

Eudyna GaN-HEMT 90W

ES/EGN26A090IV

Preliminary

High Voltage - High Power GaN-HEMT

FEATURES

- High Voltage Operation : $V_{DS}=50V$
- High Power : 50.0dBm (typ.) @ P3dB
- High Efficiency: 55%(typ.) @ P3dB
- Linear Gain : 14.0dB(typ.) @ $f=2.6GHz$
- Proven Reliability

DESCRIPTION

Eudyna's GaN-HEMT offers high efficiency, ease of matching, greater consistency and broad bandwidth for high power L-band amplifiers with 50V operation, and gives you higher gain.

This device target applications are low current and wide band applications for high voltage.



ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	V_{DS}		120	V
Gate-Source Voltage	V_{GS}	$T_c=25^{\circ}C$	-5	V
Total Power Dissipation	P_t		150	W
Storage Temperature	T_{stg}		-65 to +175	$^{\circ}C$
Channel Temperature	T_{ch}		250	$^{\circ}C$

RECOMMENDED OPERATING CONDITION(Case Temperature $T_c= 25^{\circ}C$)

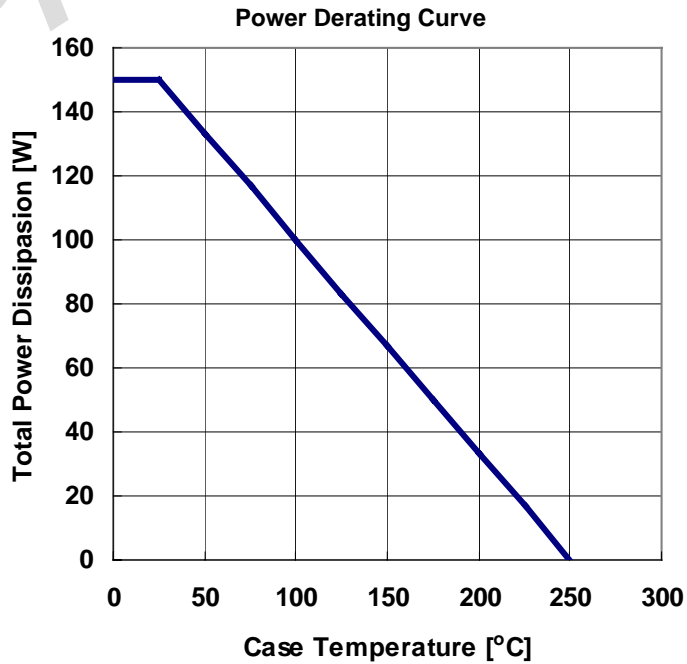
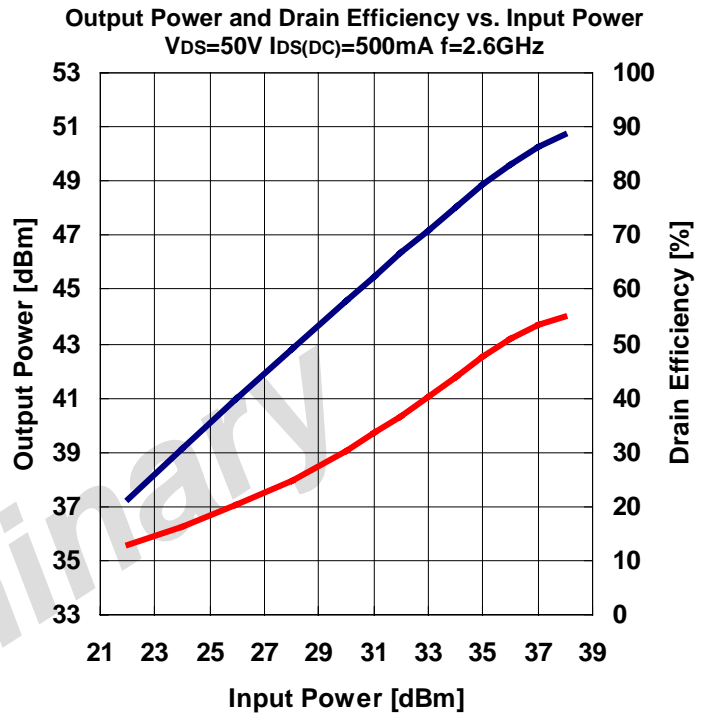
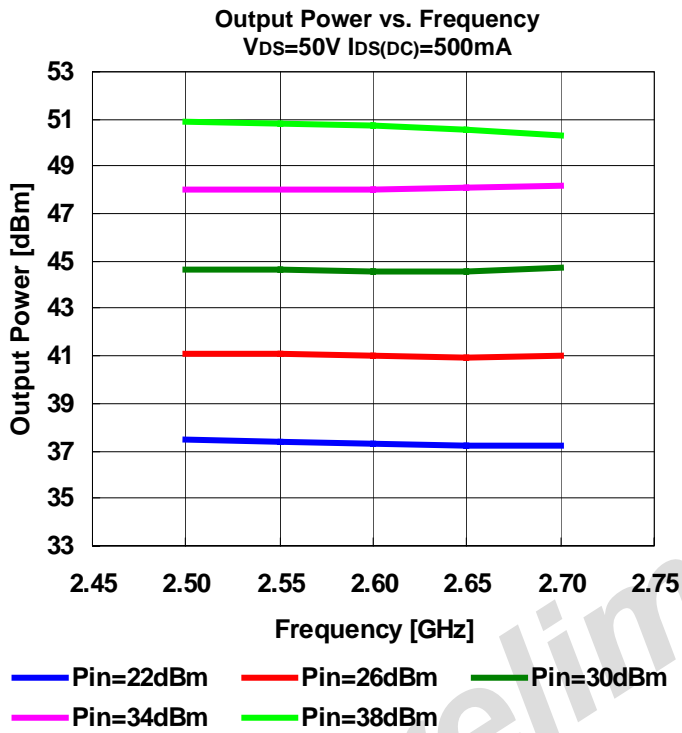
Item	Symbol	Condition	Limit	Unit
DC Input Voltage	V_{DS}		50	V
Forward Gate Current	I_{GF}	$R_G=5 \Omega$	<TBD	mA
Reverse Gate Current	I_{GR}	$R_G=5 \Omega$	>-7.2	mA
Channel Temperature	T_{ch}		200	$^{\circ}C$

