

FLM8596-15F

X-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB}=42.0dBm(Typ.)
- High Gain: G_{1dB}=7.5dB(Typ.)
- High PAE: η_{add} =32%(Typ.)
- Broad Band: 8.5~9.6GHz
- Impedance Matched Z_{in}/Z_{out} = 50 Ω
- Hermetically Sealed Package

DESCRIPTION

The FLM8596-15F 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	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
Gate Current	I _{GS}	R _G =50 Ω	≤16.7	mA
Gate Current	I _{GR}	R _G =50 Ω	≥-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} =2.4A	-	4500	-	mS
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} =-300 μ A	-5.0	-	-	V
Output Power at 1dB G.C.P.	P _{1dB}	V _{DS} =10V f=8.5 - 9.6 GHz I _{DS} =0.5I _{DSS} Z _S =Z _L =50 Ω	41.0	42.0	-	dBm
Power Gain at 1dB G.C.P.	G _{1dB}		6.5	7.5	-	dB
Drain Current	I _{dsr}		-	4.0	5.0	A
Power-added Efficiency	η_{add}		-	32	-	%
Gain Flatness	Δ G		-	-	1.2	dB
Thermal Resistance	R _{th}	Channel to Case	-	2.3	2.6	°C/W
Channel Temperature Rise	Δ T _{ch}	10V X I _{dsr} X R _{th}	-	-	100	°C

CASE STYLE: IB

G.C.P.:Gain Compression Point

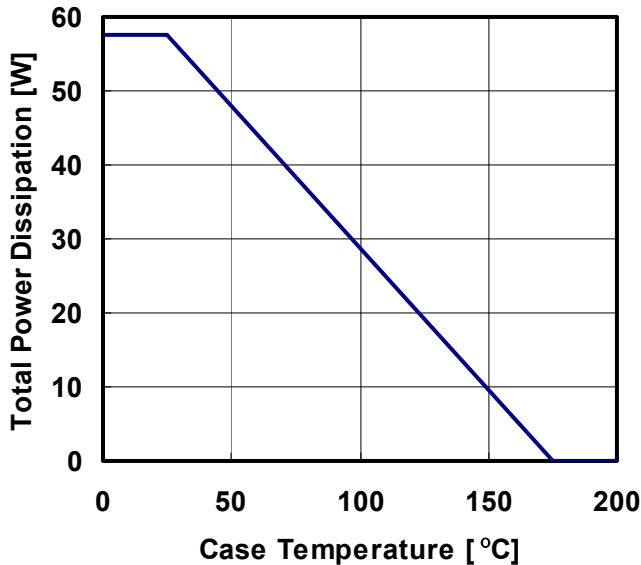
ESD	Class III	2000V ~
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Note : Based on EIAJ ED-4701 C-111A(C=100pF, R=1.5k Ω)

FLM8596-15F

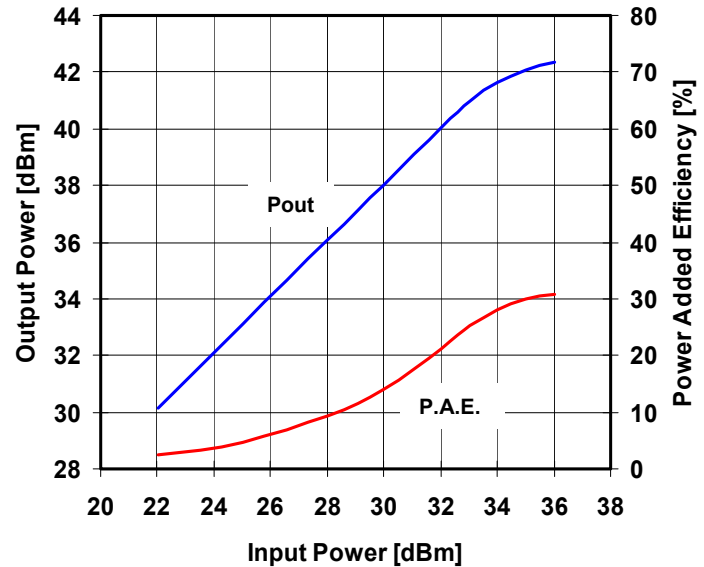
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POWER DERATING CURVE



