

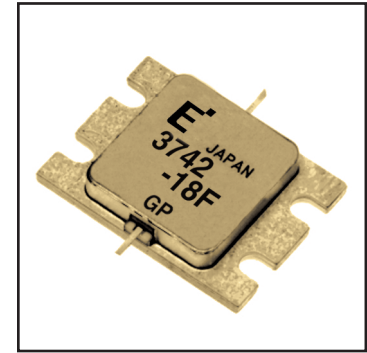
### FEATURES

- 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: 3.7 ~ 4.2GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed Package

### DESCRIPTION

The FLM3742-18F 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 $\Omega$ .

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

Item	Symbol	Test Conditions	Limit			Unit	
			Min.	Typ.	Max.		
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	9.0	13.5	A	
Transconductance	$g_m$	$V_{DS} = 5\text{V}, I_{DS} = 4800\text{mA}$	-	4000	-	mS	
Pinch-off Voltage	$V_p$	$V_{DS} = 5\text{V}, I_{DS} = 480\text{mA}$	-1.0	-2.0	-3.5	V	
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -480\mu\text{A}$	-5.0	-	-	V	
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.55 I_{DSS}$ (Typ.), $f = 3.7 \sim 4.2 \text{GHz},$ $Z_S = Z_L = 50 \text{ohm}$	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	$\eta_{add}$		-	37	-	%	
Gain Flatness	$\Delta G$		-	-	$\pm 0.6$	dB	
3rd Order Intermodulation Distortion	$IM_3$		$f = 4.2 \text{GHz}, \Delta f = 10 \text{MHz}$ 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	$^\circ\text{C}/\text{W}$
Channel Temperature Rise	$\Delta T_{ch}$	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$	

