

FLL21E010MK

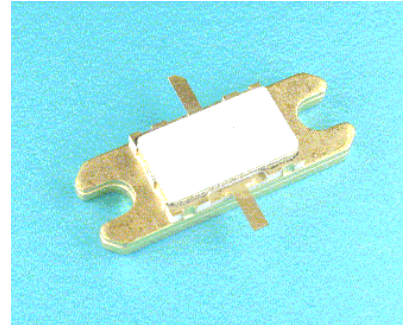
High Voltage - High Power GaAs FET

FEATURES

- High Voltage Operation : VDS=28V
- High Power : P1dB=40dBm(typ.) at f=2.17GHz
- High Gain: G1dB=14dB(typ.) at f=2.17GHz
- Broad Frequency Range : 2100 to 2200MHz
- Proven Reliability

DESCRIPTION

The FLL21E010MK 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		41.5	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=50 Ω	<47	mA
Reverse Gate Current	IGR	RG=50 Ω	>-2.5	mA
Channel Temperature	Tch		155	°C

ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25°C)

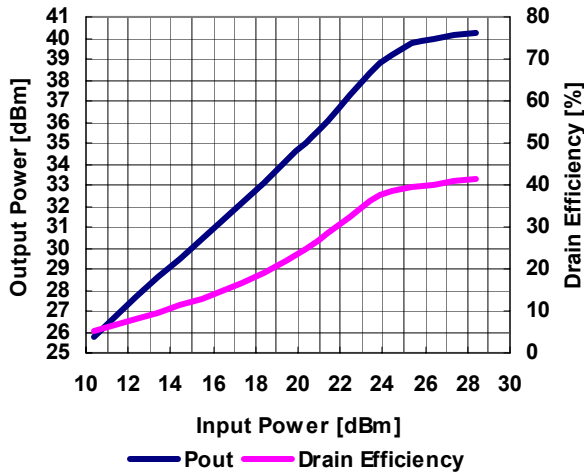
Item	Symbol	Condition	Limit			Unit
			min.	Typ.	Max.	
Pinch-Off Voltage	Vp	VDS=5V IDS=1.5mA	-0.1	-0.2	-0.5	V
Gate-Source Breakdown Voltage	VGS0	IGS=-15μA	-5	-	-	V
Output Power at 1dB G.C.P.	P1dB	VDS=28V f=2.17GHz	39.0	40.0	-	dBm
Power Gain at 1dB G.C.P.	G1dB	IDS(DC)=125mA	13.0	14.0	-	dB
Drain Efficiency	ηd		-	40	-	%
Thermal Resistance	Rth	Channel to Case	-	3.1	3.6	°C/W

G.C.P.:Gain Compression Point

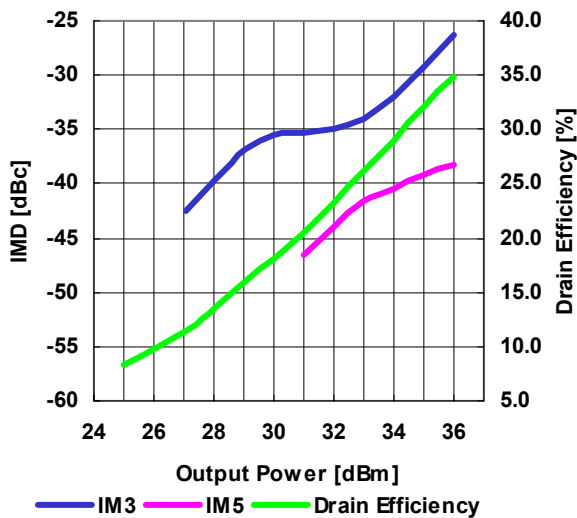
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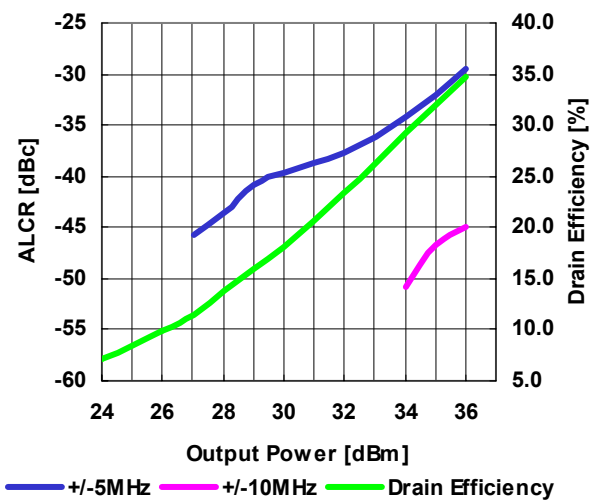
Output Power & Drain Efficiency vs. Input Power
@VDS=28V IDS=125mA f=2.17GHz



