

MGFX36V0717

10.7~11.7GHz BAND 4W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFX36V0717 is an internally impedance matched GaAs power FET especially designed for use in 10.7~11.7 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

- Internally impedance matched
- High output power
 $P_{1dB} = 4.0W$ (TYP.) @ $f = 10.7 \sim 11.7GHz$
- High linear power gain
 $G_{LP} = 8.0$ dB (TYP.) @ $f = 10.7 \sim 11.7GHz$
- High power added efficiency
 $\eta_{add} = 28\%$ (TYP.) @ $f = 10.7 \sim 11.7GHz$, P_{1dB}

APPLICATION

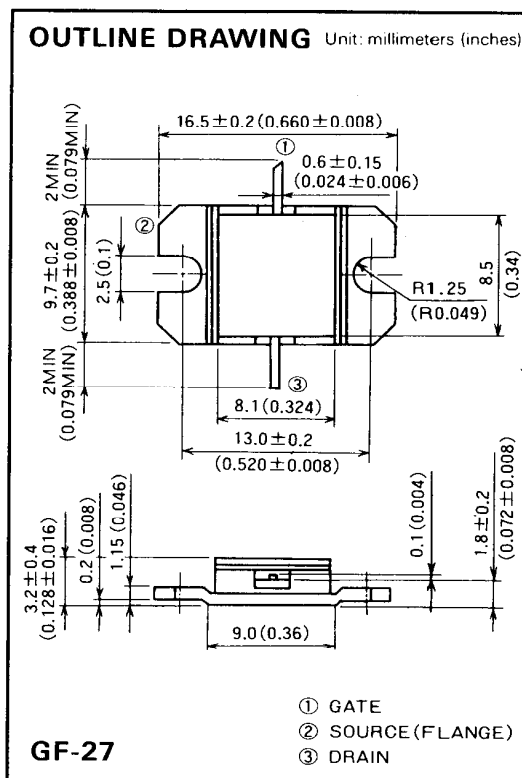
For use in 10.7~11.7GHz band amplifiers

QUALITY GRADE

- IG

RECOMMENDED BIAS CONDITIONS

- $V_{DS} = 10V$
- $I_D = 1.2A$
- Refer to Bias Procedure



ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ C$)

Symbol	Parameter	Rating	Unit
V_{GDO}	Gate to drain voltage	-15	V
V_{GSO}	Gate to source voltage	-15	V
I_D	Drain current	2.8	A
I_{GR}	Reverse gate current	- 9.0	mA
I_{GF}	Forward gate current	18.0	mA
P_T	Total power dissipation *1	27.2	W
T_{ch}	Channel temperature	175	$^\circ C$
T_{stg}	Storage temperature	-65 ~ +175	$^\circ C$

