

FLM1011-15F

X,Ku-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB}=42.0dBm(Typ.)
- High Gain: G_{1dB}=7.0dB(Typ.)
- High PAE: η_{add}=31%(Typ.)
- Broad Band: 10.7~11.7GHz
- Impedance Matched Z_{in}/Z_{out} = 50Ω
- Hermetically Sealed Package



DESCRIPTION

The FLM1011-15F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50Ω 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	57.7	W
Storage Temperature	T _{stg}	-65 to +175	°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 =50Ω	≤16.7	mA
Reverse Gate Current	I _{GR}	R _G =50Ω	≥-3.62	mA

ELECTRICAL CHARACTERISTICS (Case Temperature T_c=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Drain Current	I _{DSS}	V _{DS} =5V, V _{GS} =0V	-	7.2	10.8	A
Transconductance	g _m	V _{DS} =5V, I _{DS} =4.55A	-	4500	-	mS
Pinch-off Voltage	V _p	V _{DS} =5V, I _{DS} =300mA	-0.5	-1.5	-3.0	V
Gate-Source Breakdown Voltage	V _{GS0}	I _{GS} =-300uA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P _{1dB}	V _{DS} =10V f=10.7 - 11.7 GHz I _{DS} =0.5I _{DSS} (typ) Z _s =Z _L =50Ω	41.0	42.0	-	dBm
Power Gain at 1dB G.C.P.	G _{1dB}		6.0	7.0	-	dB
Drain Current	I _{DSr}		-	4.0	5.0	A
Power-added Efficiency	η _{add}		-	31	-	%
Gain Flatness	ΔG		-	-	1.2	dB
Thermal Resistance	R _{th}		Channel to Case	-	2.3	2.6
Channel Temperature Rise	ΔT _{ch}	10V x I _{DSr} x R _{th}	-	-	100	°C
3rd Order Intermodulation Distortion	IM ₃	f=11.7GHz, Δf=10MHz, 2-Tone Test P _{out} =30.0dBm S.C.L.	-42	-45	-	dBc

CASE STYLE: IB

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

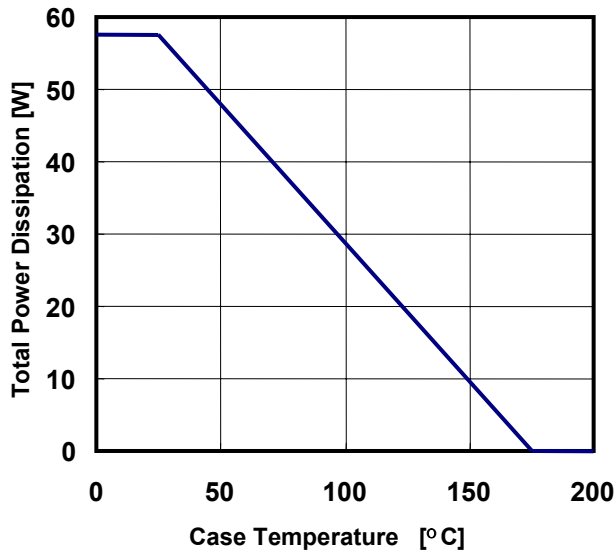
ESD	Class III	2000V ~
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Note : Based on EIAJ ED-4701 C-111A(C=100pF, R=1.5kΩ)

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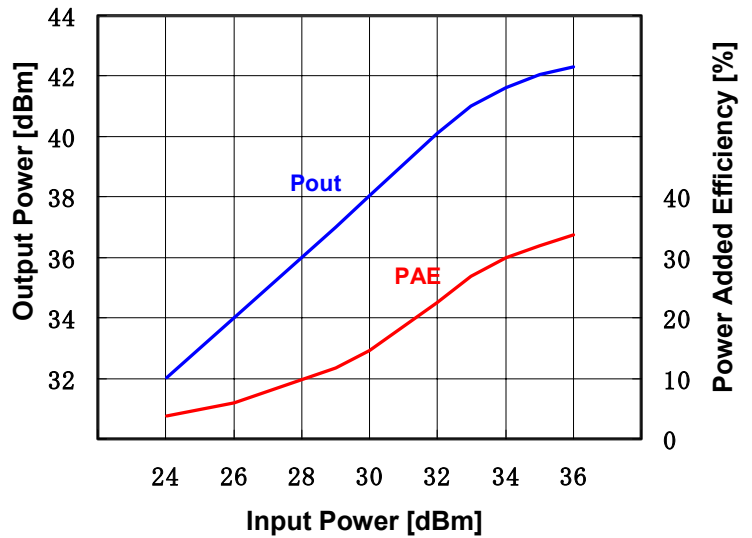
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POWER DERATING CURVE



