

GHSD3P0100AT

100W, 50V, DC-3GHz GaN RF Transistor



Description

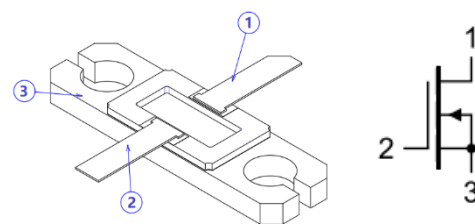
The GHSD3P0100AT is a typical 100W (P3dB) at +50 V transistor, discrete GaN on SiC HEMT. Ideal for applications in Base station, radar and remote radio heads in the frequency range from DC to 3G GHz. Available in ceramic outline.

Features

- Frequency: DC to 3 GHz
- Output Power(P3dB)¹: 100 W
- Linear Gain¹: 20.8 dB
- Typical DE(P3dB)¹: 73.5 %
- 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

- GHSD3P0100AT

GHSD3P0100AT

100W, 50V, DC-3GHz 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}	-	120	-	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	-	-	8.1
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.

GHSD3P0100AT

100W, 50V, DC-3GHz GaN RF Transistor



Pulsed Characterization – Load-Pull Performance – Power Tuned

Test conditions unless otherwise noted: $V_D = +50$ V, $I_{DQ} = 120$ mA, Temp = +25 °C.

Parameter	Typical Values	Units
Frequency	2.6	GHz
Linear Gain, G_{LIN}	19.6	dB
Output Power at 3dB compression point, P_{3dB}	50	dBm
Drain-Efficiency at 3dB compression point	69	%
Gain at 3dB compression point	16.6	dB

Pulsed Characterization – Load-Pull Performance – Efficiency Tuned

Test conditions unless otherwise noted: $V_D = +50$ V, $I_{DQ} = 120$ mA, Temp = +25 °C.

Parameter	Typical Values	Units
Frequency	2.6	GHz
Linear Gain, G_{LIN}	20.8	dB
Output Power at 3dB compression point, P_{3dB}	48.8	dBm
Drain-Efficiency at 3dB compression	73.5	%
Gain at 3dB compression point	17.8	dB

Thermal and Reliability Information – DC

Parameter	Conditions	Values	Units
Thermal Resistance, $IR(\theta_{JC})$	$T_c = 85^\circ\text{C}$, $P_{diss} = 43\text{W}$	3.8	$^\circ\text{C}/\text{W}$

