

FLM5359-18F

C-Band Internally Matched FET

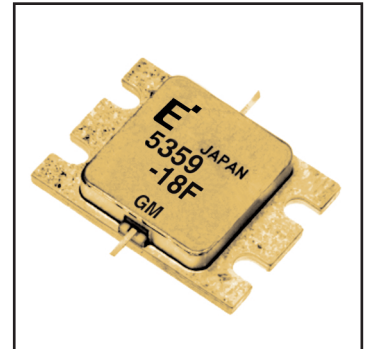
FEATURES

- High Output Power: $P_{1dB} = 43.0\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 8.5\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 35\%$ (Typ.)
- Low $IM_3 = -46\text{dBc}$ @ $P_o = 32.0\text{dBm}$
- Broad Band: 5.3 ~ 5.9GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$

DESCRIPTION

The FLM5359-18F 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}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	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.), $f = 5.3 \sim 5.9 \text{GHz},$ $Z_S = Z_L = 50 \text{ohm}$	42.0	43.0	-	dBm	
Power Gain at 1dB G.C.P.	G_{1dB}		7.5	8.5	-	dB	
Drain Current	I_{dsr}		-	4800	6000	mA	
Power-added Efficiency	η_{add}		-	35	-	%	
Gain Flatness	ΔG		-	-	± 0.6	dB	
3rd Order Intermodulation Distortion	IM_3		$f = 5.9 \text{GHz}, \Delta f = 10 \text{MHz}$ 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	$^\circ\text{C}$	

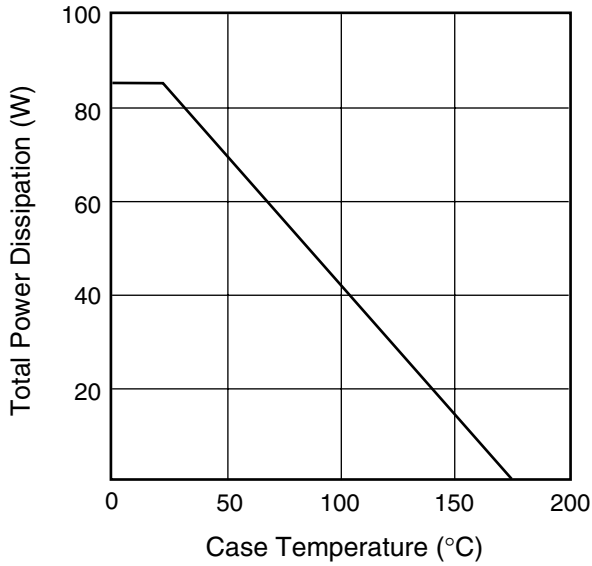
CASE STYLE: IK

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

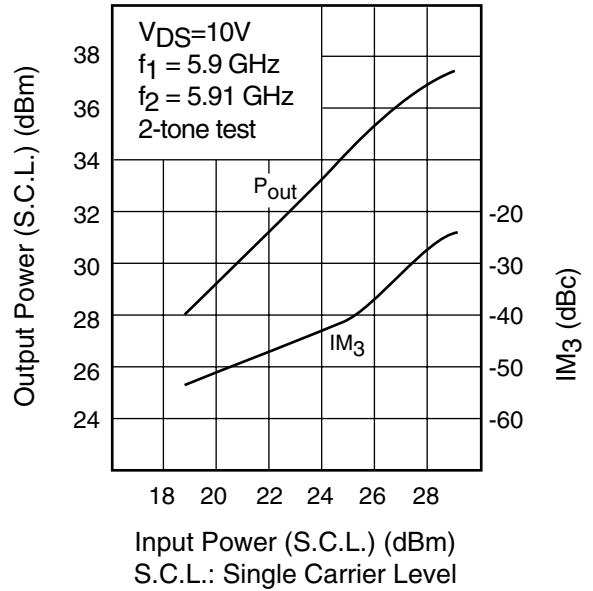
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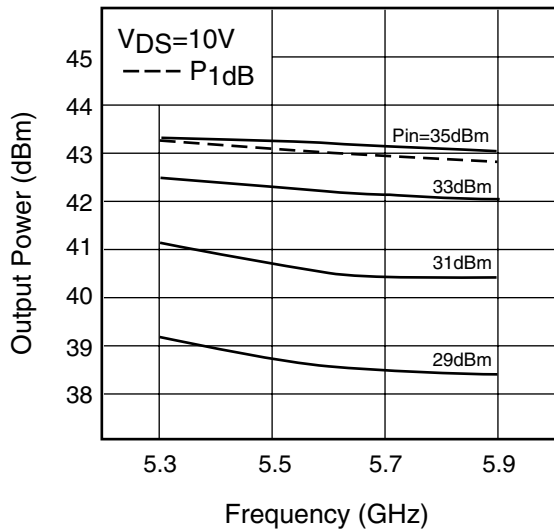
POWER DERATING CURVE



