

C-Band Internally Matched FET

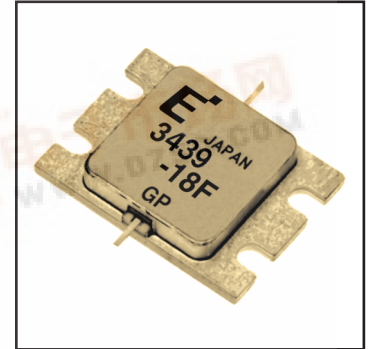
FEATURES

- High Output Power: $P_{1dB} = 43.0\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 10.5\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 37\%$ (Typ.)
- Low $IM_3 = -46\text{dBc}$ @ $P_o = 32.0\text{dBm}$
- Broad Band: 3.4 ~ 3.9GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed Package

DESCRIPTION

The FLM3439-18F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

Eudyna'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	$T_C = 25^\circ\text{C}$	83.3	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 26.0 and -11.6 mA respectively with gate resistance of 25 Ω .

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

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	7.5	13.5	A
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 4.8\text{A}$	-	8000	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 375\text{mA}$	-0.5	-2.0	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -480\mu\text{A}$	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.65 I_{DSS}$ (Typ.), $f = 3.4 \sim 3.9\text{GHz},$ $Z_S = Z_L = 50\text{ohm}$	42.0	43.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		9.5	10.5	-	dB
Drain Current	I_{dsr}		-	4800	6000	mA
Power-added Efficiency	η_{add}		-	37	-	%
Gain Flatness	ΔG		-	-	± 0.6	dB
3rd Order Intermodulation Distortion	IM_3	$f = 3.9\text{GHz}, \Delta f = 10\text{MHz}$ 2-Tone Test $P_{out} = 32.0\text{dBm S.C.L.}$	-44	-46	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	1.6	1.8	$^\circ\text{C/W}$
Channel Temperature Rise	ΔT_{ch}	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

