

< L/S band internally matched power GaAs FET >

MGFS45B2527B

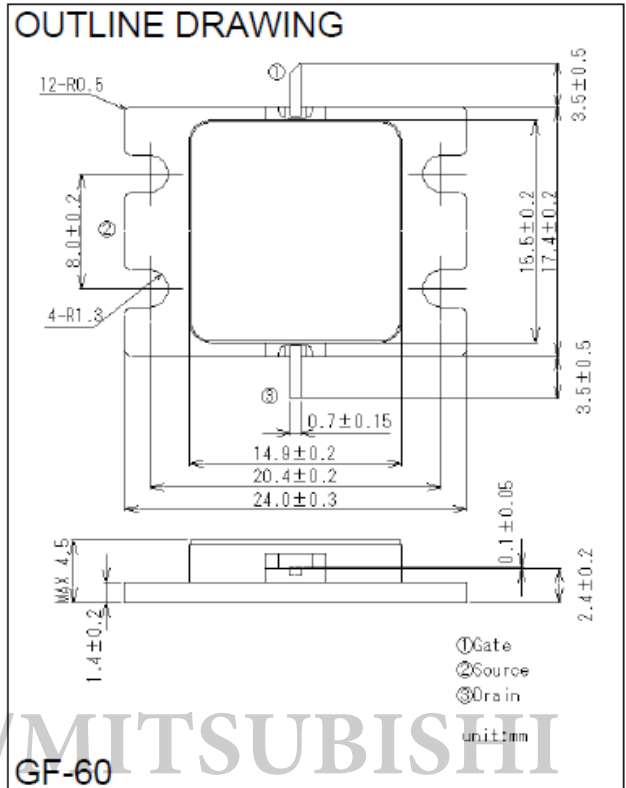
2.5 – 2.7 GHz BAND / 30W

DESCRIPTION

The MGFS45B2527B is an internally impedance-matched GaAs power FET especially designed for use in 2.5 – 2.7 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

- Class AB operation
- Internally matched to 50(ohm) system
- High output power
Po(SAT)=30W (TYP.) @f=2.5 – 2.7GHz
- High power gain
GLP=12.5dB (TYP.) @f=2.5 – 2.7GHz
- Distortion
EVM=1.0% (TYP.) @f=2.5 – 2.7GHz, Po=34dBm
EVM=2.0% (TYP.) @f=2.5 – 2.7GHz, Po=37dBm



RECOMMENDED BIAS CONDITIONS

- VDS=12V • ID=0.9A • RG=10ohm

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 |
| MAXID | Maximum drain current | 10 | A |
| PT *1 | Total power dissipation | 78 | W |
| Tch | Channel temperature | 175 | °C |
| Tstg | Storage temperature | -55 to +150 | °C |

*1 : Tc=25°C

Electrical characteristics (Ta=25°C)

| Symbol | Parameter | Test conditions | Limits | | | Unit |
|--------------|--------------------------------|--|--------|------|------|------|
| | | | Min. | Typ. | Max. | |
| VGS(off) | Gate to source cut-off voltage | VDS=3V, ID=100mA | -0.5 | - | -3.0 | V |
| Po(SAT) | Output Power | VDS=12V, ID(RF off)=0.9A f=2.5 – 2.7GHz | - | 45 | - | dBm |
| GLP | Power Gain | VDS=12V, ID(RF off)=0.9A | 10.0 | 12.5 | - | dB |
| ID | Drain current | f=2.5 – 2.7GHz, Pout=34dBm | - | 1.2 | 1.5 | A |
| EVM *2 | Error Vector Magnitude | | - | 1.0 | 2.0 | % |
| Rth(ch-c) *3 | Thermal resistance | delta Vf method | - | 1.2 | 1.9 | °C/W |

