

GD080**50V, DC – 3.7GHZ, 80W GAN HEMT****FEATURES**

- Operating Frequency Range: DC to 3.7GHz
- Operating Drain Voltage: +50V
- Maximum Output Power (P_{SAT}): 100W
- Maximum Drain Efficiency: 60%
- Efficiency-Tuned P3dB Gain: 15.5dB
- Bare die shipped in Gel-Pak containers



2.72 x 0.75 mm Die

DESCRIPTION

The GD080 is an 100W (P3dB) unmatched discrete GaN-on-SiC HEMT which operates from DC to 3.7GHz on a 50V supply rail. The wide bandwidth of the GD080 makes it suitable for a variety of applications including cellular infrastructure, radar, communications, and test instrumentation, and can support both CW and pulsed mode of operations.

Bare die are shipped in Gel-Pak containers for safe transport and storage.

TYPICAL PERFORMANCE: POWER TUNED, $T_A = 25^\circ\text{C}$

	3.6 GHz	Units
Gain	14.5	dB
Saturated Output Power	100	W
Drain Efficiency	54	%

$V_D = 50\text{V}$, $I_{DQ} = 100\text{mA}$

TYPICAL PERFORMANCE: EFFICIENCY TUNED, $T_A = 25^\circ\text{C}$

	3.6 GHz	Units
Gain	15.5	dB
Saturated Output Power	80	W
Drain Efficiency	60	%

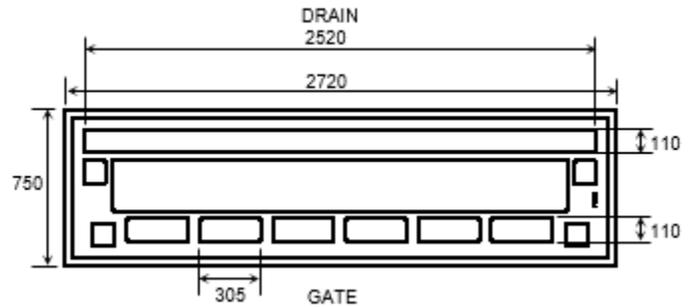
$V_D = 50\text{V}$, $I_{DQ} = 100\text{A}$

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ABSOLUTE MAXIMUM RATINGS

Parameter	Rating	Units
Breakdown Voltage	>150	BV _{DS} (V)
Gate Source Voltage	-8 to +2	V _{GS} (V)
Operating Voltage	55	V (V)
Junction Temperature	+225	(°C)
Storage Temperature	-65 to +150	(°C)

BLOCK DIAGRAM (units in microns)



ELECTRICAL SPECIFICATIONS: T_A = 25°C

Parameter	Min.	Typ.	Max.	Units	Notes
Frequency Range	DC		3700	MHz	
DC Characteristics					
Drain Source Breakdown Voltage		150		V _{DS} (V)	
Drain Source Leakage Current		0.94		I _{DS} (mA)	
Gate Threshold Voltage		-3 to -1.3		V _{GS} (V)	
Operating Conditions					
Gate Voltage		-2.5		V _G (V)	
Drain Voltage		50		V _D (V)	
Quiescent Drain Current		100		I _{DQ} (mA)	
Thermal Characteristics					
Thermal Resistance		TBD		(°C/W)	

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GaN HEMT BIASING SEQUENCE

To turn the transistor ON

1. Set V_{GS} to -5V
2. Turn on V_{DS} to normal operation voltage (50V)
3. Slowly increase V_{GS} to set I_{DS} current (100mA)
4. Apply RF power

To turn the transistor OFF

1. Turn the RF power off
2. Decrease V_{GS} to -5V
3. Turn off V_D . Wait a few seconds for drain capacitor to discharge
4. Turn off V_{GS}

CONTACT INFORMATION

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