# 电子元器件系列(中国.厦门) China.Xiamen

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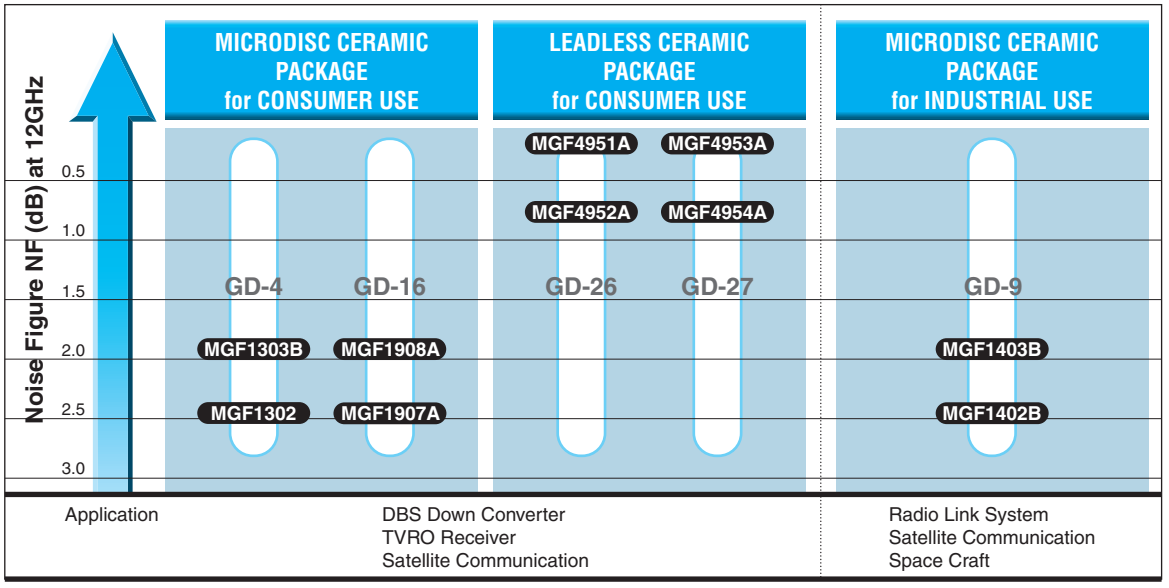
# MITSUBISHI GaAs devices: The best solution for realizing the information era.

Communication networks, such as high speed Internet, video-on-demand and high-speed data communcation, are developing rapidly.
We are ready to offer the best solution to the systems for realizing the information era by providing a variety of GaAs products designed for satellite communication systems to base stations and cellular handset applications.

