

**DESCRIPTION**

The MGF1954A is designed for use in S to Ku band power amplifiers.

The lead-less ceramic package assures minimum parasitic losses.

**FEATURES**

High gain and High P1dB

Glp=5.0dB , P1dB=23dBm (Typ.) @ f=12GHz

**APPLICATION**

S to Ku band power Amplifiers

**QUALITY GRADE**

GG

**ORDERING INFORMATION**

Tape & reel 3000pcs./reel

**Outline Drawing****Fig.1****ABSOLUTE MAXIMUM RATINGS** (Ta=25°C)

| Symbol           | Parameter               | Ratings     | Unit |
|------------------|-------------------------|-------------|------|
| V <sub>GDO</sub> | Gate to drain voltage   | -8          | V    |
| V <sub>GSO</sub> | Gate to source voltage  | -8          | V    |
| I <sub>D</sub>   | Drain current           | 400         | mA   |
| P <sub>T</sub>   | Total power dissipation | 1           | W    |
| T <sub>ch</sub>  | Channel temperature     | 125         | °C   |
| T <sub>stg</sub> | Storage temperature     | -65 to +125 | °C   |

**Keep Safety first in your circuit designs!**

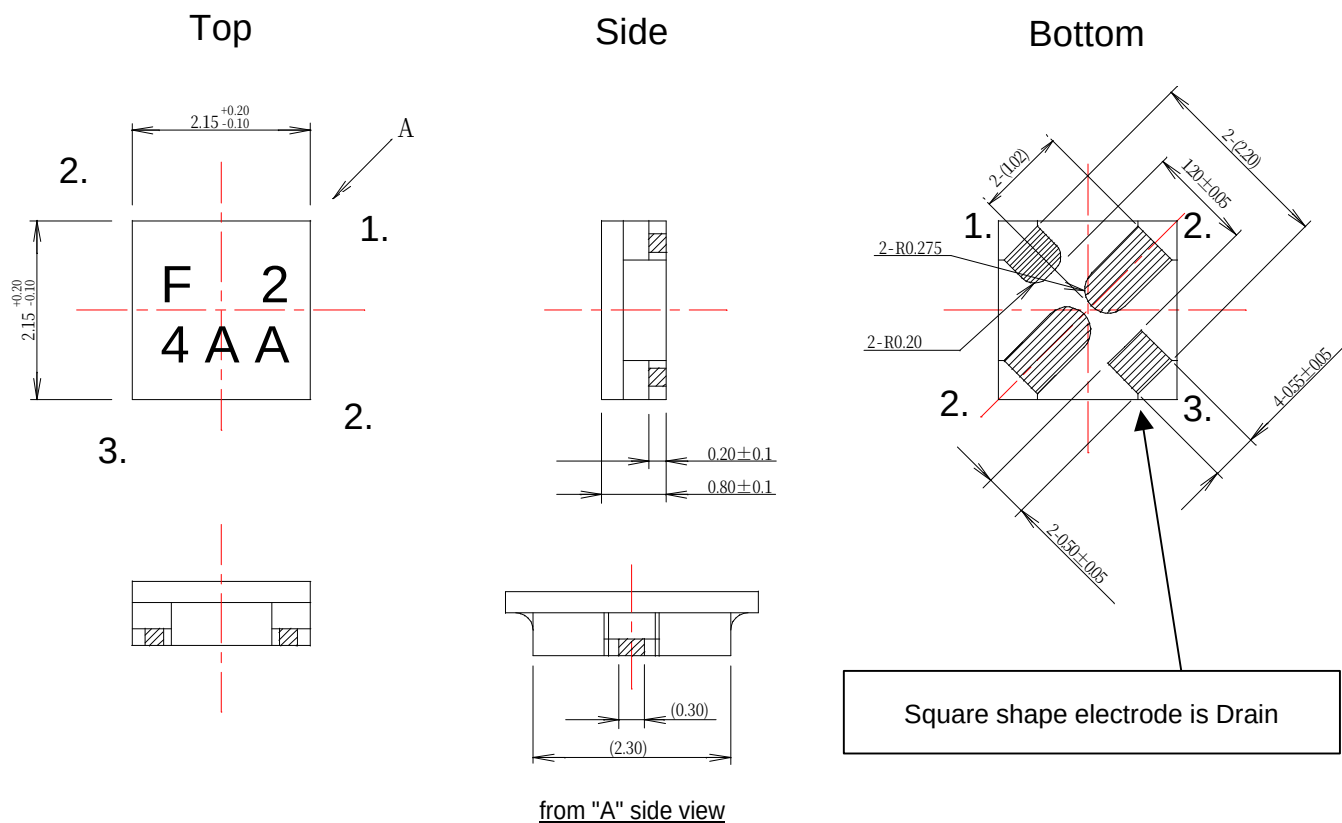
Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration 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.

