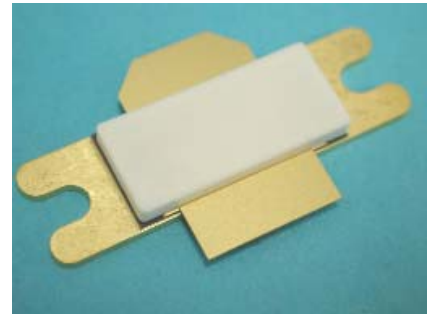


FLL21E060IY**L,S-band High Power GaAs FET****FEATURES**

- High Voltage Operation (VDS=28V) GaAs FET
- High Gain: 15.5dB(typ.) at Pout=41.8dBm(Avg.)
- Broad Frequency Range : 2110 to 2170MHz
- High Reliability

DESCRIPTION

The FLL21E060IY 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 base station amplifiers. 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 RATING**

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	V _{DS}	T _c =25°C (Case Temperature)	32	V
Gate-Source Voltage	V _{GS}		-3	V
Total Power Dissipation	P _T		102	W
Storage Temperature	T _{stg}	-	65 to +175	°C
Channel Temperature	T _{ch}	-	200	°C

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

Item	Symbol	Condition	Limit	Unit
DC Input Voltage	V _{DS}		<28	V
Forward Gate Current	I _{GF}	R _G =2Ω	<113.6	mA
Reverse Gate Current	I _{GR}	R _G =2Ω	>-22.1	mA
Channel Temperature	T _{ch}		155	°C

ELECTRICAL CHARACTERISTICS (Case Temperature T_c=25°C)

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Pinch-Off Voltage	V _P	V _{DS} =5V I _{DS} =94.3mA	-0.1	-0.2	-0.5	V
Gate-Source Breakdown Voltage	V _{GSO}	I _{GS} =-943uA	-5	-	-	V
3rd Order Intermodulation Distortion	IM ₃	V _{DS} =28V	-	-33	-31	dBc
Power Gain	G _P	I _{DS} (DC)=630mA	14.5	15.5	-	dB
Drain Efficiency	η _D	P _{out} =41.8dBm(Avg.)	-	26	-	%
Adjacent Channel Leakage Power Ratio	ACLR	Note 1	-	-35	-	dBc
Thermal Resistance	R _{th}	Channel to Case	-	1.5	1.7	°C/W

Note 1 : IM₃, ACLR and Gain test conditions as follows

IM₃ & Gain : f₀=2.1325GHz, f₁=2.1475GHz W-CDMA(3GPP3.4 12-0) BS-1 64ch non clipping modulation measured over 3.84MHz at f₀-15MHz and f₁+15MHz.

ACLR : f₀=2.1325GHz W-CDMA (3GPP3.4 12-0) BS-1 64ch non clipping modulation, measured over 3.84MHz at f₀+/-5MHz

ESD	CLASS III	2000V ~
-----	-----------	---------

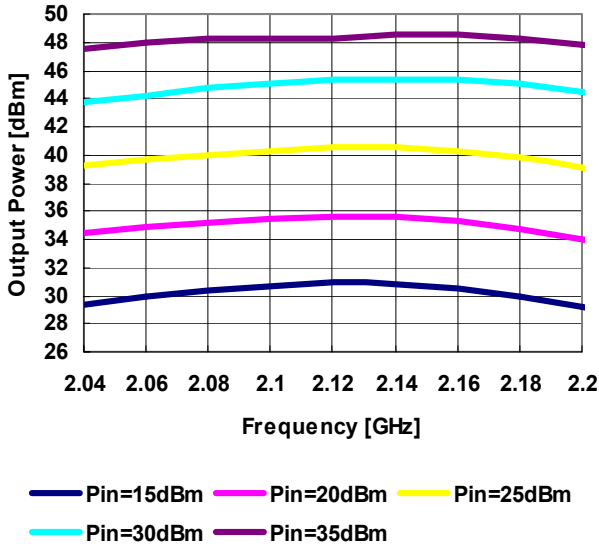
Note : Based on EIAJ ED-4701 C-111A(C=100pF, R=1.5kΩ)

