

GHSD6P0050AT

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



Description

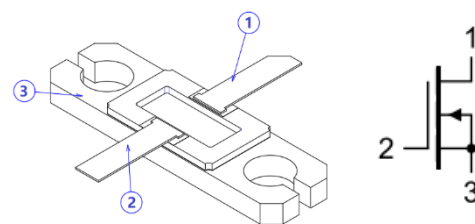
The GHSD6P0050AT is a 50W (P3dB), discrete GaN on SiC HEMT which operates from DC to 6 GHz.

Features

- Frequency: DC to 6 GHz
- Output Power(P3dB)¹: 50 W
- Linear Gain₁: 21 dB
- Typical DE(P3dB)¹: 76 %
- 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

- GHSD6P0050AT

GHSD6P0050AT

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



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}	—	65	—	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 I_{DQ} .

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	—	—	4
Power Dissipation, CW, P_{DISS} , 85°C, Eutectic die attach using 80/20 Au/Sn	W	—	—	53
RF Input Power, CW, 2.6 GHz, $T = 25^\circ\text{C}$	dBm	—	—	+35
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.

GHSD6P0050AT

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



Pulsed Characterization – Load-Pull Performance – Power Tuned

Test conditions unless otherwise noted: $V_D = +50$ V, $I_{DQ} = 65$ 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}	47.5	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, $I_{DQ} = 65$ 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}	46	dBm
Drain-Efficiency at 3dB compression	76	%
Gain at 3dB compression point	18	dB