ELECTRICAL CHARACTERISTICS (Case Temperature $T_c=25^{\circ}C$)

Item	Symbol	Condition	Limit			Unit
			min.	Typ.	Max.	
Pinch-Off Voltage	V_p	$V_{DS}=50V$ $I_{DS}=36mA$	-1.0	-2.0	-3.5	V
Gate-Drain Breakdown Voltage	V_{GDO}	$I_{GS}=-18mA$	-	-350	-	V
3dB Gain Compression Power	P_{3dB}	$V_{DS}=50V$	TBD	50.0	-	dBm
Drain Efficiency	η_d	$I_{DS}(DC)=500mA$	-	55	-	%
Linear Gain	GL	$f=2.6GHz$	TBD	14.0	-	dB
Thermal Resistance	R_{th}	Channel to Case	-	1.3	1.5	$^{\circ}C/W$

ES/EGN26A090IV

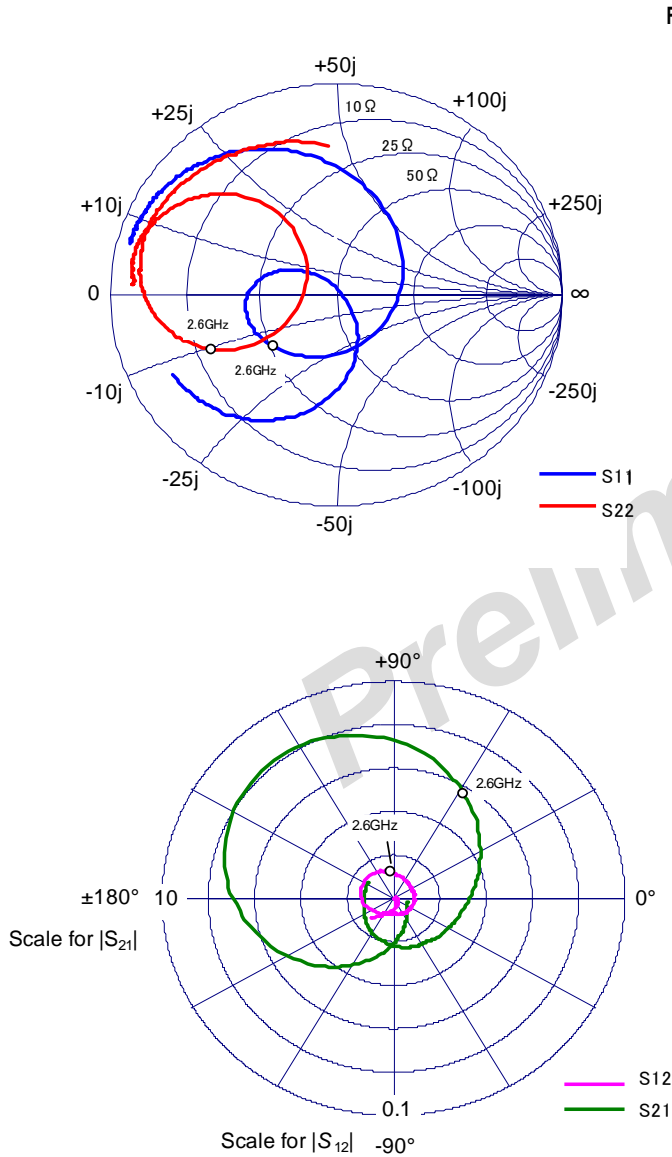
High Voltage - High Power GaN-HEMT



ES/EGN26A090IV

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S-Parameters @V_{DS}=50V, I_{DS}=500mA, f=1 to 4 GHz,
Z_I = Z_S = 50 ohm

