

FLL21E004ME

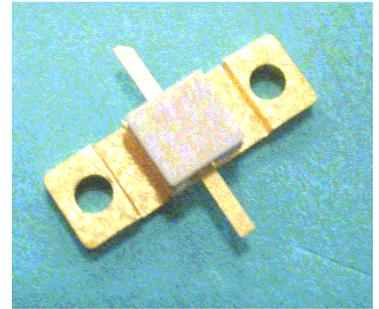
High Voltage - High Power GaAs FET

FEATURES

- High Voltage Operation : VDS=28V
- High Power : P1dB=36dBm(typ.) at f=2.17GHz
- High Gain: G1dB=14dB(typ.) at f=2.17GHz
- Broad Frequency Range : 2100 to 2200MHz
- Proven Reliability

DESCRIPTION

The FLL21E004ME is a high power GaAs FET that offers high efficiency, ease of matching, greater consistency and broad bandwidth for high power L-band amplifiers. This device is targeted for high voltage, low current operation in digitally modulated amplification. This product is ideally suited for W-CDMA and Multi-carrier PCS base station amplifiers while offering high gain, long term reliability and ease of use.



ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	VDS	Tc=25°C	32	V
Gate-Source Voltage	VGS		-3	V
Total Power Dissipation	Pt		18.75	W
Storage Temperature	Tstg		-65 to +175	°C
Channel Temperature	Tch		200	°C

RECOMMENDED OPERATING CONDITION(Case Temperature Tc=25°C)

Item	Symbol	Condition	Limit	Unit
DC Input Voltage	VDS		<28	V
Forward Gate Current	IGF	RG=100Ω	<6.1	mA
Reverse Gate Current	IGR	RG=100Ω	>-1.0	mA
Channel Temperature	Tch		155	°C

ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25°C)

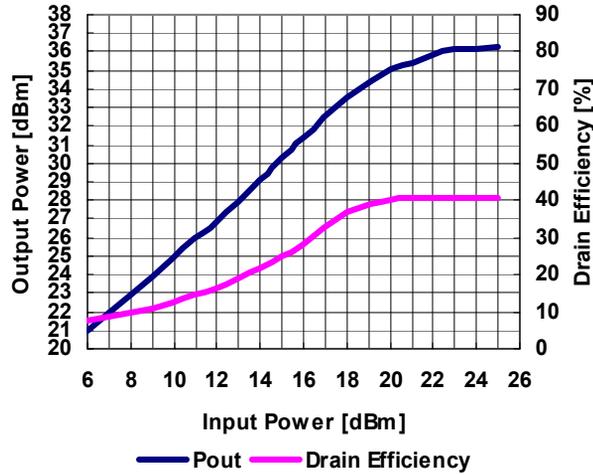
Item	Symbol	Condition	Limit			Unit
			min.	Typ.	Max.	
Pinch-Off Voltage	Vp	VDS=5V IDS=0.6mA	-0.1	-0.2	-0.5	V
Gate-Source Breakdown Voltage	VGS0	IGS=-6uA	-5	-	-	V
Output Power at 1dB G.C.P.	P1dB	VDS=28V f=2.17GHz	35.0	36.0	-	dBm
Power Gain at 1dB G.C.P.	G1dB	IDS(DC)=50mA	13.0	14.0	-	dB
Drain Efficiency	ηd		-	40	-	%
Thermal Resistance	Rth	Channel to Case	-	7.0	8.0	°C

G.C.P.:Gain Compression Point

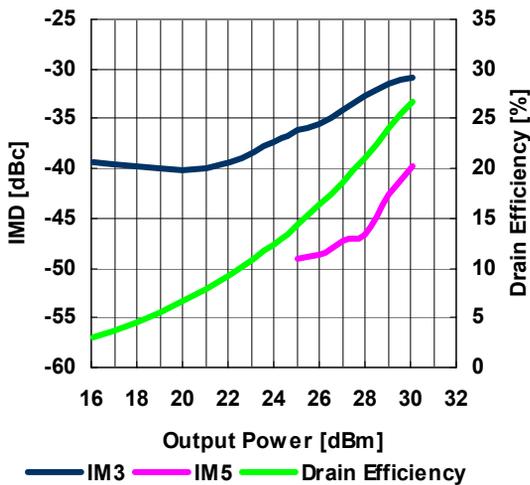
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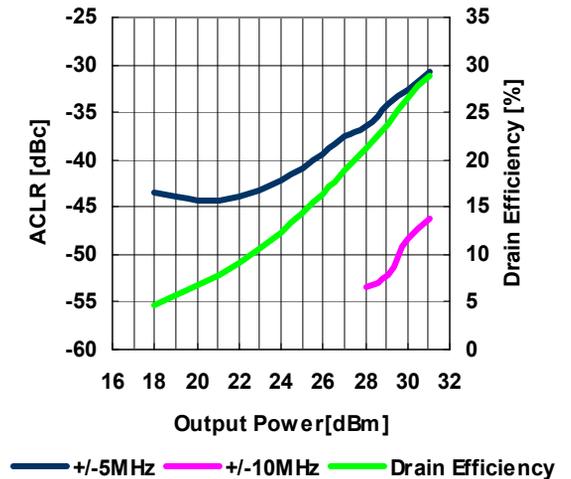
Output Power & Drain Efficiency vs. Input Power
@VDS=28V IDS=50mA f=2.17GHz



