

MGFC42V4450

4.4 ~ 5.0GHz BAND 16 W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFC42V4450 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 = 16W (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=31dBm 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 = 4.5(A) Refer to Bias Procedure
- RG= 25 (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 | 15 | A |
| IGR | Reverse gate current | -40 | mA |
| IGF | Forward gate current | 84 | mA |
| PT | Total power dissipation *1 | 78.9 | 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)

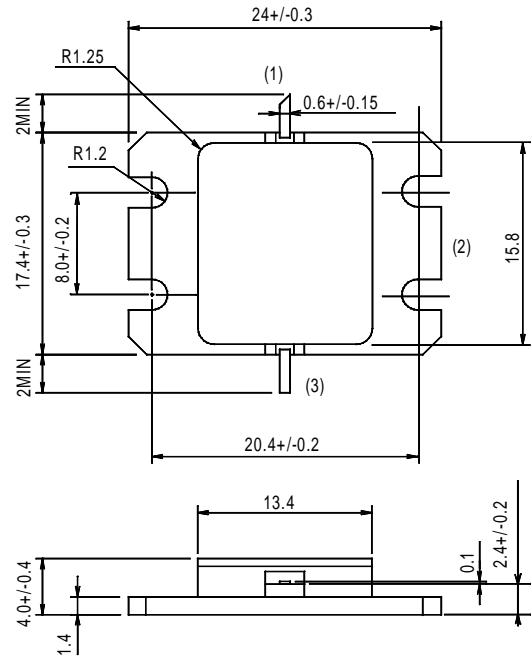
| Symbol | Parameter | Test conditions | Limits | | | Unit |
|-----------|--------------------------------------|--|-----------------|------|------|------|
| | | | Min. | Typ. | Max. | |
| IDSS | Saturated drain current | VDS=3V, VGS=0V | - | 9 | 12 | A |
| gm | Transconductance | VDS=3V, ID=4.4 A | - | 4 | - | S |
| VGS(off) | Gate to source cut-off voltage | VDS=3V, ID=80mA | -2 | -3 | -4 | V |
| P1dB | Output power at 1dB gain compression | VDS=10V, ID(RF off)=4.5A, f=4.4~5.0GHz | 41.5 | 42.5 | - | dBm |
| GLP | Linear power gain | | 9 | 12 | - | dB |
| ID | Drain current | | - | 5.4 | - | 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 | - | - | 1.9 |

*1 : item -51, 2 tone test, Po=31dBm Single Carrier Level, f=5GHz, Delta f=10MHz

*2 : Channel to case

OUTLINE DRAWING

Unit: millimeters (inches)



GF-18

- (1): GATE
- (2): SOURCE (FLANGE)
- (3): DRAIN

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MGFC42V4450**4.4 ~ 5.0GHz BAND 16 W INTERNALLY MATCHED GaAs FET****Requests Regarding Safety Designs**

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