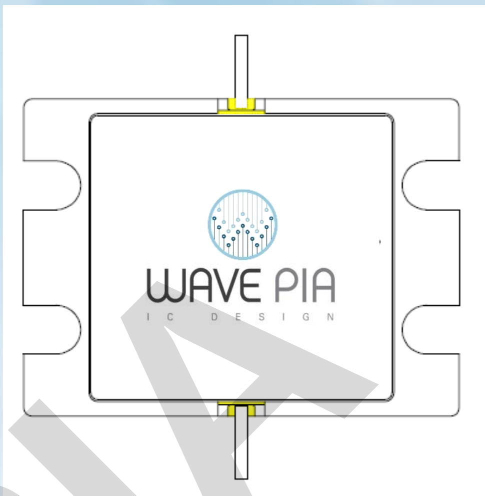
WP2816P0010MH
10W RF GaN Power Transistor

Product Features

- Up to 18 GHz Operation
- 9.7dB Small Signal Gain at 16.0 GHz
- 10 W Typical P_{sat} at 16GHz, VDD=32V
- 26.2 % Efficiency at P_{sat} at 16 GHz, VDD=32V
- 28~32 V Operation



Applications

- Broadband Amplifiers
- Satcom
- Test Instrumentation
- Radar application

Absolute Maximum Ratings

Parameter	Symbol	Rating	Units	Conditions
Drain-Source Voltage	V_{DSS}	160	Volts	25˚C
Gate-to-Source Voltage[3]	V_{GS}	-10, +2	Volts	25˚C
Storage Temperature[3]	T_{STG}	-65, +150	˚C	
Operating Junction Temperature[1,3]	T_J	225	˚C	
Maximum Forward Gate Current[3]	I_{GMAX}	30	mA	25˚C
Maximum Drain Current[2]	I_{DMAX}	1	A	Id@ Vd =10V, Vg= 1V
Soldering Temperature[3]	T_S	245	˚C	
Storage Temperature[3]	T_{STG}	-65, +150	˚C	

Note:
1. Continuous use at maximum temperature will affect MTTF.
2. Current limit for long term, reliable operation
3. After additional updates

DC Characteristics[1] (TC = 25˚C)

Parameter	Symbol	MIN	TYP	MAX	Units	Conditions
Gate Threshold Voltage	$V_{GS(th)}$		-3.1		V_{DC}	VDS = 10 V, ID = 1 mA
Gate Quiescent Voltage	$V_{GS(Q)}$		-2.2		V_{DC}	VDS = 28 V, ID = 300 mA
Saturated Drain Current[2]	I_{DS}		1000		mA/mm	VDS = 10 V, VGS = 1 V
Drain-Source Breakdown Voltage	V_{BR}	160			V_{DC}	ID = 1 mA/mm

Note:
1. Measured on wafer prior to packaging.
2. Scaled from PCM data.

