

# Eudyna GaN-HEMT 30W

## ES/EGN35A030MK

**Preliminary**

**High Voltage - High Power GaN-HEMT**

### FEATURES

- High Voltage Operation :  $V_{DS}=50V$
- High Power : 46.0dBm (typ.) @ P3dB
- High Efficiency: 55%(typ.) @ P3dB
- Linear Gain : 13.0dB(typ.) @  $f=3.5GHz$
- 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 $T_c=25^{\circ}C$ )

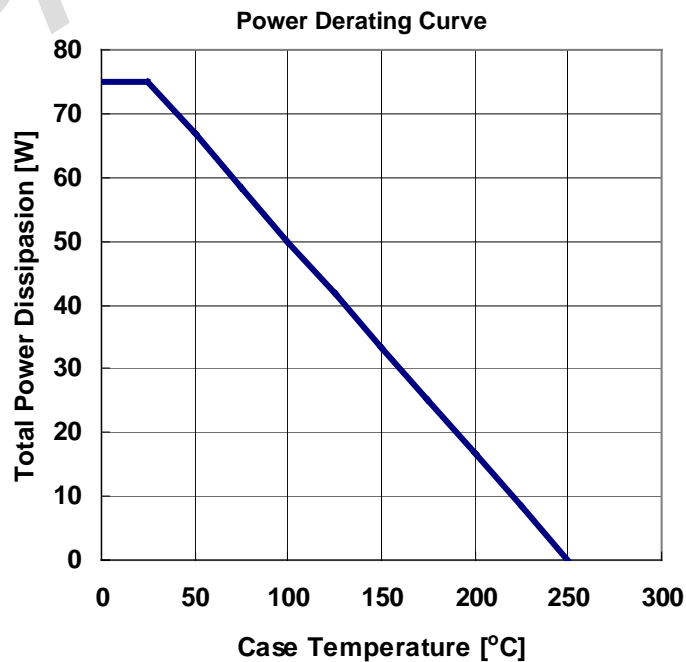
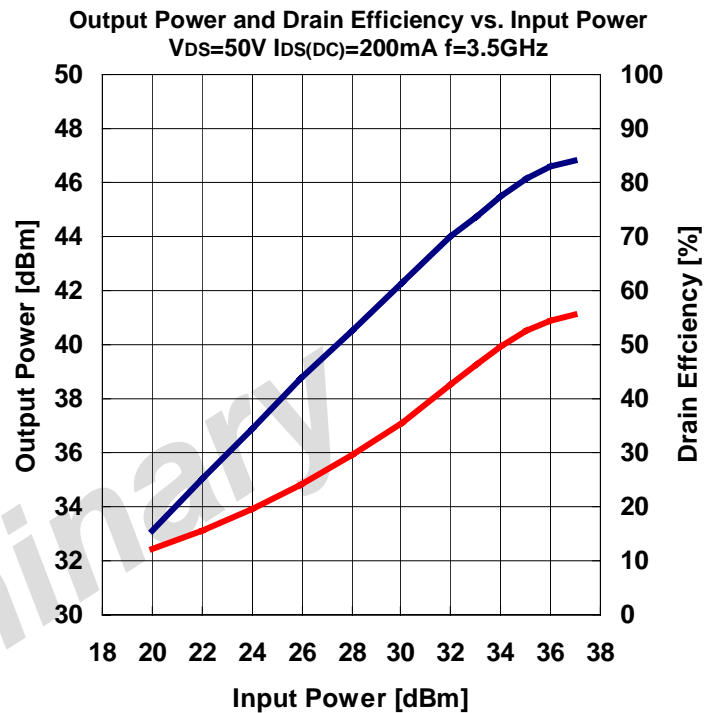
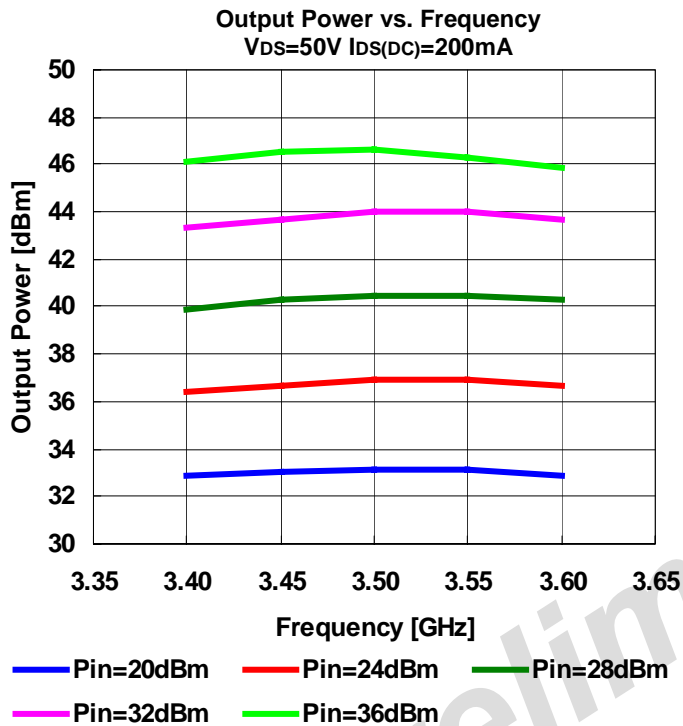
Item	Symbol	Condition	Limit	Unit
DC Input Voltage	$V_{DS}$		50	V
Forward Gate Current	$I_{GF}$	$R_G=15\ \Omega$	<TBD	mA
Reverse Gate Current	$I_{GR}$	$R_G=15\ \Omega$	>-2.2	mA
Channel Temperature	$T_{ch}$		200	$^{\circ}C$

