

# FLU17ZM

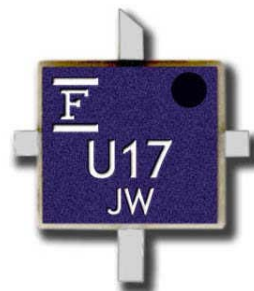
## L-Band Medium & High Power GaAs FET

### FEATURES

- High Output Power: P<sub>1dB</sub>=32.5dBm(typ.)
- High Gain: G<sub>1dB</sub>=12.5dB(typ.)
- Low Cost Plastic(SMT) Package
- Tape and Reel Available

### DESCRIPTION

The FLU17ZM is a GaAs FET designed for base station and CPE applications. This is a new product series using a plastic surface mount package that has been optimized for high volume cost driven applications. Fujitsu's stringent Quality Assurance Program assures the highest reliability and consistent performance.



### ABSOLUTE MAXIMUM RATINGS (Case Temperature T<sub>c</sub>=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>	8.3	W
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C
Channel Temperature	T <sub>ch</sub>	150	°C

### Recommended Operating Condition (Case Temperature T<sub>c</sub>=25°C)

Item	Symbol	Condition	Unit
DC Input Voltage	V <sub>DS</sub>	≤ 10	V
Channel Temperature	T <sub>ch</sub>	≤ 145	°C
Forward Gate Current	I <sub>gsf</sub>	≤ 9.6	mA
Reverse Gate Current	I <sub>gsr</sub>	≥ -1.0	mA
Gate Resistance	R <sub>g</sub>	200	Ω

### ELECTRICAL CHARACTERISTICS (Case Temperature T<sub>c</sub>=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	-	600	900	mA
Transconductance	g <sub>m</sub>	V <sub>DS</sub> =5V, I <sub>DS</sub> =400mA	-	300	-	mS
Pinch-off Voltage	V <sub>p</sub>	V <sub>DS</sub> =5V, I <sub>DS</sub> =30mA	-1.0	-2.0	-3.5	V
Gate-Source Breakdown Voltage	V <sub>GSO</sub>	I <sub>GS</sub> =-30uA	-5	-	-	V
Output Power at 1dB G.C.P.	P <sub>1dB</sub>	V <sub>DS</sub> =10V, f=2.0GHz,	31.5	32.5	-	dBm
Power Gain at 1dB G.C.P.	G <sub>1dB</sub>	I <sub>DS</sub> =0.6I <sub>DSS</sub> (Typ.)	11.5	12.5	-	dB
Thermal Resistance	R <sub>th</sub>	Channel to Case	-	12	15	°C/W

### CASE STYLE: ZM

G.C.P.: Gain Compression Point

Note 1: Product supplied to this specification are 100% DC performance tested.

Note 2: The RF parameters are measured on a lot basis by sample testing 10 pcs/lot.

Acceptance Criteria:(accept/reject)=(0/1). Any lot failure shall be 100% retested.

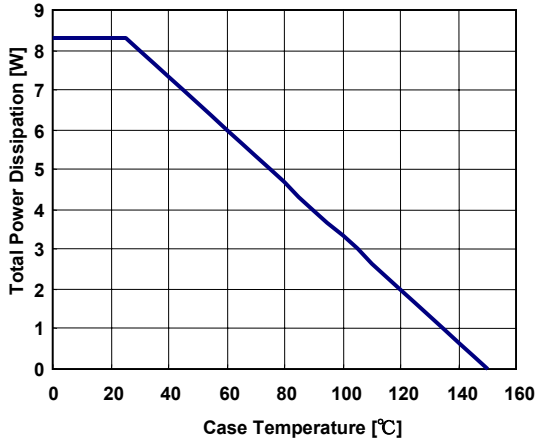
ESD	Class II	500 ~ 1999 V
-----	----------	--------------