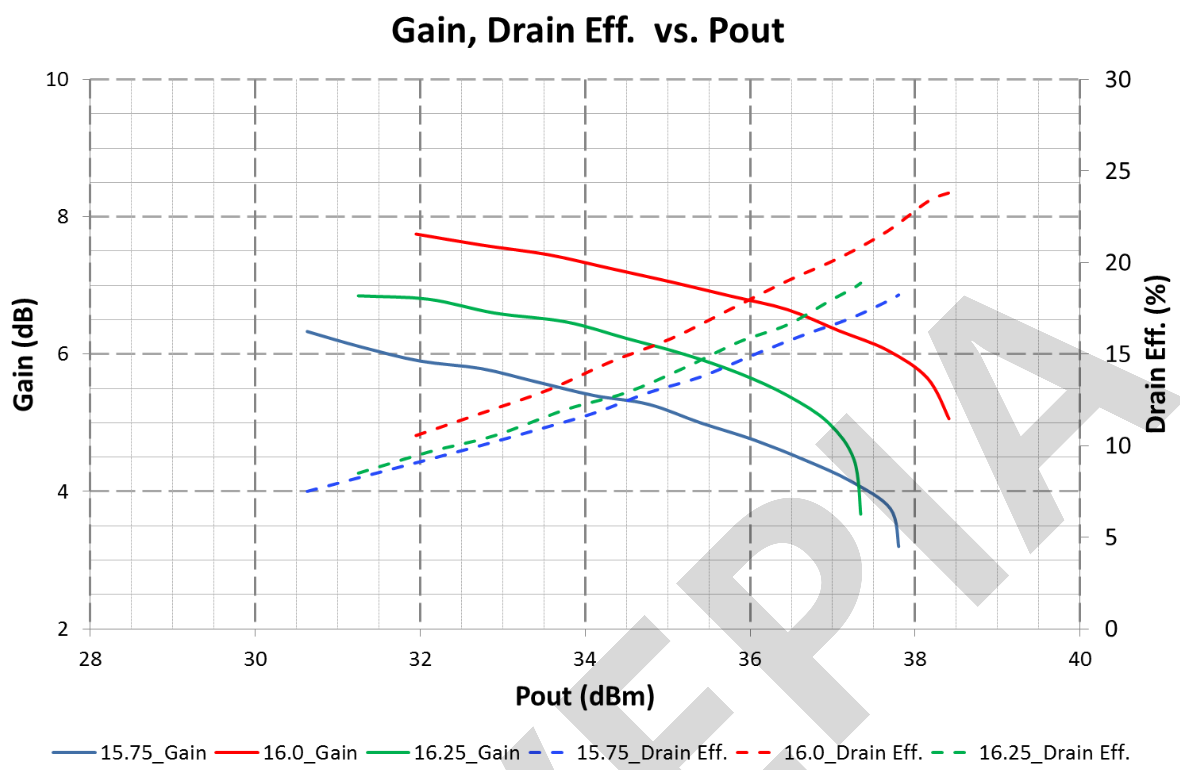
RF Characteristics (TC = 25˚C, F0 = 16.0 GHz unless otherwise noted)

