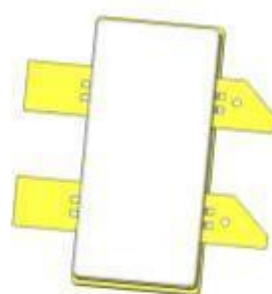


DC-1.2GHz, 250W, 28V, GaN RF Transistor

产品描述

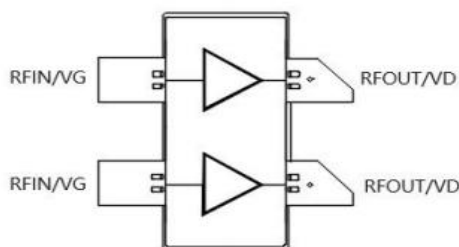
GNNT1254HP is a pre-matched gallium nitride (GaN) high electron mobility transistor (HEMT) , The device operates from DC to 1.2GHz with a 28V supply rail. Its typical saturated power is 250W@0.35GHz (Psat). The Psat gain is 18dB@0.35GHz above, and drain efficiency is 55% above. The device is in an industry standard YJ803 ceramic package.



Typical Application Data

- 0.30 GHz–0.45 GHz: Psat ≥ 53 dBm

Block Diagram



Recommended Operating Conditions

Parameter	Value
Drain-Source Voltage (V_D)	28 V (Typ)
Quiescent Current (I_{DQ})	250 mA (Typ)
Gate-Source Voltage (V_G)	-2.4 V (Typ)

Note:

- 1.All the RF spec tested under recommended conditions.
- 2.Bias-up Procedure: Set V_G to the pinch-off (V_P) voltage, typically -5 V, then turn on V_D to nominal supply voltage (28V)
- 3.Bias-down Procedure : Turn off RF signal , then turn off V_D and wait 1 second to allow drain capacitor dissipation, turn off V_G .

Features

- Operating Frequencies: DC-1.2GHz
- Output Power (Psat): 250 W@0.4GHz
- Power Gain: 18dB@0.35GHz
- DE@Psat: 56%@0.3GHz
- Operating Voltage: 28 V
- Support CW & Pulse mode

Absolute Maximum Ratings

Note:

1. Operating outside the rated range may cause irreversible damage to the device

Parameter	Range Value
Drain-Source Breakdown Voltage (BV_{DS})	120 V
Drain-Source Voltage Range, (V_D)	20 to 32 V
Gate-Source Voltage Range, (V_G)	-10 to +1 V
Operating Temperature Range	-40 to 125°C
Storage Temperature Range	-65 to 150°C
Maximum Input Power, CW (P_{in}), $T_A = 25^\circ\text{C}$	38dBm

RF Characteristics, 0.30GHz-0.45GHz EVB

Note:

1. Test condition: $T_A = 25^\circ\text{C}$, $V_D = 28\text{ V}$, $I_{DQ} = 250\text{ mA}$, CW

Symbol	Parameter	Min	Typ	Max	Unit
G_{LIN}	Linear Gain	-	21	-	dB
P_{sat}	Output Power	-	250	-	W
DE_{sat}	Drain Efficiency	-	60	-	%
G_{sat}	Gain	-	18	-	dB

Thermal Characteristics

Symbol	Parameter	Min	Typ	Max	Unit
$R_{\theta JC}$	Thermal Resistance	-	-	-	$^\circ\text{C/W}$

Test Data, 0.30GHz-0.45GHz EVB

Test Condition: $T_A = 25\text{ }^{\circ}\text{C}$, $V_D = 28\text{ V}$, $I_{BQ} = 250\text{ mA}$, CW

Freq(MHz)	Psat(dBm)	Psat(W)	Power Gain(dB)	I_D (A)	DE(%)
0.3	53.0	200	17.7	12.7	56.11
0.35	53.9	245	18.3	14.5	60.46
0.4	54.0	251	19.9	13.6	65.96
0.45	53.2	209	17.1	12.6	59.22

ESD Protection Characteristic

Test Methodology	Class	Standard
Human Body Model	$\pm 225\text{V}$	JEDEC Standard JS-001-2017
Charge Device Model	$\pm 1000\text{V}$	JEDEC Standard JS-002-2018