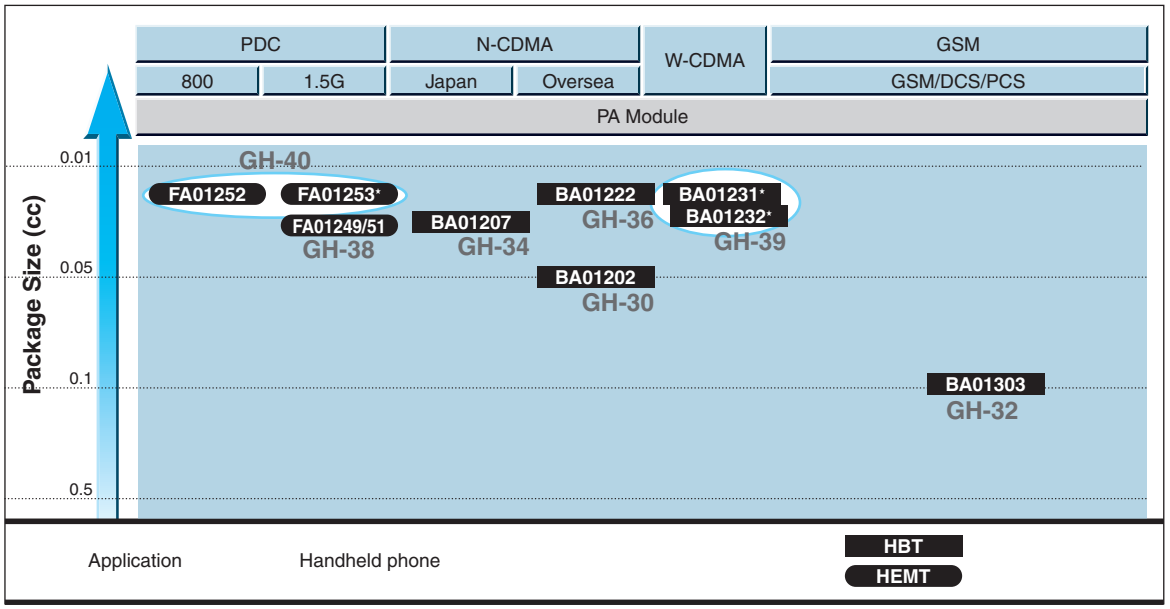
MAP For SELECTION

## GaAs FET SERIES FOR MICROWAVE-BAND LOW-NOISE AMPLIFIERS



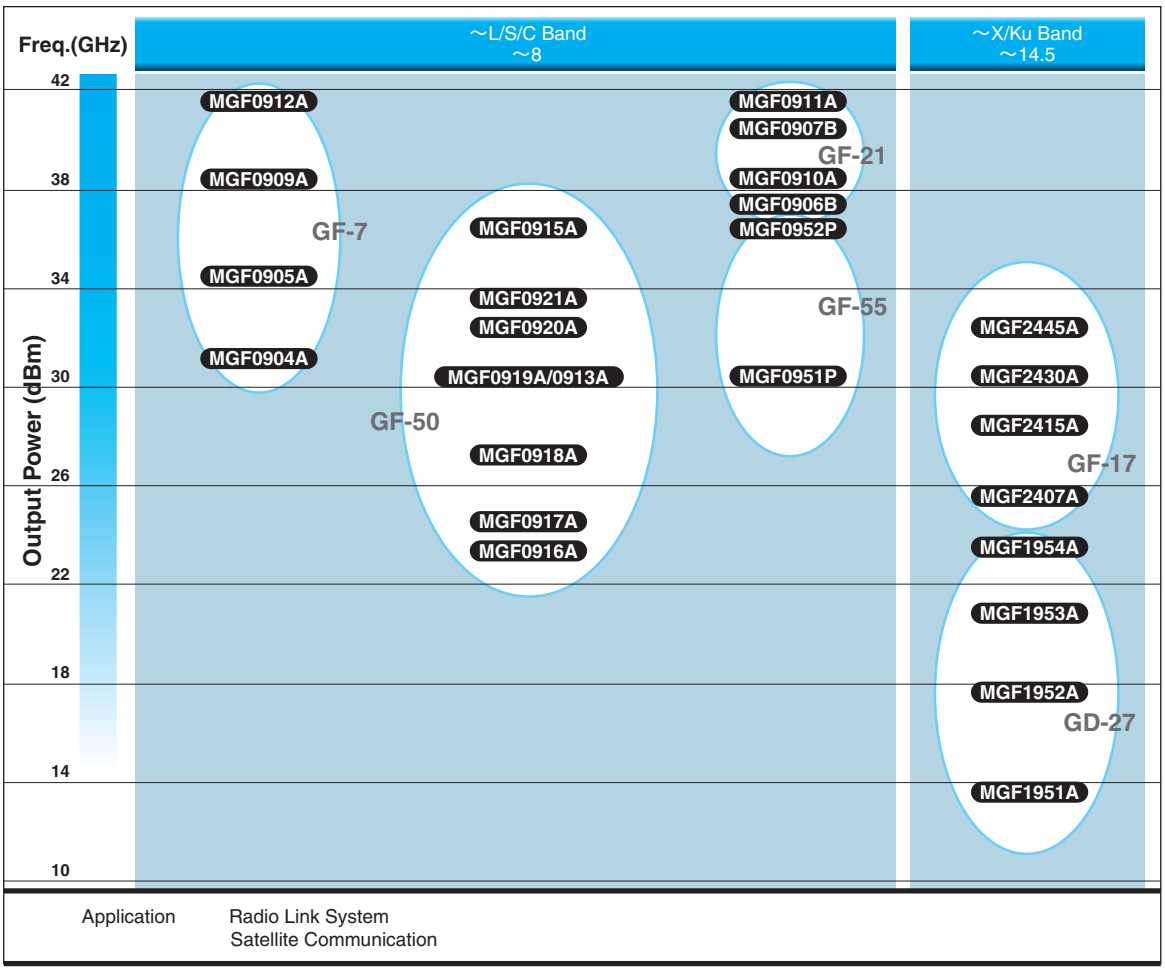

Note : MGF4xxx=HEMT MGF1xxx=MES FET

## GaAs HYBRID IC&MMIC

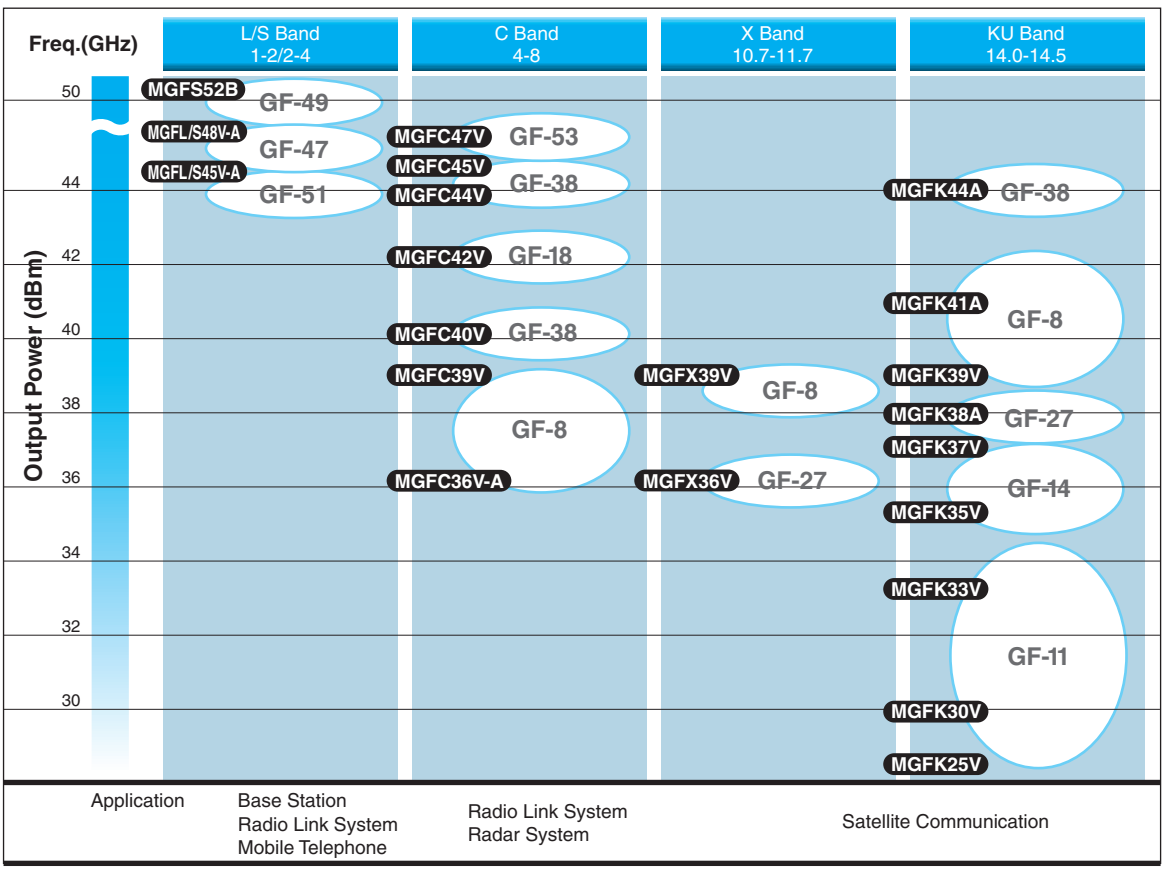



* : New product

## GaAs FET FOR HIGH POWER DISCRETE




## INTERNALLY MATCHED GaAs FET SERIES FOR MICROWAVE-BAND HIGH POWER AMPLIFIERS



## GaAs FET SERIES FOR MICROWAVE- BAND LOW-NOISE AMPLIFIERS

| Type Number | Noise Figure(dB) | | Associated Gain(dB) | | Frequency(GHz) | Drain-Source Voltage(V) | Drain Current(mA) |
|---|---|---|---|---|---|---|---|
| | Typ. | Max. | Min. | Typ. | | | |
| MGF1302 | 2.7 | - | - | 9 | 12 | 3 | 10 |
| MGF1303B | 2 | - | - | 10.5 | 12 | 3 | 10 |
| MGF1402B | 3 | - | - | 8 | 12 | 3 | 10 |
| MGF1403B | 1.8 | - | - | 10.5 | 12 | 3 | 10 |
| MGF1907A | 2.7 | - | - | 9 | 12 | 3 | 10 |
| MGF1908A | 2 | - | - | 10.5 | 12 | 3 | 10 |
| MGF4951A | 0.40 | 0.50 | 11.0 | 12.0 | 12 | 2 | 10 |
| MGF4952A | 0.60 | 0.80 | 11.0 | 12.0 | 12 | 2 | 10 |
| MGF4953A | 0.40 | 0.50 | 12.0 | 13.0 | 12 | 2 | 10 |
| MGF4954A | 0.60 | 0.80 | 12.0 | 13.0 | 12 | 2 | 10 |
| MGF4955A* | 0.40 | 0.50 | 11.0 | 12.0 | 12 | 2 | 7.5 |
| MGF4957A* | 0.40 | 0.50 | 12.0 | 13.0 | 12 | 2 | 7.5 |
| MGF4931AM* | 0.60 | 0.80 | 10.0 | 11.5 | 12 | 2 | 7.5 |

Ta=25℃

* : New product

## GaAs FET SERIES FOR MICROWAVE- BAND HIGH-POWER AMPLIFIERS(Discrete Devices)

| Type Number | Output Power at 1dB Gain Compression(dBm) | | Output Power (dBm) | Linear Power Gain(dB) | 3rd Order IM Distortion(dBc) | | Power Added Efficiency(%) | Frequency (GHz) | Drain-Source Voltage(V) | Drain Current (A) | Thermal Resistance (℃/W) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min. | Typ. | | | Min. | Typ. | | | | | Typ. | Max. |
| MGF0904A | - | - | 26 | 11 | - | - | 40 | 1.65 | 8 | 0.2 | - | - |
| MGF0905A | - | - | 33 | 7 | - | - | 40 | 1.65 | 8 | 0.8 | - | - |
