

The ZHM-05300 is a two stage Wideband power amplifier designed for broadband high power applications from 500 MHz- 3000 MHz. It can be used as either a driver or an output stage amplifier. This device is fully matched input and output to 50  $\Omega$  which eliminates any sensitive external RF tuning components. The ZHM-05300 is fabricated using a high reliability pHEMT process, to realize good power added efficiency and gain. The pHEMT process features full passivation for high performance and reliability.

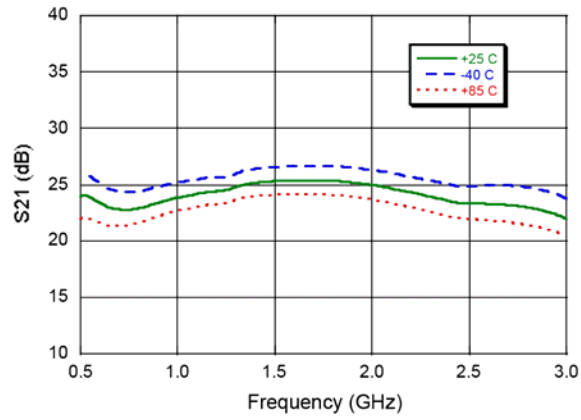
### Electrical Specifications:

Freq. = 0.5 - 3.0 GHz,  $V_{DD}$  = 12 V,  $I_{DQ}$  = 3.5 A,  $T_A$  = 25 °C,  $Z_0$  = 50  $\Omega$

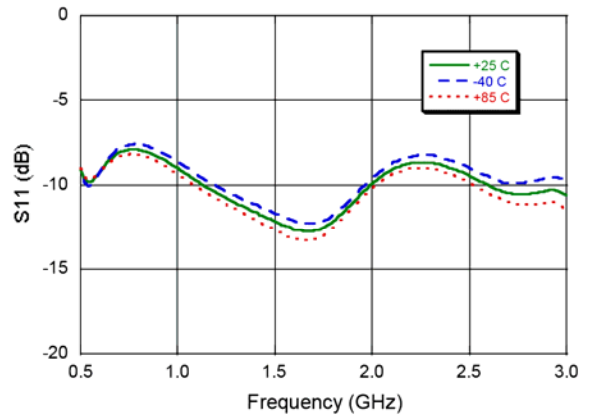
Parameter	Test Conditions	Units	Min.	Typ.	Max.
Gain	Small signal	dB	22	24	26
Input Return Loss	—	dB	—	10	—
Output Return Loss	—	dB	—	10	—
P1dB	—	dBm	—	39	—
$P_{SAT}$	—	dBm	38	41	—
Current	$I_{DQ}$ $P_{SAT}$	A	— —	3.5 5.5	— —
PAE	$P_{SAT}$	%	—	30	—
Duty Cycle	—	%	—	—	100