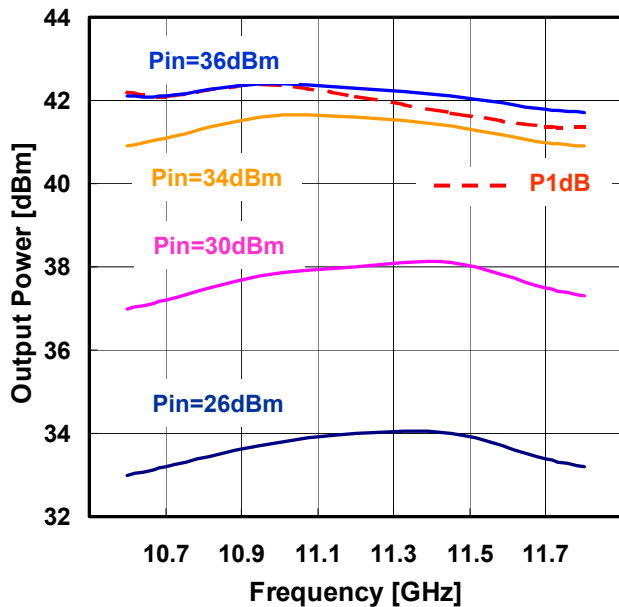
OUTPUT POWER , POWER ADDED EFFICIENCY v.s. INPUT POWER

V_{ds}=10V, I_{ds}=0.5I_{dss} Freq=11.2GHz



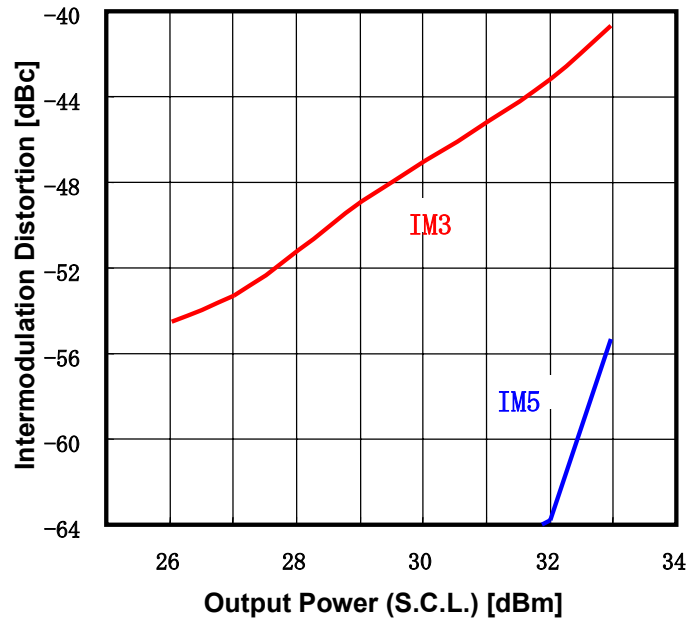
OUTPUT POWER v.s. FREQUENCY

V_{ds}=10V, I_{ds}=0.5I_{dss}



IMD v.s. OUTPUT POWER (S.C.L.)

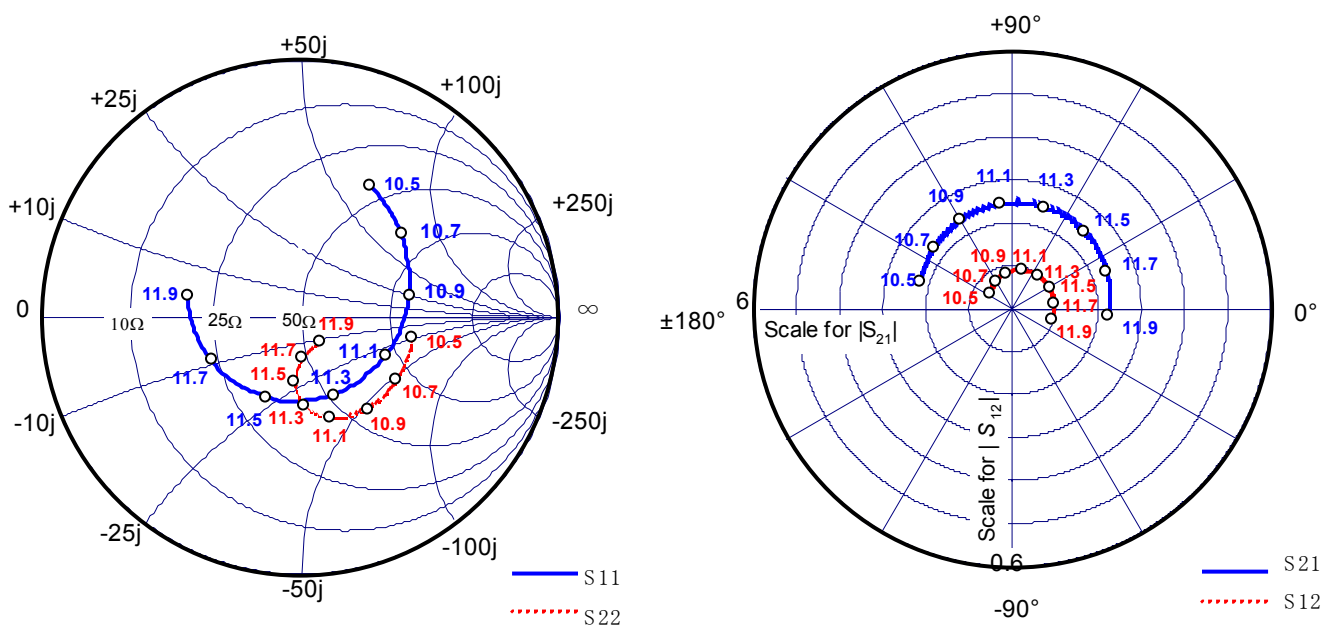
V_{ds}=10V, I_{ds}=3.6A
f₁=11.70GHz, f₂=11.71GHz, 2-tone test