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

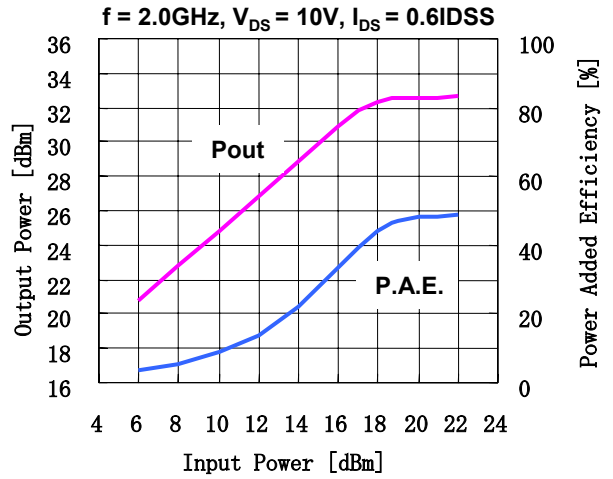
# FLU17ZM

## L-Band Medium & High Power GaAs FET

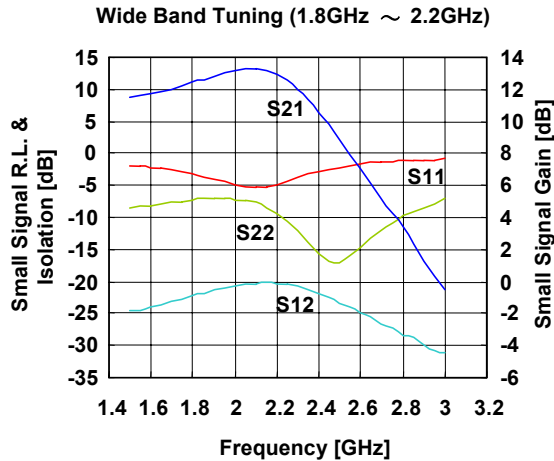
### POWER DERATING CURVE



### OUTPUT POWER & POWER ADDED EFFICIENCY vs. INPUT POWER



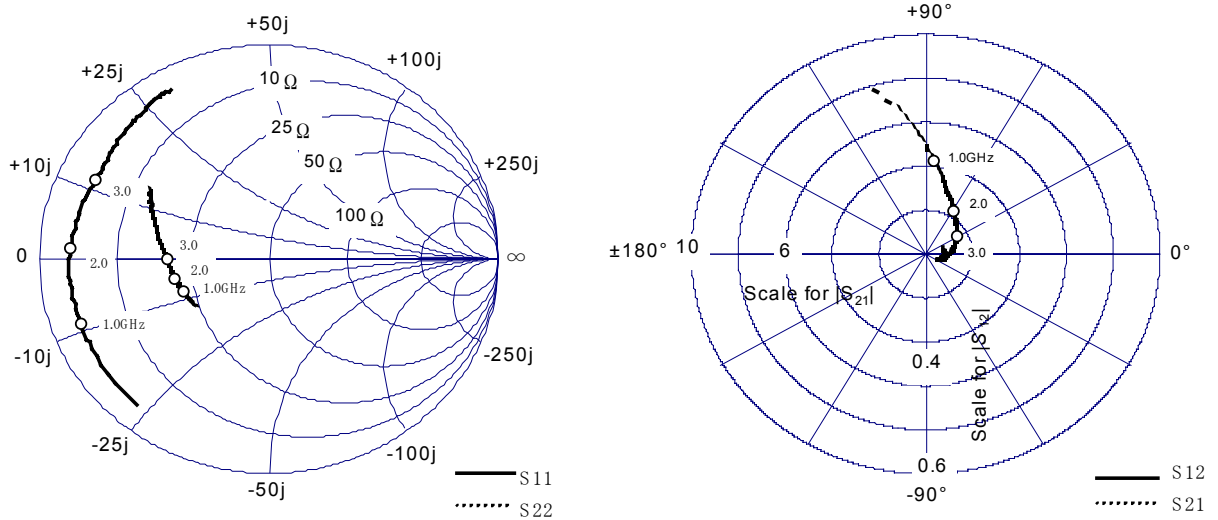
### SMALL SINGLE R.L. vs FREQUENCY



# FLU17ZM

## L-Band Medium & High Power GaAs FET

### ■ S-PARAMETER



$V_{DS} = 10V, I_{DS} = 360mA$

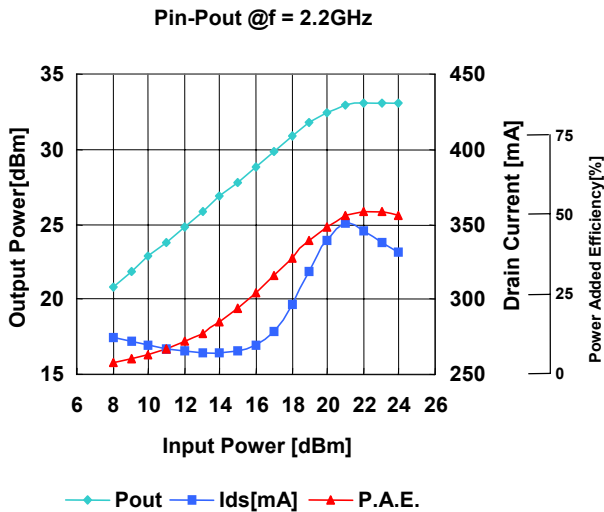
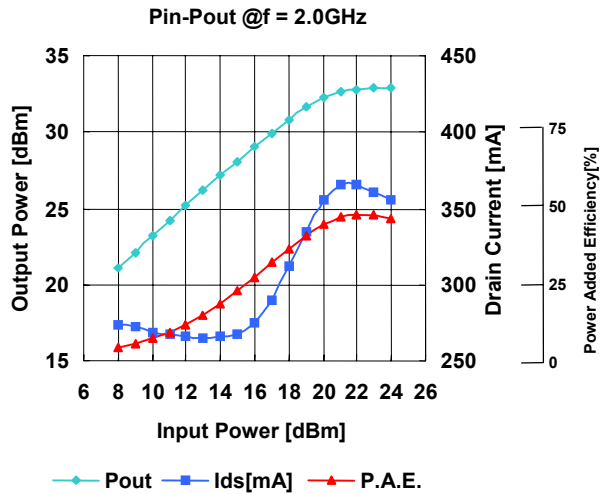
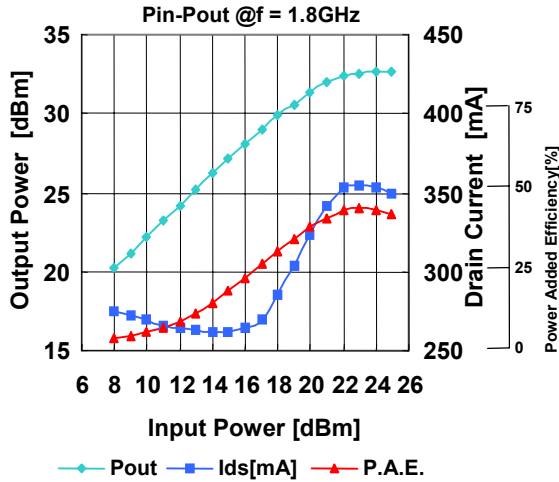
Freq [GHz]	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.5	0.89	-130.40	7.82	106.20	0.05	22.81	0.38	-144.06
1	0.87	-159.47	4.26	84.91	0.05	10.25	0.40	-157.62
1.5	0.87	-172.30	2.95	71.11	0.05	3.23	0.41	-162.28
2	0.87	176.73	2.31	58.41	0.05	-2.81	0.42	-166.91
2.5	0.85	166.01	1.89	45.71	0.05	-10.38	0.43	-172.98
3	0.84	153.61	1.58	31.88	0.04	-11.34	0.44	179.73
3.5	0.85	142.11	1.33	18.68	0.04	-15.81	0.48	170.94
4	0.87	131.82	1.12	5.71	0.04	-20.61	0.52	162.31
4.5	0.89	124.40	0.94	-5.77	0.04	-22.32	0.57	154.52
5	0.90	118.39	0.79	-16.59	0.03	-26.62	0.61	147.78