# Typical Performance Curves

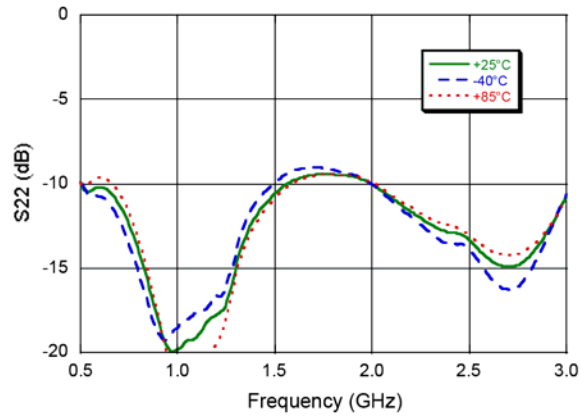
**Gain**



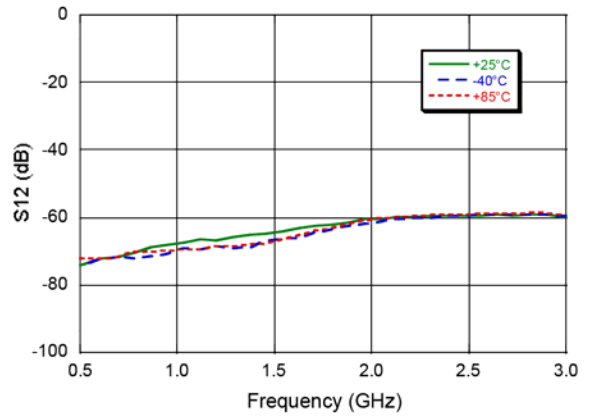
**Input Return Loss**



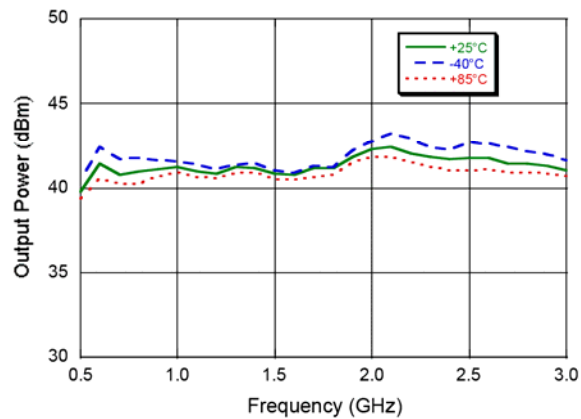
**Output Return Loss**



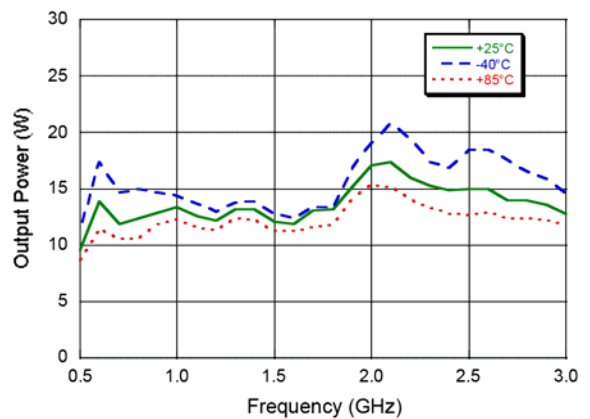
**Reverse Isolation**



**Output Power (dBm)**

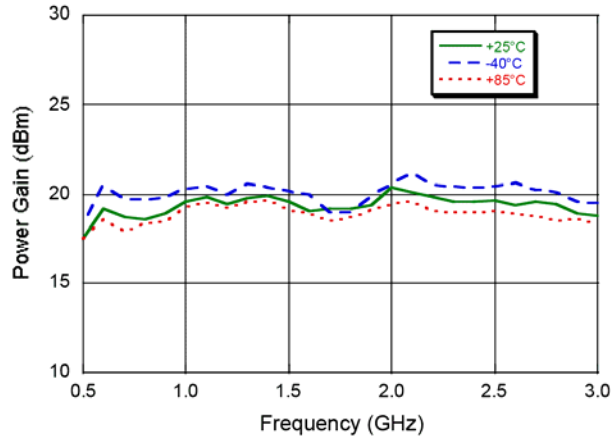


**Output Power (W)**

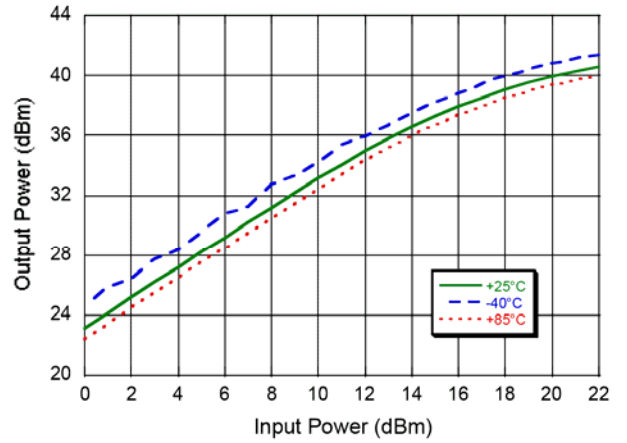


# Typical Performance Curves

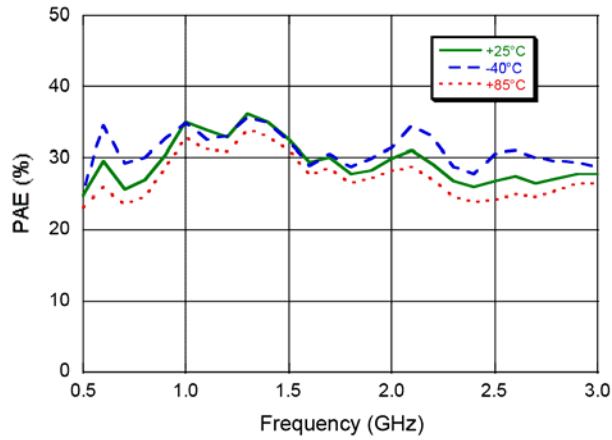