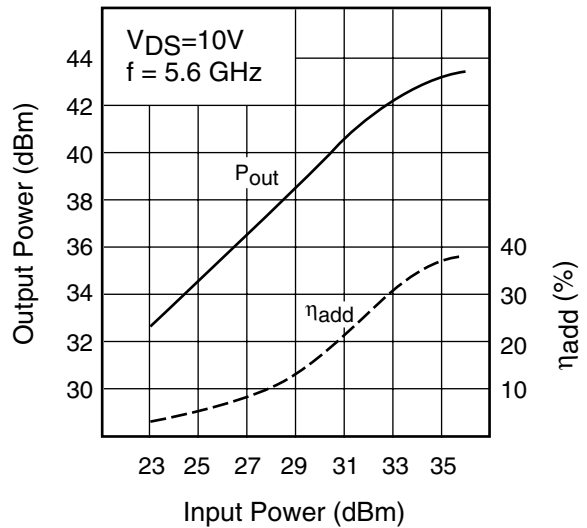
OUTPUT POWER & IM₃ vs. INPUT POWER



OUTPUT POWER vs. FREQUENCY

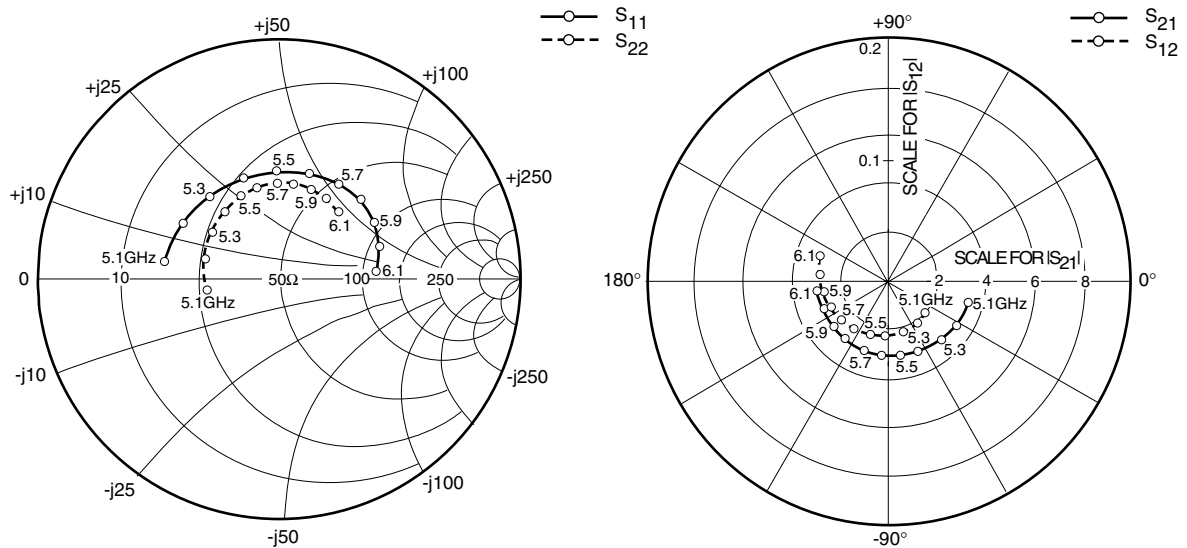


OUTPUT POWER vs. INPUT POWER



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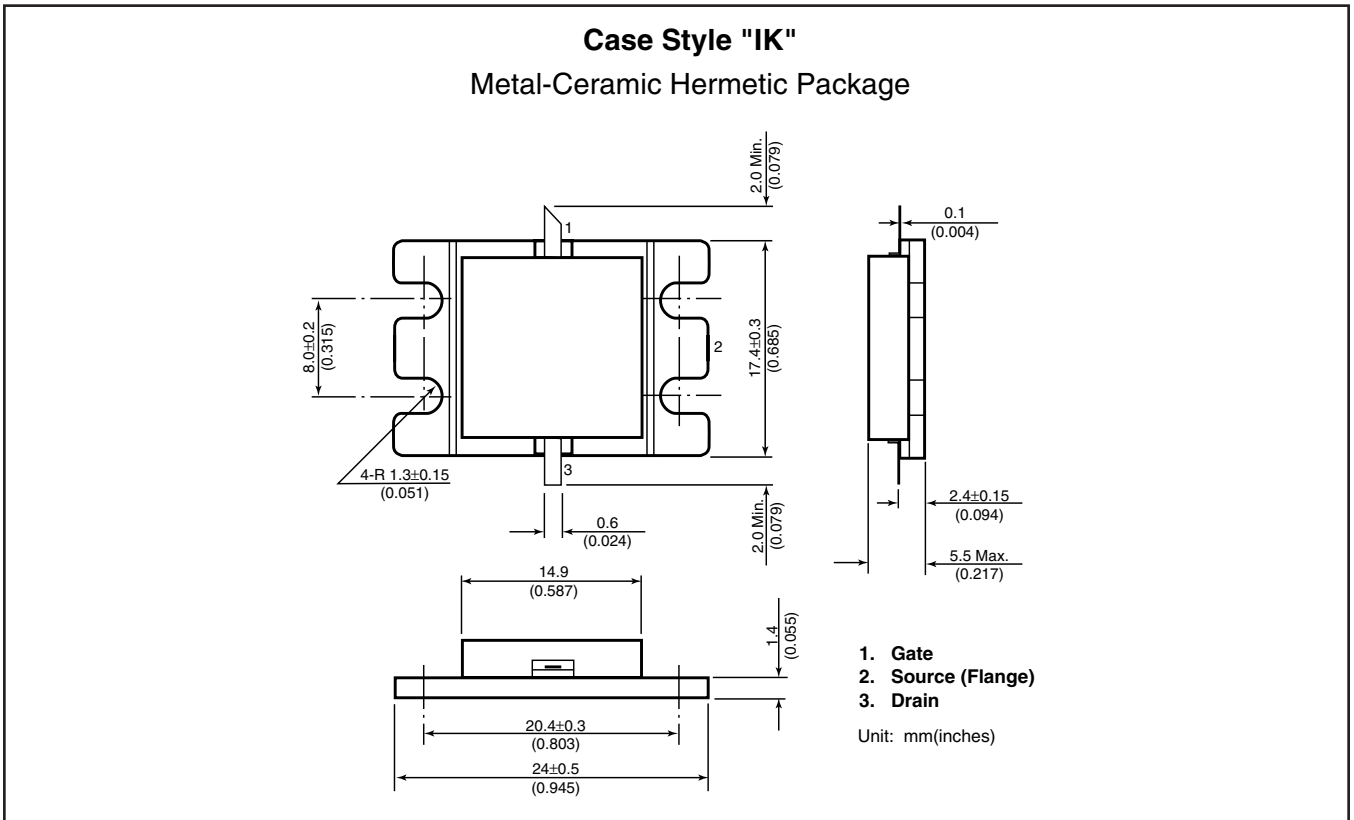
S-PARAMETERS

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

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5100	.482	171.6	3.358	-14.2	.039	-35.6	.308	-173.8
5200	.461	150.2	3.295	-31.5	.040	-56.5	.324	164.7
5300	.449	129.5	3.220	-48.2	.043	-74.9	.343	146.1
5400	.447	109.5	3.136	-64.6	.045	-93.3	.364	129.8
5500	.451	90.9	3.058	-79.9	.047	-110.9	.382	116.4
5600	.459	73.8	2.997	-95.4	.048	-126.7	.394	104.3
5700	.467	58.3	2.954	-110.5	.051	-141.6	.398	93.0
5800	.471	44.1	2.933	-125.8	.053	-156.6	.398	82.1
5900	.463	30.6	2.937	-141.1	.055	-170.4	.396	71.4
6000	.443	17.5	2.973	-156.8	.058	174.8	.388	60.8
6100	.406	3.6	3.040	-173.4	.061	159.6	.368	49.7

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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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