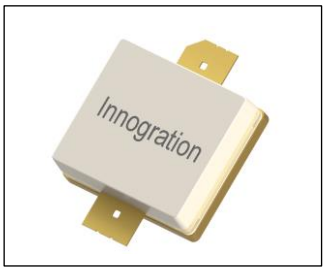
GaN HEMT 28V, 60W, General purpose RF Power Transistor



Description

The XTAH15060A2C is a 60W GaN HEMT, designed for multiple applications, up to 1.5GHz.

It can be used in CW, Pulse and any other modulation modes.

There is no guarantee of performance when this part is used in applications designed Outside of these frequencies.

- Typical Class AB RF Performance with device soldered on heatsink in different bands
  Vds = 28V, Idq = 100mA

Freq (MHz)	Psat (W)	Power Gain (dB)	Eff (%)
1500	70	17	75
100-200	50-65	17.5-18.5	>65%
100-1000	33-65	16-19	>50%

Applications

- P band power amplifier
- L band power amplifier
- ISM/RF Energy power amplifier at 1.3GHz,915MHz,433MHz etc

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_{DSS}	+150	Vdc
Gate--Source Voltage	V_{GS}	-8 to +0.5	Vdc
Operating Voltage	V_{DD}	36	Vdc
Maximum gate current	Igs	13.6	mA
Storage Temperature Range	Tstg	-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= 85°C, at Pdiss=20W	RθJC	3.1	°C /W

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

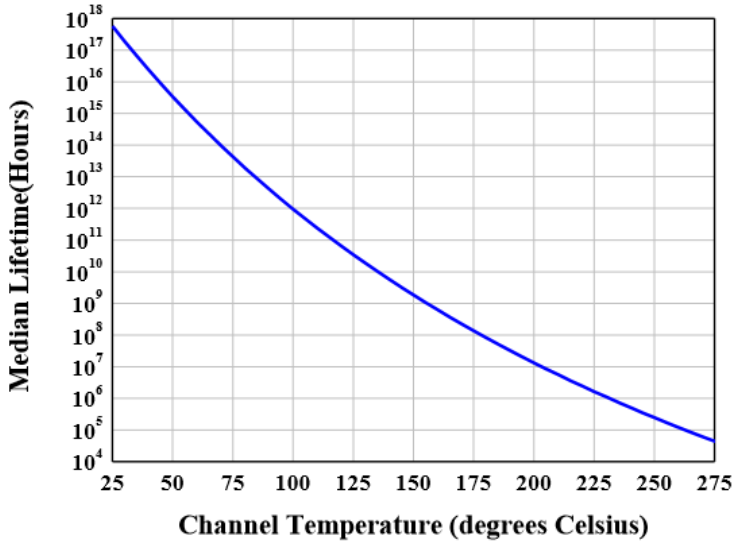
DC Characteristics (main path, measured on wafer prior to packaging)

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	VGS=-8V; IDS=13.6mA	V_{DSS}		200		V
Gate Threshold Voltage	VDS =10V, ID = 13.6mA	$V_{GS(th)}$	-4		-2	V
Gate Quiescent Voltage	VDS =28V, IDS=100mA, Measured in Functional Test	$V_{GS(Q)}$		-2.4		V

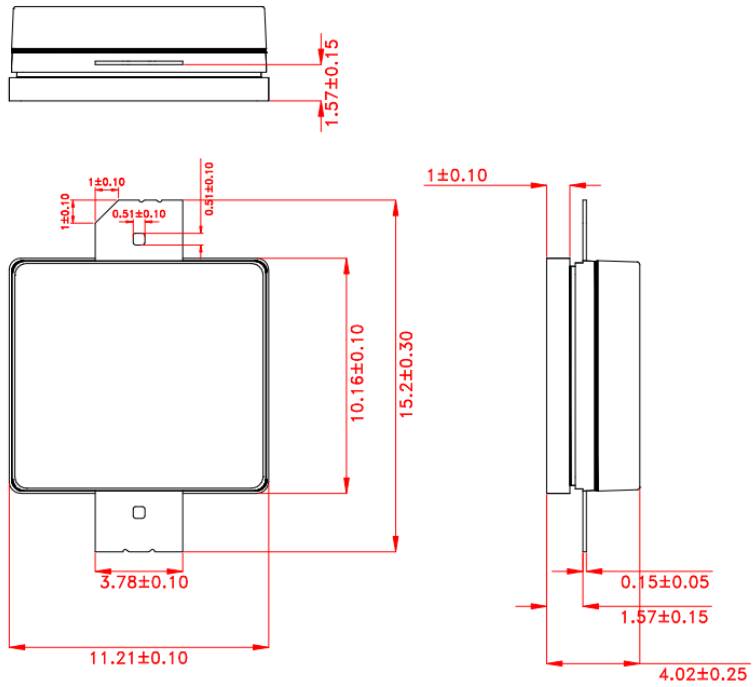
Ruggedness Characteristics

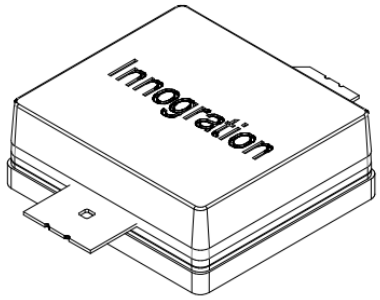
Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Load mismatch capability	1.5GHz, Pout=60W Pulsed CW All phase, No device damages	VSWR		10:1		

Figure 2: Median Lifetime vs. Channel Temperature



Package Dimensions （Unit:mm）





Unit:mm

Tolerance ±0.10mm,Except as Noted.

Revision history

Table 4. Document revision history

Date	Revision	Datasheet Status
2024/12/30	**V1.0**	**Advanced Datasheet Creation**

Application data based on: HL-24-52/53

Notice

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