CASE STYLE : IY

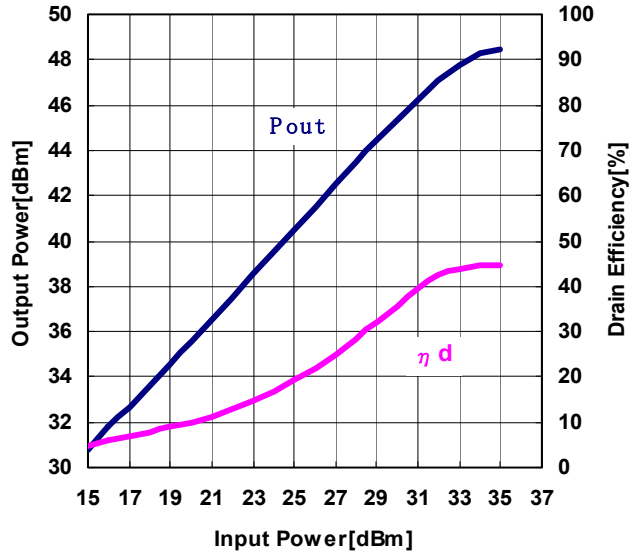
FLL21E060IY

L,S-band High Power GaAs FET

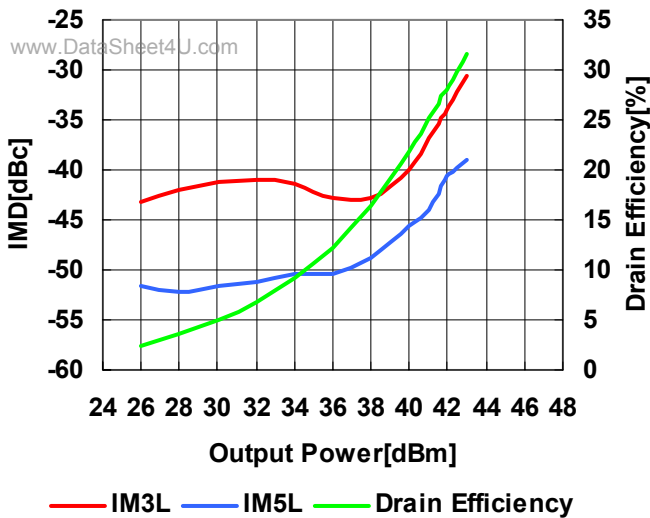
Output Power vs. Frequency
VDS=28V, IDS=630mA



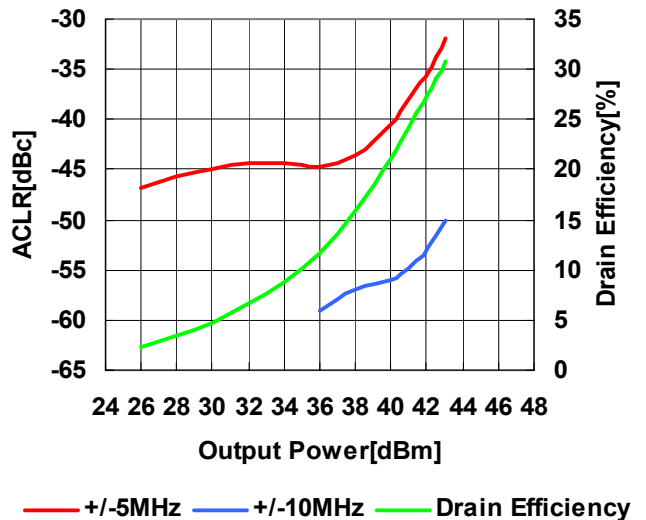
Output Power & Drain Efficiency vs. Input Power
VDS=28V, IDS=630mA, f=2.14GHz

