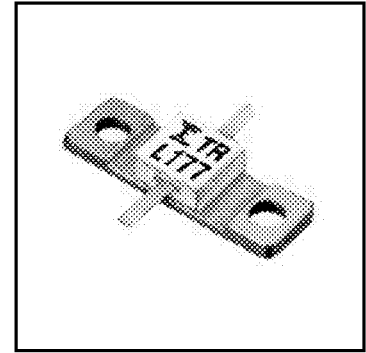


### FEATURES

- High Output Power:  $P_{1dB}=32.5\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB}=12.5\text{dB}$  (Typ.)
- High PAE:  $\eta_{add}=46\%$  (Typ.)
- Proven Reliability
- Hermetically Sealed Package



### DESCRIPTION

The FLL177ME is a Power GaAs FET that is specifically designed to provide high power at L-Band frequencies with gain, linearity and efficiency superior to that of silicon devices. The performance in multitone environments for Class AB operation make them ideally suited for base station applications. This device is assembled in hermetic metal/ceramic package.

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

### ABSOLUTE MAXIMUM RATING (Ambient Temperature $T_a=25^\circ\text{C}$ )

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	$V_{DS}$		15	V
Gate-Source Voltage	$V_{GS}$		-5	V
Total Power Dissipation	$P_t$	$T_c = 25^\circ\text{C}$	7.5	W
Storage Temperature	$T_{stg}$		-65 to +175	$^\circ\text{C}$
Channel Temperature	$T_{ch}$		175	$^\circ\text{C}$

Fujitsu recommends the following conditions for the reliable operation of GaAs FETs:

1. The drain-source operating voltage ( $V_{DS}$ ) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 9.6 and -1.0 mA respectively with gate resistance of  $200\Omega$ .
3. The operating channel temperature ( $T_{ch}$ ) should not exceed  $145^\circ\text{C}$ .

### ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$ )

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	600	900	mA
Transconductance	$g_m$	$V_{DS} = 5\text{V}, I_{DS} = 400\text{mA}$	-	300	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5\text{V}, I_{DS} = 30\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -30\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10\text{V}$ $I_{DS} \approx 0.6I_{DSS}$ (Typ.), $f = 2.3\text{GHz}$	31.5	32.5	-	dBm
Power Gain at 1dB G.C.P.	$G_{1dB}$		11.5	12.5	-	dB
Power-added Efficiency	$\eta_{add}$		-	46	-	%
Thermal Resistance	$R_{th}$	Channel to Case	-	15	20	$^\circ\text{C/W}$

