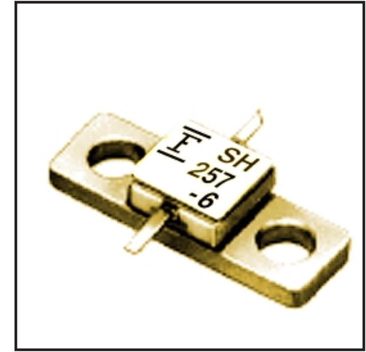
FLC257MH-6

C-Band Power GaAs FET

FEATURES

- High Output Power: P_{1dB} = 34.0dBm(Typ.)
- High Gain: G_{1dB} = 9.0dB(Typ.)
- High PAE: η_{add} = 36%(Typ.)
- Proven Reliability
- Hermetic Metal/Ceramic Package



DESCRIPTION

The FLC257MH-6 is a power GaAs FET that is designed for general purpose applications in the C-Band frequency range as it provides superior power, gain, and efficiency.

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	15	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 17.8 and -1.2 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	-	1000	1500	mA
Transconductance	g_m	V_{DS} = 5V, I_{DS} =600mA	-	500	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} =50mA	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -50μA	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} = 10V, I_{DS} = 0.6 I_{DSS} (Typ.), f = 6.4 GHz	32.5	34.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		8.0	9.0	-	dB
Power-added Efficiency	η_{add}		-	36	-	%
Thermal Resistance	R_{th}	Channel to Case	-	8	10	°C/W

CASE STYLE: MH

G.C.P.: Gain Compression Point

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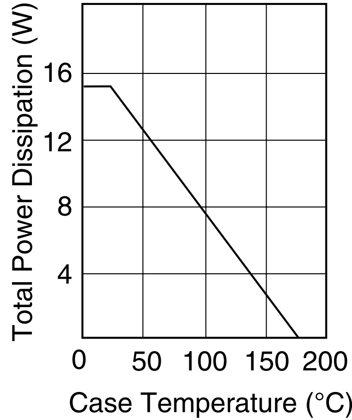
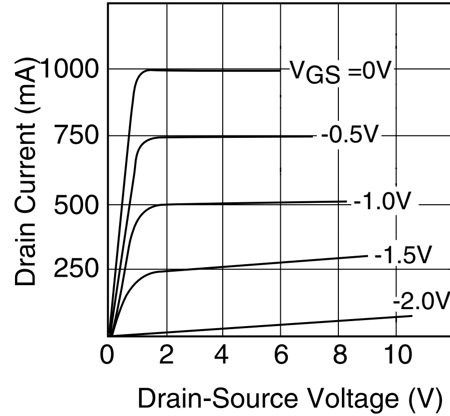
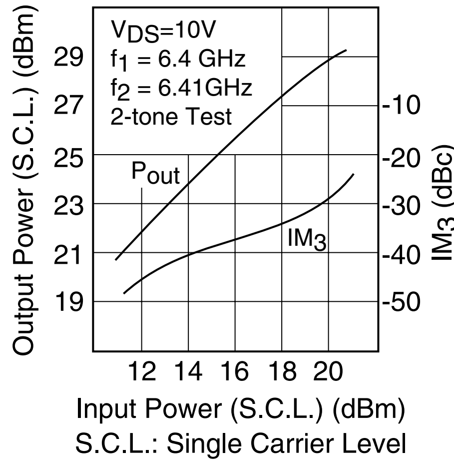
POWER DERATING CURVE



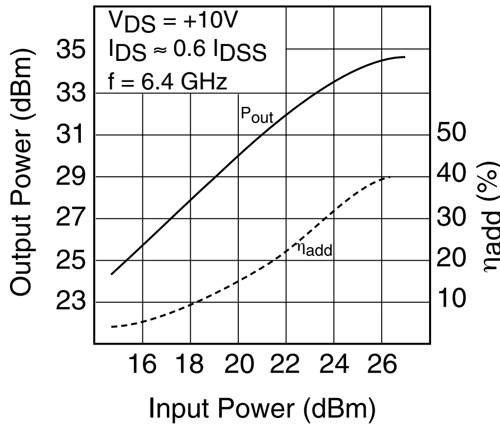
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