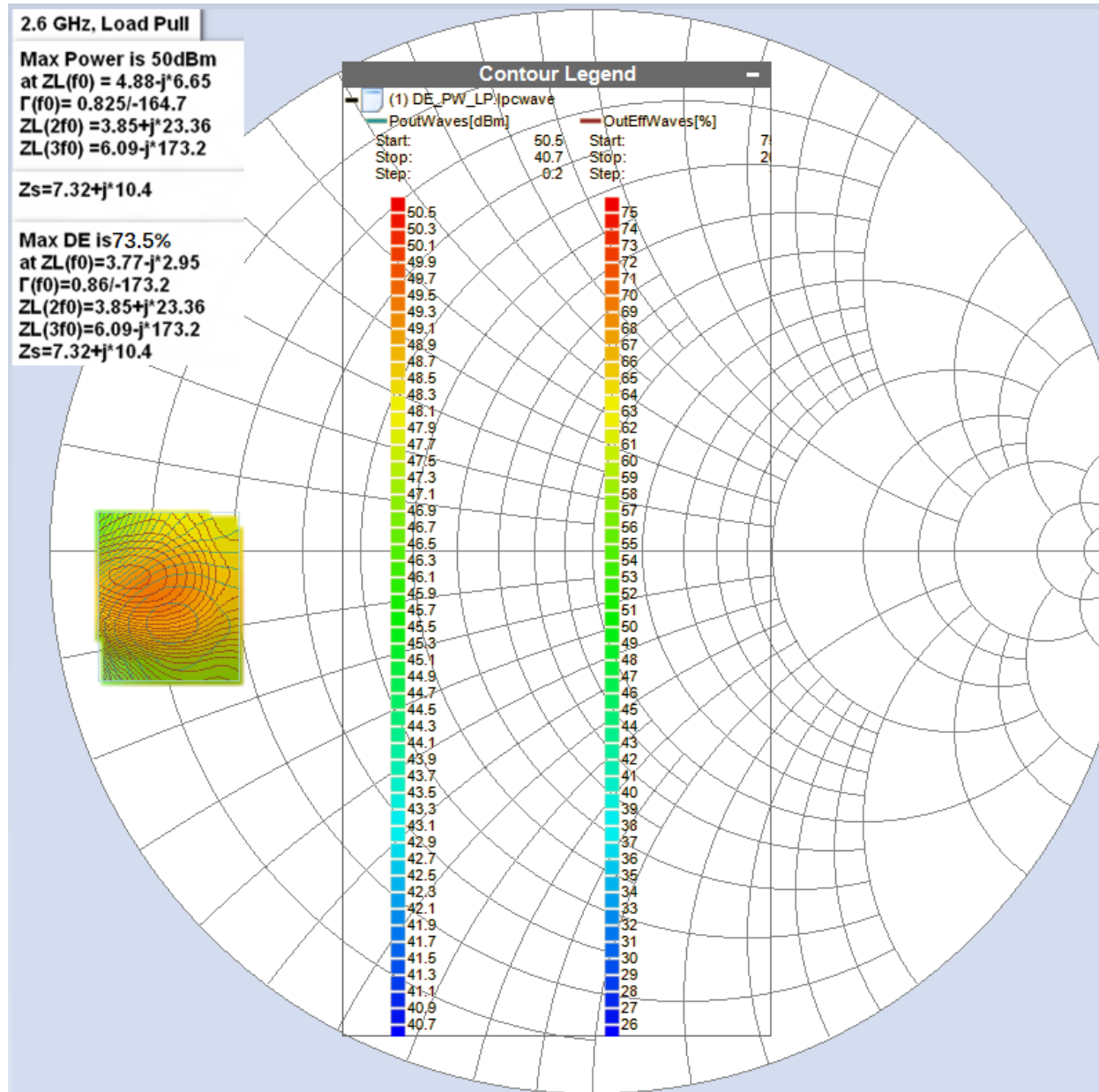
GHSD3P0100AT

100W, 50V, DC-3GHz GaN RF Transistor



Load-Pull Smith Charts

Test conditions: $V_D = 50\text{ V}$, $I_{DQ} = 120\text{ mA}$, 100 