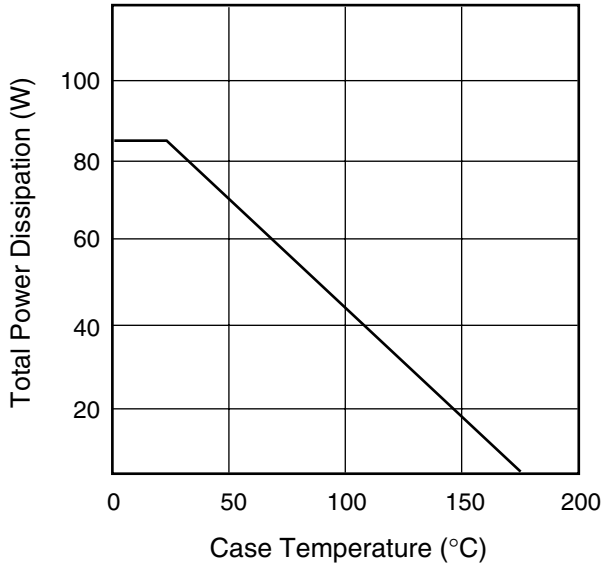
CASE STYLE: IK

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

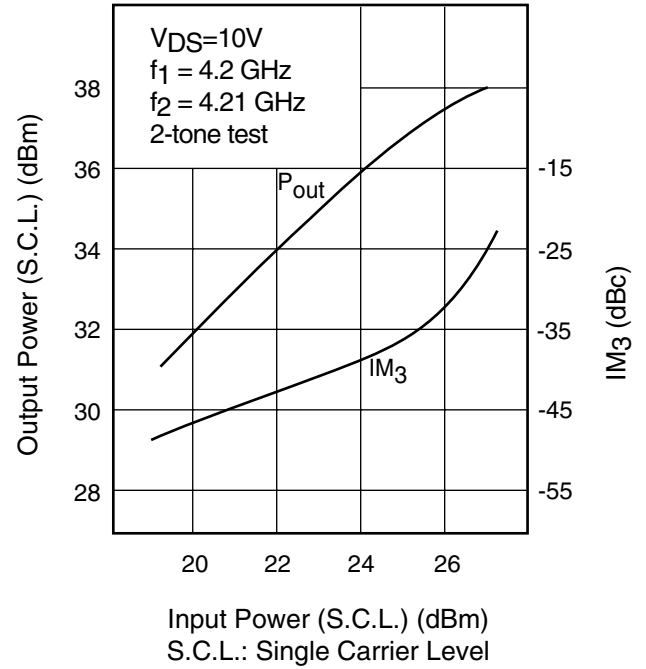
# FLM3742-18F

## C-Band Internally Matched FET

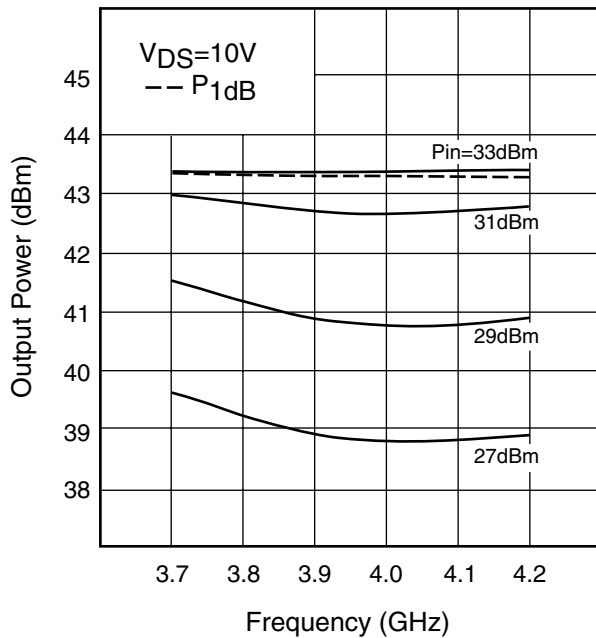
**POWER DERATING CURVE**



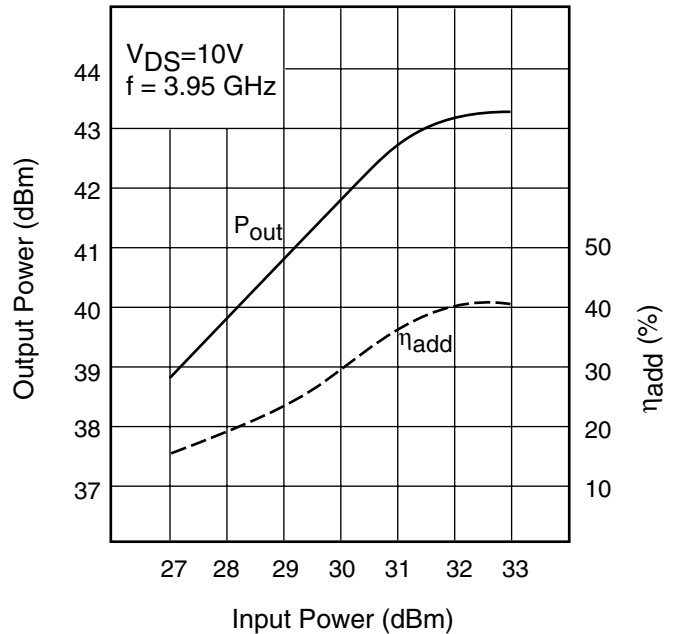
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**

