

# FLL410IK-3C

## L-Band High Power GaAs FET

### FEATURES

- High Output Power: Pout=46.0dBm(Typ.)
- High Gain: GL=13.0dB(Typ.)
- High PAE:  $\eta_{add}$ =52%(Typ.)
- Broad Band: 2.5~2.7GHz
- Hermetically Sealed Package

### DESCRIPTION

The FLL410IK-3C is a partially matched 40 Watt GaAs FET that is designed for use in 2.5 – 2.7 GHz band amplifiers. This new product is uniquely suited for use in MMDS applications as it offers excellent linearity, high efficiency, high gain, long term reliability and ease of use.



Fujitsu's stringent Quality Assurance Program assures the highest reliability and consistent performance.

### ABSOLUTE MAXIMUM RATINGS (Case Temperature Tc=25°C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DS</sub>	15	V
Gate-Source Voltage	V <sub>GS</sub>	-5	V
Total Power Dissipation	P <sub>T</sub>	100	W
Storage Temperature	T <sub>stg</sub>	-65 to +175	°C
Channel Temperature	T <sub>ch</sub>	175	°C

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

Item	Symbol	Condition	Limit	Unit
DC Input Voltage	V <sub>DS</sub>		≤12	V
Gate Current	I <sub>GF</sub>	R <sub>G</sub> =5Ω	≤88	mA
Gate Current	I <sub>GR</sub>	R <sub>G</sub> =5Ω	≥-25	mA
Operating Channel Temperature	T <sub>ch</sub>		≤145	°C

### ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V	-	4.0	-	A
Pinch-off Voltage	V <sub>p</sub>	V <sub>DS</sub> =5V, I <sub>DS</sub> =110mA	-0.1	-0.3	-0.5	V
Gate-Source Breakdown Voltage	V <sub>GSO</sub>	I <sub>GS</sub> =-1.1mA	-5.0	-	-	V
Output Power	P <sub>OUT</sub>	V <sub>DS</sub> =12V f=2.6 GHz I <sub>DS</sub> =3A Pin=35.0dBm	45.0	46.0	-	dBm
Linear Gain *1	GL		12.0	13.0	-	dB
Drain Current	I <sub>DSr</sub>		-	5.9	7.6	A
Power-added Efficiency	$\eta_{add}$		-	52	-	%
Thermal Resistance	R <sub>th</sub>	Channel to Case	-	1.3	1.5	°C/W

\* 1 : GL is measured at Pin=22.0dBm

CASE STYLE: IK

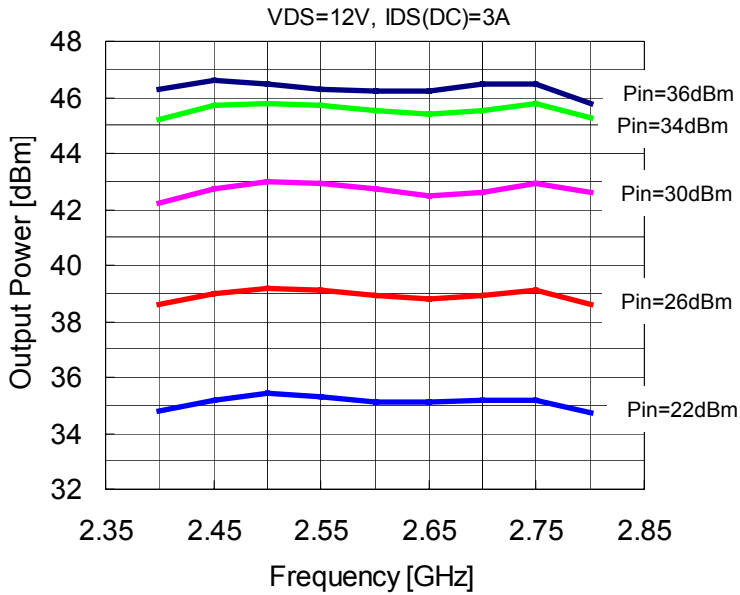
ESD	Class III	2000V ~
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Note : Based on EIAJ ED-4701 C-111A(C=100pF, R=1.5kΩ)