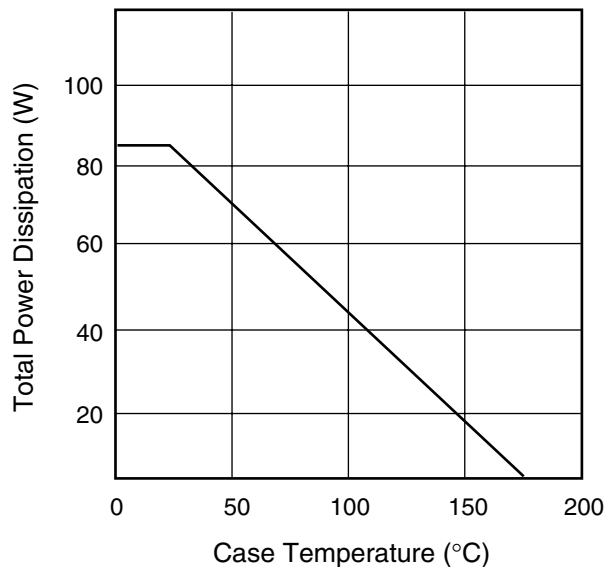
CASE STYLE: IK

G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level

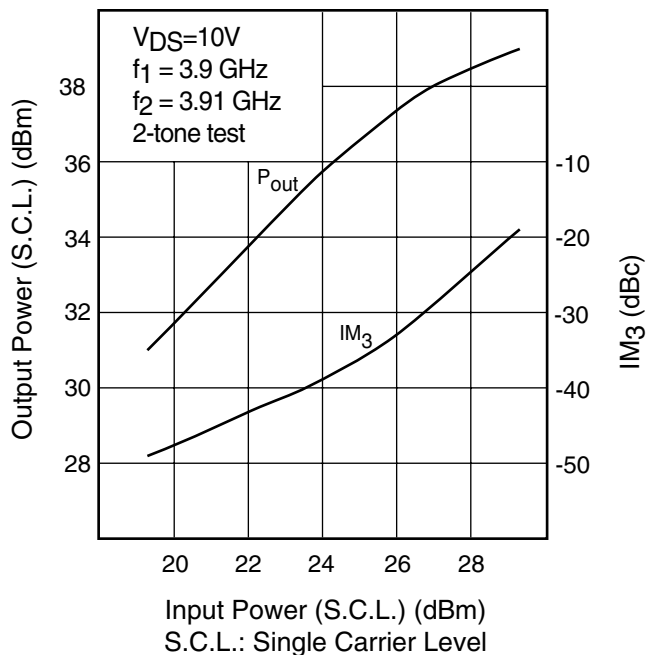
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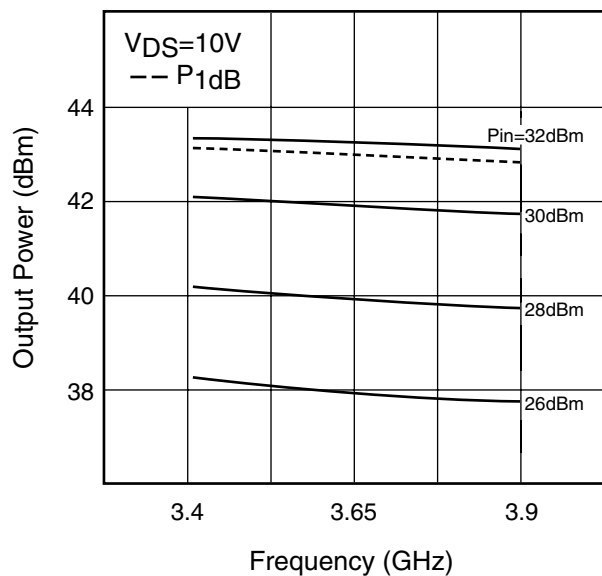
POWER DERATING CURVE



