

Eudyna GaN-HEMT 30W

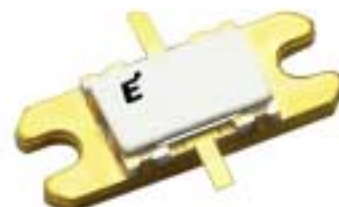
ES/EGN26A030MK

Preliminary

High Voltage - High Power GaN-HEMT

FEATURES

- High Voltage Operation : $V_{DS}=50V$
- High Power : 46.5dBm (typ.) @ P3dB
- High Efficiency: 60%(typ.) @ P3dB
- Linear Gain : 15.0dB(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}	$T_c=25^\circ C$	120	V
Gate-Source Voltage	V_{GS}		-5	V
Total Power Dissipation	P_t		75	W
Storage Temperature	T_{stg}		-65 to +175	$^\circ C$
Channel Temperature	T_{ch}		250	$^\circ C$

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

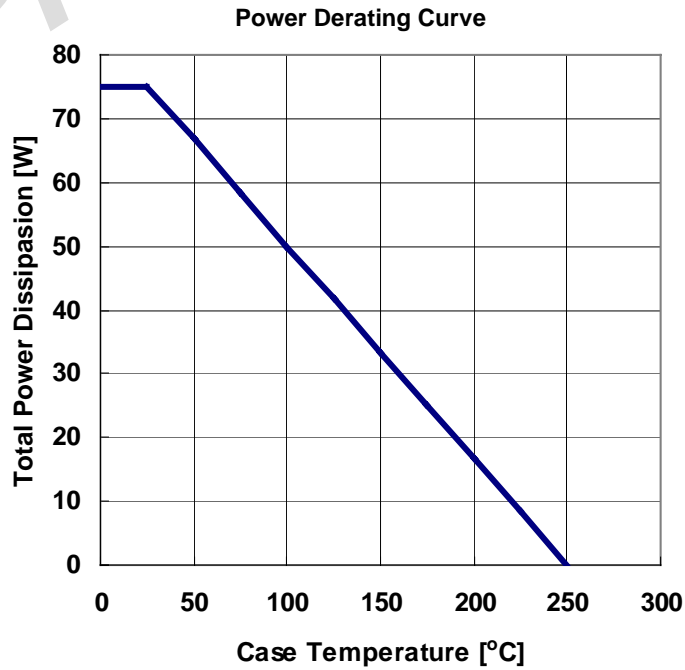
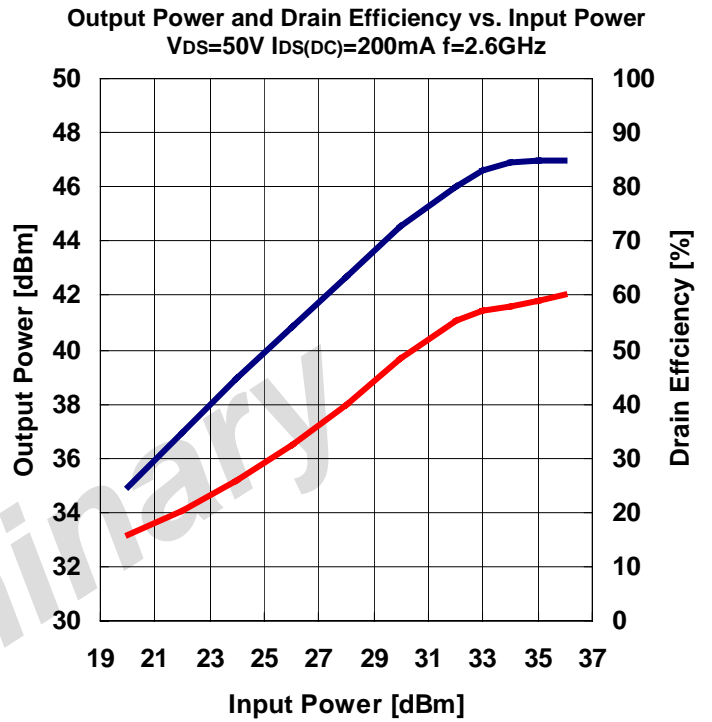
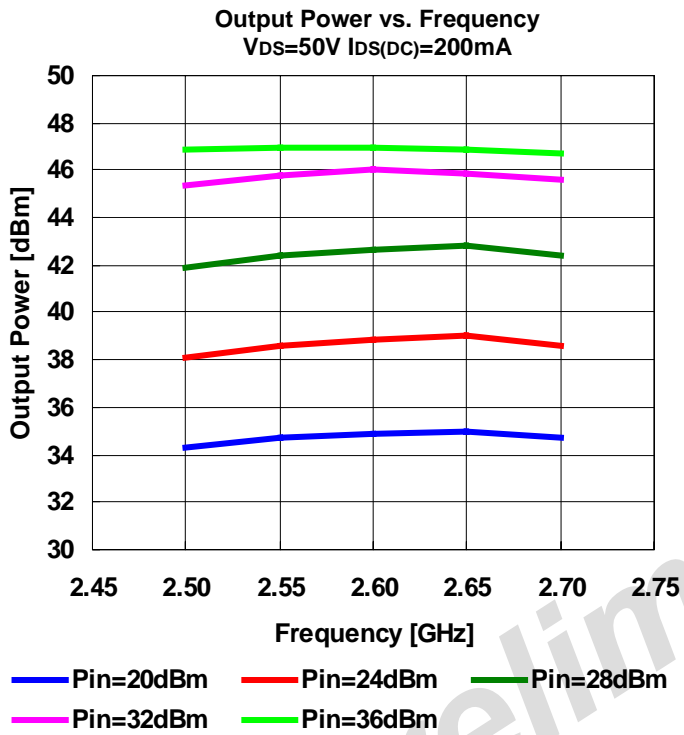
Item	Symbol	Condition	Limit	Unit
DC Input Voltage	V_{DS}		50	V
Forward Gate Current	I_{GF}	$R_G=15 \Omega$	<TBD	mA
Reverse Gate Current	I_{GR}	$R_G=15 \Omega$	>-2.2	mA
Channel Temperature	T_{ch}		200	$^\circ C$