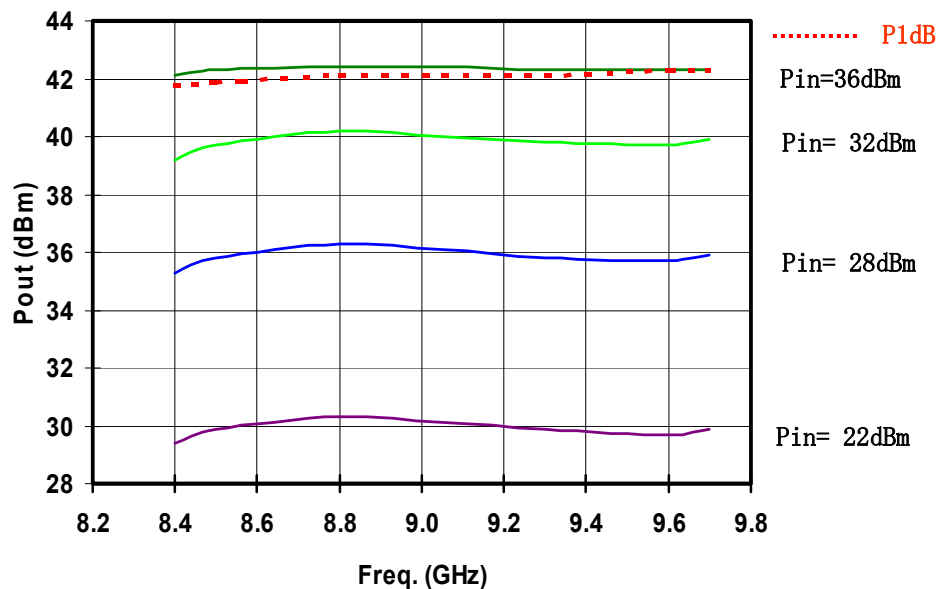
OUTPUT POWER & POWER ADDED EFFICIENCY
vs. INPUT POWER

$V_{ds}=10V$, $I_{ds}=0.5I_{dss}$, $f=9.05GHz$



OUTPUT POWER vs. FREQUENCY

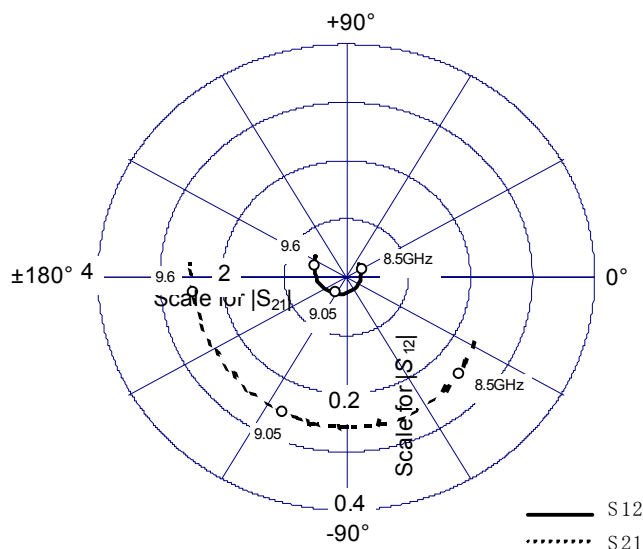
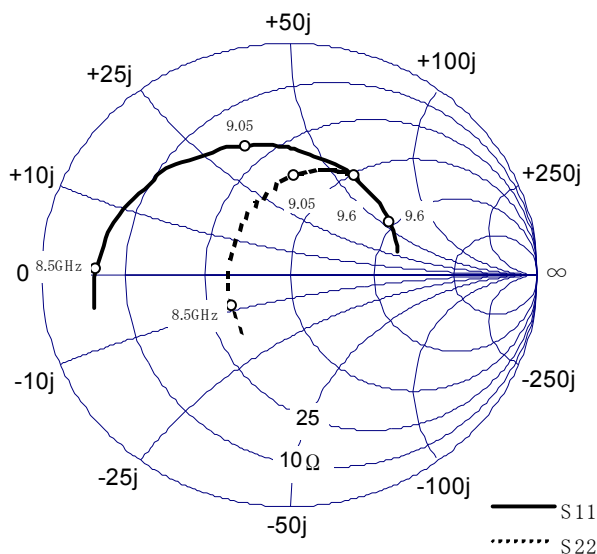
$V_{ds}=10V$, $I_{ds}=0.5I_{dss}$