us PW , 10% DC pulsed. Performance is at 3dB gain compression referenced to peak gain.



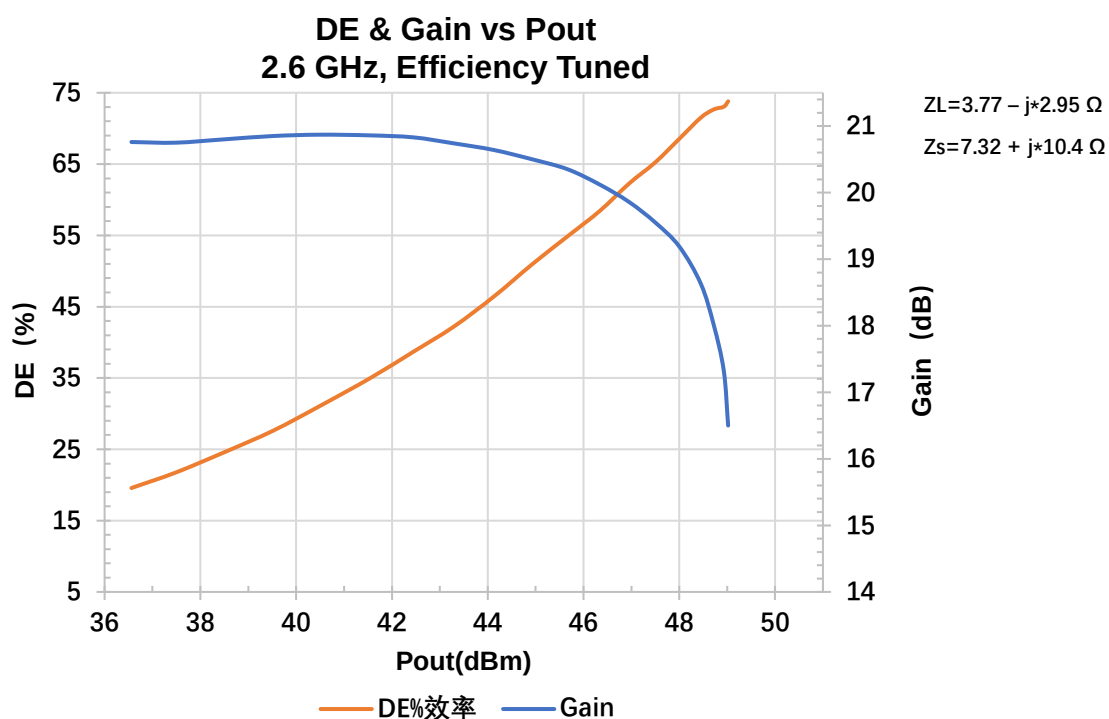
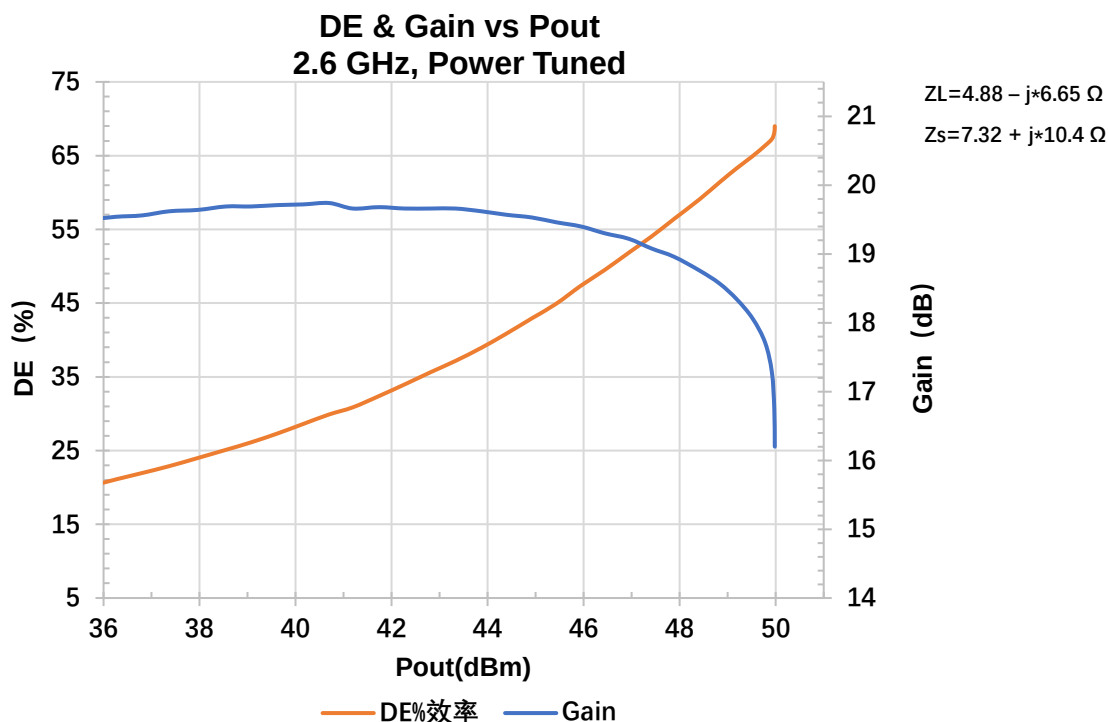
GHSD3P0100AT