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■ S-PARAMETERS



VDS=10V , IDS=0.5Idss

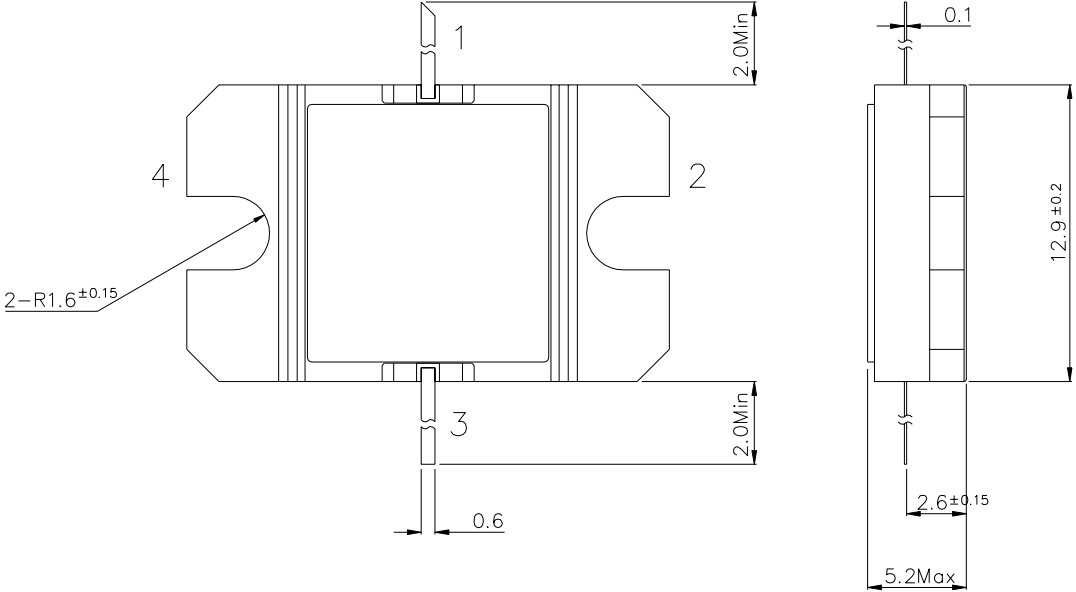
Freq. (GHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10.5	0.580	62.4	2.199	163.7	0.061	143.2	0.438	-10.3
10.6	0.543	51.5	2.241	152.6	0.067	131.7	0.439	-21.9
10.7	0.505	39.9	2.289	142.1	0.072	121.5	0.442	-33.2
10.8	0.465	26.8	2.328	131.0	0.078	109.7	0.446	-44.2
10.9	0.428	11.9	2.380	119.8	0.084	98.9	0.440	-54.3
11.0	0.389	-5.2	2.419	108.3	0.089	87.5	0.426	-64.2
11.1	0.359	-23.9	2.453	96.2	0.092	75.7	0.406	-73.5
11.2	0.334	-45.5	2.476	84.4	0.095	64.1	0.378	-81.8
11.3	0.325	-67.6	2.472	72.1	0.097	51.7	0.342	-88.4
11.4	0.325	-90.9	2.466	59.6	0.099	40.7	0.298	-93.3
11.5	0.338	-113.1	2.446	47.2	0.100	28.0	0.250	-95.3
11.6	0.359	-134.2	2.403	34.3	0.100	16.9	0.201	-95.0
11.7	0.383	-154.1	2.367	21.8	0.099	6.5	0.158	-88.3
11.8	0.415	-172.6	2.312	9.1	0.096	-4.4	0.128	-74.1
11.9	0.445	169.3	2.243	-4.3	0.095	-15.8	0.121	-52.5

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■ Package Out Line

Case Style : IB



Unit : mm

PIN ASSIGNMENT

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

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