| MGF0906B | 35.5 | 37 | - | 10 | - | - | 40 | 2.3 | 10 | 1.2 | - | 6.5 |
| MGF0907B | 38.5 | 40 | - | 8 | - | - | 37 | 2.3 | 10 | 2.4 | - | 4 |
| MGF0909A | 37 | 38 | - | 10 | - | - | 45 | 2.3 | 10 | 1.3 | - | - |
| MGF0910A | 37 | 38 | - | 10 | - | - | 37 | 2.3 | 10 | 1.3 | - | 6 |
| MGF0911A | 40 | 41 | - | 10 | - | - | 40 | 2.3 | 10 | 2.6 | - | 4.5 |
| MGF0912A | - | - | 40.5 | 9.5 | - | - | 38 | 1.9 | 10 | 2.6 | 2.3 | 3 |
| MGF0913A | - | - | 29.5 | 11 | - | - | 48 | 1.9 | 10 | 0.2 | 20 | 30 |
| MGF0915A | - | - | 35 | 13 | - | - | 50 | 1.9 | 10 | 0.8 | 5 | 8 |
| MGF0916A | - | - | 21 | 17 | - | - | 30 | 1.9 | 6 | 0.1 | 20 | 30 |
| MGF0917A | - | - | 23 | 19 | - | - | 38 | 1.9 | 10 | 0.075 | 55 | 75 |
| MGF0918A | - | - | 25 | 18 | - | - | 45 | 1.9 | 10 | 0.15 | 35 | 50 |
| MGF0919A | - | - | 28 | 17 | - | - | 37 | 1.9 | 10 | 0.3 | 17 | 25 |
| MGF0920A | - | - | 30 | 16 | - | - | 45 | 1.9 | 10 | 0.4 | 13 | 18 |
| MGF0921A | - | - | 31 | 15 | - | - | 40 | 1.9 | 10 | 0.5 | 11 | 15 |
| MGF0951P* | 29.5 | 31 | - | 11 | - | -42 | 50 | 2.15 | 10 | 0.2 | 20 | 25 |
| MGF0952P** | 35 | 36.5 | - | 11 | - | -42 | 50 | 2.15 | 10 | 0.7 | 5 | 6 |
| MGF1601B | 20.8 | 21.8 | - | 6 | - | - | - | 8 | 6 | 0.1 | - | 125 |
| MGF1801B | 21.8 | 23 | - | 7 | - | - | - | 8 | 6 | 0.1 | - | 125 |
| MGF1801BT | 21.8 | 23 | - | 7 | - | - | - | 8 | 6 | 0.1 | - | 125 |
| MGF1951A | 11 | 13 | - | 7 | - | - | - | 12 | 3 | 0.03 | - | - |
| MGF1952A | 15 | 17 | - | 5 | - | - | - | 12 | 3 | 0.06 | - | - |
| MGF1953A | 18 | 20 | - | 4 | - | - | - | 12 | 4 | 0.1 | - | - |
| MGF1954A | 21 | 23 | - | 3 | - | - | - | 12 | 6 | 0.1 | - | - |
| MGF2407A | 23 | 24.5 | - | 7 | - | - | 30 | 14.5 | 10 | 0.075 | - | 100 |
| MGF2415A | 26 | 27.5 | - | 6.5 | - | - | 29 | 14.5 | 10 | 0.15 | - | 60 |
| MGF2430A | 29 | 30.5 | - | 5.5 | - | - | 27 | 14.5 | 10 | 0.3 | - | 30 |
| MGF2445A | 31 | 32 | - | 5.5 | - | - | 20 | 12 | 10 | 0.45 | - | 15 |
| MGF4851A | 12 | 14.5 | - | 9 | - | - | - | 12 | 2.5 | 0.025 | - | - |

