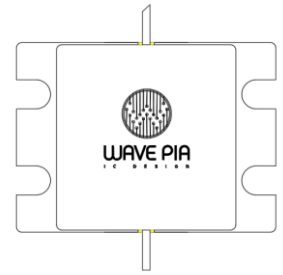


Product Features

- High Power GaN HEMT for 5.7 to 6.7GHz
- 10.85dB Small Signal Gain at 6.2GHz
- 46.9dBm Typical P_{SAT} at 6.2GHz
- 38.4% 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	$I_D @ V_D = 10V, V_G = 1V$
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 Characteristics¹ (Ta=25°C)

Parameter	Symbol	MIN	TYP	MAX	Units	Conditions
Gate Threshold Voltage	$V_{GS(th)}$		-3.5		V_{DC}	$V_{DS} = 10V, I_D = 1mA$
Gate Quiescent Voltage	$V_{GS(Q)}$		-2.375		V_{DC}	$V_{DS} = 28V, I_D = 400mA$
Saturated Drain Current ²	I_{DS}		2000		mA/mm	$V_{DS} = 10V, V_{GS} = 1V$
Drain-Source Breakdown Voltage	V_{BR}	160			V_{DC}	$I_D = 1 mA/mm$

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

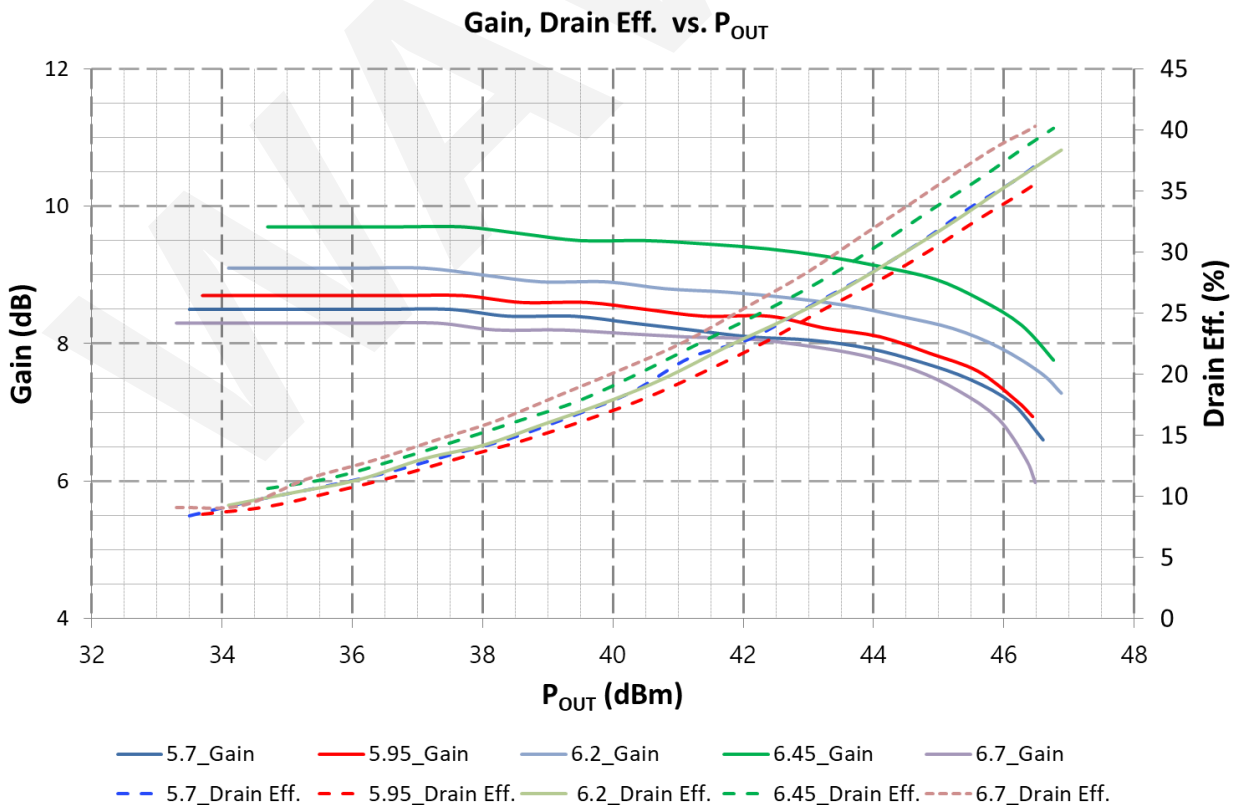
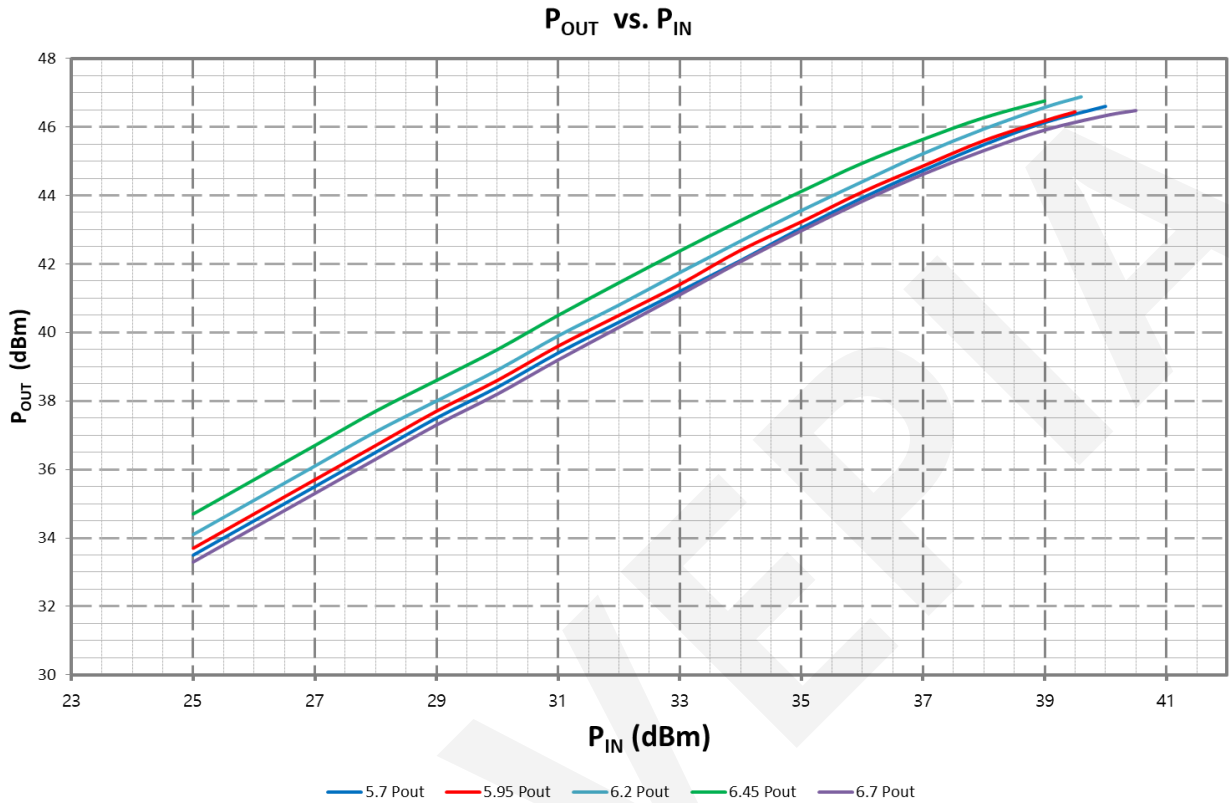
RF Characteristics (Ta=25°C, F0=6.2GHz, Unless otherwise noted)

$V_{DD} = 28V, I_{DQ} = 400mA, \text{Pulse Width} = 100\mu\text{sec}$

Parameter	Symbol	MIN	TYP	MAX	Units	Conditions
Gain	G_{SS}		9.1		dB	Duty Cycle = 10%
Saturated Output Power	P_{SAT}		46.9		dBm	Duty Cycle = 10%
Pulsed Drain Efficiency ¹	η		38.4		%	Duty Cycle = 10% @ P_{SAT}

