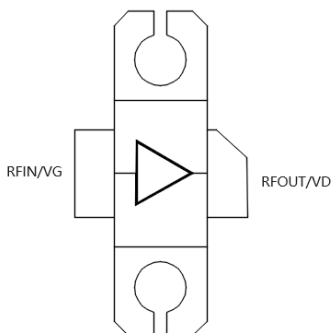
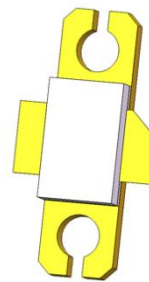


DC-3.1GHz, 50W, 28V, GaN RF Transistor

General Description

GNNT3148H is a wideband pre-matched gallium nitride (GaN) high electron mobility transistor (HEMT) , The device operates DC to 3.1GHz with a 28V supply rail. Its typical saturated power is 72.4W@2.4GHz (P_{sat}). The P_{sat} gain is 13dB@5.9GHz above, and drain efficiency is 58% above. The device is in an industry standard YJ201 ceramic package.



Features

- Operating Frequencies: DC-3.1GHz
- Output Power (P_{sat}):72.4 W@2.4GHz
- Power Gain: 13.4dB@2.4GHz
- DE@P_{sat}: 58%@2.4GHz
- Operating Voltage: 28 V
- Support CW & Pulse mode

Typical Application Data

- 2.1GHz-2.7GHz: P_{sat} ≥ 48dBm

Recommended Operating Conditions

Parameter	Value
Drain-Source Voltage (V _D)	28 V (Typ)
Quiescent Current (I _{DQ})	100 mA (Typ)
Gate-Source Voltage(V _G)	-2.17 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.

Absolute Maximum Ratings

Note:

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

参数	值
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}), $T_A = 25^\circ\text{C}$	40 dBm

RF Characteristics, 2.1GHz-2.7GHz EVB

Note:

1. Test condition: $T_A = 25^\circ\text{C}$, $V_D = 28\text{V}$, $I_{DQ} = 100\text{ mA}$, CW

Symbol	Parameter	Min	Typ	Max	Unit
G_{LIN}	Linear Gain	-	15	-	dB
P_{sat}	Output Power	-	67	-	W
DE_{sat}	Drain Efficiency	-	50	-	%
G_{sat}	Gain	-	13	-	dB

Thermal Characteristics

Symbol	Parameter	Min	Typ	Max	Unit
$R_{\theta JC}$	Thermal Resistance	-	1.8	-	$^\circ\text{C/W}$

Test Data, 2.1GHz-2.7GHz EVB

Note:

1.Test Condition: TA = 25 °C, VD =28 V, IDQ = 100 mA, CW

Freq(MHz))	Psat(dBm)	Psa			DE(%)
2.1	48.3	67.6	13.5	4.64	52.0%
2.2	48.5	70.8	13.5	4.48	56.4%
2.3	48.1	64.6	13	4.5	51.2%
2.4	48.6	72.4	13.4	4.45	58.1%
2.5	48.7	74.1	13.2	4.12	64.3%
2.6	48.3	67.6	13.2	3.9	61.9%
2.7	48.3	67.6	13	3.55	68.0%

ESD Protection Characteristics

Test Methodology	等级	标准
Human Body Model	±225V	JEDEC Standard JS-001-2017
Charge Device Mode	±1000V	JEDEC Standard JS-002-2018

