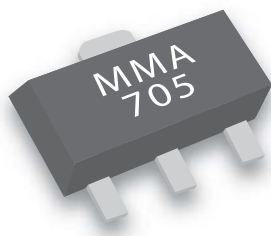


# MMA705

## DC to 4 GHz Amplifier



SOT89 OUTLINE



### Description:

The MMA705 is a fully matched amplifier fabricated in Aeroflex / Metelics reliable InGaP HBT technology. The economical SOT89 package provides excellent wide-band performance.

### Features:

- DC - 4 GHz Broadband Gain Block
- $\pm 0.5$  dB Typical Gain Flatness
- 50 Ohms Input/Output Impedances

### RF Specifications:

| Parameter                             | Term      | Minimum | Typical | Maximum | Units |
|---------------------------------------|-----------|---------|---------|---------|-------|
| 3dB Bandwidth                         | BW        | DC      | ---     | 4       | GHz   |
| Frequency Range                       | $f_o$     | DC      | ---     | 2       | GHz   |
| Gain                                  | $G_p$     | 14      | 15      | ---     | dB    |
| Output Power                          | $P_{1dB}$ | +13     | +15     | ---     | dBm   |
| Standing Wave Ratio                   | VSWR      | ---     | 1.5:1   | 2.0:1   | ---   |
| 3 <sup>rd</sup> Order Intercept Point | IP3       | +25     | +27     | ---     | dBm   |
| Noise Figure                          | NF        | ---     | 4       | 4.5     | dB    |
| Device Current                        | $I_c$     | 42      | 48      | 55      | mA    |

- NOTES:
1.  $T_A = +25$  °C.
  2.  $V_S = 6.0$  Vdc,  $R_{BIAS} = 22 \Omega$
  3. IP3 measured with two tones offset 10 MHz at 0 dBm per tone.

### Absolute Maximum Ratings:

| Parameters                           | Rating         |
|--------------------------------------|----------------|
| Device Current ( $I_c$ )             | 80 mA          |
| RF Input Power, continuous           | +10 dBm        |
| Operating Temperature                | -40 to +85 °C  |
| Storage Temperature                  | -55 to +125 °C |
| Thermal Resistance ( $\theta_{JC}$ ) | 125 °C/W       |



### Typical RF Performance:

Figure 1.

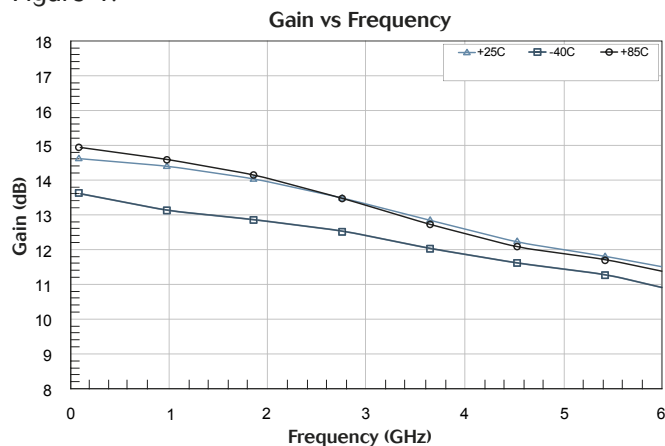


Figure 2.

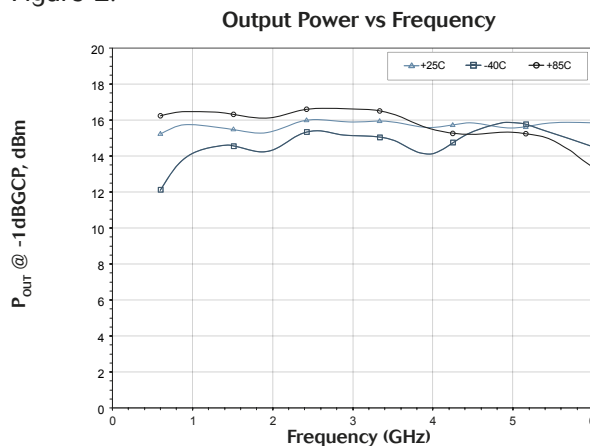


Figure 3.

