

# 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

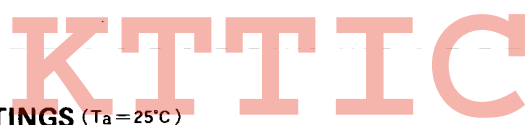
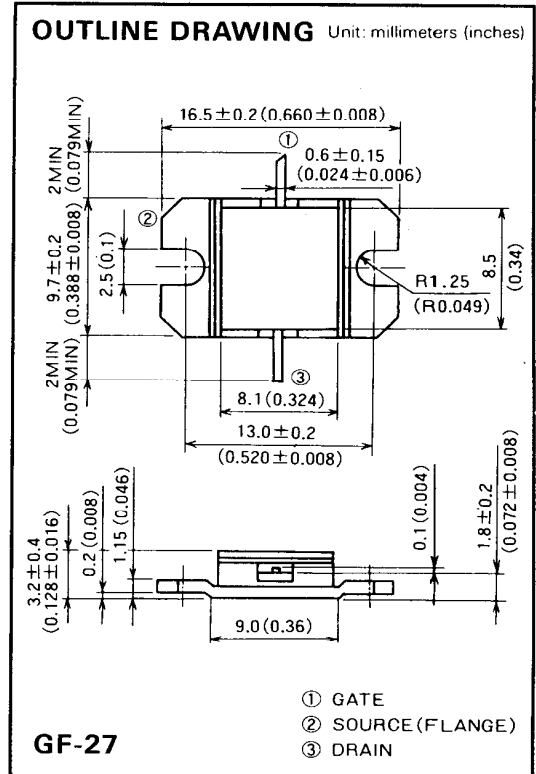
For use in 10.7~11.7GHz band amplifiers

### QUALITY GRADE

- IG

### RECOMMENDED BIAS CONDITIONS

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



### ABSOLUTE MAXIMUM RATINGS (Ta = 25°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	°C
$T_{stg}$	Storage temperature	-65 ~ +175	°C

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

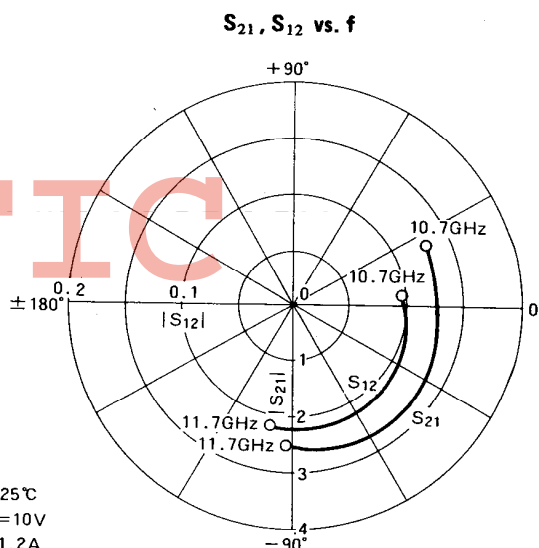
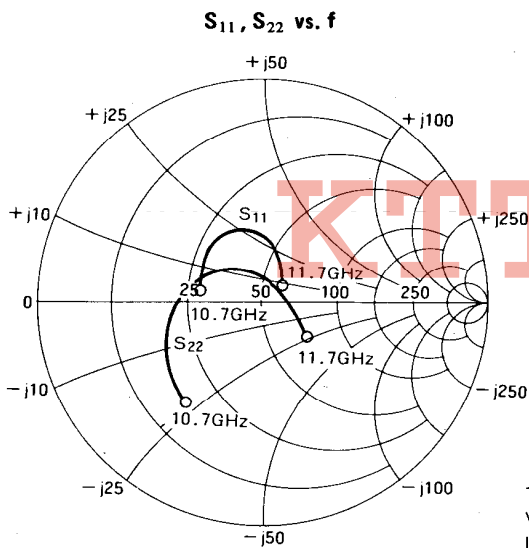
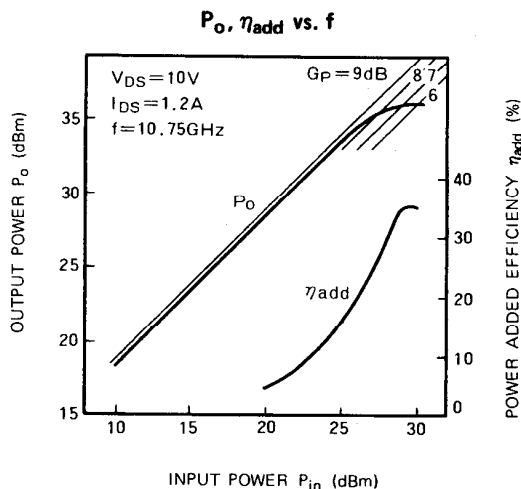
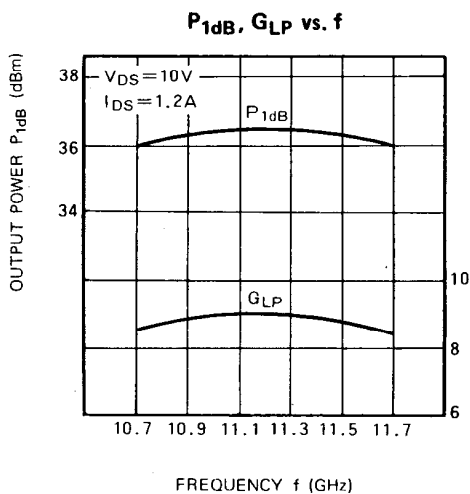
### ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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	$V_{DS} = 10V, I_D \approx 1.2A, f = 10.7 \sim 11.7GHz$	34.5	36	—	dBm
$G_{LP}$	Linear power gain		7.0	8.0	—	dB
$\eta_{add}$	Power added efficiency		—	28	—	%
$R_{th(ch-o)}$	Thermal resistance *1	$\Delta V_f$ method	—	—	5.5	°C/W

\* 1: Channel to case

**10.7~11.7GHz BAND 4W INTERNALLY MATCHED GaAs FET**

**TYPICAL CHARACTERISTICS** ( $T_a=25^\circ\text{C}$ )



$T_a=25^\circ\text{C}$   
 $V_{DS}=10\text{V}$   
 $I_D=1.2\text{A}$

**S PARAMETERS** ( $T_a=25^\circ\text{C}$ ,  $V_{DS}=10\text{V}$ ,  $I_{DS}=1.2\text{A}$ )

f (GHz)	S Parameters (TYP.)							
	S <sub>11</sub>		S <sub>21</sub>		S <sub>12</sub>		S <sub>22</sub>	
	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

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