

FLC167WF

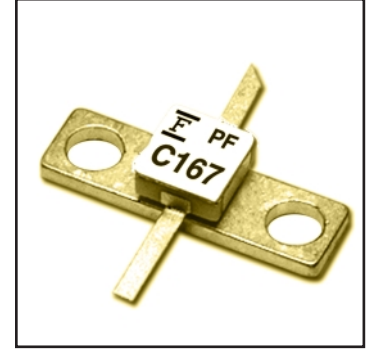
C-Band Power GaAs FET

FEATURES

- High Output Power: $P_{1dB} = 31.8\text{dBm(Typ.)}$
- High Gain: $G_{1dB} = 7.5\text{dB(Typ.)}$
- High PAE: $\eta_{add} = 35\%\text{(Typ.)}$
- Proven Reliability
- Hermetic Metal/Ceramic Package

DESCRIPTION

The FLC167WF 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	$T_C = 25^\circ\text{C}$	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 200Ω .
3. The operating channel temperature (T_{ch}) should not exceed 145°C .

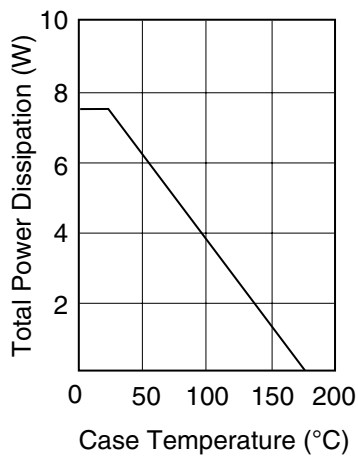
ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	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}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS} \text{ (Typ.)},$ $f = 6\text{ GHz}$	30.5	31.8	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		6.5	7.5	-	dB
Power-added Efficiency	η_{add}		-	35	-	%
Thermal Resistance	R_{th}	Channel to Case	-	15	20	$^\circ\text{C/W}$

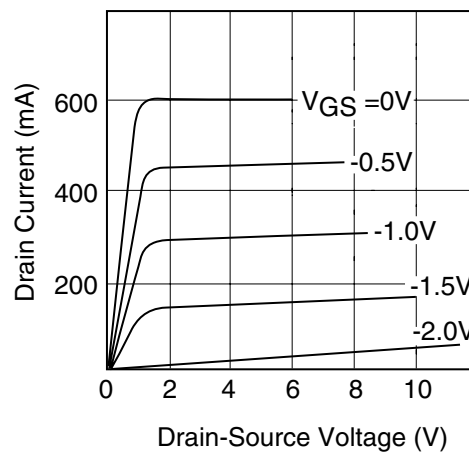
CASE STYLE: WF

G.C.P.: Gain Compression Point

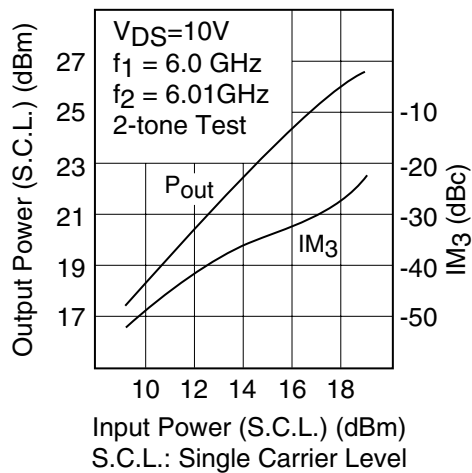
POWER DERATING CURVE



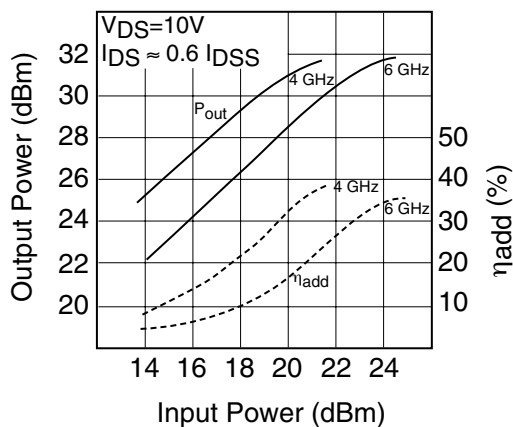
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