Two-Carrier IMD(ACLR) & Drain Efficiency vs. Output Power
@VDS=28V IDS=125mA fo=2.1325GHz f1=2.1475GHz
W-CDMA 3-GPP BS-1 64ch Modulation



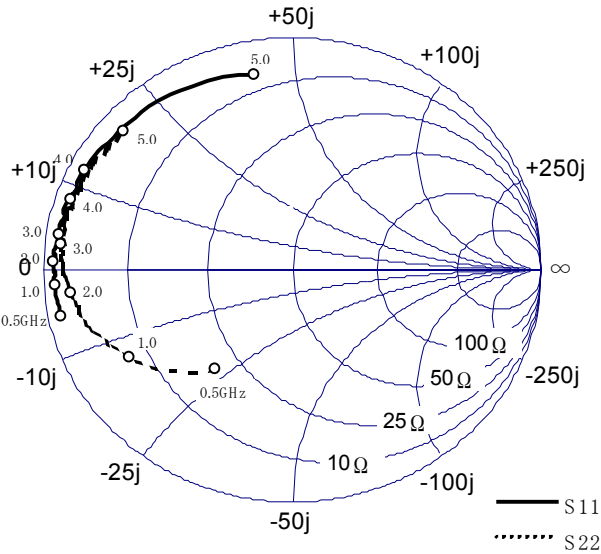
Single-Carrier ACLR & Drain Efficiency vs. Output Power
@VDS=28V IDS=125mA f=2.1325GHz
W-CDMA 3GPP BS-1 64ch Modulation



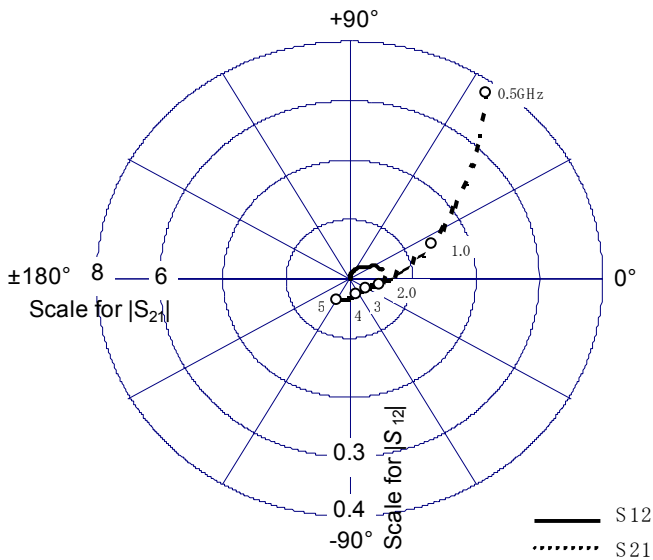
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S-Parameters @VDS=28V IDS=300mA f=0.5 to 5.0 GHz