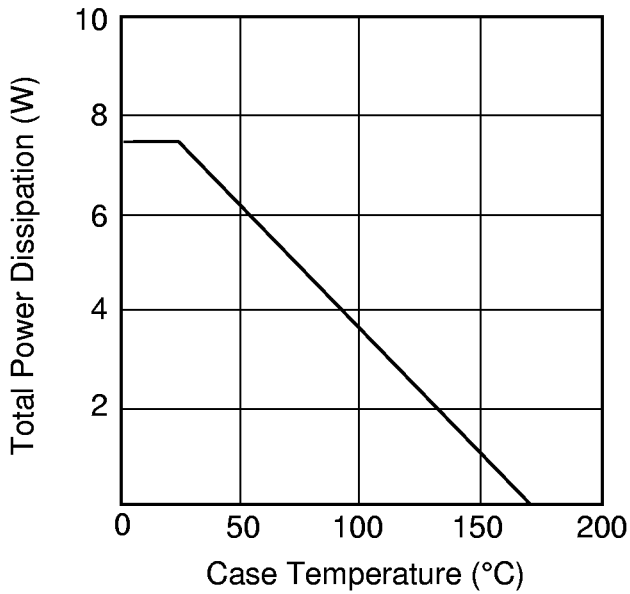
CASE STYLE: ME

G.C.P.: Gain Compression Point

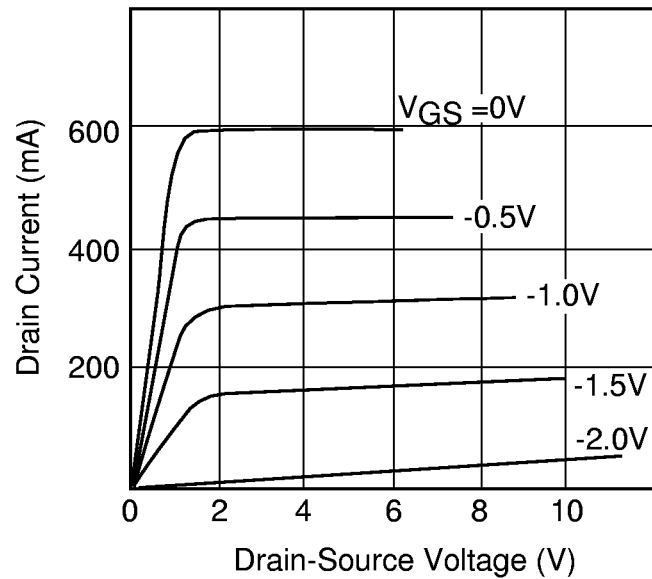
# FLL177ME

## L-Band Medium & High Power GaAs FET

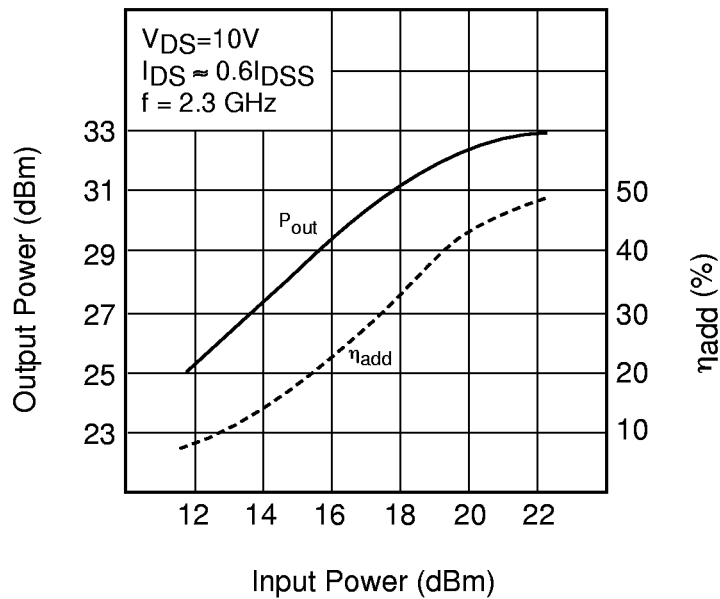
### POWER DERATING CURVE

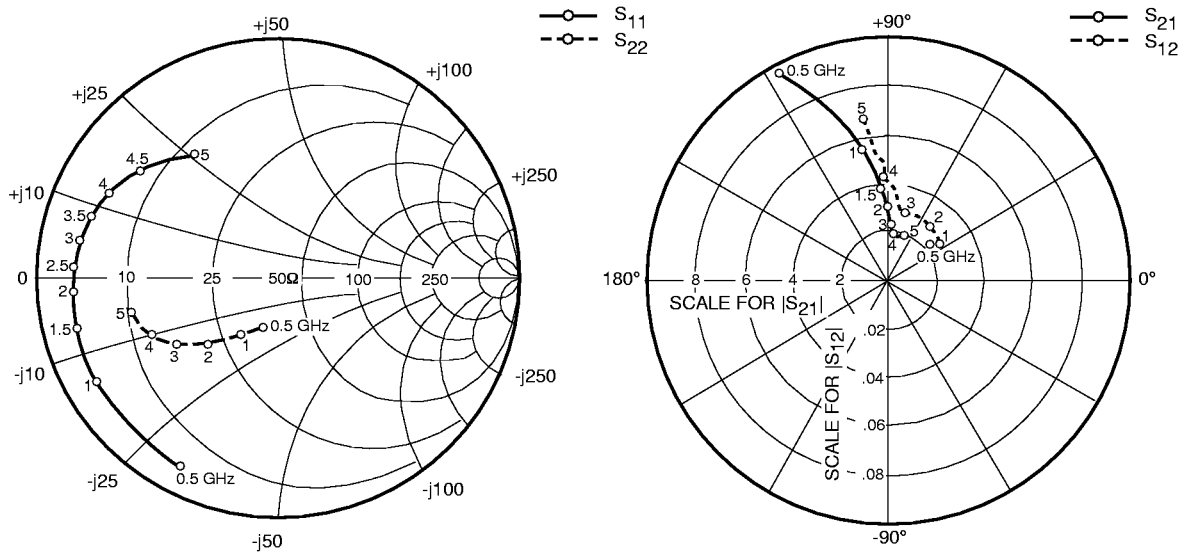


### DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



### OUTPUT POWER vs. INPUT POWER





### S-PARAMETERS

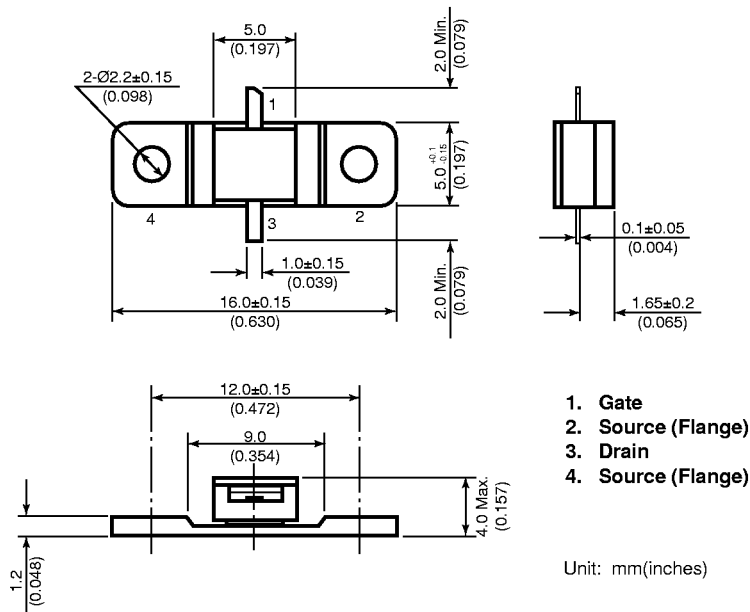
$V_{DS} = 10V, I_{DS} = 360mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.893	-117.6	9.628	117.9	.023	40.5	.219	-106.3
1000	.865	-150.2	5.465	101.7	.025	36.1	.277	-123.1
1500	.857	-165.4	3.853	95.3	.027	42.5	.337	-130.2
2000	.852	-175.7	2.986	90.4	.028	52.6	.399	-136.1
2500	.848	176.7	2.470	88.0	.029	65.6	.447	-140.5
3000	.836	169.2	2.204	86.2	.028	76.7	.502	-145.6
3500	.816	161.9	1.914	83.8	.037	85.1	.543	-151.0
4000	.784	153.4	2.026	81.6	.042	92.5	.566	-154.8
4500	.724	141.8	1.868	74.5	.048	91.8	.599	-158.9
5000	.618	124.4	2.005	67.7	.067	99.0	.616	-166.0

# FLL177ME

## L-Band Medium & High Power GaAs FET

### Case Style "ME" Metal-Ceramic Hermetic Package



### 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 MICROELECTRONICS, LTD.

Compound Semiconductor Division

Network House

Norreys Drive

Maidenhead, Berkshire SL6 4FJ

Phone:+44 (0)1628 504800

FAX:+44 (0)1628 504888

### CAUTION

Fujitsu Compound Semiconductor 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.

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.

© 1998 FUJITSU COMPOUND SEMICONDUCTOR, INC.

Printed in U.S.A. FCSI0598M200

**FUJITSU**