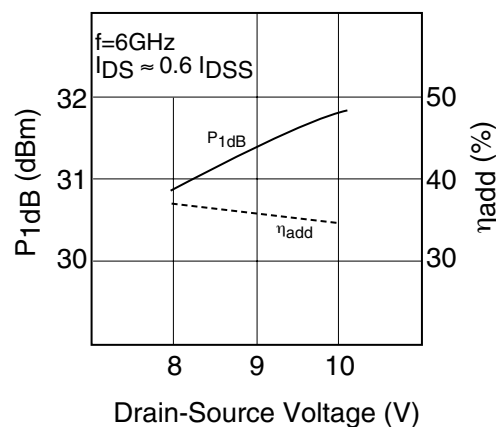
OUTPUT POWER & IM₃ vs. INPUT POWER



OUTPUT POWER vs. INPUT POWER

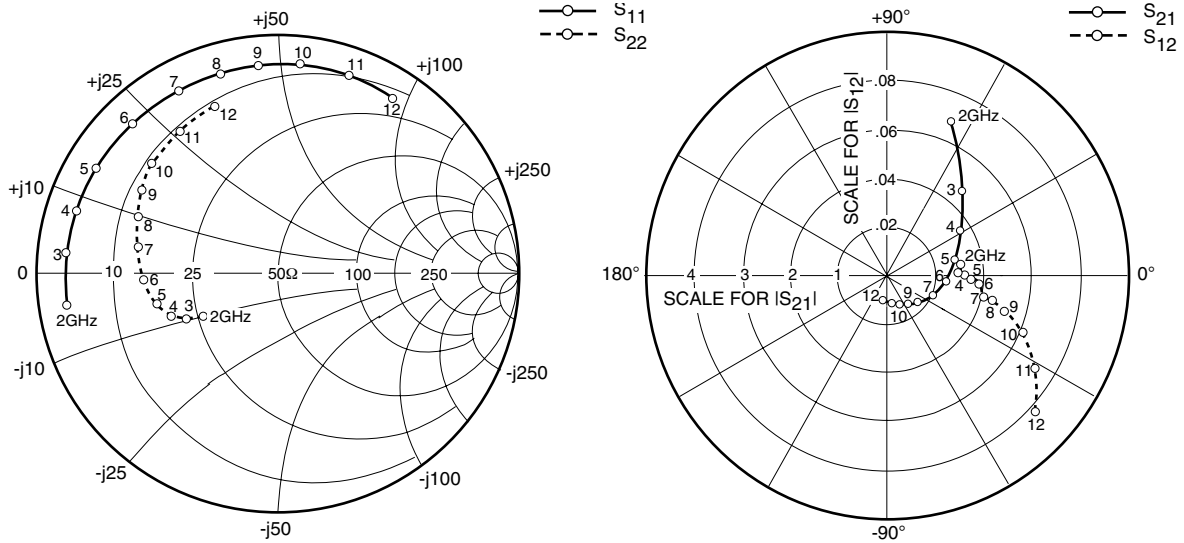


P_{1dB} & η_{add} vs. V_{DS}



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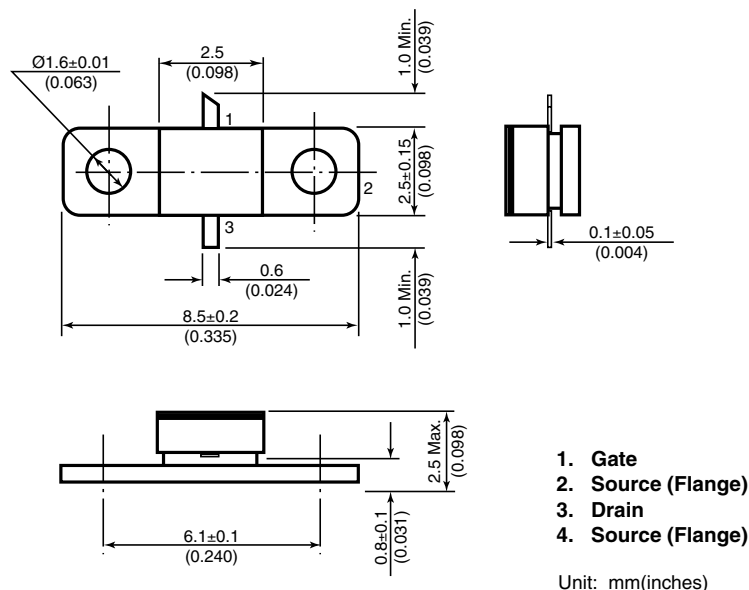
S-PARAMETERS

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

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.922	-104.6	11.190	119.4	.025	36.5	.234	-124.6
1000	.895	-142.7	6.587	94.0	.029	18.2	.290	-142.9
2000	.887	-171.4	3.424	67.1	.030	5.3	.360	-150.5
3000	.884	174.4	2.295	47.9	.030	1.0	.423	-153.5
4000	.877	163.1	1.762	30.6	.031	0.1	.475	-158.3
5000	.873	149.8	1.452	13.0	.034	-1.9	.511	-165.9
6000	.870	134.2	1.227	-6.0	.038	-5.5	.547	-177.6
7000	.867	118.6	1.019	-24.9	.040	-12.7	.585	168.5
8000	.860	106.0	.843	-40.9	.044	-13.1	.625	157.3
9000	.866	95.5	.725	-54.7	.051	-17.7	.664	148.4
10000	.875	84.0	.656	-69.2	.060	-22.9	.692	138.4
11000	.877	70.5	.596	-85.7	.072	-32.1	.717	124.3
12000	.871	57.3	.525	-101.4	.082	-42.2	.747	110.6

Case Style "WF"

Metal-Ceramic Hermetic Package



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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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