

# FLM1414-15F

## X,Ku-Band Internally Matched FET

### FEATURES

- High Output Power: P1dB=42.0dBm(Typ.)
- High Gain: G1dB=6.0dB(Typ.)
- High PAE:  $\eta_{add}=26\%$ (Typ.)
- Broad Band: 14.0~14.5GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed Package



### DESCRIPTION

The FLM1414-15F 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 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>	75	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> =50Ω	≤ 48	mA
Reverse Gate Current	I <sub>GR</sub>	R <sub>G</sub> =50Ω	≥ -6.6	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	10.0	A
Transconductance	g <sub>m</sub>	V <sub>DS</sub> =5V, I <sub>DS</sub> =3600mA	-	6700	-	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>GS0</sub>	I <sub>GS</sub> =-340μA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P <sub>1dB</sub>	V <sub>DS</sub> =10V f=14.0 - 14.5 GHz I <sub>DS</sub> =0.6I <sub>DSS</sub> (typ) Z <sub>s</sub> =Z <sub>L</sub> =50Ω	41.5	42.0	-	dBm
Power Gain at 1dB G.C.P.	G <sub>1dB</sub>		5.0	6.0	-	dB
Drain Current	I <sub>DSR</sub>		-	4200	5000	mA
Power-added Efficiency	$\eta_{add}$		-	26	-	%
Gain Flatness	$\Delta G$		-	-	1.2	dB
3rd Order Intermodulation Distortion	IM <sub>3</sub>	f=14.5 GHz $\Delta f=10\text{MHz}$ , 2-Tone Test P <sub>out</sub> =30.0dBm(S.C.L.)	-42.0	-45.0	-	dBc
Thermal Resistance	R <sub>th</sub>	Channel to Case	-	1.8	2.0	°C/W
Channel Temperature Rise	$\Delta T_{ch}$	10V x I <sub>DSR</sub> X R <sub>th</sub>	-	-	80	°C

CASE STYLE: IB

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

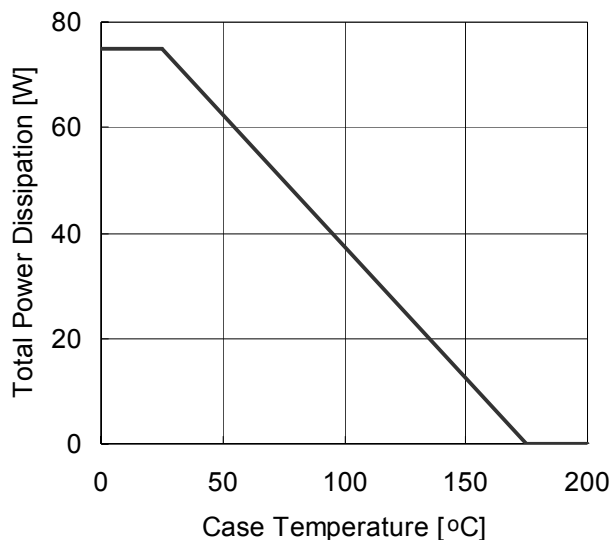
ESD	Class III	2000V~
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Note : Based on EIAJ ED-4701 C-111A(C=100pF, R=1.5kΩ)

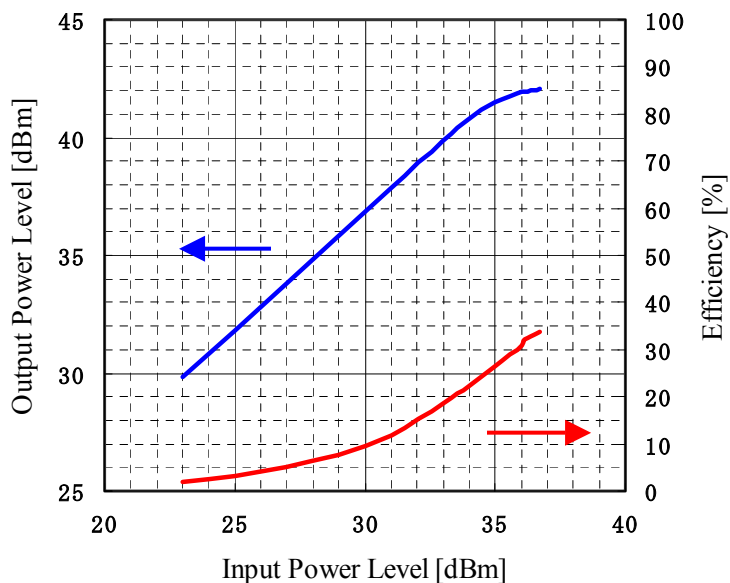
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POWER DERATING CURVE

