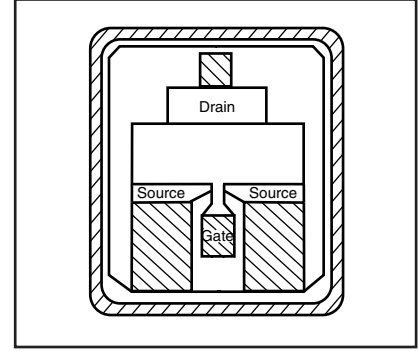


FEATURES

- High Output Power: $P_{1dB} = 20.5dBm(Typ.)$
- High Gain: $G_{1dB} = 8.0dB(Typ.)$
- High PAE: $\eta_{add} = 26\%(Typ.)$
- Proven Reliability

DESCRIPTION

The FLK017XP chip 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 $T_a=25^\circ C$)

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	V_{DS}		15	V
Gate-Source Voltage	V_{GS}		-5	V
Total Power Dissipation	P_{tot}	$T_C = 25^\circ C$	1.15	W
Storage Temperature	T_{stg}		-65 to +175	$^\circ C$
Channel Temperature	T_{ch}		175	$^\circ C$

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 1.34 and -0.05 mA respectively with gate resistance of 3000 Ω .
3. The operating channel temperature (T_{ch}) should not exceed 145 $^\circ C$.

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

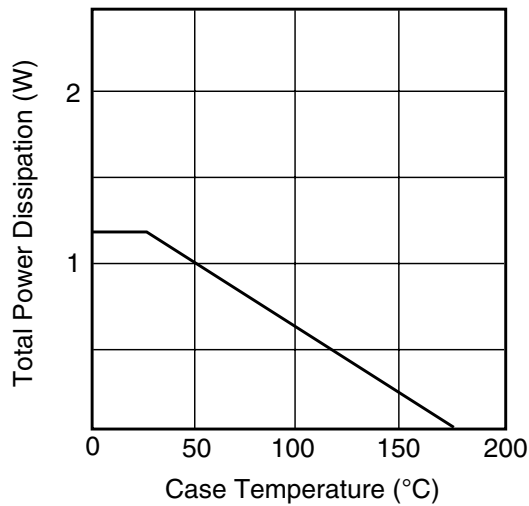
Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5V, V_{GS} = 0V$	-	60	90	mA
Transconductance	g_m	$V_{DS} = 5V, I_{DS} = 40mA$	-	30	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5V, I_{DS} = 3mA$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -3\mu A$	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10V$ $I_{DS} \approx 0.6 I_{DSS}$ $f = 14.5GHz$	19.5	20.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		7.0	8.0	-	dB
Power-added Efficiency	η_{add}		-	26	-	%
Noise Figure	NF		-	2.5	-	dB
Associated Gain	G_{as}	$V_{DS} = 3V$ $I_{DS} = 20mA$ $f = 12GHz$	-	7	-	dB
Maximum Available Gain	$G_{a(max)}$	$V_{DS} = 10V$ $I_{DS} = 36mA$ $f = 12GHz$	-	11	-	dB
Thermal Resistance	R_{th}	Channel to Case	-	65	130	$^\circ C/W$

Note: RF parameter sample size 10pcs. criteria (accept/reject)=(2/3)

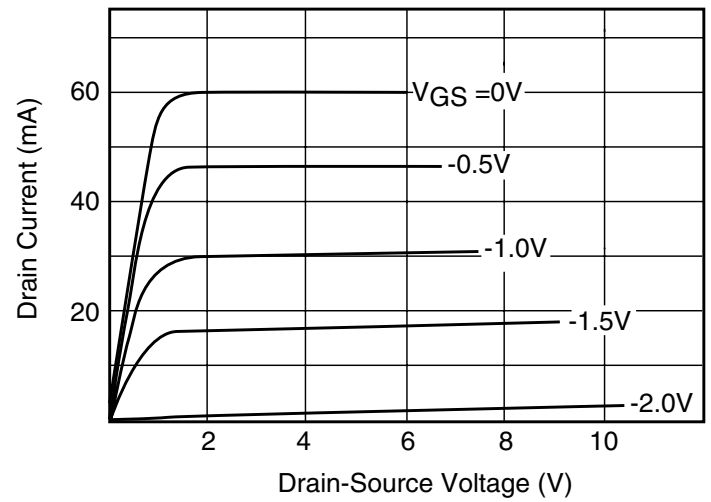
G.C.P.: Gain Compression Point

The chip must be enclosed in a hermetically sealed environment for optimum performance and reliability.

