

FEATURES

- High Output Power: $P_{1dB} = 30.0\text{dBm(Typ.)}$
- High Gain: $G_{1dB} = 6.5\text{dB(Typ.)}$
- High PAE: $\eta_{add} = 31\%\text{(Typ.)}$
- Proven Reliability
- Hermetic Metal/Ceramic Package

DESCRIPTION

The FLK102MH-14 is a power GaAs FET that is designed for general purpose applications in the Ku-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 8.8 and -0.5 mA respectively with gate resistance of 500Ω .
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}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	400	600	mA
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 250\text{mA}$	-	200	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 20\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -20\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS} \text{ (Typ.)},$ $f = 14.5 \text{ GHz}$	29.0	30.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		5.5	6.5	-	dB
Power-added Efficiency	η_{add}		-	31	-	%
Thermal Resistance	R_{th}	Channel to Case	-	15	20	$^\circ\text{C/W}$

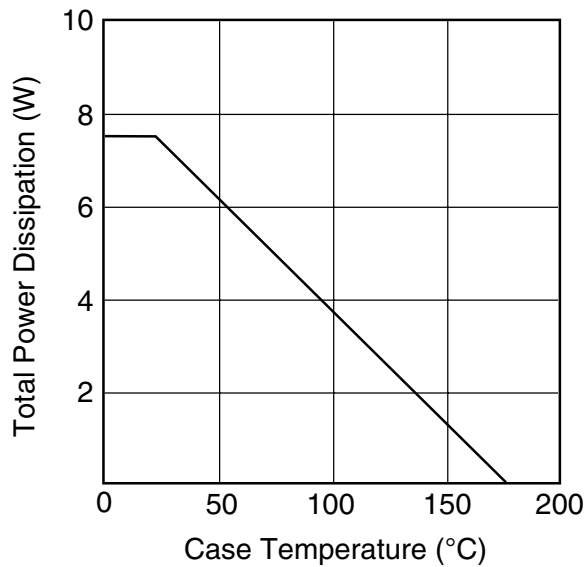
CASE STYLE: MH

G.C.P.: Gain Compression Point

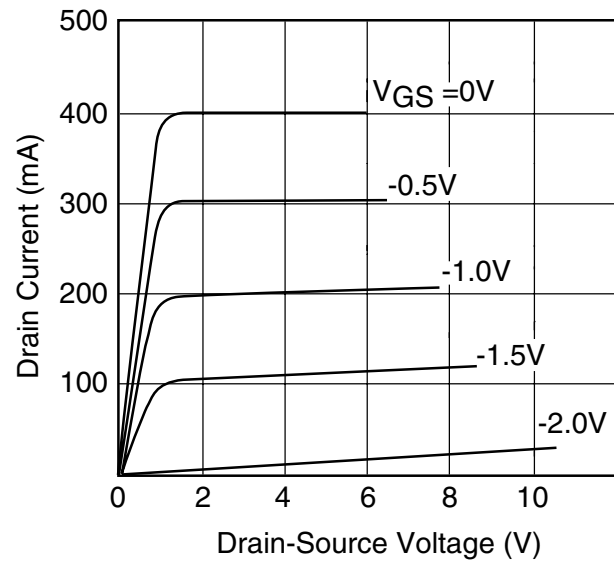
FLK107MH-14

X, Ku Band Power GaAs FET

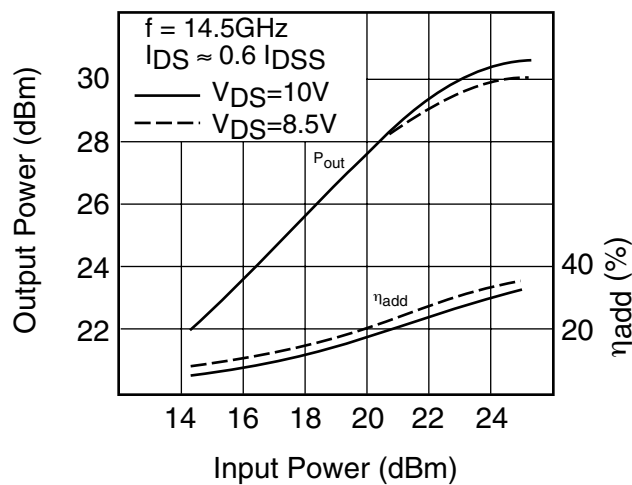
POWER DERATING CURVE



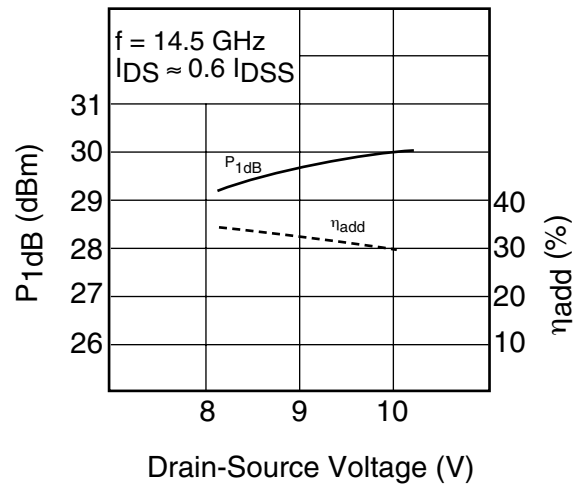
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE

