

FLC053WG

C-Band Power GaAs FETs

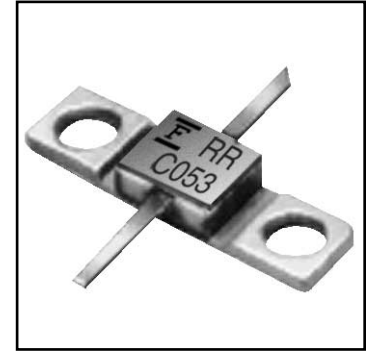
FUJITSU

FEATURES

- High Output Power: $P_{1dB} = 27.0\text{dBm(Typ.)}$
- High Gain: $G_{1dB} = 9.0\text{dB(Typ.)}$
- High PAE: $\eta_{add} = 38\%\text{(Typ.)}$
- Proven Reliability
- Hermetic Metal/Ceramic Package

DESCRIPTION

The FLC053WG 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	$T_C = 25^\circ\text{C}$	3.75	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 +6.5 and -0.25 mA respectively with gate resistance of 1000 Ω .

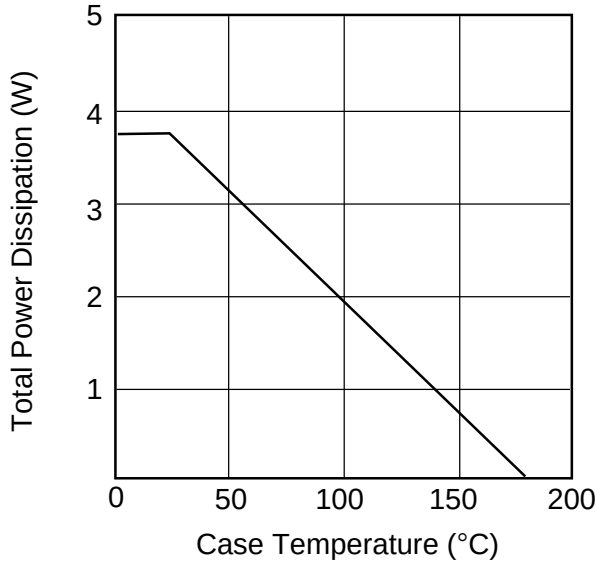
ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	200	300	mA
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 125\text{mA}$	-	100	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 10\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -10\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V}$ $I_{DS} \approx 0.6 I_{DSS} \text{(Typ.)}$, $f = 8\text{GHz}$	25.5	27.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		8.0	9.0	-	dB
Power-added Efficiency	η_{add}		-	38	-	%
Thermal Resistance	R_{th}	Channel to Case	-	27	40	$^\circ\text{C/W}$

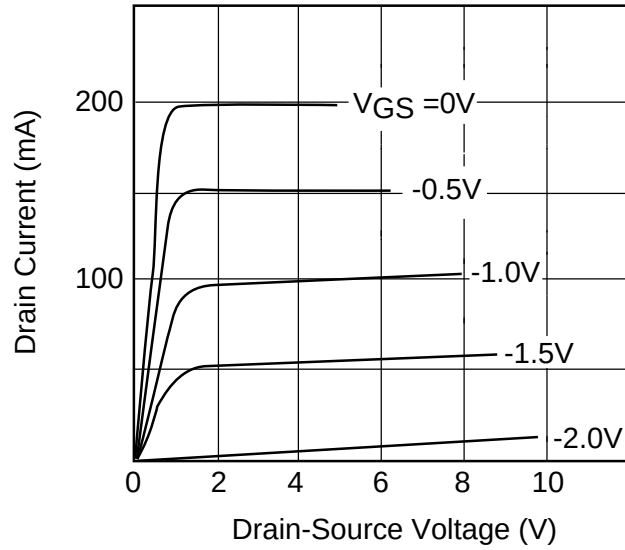
CASE STYLE: WG

G.C.P.: Gain Compression Point

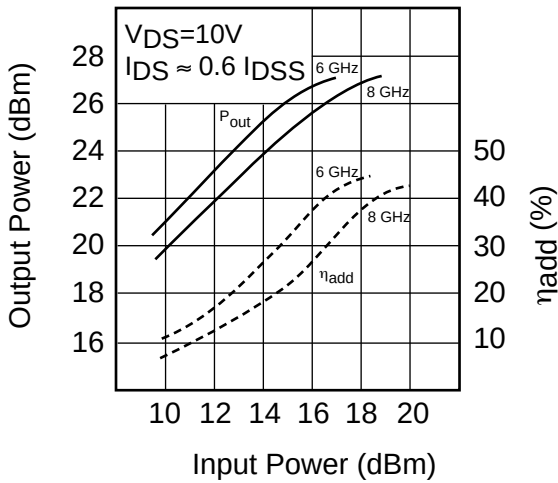
POWER DERATING CURVE



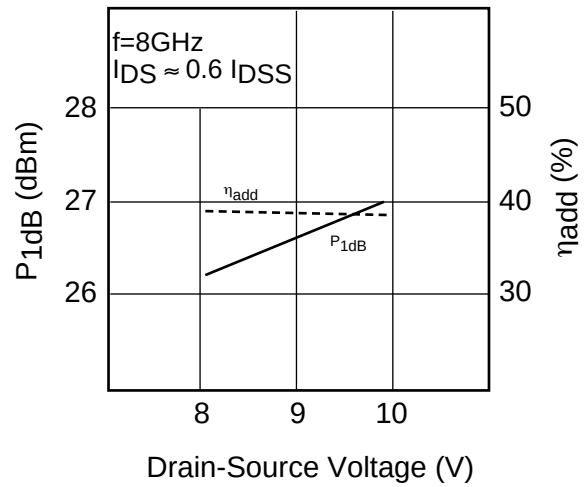
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE