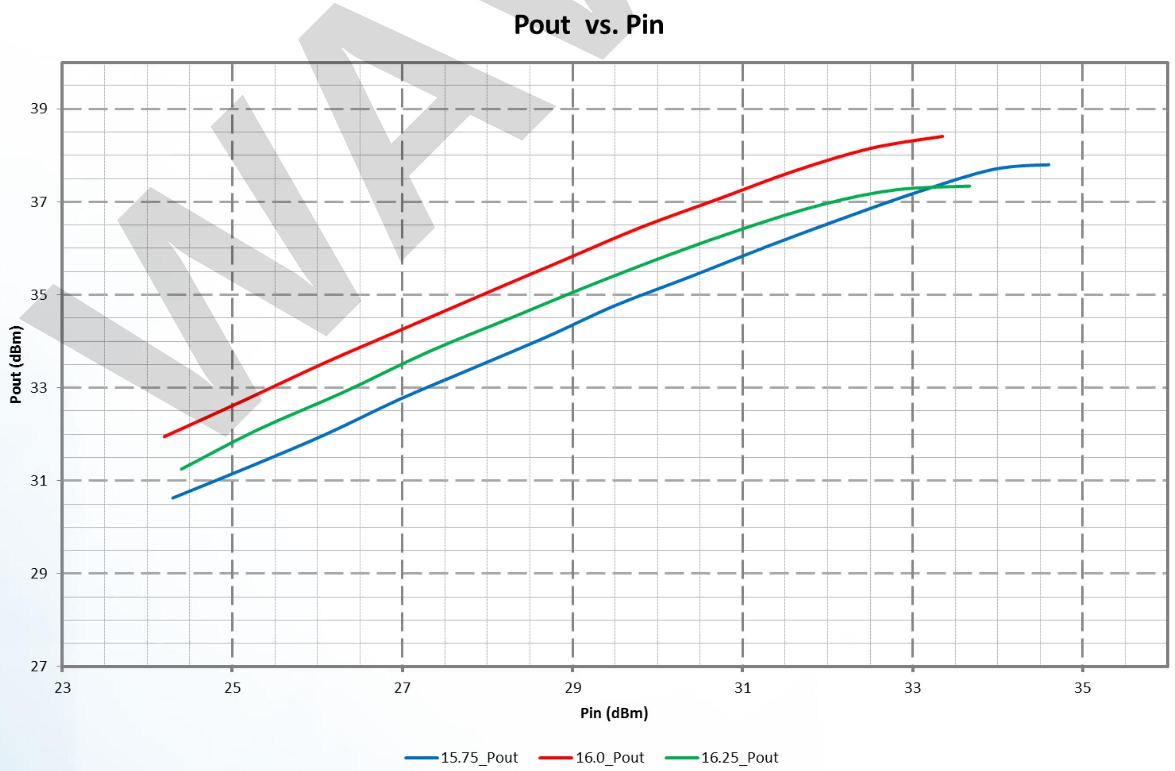
Parameter	Symbol	MIN	TYP	MAX	Units	Conditions
Small Signal Gain	G_{SS}		9.7		dB	VDD = 28 V, IDQ = 300 mA
Output Power	P_{OUT}		4		W	VDD = 28 V, IDQ = 300 mA, Pulse Width = 100 usec, Duty Cycle = 10%
Saturated Output Power	P_{SAT}		8		W	VDD = 28 V, IDQ = 300 mA, Pulse Width = 100 usec, Duty Cycle = 10%
Pulsed Drain Efficiency[1]	η		26.2		%	VDD = 28 V, IDQ = 300 mA, Pulse Width = 100 usec, Duty Cycle = 10% @ Psat
Output Mismatch Stress	VSWR	-	-	10:1		No damage at all phase angles, VDD = 28 V, IDQ = 300 mA, POUT = 2 WCW

Note:
1. Drain Efficiency = P_{OUT} / P_{DC}

Pulse Signal Performance (Tc=25℃, Measured in the test board amplifier circuit)

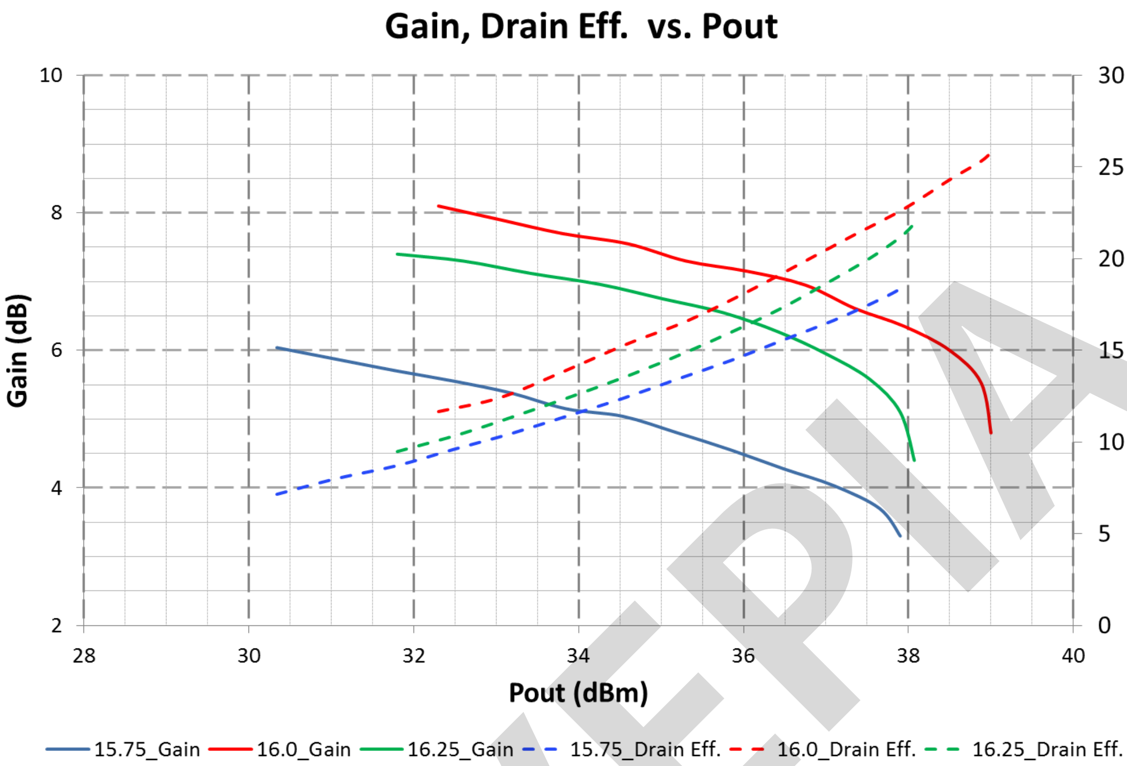
VDD = 28 V, IDQ = 300 mA, PulseWidth = 100μsec, Duty Cycle = 10%