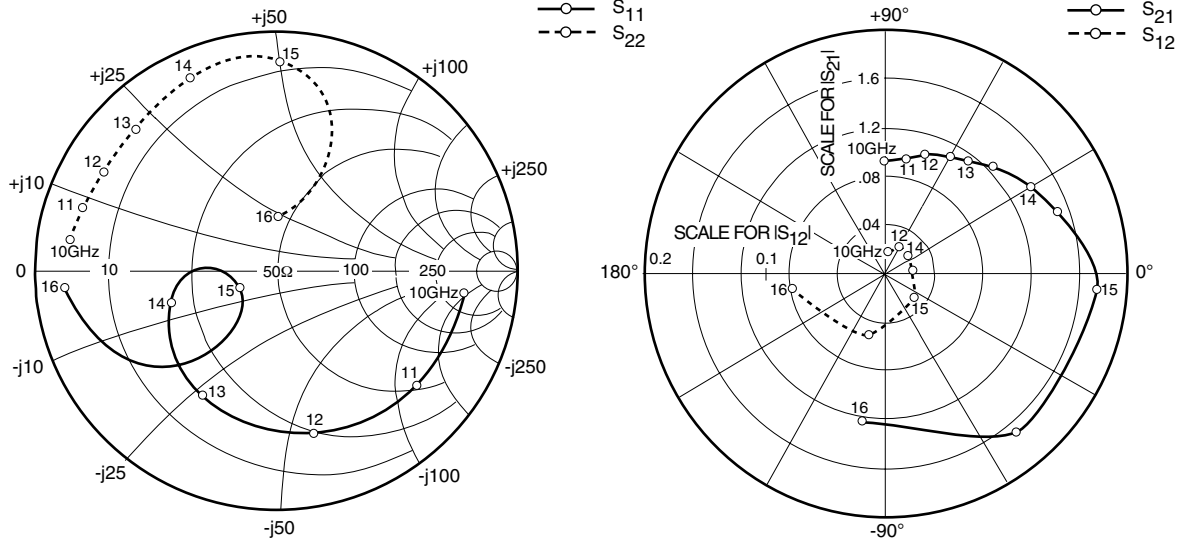


OUTPUT POWER vs. INPUT POWER



P_{1dB} & η_{add} vs. V_{DS}





S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 240mA$

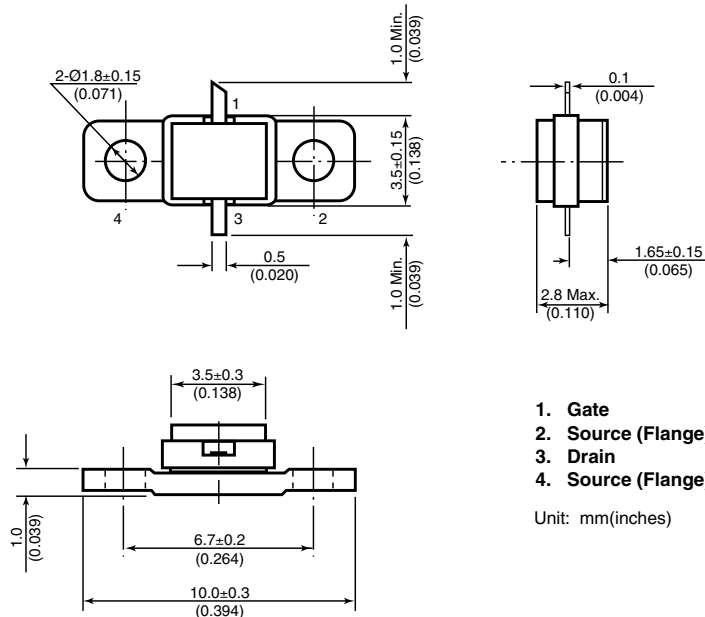
FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.949	-99.8	8.893	131.6	.023	47.7	.275	-58.0
1000	.921	-137.6	5.628	114.8	.028	37.1	.297	-80.9
10000	.783	-6.8	.924	90.5	.039	71.6	.852	171.3
10500	.769	-22.8	.932	85.8	.038	64.4	.857	166.9
11000	.751	-39.7	.959	79.8	.039	67.8	.843	161.7
11500	.730	-57.4	.981	74.2	.043	63.7	.827	156.0
12000	.699	-76.9	1.032	71.9	.049	62.1	.825	149.9
12500	.659	-98.1	1.109	60.8	.044	63.5	.820	142.6
13000	.609	-119.9	1.151	53.5	.045	64.8	.824	134.6
13500	.544	-142.1	1.255	44.7	.045	51.5	.851	125.6
14000	.456	-162.6	1.402	30.5	.046	37.2	.890	113.9
14500	.331	179.3	1.521	19.7	.045	7.2	.913	102.8
15000	.170	-155.0	1.764	-4.8	.063	-39.7	.875	89.2
15500	.528	-132.8	1.697	-50.1	.108	-107.7	.654	69.0
16000	.878	-174.9	1.225	-99.6	.158	-171.2	.226	87.9

FLK107MH-14

X, Ku Band Power GaAs FET

Case Style "MH"

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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