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

Item	Symbol	Condition	Limit			Unit
			min.	Typ.	Max.	
Pinch-Off Voltage	V_p	$V_{DS}=50V$ $I_{DS}=11mA$	-1.0	-2.0	-3.5	V
Gate-Drain Breakdown Voltage	V_{GDO}	$I_{GS}=-5.6 mA$	-	-350	-	V
3dB Gain Compression Power	P_{3dB}	$V_{DS}=50V$	TBD	46.5	-	dBm
Drain Efficiency	η_d	$I_{DS}(DC)=200mA$	-	60	-	%
Linear Gain	GL	$f=2.6GHz$	TBD	15.0	-	dB
Thermal Resistance	R_{th}	Channel to Case	-	2.5	3.0	$^\circ C/W$

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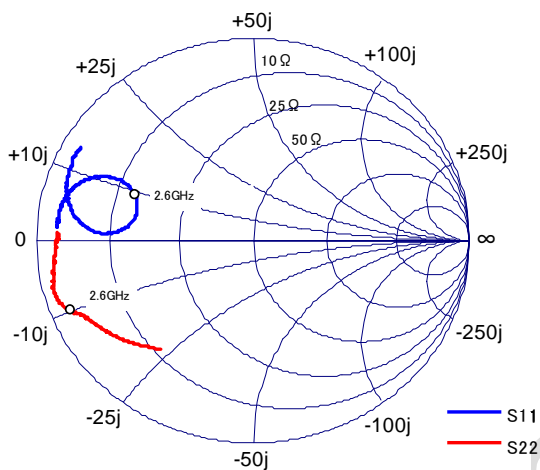
High Voltage - High Power GaN-HEMT