Ta=25℃

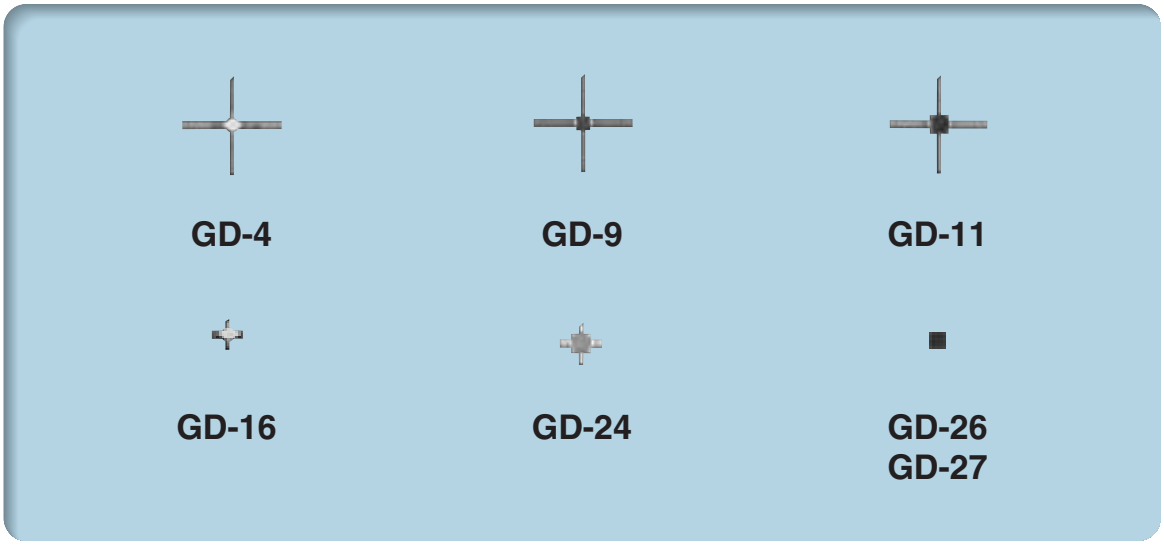
* : New product ** : Under development

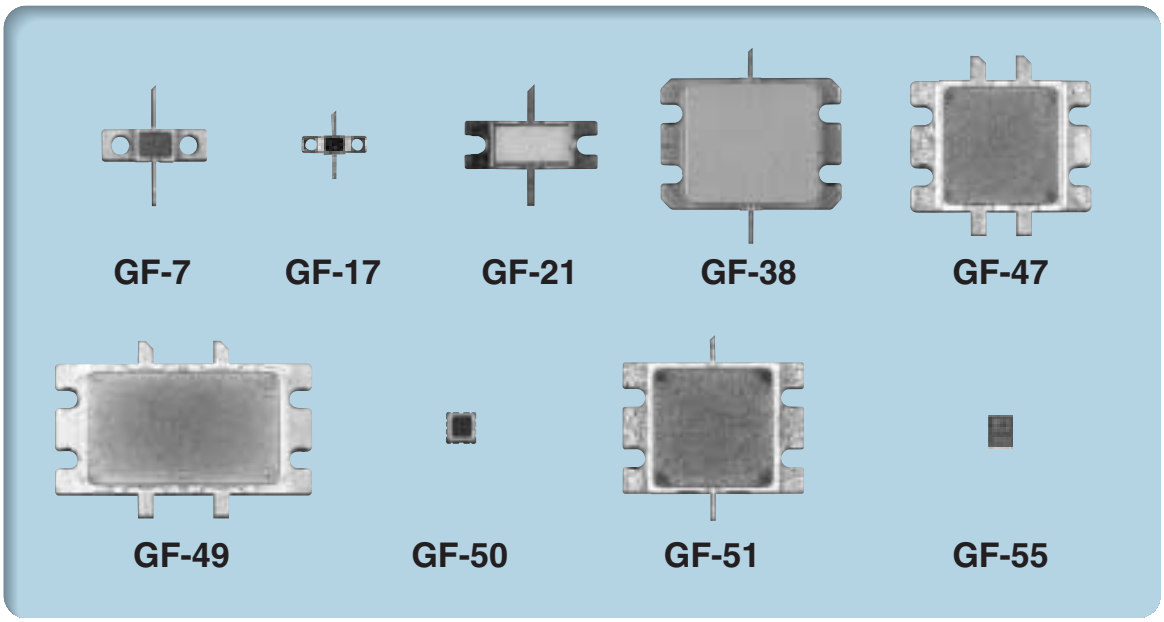
# INTERNALLY MATCHED GaAs FET SERIES FOR L/S BAND HIGH POWER AMPLIFIERS

| Type Number | Output Power at 1dB Gain Compression(dBm) | | Output Power (dBm) | Linear Power Gain(dB) | 3rd Order IM Distortion(dBc) | | Power Added Efficiency(%) | Frequency (GHz) | Drain-Source Voltage(V) | Drain Current (A) | Thermal Resistance (℃/W) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min. | Typ. | | | Min. | Typ. | | | | | Typ. | Max. |
| MGFC36V3436 | 35 | 37 | - | 11 | -42 | -45 | 32 | 3.4~3.6 | 10 | 1.2 | 5 | 6 |
| MGFC39V3436 | 38 | 39.5 | - | 10 | -42 | -45 | 32 | 3.4~3.6 | 10 | 2.4 | 3 | 3.5 |
| MGFC42V3436 | 41.5 | 42.5 | - | 12 | -42 | -45 | 37 | 3.4~3.6 | 10 | 4.5 | - | 1.9 |
| MGFC44V3436 | 43 | 44 | - | 11 | -42 | -45 | 36 | 3.4~3.6 | 10 | 6.4 | - | 1.2 |
| MGFC45V3436A | 44 | 45 | - | 10 | -42 | -45 | 36 | 3.4~3.6 | 10 | 8 | 0.8 | 1 |
| MGFL45V1920A | 44 | 45 | - | 12 | -42 | -45 | 45 | 1.9~2.0 | 10 | 6.5 | - | 1.5 |
| MGFL48V1920 | - | - | 47 | 10 | - | - | 45 | 1.9~2.0 | 12 | 4 | 1 | 1.4 |
| MGFS44V2735 | 43 | 44 | - | 11 | -42 | -45 | 36 | 2.7~3.5 | 10 | 6.4 | 1 | 1.2 |
| MGFS45A2527B | 44 | 45 | - | 11 | -42 | -45 | 40 | 2.5~2.7 | 10 | 6.5 | - | 1.4 |
| MGFS45V2123A | 44 | 45 | - | 11 | -42 | -45 | 45 | 2.1~2.3 | 10 | 6.5 | - | 1.5 |
| MGFS45V2325A | 44 | 45 | - | 11 | -42 | -45 | 45 | 2.3~2.5 | 10 | 6.5 | - | 1.5 |
| MGFS45V2527A | 44 | 45 | - | 11 | -42 | -45 | 45 | 2.5~2.7 | 10 | 6.5 | - | 1.5 |
| MGFS45V2735 | 44 | 45 | - | 11 | -42 | -45 | 36 | 2.7~3.5 | 10 | 8 | 0.8 | 1 |
| MGFS48B2122 | - | - | 47 | 11 | - | - | 48 | 2.11~2.17 | 12 | 2 | 1 | 1.2 |
| MGFS48V2527 | - | - | 47 | 9 | - | - | 45 | 2.5~2.7 | 12 | 4 | 1 | 1.4 |
| MGFS52BN2122A* | - | - | 50.8 | 11 | - | - | 48 | 2.17 | 12 | 4 | 0.55 | 0.8 |