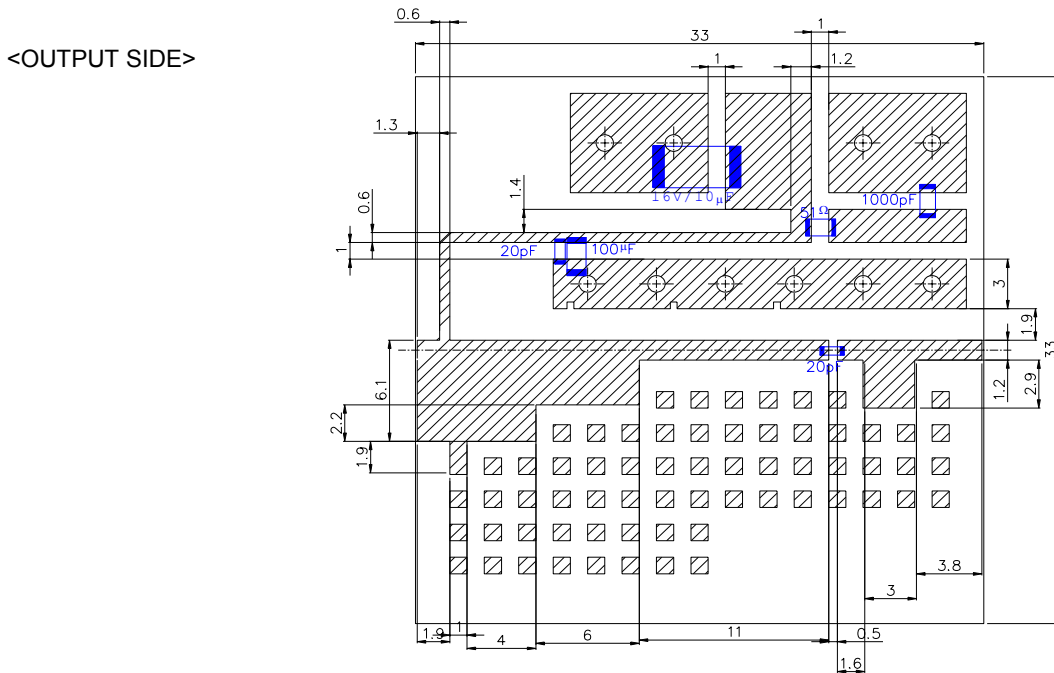
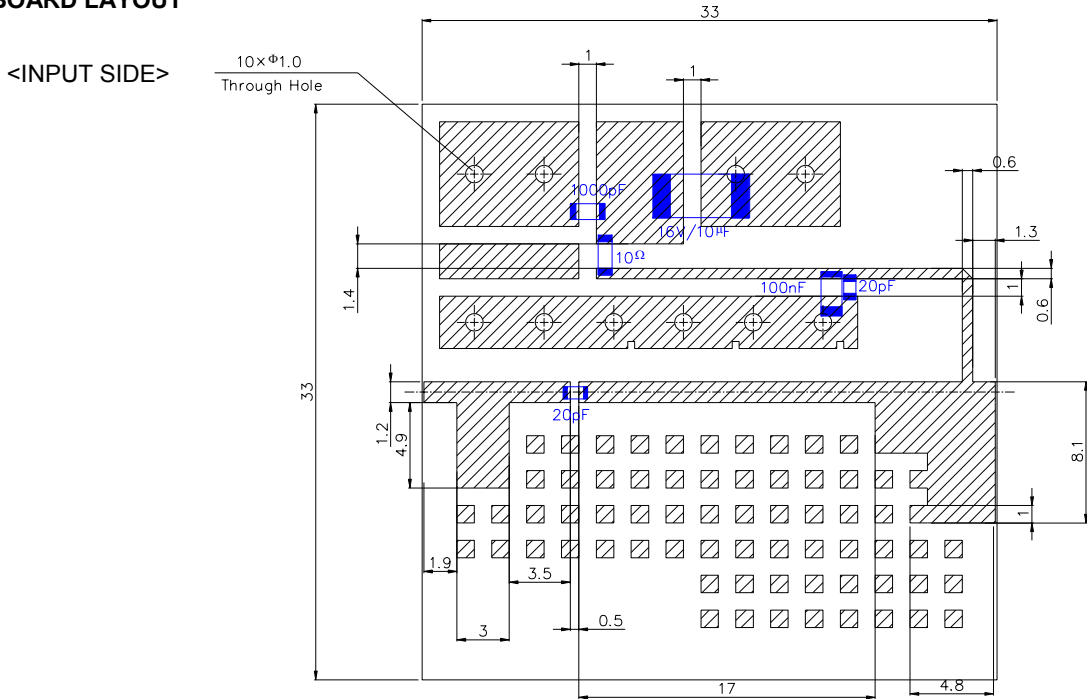
f(freq)(GHz)	S11(mag)	S11(ang)	S21(mag)	S21(ang)	S12(mag)	S12(ang)	S22(mag)	S22(ang)
0.1	0.958	-120.1	38.897	110.3	0.005	17.9	0.226	-81.4
0.2	0.948	-148.0	20.943	88.1	0.005	-1.4	0.291	-101.0
0.3	0.945	-158.9	13.801	74.6	0.005	-11.9	0.375	-111.0
0.4	0.946	-164.3	9.953	64.0	0.004	-12.0	0.459	-119.0
0.5	0.945	-167.8	7.598	55.3	0.004	-7.9	0.531	-125.8
1	0.956	-175.7	2.880	24.4	0.002	29.6	0.756	-150.1
1.1	0.953	-176.5	2.487	19.5	0.002	32.1	0.778	-153.5
1.2	0.955	-177.5	2.153	15.5	0.002	52.9	0.806	-156.5
1.3	0.956	-177.9	1.906	11.7	0.003	50.6	0.826	-159.6
1.4	0.954	-178.8	1.688	7.8	0.003	60.6	0.839	-162.2
1.5	0.956	-179.6	1.526	4.5	0.005	65.7	0.854	-164.2
1.6	0.952	-179.7	1.391	1.3	0.004	61.6	0.869	-166.4
1.7	0.955	-179.8	1.255	-1.7	0.004	74.9	0.873	-168.7
1.8	0.955	-178.8	1.154	-4.5	0.006	80.3	0.879	-170.1
1.9	0.959	-178.3	1.070	-7.3	0.006	73.5	0.889	-172.1
1.95	0.953	-178.1	1.023	-9.2	0.007	80.8	0.888	-173.0
2	0.956	-177.8	0.984	-9.9	0.007	77.8	0.890	-173.7
2.05	0.960	-177.6	0.961	-11.6	0.007	77.2	0.897	-174.2