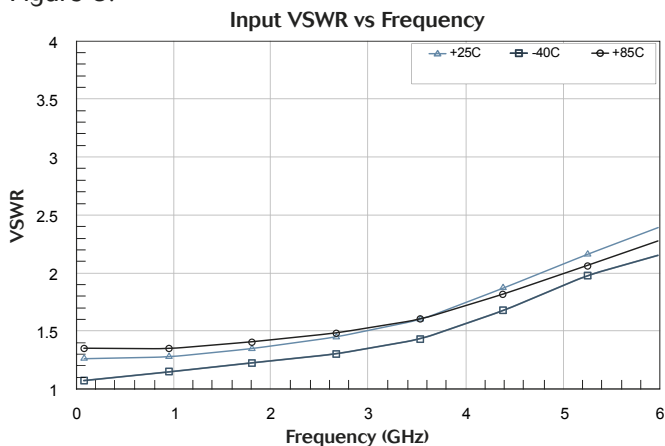


Figure 4.

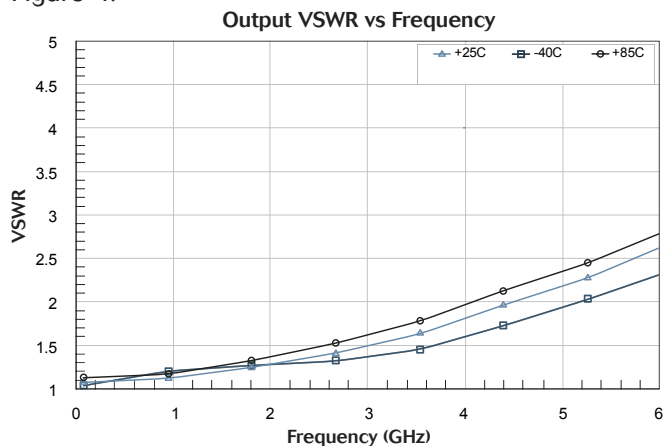


Figure 5.

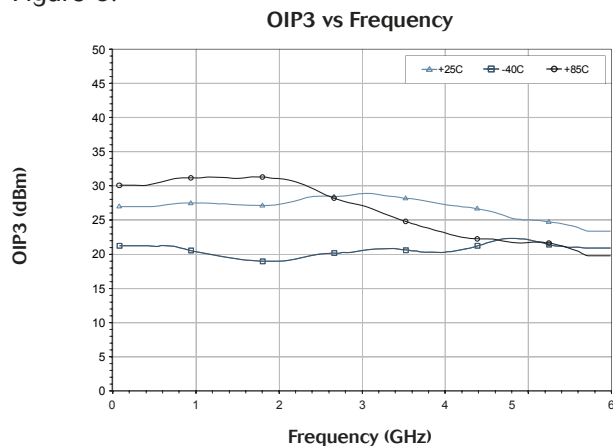
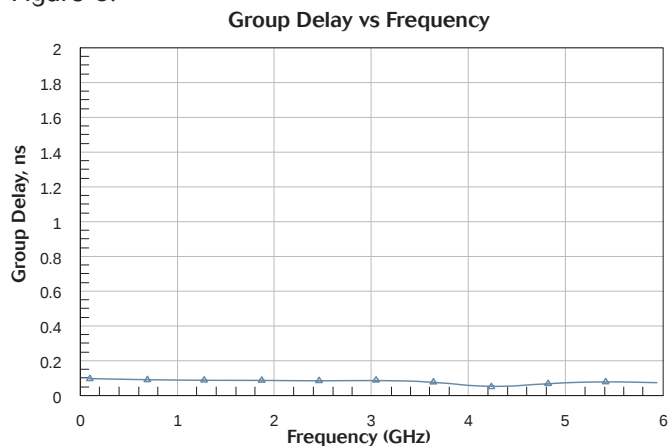


Figure 6.

