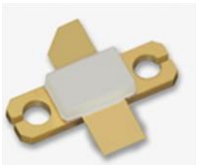
GaN 28V, 70W, C band RF Power Transistor

XTAH62071GX



Description

The XTAH62071GX is a 70W internally matched, GaN HEMT, designed for RF CW or pulse applications within low end of C band. In typical broadband application within 4.0-6.2GHz, it can deliver >50W CW across the full band

There is no guarantee of performance when it is used in applications designed outside of these frequencies.

V_{DS}= 28V，I_{DQ}=10mA，V_{GS} =-2.44V

FREQ (MHZ)	P1dB (dBm)	P1dB (W)	P1dB Eff (%)	P1dB Gain (dB)	P3dB (dBm)	P3dB (W)	P3dB Eff (%)
4000	46.11	40.9	54.6	10.79	47.35	54.3	59.6
4200	46.87	48.6	56.6	10.96	48.04	63.7	59.7
4400	47.21	52.6	60.1	10.94	48.35	68.4	63.4
4600	46.96	49.7	57.8	10.65	48.16	65.5	61.5
4800	46.76	47.4	57.3	10.8	47.98	62.9	61.0
5000	46.59	45.6	54.5	10.9	47.87	61.2	58.0
5200	46.38	43.5	50.6	11.36	47.7	58.9	53.8
5400	46.31	42.8	47.8	11.53	47.77	59.9	51.7
5600	46.4	43.7	46.6	11.36	48.04	63.7	51.4
5800	46.78	47.7	47.4	10.9	48.42	69.5	52.5
6000	46.5	44.7	48.3	10.38	48.1	64.6	53.0
6300	45.51	35.6	45.8	9.85	47.16	52.1	50.1

Applications and Features

- Suitable for wireless communication infrastructure, wideband amplifier, EMC testing, ISM etc.
- High Efficiency and Linear Gain Operations
- Thermally Enhanced Industry Standard Package
- High Reliability Metallization Process
- Excellent thermal Stability and Excellent Ruggedness
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

Important Note: Proper Biasing Sequence for GaN HEMT Transistors

Turning the device ON

1. Set VGS to the pinch--off (VP) voltage, typically –5 V
2. Turn on VDS to nominal supply voltage (28V)
3. Increase VGS until IDS current is attained
4. Apply RF input power to desired level

Turning the device OFF

1. Turn RF power off
2. Reduce VGS down to VP, typically –5 V
3. Reduce VDS down to 0 V
4. Turn off VGS

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	150	Vdc
Gate--Source Voltage	V_{GS}	-10,+2	Vdc

Operating Voltage	V_{DD}	36	Vdc
Maximum Forward Gate Current @ TC = 25°C	Igmax	16.8	mA
Storage Temperature Range	Tstg	-65 to +150	°C
Case Operating Temperature	T_C	+150	°C
Operating Junction Temperature(See note 1)	T_J	+225	°C

Note: 1. Continuous operation at maximum junction temperature will affect MTTF
2.Bias Conditions should also satisfy the following expression: Pdiss < (Tj – Tc) / RJC and Tc = Tcase

Table 2. Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case T_C= 85°C, T_J=200°C, RF CW operation	RθJC	2.3	C/W

Table 3. Electrical Characteristics (T_C = 25℃ unless otherwise noted)

DC Characteristics

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{GS}=-8V; I_{DS}=16.8mA	V_{DSS}	150			V
Gate Threshold Voltage	V_{DS} = 28V, I_D =16.8mA	V_{GS}(th)	-4	-	-2	V
Gate Quiescent Voltage	V_{DS} =28V, I_{DS}=100mA, Measured in Functional Test	$V_{GS(Q)}$		-2.35		V

4000-6200MHz

Figure 2: Output of network analyzer S11, S21 Vgs=-2.4V, Vds=28V, Idq=200mA, input power=0dBm