**Power Gain**



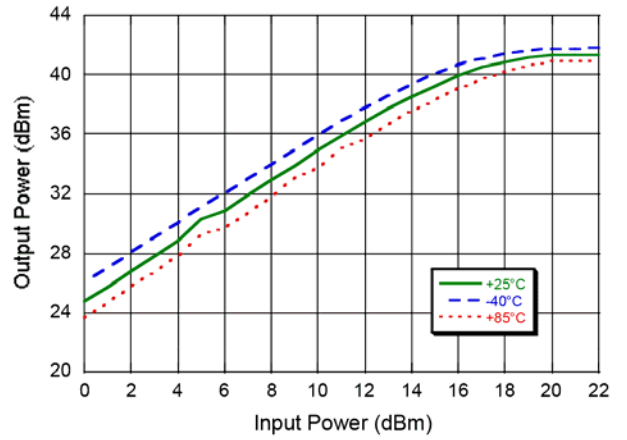
**Output Power Sweep @ 0.7 GHz**



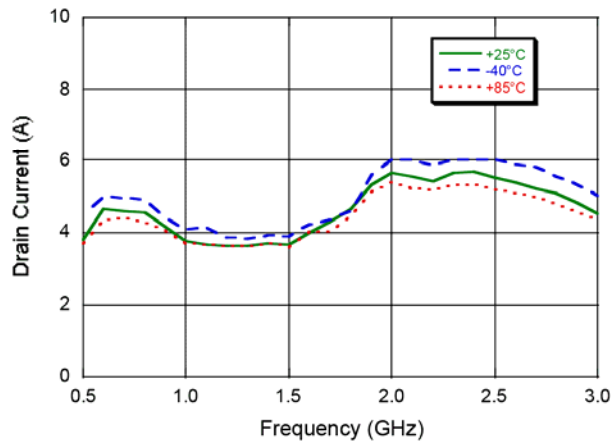
**Power Added Efficiency**



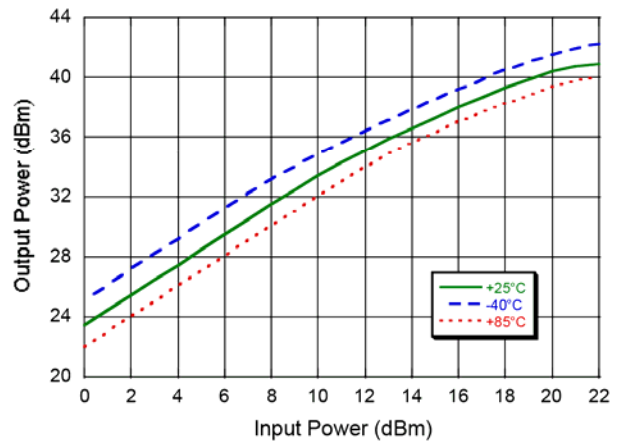
**Output Power Sweep @ 1.5 GHz**



**Drain Current**

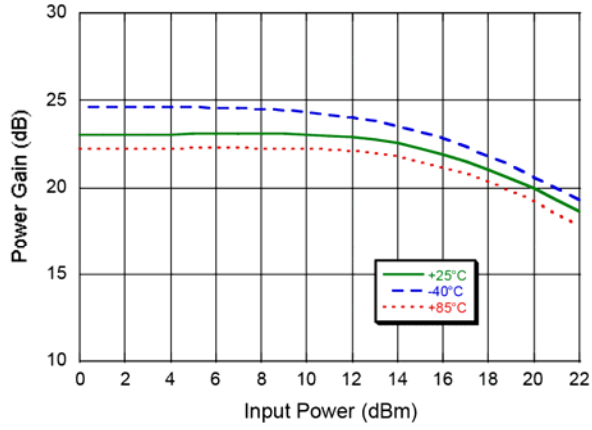


**Output Power Sweep @ 2.5 GHz**

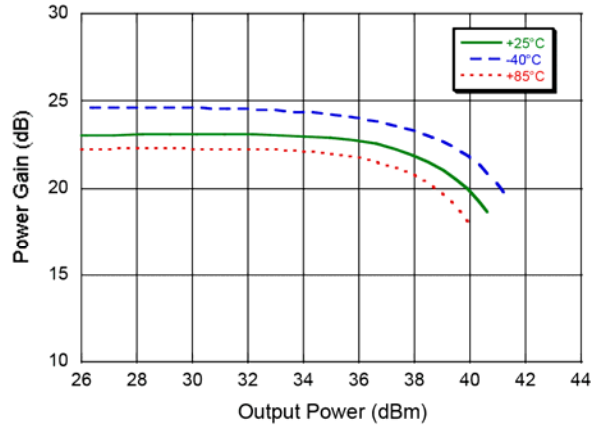


# Typical Performance Curves

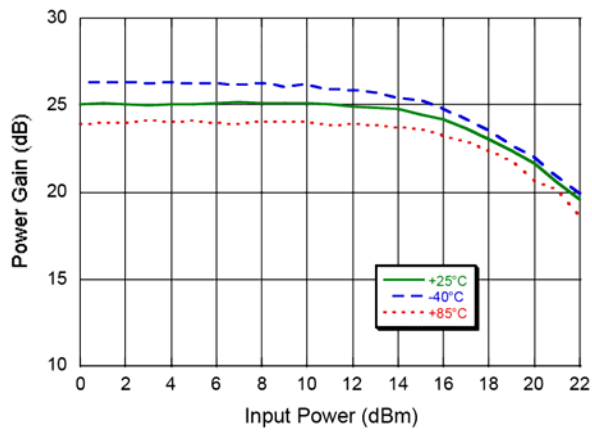
**Power Gain vs. Input Power @ 0.7 GHz**



