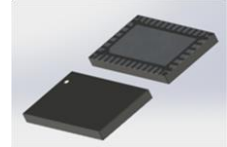


35W GaN amplifier module

Description

NGM3638035LPO2 is a fully integrated two-stage GaN amplifier module, designed primarily for use in 3.6-3.8 GHz cellular base station power amplifiers. It provides advanced functionality with its high gain, efficiency, and linearity on a small and efficient footprint in its 10x6mm plastic package.

NGM3638035LPO2



Typical Applications

- 5G, LTE and multi-standard amplifiers.

Features

- 50Ω I/O

Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	100	Vdc
Gate-Source Voltage	V_{GS}	-8 to +0.5	Vdc
Operating Voltage	V_{DD}	55	Vdc
Storage Temperature Range	T_{stg}	-65 to +150	°C
Case Operating Temperature	T_C	+150	°C
Operating Junction Temperature	T_J	+225	°C
Load Mismatch	VSWR	10:1	Ψ
Thermal Resistance	$R_{\theta JC}$	4.6	°C/W

Electrical Characteristics

DC Characteristics

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage		V_{DSS}	100			V
Gate Threshold Voltage		$V_{GS(th)}$		-2.7		V
Driver Quiescent Current		$I_{DQ1 (Driver)}$		20		mA
Carrier Quiescent Current		$I_{DQ3 (Main)}$		50		mA
Peak Gate Quiescent Voltage		$V_{GSz (Peak)}$		-3.9		V

RF Characteristics

(As measured in test fixture, Pulsed RF 20μs/10%, $V_{DD}=28V$, $f=3.8$ GHz)

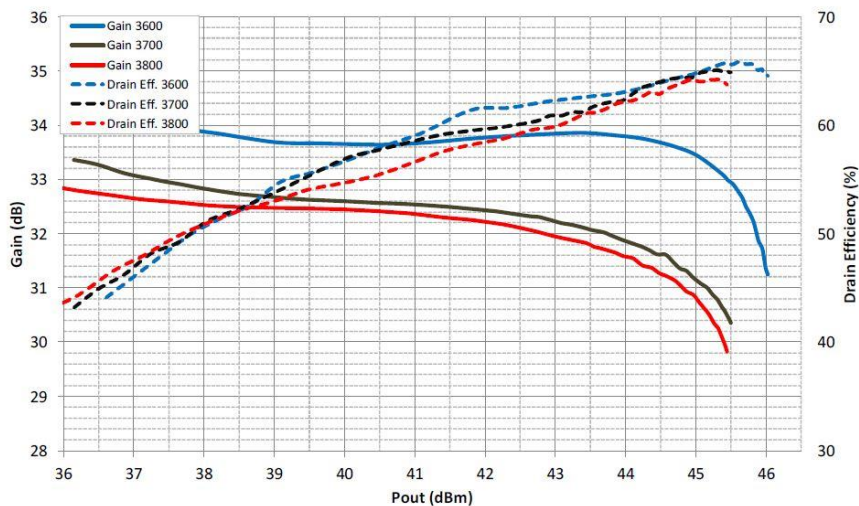
Characteristics	Symbol	Min.	Typ.	Max.	Unit
Output power	P-1dB		27		W
Power gain	GP-3		30		dB
Output power	P-3dB		35		W
Efficiency	η		65		%

(As measured in test fixture, 37.5dBm, WCDMA Single Carrier, 3GPP test model 1; 1 to 64 DPCH, Channel BW 3.84MHz, PAR 10.5dB @ 0.01% CCDF)

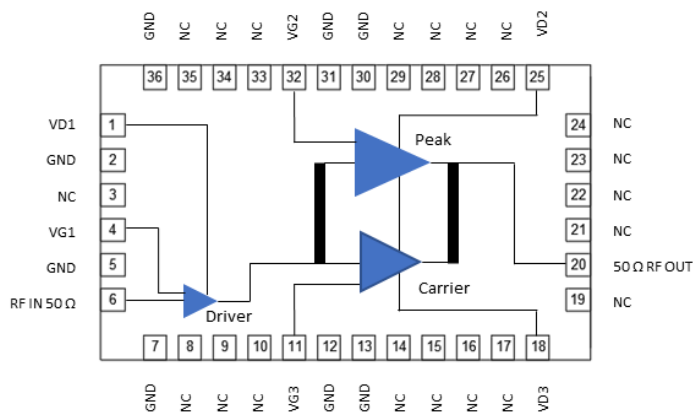
Freq (MHz)	Ppdp(dBm)	Gain (dB)	η (%)	ACPR (dBc)
3600	46.6	32.8	46.2	-28.9
3700	46.0	32.1	46.1	-31.7
3800	46.2	31.8	46.6	-30.7

Performance as measured in test fixture.

Gain and Efficiency vs Power



Functional block diagram and package pinning



Pin	Symbol	Description
1	VD1	Driver amplifier, Drain Bias
4	VG1	Driver amplifier, Gate Bias
6	RF IN	RF Input 50Ω
11	VG3	Carrier amplifier, Gate Bias
18	VD3	Carrier amplifier, Drain Bias
20	RF OUT 1	RF output 50Ω
27	VD2	Peak amplifier, Drain Bias
32	VG2	Peak amplifier, Gate Bias
3, 8-10, 14-17, 19, 21-24, 26-29, 33-35	NC	No connection. May be connected to PCB ground
2, 5, 7, 12, 13, 30, 31, 36	GND	Internal ground, recommended to be connected to PCB
Package backside base	GND	Ground. Must be soldered and connected to PCB ground mounted atop copper coin or tightly stitched filled vias for adequate heat transfer.

Package Outline