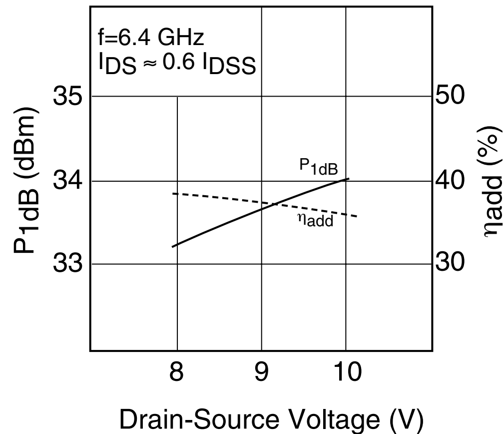
OUTPUT POWER & IM3 vs. INPUT POWER

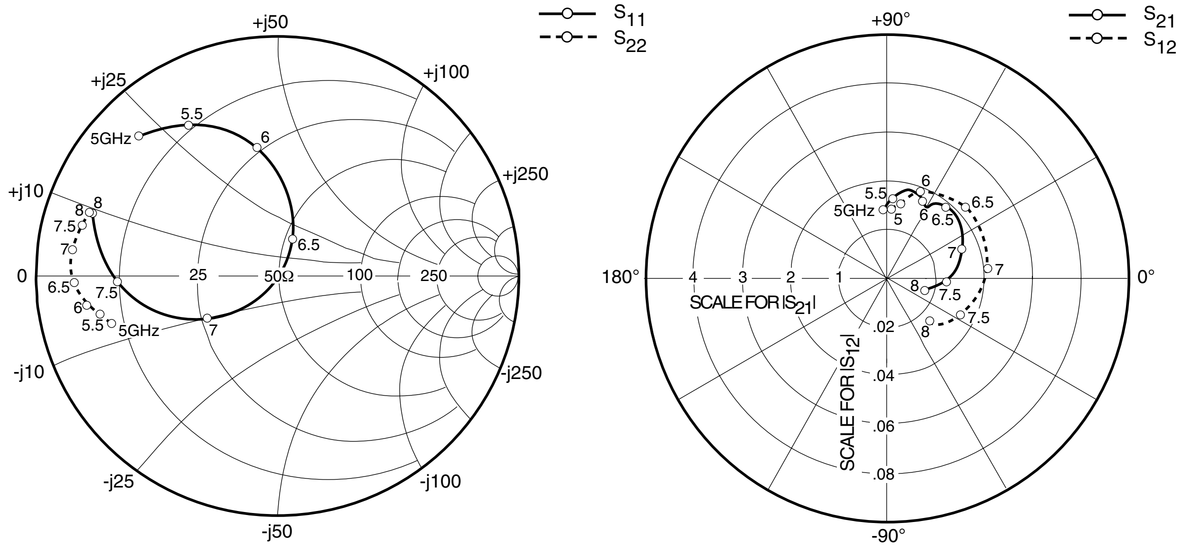


OUTPUT POWER vs. INPUT POWER



P_{1dB} & η_{add} vs. V_{DS}



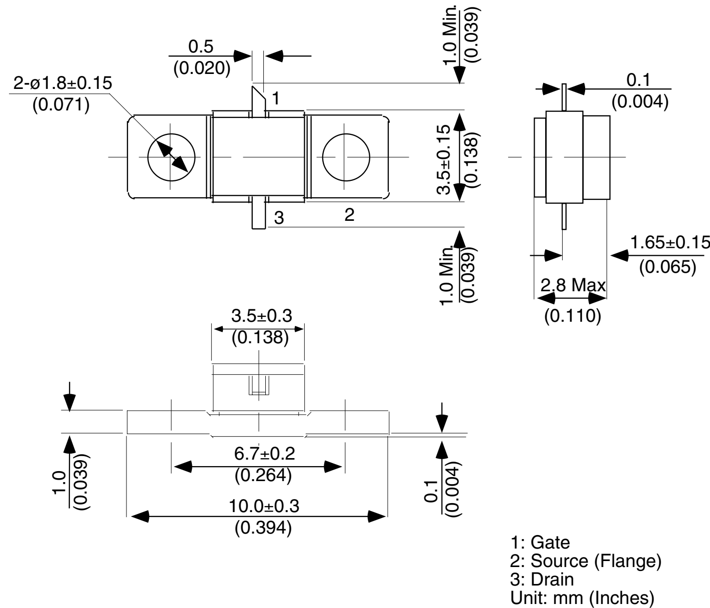


S-PARAMETERS

V_{DS} = 10V, I_{DS} = 600mA

FREQUENCY (MHZ)	S11 MAG	S11 ANG	S21 MAG	S21 ANG	S12 MAG	S12 ANG	S22 MAG	S22 ANG
500	.937	-142.8	7.241	109.5	.020	30.3	.351	-157.1
5000	.818	134.9	1.418	91.8	.029	86.1	.719	-163.9
5500	.729	120.3	1.596	85.8	.031	79.7	.751	-167.5
6000	.542	99.1	1.737	64.9	.038	69.2	.800	-170.6
6500	.166	67.8	1.912	50.3	.044	41.5	.839	-178.0
7000	.338	-148.2	1.664	20.5	.042	5.6	.856	172.9
7500	.667	-177.6	1.231	-1.8	.034	-25.6	.832	165.7
8000	.814	161.6	.810	-16.0	.025	-44.4	.825	160.9

Case Style "MH"
Metal-Ceramic Hermetic Package



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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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