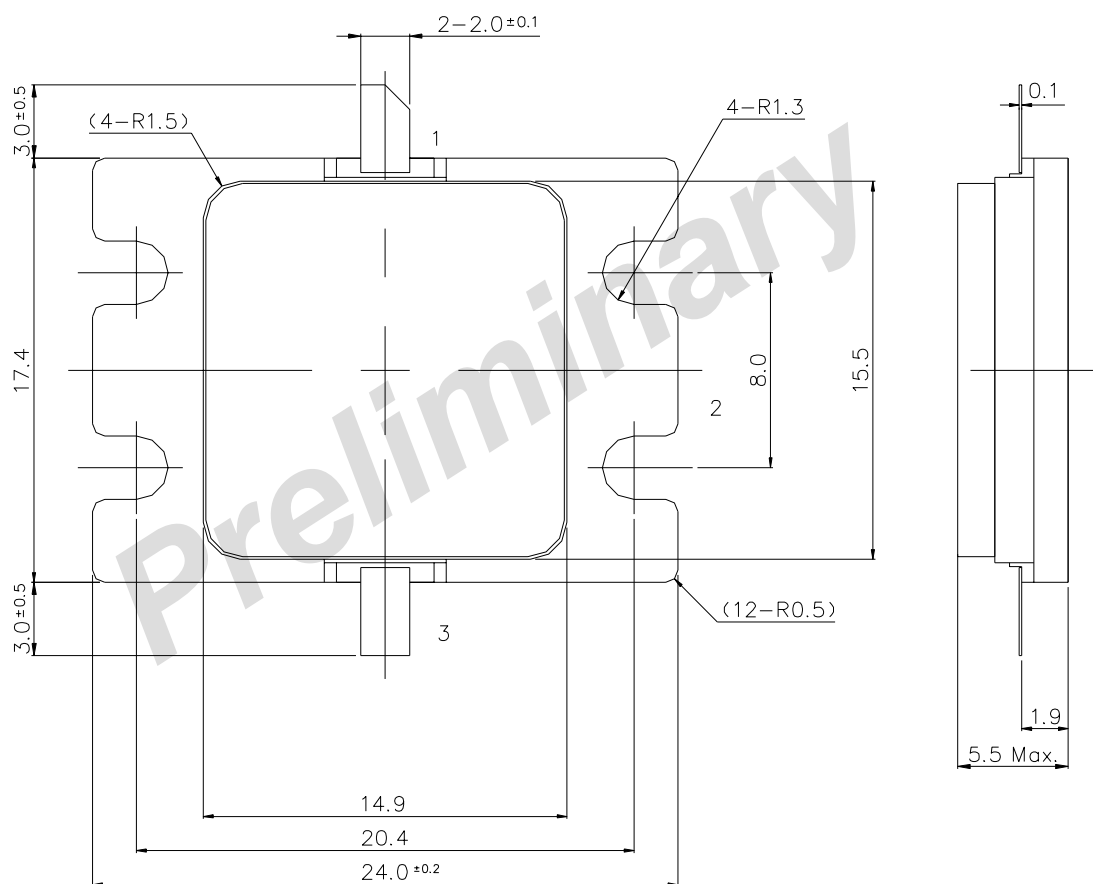


Freq [GHz]	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.943	165.0	0.650	-13.1	0.001	1.1	0.905	176.8
1.1	0.943	162.9	0.616	-18.2	0.001	6.6	0.899	176.2
1.2	0.940	160.3	0.605	-23.0	0.001	-17.8	0.897	175.3
1.3	0.935	157.5	0.619	-28.1	0.001	12.1	0.906	174.2
1.4	0.928	154.6	0.662	-33.3	0.001	27.6	0.910	172.9
1.5	0.925	150.6	0.724	-39.5	0.001	-5.3	0.912	171.2
1.6	0.913	146.1	0.828	-46.4	0.001	4.0	0.911	169.2
1.7	0.894	141.3	0.981	-54.7	0.001	-2.7	0.910	166.8
1.8	0.869	135.0	1.221	-64.3	0.002	-14.6	0.902	164.1
1.9	0.833	127.3	1.577	-75.6	0.002	-24.3	0.895	160.8
2.0	0.776	116.9	2.116	-90.6	0.003	-48.8	0.875	156.4
2.1	0.692	103.3	2.998	-109.6	0.004	-69.2	0.839	150.9
2.2	0.568	83.3	4.387	-134.6	0.006	-101.3	0.762	142.5
2.3	0.402	49.8	6.406	-169.4	0.010	-137.9	0.588	129.2
2.4	0.255	-19.0	8.084	144.3	0.014	176.6	0.228	127.2
2.5	0.296	-100.5	7.474	95.7	0.014	127.7	0.333	-146.4
