WP286P2020MH

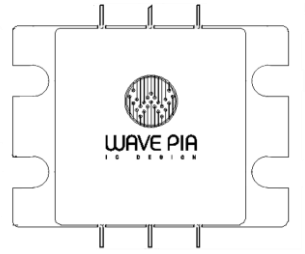
Matched GaN HEMT

Product Features

- High Power GaN HEMT for 5.7 to 6.7GHz
- 12.19dB Small Signal Gain at 6.2GHz
- 44.86dBm Typical P_{SAT} at 6.2GHz
- 51.1% Efficiency at P_{SAT} at 6.2GHz
- 28V Operation

Applications

- Point to Point / Multipoint Radio
- Test Equipment & Industrial Controls
- SATCOM
- Military End-Use
- C-band Radar



Package Type: 680BH

Absolute Maximum Rating

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	

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	$V_{GS(th)}$		-3.5		V_{DC}	VDS = 10V, ID = 1mA
Gate Quiescent Voltage	$V_{GS(Q)}$		-2.3		V_{DC}	VDS = 28V, ID = 200mA
Saturated Drain Current[2]	I_{DS}		2000		mA/mm	VDS = 10V, VGS = 1V
Drain-Source Breakdown Voltage	V_{BR}	160			V_{DC}	ID = 1 mA/mm

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

RF Characteristics (Tc=25˚C, F0=6.2GHz, Unless otherwise noted)

Parameter	Symbol	MIN	TYP	MAX	Units	Conditions
Gain	G_{SS}		10.85		dB	VDD = 28V, IDQ = 200mA, RF CW
Saturated Output Power	P_{SAT}		44.85		dBm	VDD = 28V, IDQ = 200mA, RF CW
Pulsed Drain Efficiency[1]	n		51.1		%	VDD = 28V, IDQ = 200mA, RF CW @ P_{SAT}

