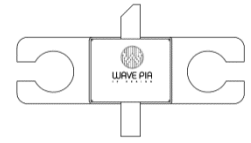


### Product Features

- Up to 6GHz Operation
- 14dB Small Signal Gain at 4.7GHz
- 11.7 W Typical  $P_{SAT}$  at 4.7GHz
- 61% Efficiency at  $P_{SAT}$  at 4.7GHz
- 28V Operation

### Applications

- Broadband Amplifiers
- Cellular Infrastructure
- Test Instrumentation
- WiMAX, LTE, WCDMA, GSM
- Radar Application



Package Type: 360BH

### Absolute Maximum Rating

Parameter	Symbol	Rating	Units	Conditions
Drain-Source Voltage	$V_{DSS}$	160	Volts	25°C
Gate-to-Source Voltage <sup>3</sup>	$V_{GS}$	-10, +2	Volts	25°C
Storage Temperature <sup>3</sup>	$T_{STG}$	-65, +150	°C	
Operating Junction Temperature <sup>1,3</sup>	$T_J$	225	°C	
Maximum Forward Gate Current <sup>3</sup>	$I_{GMAX}$	30	mA	25°C
Maximum Drain Current <sup>2</sup>	$I_{DMAX}$	1	A	$I_d @ V_d = 10V, V_g = 1V$
Soldering Temperature <sup>3</sup>	$T_S$	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<sup>1</sup> (TA=25°C)

Parameter	Symbol	MIN	TYP	MAX	Units	Conditions
Gate Threshold Voltage	$V_{GS(th)}$		-3.1		$V_{DC}$	$V_{DS} = 10V, I_D = 1mA$
Gate Quiescent Voltage	$V_{GS(Q)}$		-2.23		$V_{DC}$	$V_{DS} = 28V, I_D = 70mA$
Saturated Drain Current <sup>2</sup>	$I_{DS}$		1000		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.

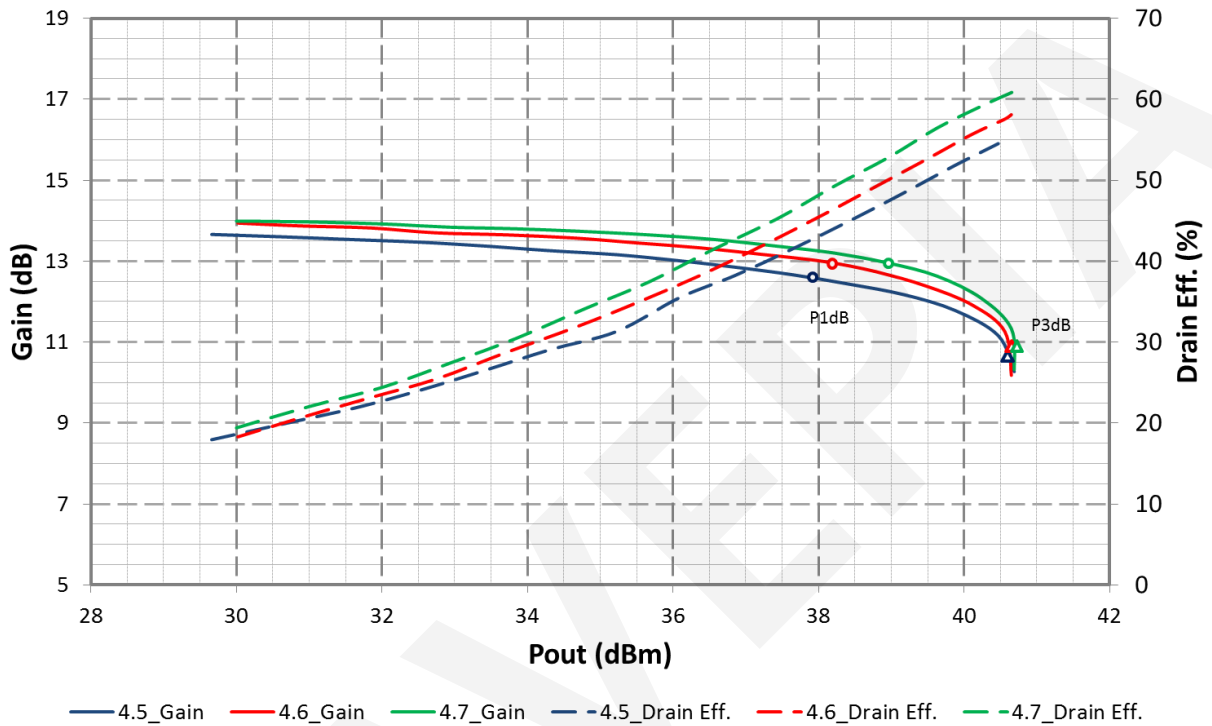
### RF Characteristics (TA=25°C, F0=4.6GHz, Unless otherwise noted)