*2 : WiMAX Downlink, 64QAM-3/4, Channel Bandwidth:6MHz

*3 : Channel-case

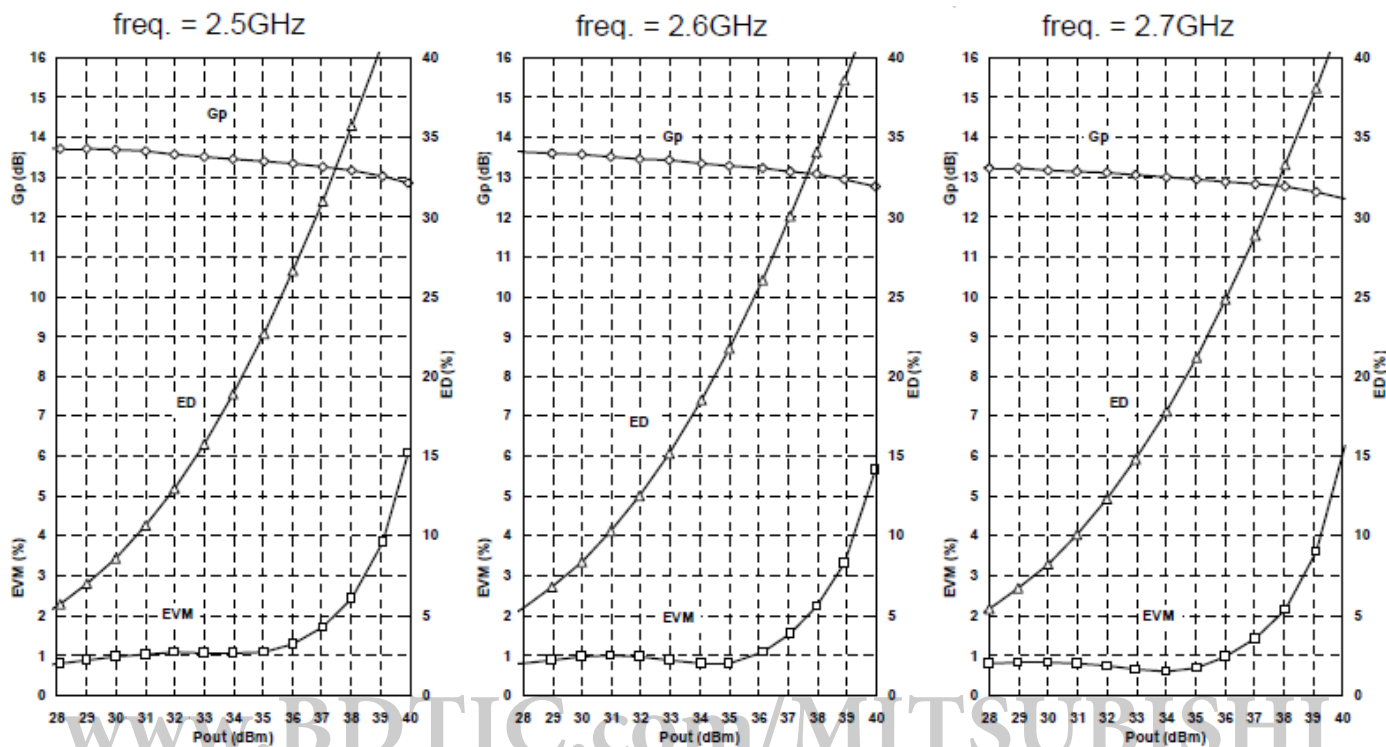
Keep Safety first in your circuit designs!
Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property 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.

