

# FLK207MH-14

## X, Ku Band Power GaAs FET

### FEATURES

- High Output Power:  $P_{1dB} = 32.5\text{dBm(Typ.)}$
- High Gain:  $G_{1dB} = 6.0\text{dB(Typ.)}$
- High PAE:  $\eta_{add} = 27\%\text{(Typ.)}$
- Proven Reliability
- Hermetic Metal/Ceramic Package



### DESCRIPTION

The FLK207MH-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	$P_T$	$T_c = 25^\circ\text{C}$	12.5	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 17.8 and -1.0 mA respectively with gate resistance of  $250\Omega$ .
3. The operating channel temperature ( $T_{ch}$ ) should not exceed  $145^\circ\text{C}$ .

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

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	800	1200	mA
Transconductance	$g_m$	$V_{DS} = 5\text{V}, I_{DS} = 500\text{mA}$	-	400	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5\text{V}, I_{DS} = 40\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -40\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS} \text{(Typ.)},$ $f = 14.5 \text{GHz}$	31.5	32.5	-	dBm
Power Gain at 1dB G.C.P.	$G_{1dB}$		5.0	6.0	-	dB
Power-added Efficiency	$\eta_{add}$		-	27	-	%
Thermal Resistance	$R_{th}$	Channel to Case	-	10	12	$^\circ\text{C/W}$

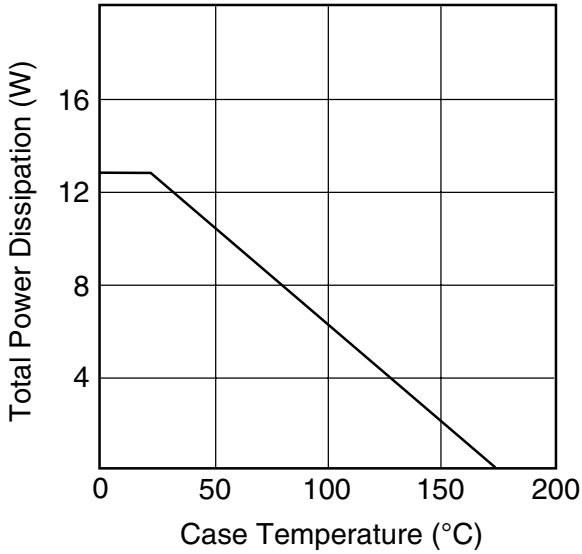
CASE STYLE: MH

G.C.P.: Gain Compression Point

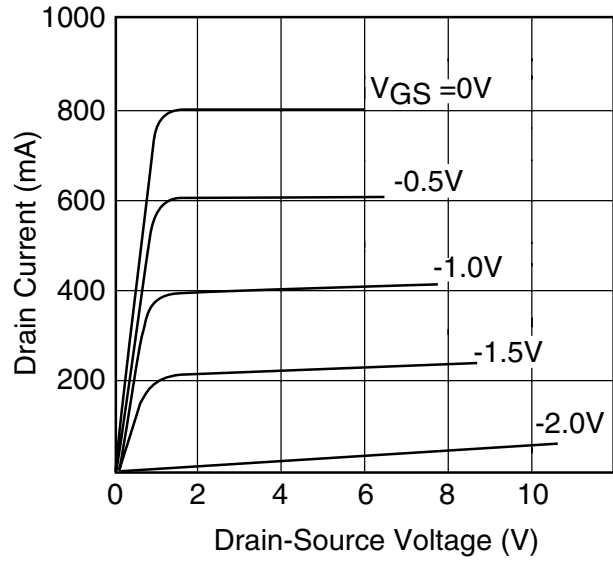
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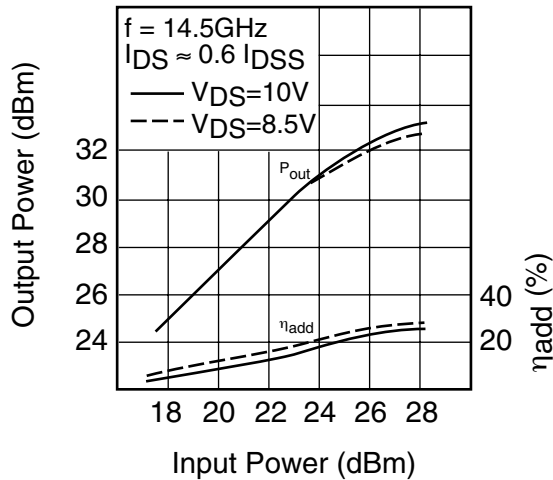
### POWER DERATING CURVE



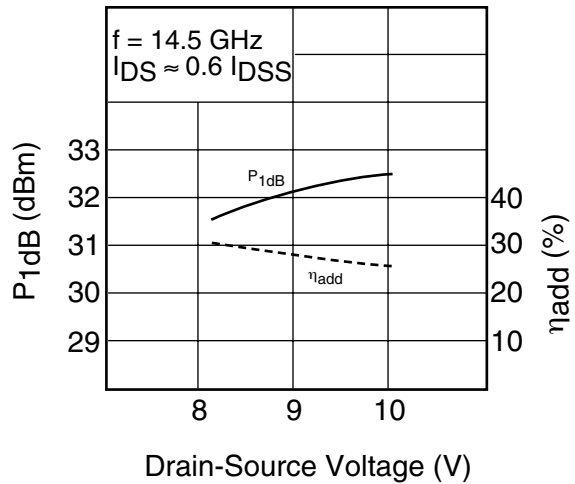
### DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



