

ELM5964-10F

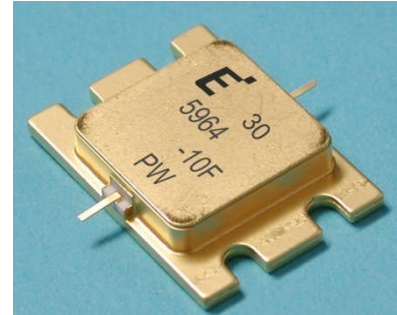
C-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB}=40.5dBm(Typ.)
- High Gain: G_{1dB}=10.0dB(Typ.)
- High PAE: η_{add} =39%(Typ.)
- Broad Band: 5.9~6.4GHz
- Impedance Matched Z_{in}/Z_{out} = 50 Ω
- Hermetically Sealed Package

DESCRIPTION

The ELM5964-10F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 Ω system.



ABSOLUTE MAXIMUM RATINGS (Case Temperature T_c=25°C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	15	V
Gate-Source Voltage	V _{GS}	-5	V
Total Power Dissipation	P _T	42.8	W
Storage Temperature	T _{stg}	-55 to +125	°C
Channel Temperature	T _{ch}	175	°C

RECOMMENDED OPERATING CONDITION (Case Temperature T_c=25°C)

Item	Symbol	Condition	Limit	Unit
DC Input Voltage	V _{DS}		≤ 10	V
Forward Gate Current	I _{GF}	R _G =50 ohm	≤ 27.0	mA
Reverse Gate Current	I _{GR}	R _G =50 ohm	≥ -5.8	mA

ELECTRICAL CHARACTERISTICS (Case Temperature T_c=25°C)

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Drain Current	I _{DSS}	V _{DS} =5V, V _{GS} =0V	-	4.0	5.6	A
Trans conductance	g _m	V _{DS} =5V, I _{DS} =2.4A	-	4.0	-	S
Pinch-off Voltage	V _p	V _{DS} =5V, I _{DS} =240mA	-0.5	-1.5	-3.0	V
Gate-Source Breakdown Voltage	V _{GSO}	I _{GS} =-240uA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P _{1dB}	V _{DS} =10V f= 5.9 ~ 6.4 GHz I _{DS} DC=2.6A (typ.) Z _S =Z _L =50 ohm	39.5	40.5	-	dBm
Power Gain at 1dB G.C.P.	G _{1dB}		9.0	10.0	-	dB
Drain Current	I _{DSR}		-	2.6	3.0	A
Power-added Efficiency	η_{add}		-	39	-	%
Gain Flatness	ΔG		-	-	1.2	dB
3rd Order Intermodulation Distortion	IM ₃	f=6.4 GHz Δf =10MHz, 2-tone Test P _{out} =29dBm (S.C.L.)	-44	-46	-	dBc
Thermal Resistance	R _{th}	Channel to Case	-	3.0	3.5	°C/W
Channel Temperature Rise	ΔT_{ch}	10V x I _{DSR} X R _{th}	-	-	100	°C

CASE STYLE : IK

S.C.L. : Single Carrier Level

G.C.P.: Gain Compression Point

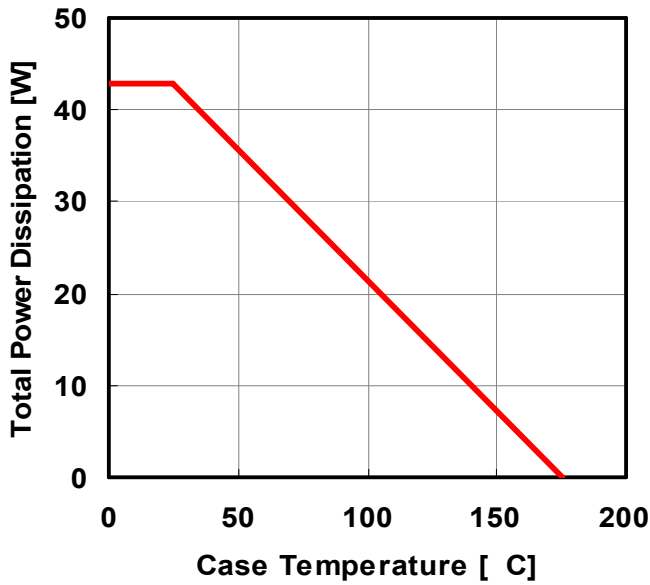
ESD	Class IIIA	4000 ~ 8000V
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Note : Based on JEDEC JESD22-A114 (C=100pF, R=1500 Ω)