# FLU17ZM

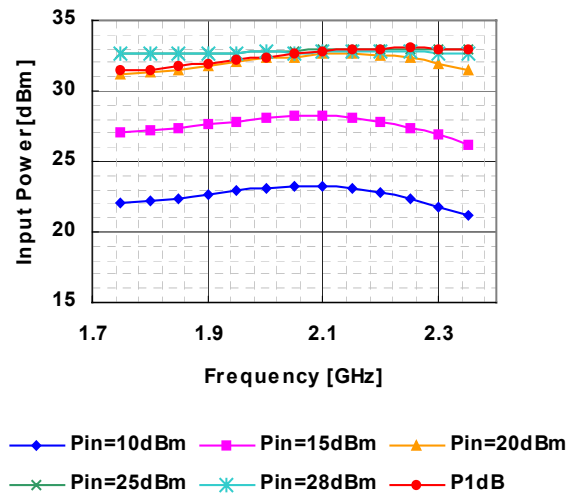
## L-Band Medium & High Power GaAs FET

### OUTPUT POWER, DRAIN CURRENT vs. INPUT POWER

@  $V_{DS} = 10V$ ,  $I_{DS} = 0.6IDSS$



### OUTPUT POWER vs. FREQUENCY

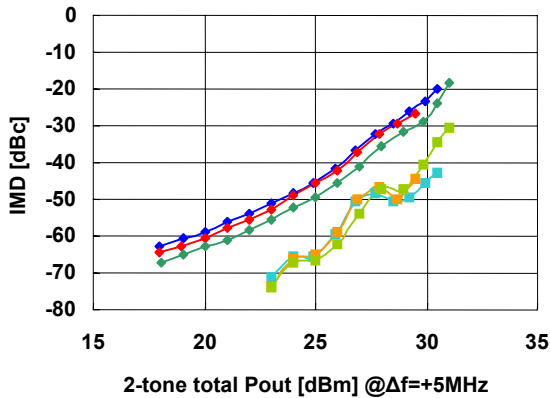


# FLU17ZM

## L-Band Medium & High Power GaAs FET

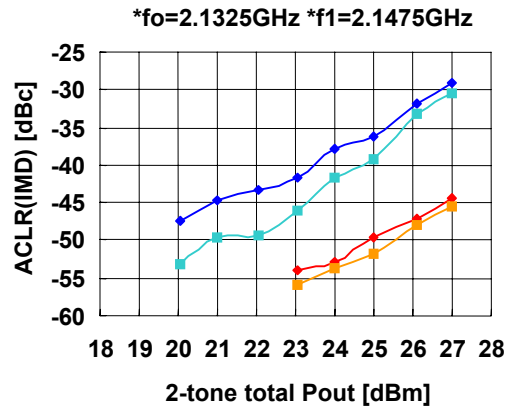
@  $V_{DS} = 10V, I_{DS} = 0.6IDSS$

### IMD vs OUTPUT POWER(2-tone)



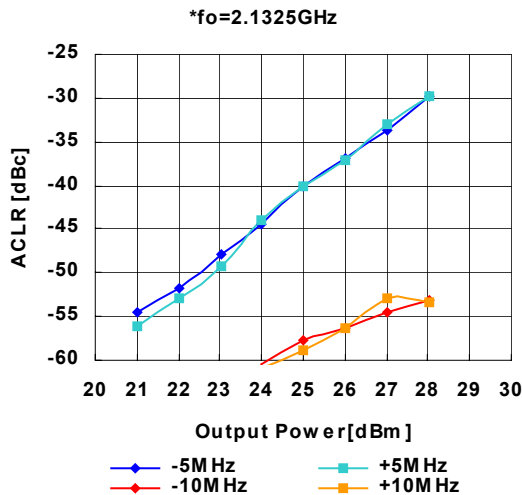
◆ IM3@1.8GHz    ■ IM5@1.8GHz    ● IM3@2.0GHz  
■ IM5@2.0GHz    ● IM3L dBc    ■ IM5L dBc