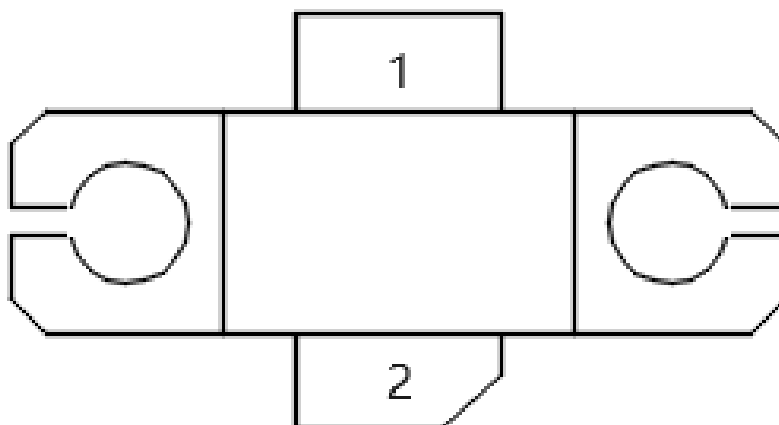
Solderability

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

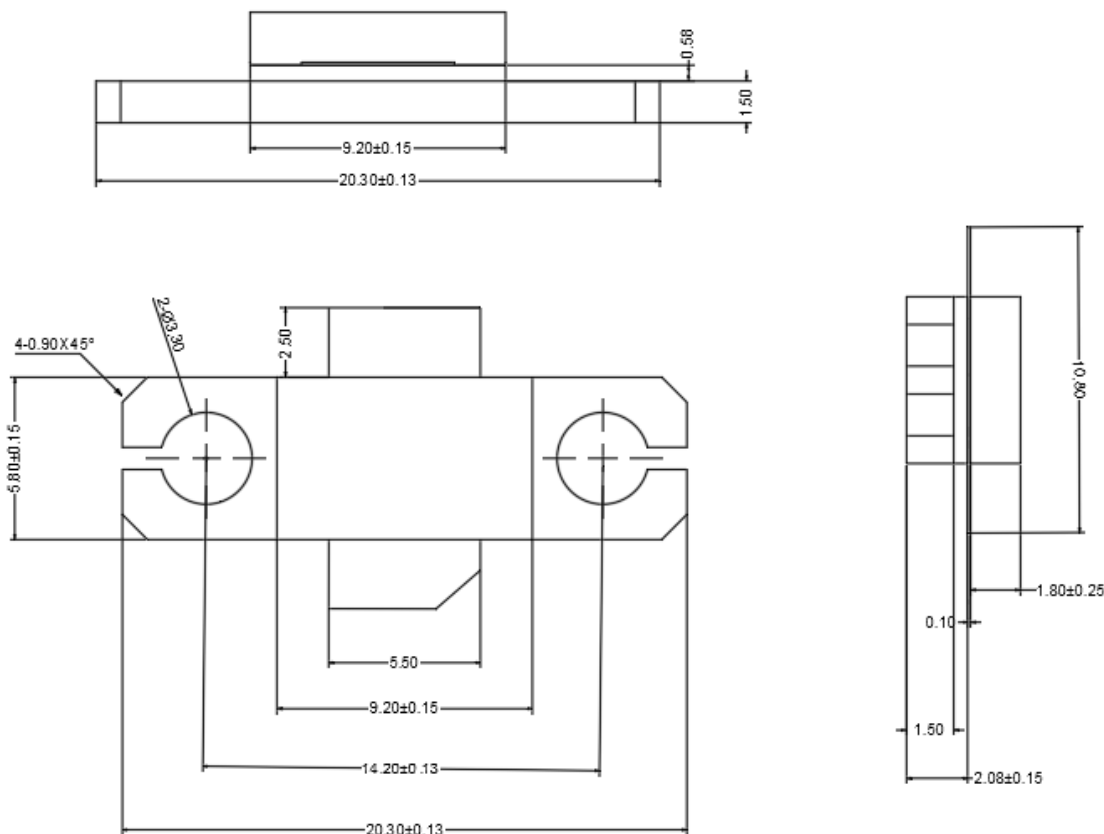
This part is compliant with 2015/863/ and EU 2011/65/EC RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

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



YJ201

Note:

1. All dimensions are in millimeters.
2. All dimension tolerances are +/- 0.10 or +/- 0.20 mm.

Revision History

Data	Revision	Datasheet Status
2026/4/5	1.0	Preliminary Datasheet