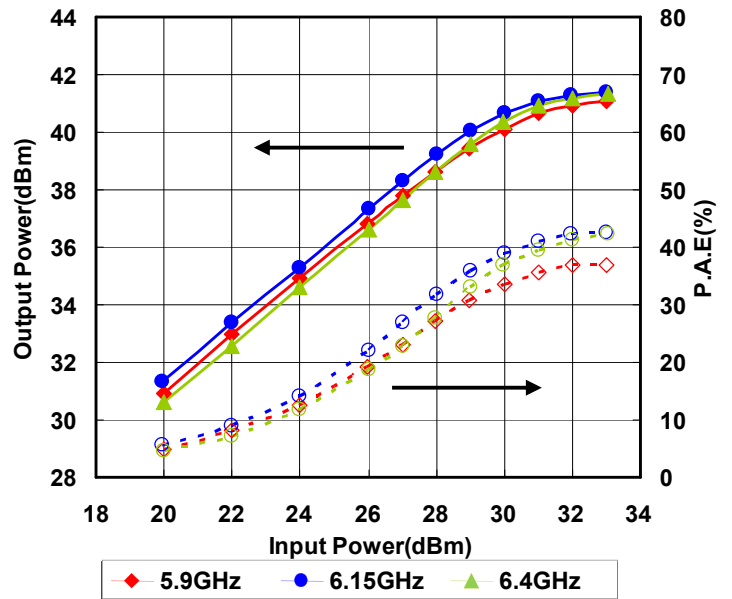
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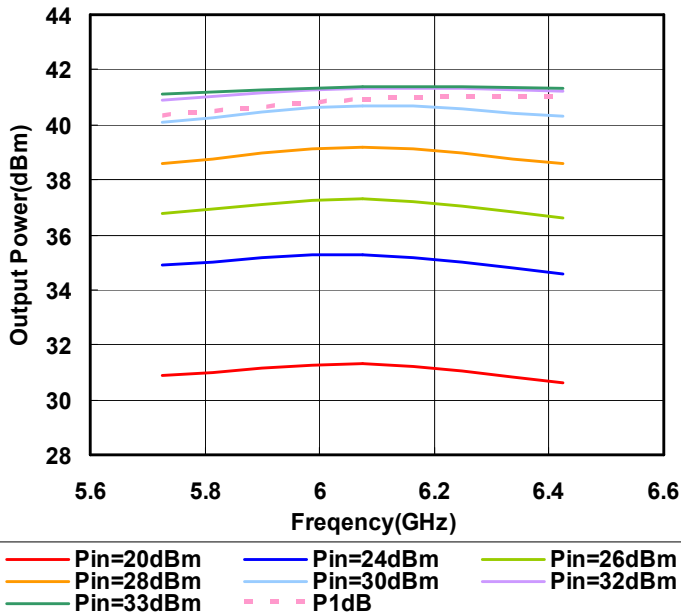
Power Derating Curve



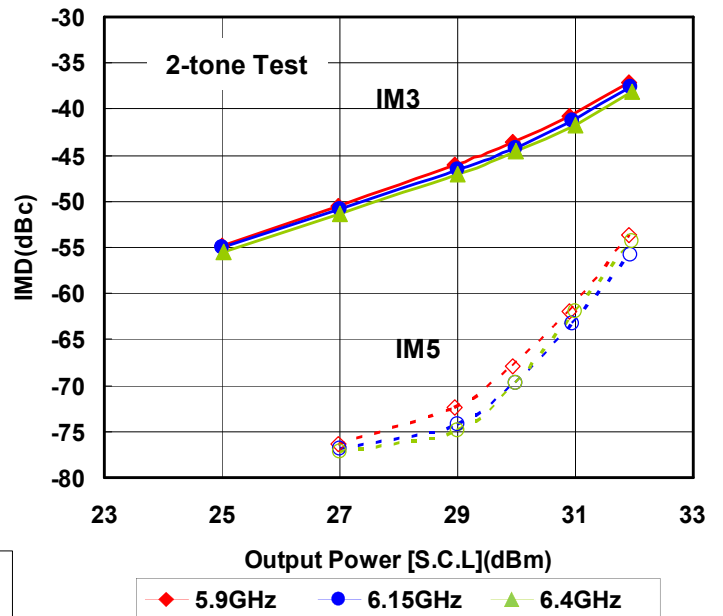
Input Power vs. Output Power & P.A.E
VDS=10V, IDS(DC)=2.6A