2.6	0.371	-138.8	5.713	58.1	0.013	96.2	0.606	-155.0
2.7	0.406	-159.7	4.410	31.2	0.011	72.4	0.739	-165.1
2.8	0.401	-175.1	3.574	9.4	0.010	56.3	0.805	-172.8
2.9	0.357	170.2	3.057	-9.9	0.009	40.2	0.843	-178.7
3.0	0.272	154.9	2.752	-28.8	0.009	24.7	0.864	176.2
3.1	0.139	134.9	2.545	-48.8	0.009	4.9	0.878	171.3
3.2	0.046	-28.8	2.377	-69.9	0.009	-13.8	0.884	166.5
3.3	0.242	-67.5	2.165	-91.9	0.008	-37.1	0.887	160.9
3.4	0.425	-87.3	1.911	-113.2	0.008	-58.2	0.886	155.4
3.5	0.568	-103.1	1.663	-132.7	0.007	-74.9	0.877	149.3
3.6	0.665	-116.5	1.463	-149.5	0.007	-90.9	0.864	142.6
3.7	0.732	-127.4	1.331	-164.6	0.007	-106.6	0.841	135.2
3.8	0.769	-137.1	1.254	-179.5	0.008	-117.0	0.814	125.4
3.9	0.795	-145.2	1.254	165.6	0.009	-122.4	0.771	112.8
4.0	0.814	-152.3	1.324	147.4	0.013	-136.3	0.710	93.1

ES/EGN26A090IV

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IV Package Outline
Metal-Ceramic Hermetic Package



PIN ASSIGNMENT
1 : GATE
2 : SOURCE(Flange)
3 : DRAIN

Unit : mm