Parameter	Symbol	MIN	TYP	MAX	Units	Conditions
Power Gain	$G_{SS}$		11		dB	$V_{DD} = 28V, I_{DQ} = 70mA, \text{Pulse Width} = 100\mu\text{sec}, \text{Duty Cycle} = 10\%$
Output Power	$P_{OUT}$		6		W	$V_{DD} = 28V, I_{DQ} = 70mA, \text{Pulse Width} = 100\mu\text{sec}, \text{Duty Cycle} = 10\%$
Saturated Output Power	$P_{SAT}$		11.6		W	$V_{DD} = 28V, I_{DQ} = 70mA, \text{Pulse Width} = 100\mu\text{sec}, \text{Duty Cycle} = 10\%$
Pulsed Drain Efficiency <sup>1</sup>	$\eta$		58		%	$V_{DD} = 28V, I_{DQ} = 70mA, \text{Pulse Width} = 100\mu\text{sec}, \text{Duty Cycle} = 10\% @ P_{SAT}$
Output Mismatch Stress	VSWR			10:1		No damage at all phase angles, $V_{DD} = 28V, I_{DQ} = 70mA, P_{OUT} = 1 \text{ WCW}$

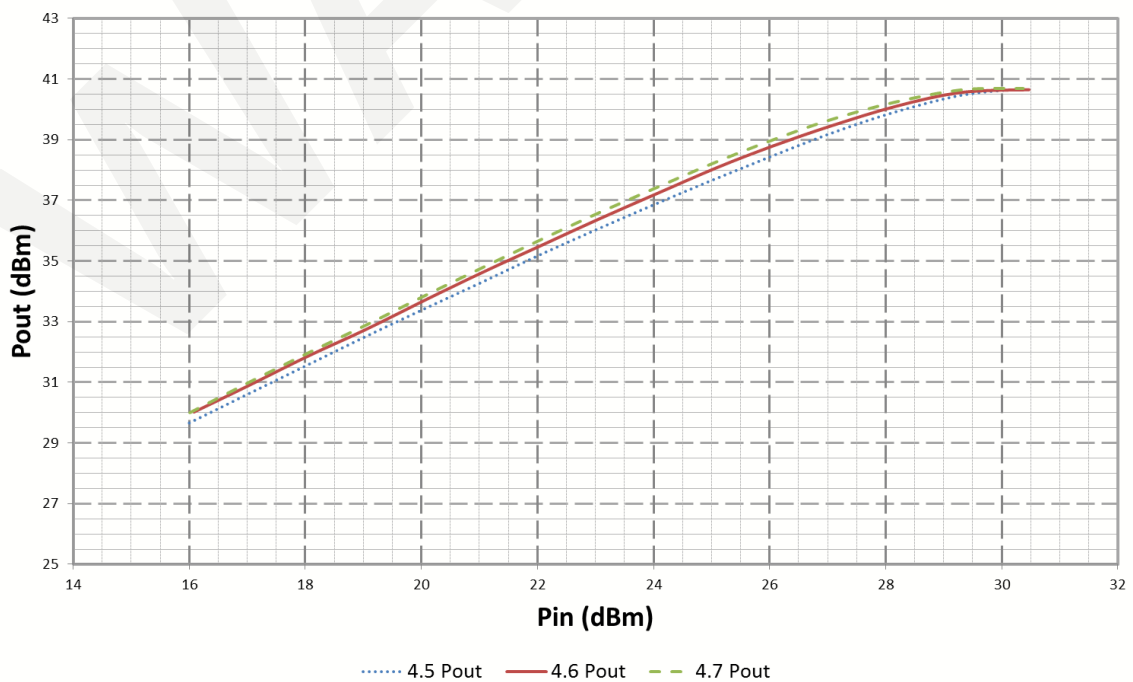
1. Drain Efficiency =  $P_{OUT} / P_{DC}$

