MITSUBISHI ELECTRIC

< X/Ku band internally matched power GaAs FET >

MGFK44A4045

14.0 – 14.5 GHz BAND / 25W

DESCRIPTION

The MGFK44A4045 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

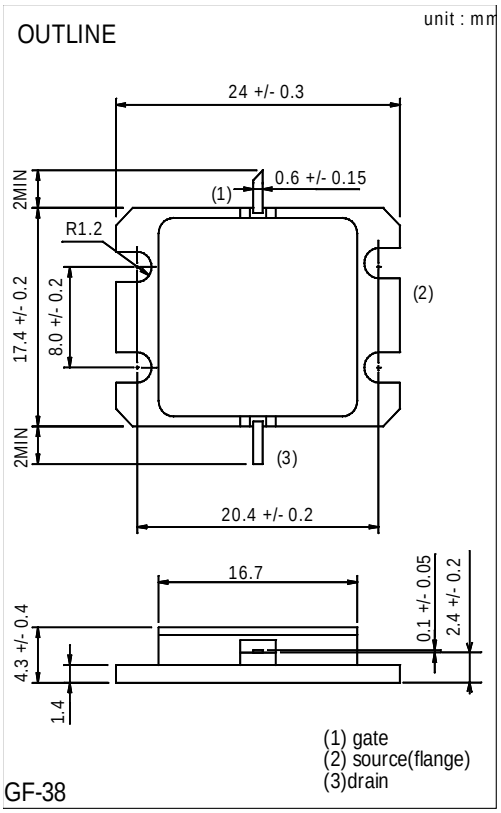
Internally impedance matched
- High output power
  P1dB=44dBm (TYP.) @f=14.0 – 14.5GHz
- High linear power gain
  GLP=6.0dB (TYP.) @f=14.0 – 14.5GHz

APPLICATION

- For use in 14.0 – 14.5 GHz band amplifiers

QUALITY GRADE

- IG



RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=6.0A • RG=25ohm

Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain breakdown voltage	-15	V
VGSO	Gate to source breakdown voltage	-10	V
ID	Drain current	20	A
IGR	Reverse gate current	-72	mA
IGF	Forward gate current	144	mA
PT *1	Total power dissipation	100	W
Tch	Cannel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

*1 : Tc=25°C

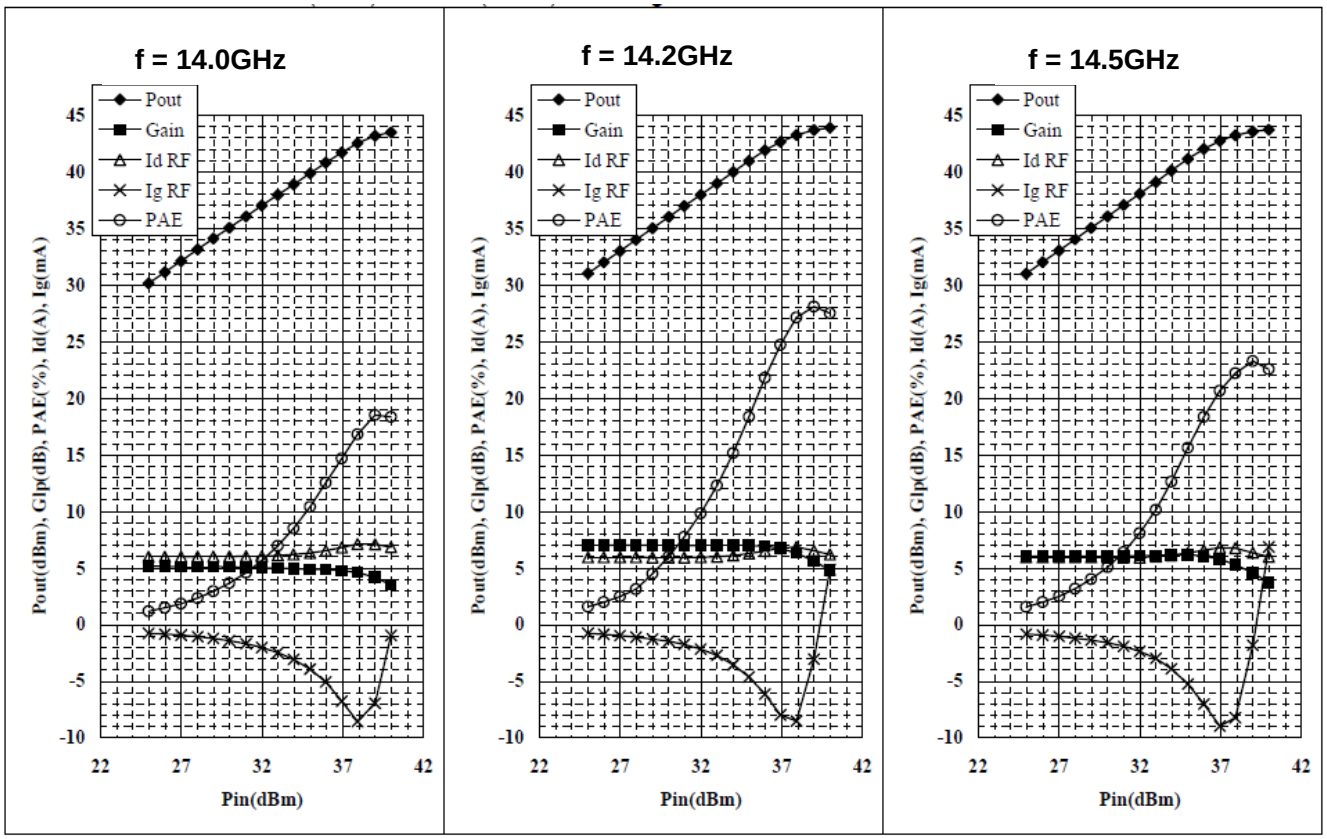
Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VG=0V	-	16	-	A
gm	Transconductance	VDS=0V,ID=6.0A	-	6	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=80mA	-1	-1.5	-4	V
P1dB	Output power at 1dB gain compression	VDS=10V,ID(RF off)=6.0A	43	44	-	dBm
GLP	Linear Power Gain	f=14.0 – 14.5GHz	5	6	-	dB
PAE	Power added efficiency		-	17	-	%
Rth(ch-c) *2	Thermal resistance	delta Vf method	-	1.2	1.5	°C/W

