

< High-power GaAs FET (small signal gain stage) >

MGF2430A

S to Ku BAND / 1.1W

non - matched

DESCRIPTION

The MGF2430A, power GaAs FET with an N-channel schottky gate, is designed for use in S to Ku band amplifiers.

FEATURES

- High output power
Po=30.5dBm(TYP.) @f=14.5GHz
- High linear power gain
GLP=6.5dB(TYP.) @f=14.5GHz
- High power added efficiency
P.A.E.=27%(TYP.) @f=14.5GHz,P1dB

APPLICATION

- S to Ku Band power amplifiers

QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=300mA Refer to Bias Procedure

Absolute maximum ratings (Ta=25°C)

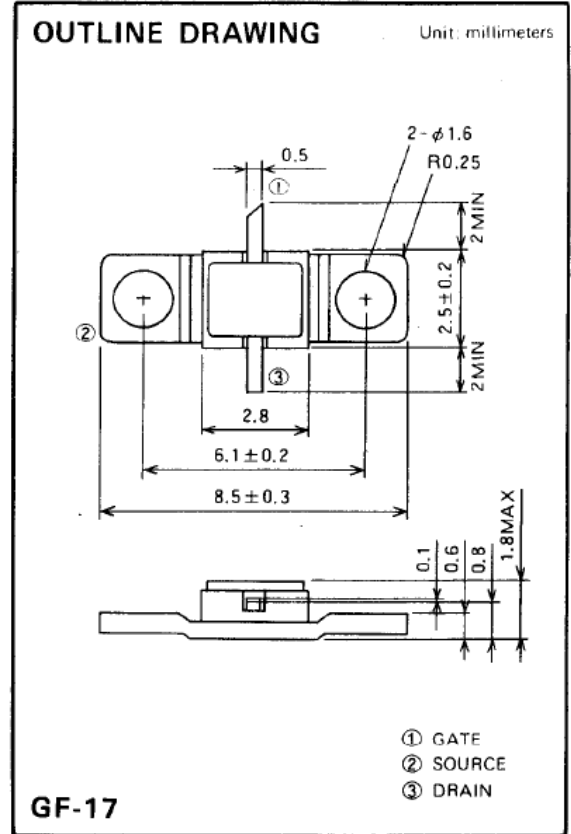
| Symbol | Parameter | Ratings | Unit |
|--------|-------------------------|-------------|------|
| VGDO | Gate to drain voltage | -15 | V |
| VGSO | Gate to source voltage | -15 | V |
| ID | Drain current | 800 | mA |
| IGR | Reverse gate current | -2.4 | mA |
| IGF | Forward gate current | 10 | mA |
| PT*1 | Total power dissipation | 5 | W |
| Tch | Channel 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,VGS=0V | 400 | 600 | 800 | mA |
| gm | Transconductance | VDS=3V,ID=300mA | 200 | 260 | - | mS |
| VGS(off) | Gate to source cut-off voltage | VDS=3V,ID=2mA | -1 | -2.5 | -4 | V |
| P1dB | Output power | VDS=10V,ID(RF off)=300mA | 29 | 30.5 | - | dBm |
| GLP | Linear power gain | f=14.5GHz | 5.5 | 6.5 | - | dB |
| P.A.E. | Power added efficiency | | - | 27 | - | % |
| Rth(ch-c) *2 | Thermal resistance | Δ Vf method | - | - | 30 | °C/W |

*2 :Channel-case



Keep Safety first in your circuit designs!

Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measure such as (i) placement of substitutive, auxiliary circuits, (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.