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■ S-PARAMETER



VDS=10V, IDS=0.5Idss

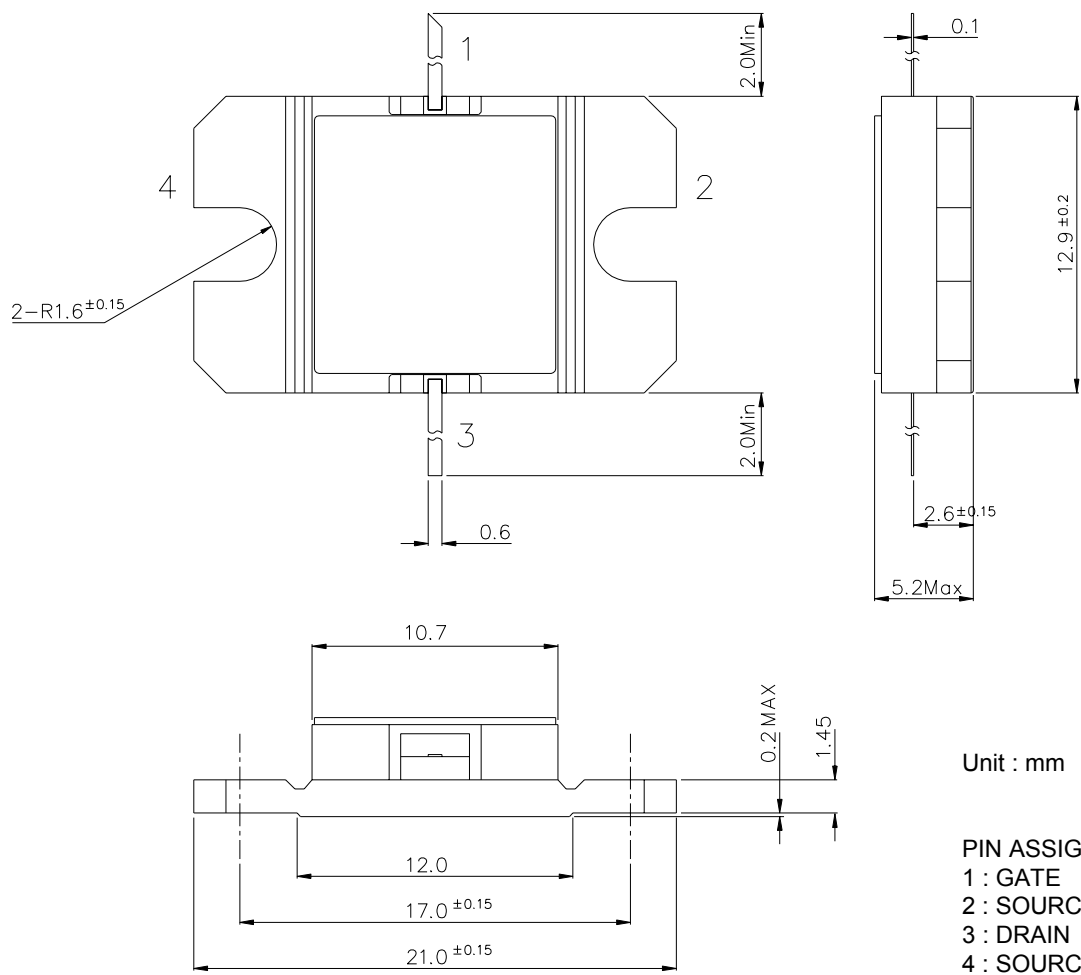
Freq.	S11		S21		S12		S22	
GHz	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
8.4	0.795	-169.9	2.386	-29.6	0.031	47.6	0.318	-127.4
8.5	0.777	178.3	2.459	-42.2	0.029	29.9	0.268	-149.3
8.6	0.753	165.8	2.524	-55.9	0.024	5.6	0.244	-177.6
8.7	0.718	154.1	2.582	-69.0	0.024	-28.6	0.257	151.5
8.8	0.682	140.5	2.583	-81.7	0.024	-55.5	0.298	126.6
8.9	0.639	128.7	2.562	-94.6	0.027	-85.8	0.354	107.8
9.0	0.612	114.7	2.544	-106.6	0.031	-108.8	0.402	93.8
9.1	0.569	101.1	2.530	-118.4	0.035	-132.1	0.439	83.6
9.2	0.545	87.9	2.503	-129.6	0.039	-149.9	0.467	75.2
9.3	0.514	73.5	2.473	-141.1	0.044	-164.7	0.481	69.1
9.4	0.499	60.2	2.470	-151.8	0.048	-178.2	0.494	64.4
9.5	0.477	44.5	2.464	-162.7	0.051	168.8	0.500	60.7
9.6	0.461	29.5	2.485	-174.2	0.054	158.0	0.499	58.2
9.7	0.445	12.7	2.526	174.5	0.061	145.6	0.496	55.9

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■ Package Out Line

CASE STYLE: IB



Unit : mm

PIN ASSIGMENT
1 : GATE
2 : SOURCE
3 : DRAIN
4 : SOURCE

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