

# 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 = 50 $\Omega$
- 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 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	PT	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>		$\leq 10$	V
Forward Gate Current	I <sub>GF</sub>	R <sub>G</sub> =50 $\Omega$	$\leq 48$	mA
Reverse Gate Current	I <sub>GR</sub>	R <sub>G</sub> =50 $\Omega$	$\geq -6.6$	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>GSO</sub>	I <sub>GS</sub> =-340 $\mu$ A	-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> =50 $\Omega$	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 $\Delta f=10$ MHz, 2-Tone Test P <sub>out</sub> =30.0dBm(S.C.L.)	-42.0	-45.0	-
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

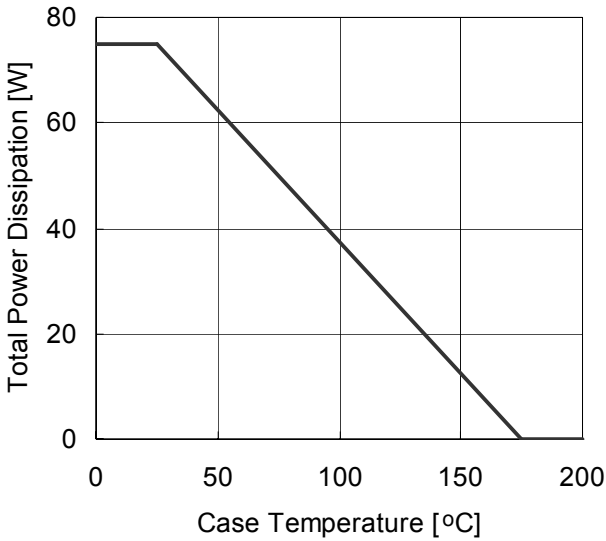
ESD	Class III	2000V~
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Note : Based on EIAJ ED-4701 C-111A(C=100pF, R=1.5k $\Omega$ )

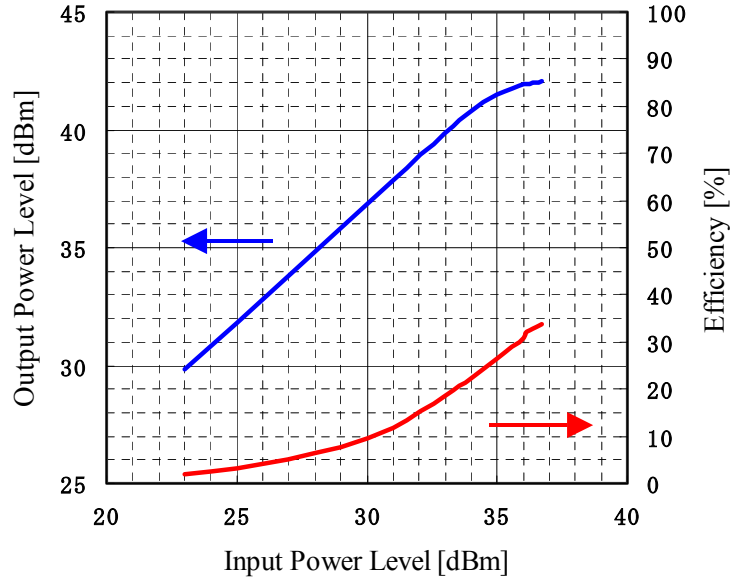
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**POWER DERATING CURVE**

