BeMiTec
Berlin Microwave Technologies

GaN Power Transistor

BNH0445FG

Product Features

- GaN HFET, gate lenght 0.5 µm
  Gate width: 10 mm
- Output Power > 20 W
  P_{-1dB} = 43 dBm (typ.) @ 2 GHz
- Drain Efficiency:
  56% @ 28 V, 65% @ 15 V
- High Power Gain
  G = 17 dB @ 2 GHz

Applications

- High Power amplifiers
- Radar-Systems
- RF-Sub-Systems

DC ratings (measured on 100 µm wide PCM transistors)

Symbol	Parameter	Min	Typ.	Max	Units
I_{DSS}	Drain Saturation Current (@ V_{GS}=+2V; V_{DS}=+15 V)	910	960	990	mA/mm
V_{Br}	Breakdown Voltage (@ 2x125 µm; L_{GD}=6µm)		> 70		V
V_P	Pinch-off Voltage	-2.1	-2.0	-1.8	V
g_m	max. Transconductance (@ V_{DS}=+15V)	270	290	310	mS/mm
I_{leak}	Gate Leakage (@ V_{DS}=+15V for transistor pinched off)	5	20	50	µA/mm
R_{on}	On-Resistance	1.9	2.1	2.2	Ωmm

Thermal Specifications

Operating Temp. Range (°C)	-25 ~ +70
Thermal Resistance (°C/W)	3.5

power devices for the next generation

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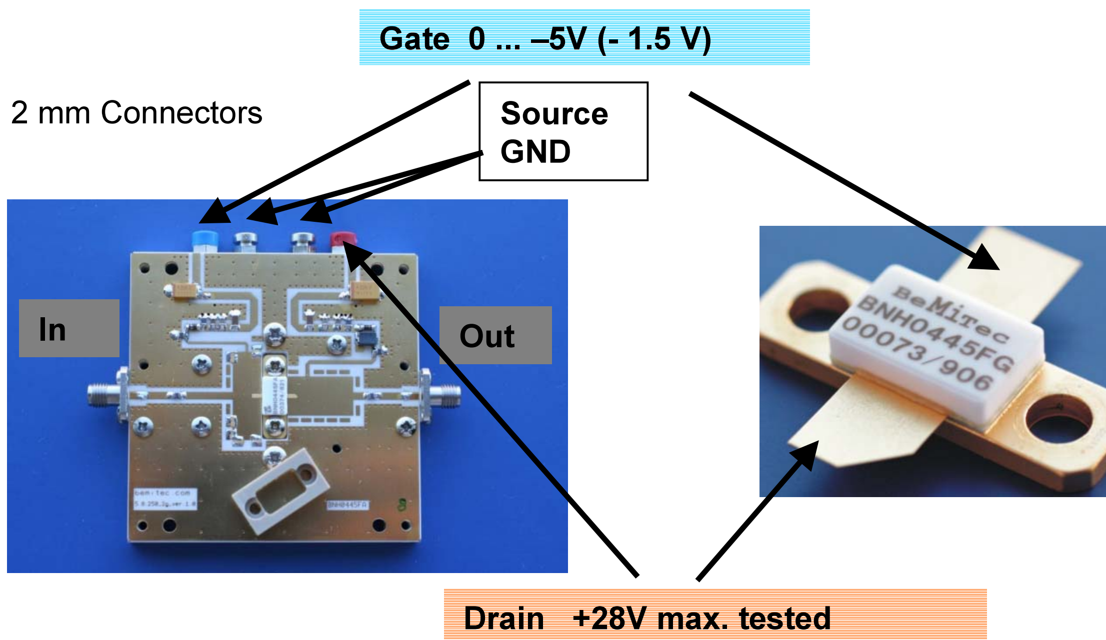
Typical RF-Specifications (Load pull)

Parameter	Specifications / V_{DS} = 28 V (15 V) / I_q=0.7 A				
Frequency (GHz)	0.9	1.8	2.14	2.64	3.5
Small Signal Gain (dB)	21	18	17 (16)	13	11
-1 dB Compression Point (dBm)	43 (41)			TBD	
Power Added Efficiency (PAE)	50% (65%) @ P_{SAT} matched for optimum PAE				