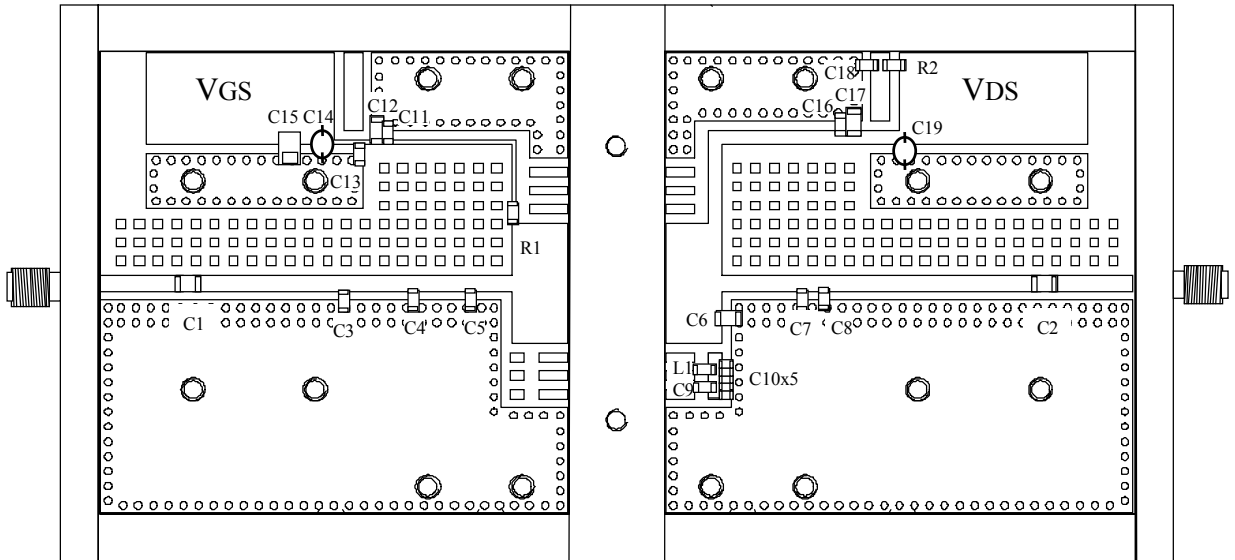
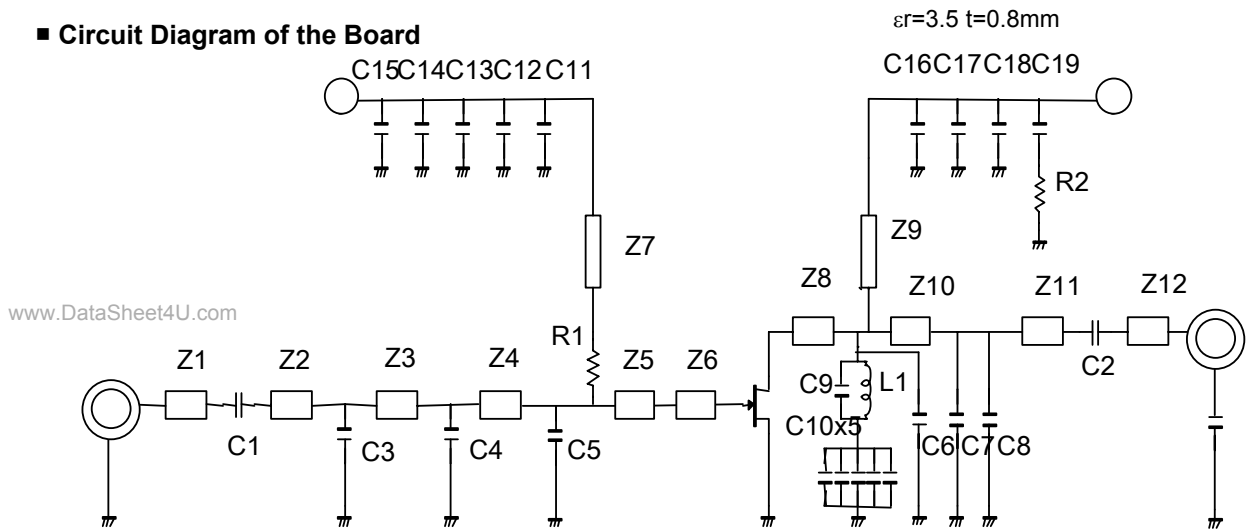


Two-Carrier IMD(ACLR) vs. Output Power
VDS=28V IDS=630mA f₀=2.135, f₁=2.145GHz
W-CDMA 3-GPP BS-1 64ch Modulation



Single-Carrier ACLR vs. Output Power
VDS=28V IDS=630mA fo=2.1325GHz
W-CDMA 3GPP BS-1 64ch Modulation



FLL21E060IY**L,S-band High Power GaAs FET****Board Layout****Circuit Diagram of the Board**

Z1, Z12	9.00mm x 1.78mm	Transmission Line
Z2	16.3mm x 1.78mm	Transmission Line
Z3	7.00mm x 1.78mm	Transmission Line
Z4	6.00mm x 13.0mm	Transmission Line
Z5	3.50mm x 0.50mm	Transmission Line
Z6	6.00mm x 13.0mm	Transmission Line
Z7	23.0mm x 0.50mm	Transmission Line
Z8	6.00mm x 25.0mm	Transmission Line
Z9	23.0mm x 1.50mm	Transmission Line
Z10	9.50mm x 13.0mm	Transmission Line
Z11	23.3mm x 1.78mm	Transmission Line

