

FLL21E004ME

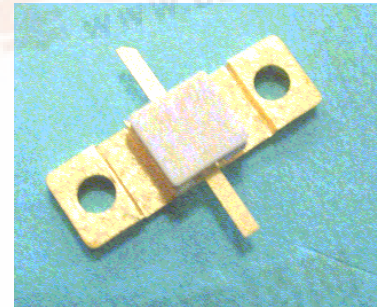
High Voltage - High Power GaAs FET

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)

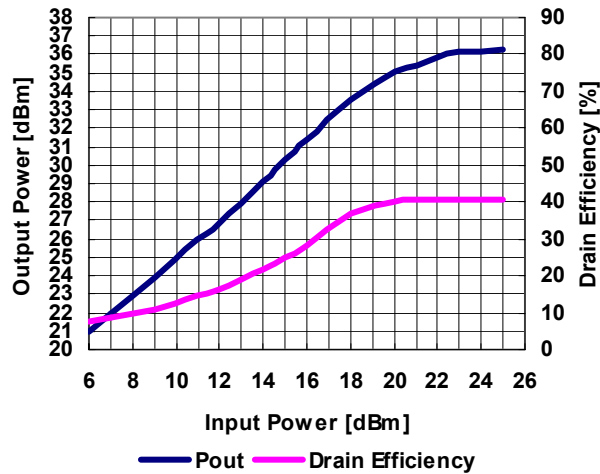
Item	Symbol	Condition	Limit			Unit
			min.	Typ.	Max.	
Pinch-Off Voltage	Vp	VDS=5V IDS=0.6mA	-0.1	-0.2	-0.5	V
Gate-Source Breakdown Voltage	VGSO	IGS=-6uA	-5	-	-	V
Output Power at 1dB G.C.P.	P1dB	VDS=28V f=2.17GHz	35.0	36.0	-	dBm
Power Gain at 1dB G.C.P.	G1dB	IDS(DC)=50mA	13.0	14.0	-	dB
Drain Efficiency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

G.C.P.:Gain Compression Point

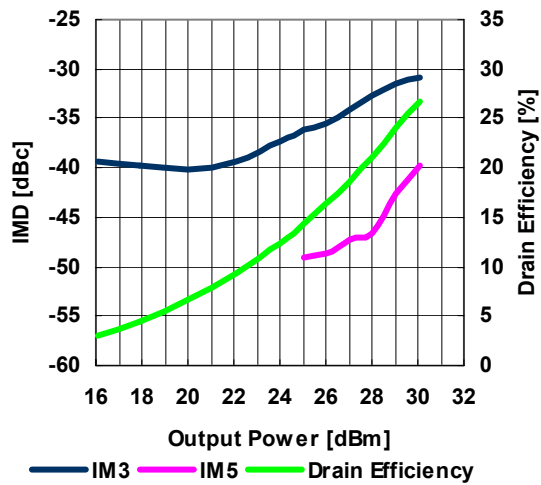
FLL21E004ME

High Voltage - High Power GaAs FET

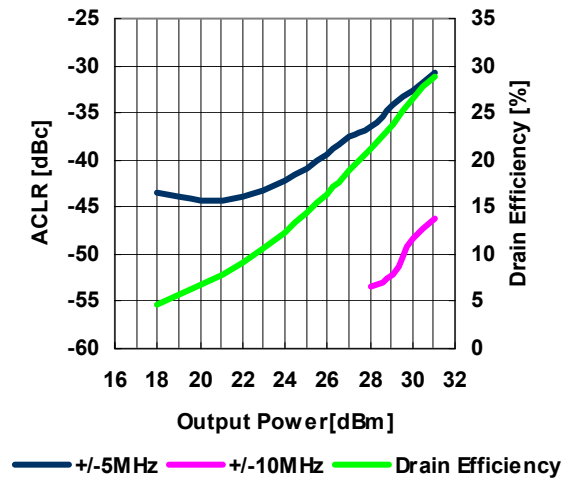
Output Power & Drain Efficiency vs. Input Power
 @VDS=28V IDS=50mA f=2.17GHz