**ELECTRICAL CHARACTERISTICS** (Ta=25°C)

| Symbol               | Parameter                            | Test conditions                                                 | Limits |      |      | Unit |
|----------------------|--------------------------------------|-----------------------------------------------------------------|--------|------|------|------|
|                      |                                      |                                                                 | MIN.   | TYP. | MAX  |      |
| V <sub>(BR)GDO</sub> | Gate to drain breakdown voltage      | I <sub>g</sub> =-100μA                                          | -8     | -15  | --   | V    |
| I <sub>DSS</sub>     | Saturated drain current              | V <sub>GS</sub> =0V, V <sub>DS</sub> =3V                        | 105    | 200  | 400  | mA   |
| V <sub>GS(off)</sub> | Gate to source cut-off voltage       | V <sub>DS</sub> =3V, I <sub>D</sub> =1mA                        | -0.3   | -1.4 | -3.5 | V    |
| P <sub>o</sub>       | Output Power at 1dB gain compression | V <sub>DS</sub> =6V, I <sub>D</sub> =100mA<br>f=12GHz           | 21     | 23   | --   | dBm  |
| G <sub>lp</sub>      | Linear Power Gain                    | V <sub>DS</sub> =6V, I <sub>D</sub> =100mA<br>f=12GHz, Pin=5dBm | 3      | 5    | --   | dB   |

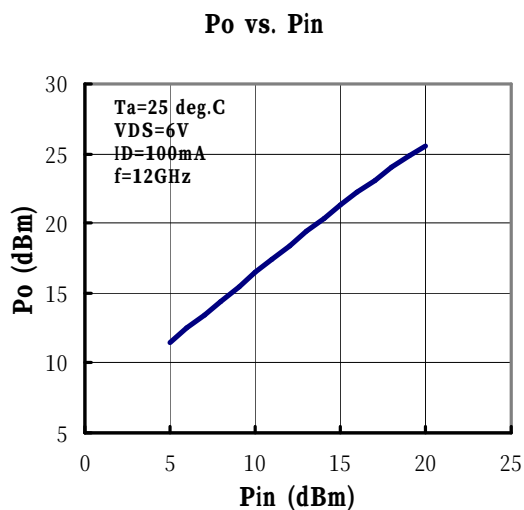
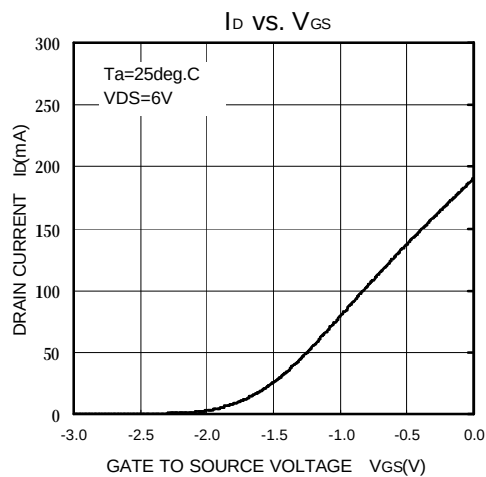
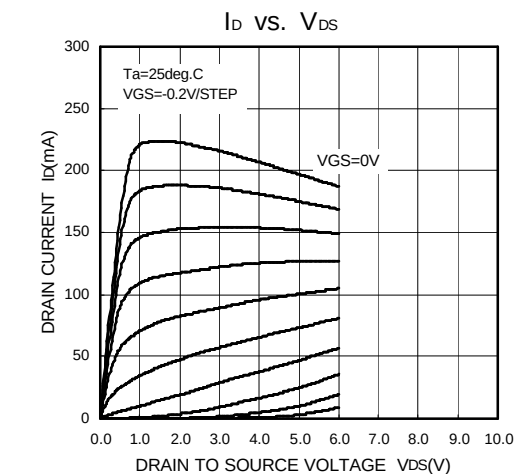
Fig.1

