

2W Ultra-wideband GaN amplifier

Description

The NGM0060002LPO1 is fully integrated ultra-wideband amplifier primarily targeting wideband applications up to 6.5GHz. This is a versatile product on a small and efficient footprint in its 10x6mm plastic package. It can handle many different signal formats such as CW, pulsed radar or complex modulation.

Applications

- Ultra-wideband amplifiers
- Wireless communication
- EMC testing
- Pulsed Radar
- ISM

Features

- 50Ω I/O



Table 1. Maximum Ratings

Parameter	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	150	Vdc
Gate--Source Voltage	V_{GS}	-10,+2	Vdc
Operating Voltage	V_{DD}	36	Vdc
Storage Temperature Range	T_{STG}	-65 to +150	°C
Case Operating Temperature	T_c	+150	°C
Operating Junction Temperature (See note 1)	T_j	+225	°C
Thermal Resistance ($T_c=85^{\circ}C$, $T_j=200^{\circ}C$, CW)	$R_{\theta JC}$	5	°C/W
Mismatch	VSWR	10:1	Ψ

Note: 1. Continuous operation at maximum junction temperature will affect MTTF

Table 3. DC Characteristics ($T_c = 25^{\circ}C$ unless otherwise noted)

Characteristics	Symbol	Min	Typ	Max	Unit	Conditions
Drain-Source Breakdown Voltage	V_{DSS}		150		V	$V_{GS}=-8V$; $I_{DS}=3mA$
Gate Threshold Voltage	$V_{GS(TH)}$		-2.7		V	$V_{DS} = 28V$, $I_{DS} = 3mA$
Gate Quiescent Voltage	$V_{GS(Q)}$		-2.45		V	$V_{DS} = 28V$, $I_{DS}=10mA$

Table 4. RF Characteristics (In Std Test Fixture) $V_{DD} = 28$ Vdc, $I_{DQ} = 10$ mA, CW

Characteristics	Symbol	Min	Typ	Max	Unit
Power Gain	G_{PSAT}		11		dB
Drain Efficiency (@ P_{SAT})	η		45		%
Saturated Power	P_{SAT}		3		W
Input Return Loss	RTL		-10		dB

Typical Performance (as measured in std fixture):

Vdd=28V

Parameter	30MHz	0.5GHz	1.0GHz	2.0GHz	3.0GHz	4.0GHz	5.0GHz	6.0GHz	6.5GHz	Units
Gain (ss)	15.2	14.9	14.8	14.4	14.7	13.8	14.0	15.6	15.1	dB
Psat	4.3	4.5	4.6	3.9	4.1	3.2	3.1	2.5	3.3	W
Gain@Psat	12.2	11.9	11.8	11.4	11.7	10.8	11.0	12.6	12.1	dB
Eff@Psat	58	55	51	46	46	41	36	35	47	%

Vdd=32V

Parameter	30MHz	0.5GHz	1.0GHz	2.0GHz	3.0GHz	4.0GHz	5.0GHz	6.0GHz	6.5GHz	Units
Gain (ss)	15.3	14.9	15.1	14.5	14.5	14.0	14.2	15.9	15.6	dB
Psat	4.8	5.0	4.9	4.3	4.3	3.9	3.4	2.9	3.8	W
Gain@Psat	12.3	11.9	12.1	11.5	11.5	11.0	11.2	12.9	12.6	dB
Eff@Psat	54	51	47	43	40	41	34	34	45	%