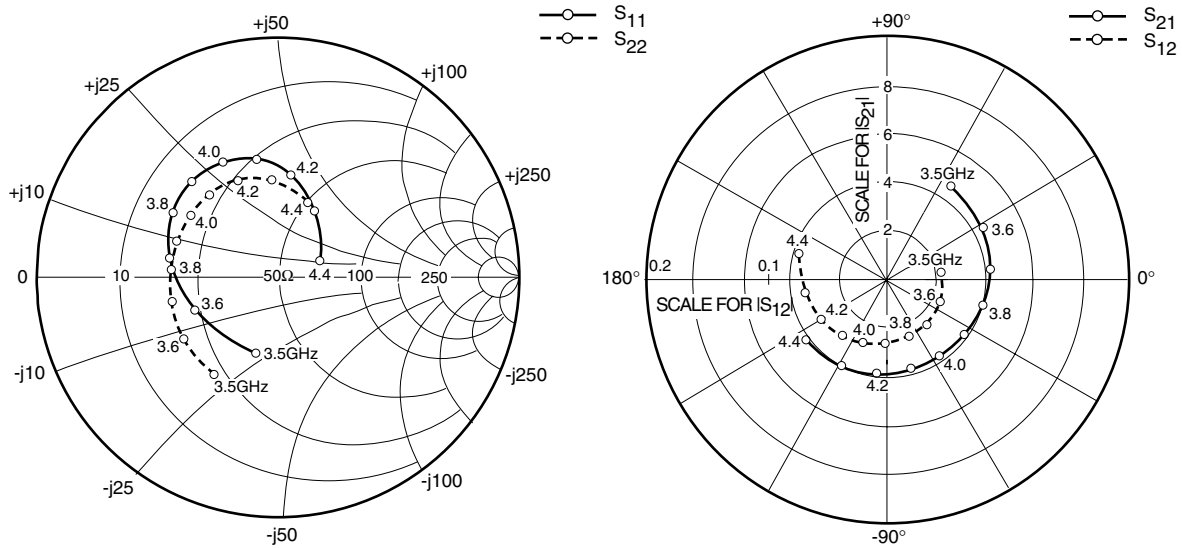


**OUTPUT POWER vs. FREQUENCY**



**OUTPUT POWER vs. INPUT POWER**





### S-PARAMETERS

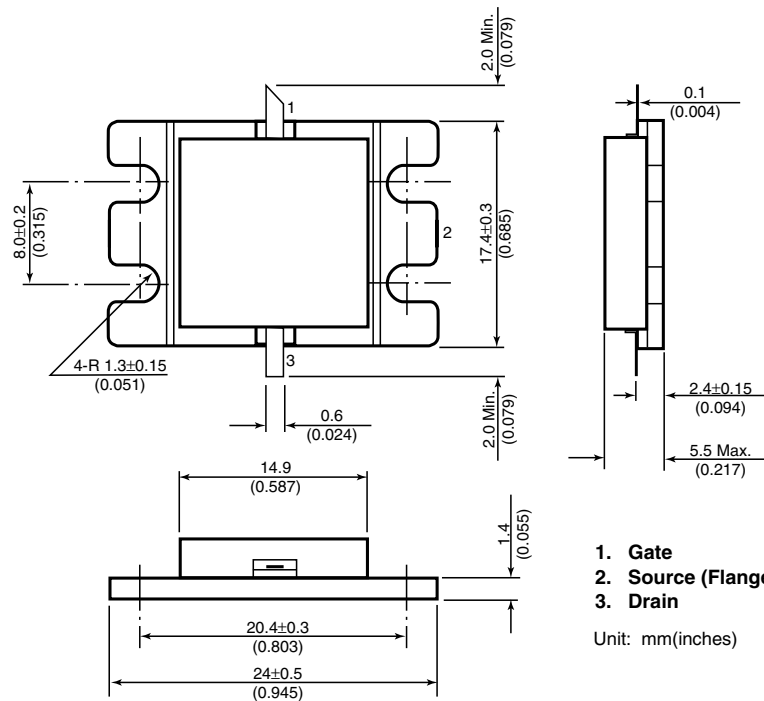
$V_{DS} = 10V, I_{DS} = 4800mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3500	.326	-106.3	4.659	55.5	.043	5.6	.489	-123.6
3600	.371	-157.9	4.532	29.1	.046	-24.1	.465	-146.9
3700	.455	170.2	4.275	5.2	.049	-48.6	.453	-166.9
3800	.507	147.9	4.060	-16.0	.050	-70.0	.452	176.1
3900	.537	131.1	3.891	-36.0	.053	-91.5	.452	160.6
4000	.531	115.5	3.821	-55.4	.056	-111.7	.453	145.6
4100	.498	100.4	3.838	-75.1	.060	-129.2	.450	130.5
4200	.432	82.7	3.934	-95.6	.066	-149.3	.438	113.5
4300	.318	60.9	4.062	-118.4	.071	-170.9	.405	93.9
4400	.180	19.6	4.174	-143.4	.077	164.6	.341	68.4

# FLM3742-18F

## C-Band Internally Matched FET

### 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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