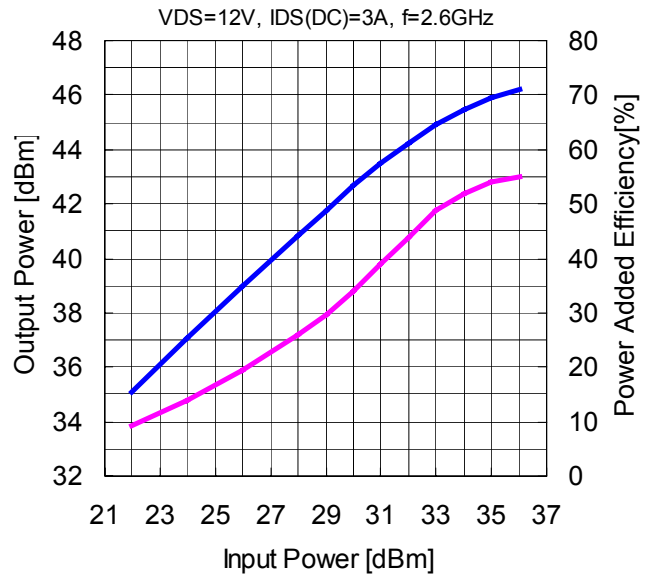
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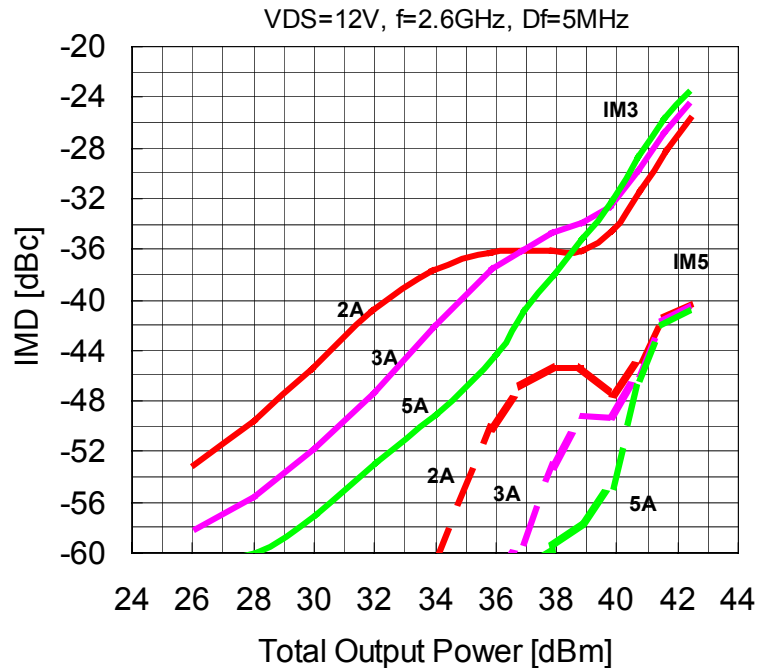
**OUTPUT POWER vs. INPUT POWER**



