

FLC097WF

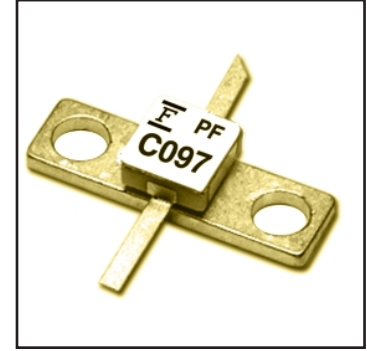
C-Band Power GaAs FET

FEATURES

- High Output Power: $P_{1dB} = 28.8\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 8.5\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 35\%$ (Typ.)
- Proven Reliability
- Hermetic Metal/Ceramic Package

DESCRIPTION

The FLC097WF 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 $T_a=25^\circ\text{C}$)

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	V_{DS}		+15	V
Gate-Source Voltage	V_{GS}		-5	V
Total Power Dissipation	P_T	$T_C = 25^\circ\text{C}$	4.16	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 4.8 and -0.5 mA respectively with gate resistance of 400Ω .
3. The operating channel temperature (T_{ch}) should not exceed 145°C .

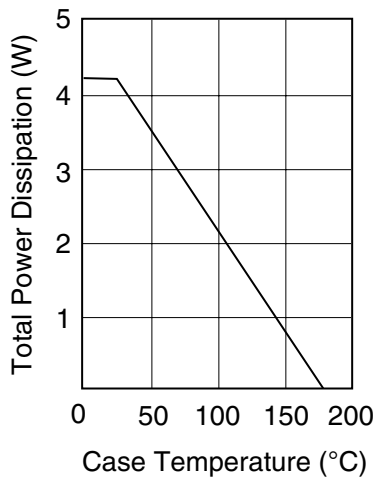
ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	300	450	mA
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 200\text{mA}$	-	150	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 15\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -15\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS}$ (Typ.), $f = 6\text{GHz}$	27.5	28.8	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		7.5	8.5	-	dB
Power-added Efficiency	η_{add}		-	35	-	%
Thermal Resistance	R_{th}	Channel to Case	-	25	36	$^\circ\text{C/W}$

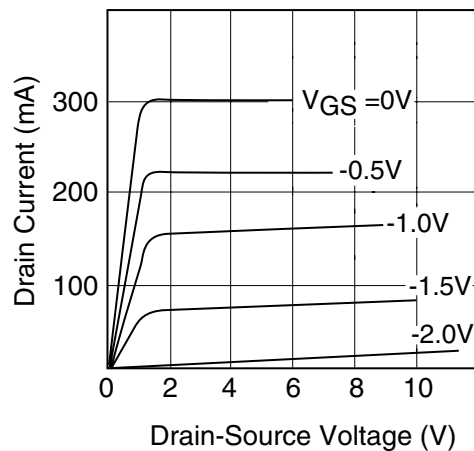
CASE STYLE: WF

G.C.P.: Gain Compression Point

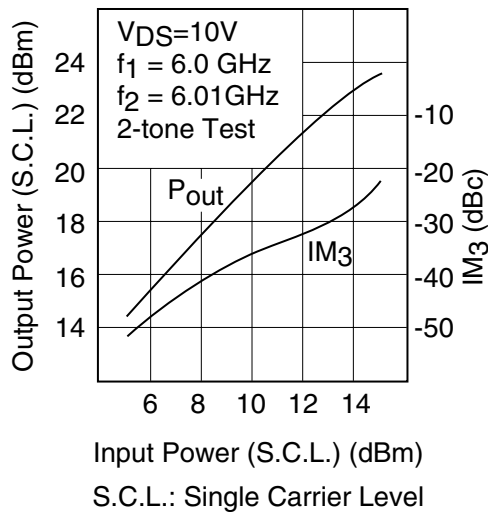
POWER DERATING CURVE



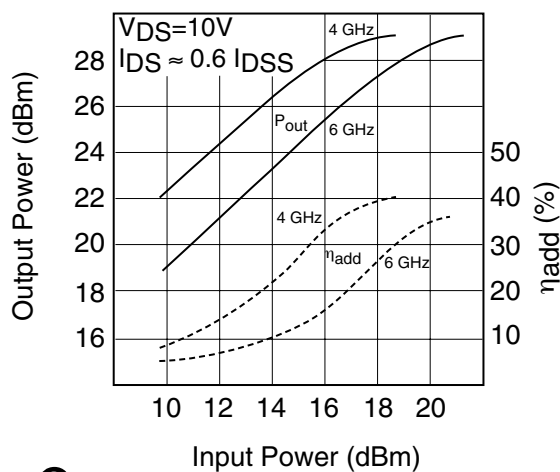
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