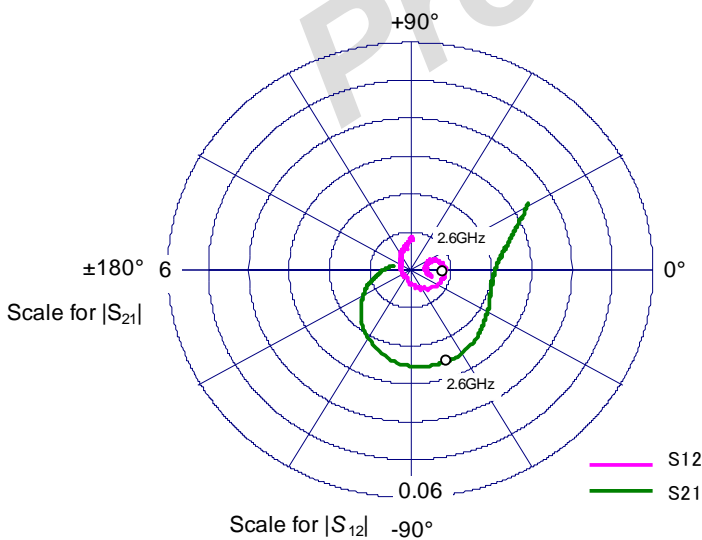
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S-Parameters @V_{DS}=50V, I_{DS}=200mA, f=1 to 4 GHz,
Z_I = Z_S = 50 ohm