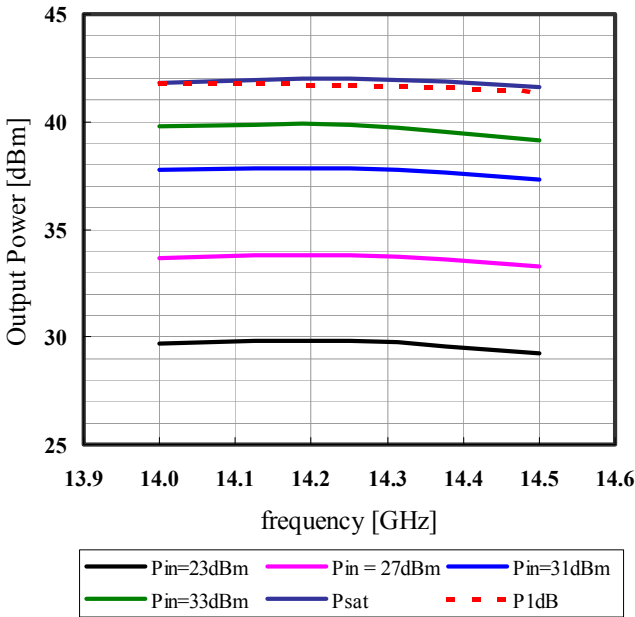


**OUTPUT POWER , EFFICIENCY vs. INPUT POWER**



**OUTPUT POWER vs. FREQUENCY**

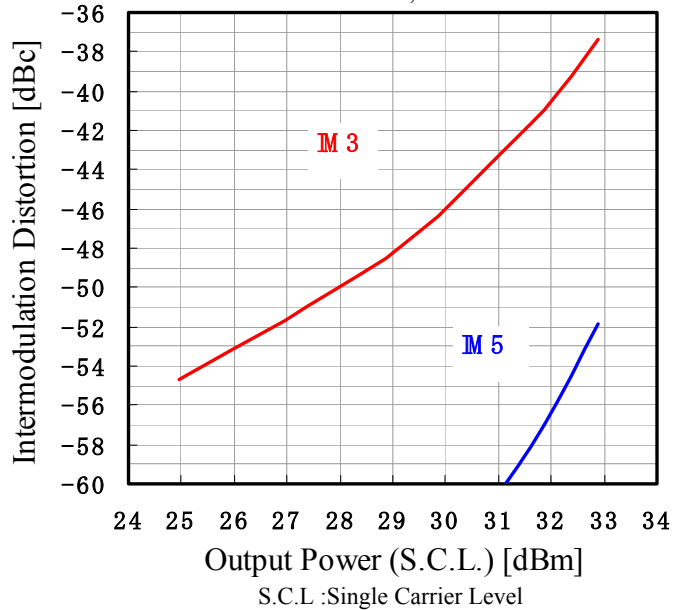
VDS=10V, IDS=0.65IDS



**IMD vs OUTPUT POWER**

VDS=10V, IDS=0.65IDS

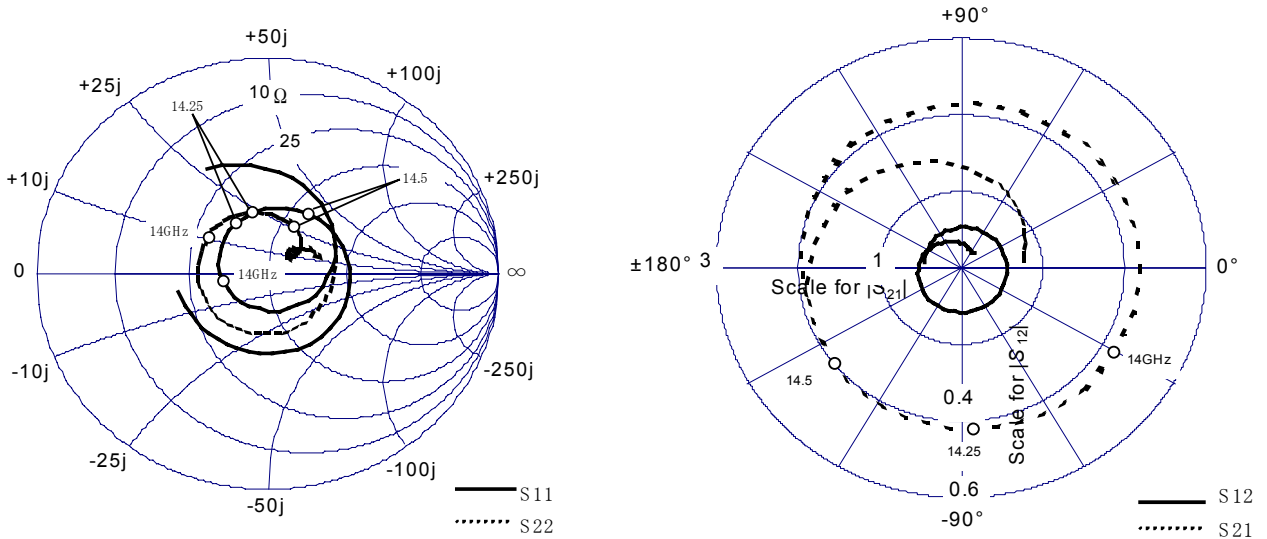
f1=14.50GHz, f2=14.51GHz



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## ■ S-PARAMETER



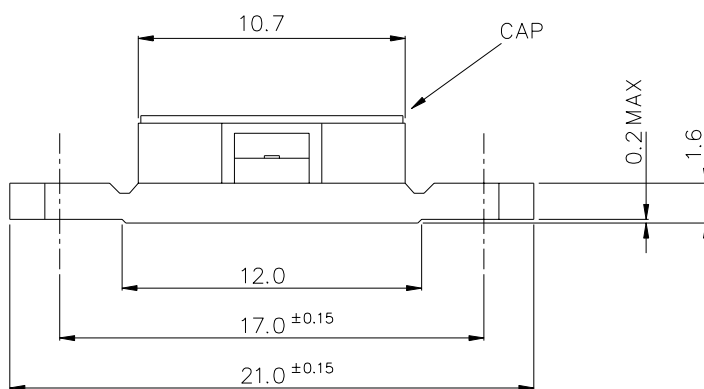