Two-Carrier IMD(ACLR) & Drain Efficiency vs. Output Power
@VDS=28V IDS=50mA fo=2.3125GHz f1=2.1475GHz
W-CDMA 3-GPP BS-1 64ch Modulation



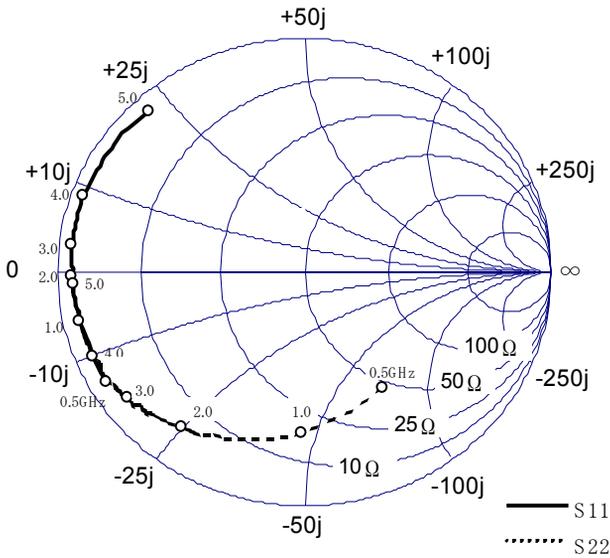
Single-Carrier ACLR & Drain Efficiency vs. Output Power
@VDS=28V IDS=50mA fo=2.1325GHz
W-CDMA 3GPP BS-1 64ch Modulation



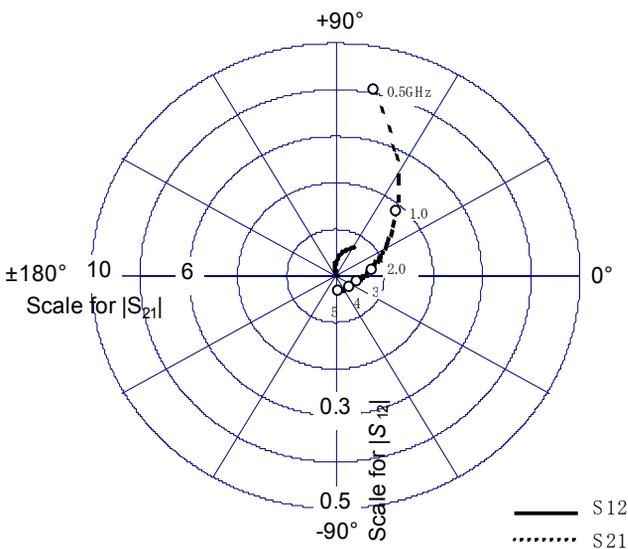
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S-Parameters @VDS=28V IDS=50mA f=0.5 to 5.0 GHz



