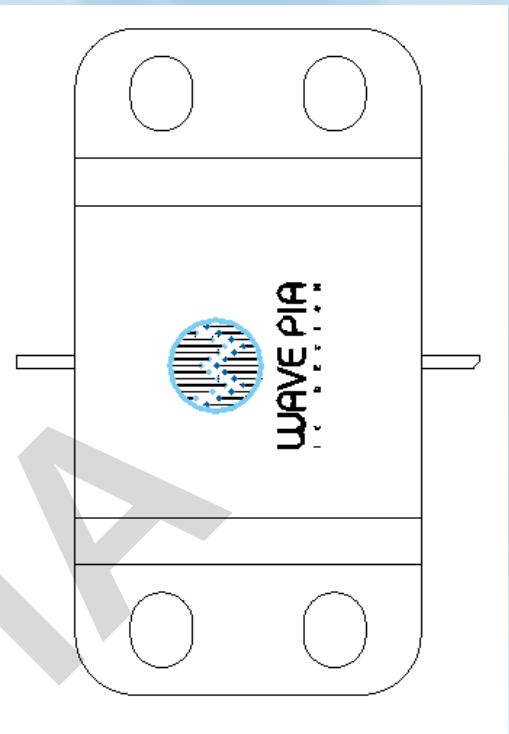
WP287P2015MS

15W RF GaN Power Transistor

Product Features

- 6.95 to 7.45 GHz Operation
- 13.17 dB Small Signal Gain at 7.2GHz
- 18.8 W Typical P_{sat} at 7.2GHz
- 57.8 % Drain Efficiency at 7.2GHz
- 28 V Operation



Applications

- Broadband Amplifiers
- Radio Link
- SATCOM
- 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	$V_{GS(th)}$		-3.0		V_{DC}	VDS = 10 V, ID = 1 mA
Gate Quiescent Voltage	$V_{GS(Q)}$		-2.3		V_{DC}	VDS = 28 V, ID = 150 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.

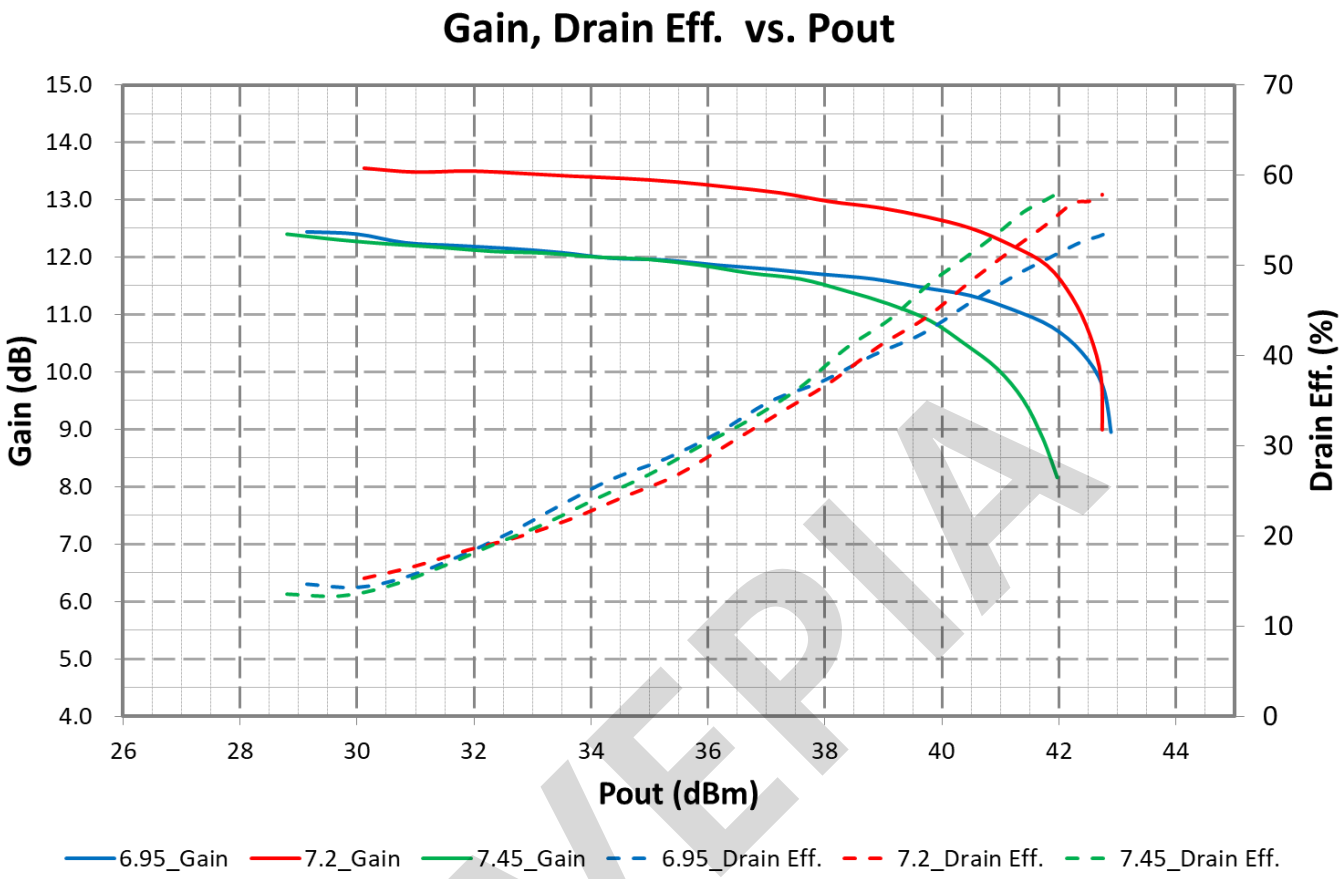
RF Characteristics (TC = 25°C, F0 = 7.2GHz unless otherwise noted)

