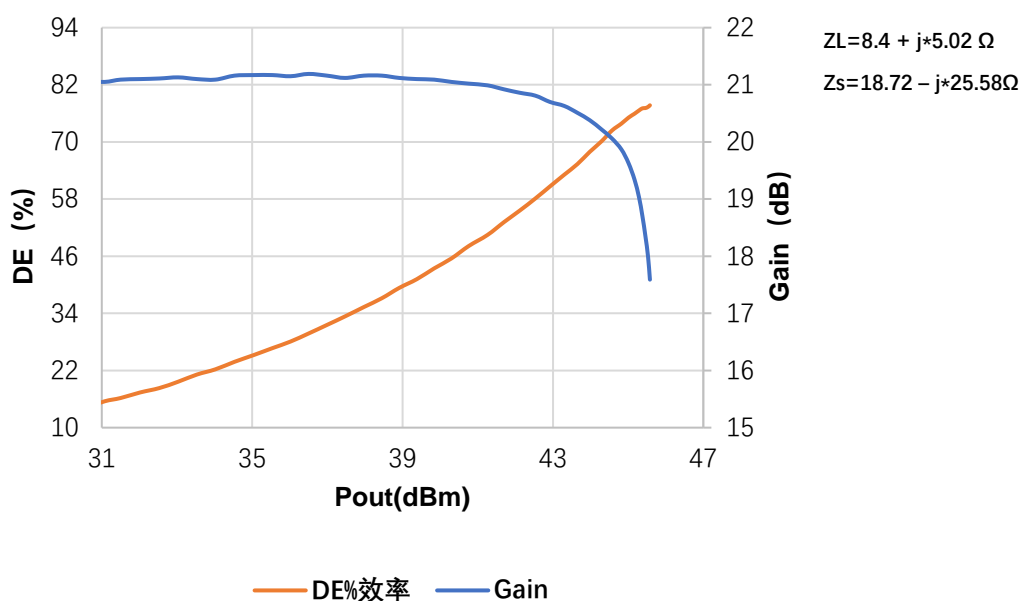
Test conditions: $V_D = 50\text{ V}$, $I_{DQ} = 58\text{ mA}$, $100\text{ }\mu\text{s PW}$, 10% DC pulsed.

Performance is at 3dB gain compression referenced to peak gain.