* : Communication grade
Ta=25℃

* : New product



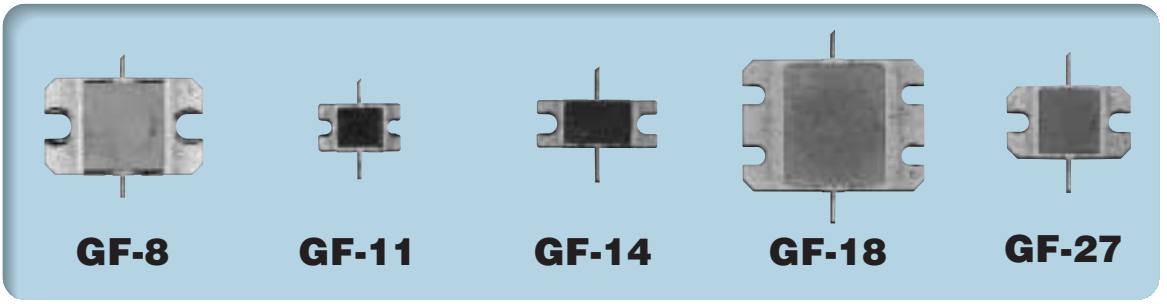



# INTERNALLY MATCHED GaAs FET SERIES FOR C BAND HIGH POWER AMPLIFIERS

| Type Number | Output Power at 1dB Gain Compression(dBm) | | Linear Power Gain(dB) | 3rd Order IM Distortion(dBc) | | Power Added Efficiency(%) | Frequency (GHz) | Drain-Source Voltage(V) | Drain Current (A) | Thermal Resistance (℃/W) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min. | Typ. | | Min. | Typ. | | | | | Typ. | Max. |
| MGFC36V3742A | 35 | 37 | 10 | -42 | -45 | 33 | 3.7~4.2 | 10 | 1.2 | 5 | 6 |
| MGFC36V4450A | 35 | 37 | 9 | -42 | -45 | 32 | 4.4~5.0 | 10 | 1.2 | 5 | 6 |
| MGFC36V5258 | 35 | 36 | 9 | - | - | 33 | 5.2~5.8 | 10 | 1.2 | - | 6 |
| MGFC36V5867 | 35 | 36 | 8.5 | - | - | 30 | 5.8~6.75 | 10 | 1.2 | 5 | 6 |
| MGFC36V5964A | 35 | 37 | 9 | -42 | -45 | 30 | 5.9~6.4 | 10 | 1.2 | 5 | 6 |
| MGFC36V6472A | 35 | 37 | 8 | -42 | -45 | 30 | 6.4~7.2 | 10 | 1.2 | 5 | 6 |
| MGFC36V7177A | 35 | 36.5 | 8 | -42 | -45 | 30 | 7.1~7.7 | 10 | 1.2 | 5 | 6 |
| MGFC36V7785A | 35 | 36.5 | 7 | -42 | -45 | 29 | 7.7~8.5 | 10 | 1.2 | 5 | 6 |
| MGFC38V5867 | 37 | 38 | 8 | - | - | 32 | 5.8~6.75 | 10 | 1.8 | - | 5 |
| MGFC38V5964 | 37 | 38 | 9 | -42 | -45 | 32 | 5.9~6.4 | 10 | 1.8 | - | 5 |
| MGFC38V6472 | 37 | 38 | 8 | -42 | -45 | 31 | 6.4~7.2 | 10 | 1.8 | - | 5 |
| MGFC39V3742A | 38 | 39.5 | 9 | -42 | -45 | 31 | 3.7~4.2 | 10 | 2.4 | - | 3.5 |
| MGFC39V4450A | 38 | 39 | 8 | -42 | -45 | 30 | 4.4~5.0 | 10 | 2.4 | - | 3.5 |
| MGFC39V5258 | 38 | 39 | 8 | - | - | 30 | 5.2~5.8 | 10 | 2.4 | - | 3.5 |
| MGFC39V5867 | 38 | 39 | 8 | - | - | 30 | 5.8~6.75 | 10 | 2.4 | - | 3.5 |
| MGFC39V5964A | 38 | 39.5 | 8 | -42 | -45 | 30 | 5.9~6.4 | 10 | 2.4 | - | 3.5 |
| MGFC39V6472A | 38 | 39.5 | 7 | -42 | -45 | 28 | 6.4~7.2 | 10 | 2.4 | - | 3.5 |
| MGFC39V7177A | 38 | 39.5 | 7 | -42 | -45 | 28 | 7.1~7.7 | 10 | 2.4 | - | 3.5 |
| MGFC39V7785A | 38 | 39.5 | 6 | -42 | -45 | 27 | 7.7~8.5 | 10 | 2.4 | - | 3.5 |
| MGFC40V3742 | 39.5 | 40.5 | 9 | -42 | -45 | 32 | 3.7~4.2 | 10 | 2.4 | - | 3.5 |
| MGFC40V4450 | 39.5 | 40.5 | 9 | -42 | -45 | 32 | 4.4~5.0 | 10 | 2.4 | - | 3.5 |
| MGFC40V5258 | 39.5 | 40.5 | 8 | - | - | 32 | 5.2~5.8 | 10 | 2.4 | - | 3.5 |