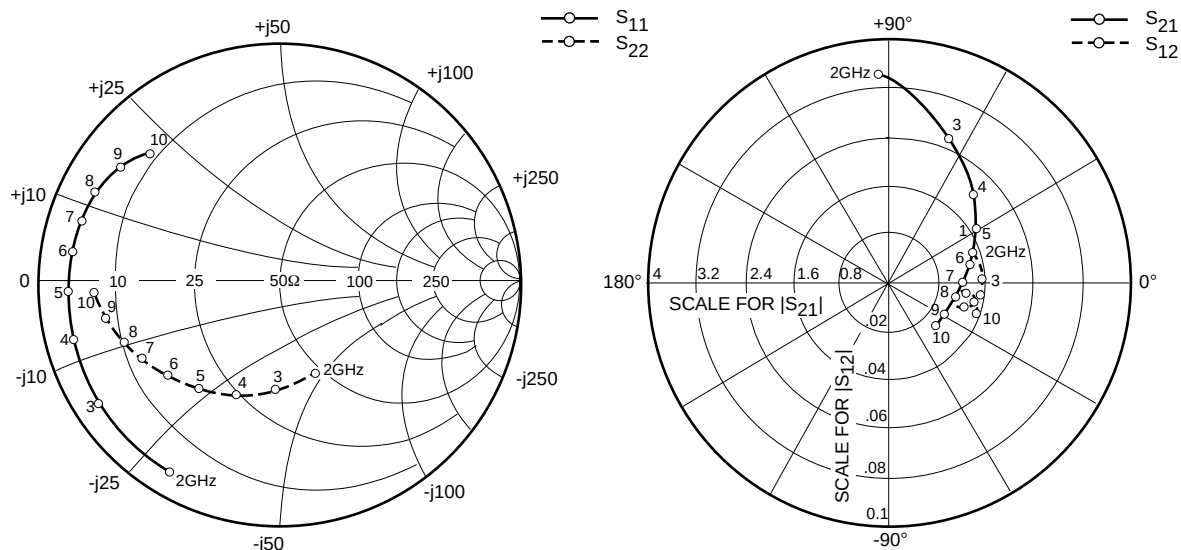


OUTPUT POWER vs. INPUT POWER



P_{1dB} & η_{add} vs. V_{DS}



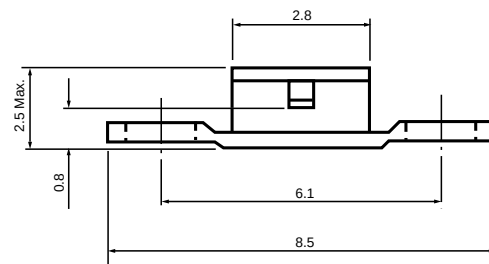
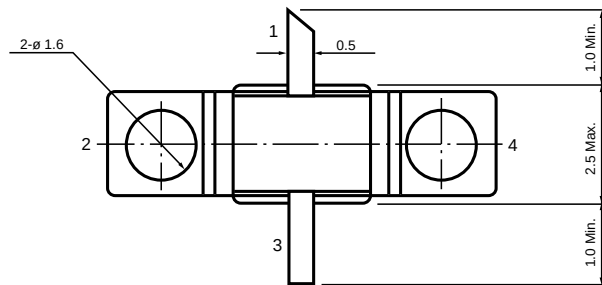


S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 125mA$

FREQUENCY (MHZ)	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.958	-40.5	5.659	152.0	.016	62.4	.437	-22.4
1000	.939	-73.5	4.938	128.9	.027	44.8	.428	-40.5
2000	.910	-118.1	3.544	93.9	.037	19.9	.429	-68.6
3000	.892	-144.5	2.619	69.2	.038	3.8	.462	-90.0
4000	.878	-163.3	2.034	47.9	.037	-6.4	.509	-108.7
5000	.863	-177.2	1.646	30.0	.034	-12.0	.555	-124.7
6000	.856	171.7	1.392	14.2	.032	-14.8	.601	-138.3
7000	.847	163.0	1.228	.3	.031	-15.8	.643	-149.1
8000	.841	154.6	1.140	-13.6	.030	-11.0	.693	-157.8
9000	.810	145.1	1.083	-28.7	.034	-9.4	.733	-167.2
10000	.756	135.1	1.068	-43.9	.039	-15.3	.753	-175.7

Case Style "WG"
Metal-Ceramic Hermetic Package



- 1. Gate
 - 2. Source
 - 3. Drain
 - 4. Source
- Unit: mm (inches)