### OUTPUT POWER vs. INPUT POWER

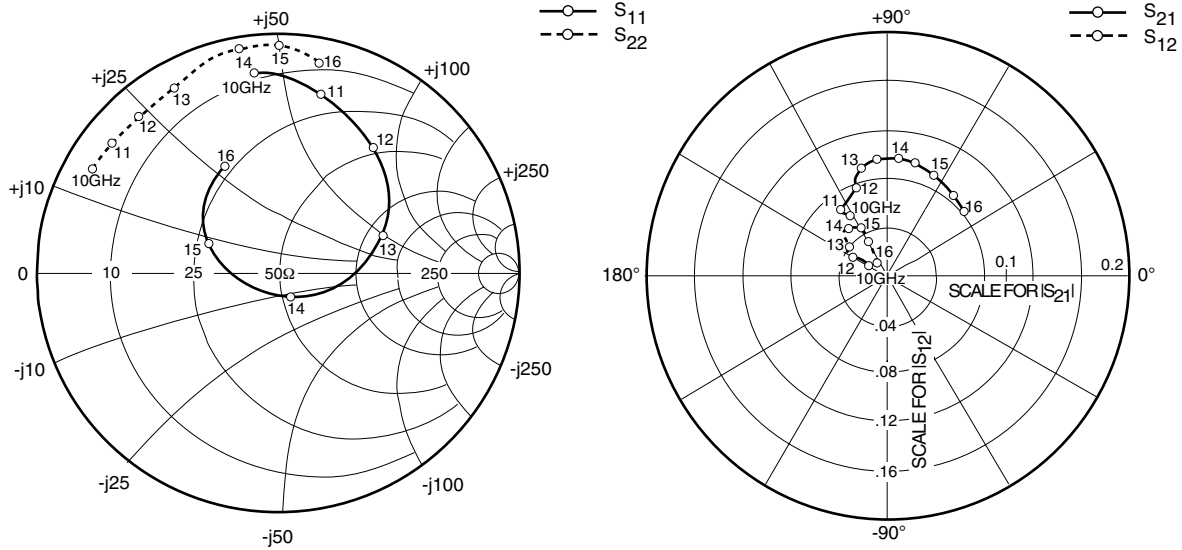


### P<sub>1dB</sub> & η<sub>add</sub> vs. V<sub>DS</sub>



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### S-PARAMETERS

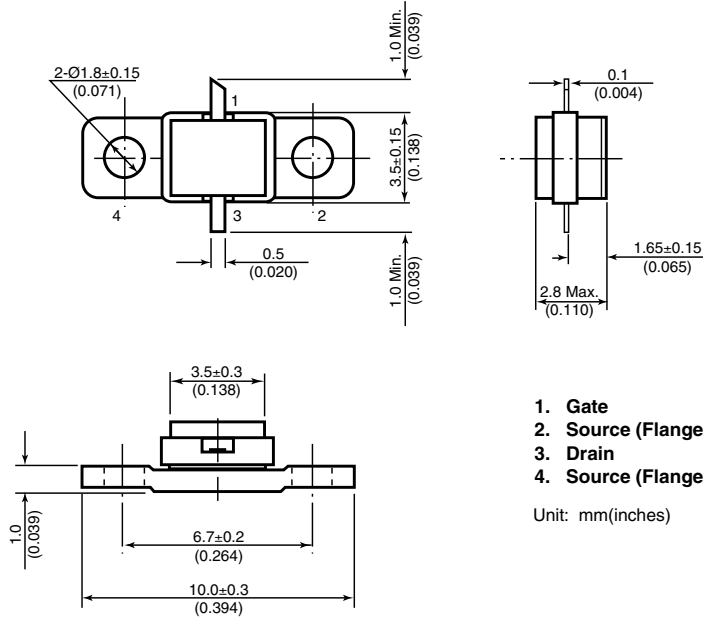
$V_{DS} = 10V, I_{DS} = 480mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.951	-135.0	7.948	115.3	.023	32.8	.291	-139.9
1000	.938	-159.2	4.366	104.8	.024	29.8	.348	-143.6
10000	.846	96.5	.594	123.2	.018	154.8	.889	151.1
10500	.813	86.6	.623	126.4	.023	149.7	.896	147.0
11000	.772	77.0	.674	125.9	.024	146.4	.880	142.6
11500	.721	65.2	.701	119.2	.027	148.3	.875	137.4
12000	.657	53.6	.781	110.3	.030	152.1	.884	132.1
12500	.565	38.8	.842	109.1	.039	148.5	.875	125.8
13000	.458	20.2	.905	105.1	.040	143.5	.885	119.5
13500	.263	-9.4	.955	95.5	.048	139.4	.921	113.1
14000	.109	-59.8	.969	85.3	.050	130.7	.949	100.2
14500	.166	-168.0	.948	76.9	.047	127.3	.950	95.0
15000	.314	156.4	.913	65.9	.045	119.9	.953	90.5
15500	.436	134.4	.843	50.5	.033	120.6	.928	86.0
16000	.503	116.8	.812	39.8	.014	129.2	.889	79.7

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## Case Style "MH" 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.