

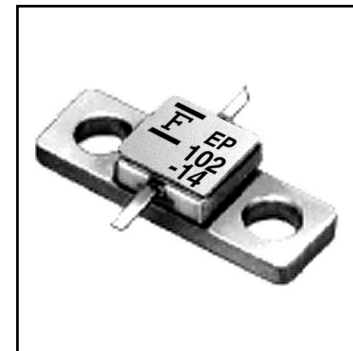
# FLK102MH-14

## X-Ku Band Power GaAs FETs



### 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 2.0 and -0.5 mA respectively with gate resistance of  $500\Omega$ .

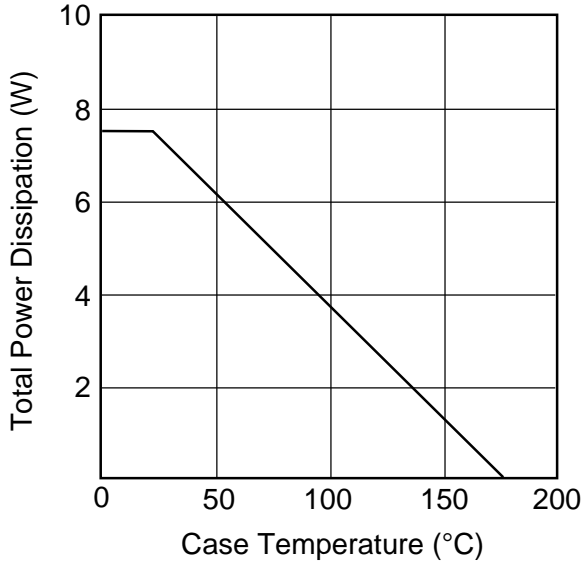
### ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$ )

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	$\eta_{add}$		-	31	-	%
Thermal Resistance	$R_{th}$	Channel to Case	-	15	20	$^\circ\text{C/W}$

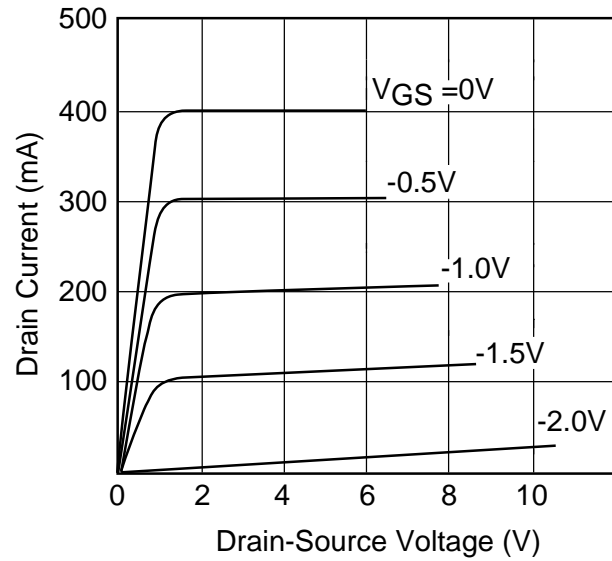
CASE STYLE: MH

G.C.P.: Gain Compression Point

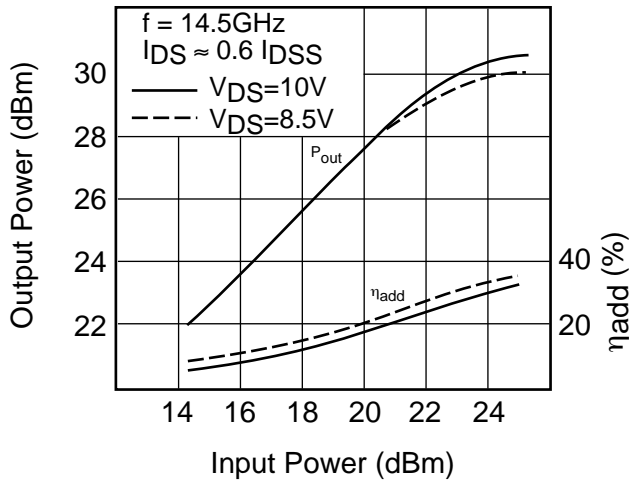
**POWER DERATING CURVE**



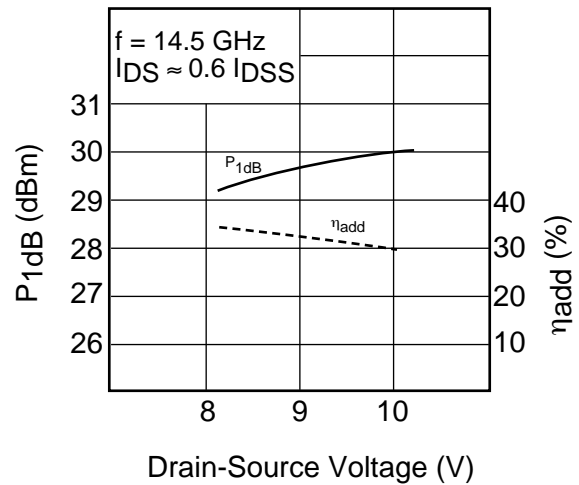
**DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE**