**Pulse Signal Performance (TA=25°C, Measured in the test board amplifier circuit)**  
 VDD=28V, IDQ=70mA, Pulse Width=100μsec, Duty Cycle=10%

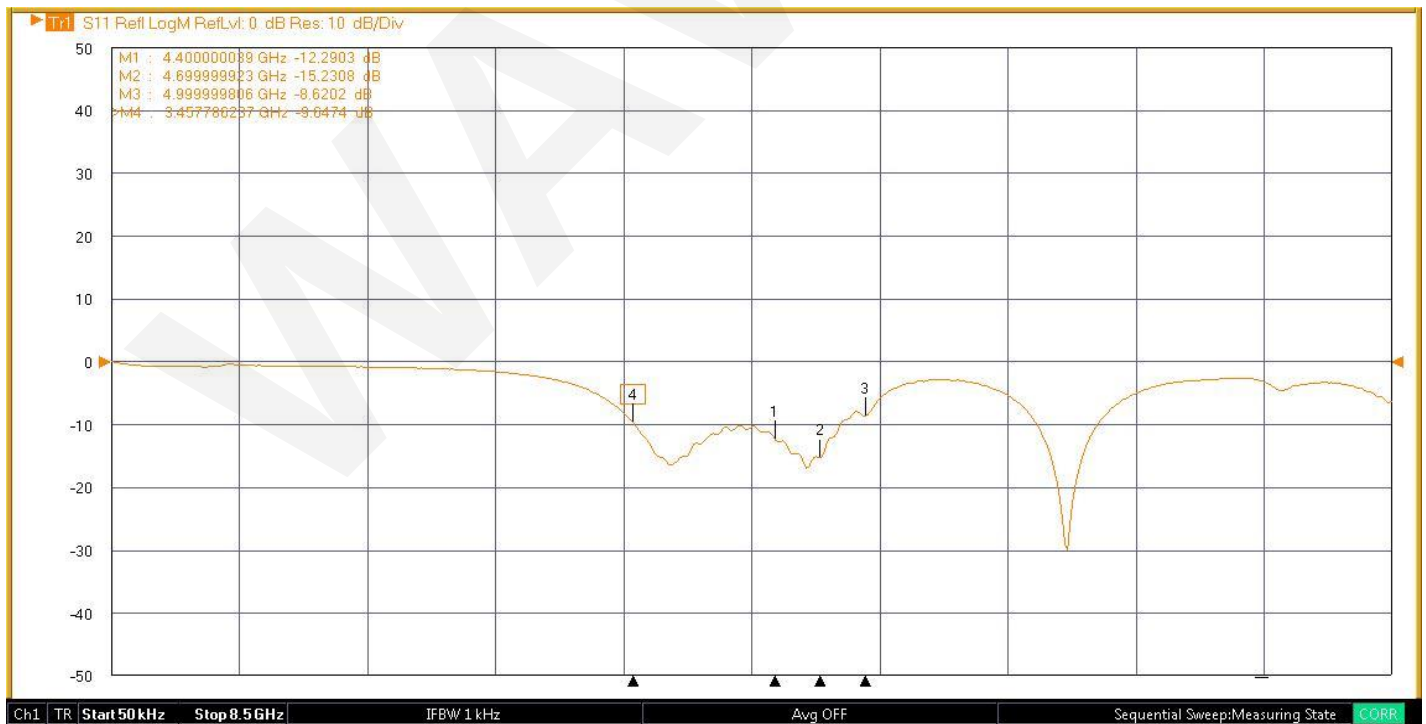
### Gain, Drain Eff. vs. Pout



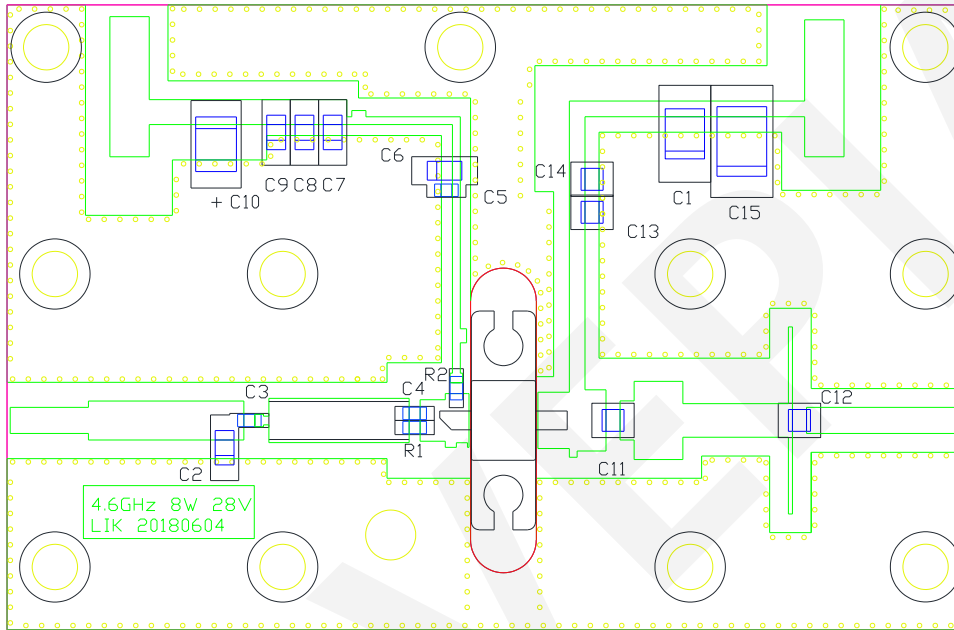
### Pout vs. Pin



**Small Signal Performance (TA=25°C, Measured in the test board amplifier circuit)**  
 VDD=28V, IDQ=70mA