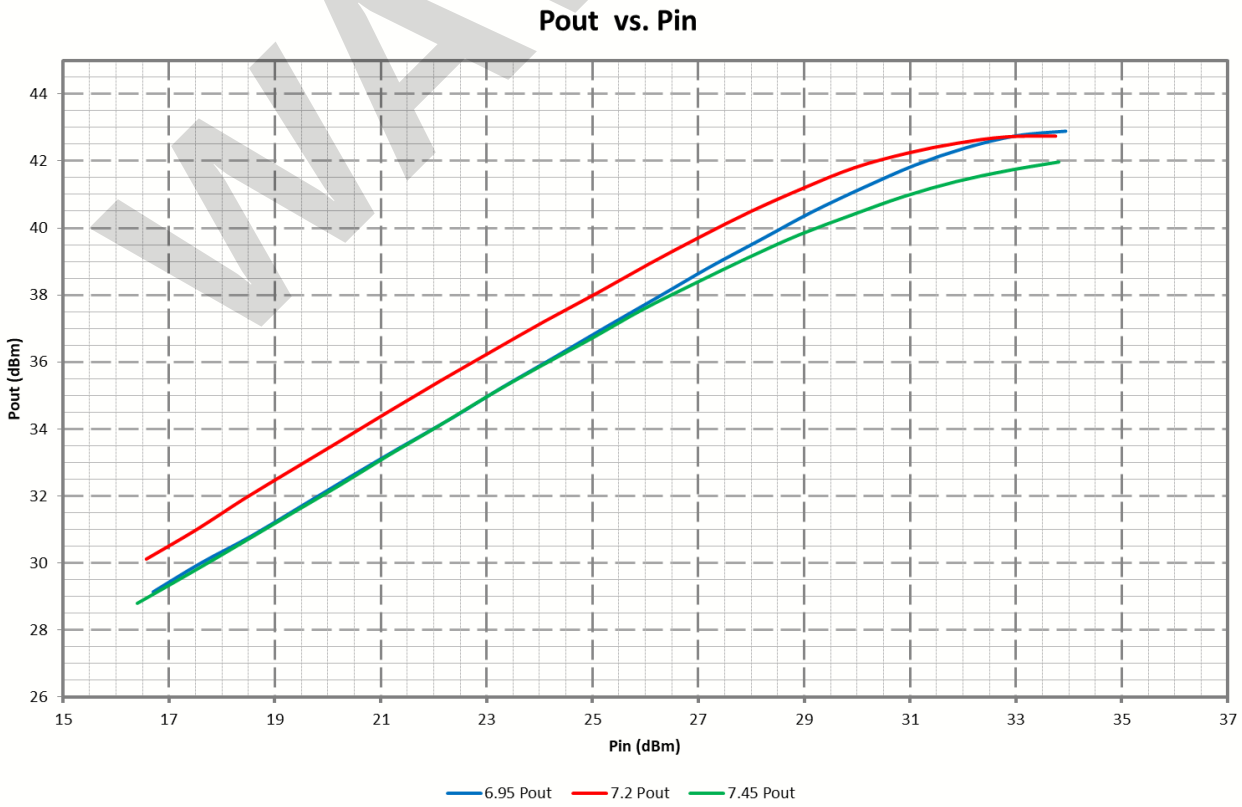
Parameter	Symbol	MIN	TYP	MAX	Units	Conditions
Power Gain	G_{Sat}		9		dB	VDD = 28 V, IDQ = 150 mA, Pulse Width = 100 usec, Duty Cycle = 10%
Saturated Output Power	P_{SAT}		18.8		W	VDD = 28 V, IDQ = 150 mA, Pulse Width = 100 usec, Duty Cycle = 10%
Drain Efficiency[1]	n		57.8		%	VDD = 28 V, IDQ = 300 mA, CW