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

WAVEPIA Co., LTD.
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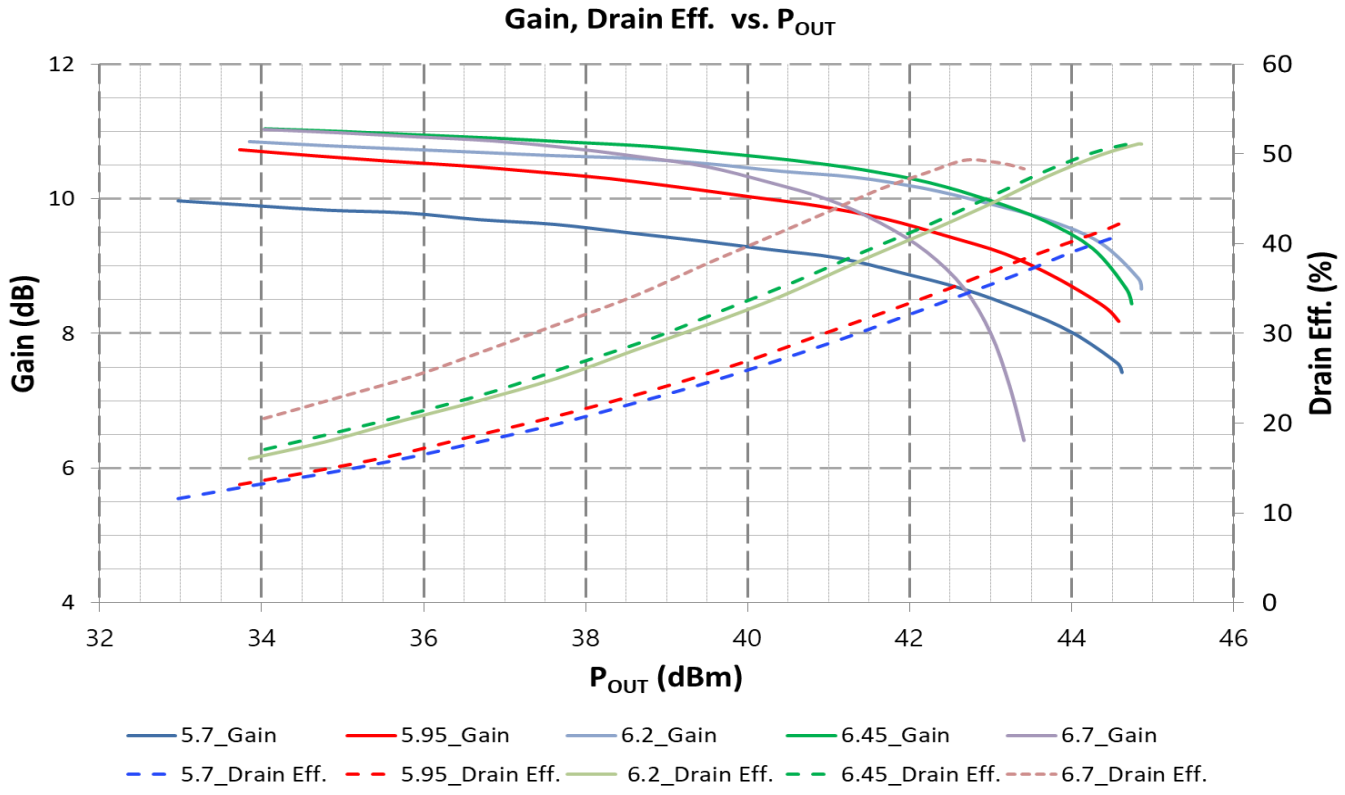