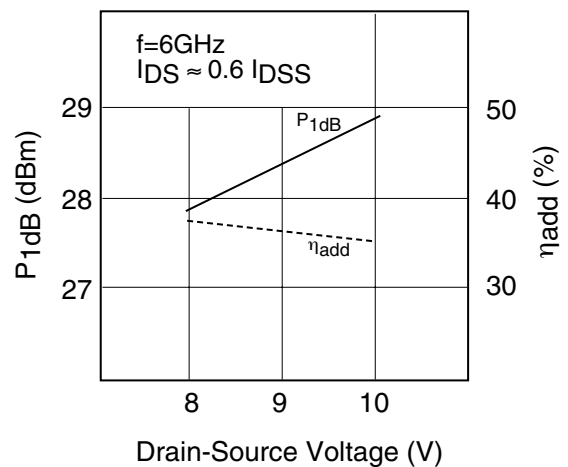
OUTPUT POWER & IM₃ vs. INPUT POWER



OUTPUT POWER vs. INPUT POWER

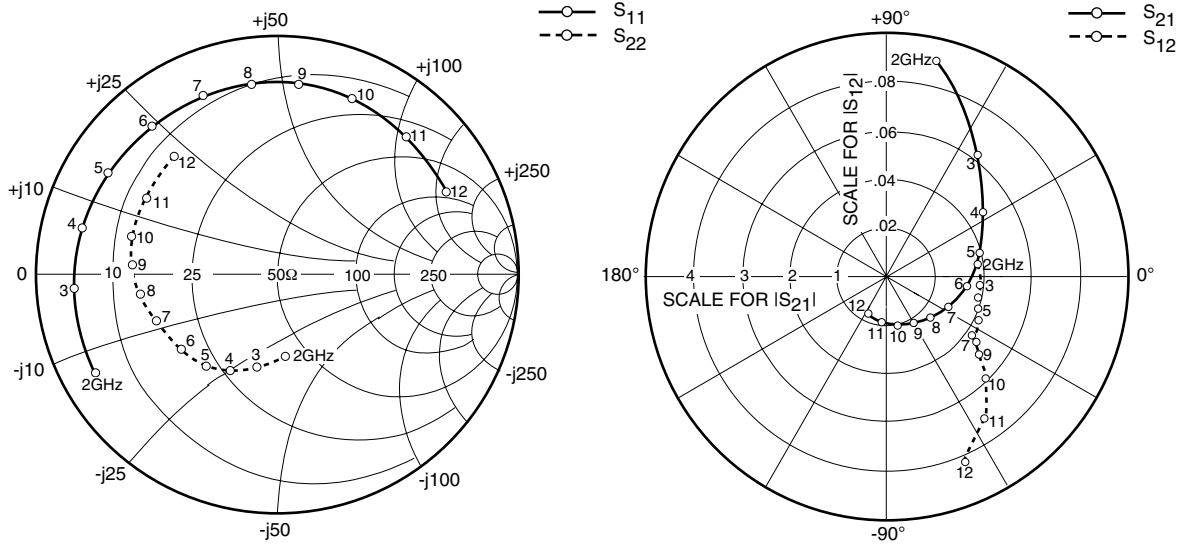


P_{1dB} & η_{add} vs. V_{DS}



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C-Band Power GaAs FET



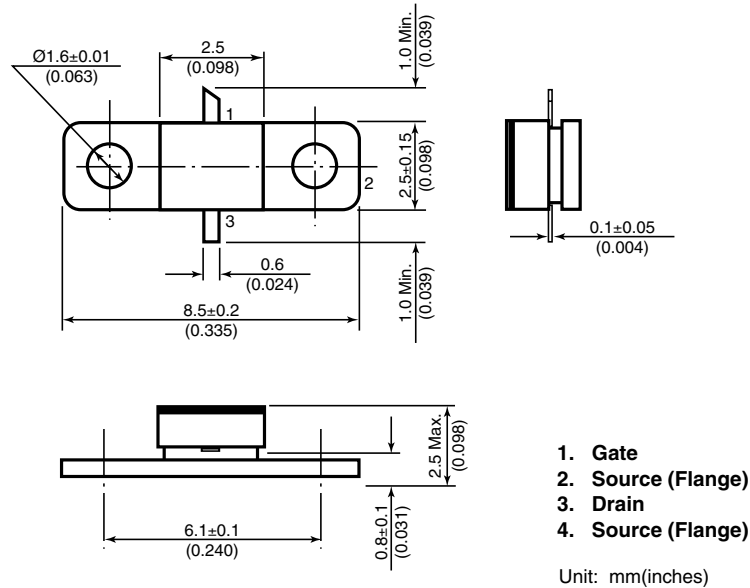
S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 180mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.950	-61.4	10.087	140.8	.022	55.5	.399	-31.1
2000	.857	-151.4	4.537	76.8	.038	7.0	.344	-83.9
3000	.841	-176.1	3.114	52.9	.039	-6.0	.392	-102.2
4000	.832	166.3	2.398	33.0	.039	-13.1	.445	-115.6
5000	.825	148.7	1.978	13.6	.040	-19.6	.480	-127.7
6000	.820	129.8	1.681	-6.3	.042	-26.4	.506	-142.2
7000	.817	112.1	1.418	-25.9	.043	-34.9	.534	-158.6
8000	.807	97.6	1.212	-43.2	.045	-36.2	.571	-172.0
9000	.804	83.6	1.080	-59.4	.050	-40.8	.603	176.6
10000	.799	67.2	1.011	-76.6	.059	-45.9	.620	165.2
11000	.794	47.0	.954	-96.5	.071	-55.4	.629	149.3
12000	.784	26.9	.864	-117.0	.082	-66.9	.649	130.8

Case Style "WF"

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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