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

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

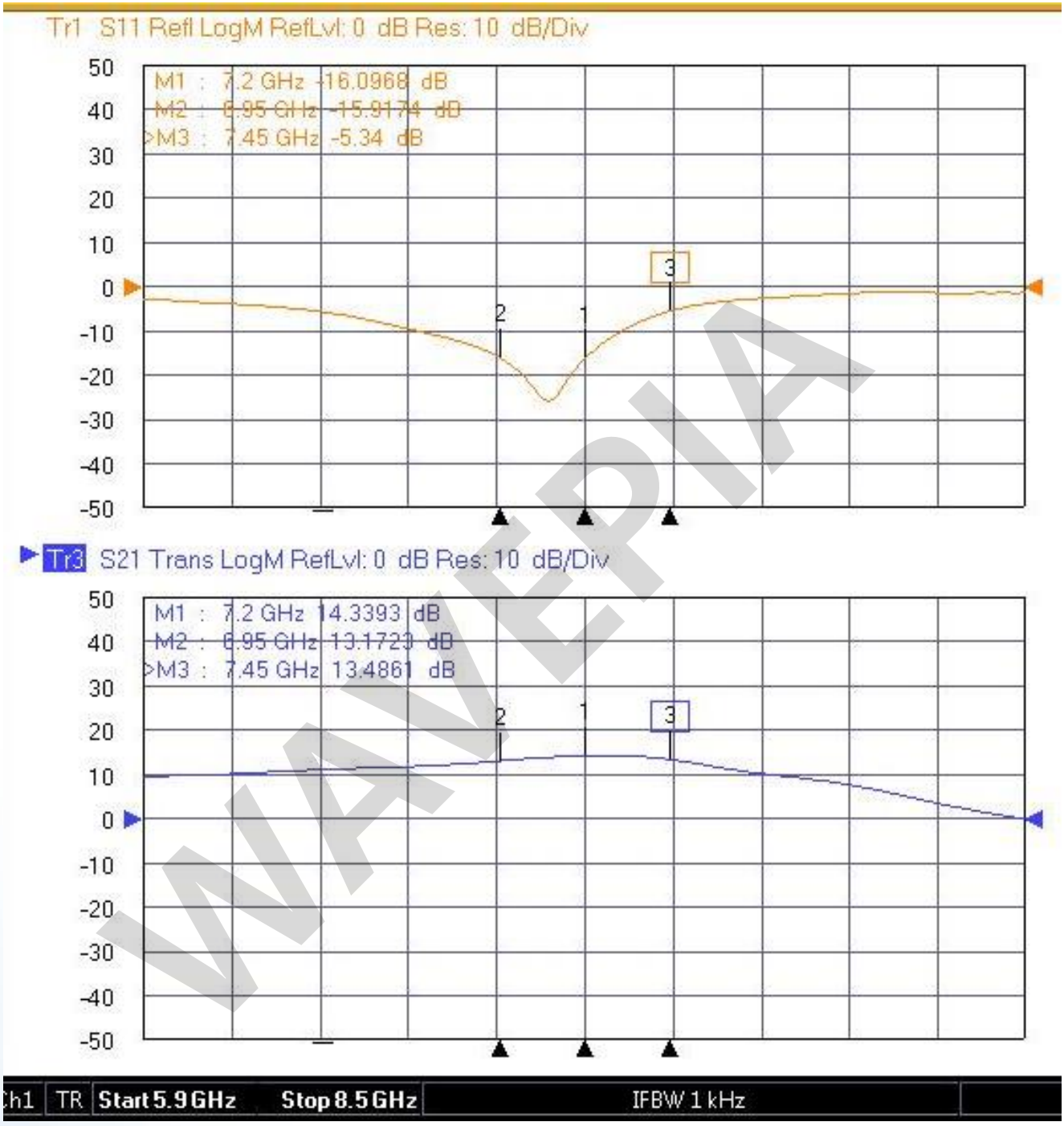
VDD = 28 V, IDQ = 150 mA, PulseWidth = 100µsec, Duty Cycle = 10%



