



GaN 80W,1-6GHz ,28V,RF Power Transistor

Description

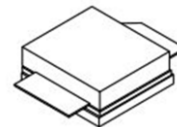
The XTAH60080AY2 is a 28V 70W device, both input and output matched GaN HEMT, ideal for multiple applications within 2 to 6.2GHz. It can support CW and pulse CW, and any other modulation signals

In its typical wideband application, it can deliver >50W Psat CW across the full band of 1 to 6GHz within 28V. When operated at 32V, it can deliver >60W Psat CW across the full band of 1 to 6GHz

There is no guarantee of performance when this part is used outside of stated frequencies.

- Typical performance across 1-6GHz class AB application circuit with device soldered

XTAH60080AY2



V_{ds}= 28V, V_{gs}=-2.30V,I_{dq}=150mA							
CW Power							
Freq(MHz)	P-1(dBm)	P-1Gain(dB)	P-3(dBm)	P-3(W)	EFF(%)	H2(dBc)	H3(dBc)
1000	45.00	10.7	47.43	55	35.3	-9.0	-15.1
1200	46.91	11.0	49.13	82	48.5	-14.4	-19.8
1400	47.81	11.1	49.66	92	57.1	-13.6	-24.9
1600	47.16	9.2	49.10	81	57.0	-14.0	-22.2
1800	47.07	8.9	49.22	84	53.4	-14.3	-19.2
2000	46.89	9.1	49.00	79	47.1		
2200	46.33	9.2	48.47	70	41.9		
2400	46.02	9.5	48.44	70	36.1		
2600	45.80	9.7	48.62	73	34.0		
2800	46.28	10.5	49.04	80	37.2		
3000	46.72	10.5	49.74	94	36.9		
3200	47.58	10.6	50.31	107	43.4		
3400	47.92	11.0	50.55	114	48.7		
3600	47.86	10.5	50.63	116	53.4		
3800	47.67	9.8	50.28	107	53.9		
4000	47.37	8.5	49.89	98	49.9		
4200	46.64	8.2	49.47	89	42.3		
4400	46.24	8.5	49.20	83	39.9		
4600	46.19	9.2	49.31	85	37.4		
4800	46.97	10.9	49.88	97	42.1	--	--
5000	47.33	11.9	50.31	107	49.5	--	--
5200	46.90	10.7	49.72	94	45.7	--	--
5400	46.61	9.2	49.46	88	41.4	--	--
5600	46.07	10.0	49.38	87	39.1	--	--
5800	46.19	10.9	49.57	91	40.7	--	--
6000	45.95	9.2	49.03	80	42.3	--	--

Applications

- L, S and C band power amplifier
- 5G wideband power amplifier



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
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_{DS}	+150	Vdc
Gate--Source Voltage	V_{GS}	-10 to +2	Vdc
Operating Voltage	V_{DD}	36	Vdc
Maximum gate current	I_{gs}	21.8	mA
Storage Temperature Range	T_{stg}	-65 to +150	°C
Case Operating Temperature	T_C	+150	°C
Operating Junction Temperature	T_J	+225	°C

Table 2. Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case by FEA $T_C = 25^\circ\text{C}$, at $P_{out}=80\text{W}$ CW at 4GHz	$R_{\theta JC}$	1.2	°C /W

Table 3. Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

DC Characteristics (measured on wafer prior to packaging)

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=-8\text{V}$; $I_{DS}=21.8\text{mA}$	V_{DSS}		150		V
Gate Threshold Voltage	$V_{DS}=10\text{V}$, $I_D=2189\text{mA}$	$V_{GS(th)}$	-4		-2	V
Gate Quiescent Voltage	$V_{DS}=28\text{V}$, $I_{DS}=150\text{mA}$, Measured in Functional Test	$V_{GS(Q)}$		-2.3		V

Ruggedness Characteristics

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Load mismatch capability	4GHz, $P_{out}=80\text{W}$ Pulsed CW All phase, No device damages	VSWR		10:1		