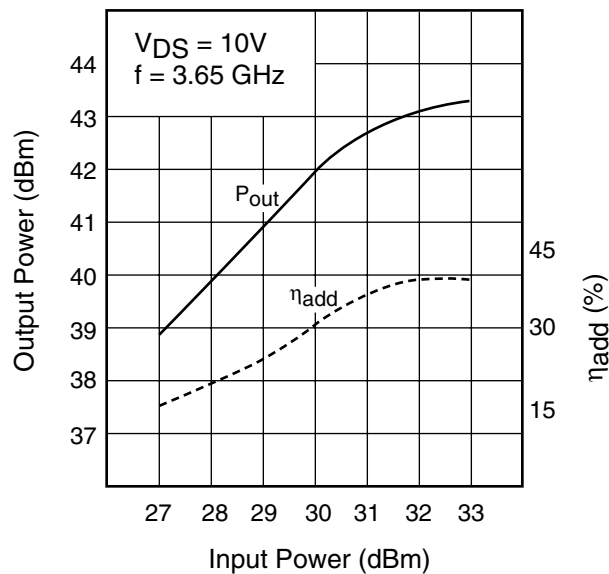
OUTPUT POWER & IM₃ vs. INPUT POWER



OUTPUT POWER vs. FREQUENCY

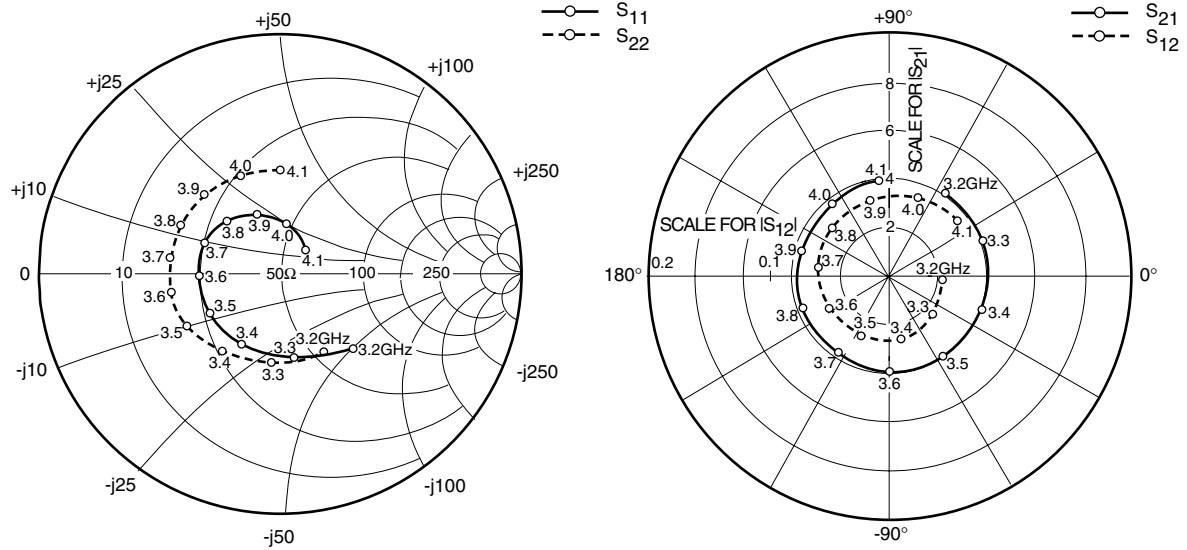


OUTPUT POWER vs. INPUT POWER



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S-PARAMETERS

$V_{DS} = 10V$, $I_{DS} = 4800mA$

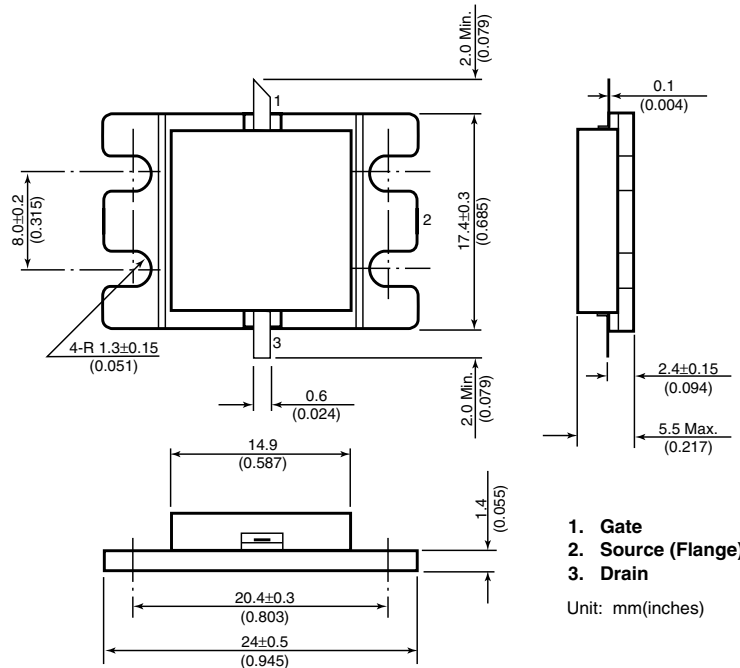
FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3200	.430	-46.3	4.061	55.9	.043	-3.8	.370	-61.8
3300	.366	-80.1	4.105	20.1	.047	-40.5	.383	-95.7
3400	.338	-119.3	4.091	-20.3	.051	-81.4	.417	-127.2
3500	.338	-151.4	3.998	-57.0	.054	-118.1	.444	-150.6
3600	.342	-178.3	3.934	-92.1	.057	-152.7	.462	-170.1
3700	.336	158.2	3.871	-126.4	.060	173.6	.470	171.9
3800	.315	136.0	3.852	-160.0	.063	140.4	.469	154.0
3900	.271	111.9	3.851	164.3	.066	105.4	.461	134.1
4000	.206	84.1	3.855	129.5	.069	70.9	.448	112.7
4100	.138	44.6	3.881	97.2	.073	39.5	.433	90.9

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Case Style "IK"

Metal-Ceramic Hermetic Package



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CAUTION

Eudyna Devices Inc. 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 this product 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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