*2 : Channel-case

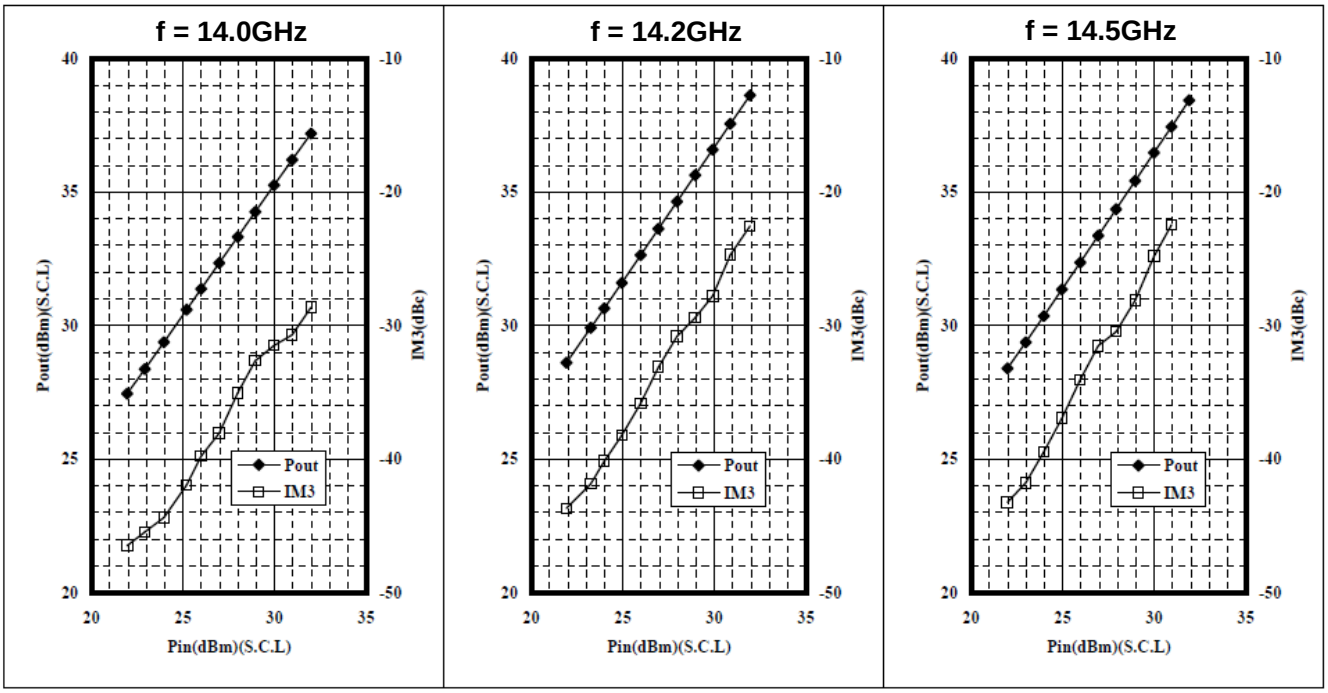
MGFK44A4045 TYPICAL CHARACTERISTICS

Pout, Glp, PAE, Id, Ig vs. Pin



Test Condition : Vds=10V,Idq=6.0A, Rg=50ohm,Ta=25deg.C

Pout , IM3 vs. Pin



Test Condition : Vds=10V,Idq=6.0A,Rg=50ohm,Ta=25deg.C
2-tone test, Δf=10MHz

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