MGFS45B2527B

2.5 – 2.7 GHz BAND / 30W

MGFS45B2527B TYPICAL CHARACTERISTICS

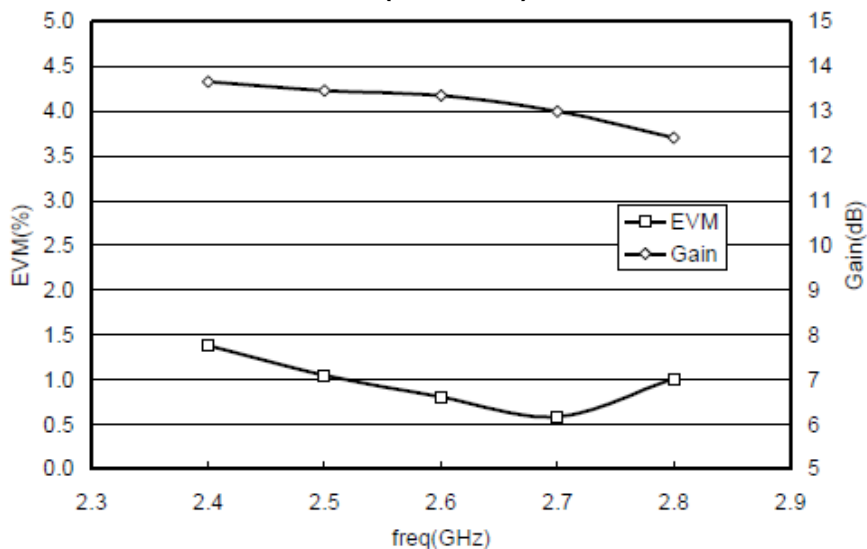
EVM, GP, ED (@WiMAX) vs. Pout



Test Condition

Vds=12V, Idq=0.9A, Ta=25deg.C
 WiMAX: 64QAM-3/4, Bw=6MHz

EVM, Gain (@WiMAX) vs. f



Test Condition

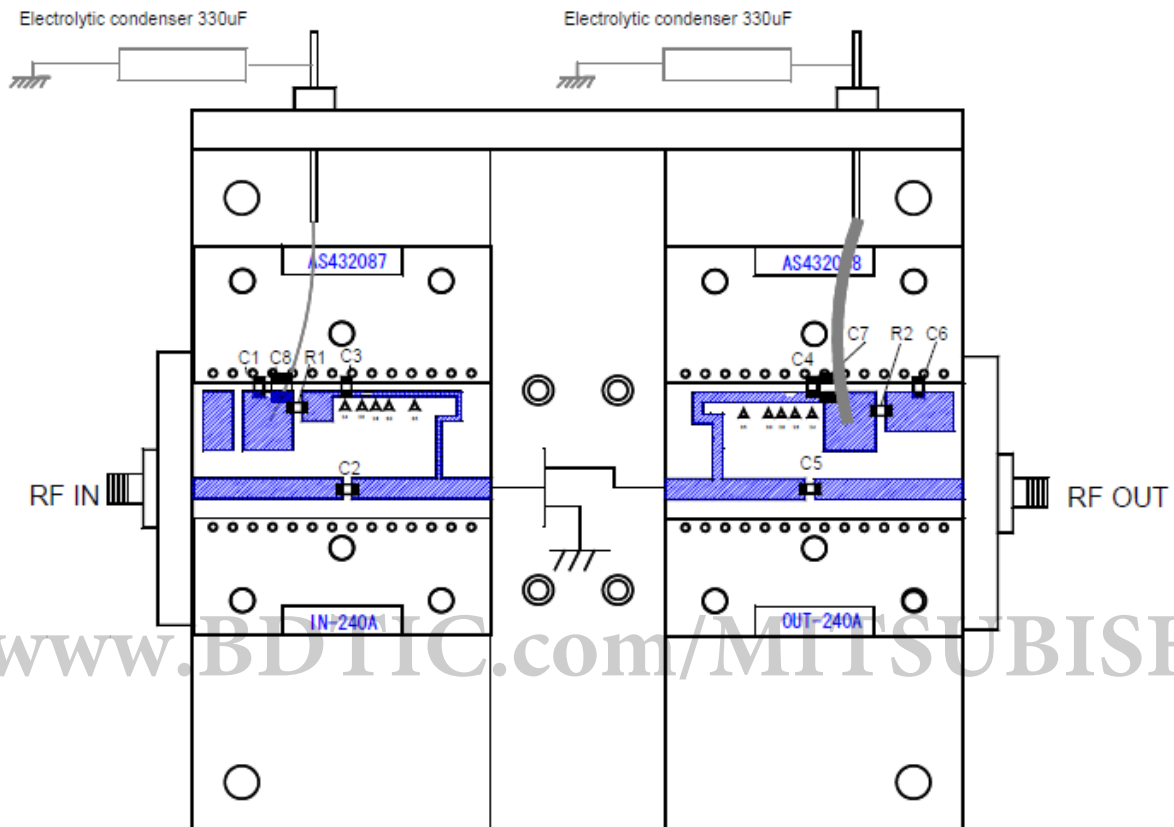
Vds=12V, Idq=0.9A, Pout=34dBm, Ta=25deg.C
 WiMAX: 64QAM-3/4, Bw=6MHz