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

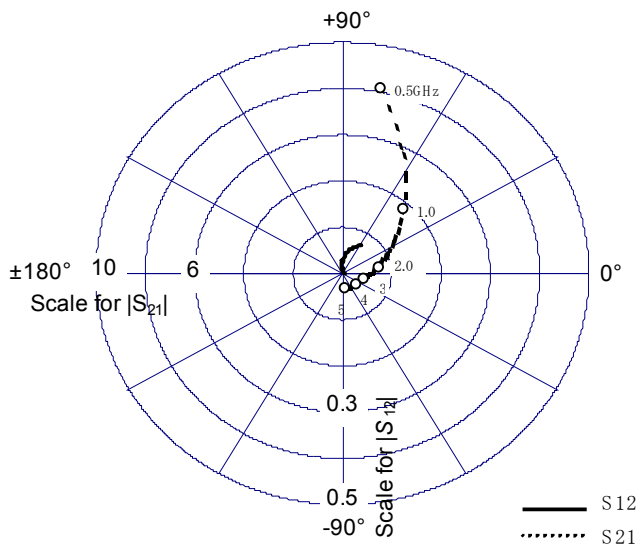
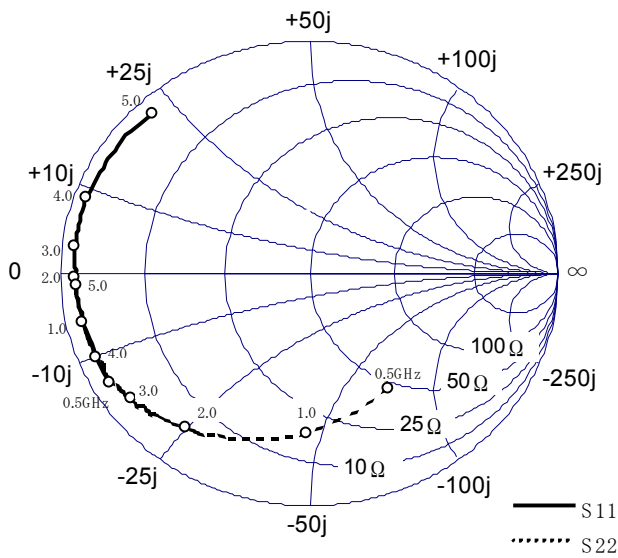