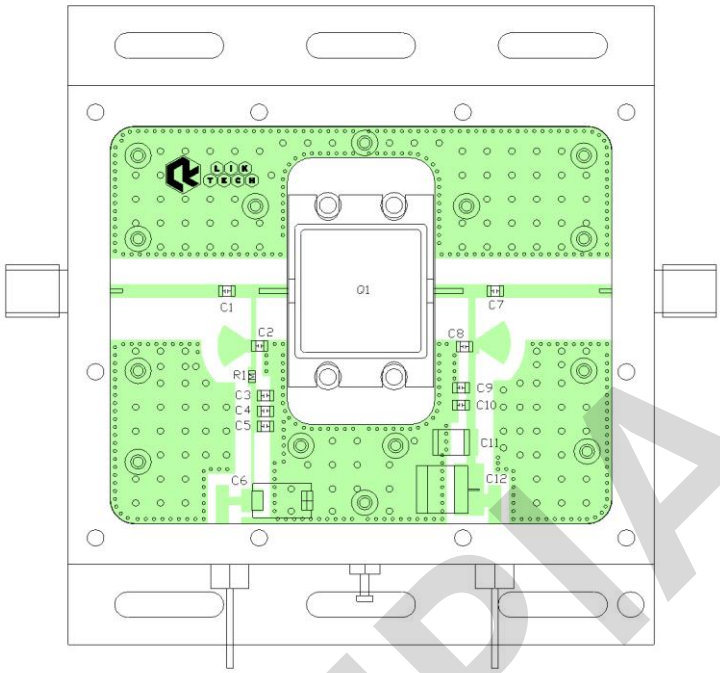


Small Signal Performance (Tc=25℃, Measured in the test board amplifier circuit)

VDD = 28 V, IDQ = 150 mA



Demonstration board



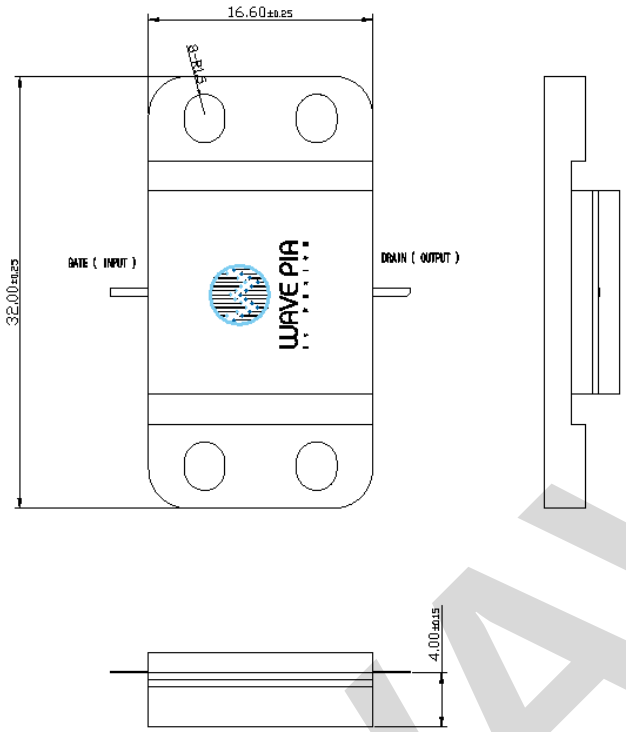
Reference	Value	Description	Package	Manufacturer
C1,C7	2.0pF	High Q Capacitor	2012	Johanson
C2,C8	10pF	High Q Capacitor	2012	Johanson
C3	100pF	Ceramic Capacitor	2012	SAMSUNG
C4	10nF	Ceramic Capacitor	2012	SAMSUNG
C5	1uF	Ceramic Capacitor	2012	SAMSUNG
C6	47uF	Tantalum Capacitor	7343	Vishay
C9	100pF	High Q Capacitor	2012	Johanson
C10	220pF	High Q Capacitor	2012	Johanson
C11	470nF	High V Capacitor	4532	Johanson
C12	47uF	Tantalum Capacitor	7360	Vishay
R1	10Ω	Chip Resistor	1608	SAMSUNG

Part number code

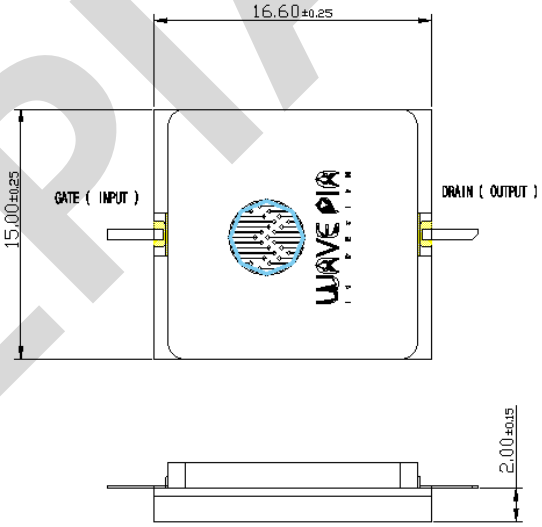
WP287P2015MH

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

Package Dimensions



Hole Mount type



Surface Mount type

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