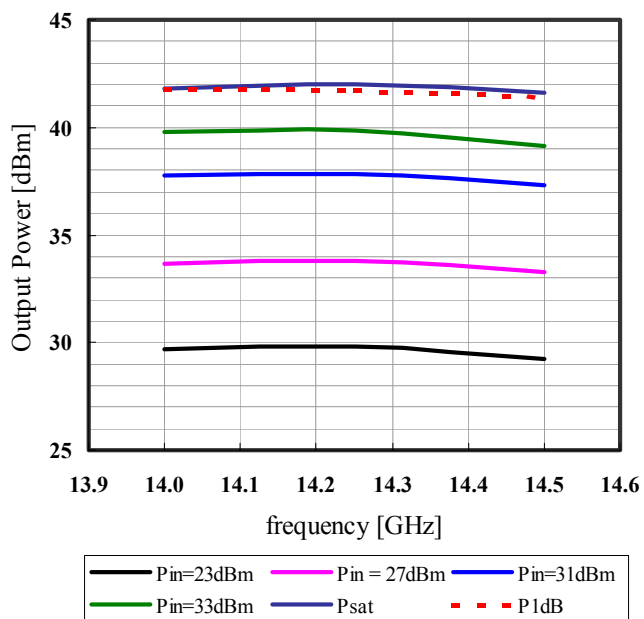


OUTPUT POWER , EFFICIENCY vs. INPUT POWER



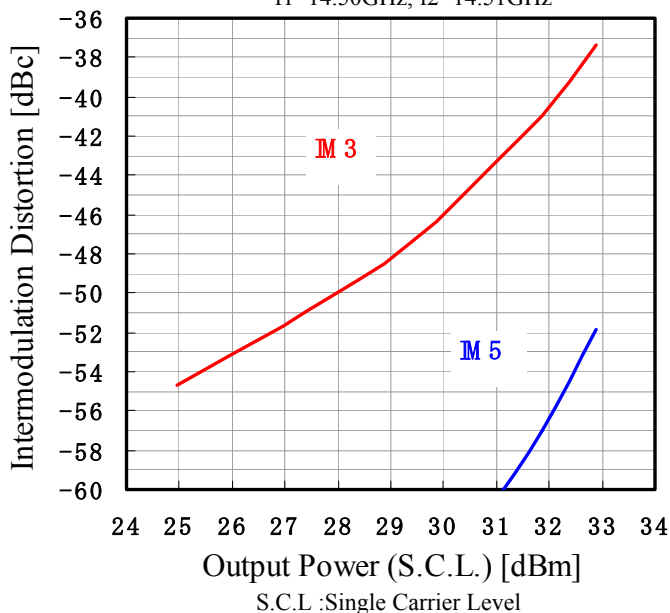
OUTPUT POWER vs. FREQUENCY

VDS=10V, IDS=0.65IDS



IMD vs OUTPUT POWER

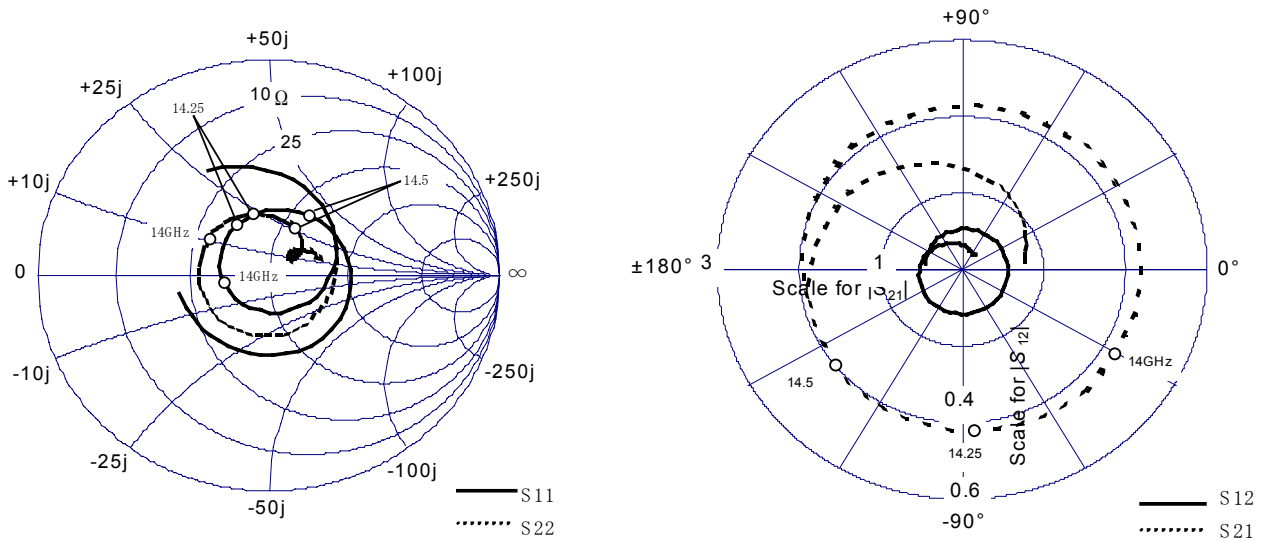
VDS=10V, IDS=0.65IDS  
f1=14.50GHz, f2=14.51GHz



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## ■ S-PARAMETER



VDS=10V, IDS=4355mA

Freq [GHz]	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
11.0	0.883	78.074	0.679	-162.875	0.023	158.196	0.757	36.902
11.5	0.842	6.384	0.812	115.730	0.029	77.861	0.708	-38.816
12.0	0.805	-68.624	1.046	32.823	0.040	-0.870	0.612	-118.143
12.5	0.729	-155.313	1.503	-65.968	0.064	-91.628	0.455	143.005
13.0	0.553	118.032	1.922	-168.885	0.092	170.080	0.308	23.310
13.5	0.301	14.254	2.153	84.943	0.108	68.684	0.285	-105.214
14.0	0.193	-169.602	2.182	-30.677	0.114	-35.708	0.308	146.159
14.5	0.330	57.246	1.987	-141.198	0.113	-134.062	0.243	62.332
15.0	0.373	-69.708	1.440	104.525	0.082	126.406	0.118	45.259
15.5	0.400	-173.403	0.733	2.596	0.045	48.953	0.247	10.815
16.0	0.529	119.056	0.486	-75.751	0.034	-13.903	0.293	-37.756



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## X,Ku-Band Internally Matched FET

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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