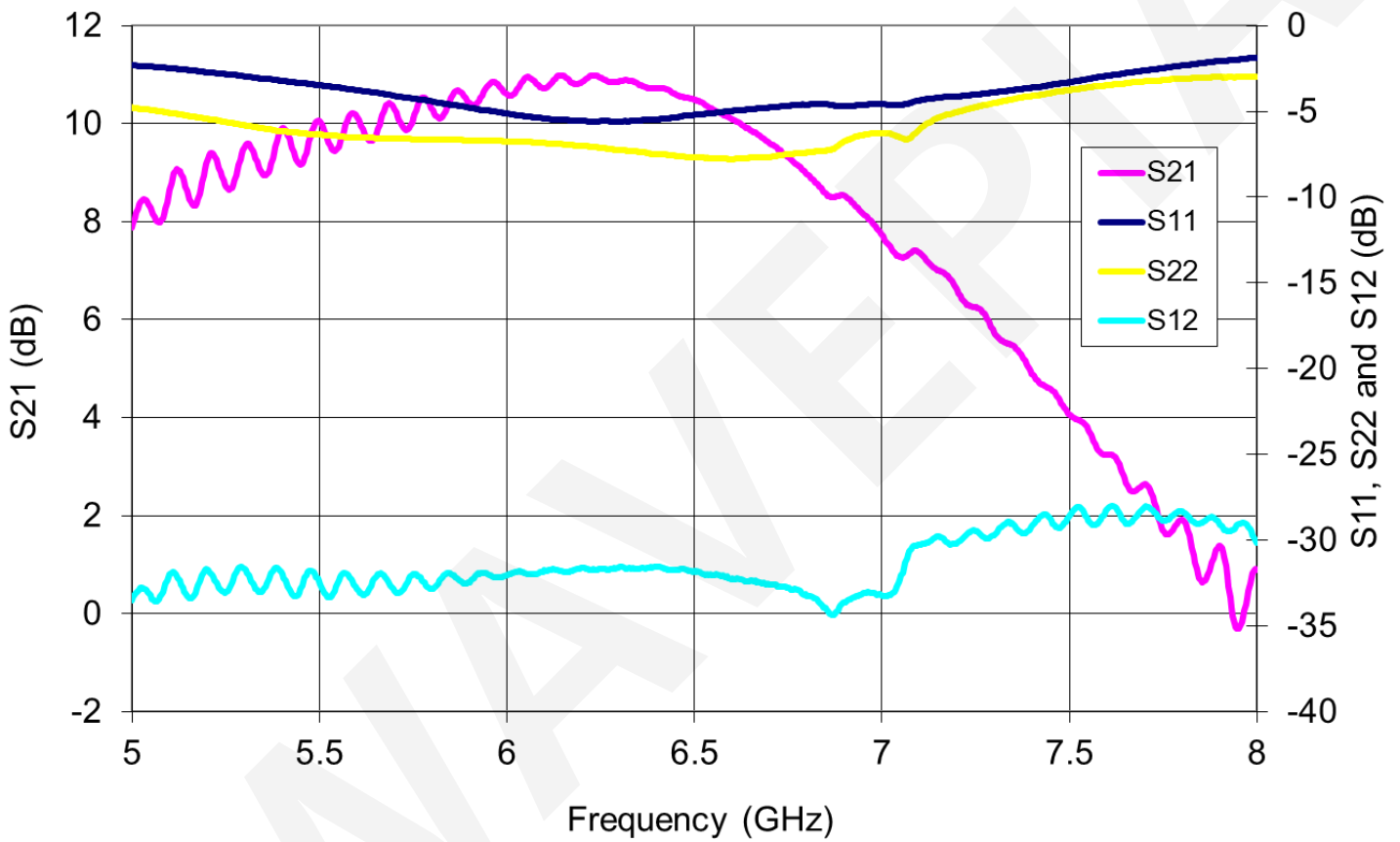
1. Drain Efficiency = P_{OUT} / P_{DC}

Pulse Signal Performance (Ta=25°C, Measured in the test board amplifier circuit)
 VDD=28V, IDQ=400mA, Pulse Width=100μsec, Duty Cycle=10%