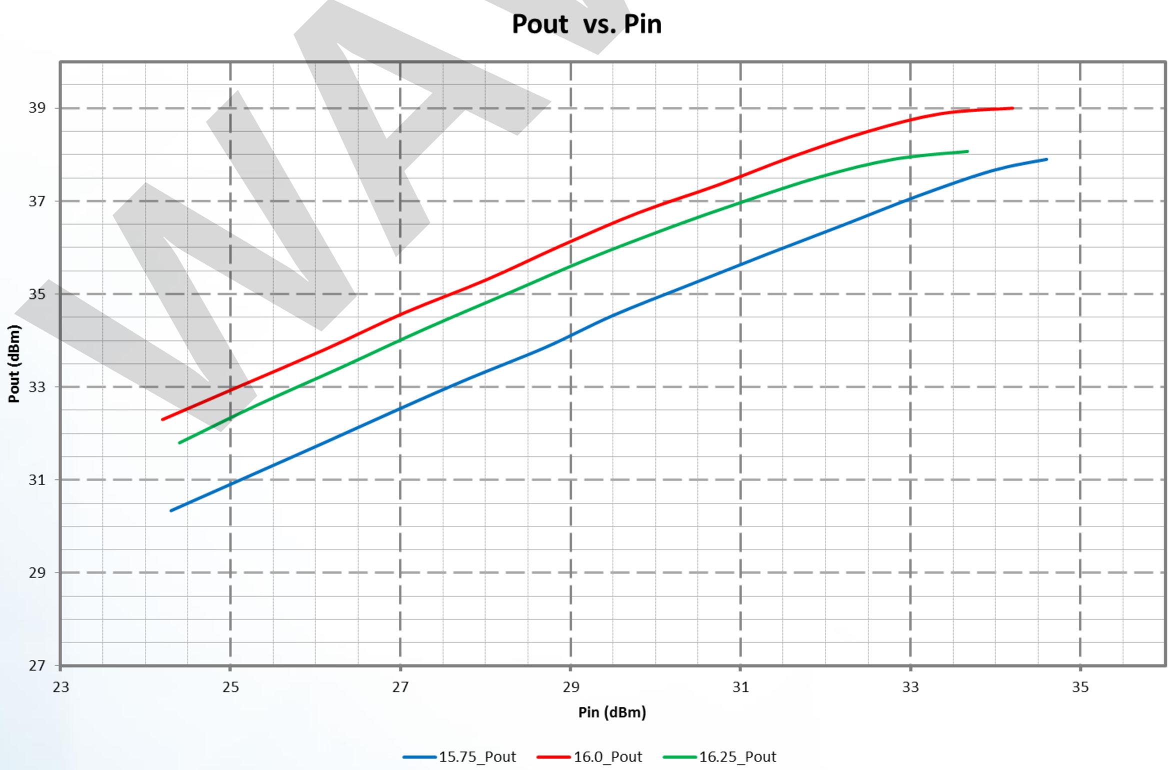




Pulse Signal Performance (Tc=25℃, Measured in the test board amplifier circuit)