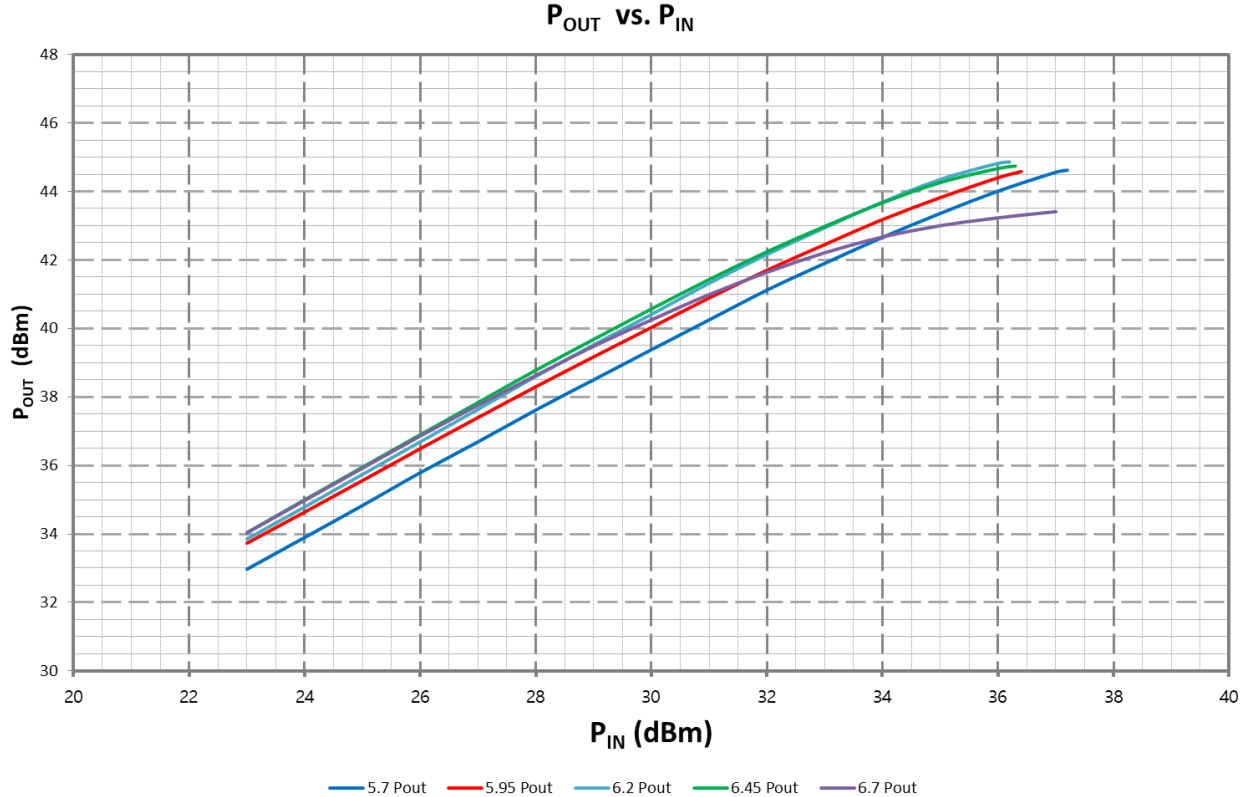
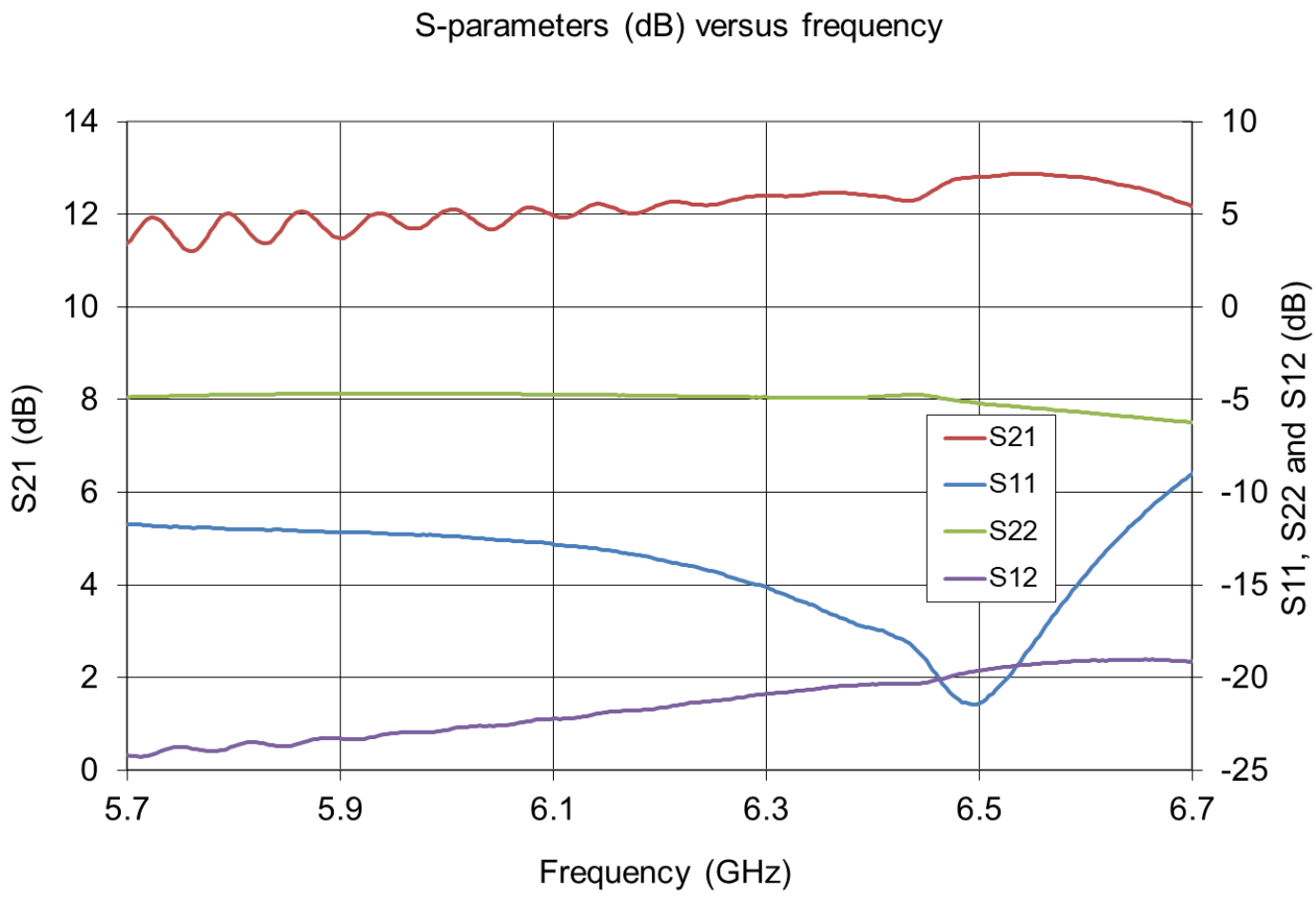
CW Signal Performance (Tc=25℃, Measured in the test board amplifier circuit)

