

# MGFC36V4450A

## 4.4 ~ 5.0GHz BAND 4W INTERNALLY MATCHED GaAs FET

### DESCRIPTION

The MGFC36V4450A is an internally impedance-matched GaAs power FET especially designed for use in 4.4 ~ 5.0 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

### FEATURES

- Class A operation
- Internally matched to 50(ohm) system
- High output power  
P1dB = 4W (TYP.) @ f=4.4~5.0GHz
- High power gain  
GLP = 12 dB (TYP.) @ f=4.4~5.0GHz
- High power added efficiency  
P.A.E. = 32 % (TYP.) @ f=4.4~5.0GHz
- Low distortion [ item -51 ]  
IM3= -45 dBc(TYP.) @Po=25dBm S.C.L.

### APPLICATION

- item 01 : 4.4~5.0 GHz band power amplifier
- item 51 : 4.4~5.0 GHz band digital radio communication

### QUALITY GRADE

IG

### RECOMMENDED BIAS CONDITIONS

- VDS = 10 (V)
- ID = 1.2(A)      Refer to Bias Procedure
- RG= 100 (ohm)

### ABSOLUTE MAXIMUM RATINGS (Ta=25 deg.C)

| Symbol | Parameter                  | Ratings    | Unit  |
|--------|----------------------------|------------|-------|
| VGDO   | Gate to drain voltage      | -15        | V     |
| VGSO   | Gate to source voltage     | -15        | V     |
| ID     | Drain current              | 3.75       | A     |
| IGR    | Reverse gate current       | -10        | mA    |
| IGF    | Forward gate current       | 21         | mA    |
| PT     | Total power dissipation *1 | 25         | W     |
| Tch    | Channel temperature        | 175        | deg.C |
| Tstg   | Storage temperature        | -65 / +175 | deg.C |

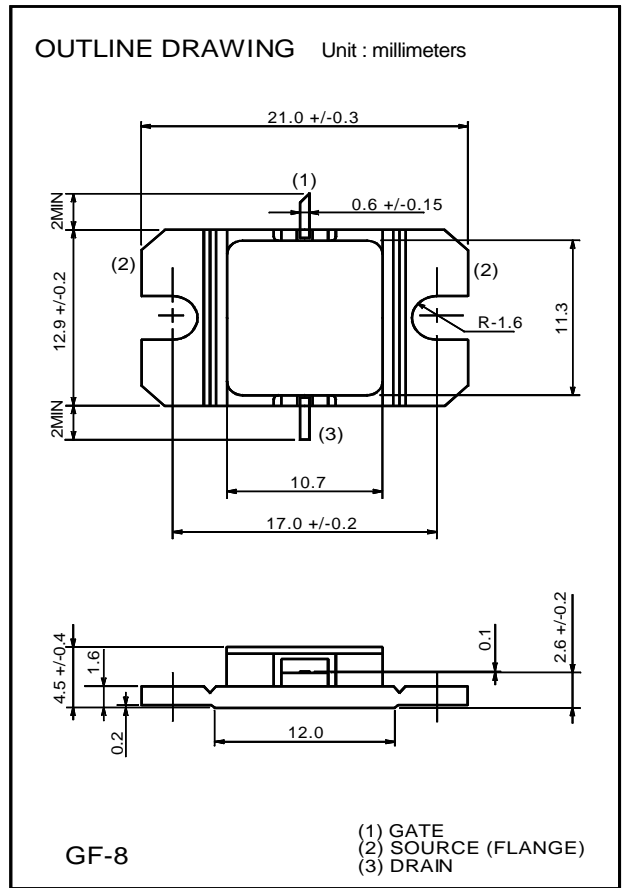
\*1 : Tc=25 deg.C

### ELECTRICAL CHARACTERISTICS (Ta=25 deg.C)

| Symbol    | Parameter                            | Test conditions                        | Limits          |      |      | Unit |         |
|-----------|--------------------------------------|--|-----------------|------|------|------|---------|
|           |                                      |  | Min.            | Typ. | Max. |      |         |
| IDSS      | Saturated drain current              | VDS=3V, VGS=0V                         | -               | -    | 3.75 | A    |         |
| gm        | Transconductance                     | VDS=3V, ID=1.1A                        | -               | 1    | -    | S    |         |
| VGS(off)  | Gate to source cut-off voltage       | VDS=3V, ID=10mA                        | -               | -    | -4.5 | V    |         |
| P1dB      | Output power at 1dB gain compression | VDS=10V, ID(RF off)=1.2A, f=4.4~5.0GHz | 35              | 37   | -    | dBm  |         |
| GLP       | Linear power gain                    |  | 9               | 12   | -    | dB   |         |
| ID        | Drain current                        |  | -               | -    | 1.8  | A    |         |
| P.A.E.    | Power added efficiency               |  | -               | 32   | -    | %    |         |
| IM3       | 3rd order IM distortion *1           |  | -42             | -45  | -    | dBc  |         |
| Rth(ch-c) | Thermal resistance *2                |  | Delta Vf method | -    | 5    | 6    | deg.C/W |

\*1 : item -51, 2 tone test, Po=25dBm Single Carrier Level, f=5GHz, Delta f=10MHz

\*2 : Channel to case



< Keep safety first in your circuit designs! >  
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**MGFC36V4450A****4.4 ~ 5.0GHz BAND 4W INTERNALLY MATCHED GaAs FET****Requests Regarding Safety Designs**

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