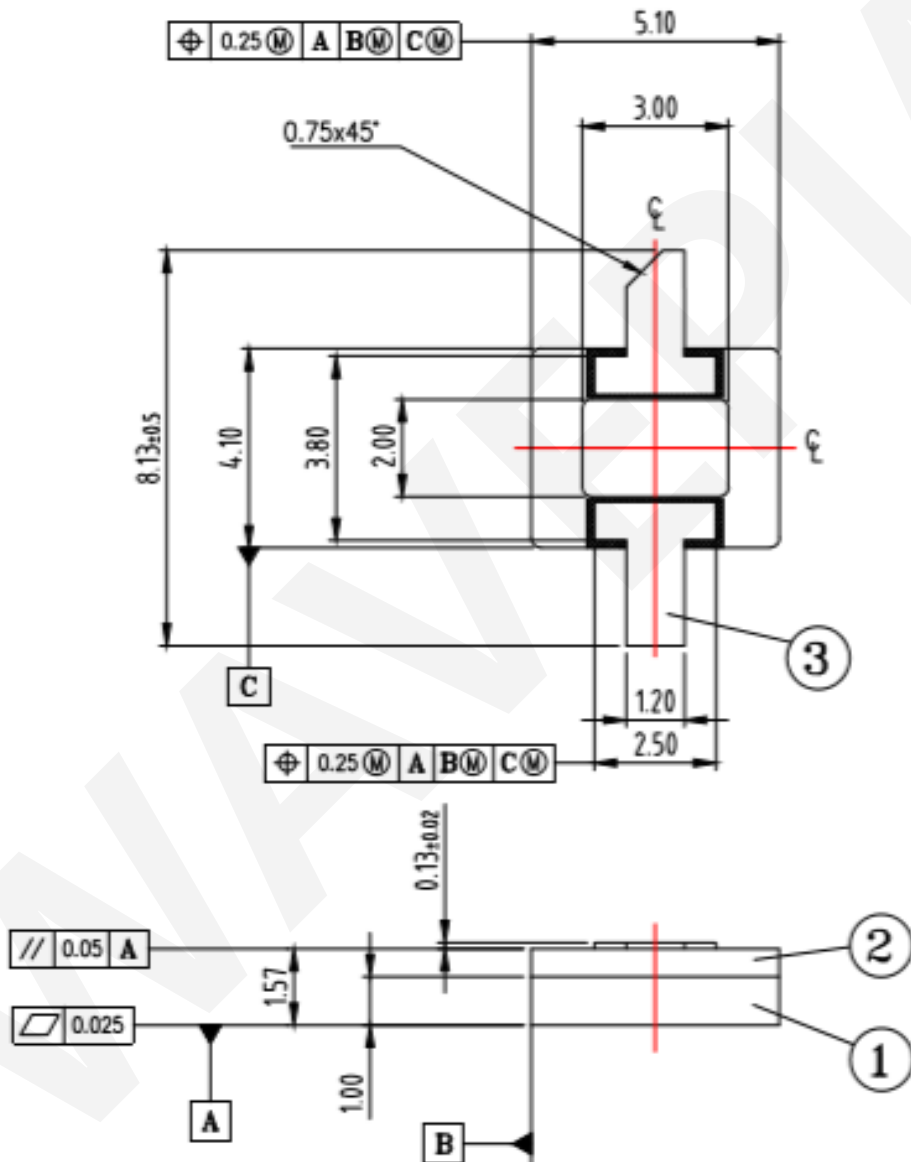
### Evaluation Board



Reference Number	Value	Items	Package	Manufacturer
C2	0.3 pF	High Q Capacitor	0805	Johanson
C3	2.2 pF	High Q Capacitor	0603	Johanson
C4	0.5 pF	High Q Capacitor	0603	Johanson
C5	10 pF	High Q Capacitor	0603	Johanson
C6, C7	220 pF	High Q Capacitor	0805	Johanson
C8	1 nF	High Q Capacitor	0805	Johanson
C9	1 uF	High Q Capacitor	0805	Johanson
C10	10 uF	Tantalum Capacitor	B	Vishay
C11	1.5 pF	High Q Capacitor	CHA	Temex
C12	3 pF	High Q Capacitor	CHA	Temex
C13	15 pF	High Q Capacitor	CHA	Temex
C14	100 pF	High Q Capacitor	CHA	Temex
C1	220 nF	High Voltage Capacitor	3225	Johanson Dielectrics
C15	470 nF	High Voltage Capacitor	4532	Johanson Dielectrics
R1	300 ohm	Chip Resistor	0603	Samsung
R2	11 ohm	Chip Resistor	0603	Samsung