f(freq)(GHz)	S11(mag)	S11(ang)	S21(mag)	S21(ang)	S12(mag)	S12(ang)	S22(mag)	S22(ang)
0.1	0.973	-67.8	24.531	139.8	0.007	45.3	0.630	-19.0
0.2	0.950	-107.7	17.618	114.5	0.009	30.2	0.580	-30.8
0.3	0.938	-128.8	13.004	98.7	0.010	19.1	0.566	-40.1
0.4	0.932	-141.4	10.107	87.6	0.010	13.3	0.571	-48.7
0.5	0.928	-149.7	8.139	78.6	0.009	10.0	0.584	-57.3
1	0.930	-167.2	3.734	47.9	0.005	14.2	0.686	-90.9
1.1	0.932	-168.9	3.329	43.1	0.005	21.6	0.705	-95.9
1.2	0.934	-170.3	2.981	38.9	0.004	37.1	0.722	-100.5
1.3	0.937	-172.4	2.675	34.5	0.005	43.2	0.741	-105.2
1.4	0.936	-173.4	2.432	30.3	0.006	56.3	0.754	-109.2
1.5	0.936	-174.5	2.200	26.6	0.006	71.9	0.772	-112.8
1.6	0.937	-175.4	2.010	23.4	0.006	83.7	0.782	-115.7
1.7	0.937	-176.5	1.867	19.4	0.008	81.8	0.796	-118.8
1.8	0.936	-177.2	1.713	16.5	0.009	89.3	0.813	-121.6
1.9	0.942	-178.0	1.598	13.4	0.009	93.0	0.819	-123.8
1.95	0.935	-178.4	1.545	11.9	0.011	90.1	0.826	-125.6
2	0.940	-178.9	1.496	10.3	0.011	90.8	0.829	-127.0
2.05	0.937	-179.2	1.436	8.5	0.013	91.6	0.834	-127.9
2.1	0.943	-179.9	1.388	7.5	0.012	89.9	0.838	-128.7
2.11	0.941	-179.9	1.377	6.8	0.013	94.5	0.842	-129.0
2.12	0.943	-179.7	1.371	7.0	0.012	93.4	0.845	-129.4
2.13	0.938	-179.9	1.363	6.8	0.012	92.5	0.835	-129.4
2.14	0.940	-179.9	1.356	6.2	0.014	97.1	0.838	-129.5
2.15	0.938	-179.9	1.343	6.4	0.012	90.2	0.842	-129.9
2.16	0.945	-179.9	1.336	6.1	0.013	92.3	0.844	-130.1
2.17	0.946	-179.5	1.338	5.4	0.015	93.0	0.846	-130.1
2.18	0.937	-179.4	1.320	5.1	0.014	98.4	0.847	-130.3
2.19	0.938	-179.5	1.310	4.8	0.014	90.1	0.843	-130.8
2.2	0.937	-179.3	1.303	4.9	0.014	95.6	0.849	-131.0
2.25	0.937	-179.0	1.271	3.4	0.015	92.6	0.857	-131.9
2.3	0.942	-178.5	1.232	1.7	0.015	95.0	0.857	-132.7
2.35	0.944	-178.2	1.194	0.3	0.016	96.1	0.859	-133.6
2.4	0.942	-177.6	1.164	-1.1	0.018	94.3	0.861	-134.4
2.5	0.942	-177.2	1.103	-3.1	0.019	97.2	0.878	-136.3
2.6	0.941	-176.5	1.054	-6.0	0.019	98.5	0.878	-138.1
2.7	0.943	-175.6	1.005	-8.0	0.021	93.2	0.883	-139.4
2.8	0.943	-174.7	0.963	-10.3	0.023	92.0	0.895	-140.6
2.9	0.944	-174.0	0.923	-13.5	0.025	92.1	0.897	-142.4
3	0.945	-173.1	0.892	-15.1	0.027	91.4	0.897	-143.1

