

< C band internally matched power GaAs FET >

MGFC45V5867

5.8 – 6.75 GHz BAND / 30W

DESCRIPTION

The MGFC45V5867 is an internally impedance-matched GaAs power FET especially designed for use in 5.8 – 6.75 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

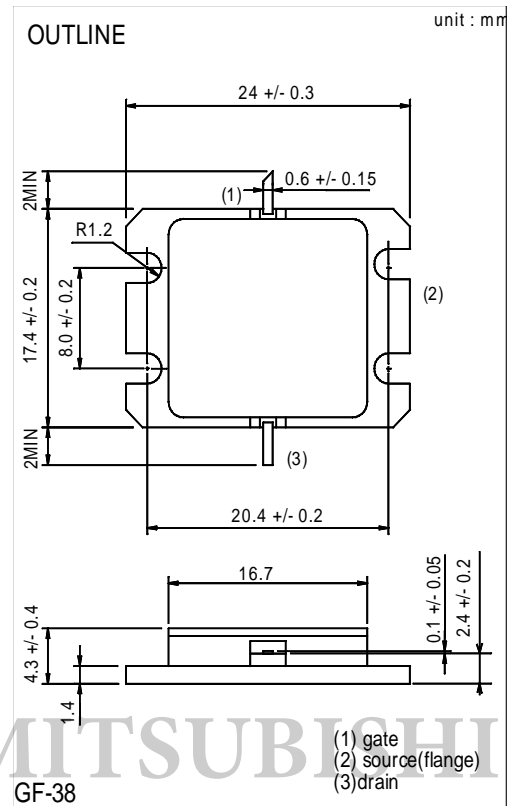
Class A operation

Internally matched to 50(ohm) system

- High output power
P1dB=30W (TYP.) @f=5.8 – 6.75GHz
- High power gain
GLP=9dB (TYP.) @f=5.8 – 6.75GHz

APPLICATION

- VSAT



RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=8.0A • 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 | -15 | V |
| ID | Drain current | 20 | A |
| IGR | Reverse gate current | -80 | mA |
| IGF | Forward gate current | 168 | mA |
| PT *1 | Total power dissipation | 150 | 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 | - | 24 | - | A |
| gm | Transconductance | VDS=3V, ID=8A | - | 8 | - | S |
| VGS(off) | Gate to source cut-off voltage | VDS=3V, ID=160mA | - | - | -5 | V |
| P1dB | Output power at 1dB gain compression | VDS=10V, ID(RF off)=8A | 43.5 | 45 | - | dBm |
| GLP | Linear Power Gain | f=5.8 – 6.75GHz | 7 | 9 | - | dB |
| ID | Drain current | | - | 8 | - | A |
| P.A.E. | Power added efficiency | | - | 35 | - | % |
| Rth(ch-c) *2 | Thermal resistance | delta Vf method | - | - | 1 | °C/W |

*2 : Channel-case

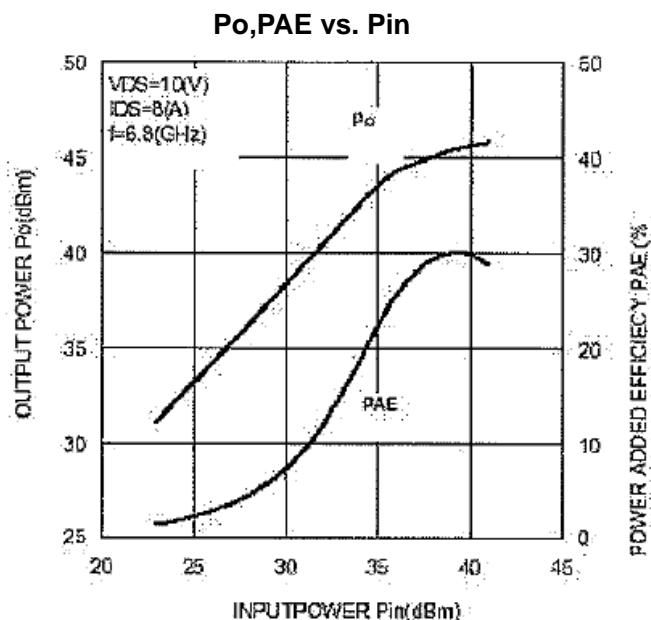
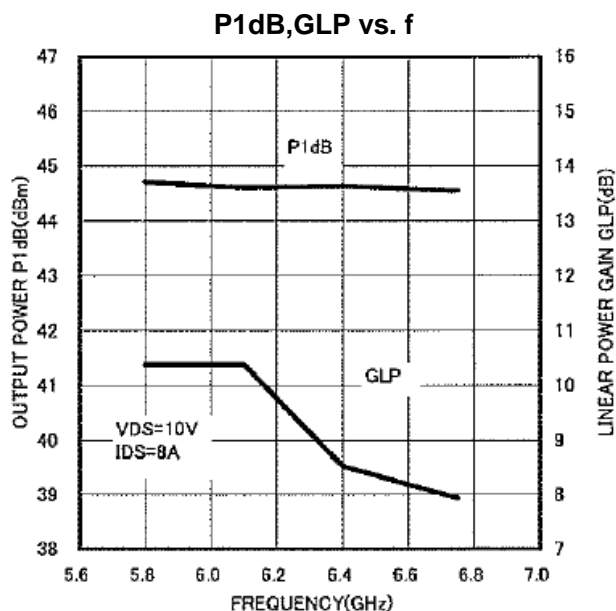
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MGFC45V5867 TYPICAL CHARACTERISTICS(Ta=25deg.C)



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MGFC45V5867 S-parameters(Ta=25deg.C , VDS=10(V),IDS=8.0(A))

| f (GHz) | S Parameters(Typ.) | | | | | | | |
|------------|--------------------|-------------|-------|-------------|-------|-------------|-------|-------------|
| | S11 | | S21 | | S12 | | S22 | |
| | Magn. | Angle(deg.) | Magn. | Angle(deg.) | Magn. | Angle(deg.) | Magn. | Angle(deg.) |
| 5.8 | 0.579 | -151 | 3.261 | -18 | 0.023 | -119 | 0.088 | -9 |
| 5.9 | 0.489 | 177 | 3.394 | -41 | 0.037 | -129 | 0.118 | 27 |
| 6.0 | 0.423 | 142 | 3.387 | -63 | 0.048 | -147 | 0.173 | 31 |
| 6.1 | 0.399 | 108 | 3.280 | -83 | 0.057 | -164 | 0.217 | 25 |
| 6.2 | 0.404 | 79 | 3.129 | -102 | 0.065 | -176 | 0.241 | 19 |
| 6.3 | 0.417 | 56 | 3.002 | -120 | 0.071 | 169 | 0.252 | 12 |
| 6.4 | 0.428 | 38 | 2.866 | -136 | 0.077 | 155 | 0.253 | 5 |
| 6.5 | 0.431 | 22 | 2.774 | -152 | 0.081 | 143 | 0.250 | -2 |
| 6.6 | 0.422 | 8 | 2.715 | -168 | 0.084 | 131 | 0.239 | -9 |
| 6.7 | 0.403 | -7 | 2.685 | 177 | 0.090 | 117 | 0.220 | -21 |
| 6.8 | 0.361 | -23 | 2.679 | 161 | 0.095 | 105 | 0.201 | -36 |

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