FLL177ME

L-Band Medium & High Power GaAs FET

FEATURES

- High Output Power: P_{1dB}=32.5dBm (Typ.)
- High Gain: G_{1dB}=12.5dB (Typ.)
- High PAE: η_{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 Ta=25°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°C	7.5	W
Storage Temperature	T_{stg}		-65 to +175	°C
Channel Temperature	T_{ch}		175	°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 200Ω.
3. The operating channel temperature (T_{ch}) should not exceed 145°C.

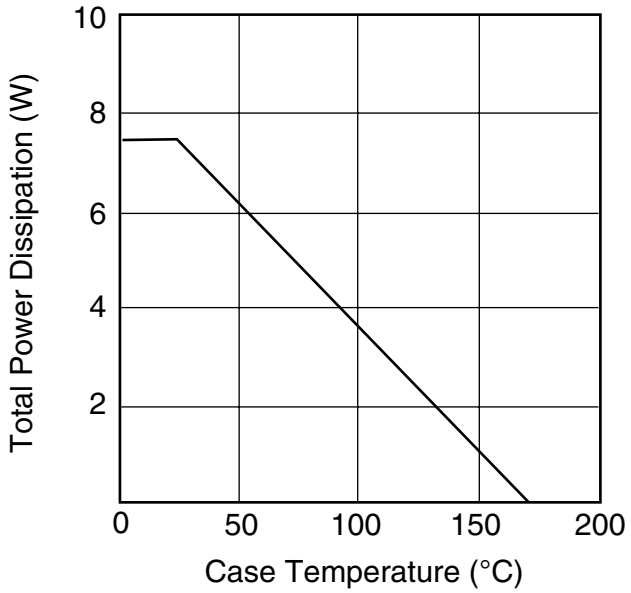
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

