

### Device Characterization Data

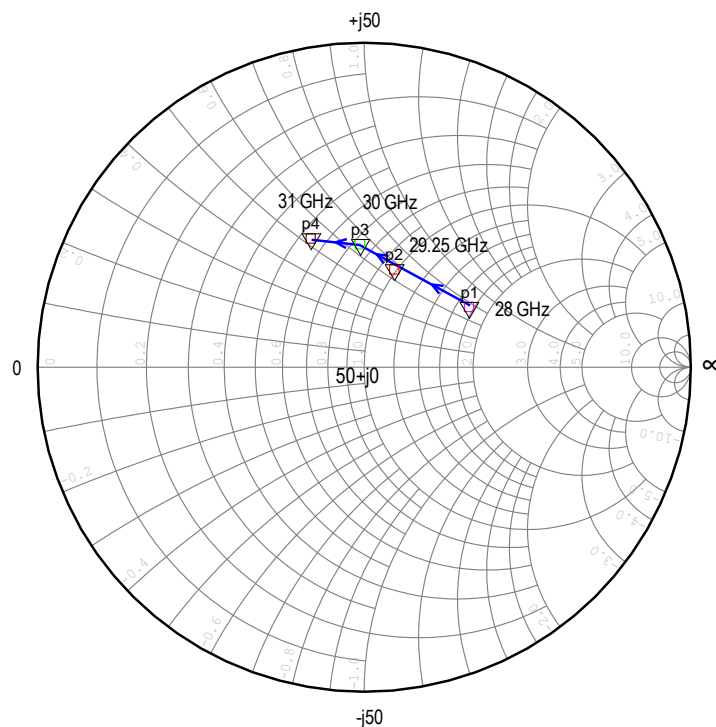
#### Load Pull Data

RF performance of the TGA4539-SM is optimum when placed in the impedance environment specified below. These impedances are NOT the impedances of the device; they are the impedances presented to the device via an RF circuit or load pull system.  $Z_{LOAD}$  is the load impedance presented at pin 13.

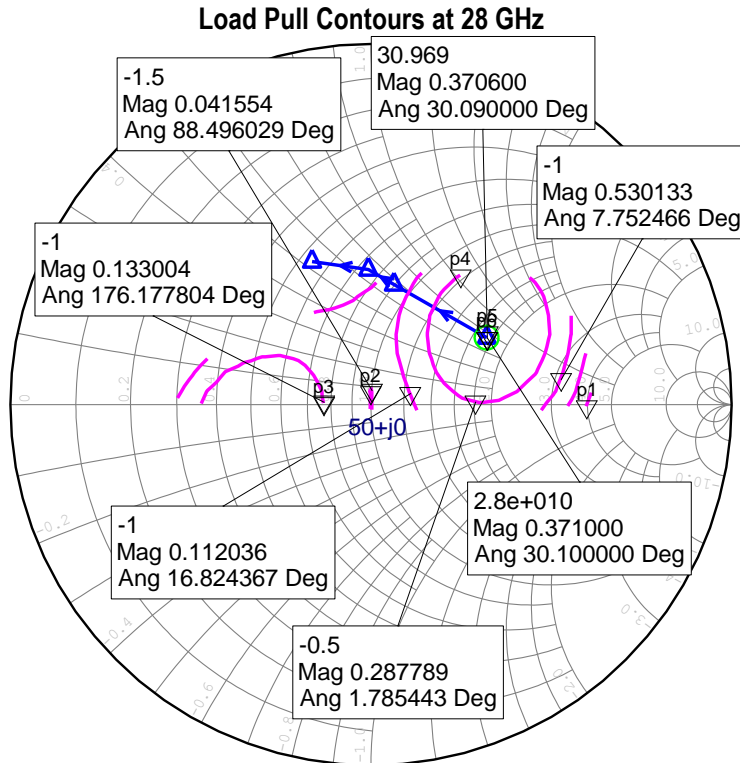
The power data points shown below were measured in a load pull system. The power data points shown in 'Typical Performance' were measured using the input and output structures shown in 'PC Board Tuning Layout' and can vary from the load pull measurements.