| MGFC40V5964 | 39.5 | 40.5 | 8 | -42 | -49 | 30 | 5.9~6.4 | 10 | 2.4 | 3 | 3.5 |
| MGFC40V6472 | 39.5 | 40.5 | 7 | -42 | -45 | 32 | 6.4~7.2 | 10 | 2.4 | - | 3.5 |
| MGFC40V7177 | 39 | 40 | 7 | -42 | -45 | 32 | 7.1~7.7 | 10 | 2.4 | - | 3.5 |
| MGFC40V7785 | 39 | 40 | 6 | -42 | -45 | 32 | 7.7~8.5 | 10 | 2.4 | - | 3.5 |
| MGFC41V3642 | 40 | 41.5 | 11 | -42 | -45 | 40 | 3.6~4.2 | 10 | 3.4 | - | 2.8 |
| MGFC41V5964 | 40 | 41 | 8.5 | -42 | -45 | 33 | 5.9~6.4 | 10 | 3.4 | - | 2.8 |
| MGFC41V6472 | 40 | 41 | 8 | -42 | -45 | 32 | 6.4~7.2 | 10 | 3.4 | 2.2 | 2.8 |
| MGFC41V7177 | 39.5 | 41 | 7 | -42 | -45 | 29 | 7.1~7.7 | 10 | 3.4 | - | 2.8 |
| MGFC42V3742 | 41.5 | 42.5 | 9 | -42 | -45 | 32 | 3.7~4.2 | 10 | 4.5 | - | 1.9 |
| MGFC42V4450 | 41.5 | 42.5 | 9 | -42 | -45 | 32 | 4.4~5.0 | 10 | 4.5 | - | 1.9 |
| MGFC42V5258 | 41.5 | 42.5 | 8 | - | - | 31 | 5.2~5.8 | 10 | 4.5 | - | 1.9 |
| MGFC42V5867 | 41 | 42.5 | 7 | - | - | 31 | 5.8~6.75 | 10 | 4.5 | - | 1.9 |
| MGFC42V5964 | 41.5 | 42.5 | 8 | -42 | -45 | 31 | 5.9~6.4 | 10 | 4.5 | 1.6 | 1.9 |
| MGFC42V5964A | 41.5 | 42.5 | 8 | -42 | -45 | 33 | 5.9~6.4 | 10 | 4.5 | - | 1.6 |
| MGFC42V6472 | 41.5 | 42.5 | 7 | -42 | -45 | 30 | 6.4~7.2 | 10 | 4.5 | - | 1.9 |
| MGFC42V6472A | 41.5 | 42.5 | 7 | -42 | -45 | 31 | 6.4~7.2 | 10 | 4.5 | - | 1.6 |
| MGFC42V7785A | 41 | 42 | 6 | -42 | -45 | 28 | 7.7~8.5 | 10 | 4.5 | - | 1.6 |
| MGFC44V3642 | 43 | 44 | 10 | -42 | -45 | 35 | 3.6~4.2 | 10 | 6.4 | - | 1.6 |
| MGFC44V4450 | 43 | 44 | 10 | -42 | -45 | 35 | 4.4~5.0 | 10 | 6.4 | - | 1.6 |
| MGFC44V5964 | 43 | 44 | 8 | -42 | - | 33 | 5.9~6.4 | 10 | 6.4 | - | 1.6 |
| MGFC44V6472 | 43 | 44 | 7 | -42 | - | 31 | 6.4~7.2 | 10 | 6.4 | - | 1.6 |
| MGFC45V3642A | 44 | 45 | 10 | -42 | -45 | 36 | 3.6~4.2 | 10 | 8 | 0.8 | 1 |
| MGFC45V4450A | 44 | 45 | 9 | -42 | -45 | 34 | 4.4~5.0 | 10 | 8 | 0.8 | 1 |
| MGFC45V5867 | 43.5 | 45 | 7 | - | - | 35 | 5.8~6.75 | 10 | 8 | - | 1 |
| MGFC45V5964A | 44 | 45 | 8 | -42 | -45 | 33 | 5.9~6.4 | 10 | 8 | 0.8 | 1 |
| MGFC45V6472A | 44.5 | 45 | 7 | -42 | -45 | 35 | 6.4~7.2 | 10 | 8 | - | 1 |
| MGFC47V5864 | 46 | 47 | 8.5 | - | - | 35 | 5.8~6.4 | 10 | 9.8 | 0.8 | 0.9 |
| MGFC47A4450 | 46 | 47 | 9.5 | - | - | 40 | 4.4~5.0 | 10 | 9.8 | 0.8 | 0.9 |
| MGFC48B5864** | 47 | 48 | 8 | - | - | 35 | 5.8~6.4 | 10 | 14 | 0.65 | 0.75 |