### 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	46.0	-	dBm
Drain Efficiency	$\eta_d$	$I_{DS}(DC)=200mA$	-	55	-	%
Linear Gain	GL	$f=3.5GHz$	TBD	13.0	-	dB
Thermal Resistance	$R_{th}$	Channel to Case	-	2.5	3.0	$^{\circ}C/W$

# ES/EGN35A030MK

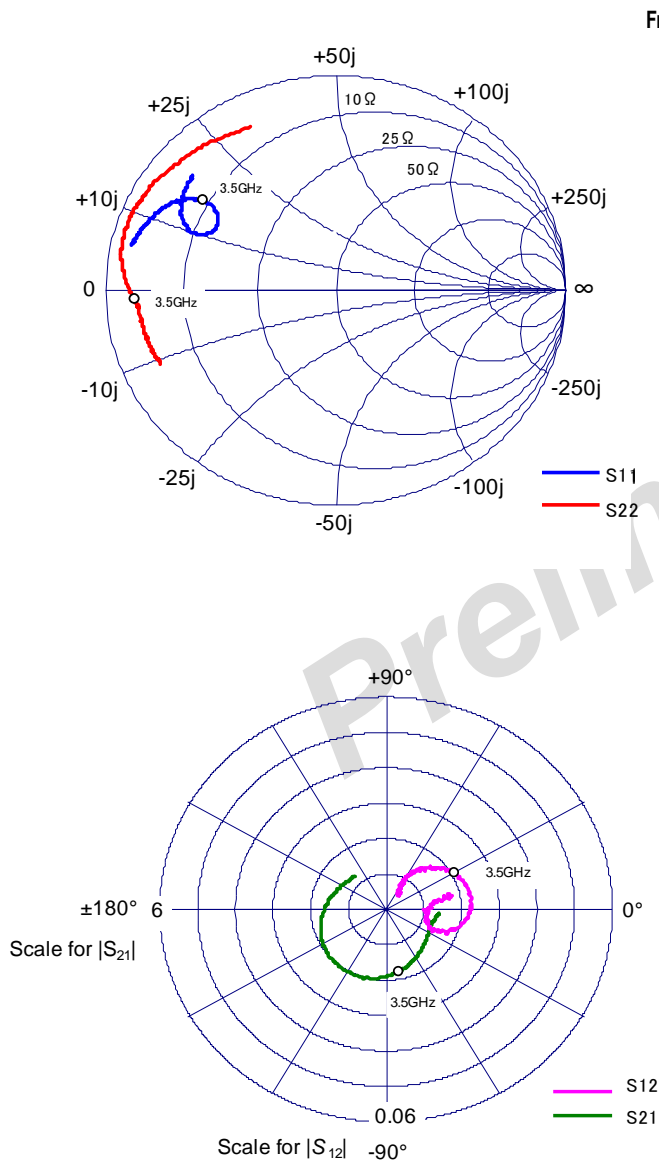
High Voltage - High Power GaN-HEMT



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## High Voltage - High Power GaN-HEMT

