

# MGFK35V4045

## 14.0-14.5GHz BAND 3W INTERNALLY MATCHED GaAs FET

### DESCRIPTION

The MGFK35V4045 is an internally impedance matched GaAs power FET especially designed for use in 14.0-14.5 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

### FEATURES

- Internally impedance matched
- Flip-chip mounted
- High output power  
P1dB = 3.5W(TYP.) @f=14.0-14.5GHz
- High linear power gain  
GLP = 6.4dB(TYP.) @f=14.0-14.5GHz
- High power added efficiency  
P.A.E. = 20%(TYP.) @f=14.0-14.5GHz

### APPLICATION

- For use in 14.0-14.5GHz band amplifiers

### QUALITY GRADE

- IG

### RECOMMENDED BIAS CONDITIONS

VDS = 10 (V)  
ID = 1.2 (A)  
Refer to Bias Procedure

### ABSOLUTE MAXIMUM RATINGS

(Ta=25deg.C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain voltage	-15	V
VGSO	Gate to source voltage	-15	V
ID	Drain current	3500	mA
IGR	Reverse gate current	-9	mA
IGF	Forward gate current	18	mA
PT *1	Total power dissipation	33.3	W
Tch	Channel temperature	175	deg.C
Tstg	Storage temperature	-65 / +175	deg.C

\*1 : Tc=25deg.C

### ELECTRICAL CHARACTERISTICS

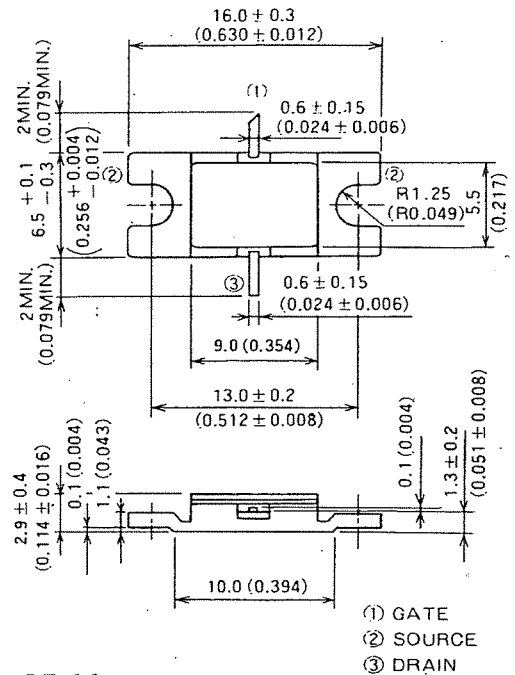
(Ta=25deg.C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	2000	27000	3500	mA
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=10mA	-2	-	-5	V
gm	Transconductance	VDS=3V, ID=1200mA	700	1000	-	mS
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=1200mA, f=14.0 - 14.5GHz	34.5	35.4	-	dBm
GLP	Linear power gain		5.5	6.4	-	dB
P.A.E.	Power added efficiency		-	20	-	%
Rth (Ch-C)	Thermal resistance *1	Delta Vf method	-	-	4.5	deg.C/W

\*1 : Channel to case

### OUTLINE DRAWING

Unit: millimeters (inches)