Ta=25℃

** : Under development



GF-8 GF-11 GF-14 GF-18 GF-27

# INTERNALLY MATCHED GaAs FET SERIES FOR X/Ku BAND HIGH POWER AMPLIFIERS

| Type Number | Output Power at 1dB Gain Compression(dBm) | | Linear Power Gain(dB) | 3rd Order IM Distortion(dBc) | | Power Added Efficiency(%) | Frequency (GHz) | Drain-Source Voltage(V) | Drain Current (A) | Thermal Resistance (℃/W) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min. | Typ. | | Min. | Typ. | | | | | Typ. | Max. |
| MGFK25V4045 | 24 | 25 | 7 | - | - | 25 | 14~14.5 | 8 | 0.15 | - | 40 |
| MGFK30V4045 | 29 | 30 | 7 | - | - | 24 | 14~14.5 | 8 | 0.35 | - | 29 |
| MGFK33V4045 | 32 | 33 | 5.5 | - | - | 22 | 14~14.5 | 8 | 0.7 | - | 10 |
| MGFK35V4045 | 34.5 | 35.4 | 5.5 | - | - | 20 | 14~14.5 | 10 | 1.2 | - | 4.5 |
| MGFK37V4045 | 36.5 | 37.4 | 4.5 | - | - | 17 | 14~14.5 | 10 | 2.4 | - | 3.5 |
| MGFK39V4045 | 38.5 | 39 | 4.5 | - | - | 20 | 14~14.5 | 10 | 2.4 | - | 3.5 |
| MGFK38A3745** | 37 | 38 | 7 | - | - | 30 | 13.75~14.5 | 10 | 1.5 | 3.6 | 4 |
| MGFK41A4045* | 40 | 41 | 6 | - | - | 25 | 14.0~14.5 | 10 | 3 | 1.8 | 2.2 |
| MGFK44A4045* | 43 | 44 | 5 | - | - | 17 | 14.0~14.5 | 10 | 6 | 1 | 1.3 |
| MGFX35V0510* | 34.5 | 35.5 | 7 | - | - | 30 | 10.5~11.0 | 10 | 1.2 | - | 5.5 |
| MGFX36V0717 | 34.5 | 36 | 7 | - | - | 32 | 10.7~11.7 | 10 | 1.2 | - | 5.5 |
| MGFX38V0510* | 37 | 38 | 6 | - | - | 26 | 10.5~11.0 | 10 | 2.4 | - | 3.5 |
| MGFX39V0717 | 37.5 | 39 | 6 | - | - | 36 | 10.7~11.7 | 10 | 2.4 | - | 3.5 |

＊ : Communication grade
Ta=25℃

* : New product ** : Under development

# GaAs HYBRID IC

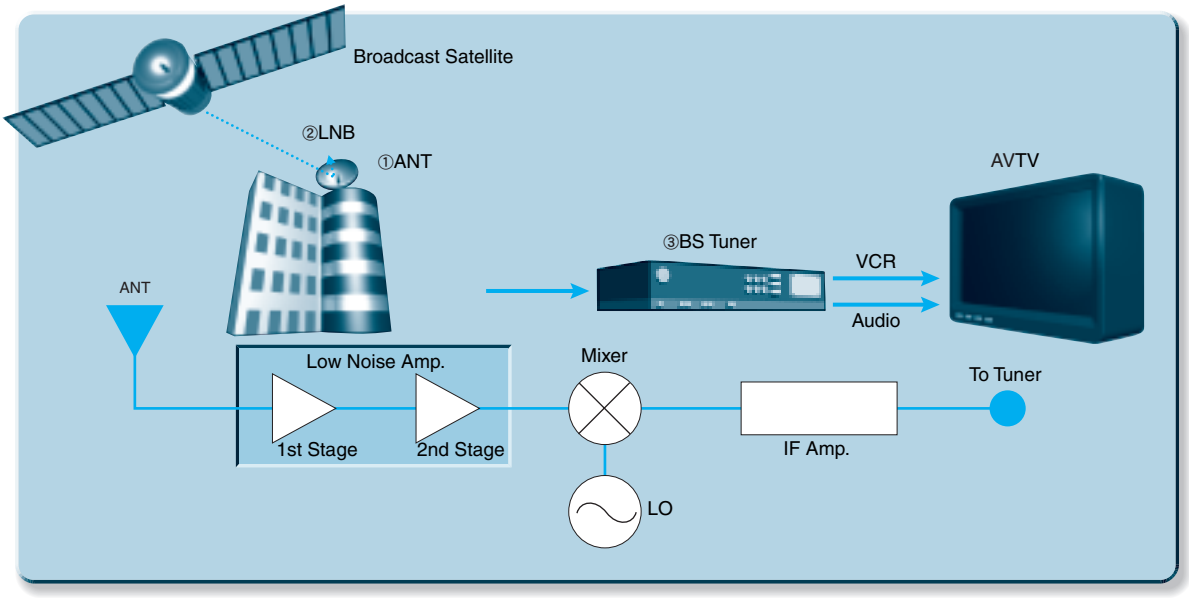
| Type Number | Application | fL(MHz) | fH(MHz) | Po(dBm) | VD(V) | VG(V) | Eff(%) | Pin(dBm) | Package outline |
|---|---|---|---|---|---|---|---|---|---|
| FA01252 | PDC800 | 893 | 958 | 30.6 | 3.6 | -2.3 | - | 4.0 | GH-40 |
| | | 940 | 958 | 30.6 | 3.6 | -2.3 | 60 | 4.5 | |
| FA01249 | PDC1.5G | 1439 | 1468 | 29.8 | 3.6 | -2.3 | 60 | 5.0 | GH-38 |
| FA01251 | PDC1.5G | 1429 | 1453 | 31.0 | 3.5 | -2.5 | 60 | 6.0 | GH-38 |
| FA01253* | PDC1.5G (※1) | 1429 | 1453 | 29.8 | 3.5 | -2.5 | 60 | 5.0 | GH-40 |
| BA01207 | N-CDMA(JAPAN) | 887 | 925 | 27.5 | 3.5 | 2.8 | 41 | 0 | GH-34 |
| BA01222 | N-CDMA(USA)/AMPS | 824 | 849 | 27.5 | 3.5 | 3.0 | 38 | 0 | GH-36 |
| BA01231* | W-CDMA | 830 | 840 | 26.5 | 3.5 | 2.9 | 45 | -1.0 | GH-39 |
| BA01232* | W-CDMA | 1920 | 1980 | 26.5 | 3.5 | 2.9 | 50 | -1.0 | GH-39 |
| BA01202 | N-CDMA(USA) | 1850 | 1910 | 28.0 | 3.2 | 3.0 | 38 | 3.0 | GH-30 |

※1 : It's available to change the freguency range(fL=1439MHz, fH=1468MHz).