VDD=28V, IDQ=200mA, RF CW

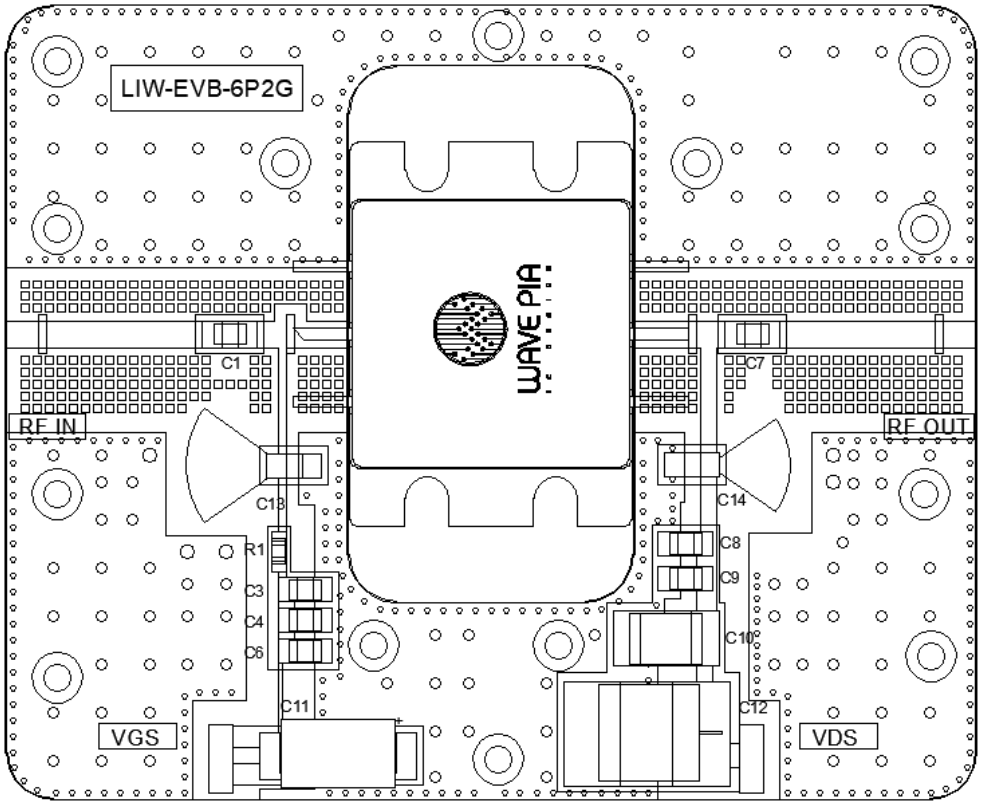




Small Signal Performance (Tc=25℃, Measured in the test board amplifier circuit)
VDD=28V, IDQ=200mA