GF-14

< Keep safety first in your circuit designs! >

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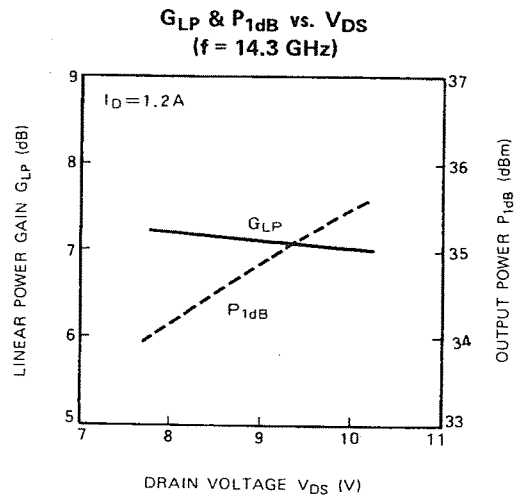
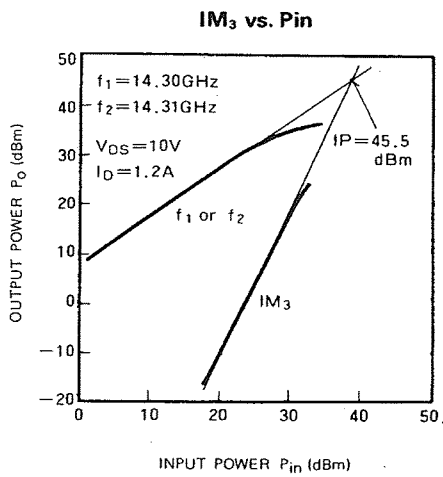
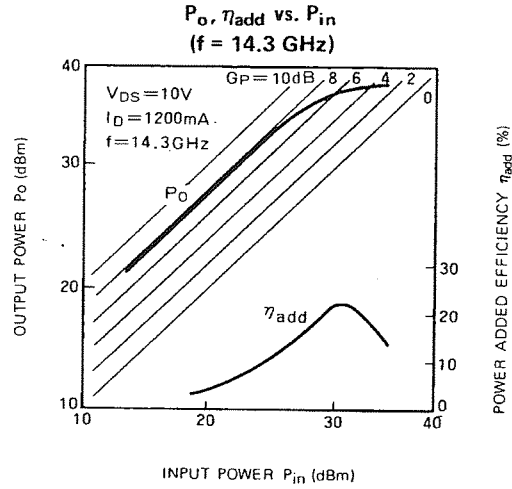
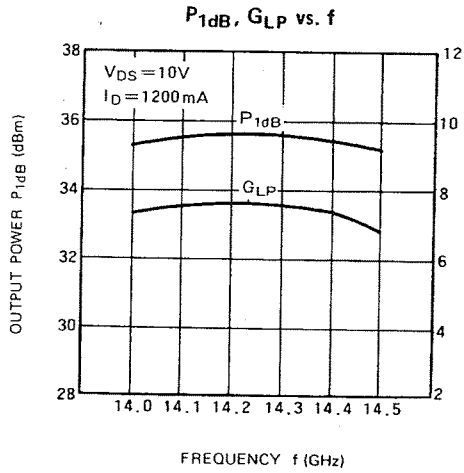


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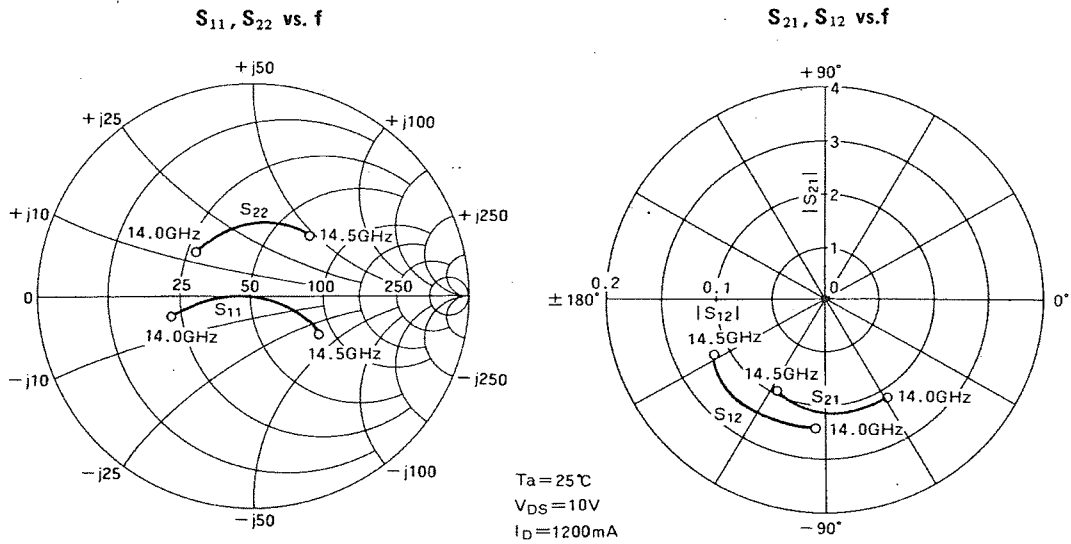
Nov-'03

**14.0~14.5GHz BAND 3W INTERNALLY MATCHED GaAs FET**

**TYPICAL CHARACTERISTICS (Ta=25°C)**



**14.0~14.5GHz BAND 3W INTERNALLY MATCHED GaAs FET**



**S PARAMETERS** (Ta=25°C, V<sub>DS</sub>=10V, I<sub>D</sub>=1200mA)

f (GHz)	S Parameters (TYP.)							
	S <sub>11</sub>		S <sub>12</sub>		S <sub>12</sub>		S <sub>22</sub>	
	Magn.	Angle (deg.)	Magn.	Angle (deg.)	Magn.	Angle (deg.)	Magn.	Angle (deg.)
14.0	0.391	-164	2.089	-58	0.137	-94	0.324	139
14.1	0.224	-173	2.163	-70	0.139	-105	0.322	117
14.2	0.091	176	2.188	-82	0.141	-118	0.331	98
14.3	0.052	-3	2.163	-93	0.143	-130	0.342	78
14.4	0.198	-22	2.113	-105	0.140	-141	0.362	62
14.5	0.337	-32	1.995	-117	0.127	-152	0.397	47

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