

# FLM1011-15F

## X,Ku-Band Internally Matched FET

### FEATURES

- High Output Power: P1dB=42.0dBm(Typ.)
- High Gain: G1dB=7.0dB(Typ.)
- High PAE:  $\eta_{add}$ =31%(Typ.)
- Broad Band: 10.7~11.7GHz
- Impedance Matched Zin/Zout = 50 $\Omega$
- 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 50 $\Omega$  system.

### ABSOLUTE MAXIMUM RATINGS (Case Temperature Tc=25°C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DS</sub>	15	V
Gate-Source Voltage	V <sub>GS</sub>	-5	V
Total Power Dissipation	P <sub>T</sub>	57.7	W
Storage Temperature	T <sub>stg</sub>	-65 to +175	°C
Channel Temperature	T <sub>ch</sub>	175	°C

### RECOMMENDED OPERATING CONDITION (Case Temperature Tc=25°C)

Item	Symbol	Condition	Limit	Unit
DC Input Voltage	V <sub>DS</sub>		≤10	V
Forward Gate Current	I <sub>GF</sub>	R <sub>G</sub> =50 $\Omega$	≤16.7	mA
Reverse Gate Current	I <sub>GR</sub>	R <sub>G</sub> =50 $\Omega$	≥-3.62	mA

### ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25°C)

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

### CASE STYLE: IB

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

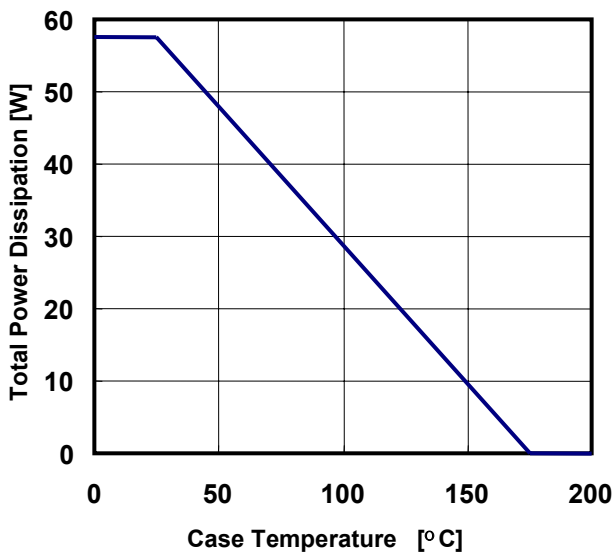
ESD	Class III	2000V ~
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Note : Based on EIAJ ED-4701 C-111A(C=100pF, R=1.5k $\Omega$ )

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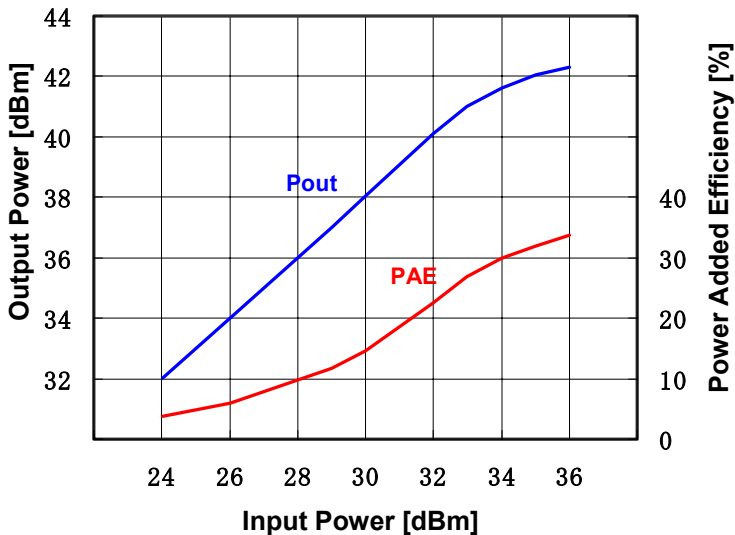
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POWER DERATING CURVE



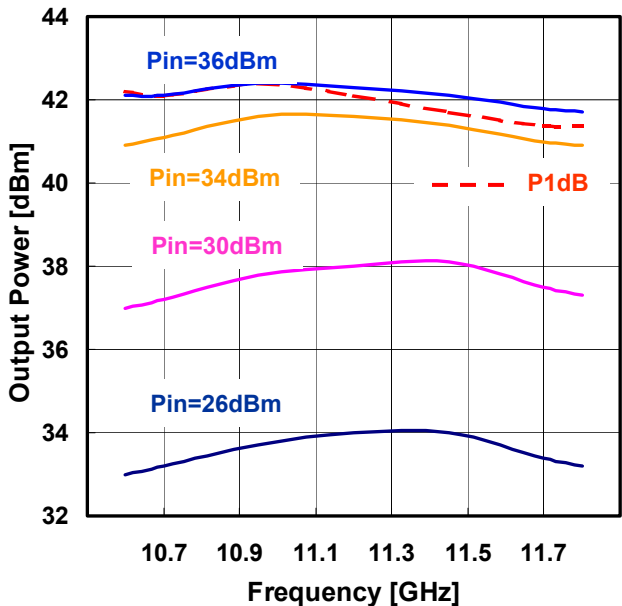
OUTPUT POWER , POWER ADDED EFFICIENCY v.s. INPUT POWER