frequency vs. Output Power
VDS=10V, IDS(DC)=2.6A



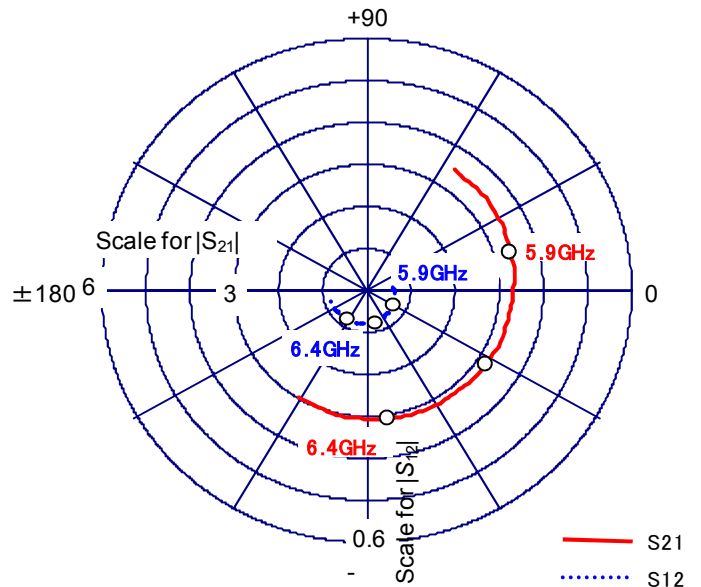
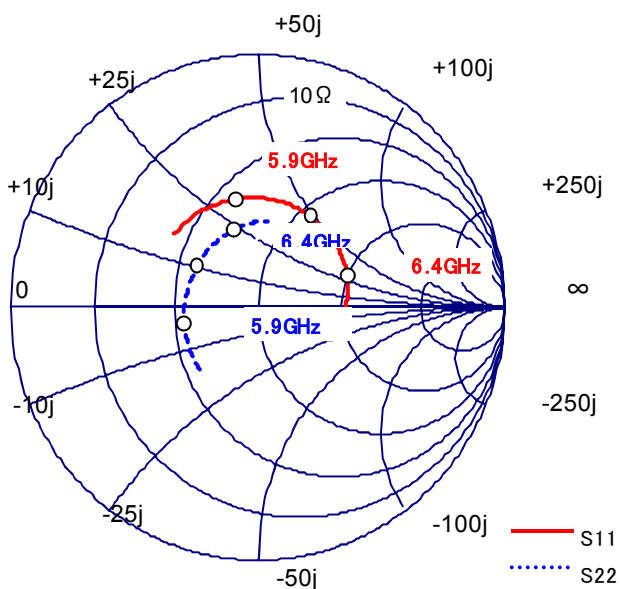
Output Power vs. IMD
VDS=10V, IDS(DC)=2.6A, Δf=10MHz



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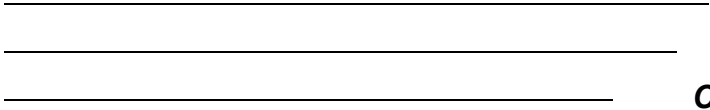
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■ S-PARAMETER