**OUTPUT POWER, POWER ADDED EFFICIENCY vs. TOTAL INPUT POWER**



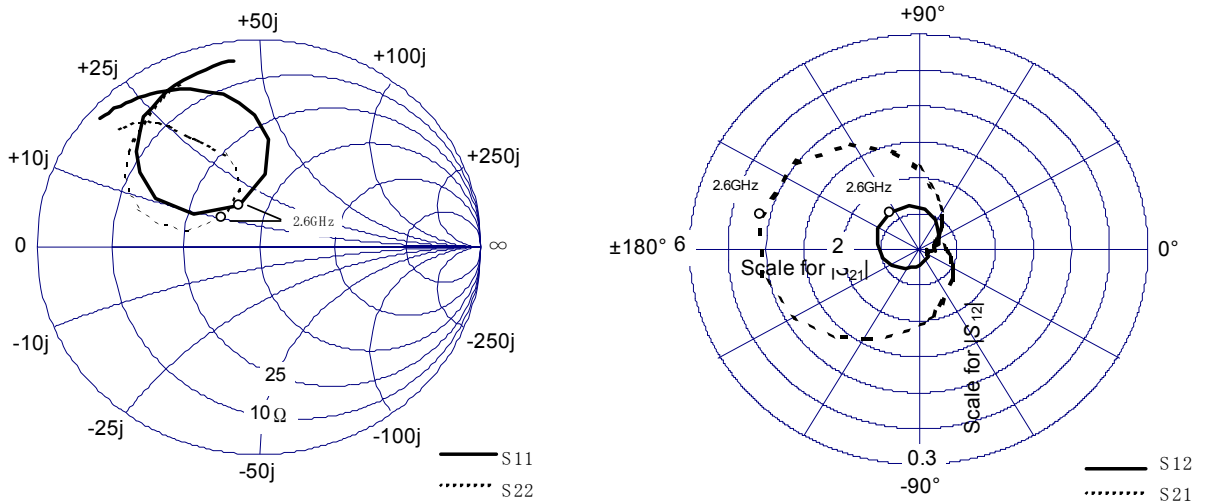
**IMD vs. TOTAL OUTPUT POWER**



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## L-Band High Power GaAs FET