S-Parameters @V<sub>DS</sub>=50V, I<sub>DS</sub>=200mA, f=2 to 5 GHz,  
Z<sub>I</sub> = Z<sub>S</sub> = 50 ohm



Freq [GHz]	S <sub>11</sub>		S <sub>21</sub>		S <sub>12</sub>		S <sub>22</sub>	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	0.912	166.9	1.387	-4.8	0.005	52.2	0.832	-155.8
2.1	0.908	165.8	1.348	-8.3	0.006	56.0	0.838	-157.4
2.2	0.902	164.6	1.313	-11.5	0.006	55.6	0.841	-158.7
2.3	0.899	163.5	1.297	-14.9	0.007	60.4	0.845	-160.2
2.4	0.892	162.1	1.280	-18.4	0.007	60.8	0.847	-161.6
2.5	0.886	160.7	1.279	-22.1	0.009	59.6	0.851	-162.8
2.6	0.877	159.3	1.277	-25.8	0.009	61.8	0.849	-164.1
2.7	0.869	157.5	1.303	-29.6	0.010	60.8	0.851	-165.2
2.8	0.861	155.9	1.332	-34.1	0.011	58.0	0.852	-166.8
2.9	0.847	154.1	1.362	-38.8	0.013	58.2	0.852	-167.8
3.0	0.835	152.2	1.415	-44.3	0.014	52.6	0.855	-169.4
3.1	0.820	150.2	1.469	-49.8	0.015	49.4	0.853	-170.5
3.2	0.797	148.4	1.533	-55.8	0.017	45.5	0.858	-172.1
3.3	0.773	146.8	1.620	-62.5	0.018	41.2	0.858	-173.8
3.4	0.742	145.2	1.692	-69.9	0.019	34.1	0.864	-175.2
3.5	0.708	144.0	1.789	-78.7	0.021	29.3	0.876	-177.0
3.6	0.670	143.7	1.875	-88.6	0.022	20.7	0.887	-178.7
3.7	0.633	144.7	1.963	-98.7	0.023	12.7	0.899	-179.3
3.8	0.609	147.1	2.022	-110.4	0.023	4.0	0.919	-176.5
3.9	0.598	150.3	2.029	-121.9	0.022	-4.2	0.931	-173.5
4.0	0.603	153.6	2.018	-134.2	0.020	-11.0	0.948	-170.0
4.1	0.630	155.9	1.948	-146.4	0.019	-18.7	0.953	-165.7
4.2	0.666	156.6	1.859	-157.9	0.017	-22.3	0.952	-161.8
4.3	0.701	156.1	1.762	-168.6	0.014	-23.1	0.952	-157.0
4.4	0.731	154.5	1.647	-178.3	0.013	-22.1	0.940	-152.2
4.5	0.754	152.5	1.548	-172.5	0.011	-16.1	0.937	-147.6
4.6	0.773	150.0	1.455	-163.5	0.011	-10.1	0.915	-142.3
4.7	0.786	147.4	1.382	-155.3	0.011	1.9	0.902	-137.4
4.8	0.803	144.7	1.331	-146.9	0.013	9.9	0.886	-131.0
4.9	0.816	142.2	1.281	-139.4	0.015	9.3	0.866	-123.9
5.0	0.822	139.3	1.262	-131.3	0.018	12.1	0.846	-115.8

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Technical drawing of a connector assembly showing three views: top, side, and end views. The drawing includes dimensions and a pin assignment table.

**Top View Dimensions:**

- Overall width:  $17.5 \pm 0.2$
- Internal width:  $14.3 \pm 0.2$
- Pin width:  $1 \pm 0.1$
- Pin 1 position: 1
- Pin 2 position: 2
- Pin 3 position: 3
- Pin 4 position: 4
- Pin 5 position: 5
- Pin 6 position: 6
- Pin 7 position: 7
- Pin 8 position: 8
- Pin 9 position: 9
- Pin 10 position: 10
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Unit : mm