Unit : mm



- 1. Gate
- 2. Source
- 3. Drain

## TYPICAL CHARACTERISTICS (Ta=25°C)



## S PARAMETERS

(Conditions : VDS=6V, ID=100mA, Ta=25deg.C)

| f<br>(GHz) | S11   |        | S21   |        | S12   |       | S22   |        | K    | MAG/MSG<br>(dB) |
|------------|-------|--------|-------|--------|-------|-------|-------|--------|------|-----------------|
|            | Mag.  | Angle  | Mag.  | Angle  | Mag.  | Angle | Mag.  | Angle  |      |                 |
| 1          | 0.903 | -52.0  | 8.141 | 142.0  | 0.027 | 61.9  | 0.216 | -45.4  | 0.41 | 24.8            |
| 2          | 0.771 | -96.4  | 6.285 | 111.6  | 0.042 | 40.2  | 0.197 | -82.6  | 0.74 | 21.8            |
| 3          | 0.697 | -122.5 | 4.948 | 94.1   | 0.050 | 31.9  | 0.194 | -99.7  | 1.00 | 20.0            |
| 4          | 0.672 | -145.4 | 4.003 | 78.6   | 0.054 | 26.1  | 0.197 | -116.0 | 1.19 | 16.0            |
| 5          | 0.659 | -162.1 | 3.393 | 65.4   | 0.058 | 21.5  | 0.204 | -123.3 | 1.34 | 14.2            |
| 6          | 0.652 | -176.3 | 2.977 | 53.0   | 0.062 | 19.0  | 0.207 | -125.7 | 1.46 | 12.8            |
| 7          | 0.649 | 169.9  | 2.685 | 40.2   | 0.067 | 15.7  | 0.209 | -127.1 | 1.50 | 11.9            |
| 8          | 0.645 | 156.5  | 2.499 | 26.8   | 0.073 | 12.7  | 0.205 | -128.9 | 1.49 | 11.2            |
| 9          | 0.640 | 142.2  | 2.322 | 13.9   | 0.080 | 7.5   | 0.190 | -132.9 | 1.50 | 10.4            |
| 10         | 0.636 | 126.0  | 2.174 | 0.5    | 0.091 | 1.1   | 0.165 | -139.4 | 1.47 | 9.8             |
| 11         | 0.620 | 107.6  | 2.005 | -14.3  | 0.096 | -8.8  | 0.124 | -153.6 | 1.60 | 8.7             |
| 12         | 0.617 | 88.8   | 1.845 | -29.4  | 0.101 | -17.7 | 0.082 | 172.2  | 1.72 | 7.7             |
| 13         | 0.634 | 70.5   | 1.654 | -44.6  | 0.104 | -26.8 | 0.085 | 109.8  | 1.83 | 6.8             |
| 14         | 0.664 | 53.6   | 1.467 | -59.3  | 0.105 | -37.6 | 0.151 | 70.8   | 1.93 | 5.9             |
| 15         | 0.711 | 38.5   | 1.291 | -73.1  | 0.102 | -46.5 | 0.235 | 52.1   | 1.98 | 5.3             |
| 16         | 0.767 | 26.2   | 1.123 | -86.4  | 0.101 | -56.1 | 0.322 | 39.7   | 1.90 | 5.0             |
| 17         | 0.821 | 14.6   | 0.965 | -99.2  | 0.097 | -65.4 | 0.408 | 30.2   | 1.79 | 4.8             |
| 18         | 0.863 | 5.3    | 0.813 | -112.1 | 0.094 | -74.2 | 0.474 | 20.6   | 1.68 | 4.6             |

