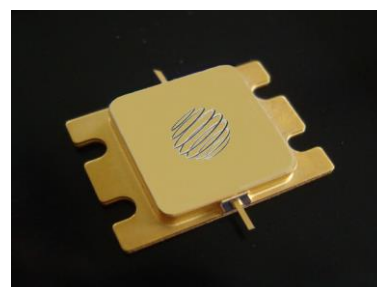


NGN1214H1S-M200 is a Gallium Nitride RF power transistor internally matched to 50Ω. It is developed for 1.2-1.4 GHz high power amplifiers and it is ideal pulsed radar applications. This transistor has hermetically sealed package to enable use in applications with high reliability requirements.

Features

- 200W typical peak power
- 16.5 dB power gain
- 50Ω input and output impedance
- 65% efficiency



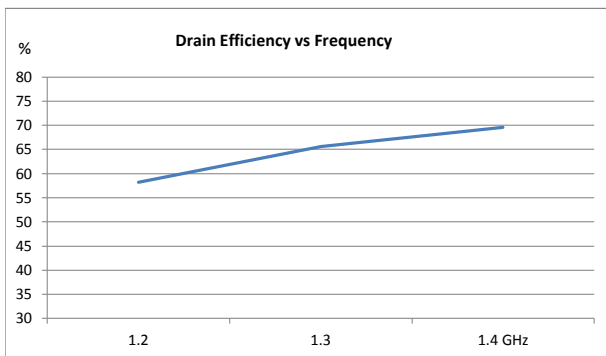
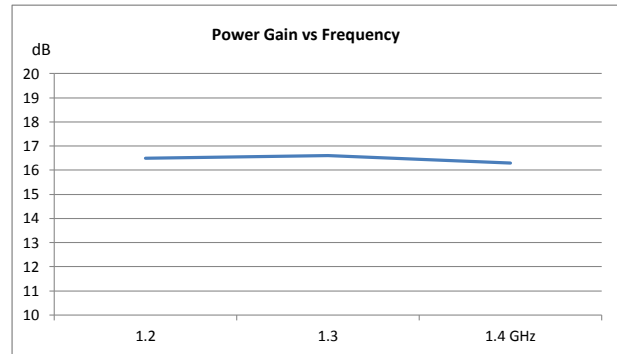
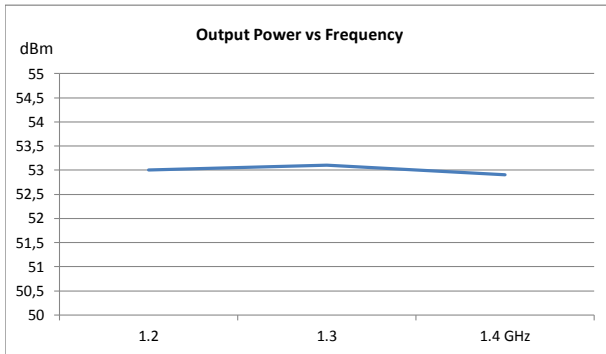
Characteristics	Symbol	Min.	Typ.	Max.	Units	Conditions
DC Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$		-3.0		VDC	$V_{DS} = 10\text{ V}, I_D = 20.8\text{ mA}$
Gate Quiescent Voltage	$V_{GS(Q)}$		-2.8		VDC	$V_{DS} = 50\text{ V}, I_D = 100\text{ mA}$
Saturated Drain Current ²	I_{DS}		20.8		A	$V_{DS} = 6.0\text{ V}, V_{GS} = 2.0\text{ V}$
RF Characteristics ($V_{DD} = 50\text{ V}, T_c = 25^\circ\text{C}, F = 1.2\text{-}1.4\text{ GHz}, I_{DQ} = 100\text{ mA}, P_{in} = 36.5\text{ dBm}$)						
Power Gain	G_{LS}		16.5		dB	
Power Output	P_{SAT}		200		W	
Input Return Loss	S_{11}		-10		dB	
PAE	η	-	65	-	%	
Output Mismatch	VSWR			5:1	ψ	

Maximum Ratings	Symbol	Rating	Units	Conditions
Parameter				
Drain-Source Voltage	V_{DSS}	150	V	25°C
Gate-Source Voltage	V_{GS}	-10, +2	V	25°C
Storage temperature	T_{STG}	-65 - 150	°C	
Operating Junction Temperature	T_J	225	°C	
Maximum Drain Current	$I_{D_{MAX}}$	12.8	A	25°C
Maximum Forward Gate Current	$I_{G_{MAX}}$	20.8	mA	25°C
Duty cycle	DC	10	%	

Subject to change without notice.

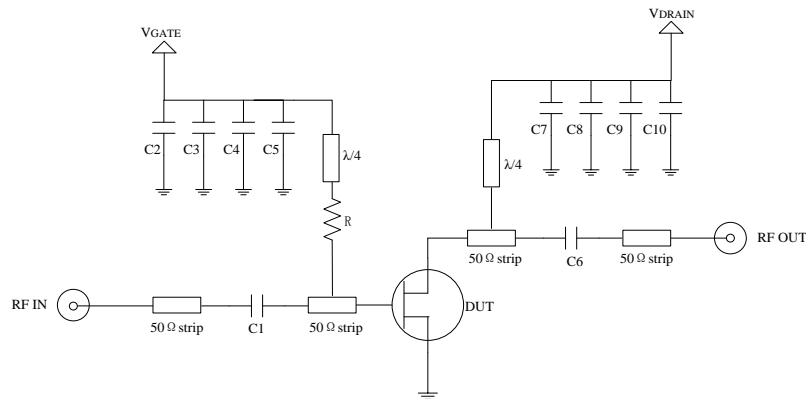
Typical Performance

Vdd=50V, Idq=100mA, T=25°C, Pin=36.5dBm, DC=10% 200µs



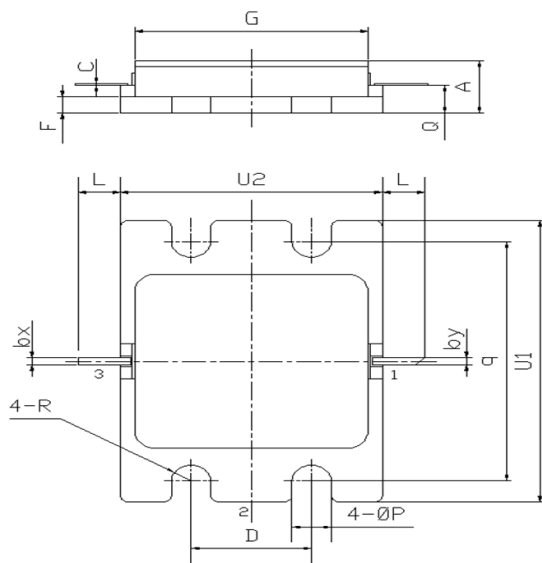
Subject to change without notice.

Evaluation Circuit



Pos.	Descr.
R	10Ω
C1,C2,C6,C7	12pF
C3,C8	1nF
C4, C9	33nF
C5, C10	1μF
C11	2200 pF
PCB RO5880	$\epsilon_r=2.2$

Package Drawing



Item	Measure mm	
	Min	Max
A	4.05	4.5
bx	0.55	0.65
by	0.55	0.65
C	0.05	0.15
D	7.85	8.15
F	1.2	1.6
L	2.85	3.15
G	15.35	15.65
ØP	2.45	2.75
Q	2.25	2.55
q	20.2	20.6
R	1.15	1.45
U1	23.8	24.2
U2	17.2	17.6

Subject to change without notice.