### W-CDMA, 2-CARRIER IMD(ACLR)



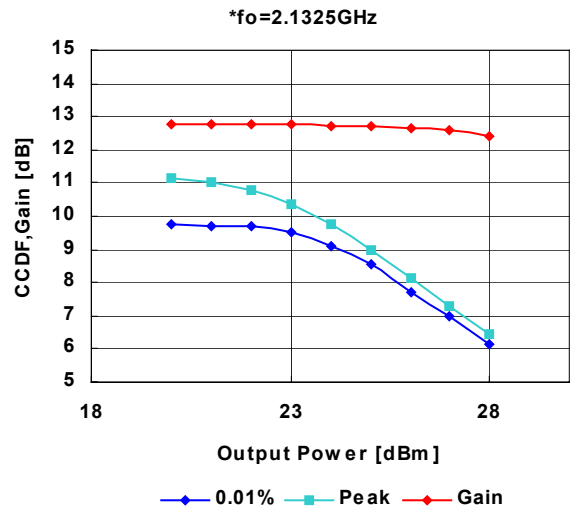
◆ IM3-L    ■ IM3-U    ● IM5-L    ■ IM5-U

### W-CDMA SINGLE CARRIER ACLR



◆ -5M Hz    ■ +5M Hz  
● -10M Hz    ■ +10M Hz

### W-CDMA SINGLE CARRIER CCDF AND GAIN



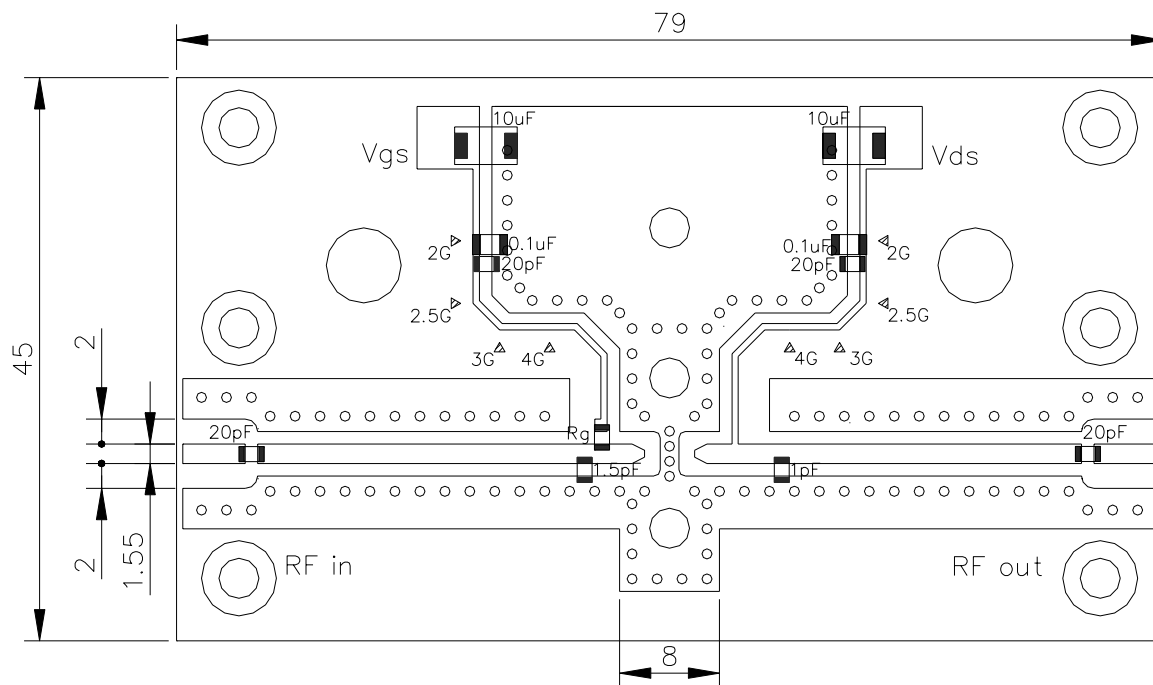
◆ 0.01%    ■ Peak    ● Gain

Note : \*All signals are W-CDMA modulated at 3GPP3.4.12-00 BS-1 64ch non clipping.