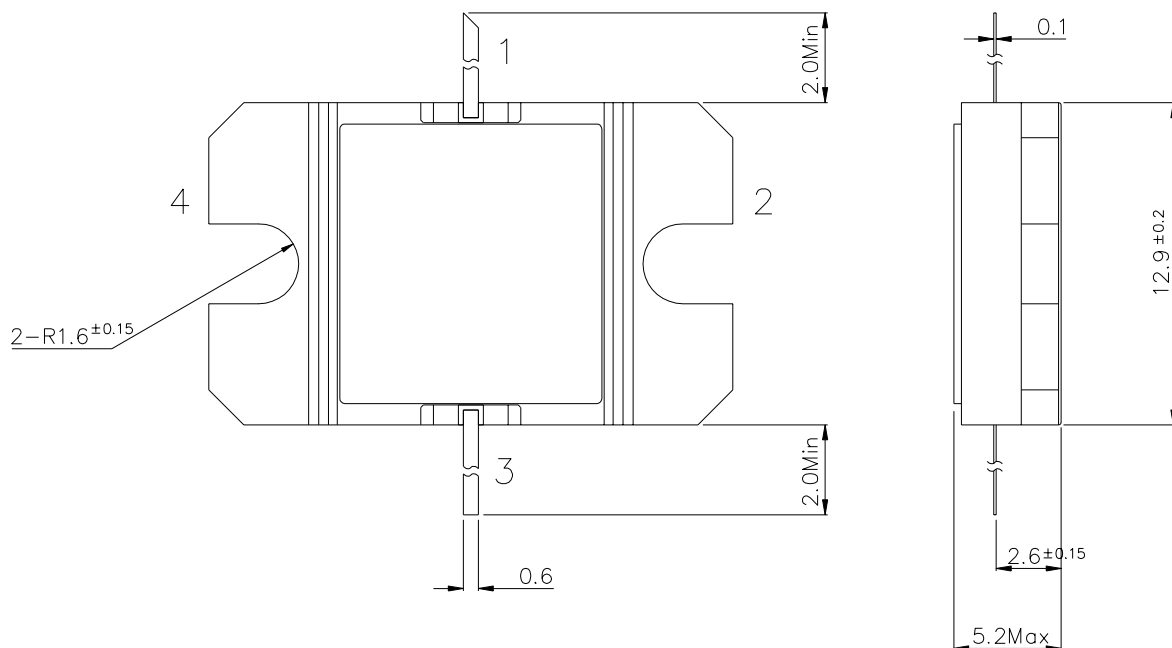
VDS=10V, IDS=4355mA

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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CASE STYLE: IB



PIN ASSIGNMENT

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

Unit : mm

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- 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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