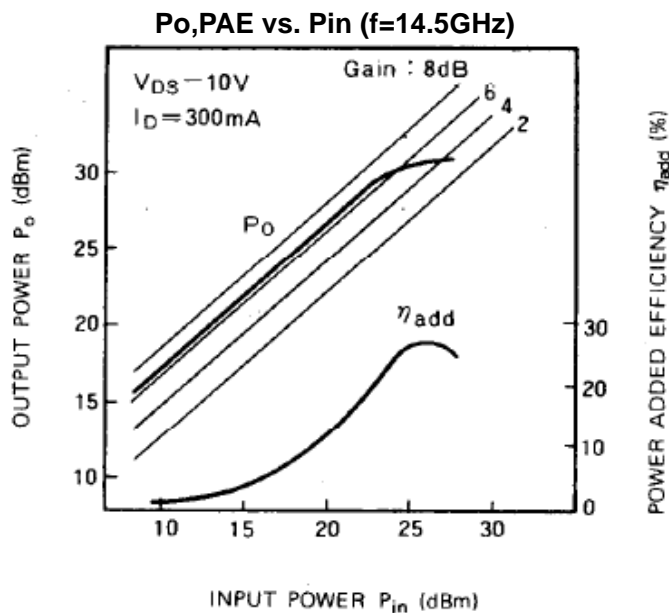
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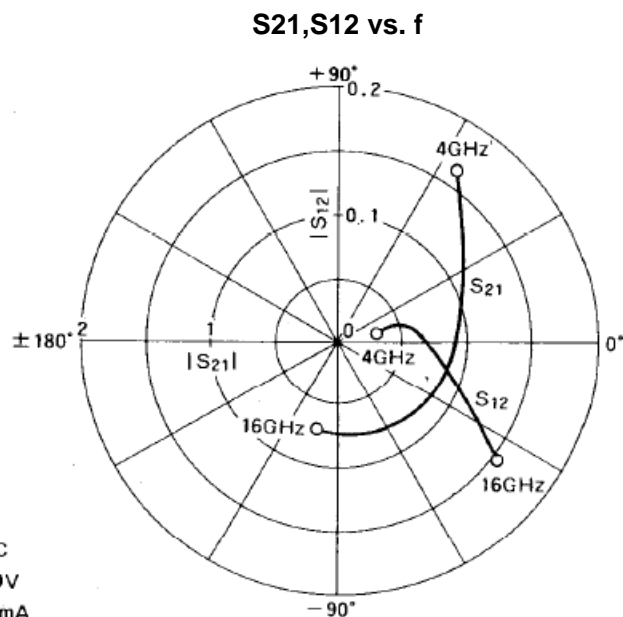
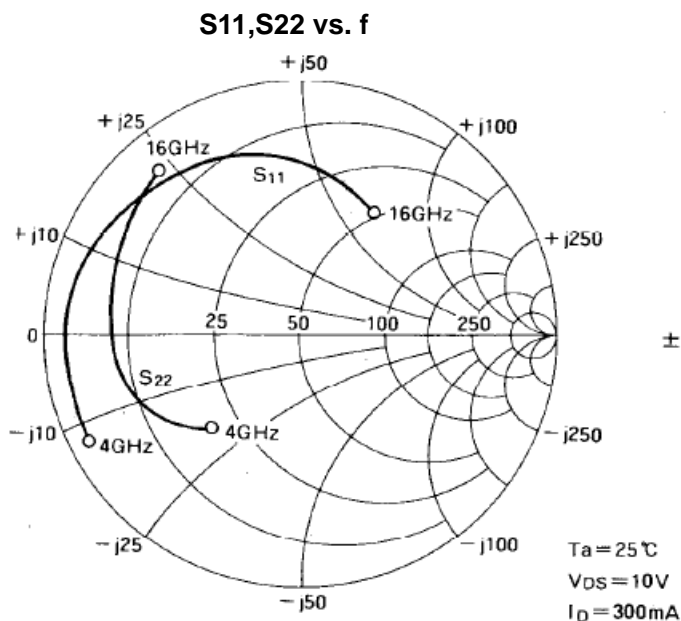
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MGF2430A TYPICAL CHARACTERISTICS(Ta=25deg.C)



MGF2430A S-parameters(Ta=25deg.C , V_{DS}=10(V), I_{DS}=300(mA))



| f (GHz) | S Parameters(Typ.) | | | | | | | | | |
|------------|--------------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-------|---------|
| | S ₁₁ | | S ₂₁ | | S ₁₂ | | S ₂₂ | | K | MSG/MAG |
| | Magn. | Angle(deg.) | Magn. | Angle(deg.) | Magn. | Angle(deg.) | Magn. | Angle(deg.) | - | dB |
| 4 | 0.934 | -153.0 | 1.641 | 57.0 | 0.030 | 18.0 | 0.513 | -132.0 | 0.501 | 17.4 |
| 6 | 0.900 | -168.0 | 1.109 | 34.0 | 0.035 | 19.0 | 0.620 | -142.0 | 0.969 | 15.0 |
| 8 | 0.853 | 173.0 | 0.927 | 13.0 | 0.043 | 20.0 | 0.699 | -161.5 | 0.811 | 13.3 |
| 10 | 0.813 | 153.0 | 0.830 | -13.0 | 0.052 | 18.5 | 0.723 | 180.0 | 1.008 | 11.5 |
| 12 | 0.750 | 131.5 | 0.788 | -41.0 | 0.058 | 13.0 | 0.754 | 162.0 | 1.331 | 7.9 |
| 14 | 0.790 | 105.0 | 0.730 | -69.0 | 0.083 | -7.5 | 0.783 | 146.0 | 1.108 | 7.4 |
| 16 | 0.530 | 61.0 | 0.689 | -104.0 | 0.153 | -37.0 | 0.836 | 132.0 | 0.681 | 6.5 |

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