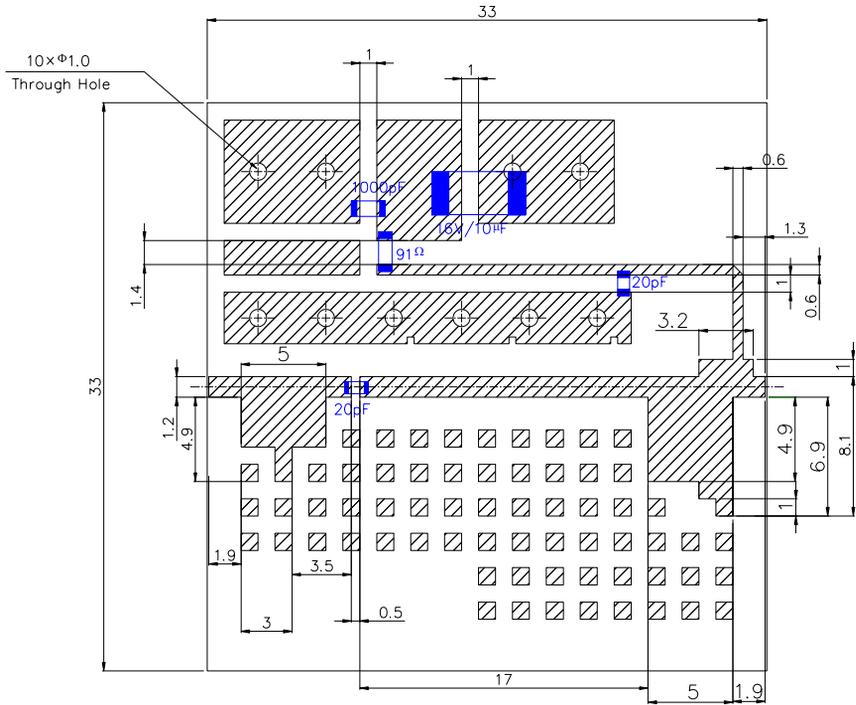


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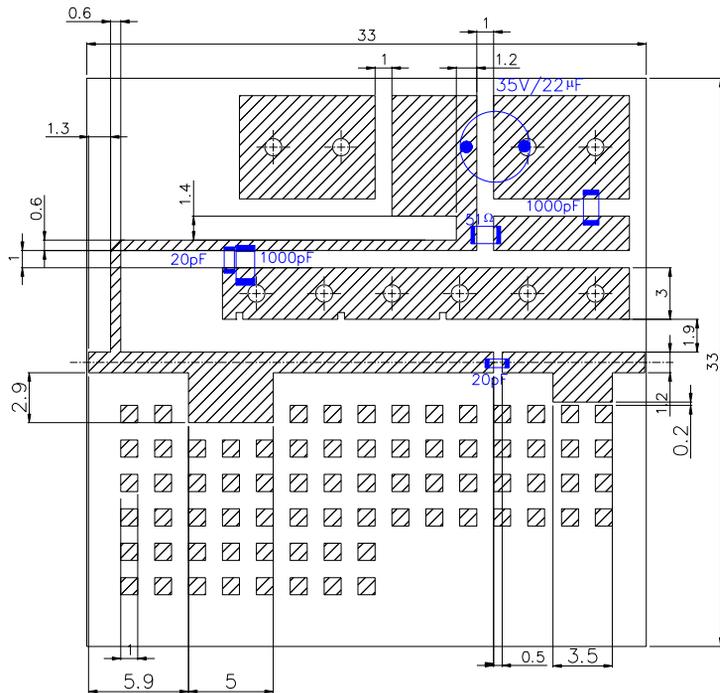
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BOARD LAYOUT

<INPUT SIDE>



<OUTPUT SIDE>

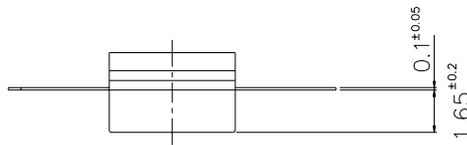
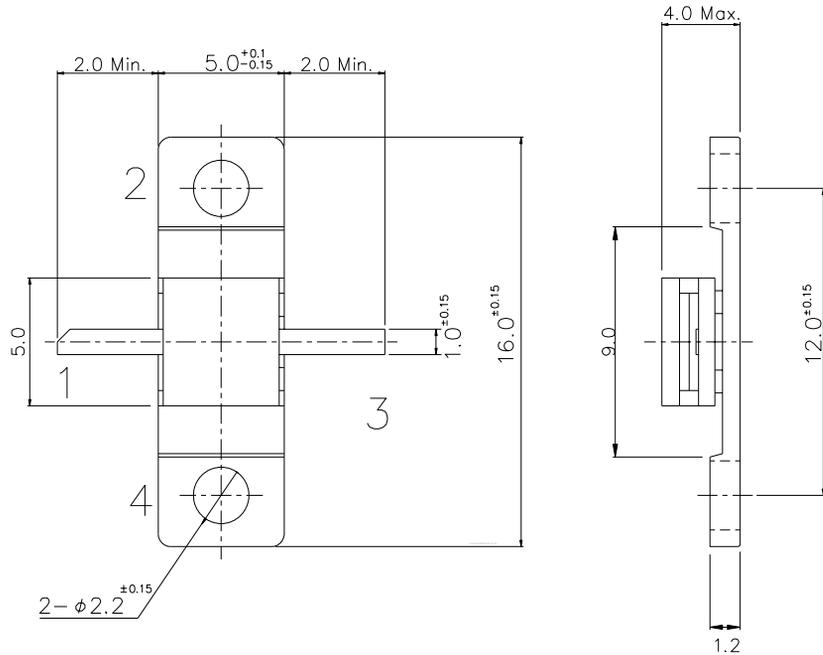


$\epsilon_r=10.45$ $t=1.2\text{mm}$

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ME Package Outline Metal-Ceramic Hermetic Package



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

Unit : mm

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- Do not put these products into the mouth.
- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
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