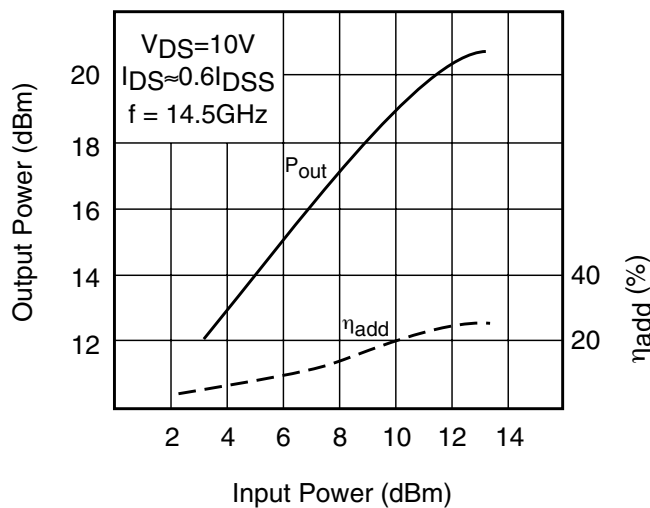
POWER DERATING CURVE



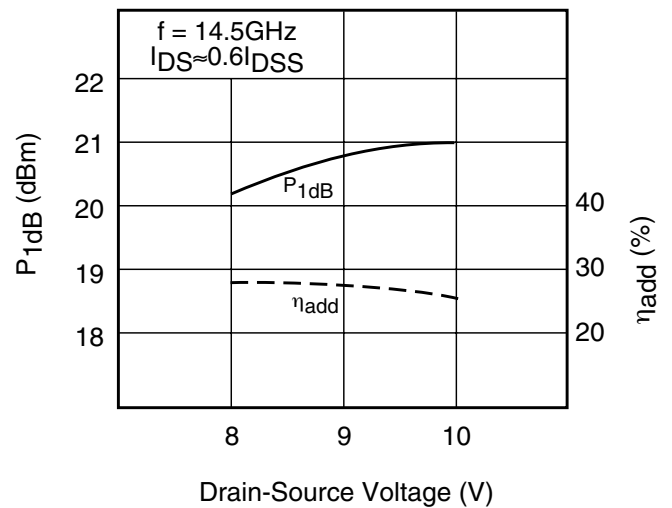
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



OUTPUT POWER vs. INPUT POWER



P_{1dB} & η_{add} vs. V_{DS}



S-PARAMETERS

$V_{DS} = 10V$, $I_{DS} = 40mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	1.000	-1.9	2.832	178.4	.001	88.9	.846	-0.6
500	.998	-9.5	2.824	171.9	.007	84.7	.845	-2.9
1000	.992	-18.9	2.799	163.9	.014	79.5	.842	-5.7
1500	.982	-28.2	2.758	156.0	.021	74.3	.838	-8.5
2000	.969	-37.4	2.703	148.3	.028	69.4	.832	-11.2
2500	.953	-46.3	2.638	140.7	.034	64.6	.825	-13.8
3000	.936	-55.0	2.564	133.4	.039	60.0	.817	-16.4
3500	.918	-63.5	2.485	126.2	.044	55.6	.809	-18.8
4000	.899	-71.6	2.401	119.4	.049	51.5	.800	-21.2
4500	.881	-79.5	2.316	112.7	.053	47.6	.792	-23.5
5000	.863	-87.1	2.231	106.3	.056	44.0	.784	-25.8
5500	.846	-94.4	2.147	100.1	.059	40.6	.776	-28.0
6000	.830	-101.5	2.064	94.1	.062	37.3	.769	-30.1
6500	.816	-108.3	1.985	88.3	.064	34.3	.762	-32.2
7000	.802	-114.8	1.908	82.7	.066	31.5	.755	-34.3
7500	.791	-121.1	1.834	77.2	.067	28.9	.749	-36.4
8000	.780	-127.1	1.764	72.0	.069	26.4	.744	-38.4
8500	.771	-133.0	1.697	66.8	.070	24.1	.739	-40.5
9000	.764	-138.6	1.634	61.8	.071	21.9	.735	-42.5
9500	.757	-143.9	1.574	57.0	.072	19.8	.731	-44.6
10000	.752	-149.1	1.516	52.2	.072	17.9	.727	-46.7
10500	.747	-154.1	1.462	47.6	.073	16.1	.724	-48.8
11000	.744	-158.9	1.410	43.0	.073	14.4	.721	-51.0
11500	.741	-163.5	1.361	38.6	.073	12.8	.718	-53.2
12000	.739	-168.0	1.314	34.2	.073	11.3	.716	-55.4
12500	.738	-172.3	1.269	29.9	.073	9.9	.713	-57.6
13000	.738	-176.4	1.227	25.7	.073	8.6	.711	-59.8
13500	.738	-179.6	1.186	21.6	.073	7.3	.710	-62.1
14000	.739	-175.8	1.147	17.5	.073	6.2	.708	-64.5
14500	.740	-172.1	1.110	13.5	.073	5.1	.707	-66.8
15000	.742	-168.5	1.074	9.5	.072	4.1	.706	-69.2
15500	.744	-165.1	1.039	5.6	.072	3.1	.705	-71.7
16000	.746	-161.8	1.006	1.7	.072	2.3	.704	-74.2
16500	.749	-158.5	.974	-2.1	.071	1.5	.704	-76.7
17000	.752	-155.5	.943	-5.9	.071	0.7	.703	-79.2
17500	.755	-152.5	.913	-9.6	.071	0.0	.703	-81.8
18000	.758	-149.6	.885	-13.3	.070	-0.6	.703	-84.5
18500	.761	-146.8	.856	-16.9	.070	-1.2	.703	-87.1
19000	.765	-144.1	.829	-20.5	.070	-1.7	.703	-89.8
19500	.768	-141.4	.803	-24.1	.070	-2.2	.704	-92.6
20000	.772	-138.9	.777	-27.7	.069	-2.7	.704	-95.3