**Test Conditions:**  $V_d = 6.0\text{ V}$ ,  $I_{dq} = 420\text{ mA}$ ,  $25^\circ\text{C}$   
Input power for load pull: +16 dBm.  $Z_{SOURCE}$  for load pull:  $50 + j0$

Freq (GHz)	$\Gamma_{LOAD}$	$Z_{LOAD} (\Omega)$	Output Power (dBm)
28.0	Mag=0.371 Ang=30.1°	$86.5 + j37.5$	30.97
29.25	Mag=0.339 Ang=79.2°	$44.8 + j33.8$	30.66
30.0	Mag=0.375 Ang=91.1°	$37.2 + j32.5$	30.29
31.0	Mag=0.429 Ang=112.4°	$27.0 + j26.3$	30.06



### Device Characterization Data – Load Pull Contours at 28 GHz



- p1: Pout\_Norm = -2 dB
- p2: Pout\_Norm = -1.5 dB
- p3: Pout\_Norm = -1 dB
- p4: Pout\_Norm = -0.5 dB
- p5: Pout\_Norm = 0 dB
- p6: Pout = 30.969 dBm

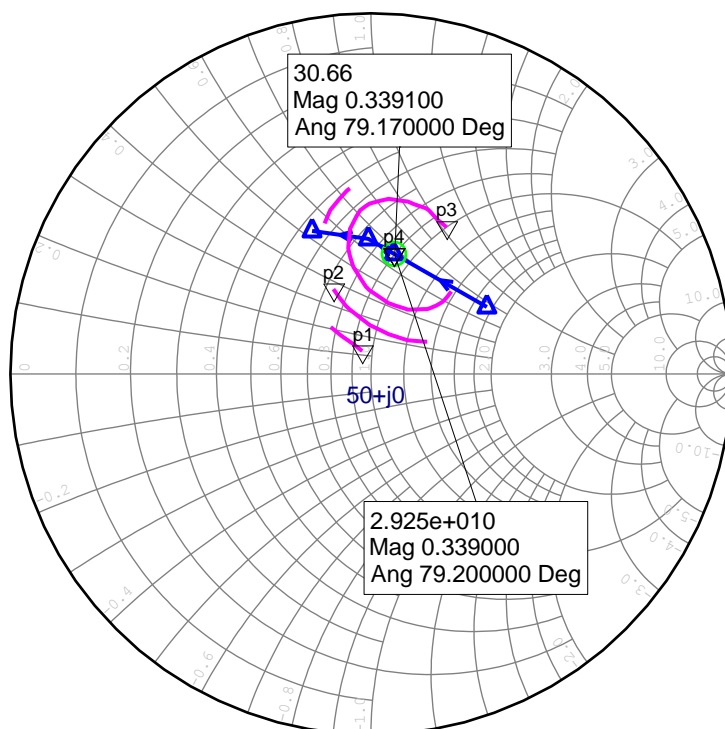