**OUTPUT POWER vs. INPUT POWER**

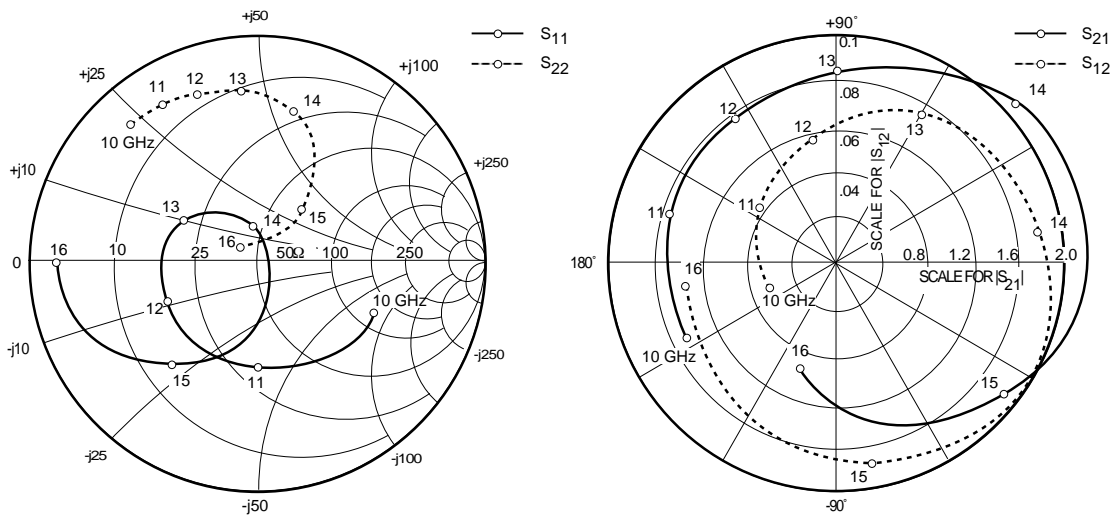


**P<sub>1dB</sub> &  $\eta_{add}$  vs. V<sub>DS</sub>**



# FLK102MH-14

## X-Ku Band Power GaAs FETs

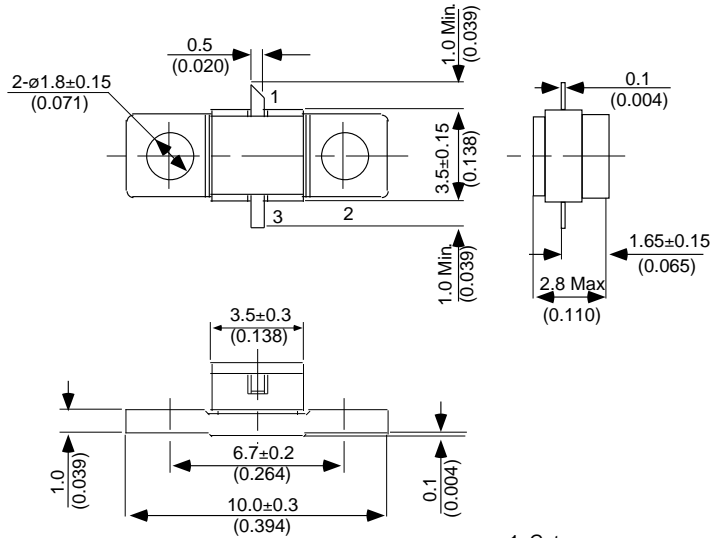


### S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 250mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.871	-92.4	8.485	125.9	.021	36.5	.237	-56.5
1000	.905	-139.6	5.630	92.9	.027	14.0	.250	-86.5
10000	.576	-22.8	1.457	-153.3	.030	-165.0	.842	130.0
10500	.514	-54.5	1.512	-173.0	.035	167.9	.840	124.4
11000	.472	-90.5	1.533	166.7	.042	141.6	.834	119.1
11500	.465	-125.7	1.533	147.0	.050	118.8	.827	114.0
12000	.473	-156.2	1.530	128.0	.057	98.1	.820	108.6
12500	.471	178.0	1.559	109.5	.066	78.4	.811	102.6
13000	.440	154.2	1.652	90.3	.075	57.3	.793	95.8
13500	.358	130.8	1.849	69.3	.082	34.9	.769	88.8
14000	.164	93.7	2.099	40.8	.093	8.9	.712	77.1
14500	.216	-86.5	2.183	2.8	.099	-30.1	.544	60.6
15000	.583	-130.4	1.887	-38.6	.088	-78.0	.313	49.9
15500	.791	-160.0	1.397	-76.2	.073	-126.2	.132	59.9
16000	.862	179.7	.967	-109.1	.067	-170.0	.071	147.6

**Case Style "MH"**  
 Metal-Ceramic Hermetic Package



- 1: Gate
  - 2: Source (Flange)
  - 3: Drain
- Unit: mm (Inches)