2.1	0.952	-177.4	0.920	-13.1	0.008	71.8	0.902	-175.1
2.11	0.959	-177.2	0.920	-13.4	0.007	79.5	0.899	-175.5
2.12	0.960	-177.5	0.910	-13.5	0.007	76.2	0.901	-175.5
2.13	0.957	-176.9	0.908	-13.9	0.008	74.8	0.906	-175.7
2.14	0.958	-177.1	0.902	-13.4	0.011	61.1	0.900	-175.8
2.15	0.955	-176.9	0.891	-14.4	0.008	74.9	0.905	-176.0
2.16	0.952	-176.7	0.889	-15.2	0.007	74.5	0.904	-176.3
2.17	0.957	-176.8	0.878	-14.8	0.007	79.2	0.910	-176.5
2.18	0.959	-176.8	0.873	-15.0	0.008	69.0	0.905	-176.6
2.19	0.961	-176.7	0.869	-15.2	0.007	72.9	0.906	-176.5
2.2	0.954	-176.5	0.855	-15.9	0.007	77.2	0.904	-177.0
2.25	0.956	-176.7	0.832	-16.7	0.007	78.7	0.909	-177.4
2.3	0.953	-175.9	0.810	-17.5	0.008	74.9	0.909	-178.0
2.35	0.956	-175.4	0.784	-19.7	0.009	80.0	0.920	-178.4
2.4	0.958	-175.4	0.771	-20.7	0.009	75.0	0.919	-179.3
2.5	0.950	-174.6	0.731	-22.7	0.010	75.0	0.920	-179.5
2.6	0.951	-174.0	0.701	-25.0	0.011	78.1	0.922	-178.6
2.7	0.947	-173.6	0.673	-27.7	0.012	74.2	0.931	-177.0
2.8	0.953	-172.5	0.652	-30.1	0.011	75.5	0.924	-175.7
2.9	0.944	-171.6	0.635	-33.1	0.013	74.0	0.927	-174.9
3	0.949	-170.8	0.609	-35.5	0.014	70.5	0.930	-173.5