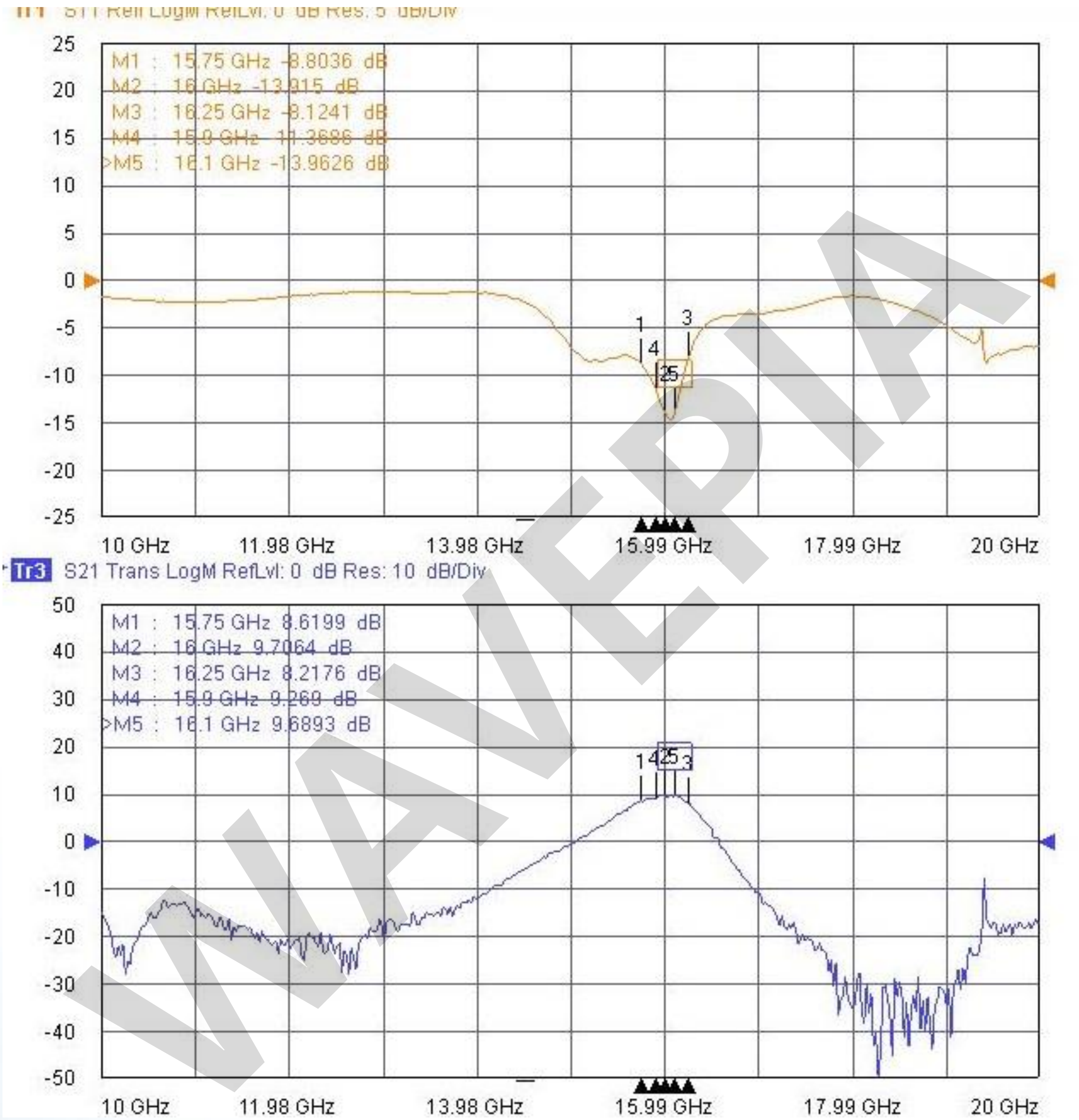
VDD = 32 V, IDQ = 300 mA, PulseWidth = 100μsec, Duty Cycle = 10%