### ■ S-PARAMETER



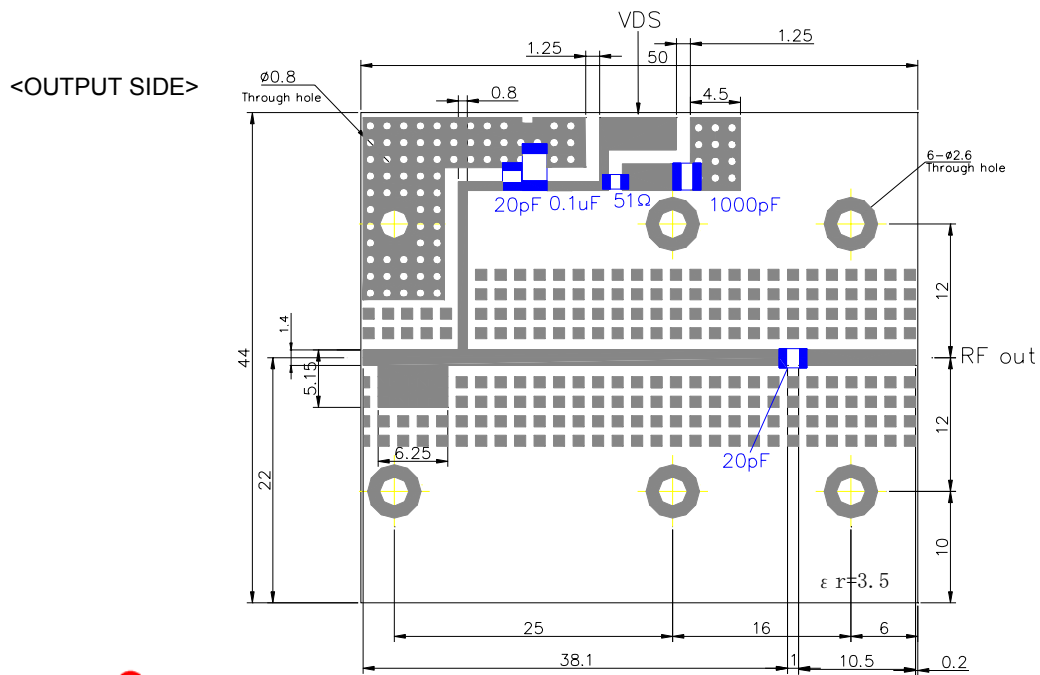
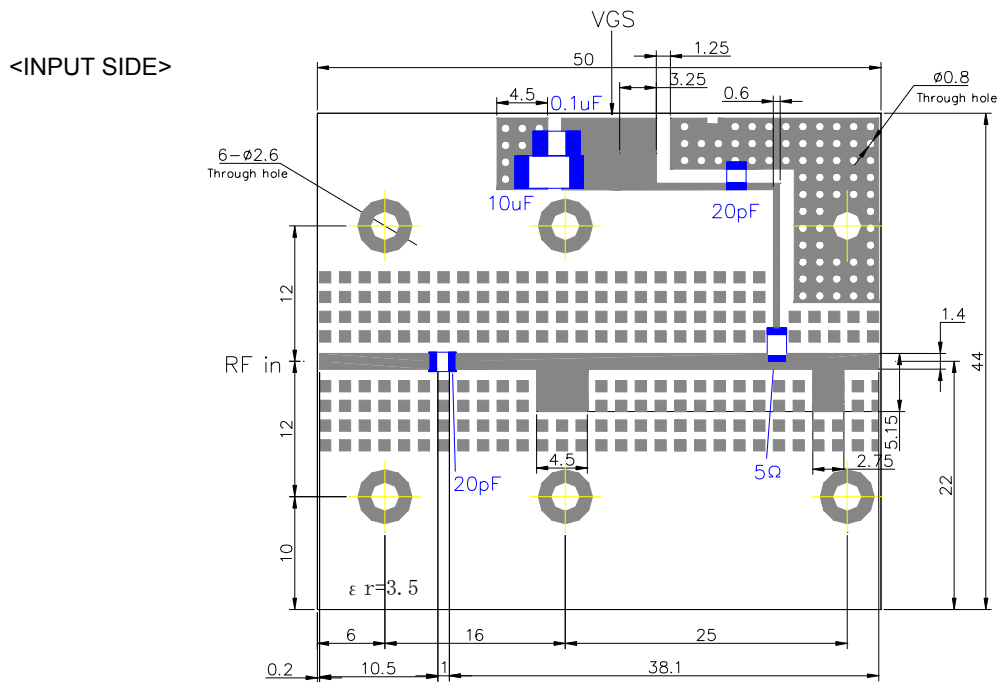
VDS=12V, IDS=3.0A

Freq [GHz]	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.50	0.95	139.13	0.66	5.71	0.01	-7.76	0.85	137.80
1.60	0.94	136.13	0.73	-1.34	0.01	-21.24	0.83	134.28
1.70	0.92	132.48	0.83	-11.38	0.01	-27.54	0.80	130.79
1.80	0.91	129.08	0.93	-21.69	0.01	-37.64	0.76	127.82
1.90	0.89	125.19	1.08	-33.36	0.01	-48.85	0.72	125.28
2.00	0.87	121.65	1.26	-45.28	0.01	-64.79	0.68	122.79
2.20	0.83	112.20	1.82	-76.40	0.02	-97.72	0.61	119.58
2.30	0.78	106.32	2.27	-95.83	0.02	-122.75	0.57	117.16
2.40	0.70	97.54	2.86	-118.23	0.03	-148.63	0.52	112.58
2.50	0.52	85.55	3.75	-149.12	0.04	173.08	0.40	105.59
2.60	0.22	114.34	4.29	166.53	0.04	127.14	0.22	139.17
2.70	0.52	153.17	3.43	121.10	0.04	82.29	0.47	165.62
2.80	0.72	139.88	2.23	89.90	0.03	50.87	0.65	155.17
2.90	0.82	129.39	1.54	71.09	0.02	27.82	0.72	145.97
3.00	0.85	121.63	1.10	57.03	0.02	15.34	0.76	138.08
3.10	0.87	116.02	0.87	45.39	0.01	-3.89	0.79	130.98
3.20	0.88	110.41	0.66	35.06	0.01	-7.86	0.82	125.09
3.30	0.89	105.71	0.56	28.49	0.01	-16.93	0.84	120.80
3.40	0.90	100.75	0.47	20.22	0.01	-25.52	0.86	117.16
3.50	0.91	97.00	0.42	15.07	0.01	-22.89	0.86	113.34

