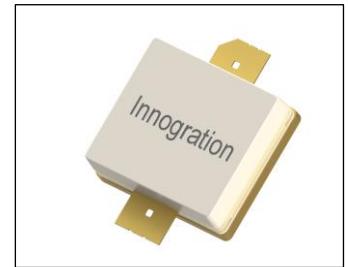




GaN 50V, 350W, 915MHz RF Power Transistor



Description

The XTAV10350A2C is a single ended 350 watt capable, GaN HEMT within UHF, ideal for ISM Applications at 915MHz. 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 RF performance at selected 915MHz applications with device soldered on heatsink

$V_{DD} = 50\text{Vdc}$, $V_{GS} = -3.1\text{V}$ CW

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff(%)	P1dB Gain(dB)	P3dB (dBm)	P3dB (W)	P3dB Eff(%)
900	55.33	341.3	74.0	21.2	56.06	403	80
915	54.65	291.7	72.7	21.1	55.67	369	81
930	53.68	233.4	68.2	20.8	55.24	334	80

Recommended driver: **ITGV22010P3 (50V LDMOS)**

Applications

- 915MHz RF Energy
- UHF PA
- P band PA

Important Note: Proper Biasing Sequence for GaN HEMT Transistors

Turning the device ON

- Set V_{GS} to the pinch-off (V_P) voltage, typically -5V
- Turn on V_{DS} to nominal supply voltage
- Increase V_{GS} until IDS current is attained
- Apply RF input power to desired level

Turning the device OFF

- Turn RF power off
- Reduce V_{GS} down to V_P , typically -5V
- Reduce V_{DS} down to 0V
- Turn off V_{GS}

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	+200	Vdc
Gate-Source Voltage	V_{GS}	-8 to +0.5	Vdc
Operating Voltage	V_{DD}	55	Vdc
Maximum gate current	I_{GS}	63	mA
Storage Temperature Range	T_{STG}	-65 to +150	$^{\circ}\text{C}$
Case Operating Temperature	T_c	+150	$^{\circ}\text{C}$
Operating Junction Temperature	T_j	+225	$^{\circ}\text{C}$

Table 2. Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case by FEA $T_c = 85^{\circ}\text{C}$, at $P_d = 120\text{W}$	$R_{\theta JC}$	0.8	$^{\circ}\text{C} / \text{W}$

Table 3. Electrical Characteristics (TA = 25°C unless otherwise noted)
DC Characteristics (measured on wafer prior to packaging)

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	VGS=-8V; IDS=63mA	V _{DSS}		200		V
Gate Threshold Voltage	VDS =10V, ID = 63mA	V _{GS(th)}	-4	-	-2	V
Gate Quiescent Voltage	VDS =50V, IDS=300mA, Measured in Functional Test	V _{GS(0)}		--3		V

Ruggedness Characteristics

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Load mismatch capability	915MHz, Pout=350W pulse CW All phase, No device damages	VSWR		10:1		