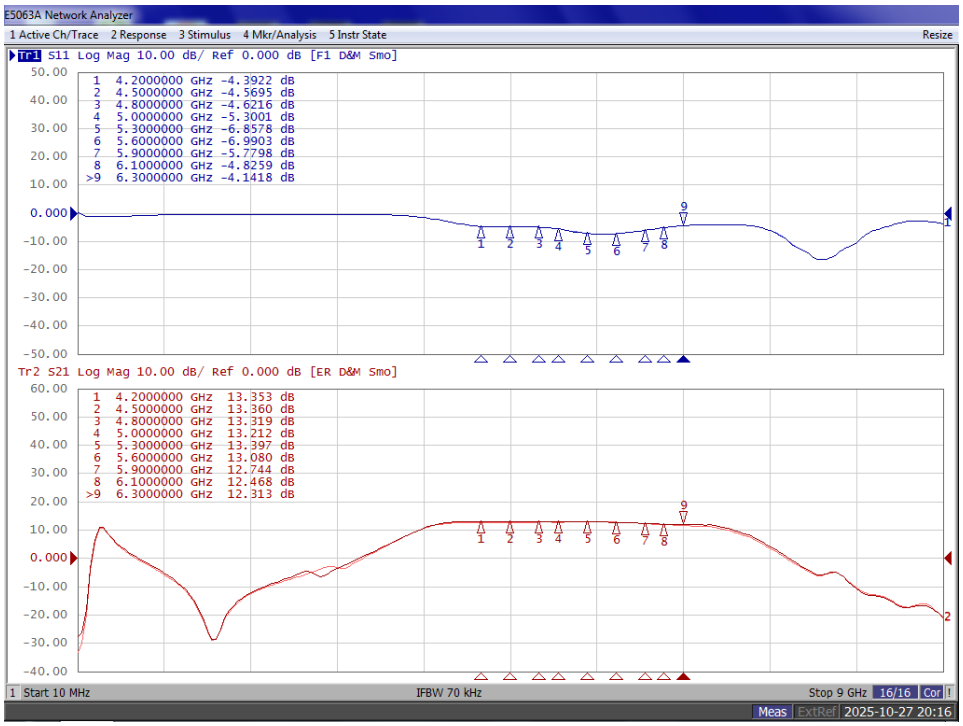
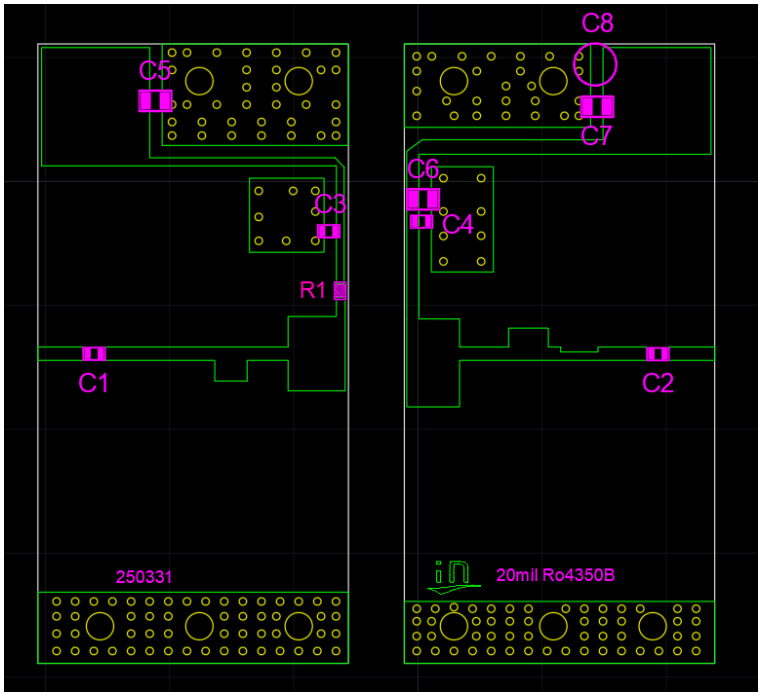
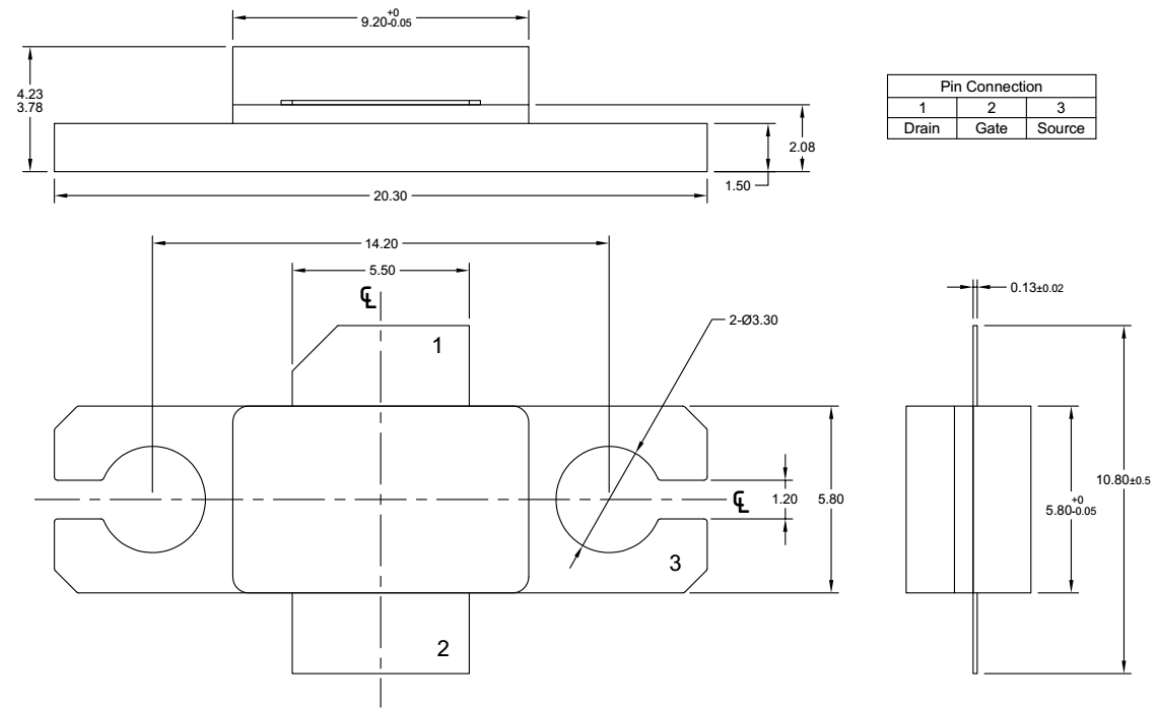


Figure 3: Layout info and bill of materials for 4-6.2GHz application circuit



Component	Description	Suggestion
U1	XTAH62071GX	1
C1、C2、C3、C4	3.9pF	4
C5、C6、C7	10uF/63V	3
C8	470uF/63V	1
R1	10Ω	1

Flanged ceramic package; 2 leads



OUTLINE VERSION	REFERENCE			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
PKG-GXB					10/10/2017

Figure 1. Package Outline PKG-G2E

Revision history

Table 4. Document revision history

Date	Revision	Datasheet Status
2025/10/28	V1.0	Preliminary Datasheet Creation

Application data based on ZYX-25-47

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