

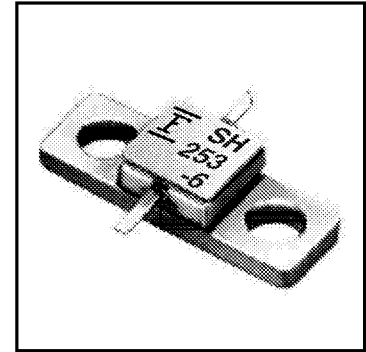
FLC253MH-6

C-Band Power GaAs FETs



FEATURES

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



DESCRIPTION

The FLC253MH-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 $T_a=25^\circ\text{C}$)

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	V_{DS}		15	V
Gate-Source Voltage	V_{GS}		-5	V
Total Power Dissipation	P_T	$T_C = 25^\circ\text{C}$	15	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 +4.0 and -1.2 mA respectively with gate resistance of 200Ω .

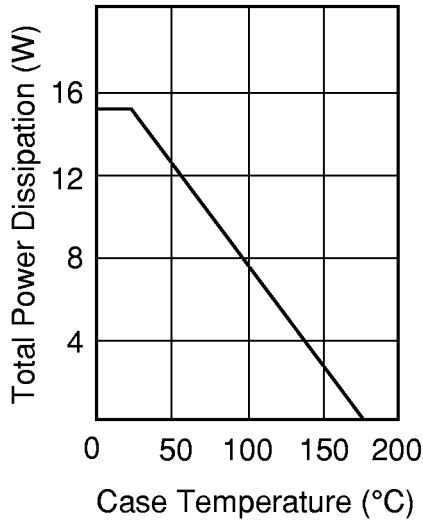
ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	1000	1500	mA
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 600\text{mA}$	-	500	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 50\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -50\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS} \text{ (Typ.)},$ $f = 6.4 \text{ GHz}$	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	$^\circ\text{C/W}$