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BOARD LAYOUT

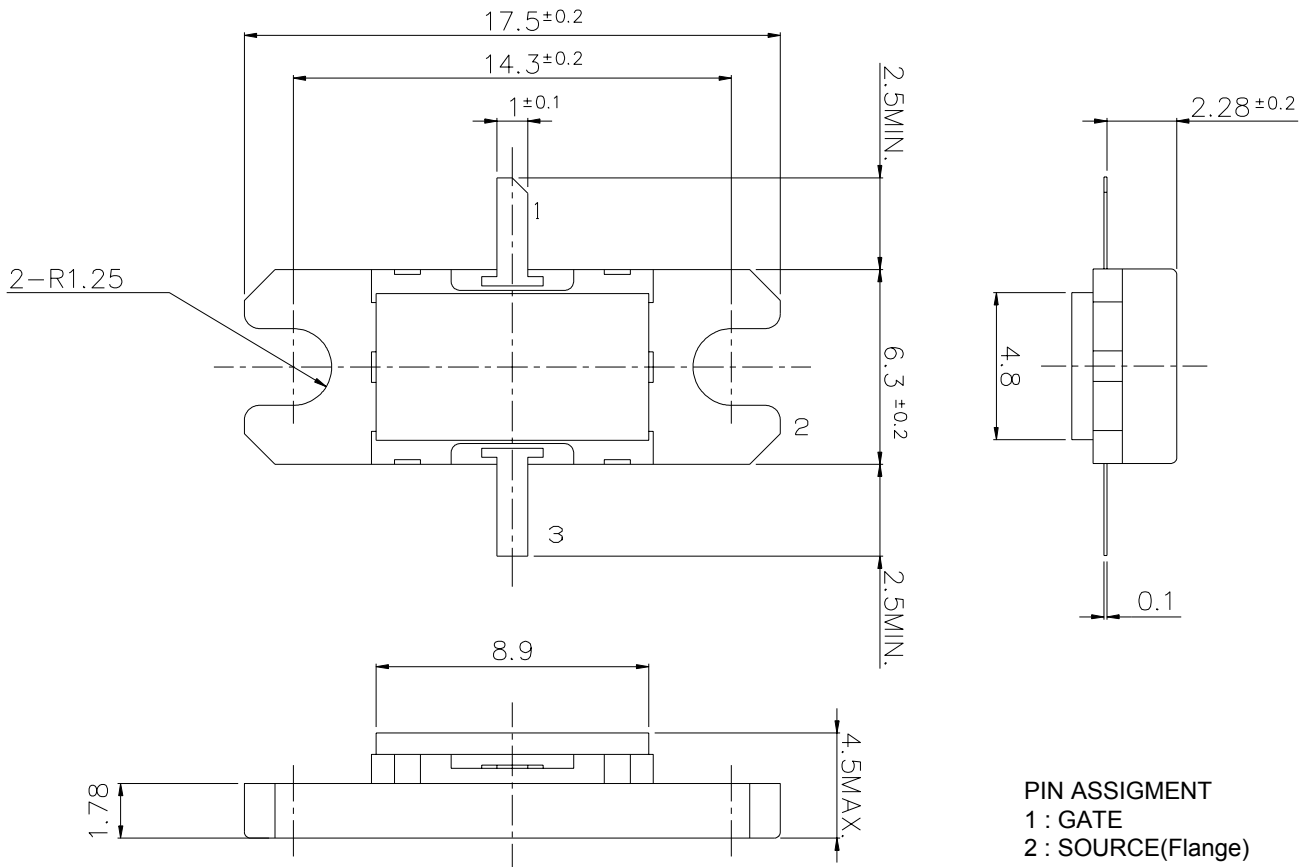


$\epsilon_r=10.45$ $t=1.2\text{mm}$

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MK Package Outline Metal-Ceramic Hermetic Package



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

Unit : mm

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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

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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.

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