DE & Gain vs Pout 2.6 GHz, Power Tuned



DE & Gain vs Pout 2.6 GHz, Efficiency Tuned

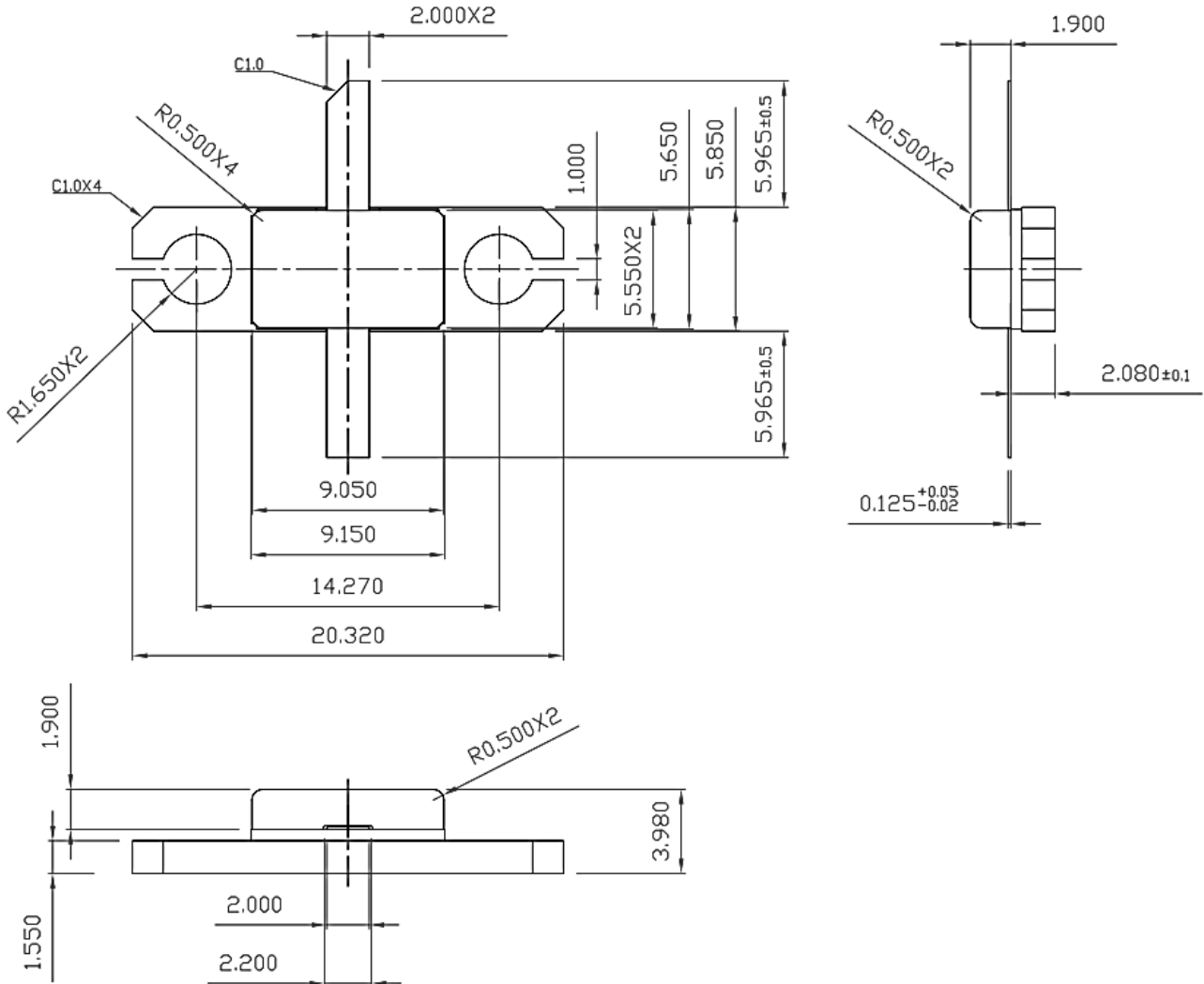


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Package outline



Notes: All dimensions are in millimeters.

技术要求:

1. 未注公差: ±0.13mm。

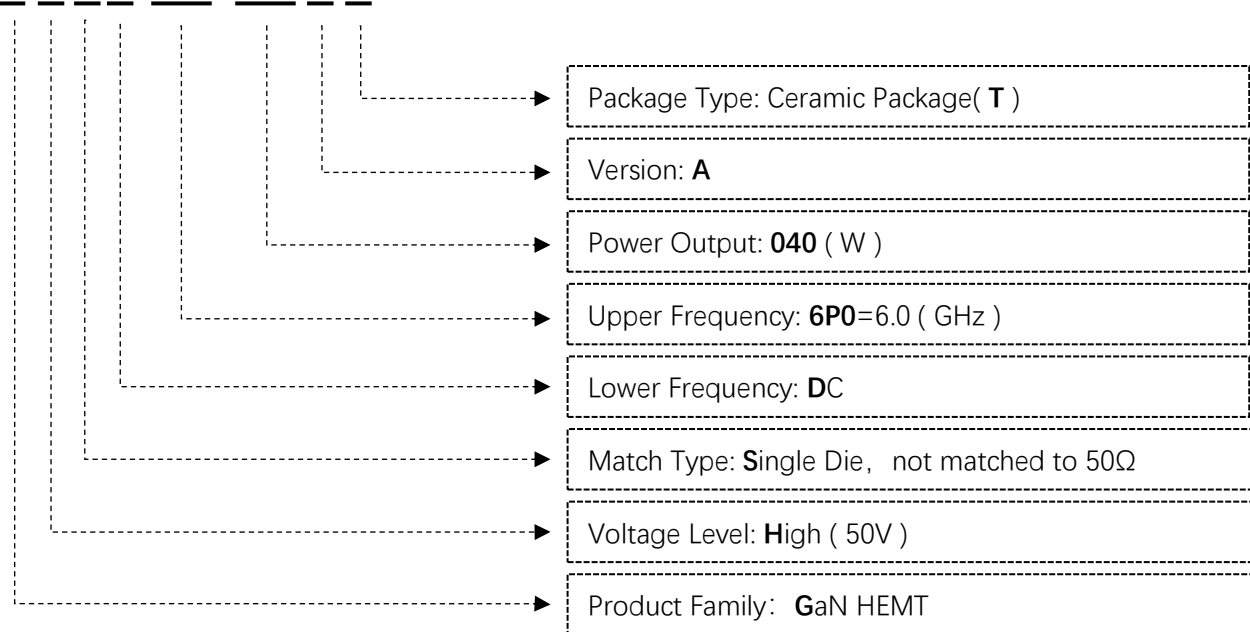
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Part Number System

G H S D 6 P 0 0 4 0 A T



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Handling Precaution

ESD countermeasure methods should be developed and used to control potential ESD damage during handling in a factory environment at each manufacturing site.

Contact Information

Tel: 86-(0)755-82522200

Email: sales@sdsxchip.com

Address: #318, Floor 3, Block A, SDCIC Mansion, 6 Guanglan Rd,
Futian Free Trade Zone, Futian Dist., Shenzhen

Website: www.sdsxchip.com