VDS=10.0V , IDS=2.6A

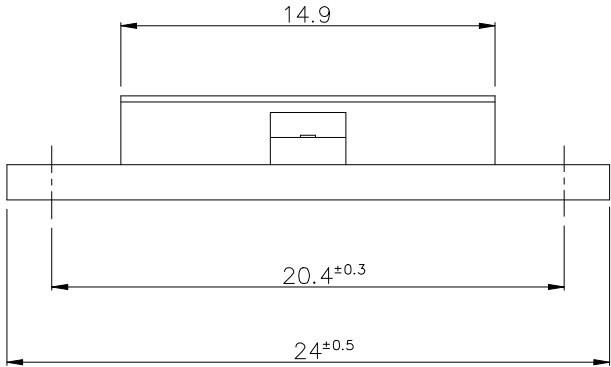
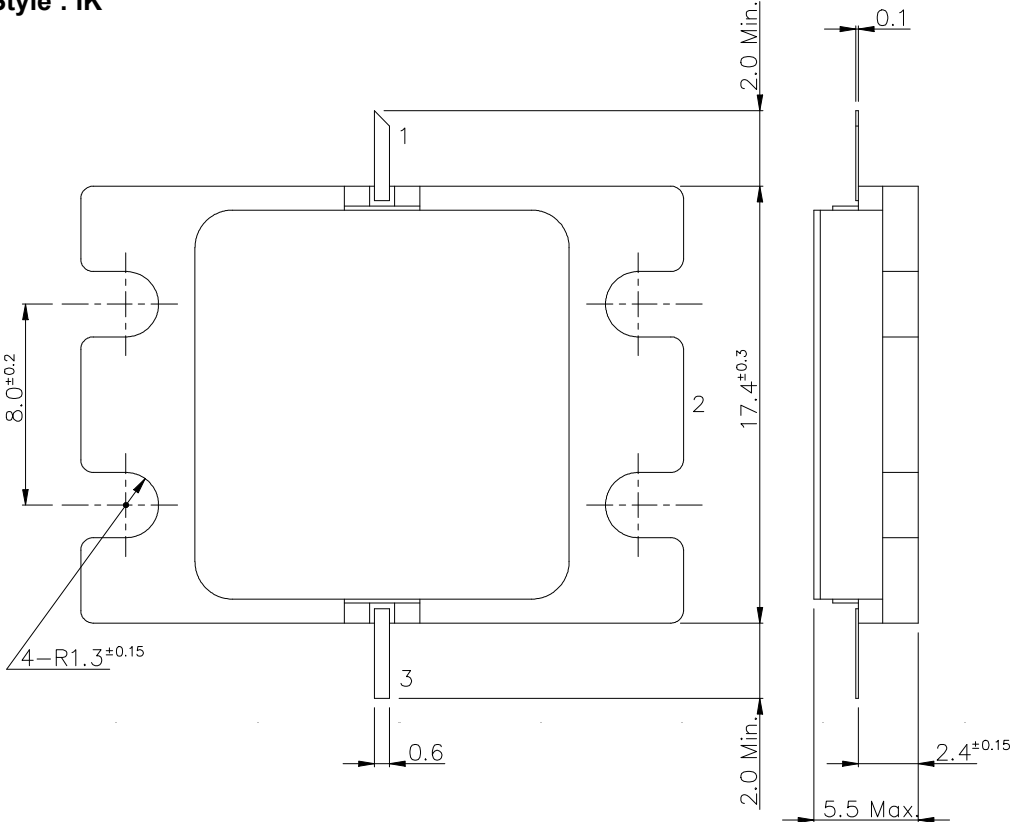
Freq [GHz]	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.7	0.446	139.9	3.493	56.0	0.058	8.3	0.345	-133.4
5.8	0.440	120.5	3.446	35.8	0.063	-10.9	0.323	-150.2
5.9	0.434	102.3	3.359	16.0	0.068	-30.3	0.307	-168.0
6.0	0.427	84.7	3.277	-4.2	0.072	-49.6	0.294	173.8
6.1	0.419	67.8	3.229	-24.2	0.075	-68.6	0.292	155.0
6.2	0.409	51.6	3.171	-43.3	0.079	-87.6	0.297	137.6
6.3	0.399	35.5	3.106	-62.5	0.082	-106.6	0.308	121.7
6.4	0.383	19.4	3.059	-82.1	0.084	-125.8	0.320	107.1
6.5	0.359	2.9	3.020	-101.8	0.086	-144.2	0.330	94.9
6.6	0.326	-15.0	2.986	-121.9	0.088	-164.0	0.337	83.5



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■ Package Out Line
Case Style : IK



- PIN ASSIGNMENT
- 1 : GATE
 - 2 : SOURCE
 - 3 : DRAIN
 - 4 : SOURCE

Unit : mm

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CAUTION

Eudyna Devices 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.