Typical performance
1000-6000MHz

Figure 3: Picture of application board ,class AB

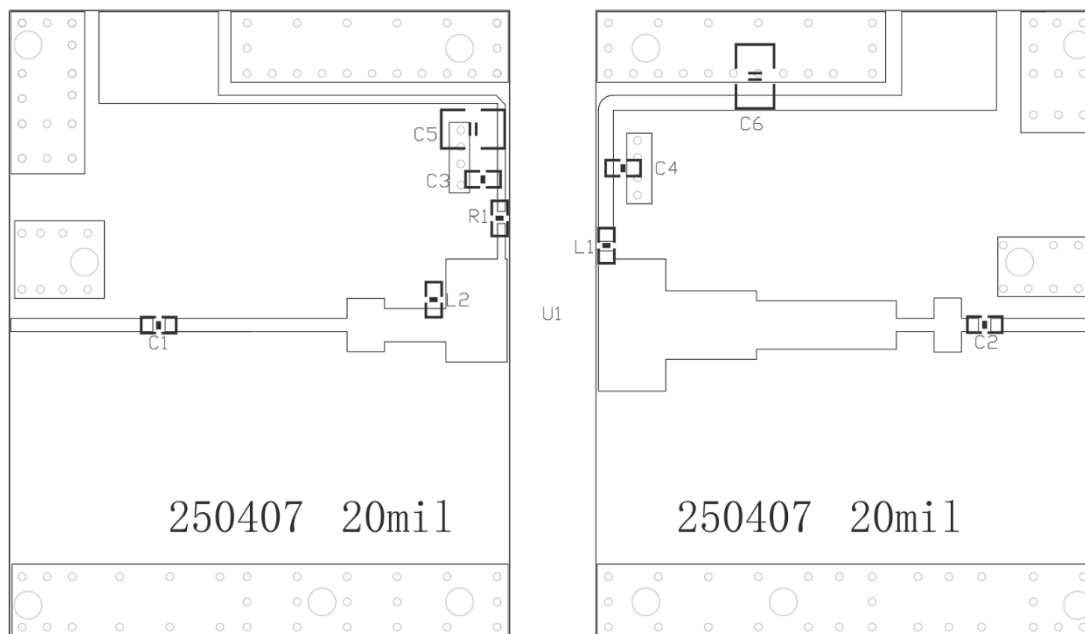


Table 4. Bill of materials of application board (PCB layout upon request)

Component	Value	Description
U1	XTAH60080AY2	PA
C1	5.1pF	0603
C2	3.9pF	0603
C3	10pF	0603
C4	100pF	0603
C5、C6	10uF	1206
R1	10 Ω	0603
L1	2 圈 Φ 1mm	线径 0.5mm