BeMiTec Testboard for measurements in 50 Ω environment



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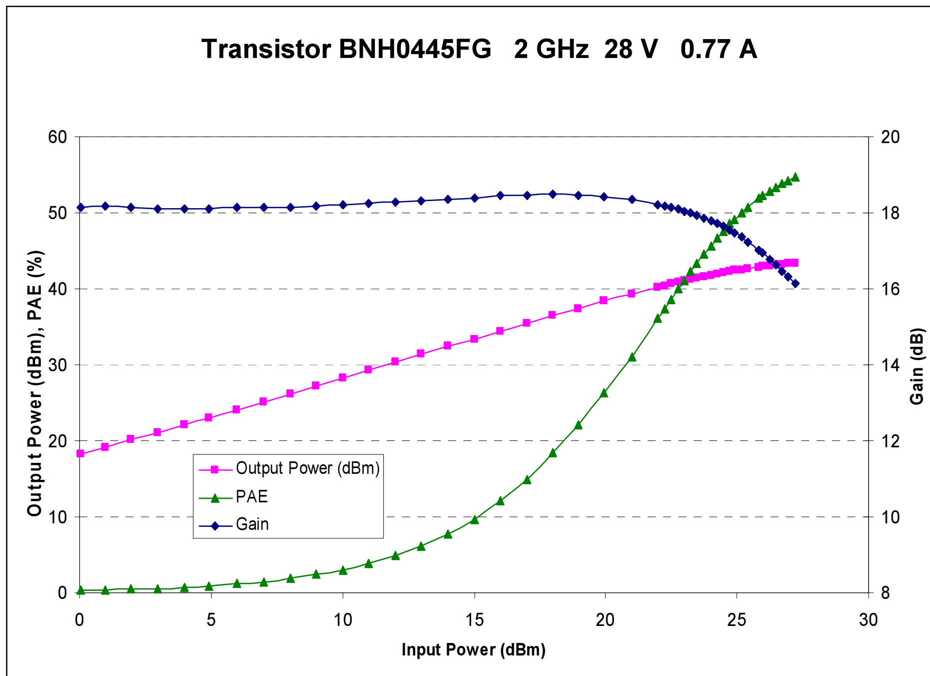
RF-Measurements



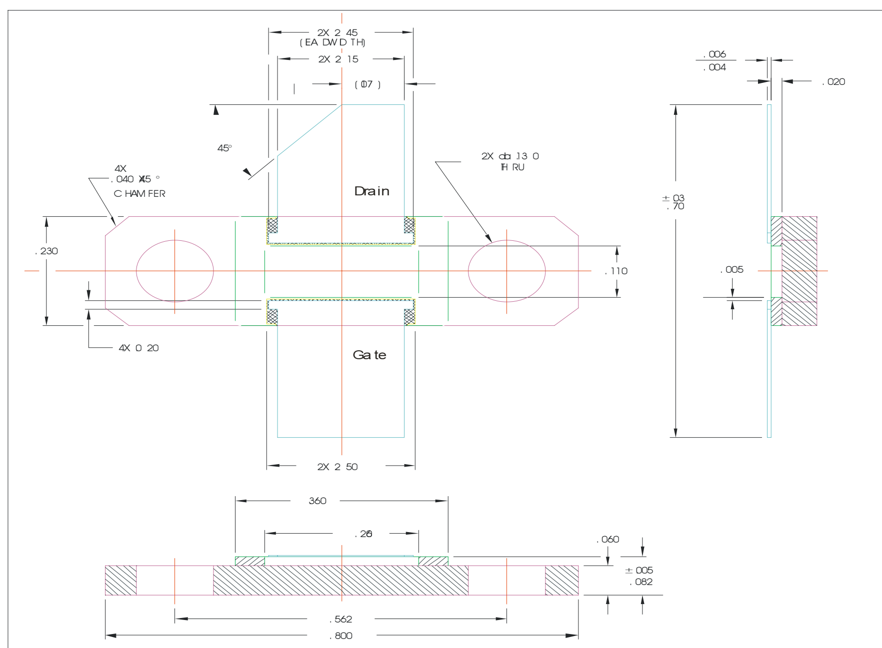
Power Performance
(V_{DS} = 28 V, f = 2 GHz)

Typical load and source impedance for optimum PAE:

Γ_{source} Re = -0.96
Im = -0.17

Γ_{load} Re = -0.85
Im = +0.15

Package Dimensions (A191, Kyocera) (in inches)



all specifications may change without notice
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