# TGA4539-SM

**Ka-Band 1 Watt Power Amplifier**



## Device Characterization Data – Load Pull Contours at 29.25 GHz

Load Pull Contours at 29.25 GHz



p1: Pout\_Norm = -1.5 dB

p2: Pout\_Norm = -1 dB

p3: Pout\_Norm = -0.5 dB

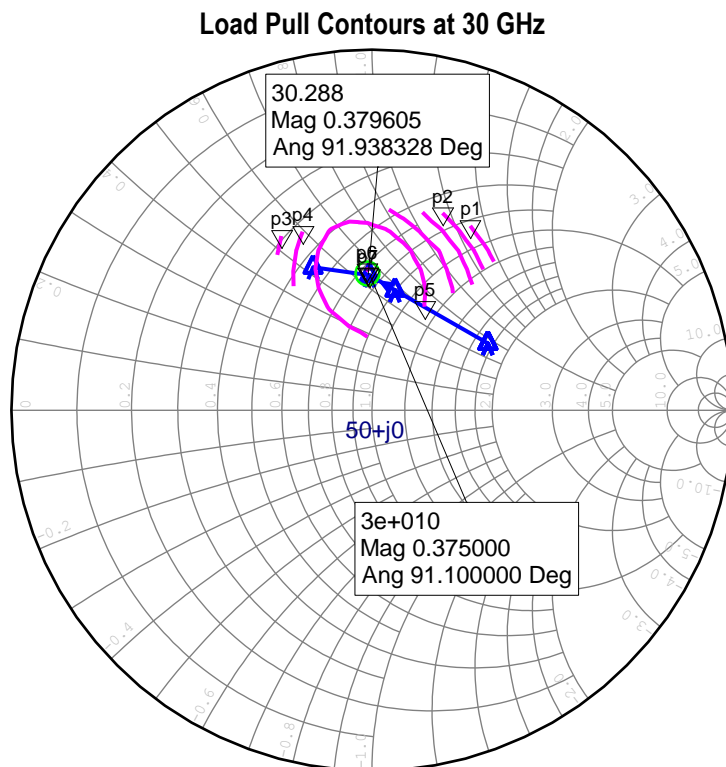
p4: Pout = 30.66 dBm

# TGA4539-SM

**Ka-Band 1 Watt Power Amplifier**



## Device Characterization Data – Load Pull Contours at 30 GHz



p1: Pout\_Norm = -2.5 dB

p2: Pout\_Norm = -2 dB

p3: Pout\_Norm = -1.5 dB

p4: Pout\_Norm = -1 dB

p5: Pout\_Norm = -0.5 dB

p6: Pout\_Norm = 0 dB

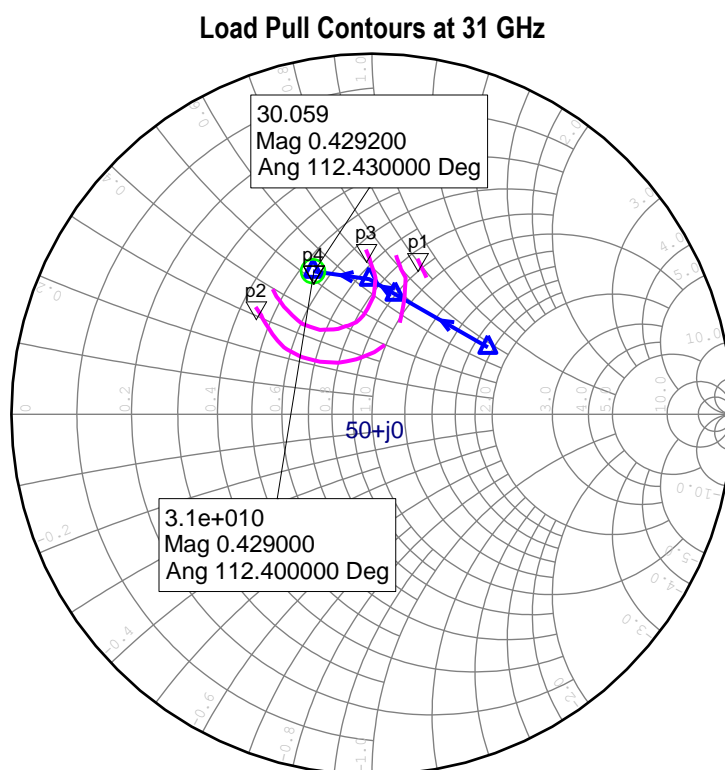
p7: Pout = 30.288 dBm

# TGA4539-SM

Ka-Band 1 Watt Power Amplifier



## Device Characterization Data – Load Pull Contours at 31 GHz



p1: Pout\_Norm = -1.5 dB

p2: Pout\_Norm = -1 dB

p3: Pout\_Norm = -0.5 dB

p4: Pout = 30.059 dBm