Typical performance

Figure 4: Network analyzer output S11/S21

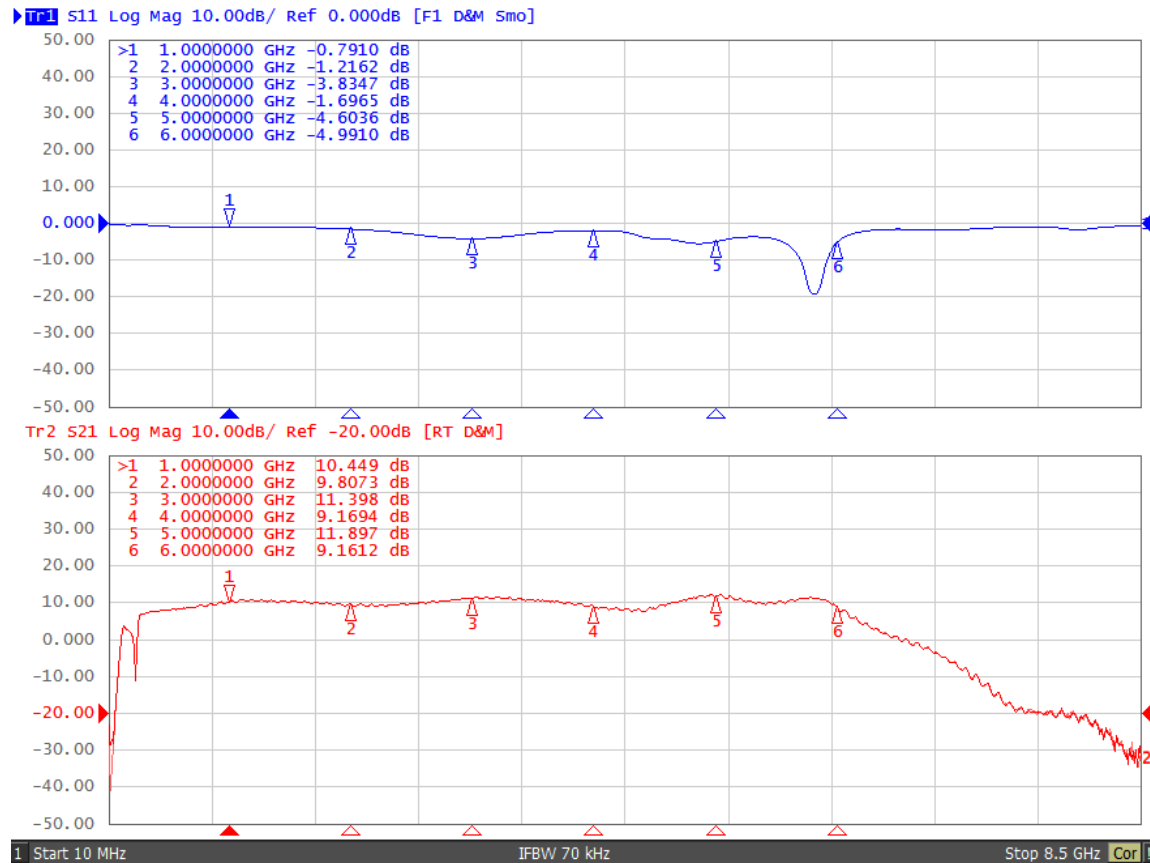
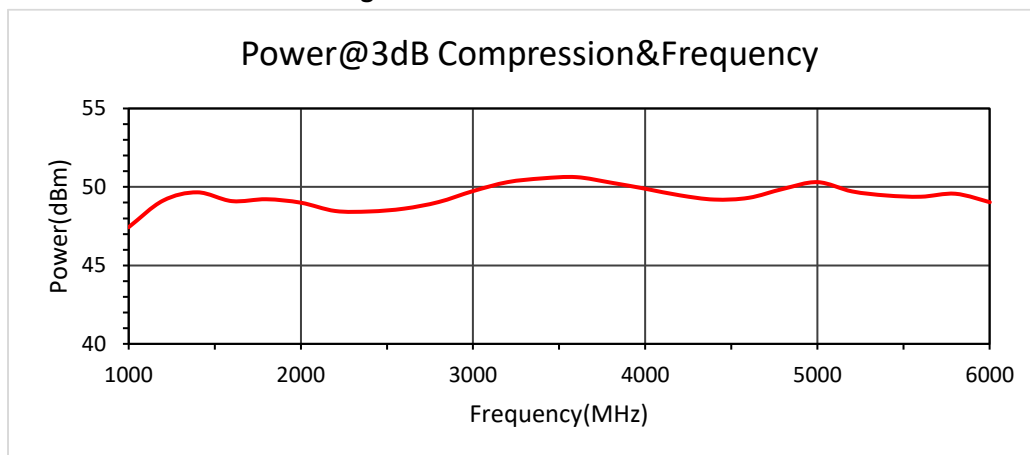
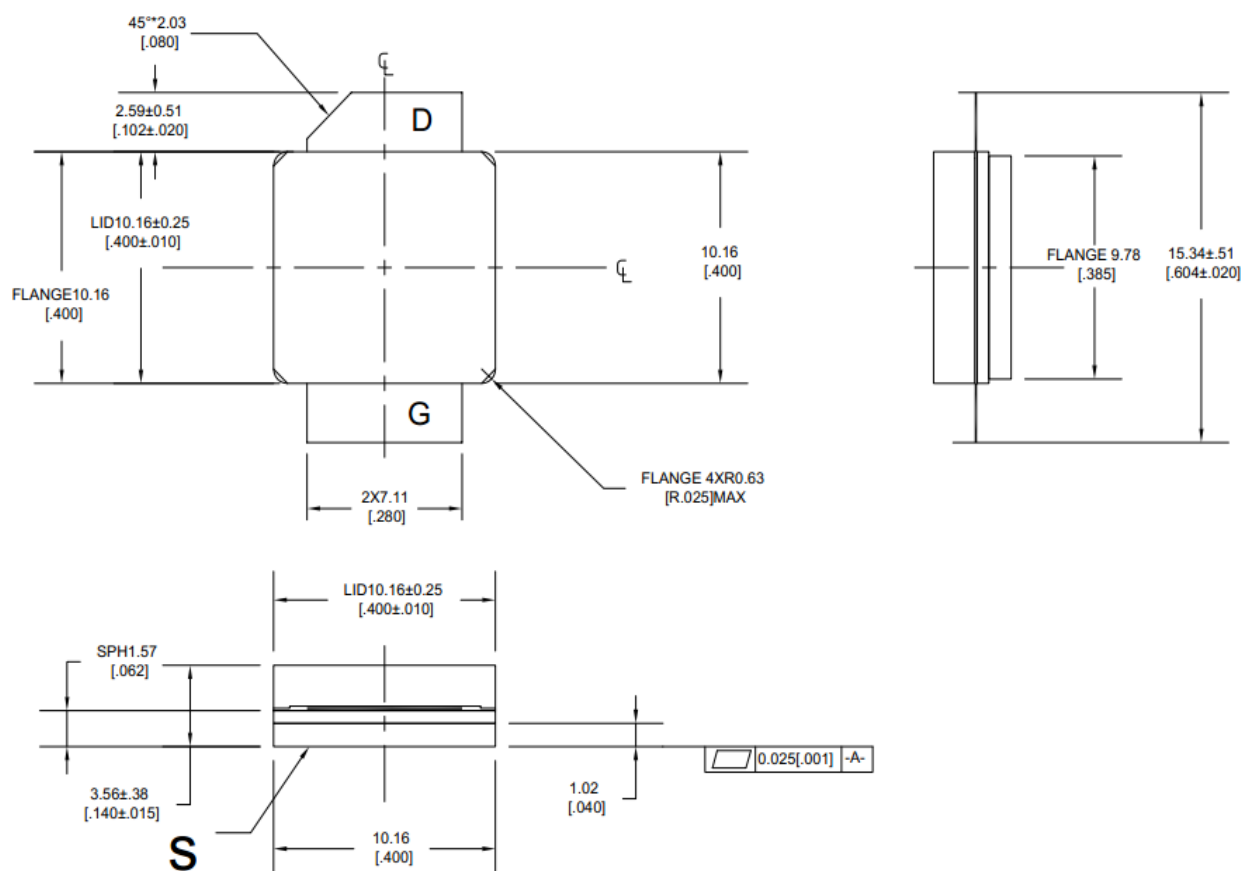


Figure 4: Psat across the 1-6GHz





Package Outline



Unit: mm [inch]

Tolerance .xx +/- 0.01 .xxx +/- 0.005 inches

Revision history

Table 4. Document revision history

Date	Revision	Datasheet Status
2026/7/22	V1.0	Preliminary Datasheet Creation

Application data based on: HJ-26-05

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