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### ■ BOARD LAYOUT(Reference)



εr=3.5, t=0.6mm  
Unit : mm

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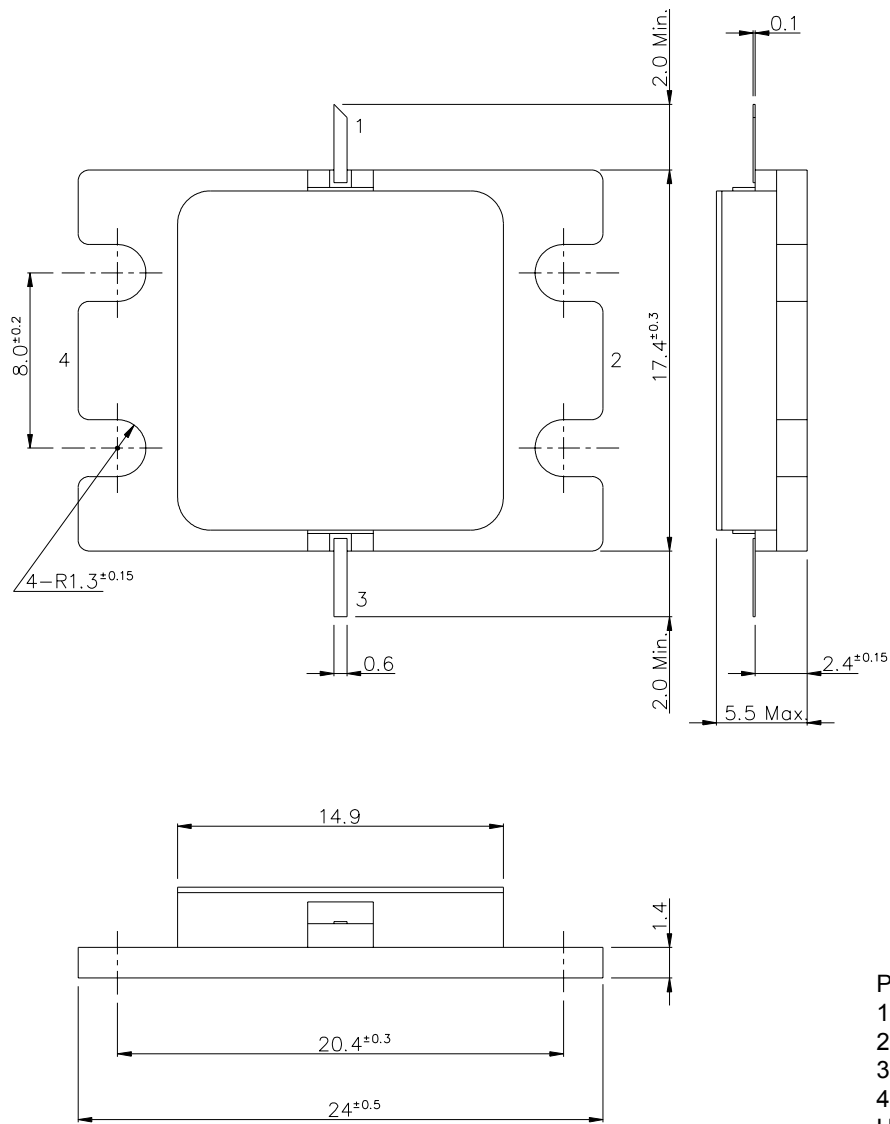
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## ■ Package Out Line



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- 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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