* 1: $T_c = 25^\circ C$

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

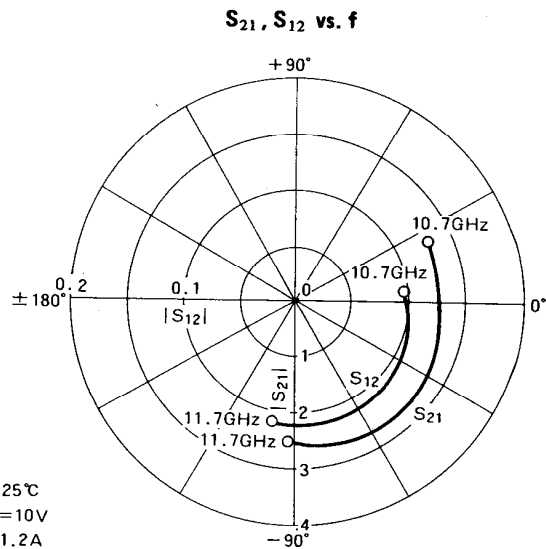
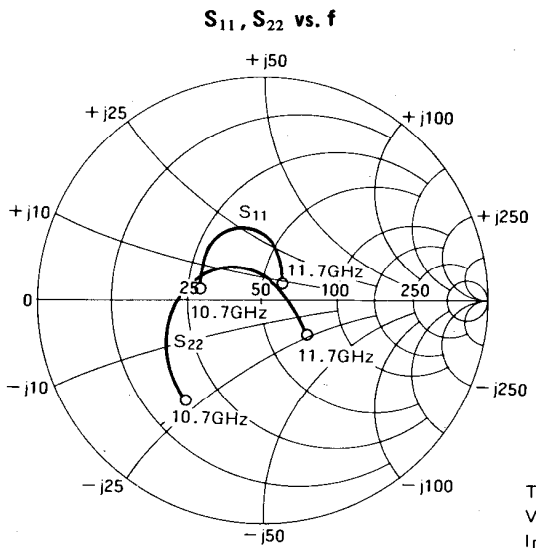
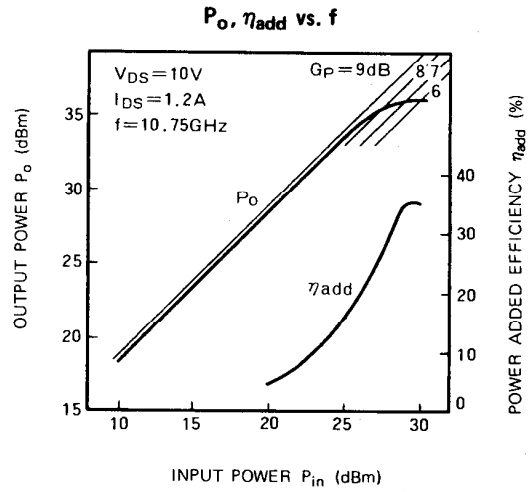
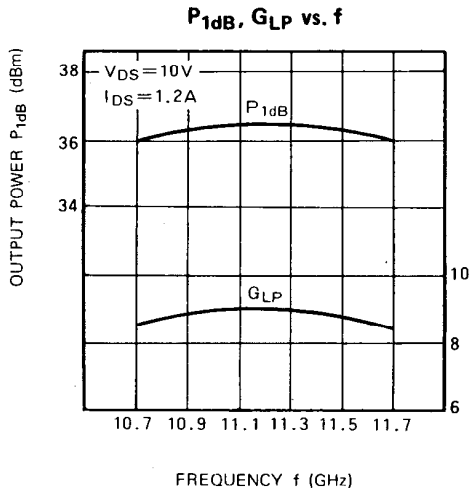
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{DSS}	Saturated drain current	$V_{DS} = 3V, V_{GS} = 0V$	—	2.0	2.8	A
g_m	Transconductance	$V_{DS} = 3V, I_D = 1.1A$	—	1.0	—	S
$V_{GS(off)}$	Gate to source cut-off voltage	$V_{DS} = 3V, I_D = 10mA$	-2	-3	-4	V
P_{1dB}	Output power at 1dB gain compression	$V_{DS} = 10V, I_D = 1.2A, f = 10.7 \sim 11.7GHz$	34.5	36	—	dBm
G_{LP}	Linear power gain		7.0	8.0	—	dB
η_{add}	Power added efficiency		—	28	—	%
$R_{th(ch-o)}$	Thermal resistance *1	ΔV_f method	—	—	5.5	$^\circ C/W$

* 1: Channel to case

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TYPICAL CHARACTERISTICS (Ta=25°C)



Ta=25°C
V_{DS}=10V
I_D=1.2A

S PARAMETERS (Ta=25°C, V_{DS}=10V, I_{DS}=1.2A)

f (GHz)	S Parameters (TYP.)							
	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	Magn.	Angle (deg.)	Magn.	Angle (deg.)	Magn.	Angle (deg.)	Magn.	Angle (deg.)
10.7	0.27	173	2.52	25	0.099	-5	0.62	-130
10.9	0.27	148	2.57	-3	0.115	-13	0.52	-148
11.1	0.28	122	2.67	-28	0.118	-35	0.36	-173
11.3	0.28	98	2.73	-51	0.120	-59	0.14	145
11.5	0.24	72	2.61	-73	0.119	-79	0.18	35
11.7	0.14	35	2.51	-91	0.115	-101	0.32	-35