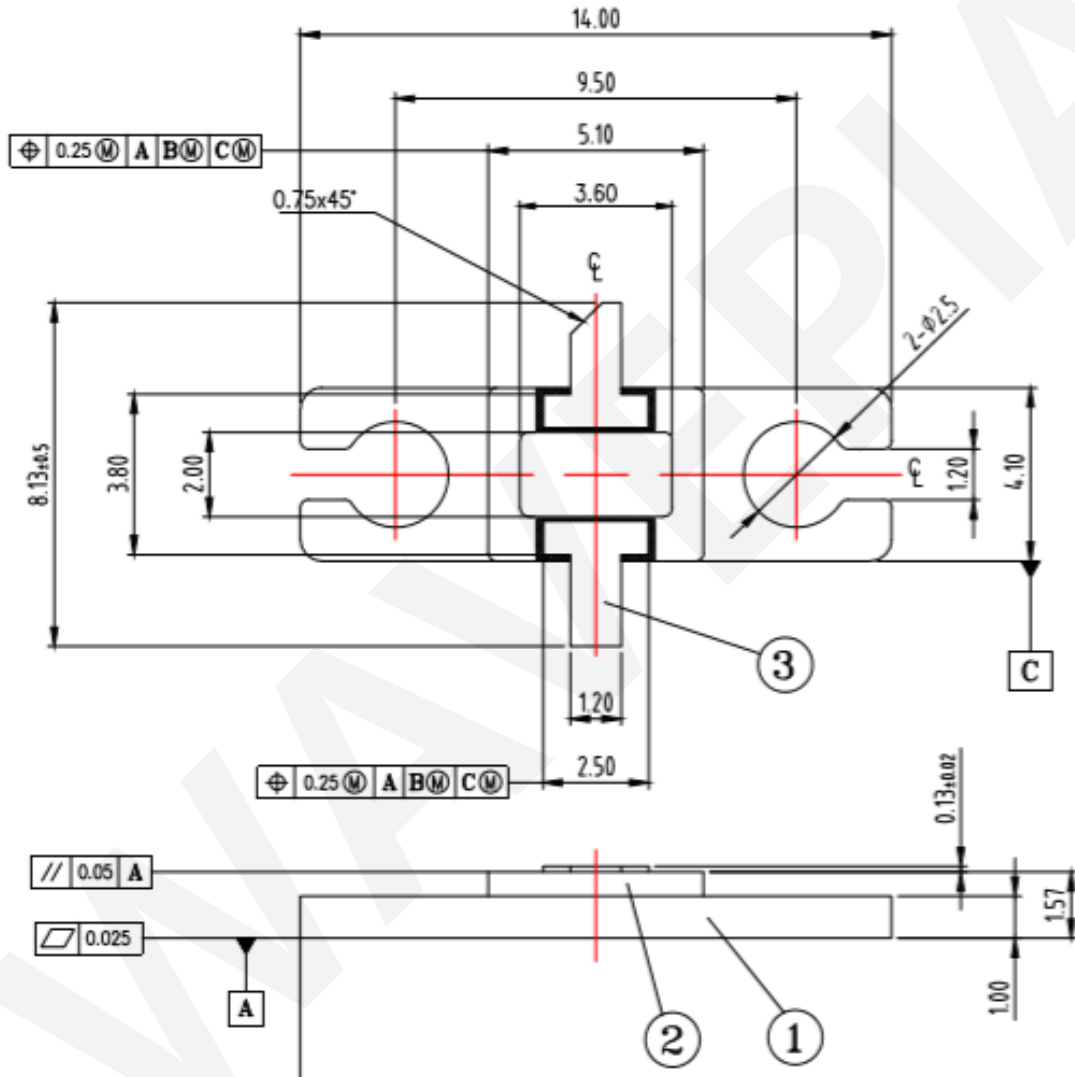
### Product Dimension

- Package Type: 360BS (Surface mount)
- Unit: mm



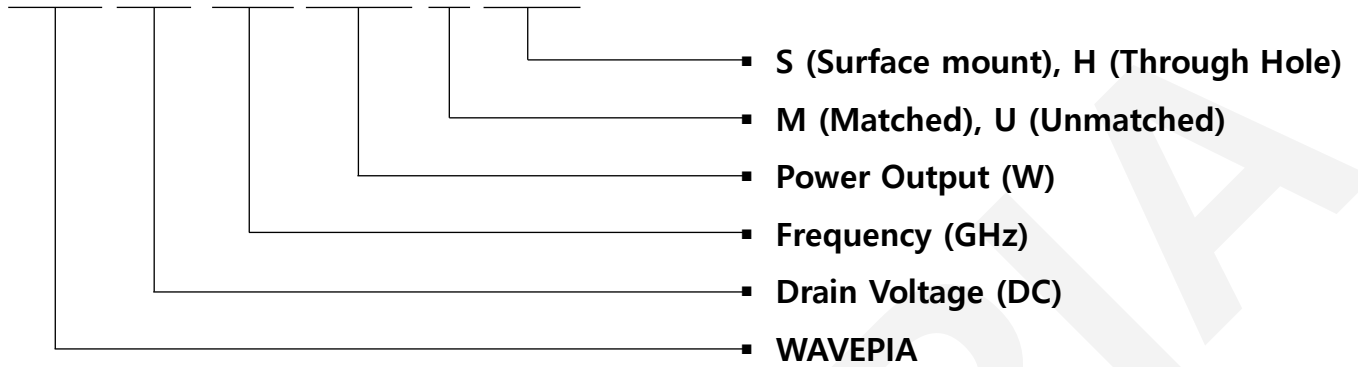
### Product Dimension

- Package Type: 360BH (Through hole)
- Unit: mm



### Part Number System

**W P 2 8 0 6 0 0 8 U H/S**



Parameter	Value	Units
Drain Voltage	28	V
Lower Frequency	DC	GHz
Upper Frequency	6	GHz
Output Power	8	W
Transistor Type	Unmatched	-
Package	S: Surface mount H: Through hole	-