Vds=10V, Ids=0.5Idss Freq=11.2GHz



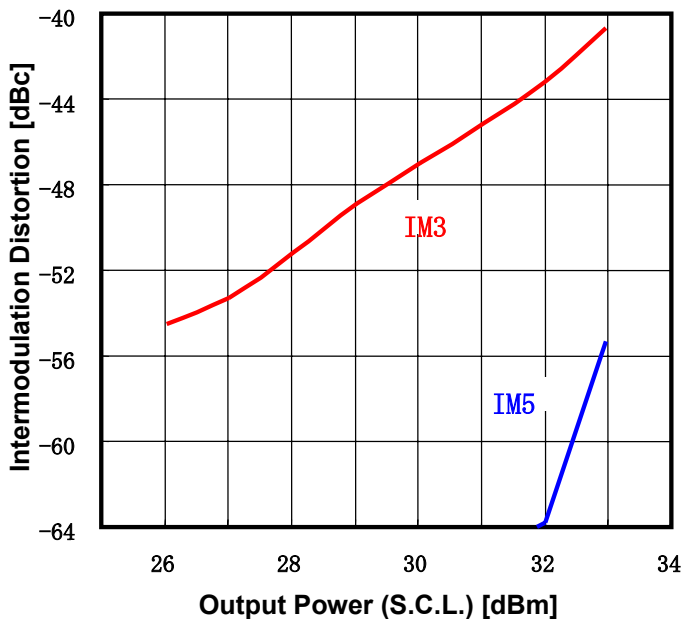
OUTPUT POWER v.s. FREQUENCY

Vds=10V, Ids=0.5Idss



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

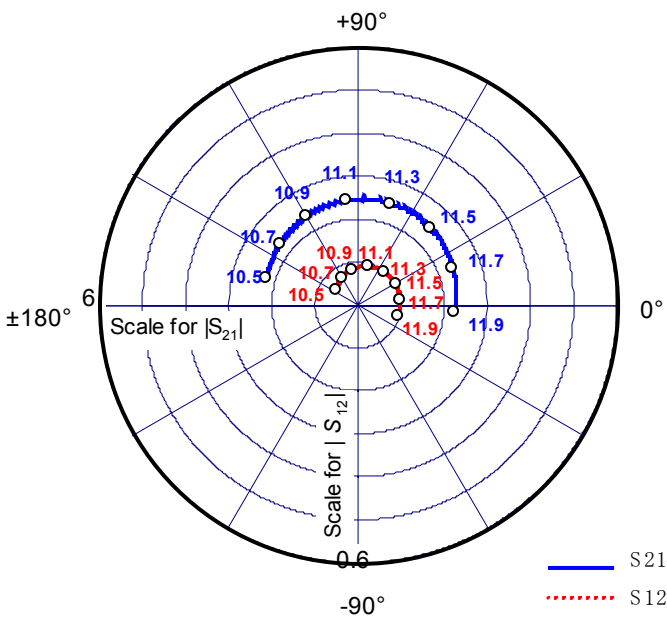
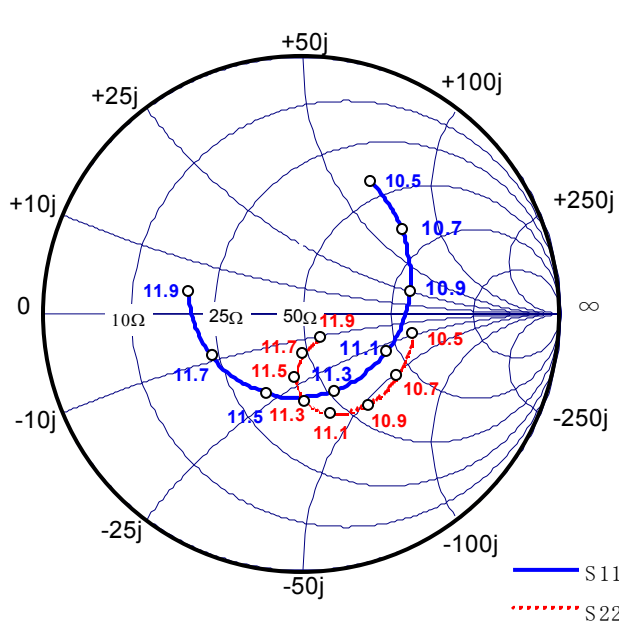
Vds=10V, Ids=3.6A  
f1=11.70GHz, f2=11.71GHz, 2-tone test