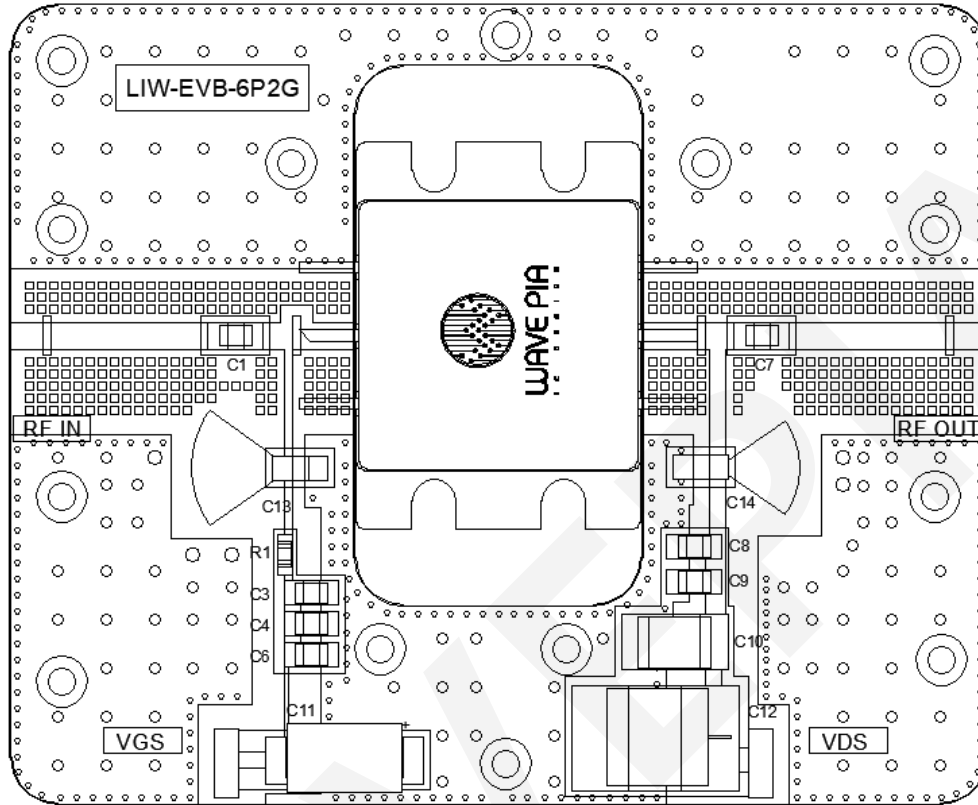


Small Signal Performance (Ta=25°C, Measured in the test board amplifier circuit)
 VDD=28V, IDQ=400mA