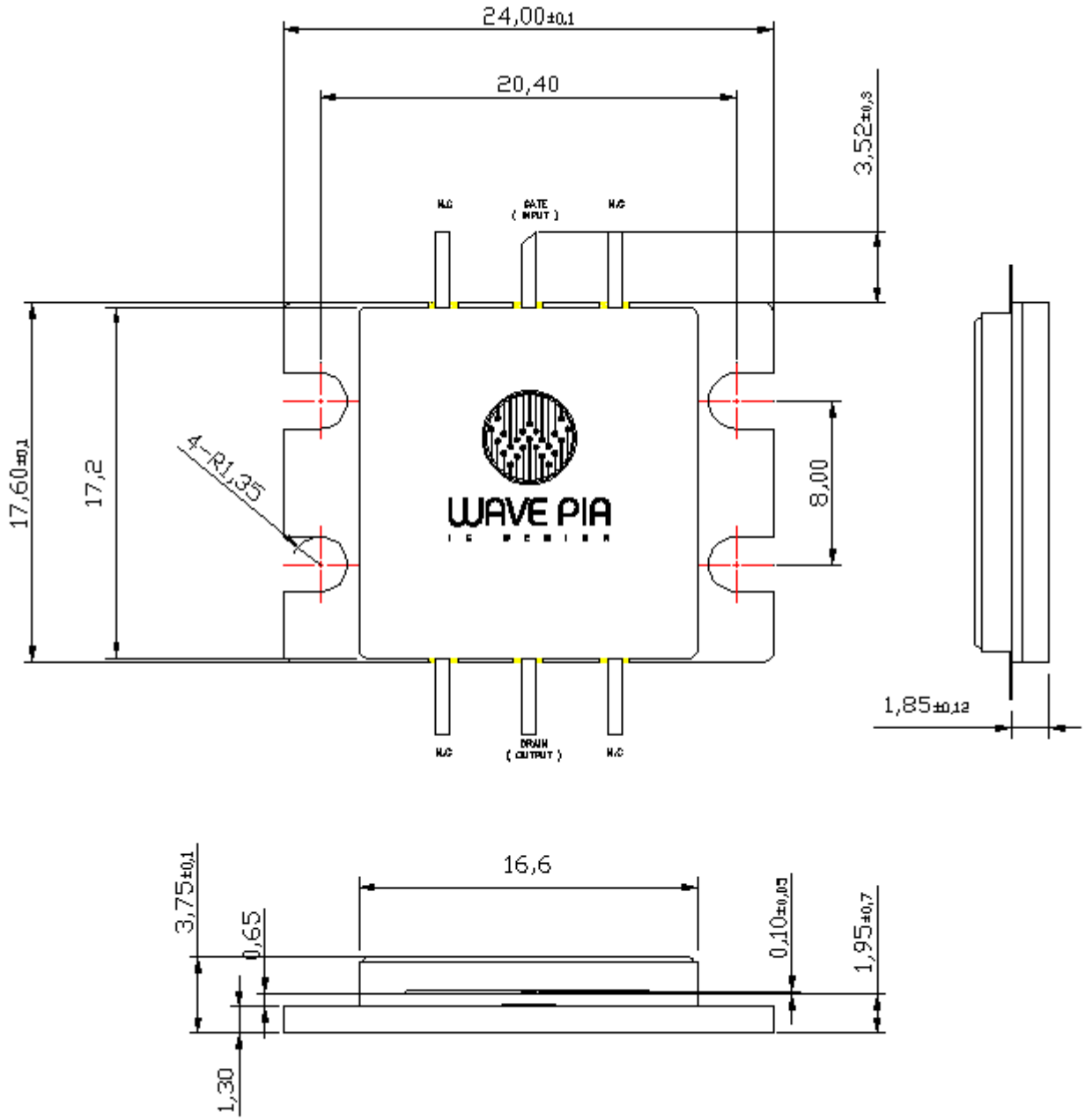
Evaluation Board



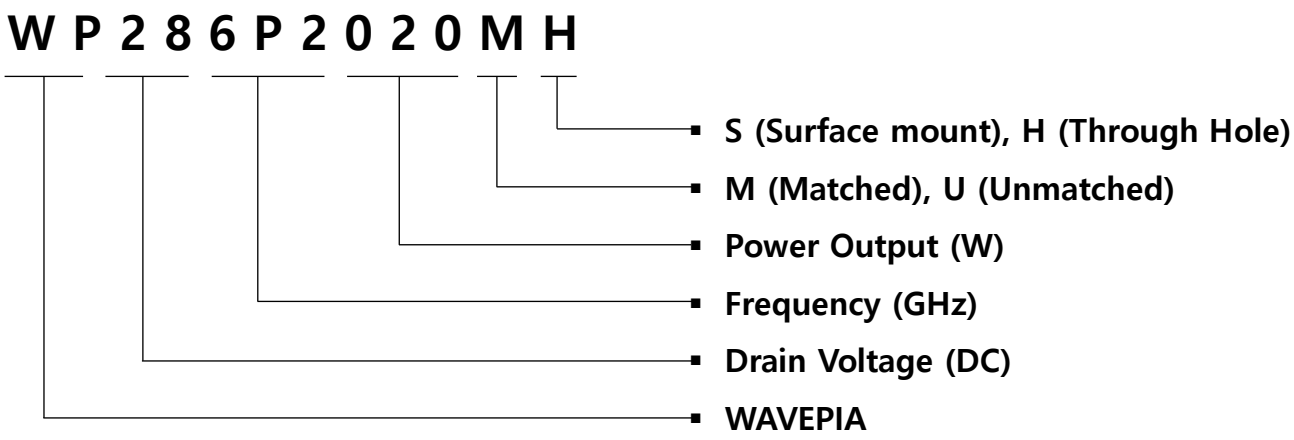
Reference Number	Value	Items	Package	Manufacturer
C1	0.5pF	High Q Capacitor	2012	Johanson
C3	10pF	Ceramic Capacitor	2012	Samsung
C4	150pF	Ceramic Capacitor	2012	Samsung
C6	1nF	Ceramic Capacitor	2012	Samsung
C8	150pF	High Q Capacitor	2012	Johanson
C7	1pF	High Q Capacitor	2012	Johanson
C9	220pF	High Q Capacitor	2012	Johanson
C10	470nF	High Voltage Capacitor	4532	Johanson Dielectrics
C11	10uF/25V	Tantalum Capacitor	6032	Samsung
C12	10uF/75V	Tantalum Capacitor	R	Vishay
R1	10 ohm	Chip Resistor	1608	Samsung
C13,C14	N.C			
TR1		WP286P20020MH	680MH	WAVEPIA
PCB	RO4350B 30mil 1oz			Rogers

Product Dimension

- Package Type: 680MH (Through hole)
- Unit: mm



Part Number System



Parameter	Value	Units
Drain Voltage	28	V
Lower Frequency	5.7	GHz
Upper Frequency	6.7	GHz
Output Power	20	W
Transistor Type	Matched	-
Package	H: Through hole	-