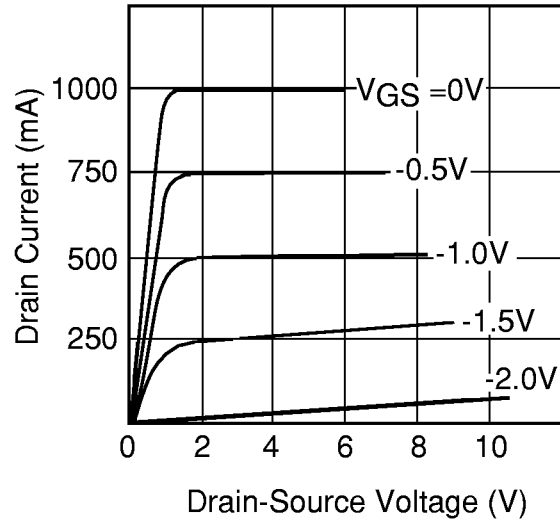
CASE STYLE: MH

G.C.P.: Gain Compression Point

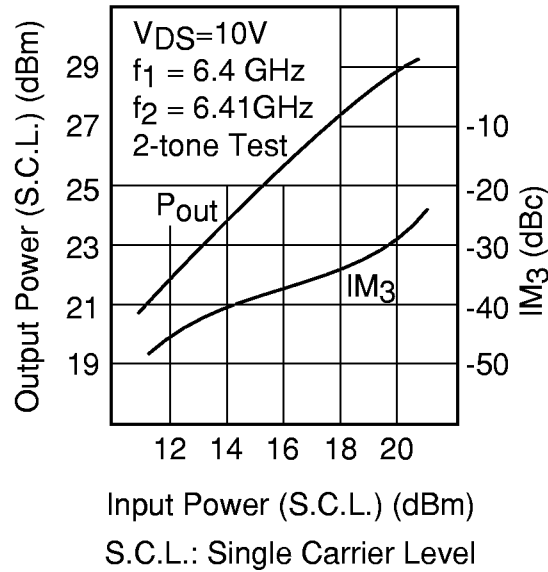
POWER DERATING CURVE

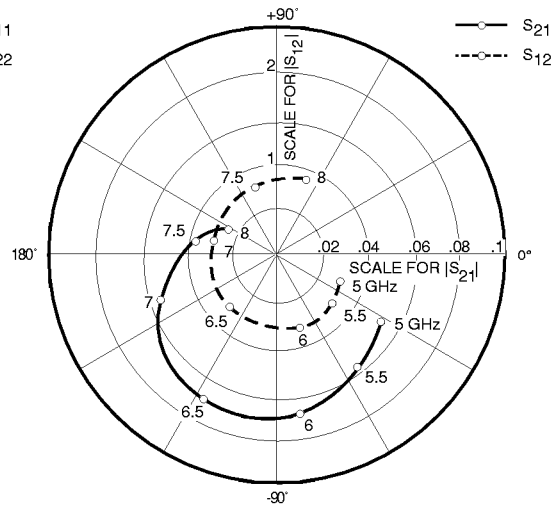
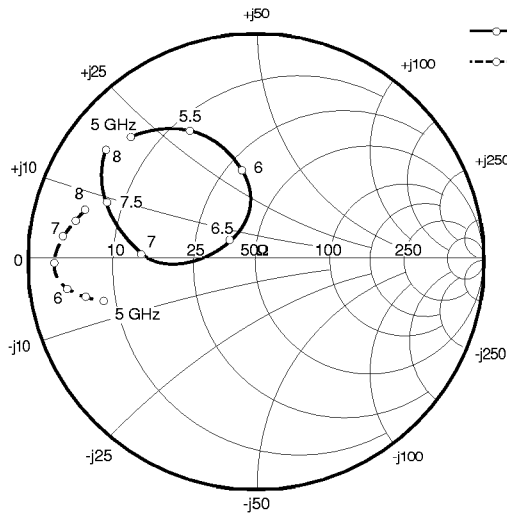


DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



OUTPUT POWER & IM₃ vs. INPUT POWER



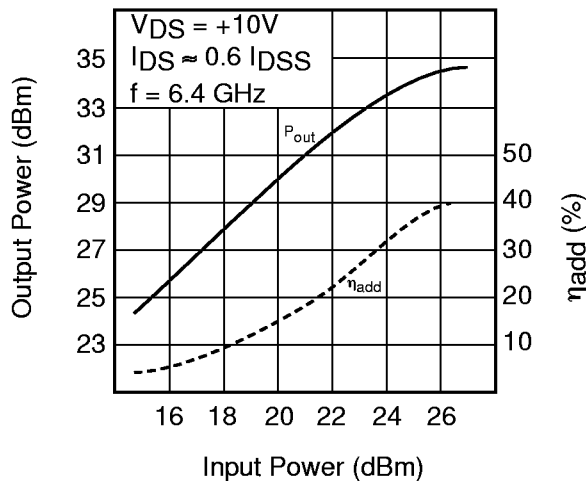


S-PARAMETERS

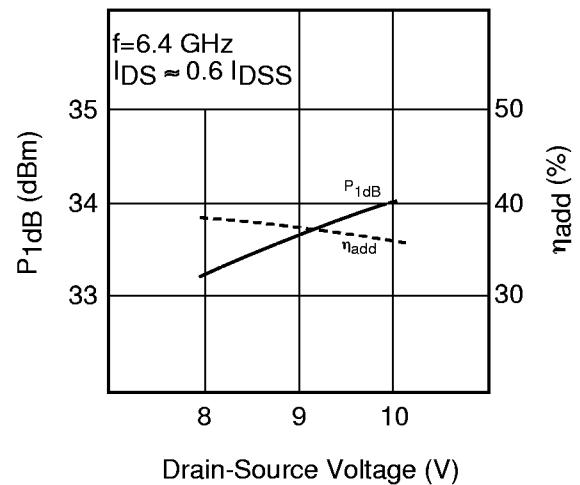
$V_{DS} = 10V, I_{DS} = 600mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.940	-134.2	6.478	101.2	.020	25.3	.403	-164.8
5000	.804	133.0	1.295	-30.4	.030	-19.6	.752	-165.8
5500	.693	119.4	1.437	-51.1	.030	-38.1	.793	-167.3
6000	.453	104.5	1.629	-79.0	.032	-71.5	.858	-170.8
6500	.176	150.6	1.674	-117.3	.029	-130.7	.903	-178.1
7000	.526	178.0	1.345	-157.9	.028	159.4	.889	174.6
7500	.757	158.5	.911	170.2	.030	104.5	.854	169.4
8000	.844	142.6	.613	146.3	.035	71.0	.826	164.9

OUTPUT POWER vs. INPUT POWER



P1dB & ηadd vs. VDS



Case Style "MH"
Metal-Ceramic Hermetic Package