S-parameters (dB) versus frequency



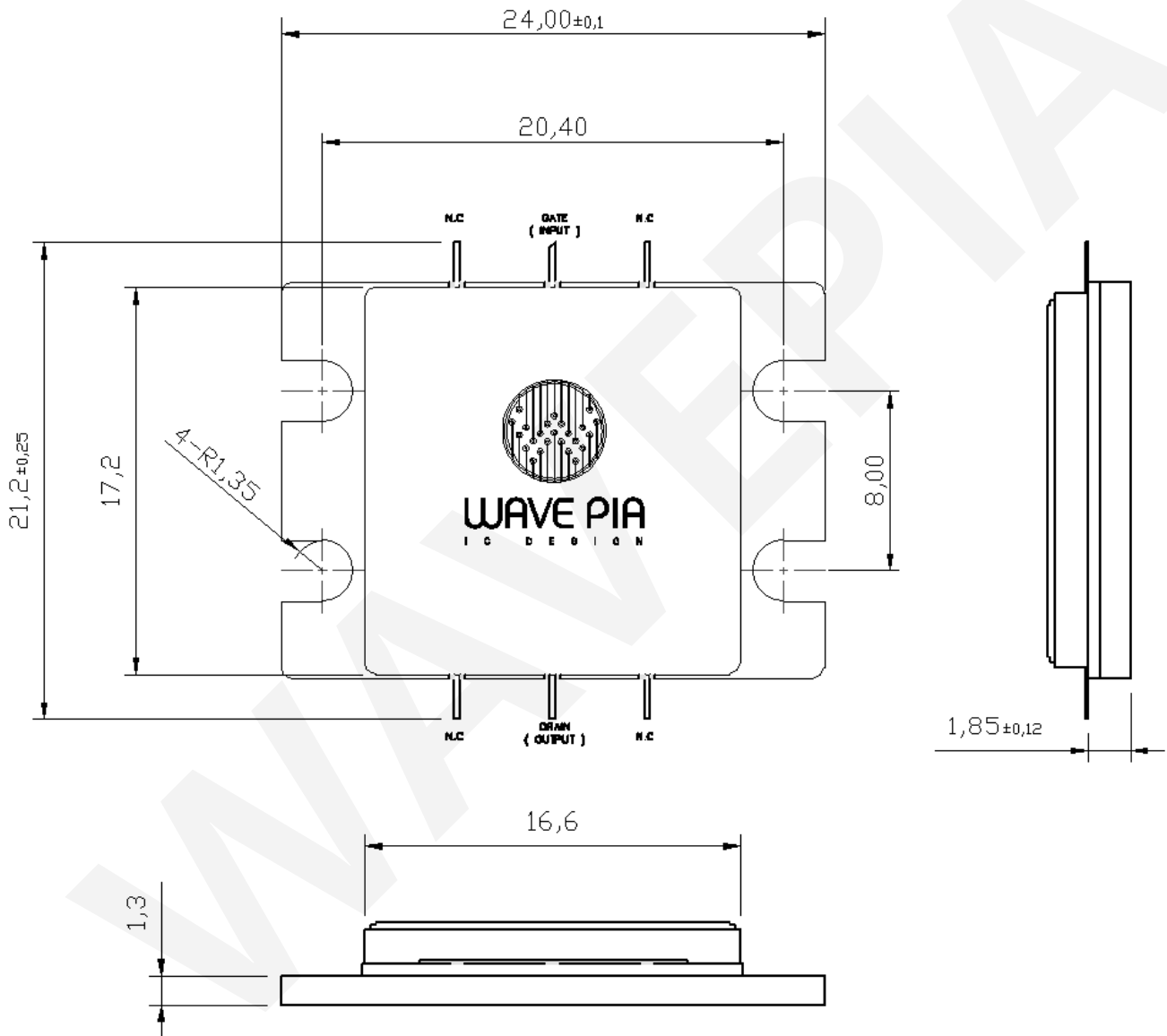
Evaluation Board



Reference Number	Value	Items	Package	Manufacturer
C1	1pF	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	1.2pF	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	50 ohm	Chip Resistor	1608	Samsung
C13,C14	N.C			
TR1			680MH	WAVEPIA
PCB	RO4350B 30mil 1oz			Rogers

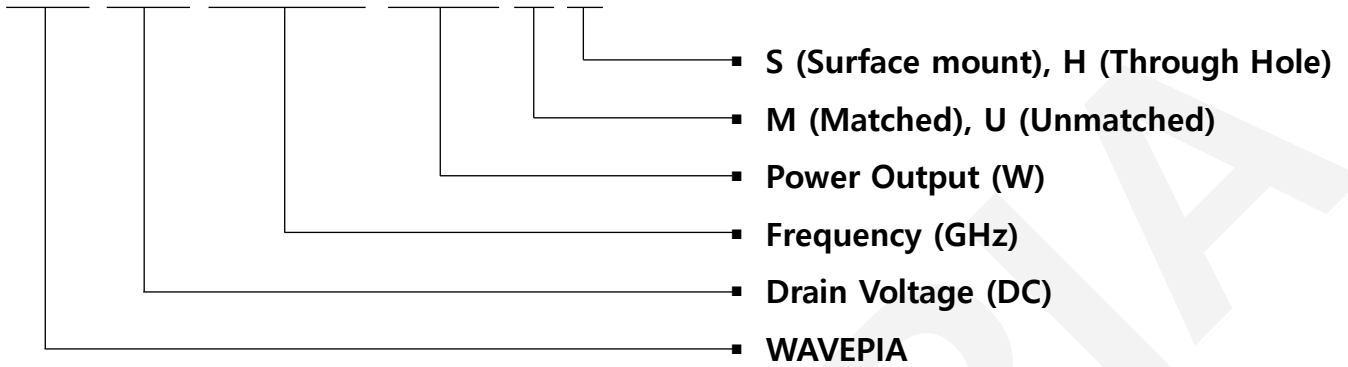
Product Dimension

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



Part Number System

W P 2 8 6 P 2 0 0 4 0 M H



Parameter	Value	Units
Drain Voltage	28	V
Lower Frequency	5.7	GHz
Upper Frequency	6.7	GHz
Output Power	40	W
Transistor Type	Matched	-
Package	H: Through hole	-