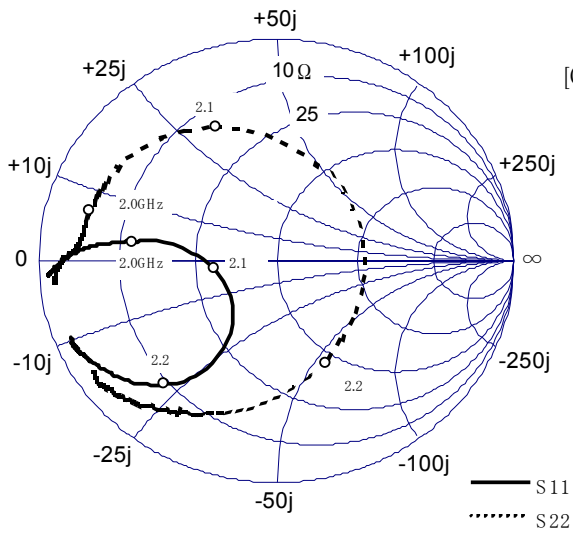
C1,C2	10pF	C18	22uF
C3,C7	1.0pF	L1	3.3nF
C4,C6	0.75pF	R1	2.0ohm
C5,C9	1.5pF	R2	51ohm
C8	0.5pF	Board	
C10	0.1uF	input size	εr=3.5 t=0.8mm
C11,C16	20pF		50mm x 50mm
C12,C17	100nF	output size	εr=3.5 t=0.8mm
C13,C18	1000pF		50mm x 50mm
C14,C15	10uF		