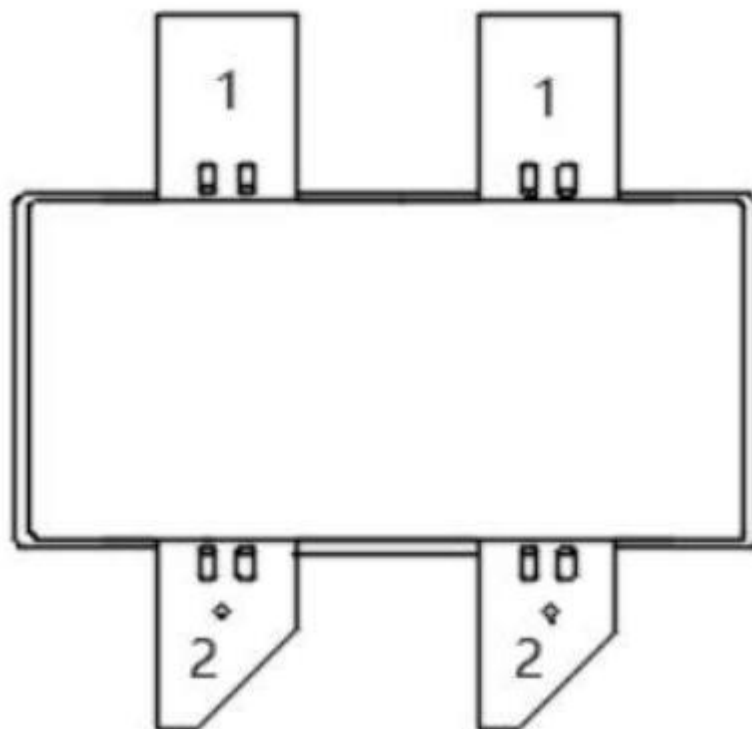
Solderability

This package is lead-free/RoHS-compliant. The plating material on the leads is NiAu. It is compatible with both lead-free (maximum 260 °C reflow temperature) and tin-lead (maximum 245°C reflow temperature) soldering processes.

RoHS Compliance

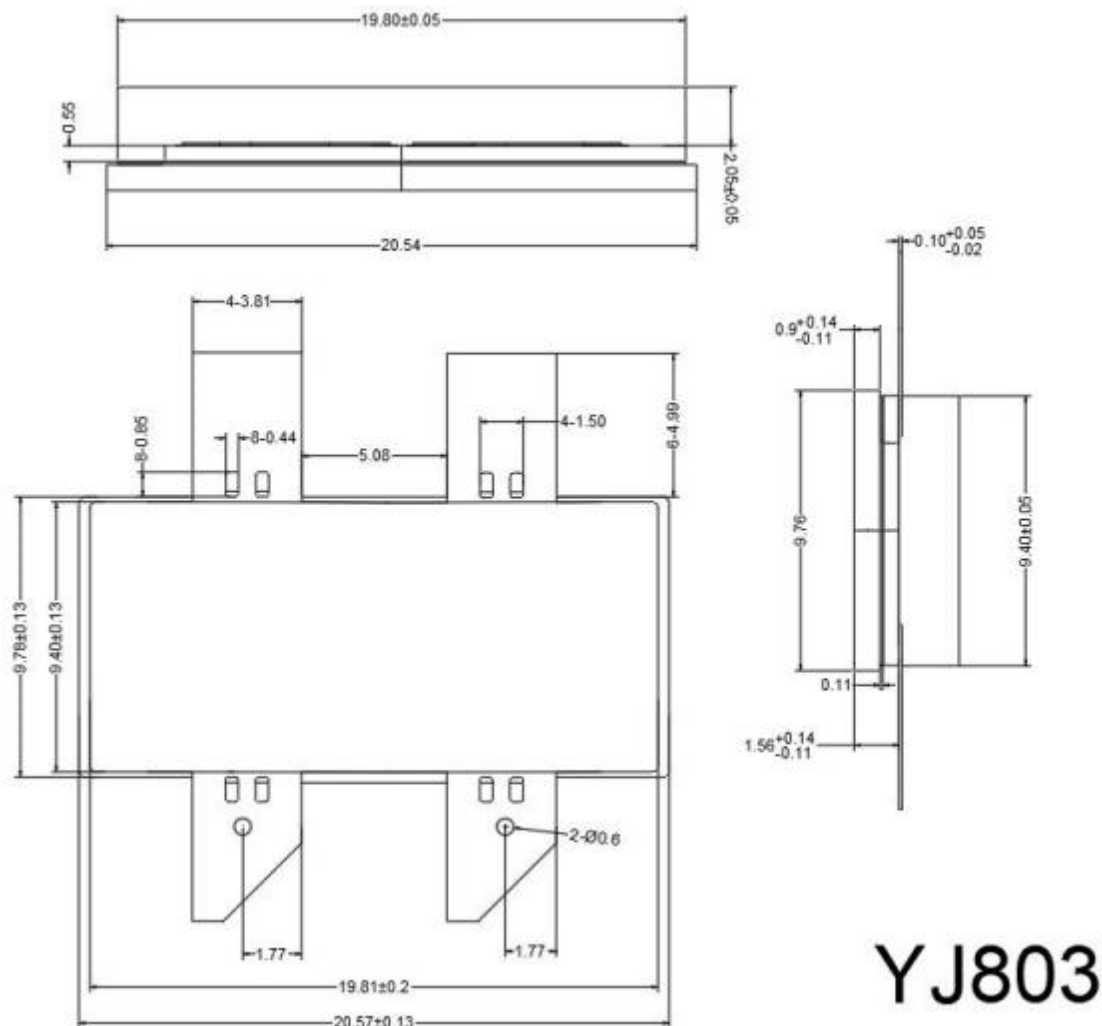
This part is compliant with 2015/863/ and EU 2011/65/EC RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

Pin Configuration



PIN	Symbol	Description
1	V_G / RF IN	Gate voltage / RF Input to be matched to 50 ohms;
2	V_D / RF OUT	Drain voltage / RF Output to be matched to 50 ohms
--	Source	Source connected to ground, It needs to be welded onto the substrate under the window of PCB

Mechanical Information



Note:

1. All dimensions are in millimeters.
2. All dimension tolerances are ± 0.10 or ± 0.20 mm.

Revision History

Data	Revision	Datasheet Status
2025/10/14	1.0	Preliminary Datasheet