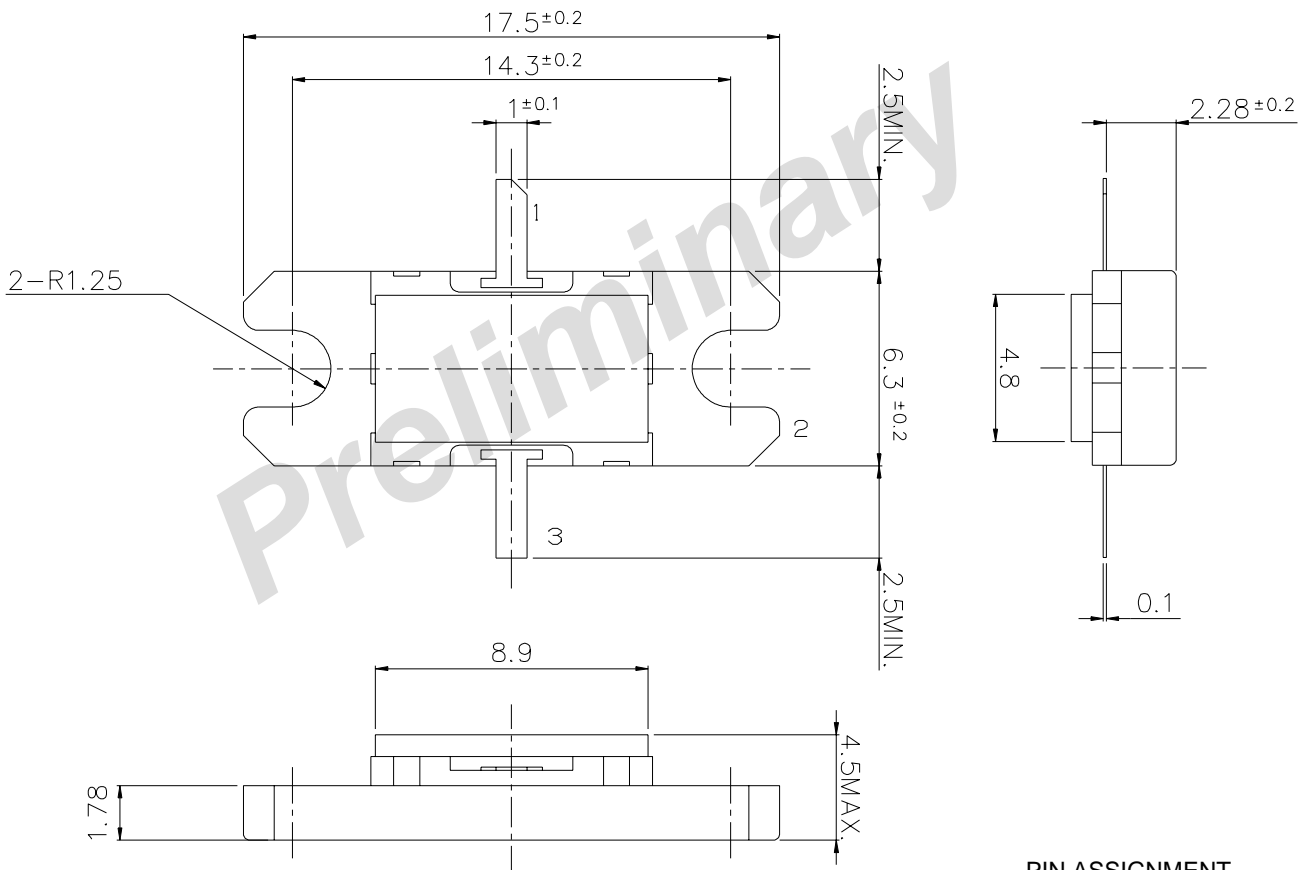
Freq [GHz]	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.905	175.7	3.420	31.4	0.006	-17.2	0.684	-128.3
1.1	0.904	174.4	3.076	26.4	0.005	-11.6	0.710	-131.8
1.2	0.906	173.0	2.791	21.9	0.005	-10.1	0.735	-135.2
1.3	0.906	171.6	2.573	17.4	0.004	-9.3	0.755	-138.2
1.4	0.904	170.4	2.418	13.3	0.004	0.3	0.773	-140.5
1.5	0.901	168.7	2.267	9.1	0.004	3.1	0.788	-142.9
1.6	0.897	167.2	2.173	4.9	0.004	9.2	0.800	-145.0
1.7	0.889	166.0	2.096	0.4	0.004	14.9	0.813	-147.1
1.8	0.881	164.3	2.070	-4.2	0.004	22.2	0.822	-148.8
1.9	0.869	162.8	2.041	-8.6	0.005	23.4	0.835	-150.2
2.0	0.855	161.0	2.051	-14.1	0.005	27.1	0.846	-151.8
2.1	0.834	159.2	2.092	-20.1	0.006	31.6	0.853	-152.9
2.2	0.805	157.3	2.166	-26.6	0.006	24.6	0.862	-153.8
2.3	0.770	155.5	2.276	-34.9	0.007	23.1	0.869	-154.9
2.4	0.717	154.1	2.374	-44.1	0.007	15.1	0.880	-155.8
2.5	0.654	154.2	2.504	-55.8	0.009	7.4	0.896	-156.5
2.6	0.589	157.4	2.568	-69.9	0.008	-5.0	0.909	-157.9
2.7	0.554	164.7	2.562	-85.6	0.008	-18.4	0.930	-159.2
2.8	0.582	173.0	2.401	-102.6	0.007	-37.3	0.944	-161.6
2.9	0.654	176.7	2.112	-118.1	0.006	-54.1	0.948	-163.7
3.0	0.730	176.4	1.814	-131.9	0.004	-75.8	0.952	-165.9
3.1	0.791	173.9	1.519	-143.5	0.003	-103.7	0.938	-168.0
3.2	0.835	171.2	1.278	-152.3	0.002	-150.7	0.935	-169.5
3.3	0.867	168.1	1.085	-160.1	0.003	166.8	0.929	-171.5
3.4	0.886	165.0	0.918	-166.8	0.003	140.6	0.923	-173.0
3.5	0.900	162.0	0.796	-172.9	0.005	123.7	0.919	-174.6
3.6	0.909	159.3	0.694	-178.7	0.005	110.1	0.916	-176.3
3.7	0.916	156.8	0.612	-176.9	0.006	103.2	0.910	-177.8
3.8	0.924	154.3	0.543	-171.8	0.007	96.2	0.911	-179.4
3.9	0.920	152.0	0.484	-168.0	0.007	91.7	0.898	-179.0
4.0	0.916	149.7	0.437	-164.0	0.009	87.0	0.901	-177.6



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MK Package Outline
Metal-Ceramic Hermetic Package



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

Unit : mm