Eudyna

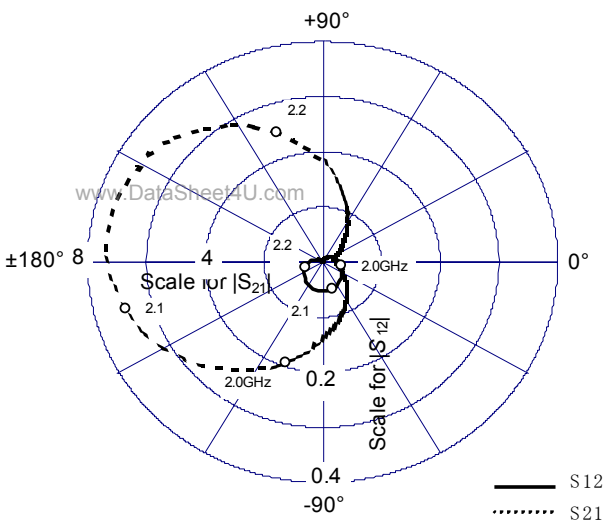
FLL21E060IY

L,S-band High Power GaAs FET

■S-Parameters @ VDS=28V, IDS=630mA, f=1.0 to 3.0 GHz



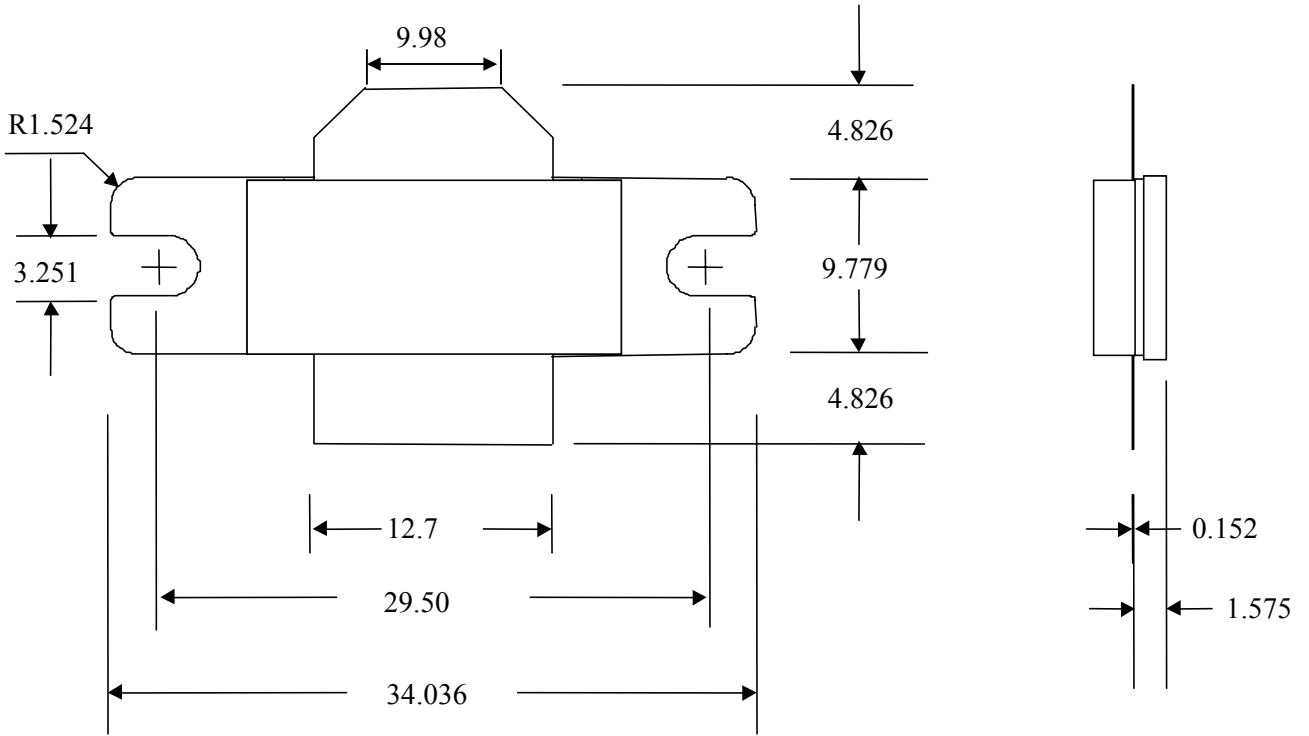
[GHz]	S11(mag)	S11(ang)	S21(mag)	S21(ang)	S12(mag)	S12(ang)	S22(mag)	S22(ang)
1	0.961	-176.42	0.480	4.24	0.002	70.01	0.933	-173.72
1.1	0.957	-176.29	0.468	-0.94	0.003	71.76	0.935	-174.51
1.2	0.953	-176.44	0.479	-5.13	0.003	69.92	0.930	-175.43
1.3	0.949	-176.61	0.512	-10.30	0.005	75.49	0.932	-176.11
1.4	0.943	-177.14	0.571	-16.29	0.005	71.35	0.928	-177.11
1.5	0.933	-178.20	0.665	-22.90	0.007	66.87	0.915	-177.79
1.6	0.911	-179.23	0.830	-31.26	0.009	58.53	0.908	-179.13
1.7	0.881	179.01	1.091	-42.42	0.011	49.89	0.885	178.94
1.8	0.833	177.08	1.532	-57.22	0.015	36.71	0.850	177.15
1.9	0.749	174.48	2.331	-78.13	0.022	17.53	0.829	173.66
2	0.609	171.95	3.889	-108.90	0.034	-13.62	0.815	163.99
2.1	0.263	-172.76	6.931	-165.59	0.052	-71.77	0.654	113.03
2.11	0.242	-156.52	7.194	-174.60	0.053	-80.54	0.599	100.93
2.12	0.252	-140.46	7.389	176.42	0.053	-89.96	0.541	86.80
2.13	0.306	-126.52	7.360	166.64	0.052	-99.95	0.478	69.57
2.14	0.378	-120.67	7.291	156.88	0.051	-110.43	0.419	48.81
2.15	0.457	-119.30	7.041	146.98	0.048	-119.43	0.382	25.67
2.16	0.531	-120.31	6.706	137.94	0.044	-129.46	0.373	1.34
2.17	0.596	-122.55	6.274	129.48	0.041	-137.37	0.388	-20.78
2.18	0.645	-124.52	5.836	121.87	0.037	-146.92	0.421	-39.36
2.19	0.696	-127.28	5.392	114.90	0.035	-152.94	0.461	-53.66
2.2	0.730	-130.24	4.968	108.68	0.030	-159.30	0.503	-65.54
2.3	0.859	-143.77	2.285	69.86	0.012	156.65	0.754	-113.65
2.4	0.894	-148.81	1.271	50.96	0.006	130.95	0.838	-127.60
2.5	0.916	-151.41	0.835	38.99	0.002	108.48	0.884	-134.62
2.6	0.923	-153.20	0.595	29.68	0.001	102.28	0.905	-138.74
2.7	0.927	-154.54	0.459	22.97	0.001	157.08	0.918	-141.00
2.8	0.936	-155.53	0.384	16.60	0.002	118.47	0.925	-143.07
2.9	0.932	-157.09	0.332	11.02	0.003	119.75	0.925	-145.09
3	0.928	-158.33	0.311	6.31	0.003	121.74	0.918	-146.72



FLL21E060IY

L,S-band High Power GaAs FET

■IY Package Outline



www.DataSheet4U.com

Unit : mm

FLL21E060IY

L,S-band 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.