FLL21E004ME

High Voltage - High Power GaAs FET

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

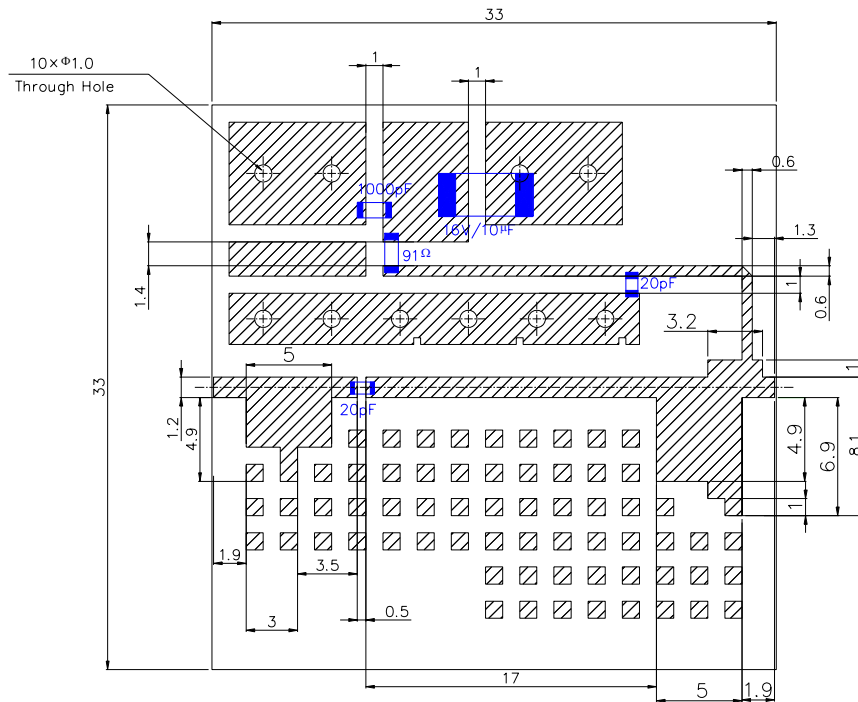


FLL21E004ME

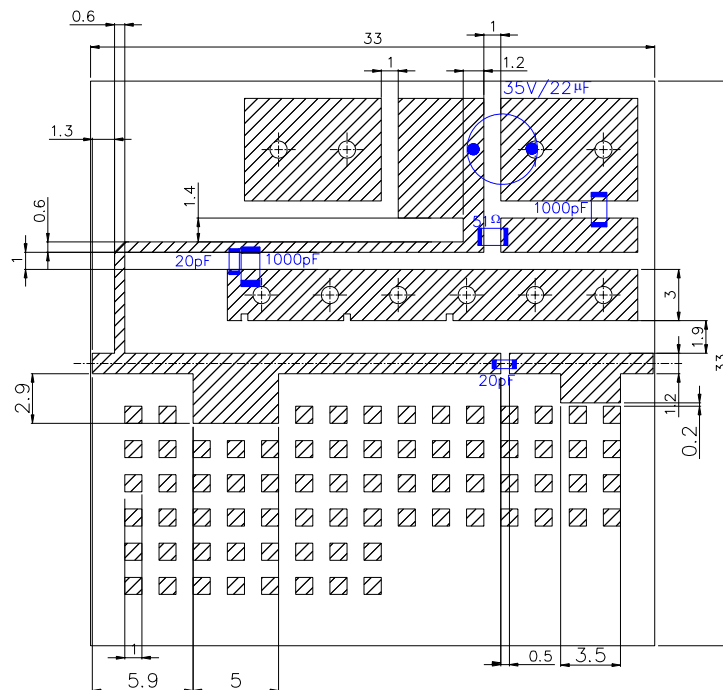
High Voltage - High Power GaAs FET

BOARD LAYOUT

<INPUT SIDE>



<OUTPUT SIDE>

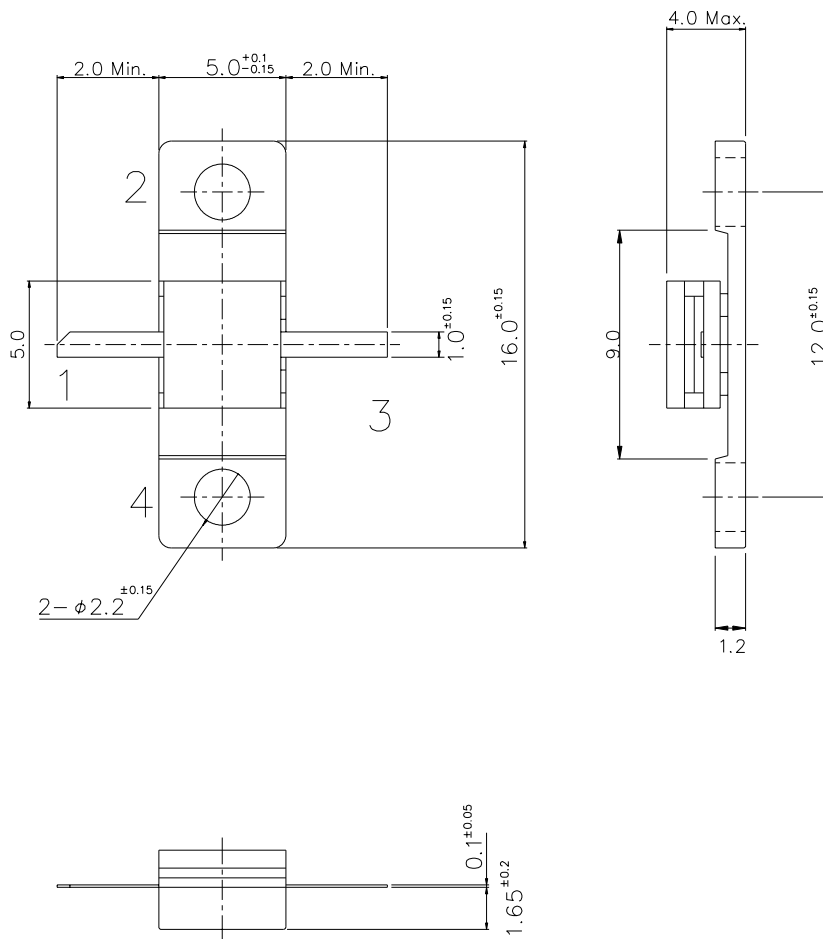


$\epsilon_r=10.45$ $t=1.2\text{mm}$

FLL21E004ME

High Voltage - High Power GaAs FET

ME Package Outline Metal-Ceramic Hermetic Package



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

Unit : mm

FLL21E004ME

High Voltage - High Power GaAs FET

For further information please contact :

Eudyna Devices USA Inc.

2355 Zanker Rd.
San Jose, CA 95131-1138, U.S.A.
TEL: (408) 232-9500
FAX: (408) 428-9111
www.us.eudyna.com

Eudyna Devices Europe Ltd.

Network House
Norreys Drive
Maidenhead, Berkshire SL6 4FJ
United Kingdom
TEL: +44 (0) 1628 504800
FAX: +44 (0) 1628 504888

Eudyna Devices Asia Pte. Ltd.

Hong Kong Branch
Rm.1101,Ocean Centre, 5 Canton Road
Tsim Sha Tsui, Kowloon, Hong kong
TEL: +852-2377-0227
FAX: +852-2377-3921

Eudyna Devices Inc.

1000 Kamisukiahara, showa-cho
Nakakomagun, Yamanashi
409-3883, Japan
(Kokubo Industrial Park)
TEL +81-55-275-4411
FAX +81-55-275-9461

Sales Division

1, Kanai-cho, Sakae-ku
Yokohama,244-0845,Japan
TEL +81-45-853-8156
FAX +81-45-853-8170

CAUTION

Eudyna Devices Inc. products contain **gallium arsenide (GaAs)** which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- 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.
- Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.

Eudyna Devices Inc. reserves the right to change products and specifications without notice. The information does not convey any license under rights of Eudyna Devices Inc. or others.

© 2004 Eudyna Devices USA Inc.
Printed in U.S.A.