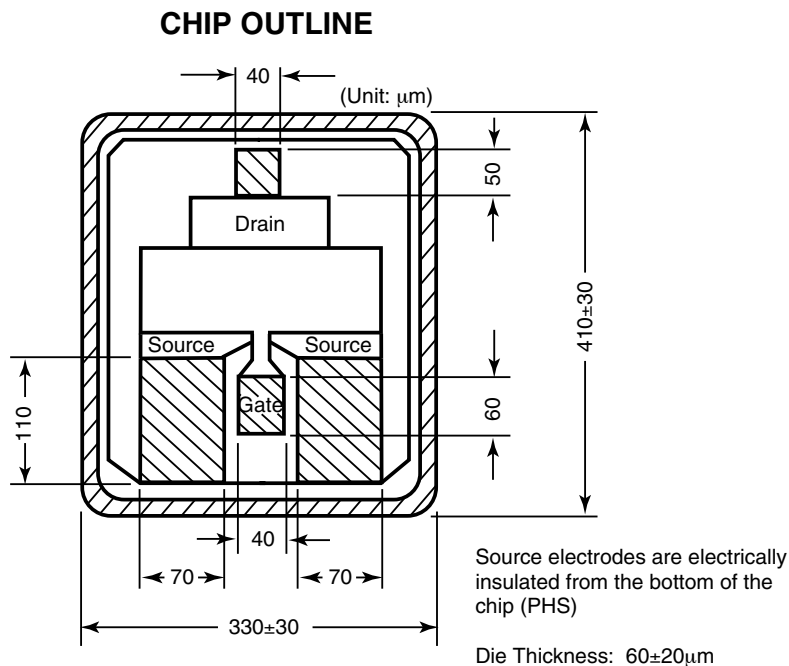
NOTE:* The data includes bonding wires.

n: number of wires Gate n=1 (0.2mm length, 25μm Dia Au wire)
 Drain n=1 (0.2mm length, 25μm Dia Au wire)
 Source n=4 (0.3mm length, 25μm Dia Au wire)

[Download S-Parameters, click here](#)

FLK017XP

GaAs FET & HEMT Chips



For further information please contact:

FUJITSU COMPOUND SEMICONDUCTOR, INC.

2355 Zanker Rd.

San Jose, CA 95131-1138, U.S.A.

Phone: (408) 232-9500

FAX: (408) 428-9111

www.fcsi.fujitsu.com

FUJITSU MICROELECTRONICS, LTD.

Compound Semiconductor Division

Network House

Norreys Drive

Maidenhead, Berkshire SL6 4FJ

Phone: +44 (0)1628 504800

FAX: +44 (0)1628 504888

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.

Fujitsu Limited reserves the right to change products and specifications without notice.
The information does not convey any license under rights of Fujitsu Limited or others.

© 1998 FUJITSU COMPOUND SEMICONDUCTOR, INC.

Printed in U.S.A. FCSI0598M200