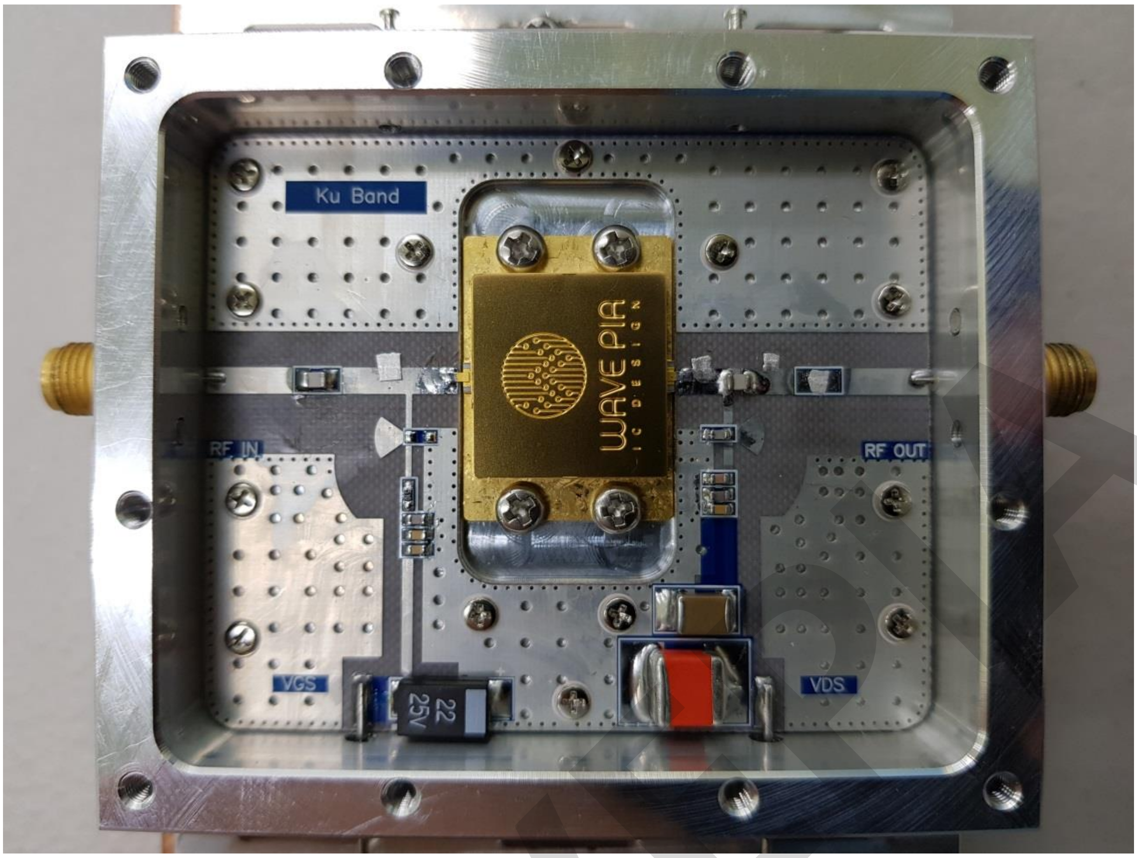


Small Signal Performance (Tc=25℃, Measured in the test board amplifier circuit)