Thermal and Reliability Information – DC

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

GHSD6P0050AT

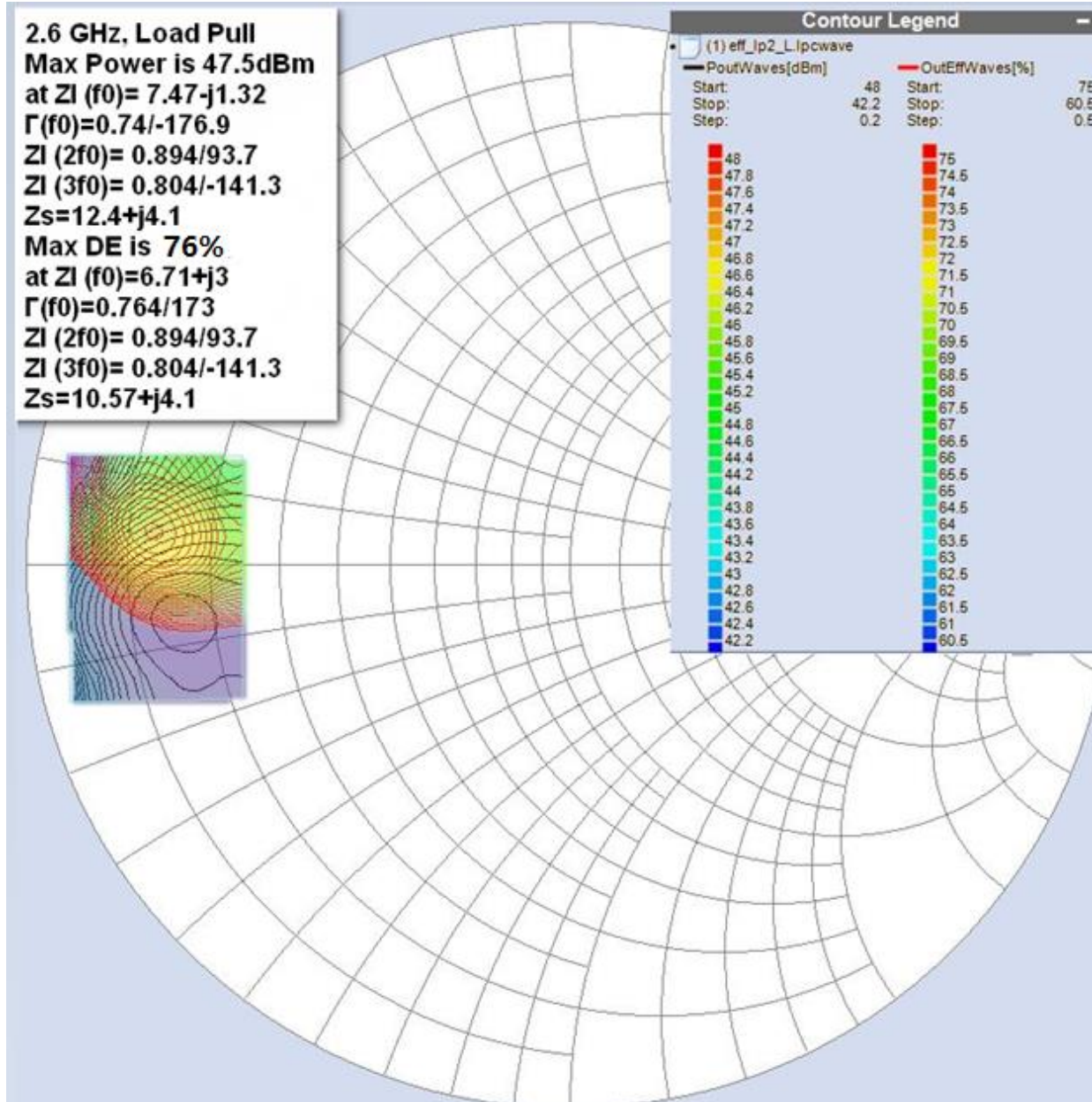
50W, 50V, DC-6GHz GaN RF Transistor



Load-Pull Smith Charts

Test conditions: $V_D = 50\text{ V}$, $I_{DQ} = 