* : New product

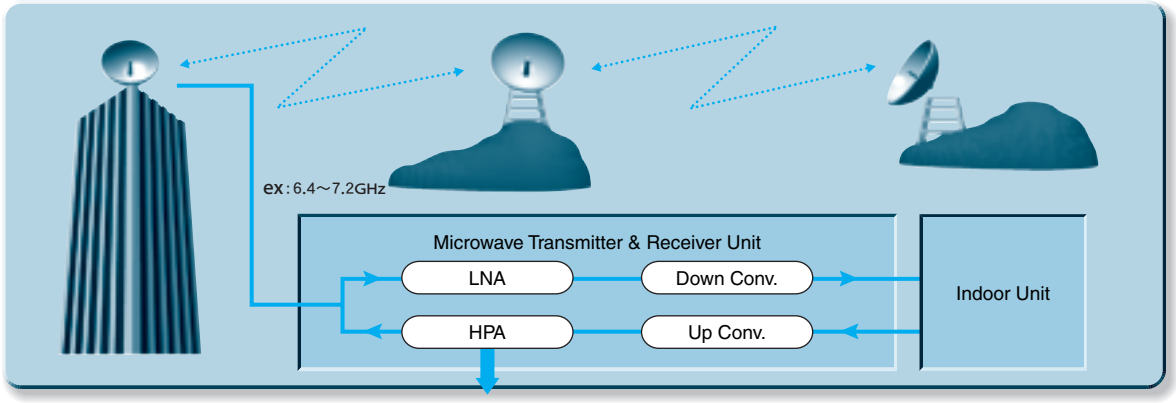
| Type Number | Application | fL(MHz) | fH(MHz) | Po(dBm) | Pin(dBm) | Vc(V) | It(mA) | Vpc(V) | Ipc(mA) | Remarks | Package outline |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BA01303 | GSM900/DCS1800/PCS1900 | 880 | 915 | 33.0 | 3.0 | 3.5 | 1350 | ＜2.6 | 5.5 | Triple-band | GH-32 |

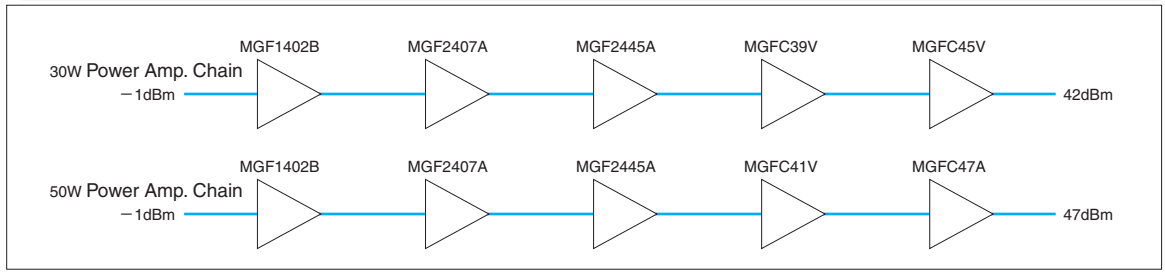
## Lineup for 12GHz -Band LNB



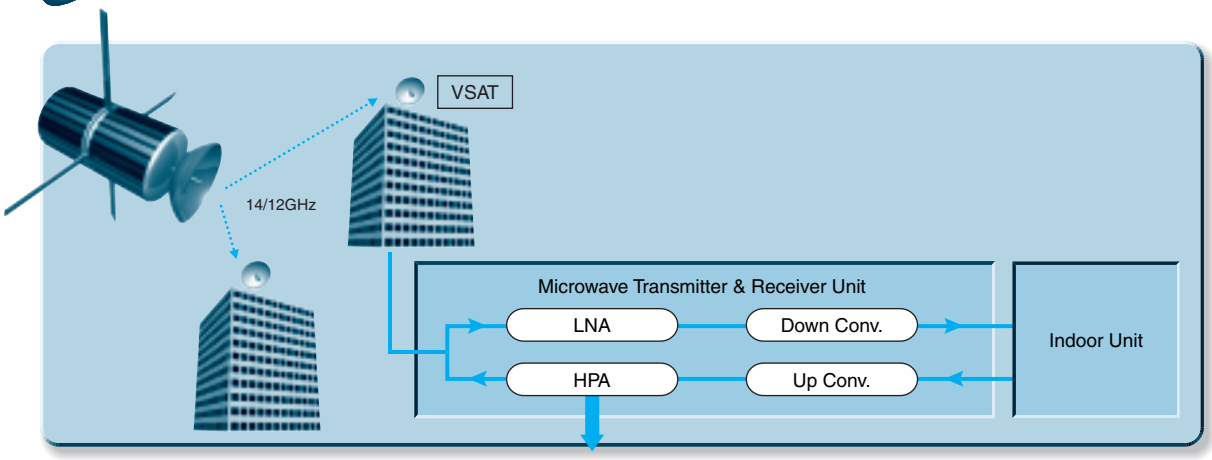

| Noise Performance of LNB | 1st Stage | 2nd Stage | Mixer |
|---|---|---|---|
| 0.8-1.0dB | MGF4953A | MGF4954A | MGF4954A |
| 0.9-1.1dB | MGF4954A | MGF4954A | MGF4954A |

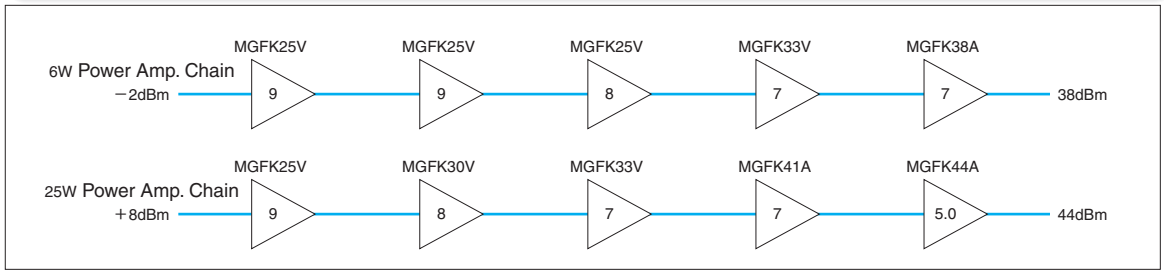
## Lineup for Microwave Links



## Lineup for Satellite Communication




## Application Note

| Contents | Date |
|---|---|
| Recommended assemble method for MITSUBISHI's leadless package HEMT | Sep.／2002 |