< L/S band internally matched power GaAs FET >

MGFS45B2527B

2.5 – 2.7 GHz BAND / 30W

MGFS45B2527B RF TEST FIXTURE



C1,C6=1000pF

C3,C4=20pF

C2,C5=20pF

C7=470nF

C8=100nF

R1=CR10 10ohm

R2=CR10 51ohm

Board material :Teflon, t=0.8mm, Specific dielectric constant=2.6

UNIT:(mm)

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 measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.

Notes regarding these materials

- These materials are intended as a reference to assist our customers in the selection of the Mitsubishi semiconductor product best suited to the customer's application; they do not convey any license under any intellectual property rights, or any other rights, belonging to Mitsubishi Electric Corporation or a third party.
- Mitsubishi Electric Corporation assumes no responsibility for any damage, or infringement of any third-party's rights, originating in the use of any product data, diagrams, charts, programs, algorithms, or circuit application examples contained in these materials.
- All information contained in these materials, including product data, diagrams, charts, programs and algorithms represents information on products at the time of publication of these materials, and are subject to change by Mitsubishi Electric Corporation without notice due to product improvements or other reasons. It is therefore recommended that customers contact Mitsubishi Electric Corporation or an authorized Mitsubishi Semiconductor product distributor for the latest product information before purchasing a product listed herein.

The information described here may contain technical inaccuracies or typographical errors. Mitsubishi Electric Corporation assumes no responsibility for any damage, liability, or other loss rising from these inaccuracies or errors.

Please also pay attention to information published by Mitsubishi Electric Corporation by various means, including the Mitsubishi Semiconductor home page (<http://www.MitsubishiElectric.com/>).

- When using any or all of the information contained in these materials, including product data, diagrams, charts, programs, and algorithms, please be sure to evaluate all information as a total system before making a final decision on the applicability of the information and products. Mitsubishi Electric Corporation assumes no responsibility for any damage, liability or other loss resulting from the information contained herein.
- Mitsubishi Electric Corporation semiconductors are not designed or manufactured for use in a device or system that is used under circumstances in which human life is potentially at stake. Please contact Mitsubishi Electric Corporation or an authorized Mitsubishi Semiconductor product distributor when considering the use of a product contained herein for any specific purposes, such as apparatus or systems for transportation, vehicular, medical, aerospace, nuclear, or undersea repeater use.
- The prior written approval of Mitsubishi Electric Corporation is necessary to reprint or reproduce in whole or in part these materials.
- If these products or technologies are subject to the Japanese export control restrictions, they must be exported under a license from the Japanese government and cannot be imported into a country other than the approved destination.
Any diversion or re-export contrary to the export control laws and regulations of Japan and/or the country of destination is prohibited.
- Please contact Mitsubishi Electric Corporation or an authorized Mitsubishi Semiconductor product distributor for further details on these materials or the products contained therein.