65\text{ mA}$, $100\text{ }\mu\text{s PW}$, 10% DC pulsed.

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



GHSD6P0050AT

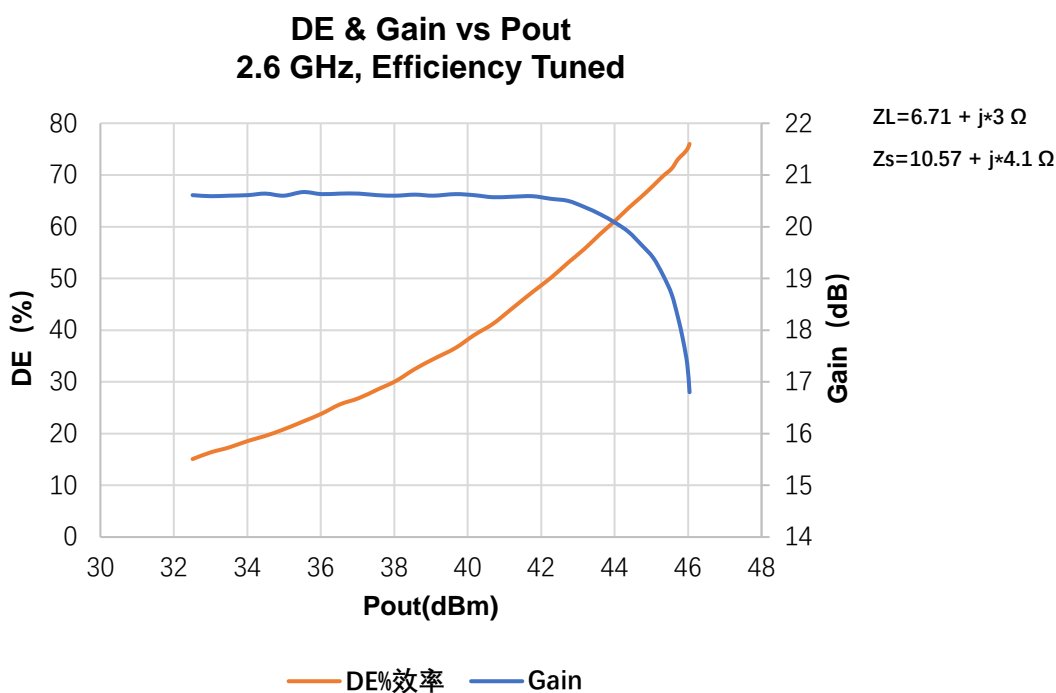
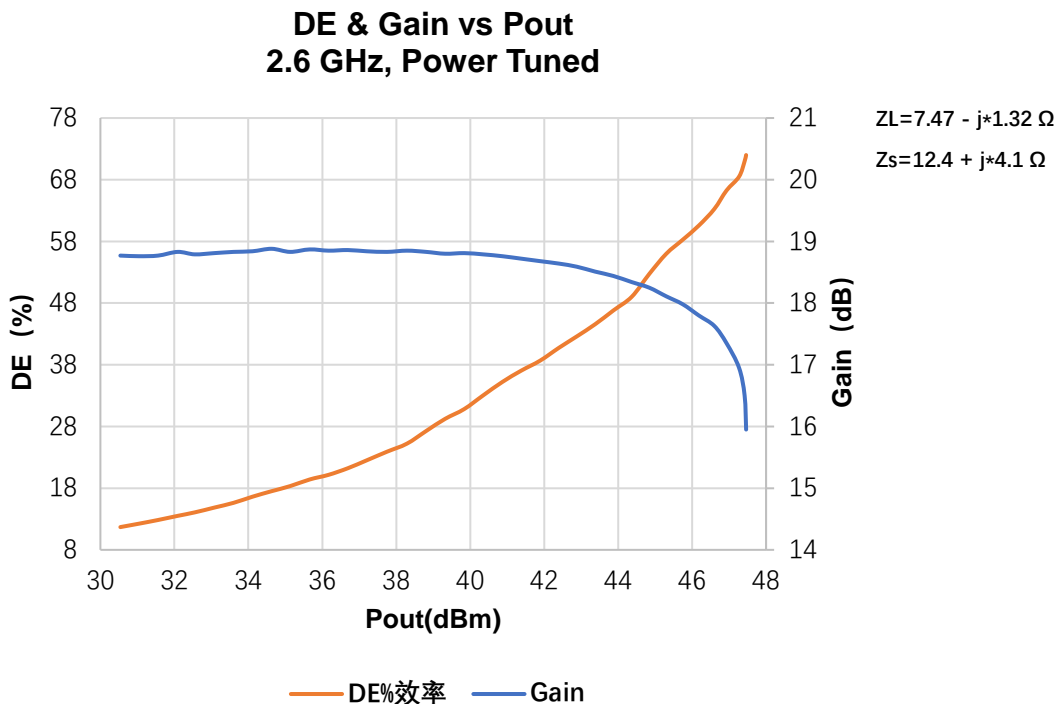
50W, 50V, DC-6GHz GaN RF Transistor