VDD = 28 V, IDQ = 300 mA



Demonstration board



Reference	Value	Description	Package	Manufacturer

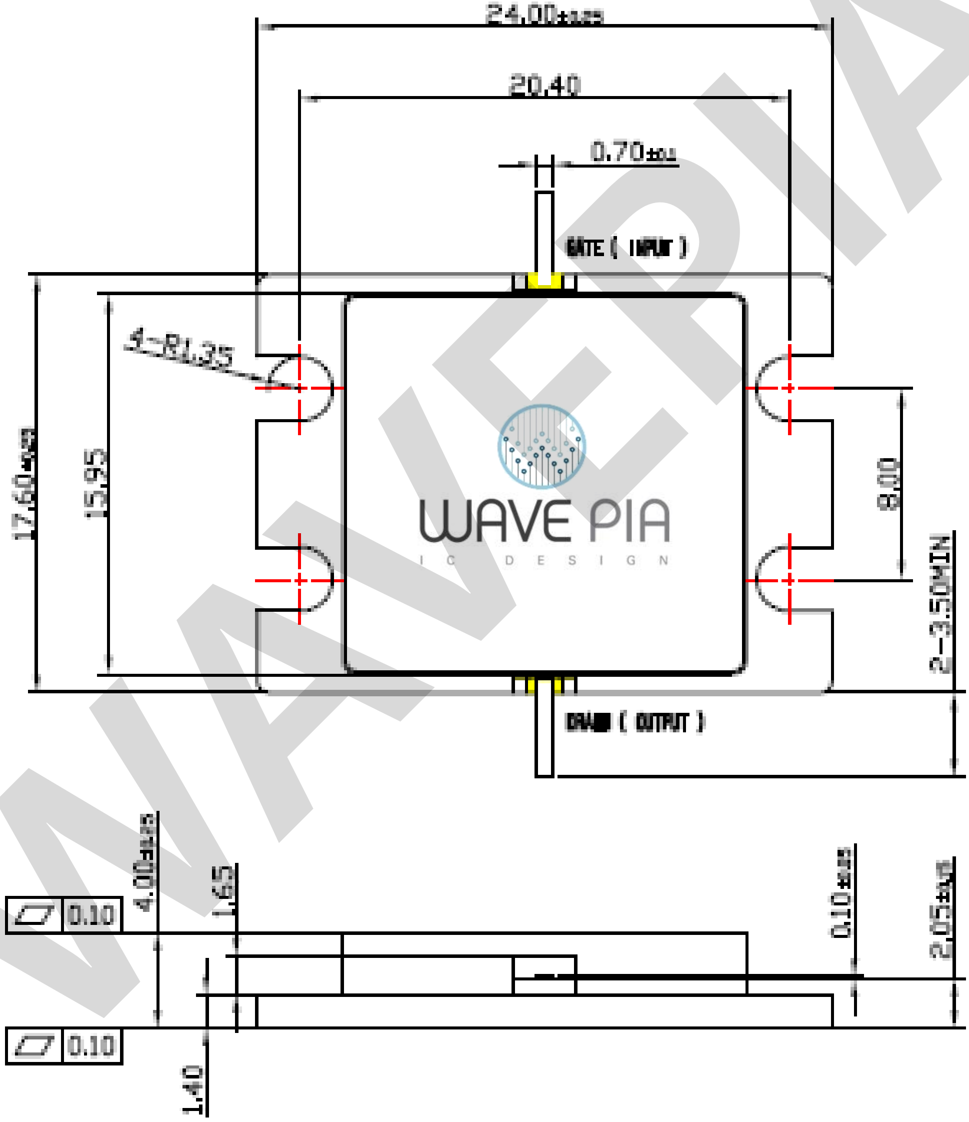
Under construction!

Part number code

W P 2 8 16 P 0 008 M H

- S (Surface), H (Screw Hole)
- M (Matched), U (Unmatched)
- Power (Watt)
- Frequency (GHz)
- Drain Voltage (DC)

Package Dimensions



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