TYPICAL CHARACTERISTICS

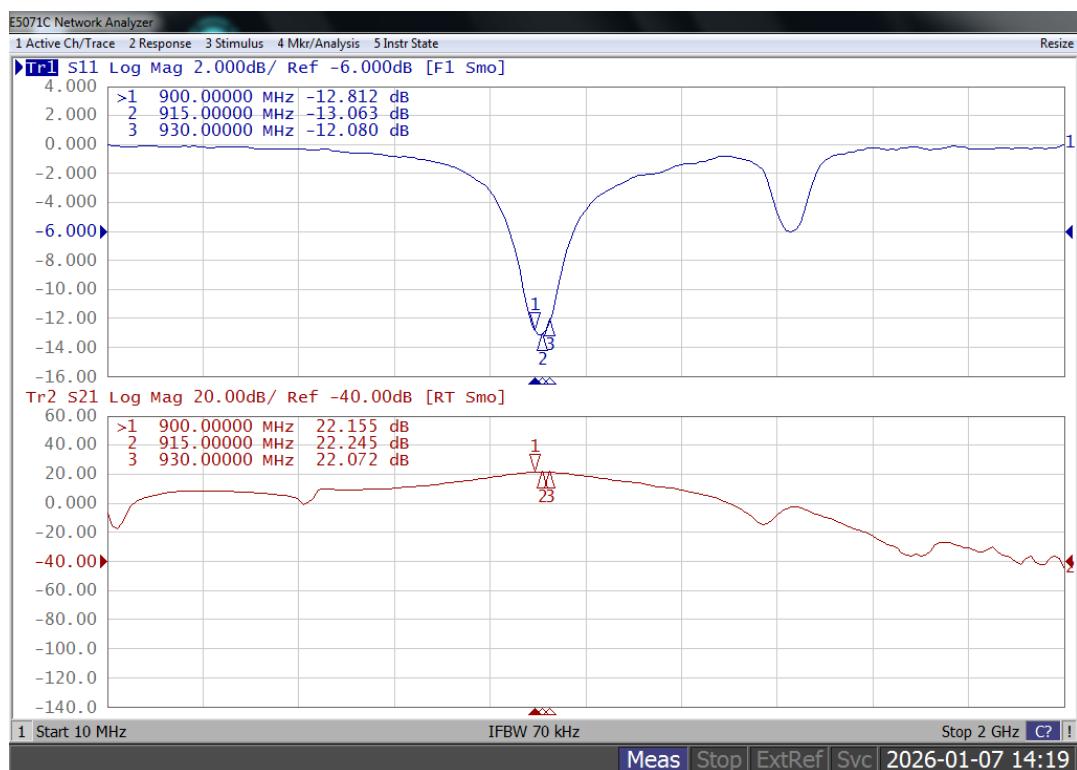
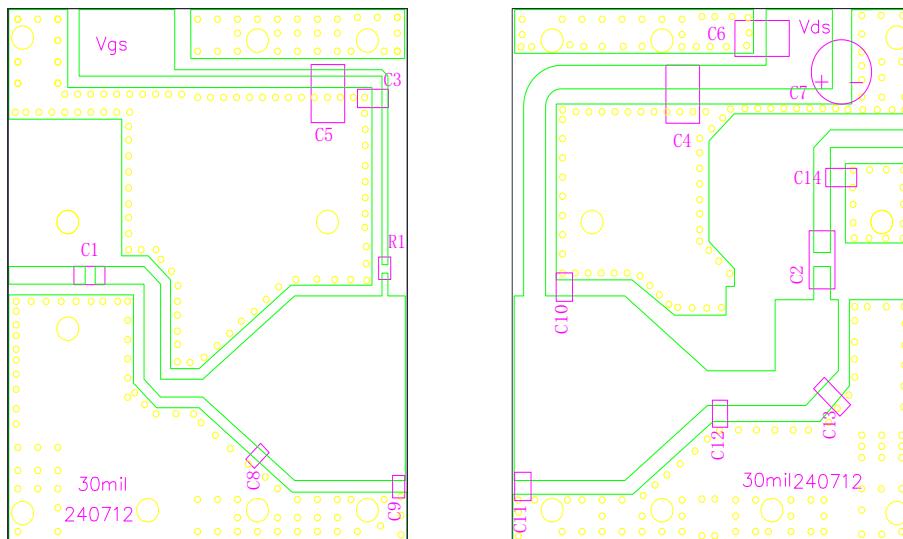
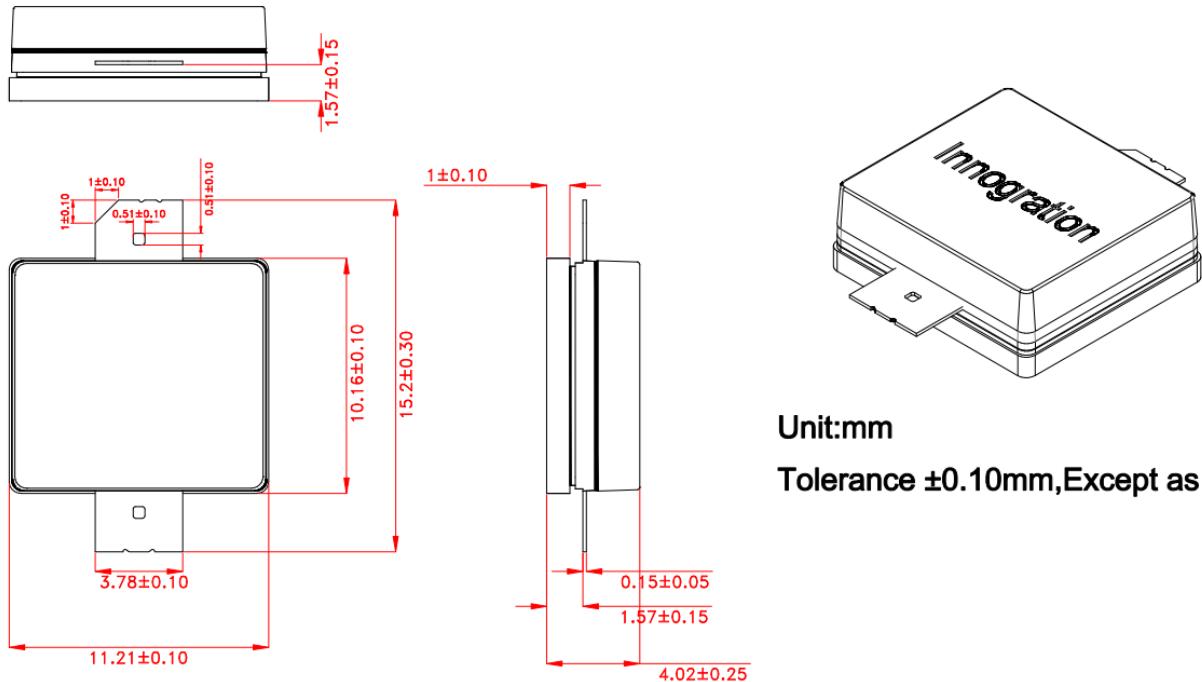
Figure 2: S11/S21 output from Network analyser


Figure 3: Reference design circuit (RO4350B 30mil, PCB DWG file upon request.)



Designator	Comment	Footprint	Quantity
C1, C8	6.8 pF	0603/0805	2
C2, C4,	47 pF	1210	2
C3	47 pF	0603/0805	1
C5, C6	10uF/100V	1210	2
C7	470uF/63V		1
C9	8.2 pF	0805	1
C10	3.0 pF	0805	1
C11, C12	3.3 pF	0805	2
C13	4.7 pF	0805	1
C14	1.0 pF	0805	1
R1	10 Ω	0603	1

Package Dimensions (Unit:mm)



Unit:mm

Tolerance $\pm 0.10\text{mm}$, Except as Noted.

Revision history

Table 1. Document revision history

Date	Revision	Datasheet Status
2026/1/7	Rev 1.0	Preliminary Datasheet

Application data based on LSM-26-02

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