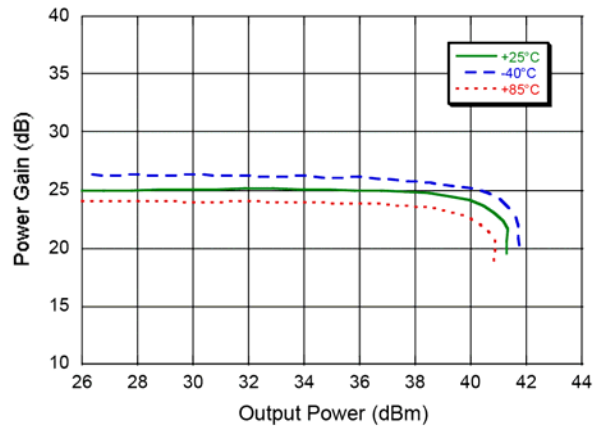
**Power Gain vs. Output Power @ 0.7 GHz**



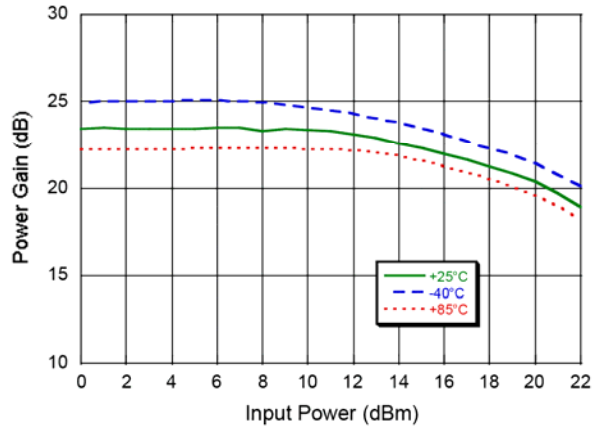
**Power Gain vs. Input Power @ 1.5 GHz**



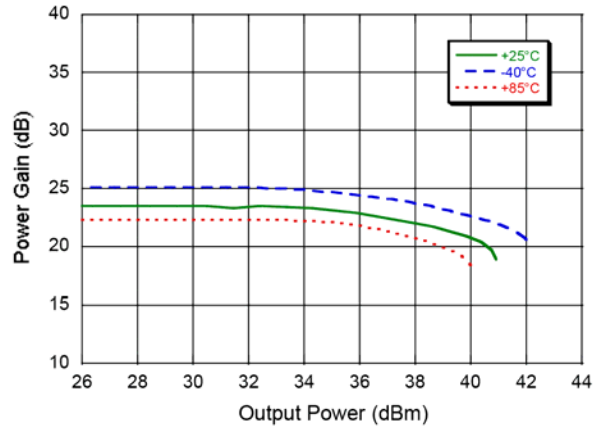
**Power Gain vs. Output Power @ 1.5 GHz**



**Power Gain vs. Input Power @ 2.5 GHz**

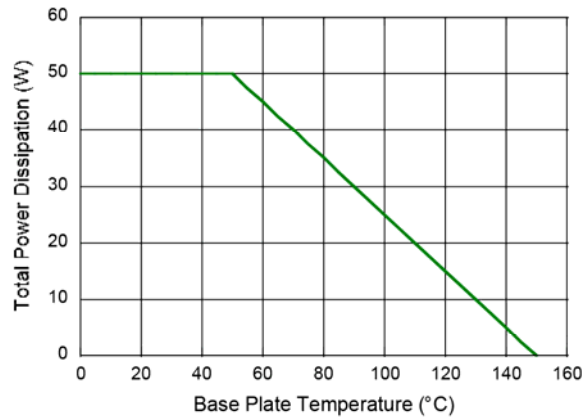


**Power Gain vs. Output Power @ 2.5 GHz**



## Typical Performance Curves

**Max. Power Dissipation vs. Base Plate Temperature<sup>7</sup>**



7. Power dissipation should not exceed the maximum plot shown above to maintain  $T_J < 150^\circ\text{C}$ . It is recommended to monitor power dissipation and decrease power dissipation in the device as required.

**Junction Temperature vs. Base Plate Temperature with 50 W Power Dissipation**