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

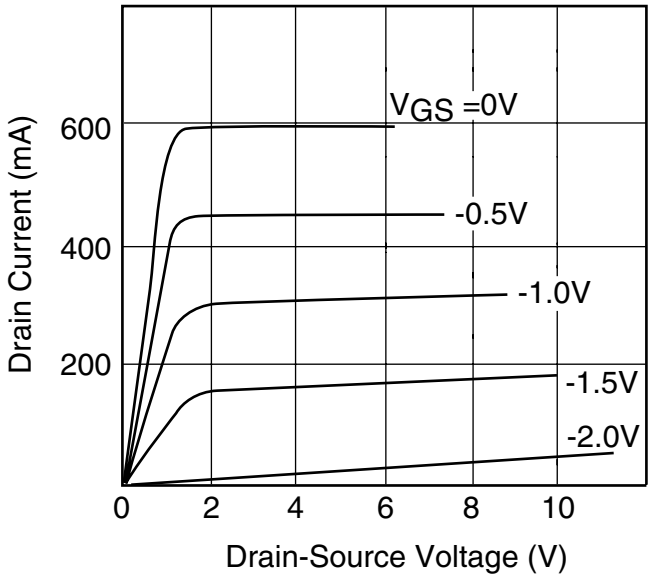
CASE STYLE: ME

G.C.P.: Gain Compression Point

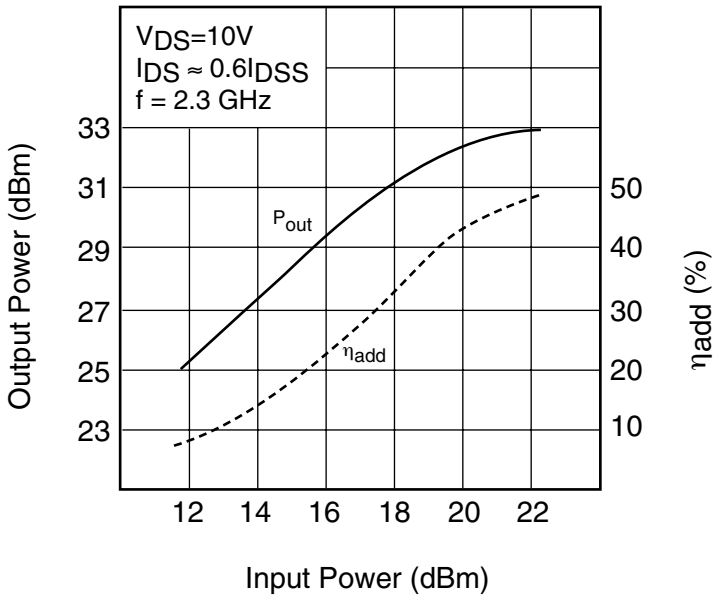
POWER DERATING CURVE

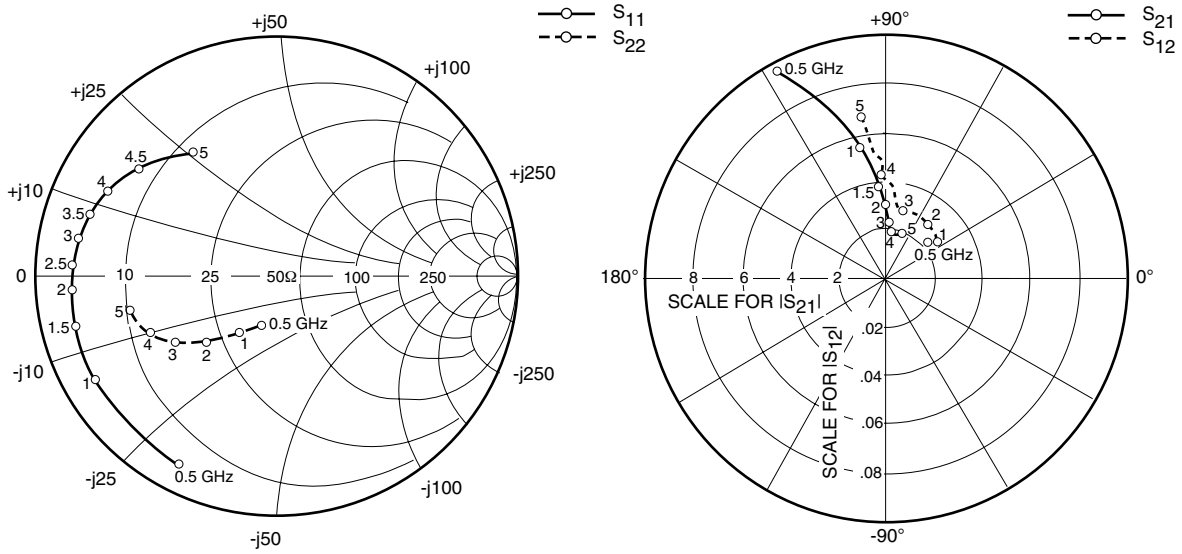


DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



OUTPUT POWER vs. INPUT POWER





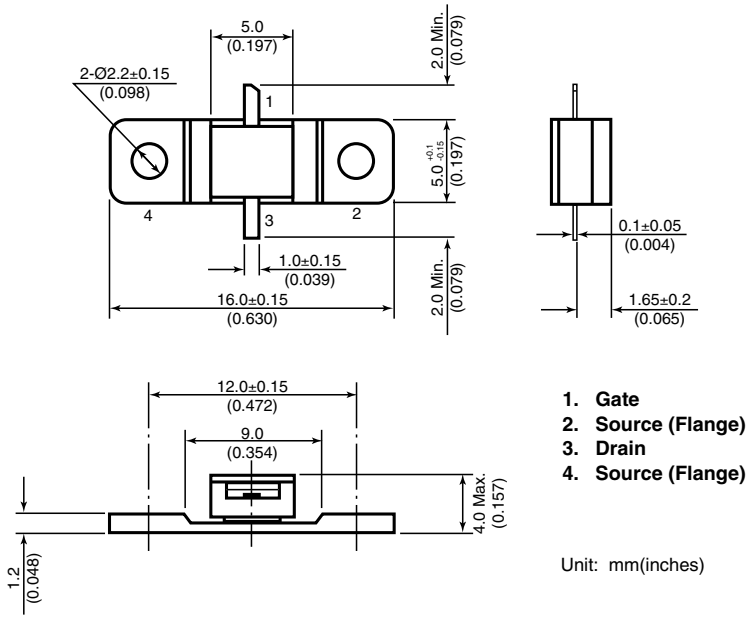
S-PARAMETERS

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

FREQUENCY	S11		S21		S12		S22	
(MHZ)	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

Case Style "ME"

Metal-Ceramic Hermetic Package



1. **Gate**
2. **Source (Flange)**
3. **Drain**
4. **Source (Flange)**

Unit: mm(inches)

For further information please contact:

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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.**

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