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## S-PARAMETERS



VDS=10V , IDS=0.5Idss

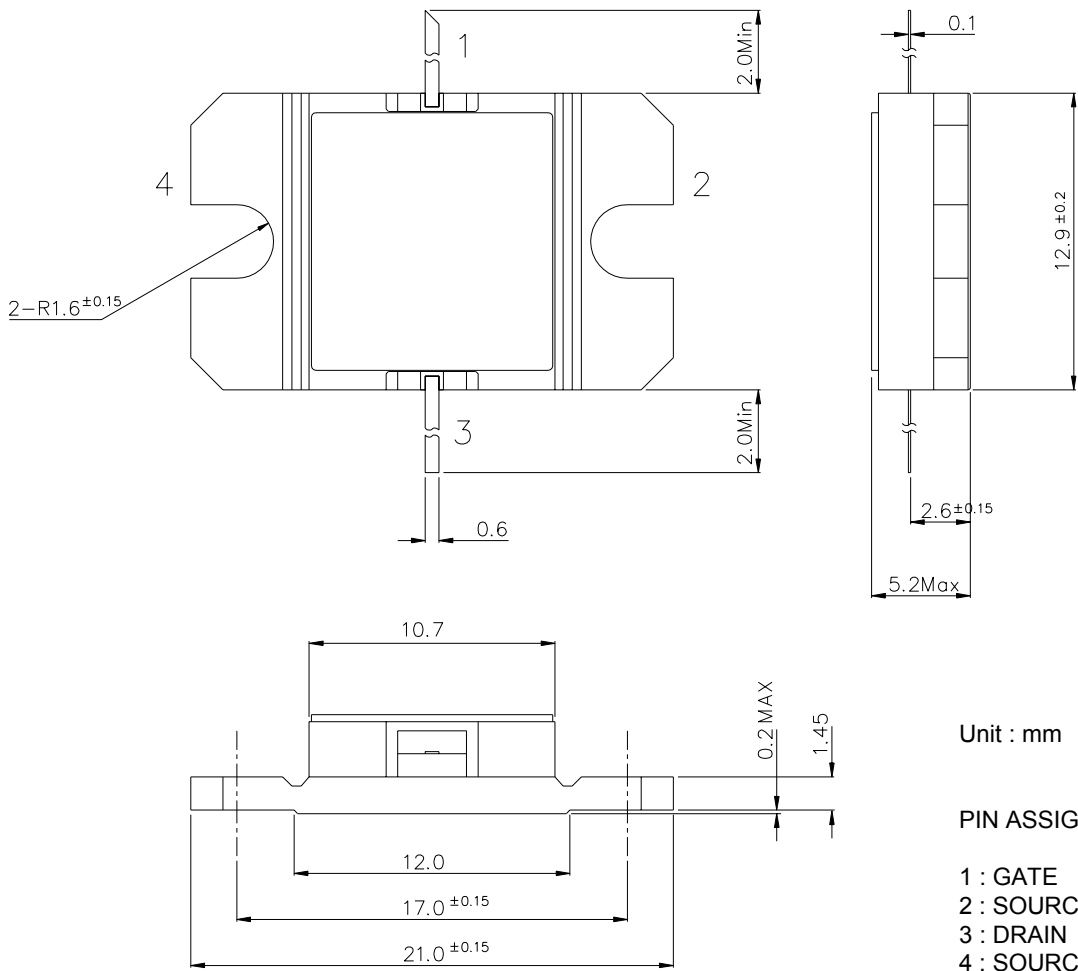
Freq. (GHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10.5	0.580	62.4	2.199	163.7	0.061	143.2	0.438	-10.3
10.6	0.543	51.5	2.241	152.6	0.067	131.7	0.439	-21.9
10.7	0.505	39.9	2.289	142.1	0.072	121.5	0.442	-33.2
10.8	0.465	26.8	2.328	131.0	0.078	109.7	0.446	-44.2
10.9	0.428	11.9	2.380	119.8	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



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For further information please contact :

**Eudyna Devices USA Inc.**

2355 Zanker Rd.  
San Jose, CA 95131-1138, U.S.A.  
TEL: (408) 232-9500  
FAX: (408) 428-9111  
www.us.eudyna.com

**Eudyna Devices Europe Ltd.**

Network House  
Norreys Drive  
Maidenhead, Berkshire SL6 4FJ  
United Kingdom  
TEL: +44 (0) 1628 504800  
FAX: +44 (0) 1628 504888

**Eudyna Devices Asia Pte. Ltd.**

Hong Kong Branch  
Rm.1101,Ocean Centre, 5 Canton Road  
Tsim Sha Tsui, Kowloon, Hong Kong  
TEL: +852-2377-0227  
FAX: +852-2377-3921

**Eudyna Devices Inc.**

1000 Kamisukiahara, showa-cho  
Nakakomagun, Yamanashi  
409-3883, Japan  
(Kokubo Industrial Park)  
TEL +81-55-275-4411  
FAX +81-55-275-9461

**Sales Division**

1, Kanai-cho, Sakae-ku  
Yokohama,244-0845,Japan  
TEL +81-45-853-8156  
FAX +81-45-853-8170

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