100W, 50V, DC-3GHz GaN RF Transistor



Typical Performance – Load-Pull Drive-up

Test conditions: $V_D = 50\text{ V}$, $I_{DQ} = 120\text{ mA}$, $100\text{ }\mu\text{s PW}$, 10% DC pulsed. Performance is at 3dB gain compression referenced to peak gain.

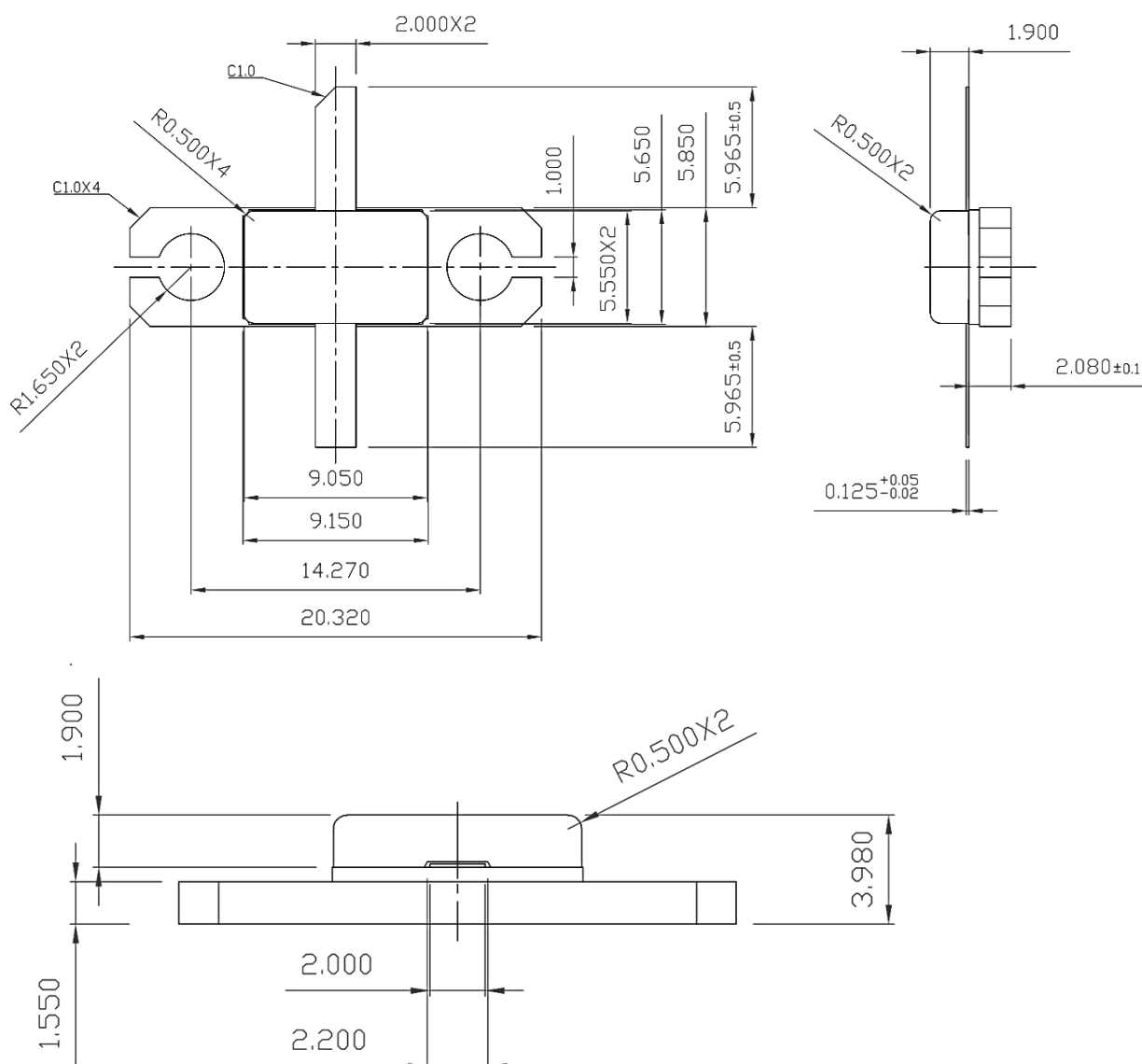


GHSD3P0100AT

100W, 50V, DC-3GHz GaN RF Transistor



Package outline



技术要求:

1. 未注公差: $\pm 0.13\text{mm}$ 。

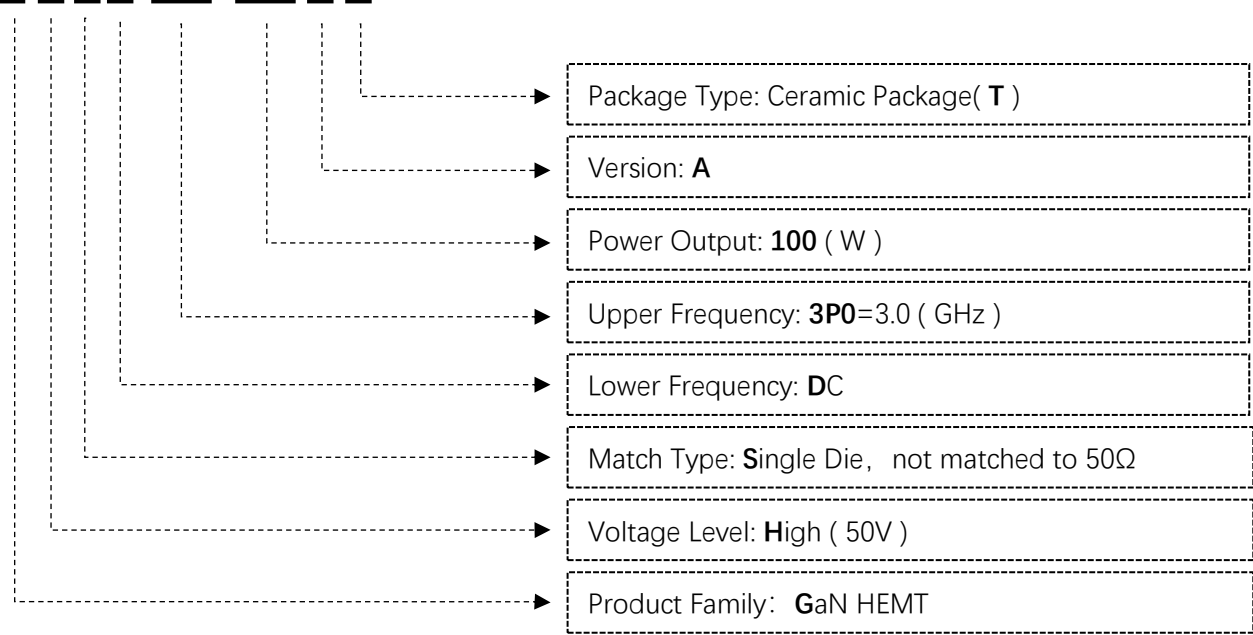
GHSD3P0100AT

100W, 50V, DC-3GHz GaN RF Transistor



Part Number System

G H S D 3 P 0 1 0 0 A T



GHSD3P0100AT

100W, 50V, DC-3GHz 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