Typical Performance – Load-Pull Drive-up

Test conditions: $V_D = 50\text{ V}$, $I_{DQ} = 65\text{ mA}$, 100 us PW , 10% DC pulsed.

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

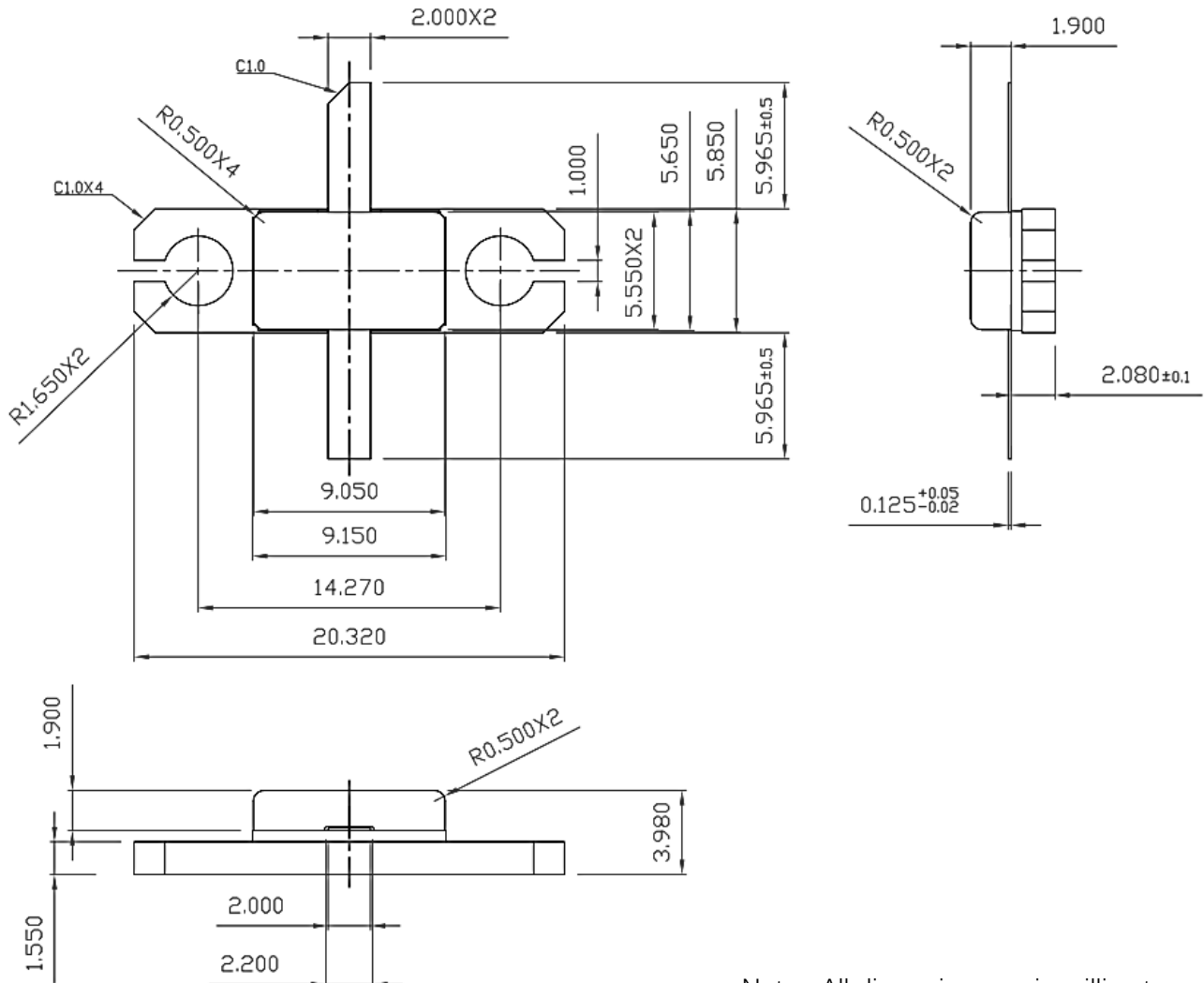


GHSD6P0050AT

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



Package outline



Notes: All dimensions are in millimeters.

技术要求:

1. 未注公差: ±0.13mm。

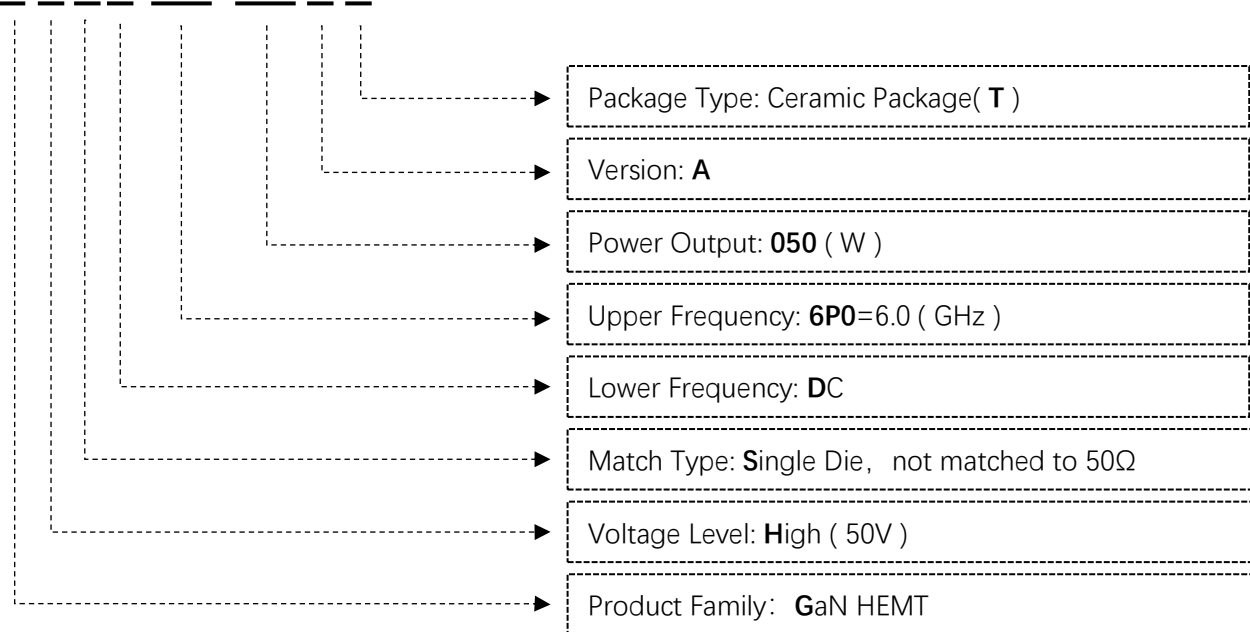
GHSD6P0050AT

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



Part Number System

GHSD6P0050AT



GHSD6P0050AT

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



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