# FLU17ZM

## L-Band Medium & High Power GaAs FET

### Recommended Bias Circuit and Internal Block Diagram



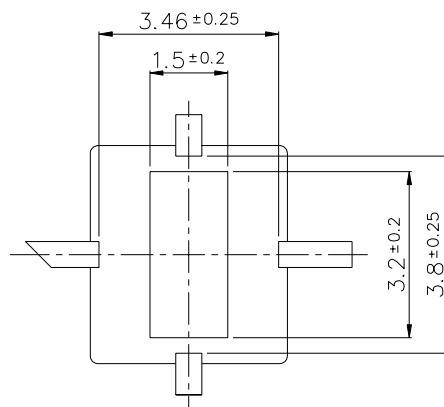
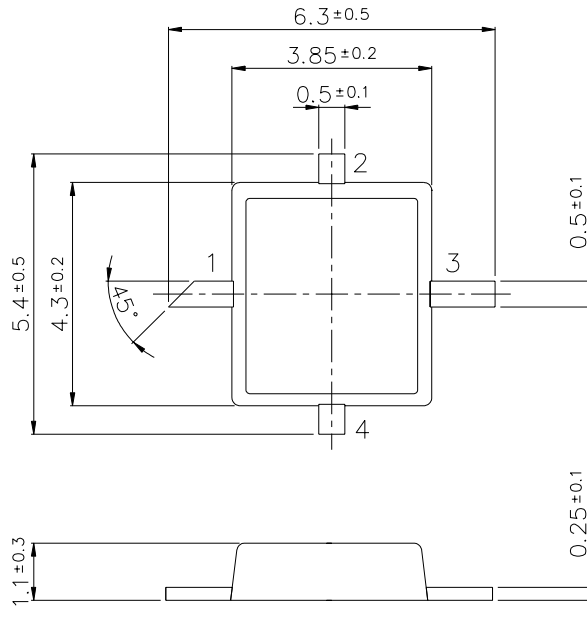
<Board information>  
 $\epsilon_r=3.5$ ,  $t=0.8$

\* Board was tuned for wide band performance with data shown on pages 4 and 5.

# FLU17ZM

L-Band Medium & High Power GaAs FET

## ■ Package Outline



- 1 : Gate
  - 2 : Source
  - 3 : Drain
  - 4 : Source
- Unit : mm

# FLU17ZM

## L-Band Medium & High Power GaAs FET

For further information please contact :

### FUJITSU COMPOUND SEMICONDUCTOR, INC.

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

### FUJITSU QUANTUM DEVICES EUROPE LTD.

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

### FUJITSU QUANTUM DEVICES LIMITED

Business Development Division  
11th Floor, Hachioji Daiichi-Seimei Bldg.  
3-20-6 Myojin-cho  
Hachioji-city, Tokyo 192-0046, Japan  
TEL: +81-426-43-5885  
FAX: +81-426-43-5582

<b>CAUTION</b>
Fujitsu Compound Semiconductor Products contain <b>gallium arsenide (GaAs)</b> which can be hazardous to the human body and the environment. For safety, observe the following procedures:
<ul style="list-style-type: none"><li>· Do not put these products into the mouth.</li><li>· 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.</li><li>· 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.</li></ul>

### FUJITSU QUANTUM DEVICES SINGAPORE PTE LTD.

**Hong Kong Branch**  
Rm. 1101, Ocean Centre, 5 Canton Rd.  
Tsim Sha Tsui, Kowloon, Hong Kong  
TEL: +852-23770226  
FAX: +852-23763269

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

(© 2003 FUJITSU COMPOUND SEMICONDUCTOR, INC.  
Printed in U.S.A. FCSI0202M200