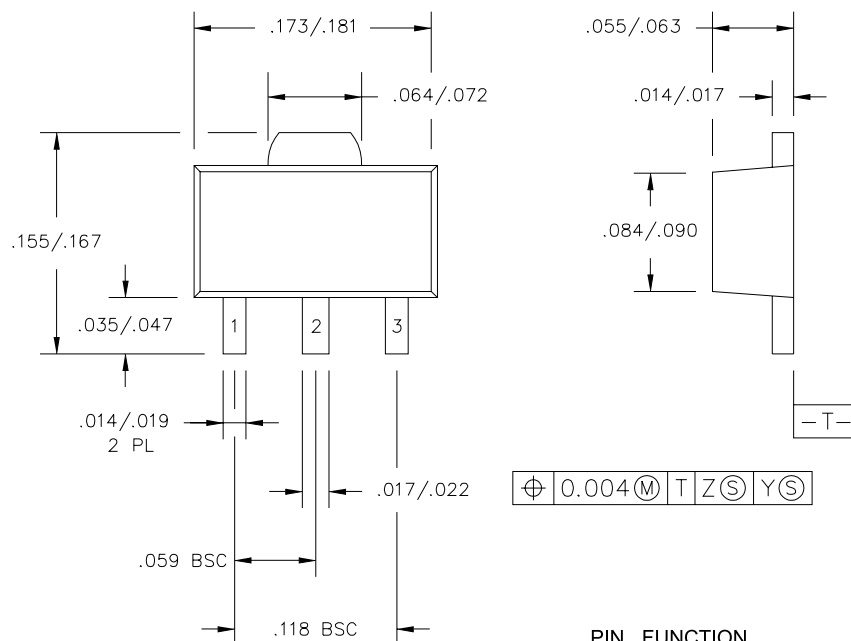


# MMA705

## DC to 4 GHz Amplifier



### SOT89 Outline Dimensions:

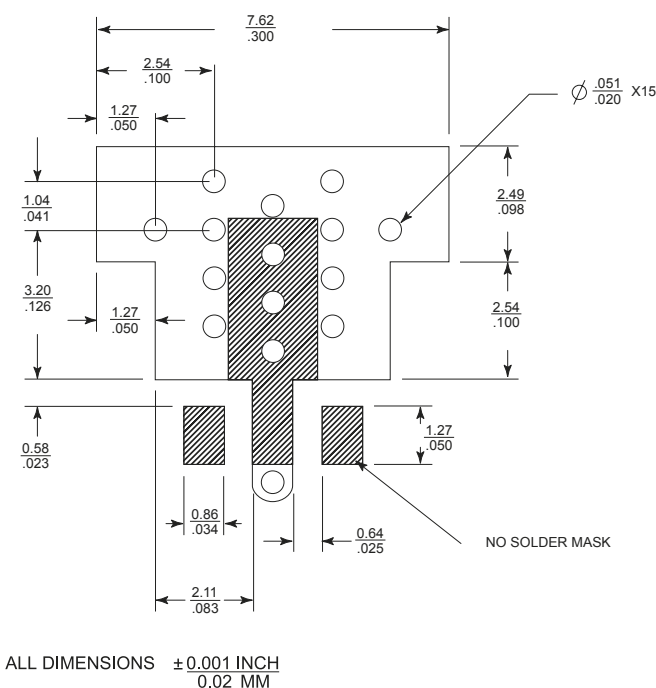


ALL DIMENSIONS  $\pm 0.003 \text{ INCH}$   
0.07 MM

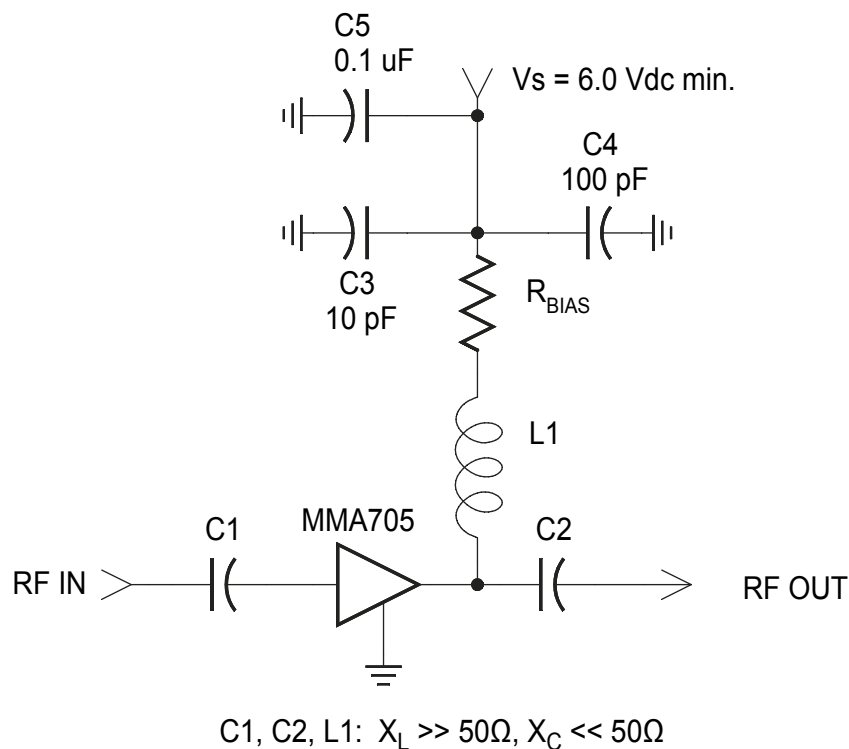
#### PIN FUNCTION

- 1 INPUT
- 2 GROUND
- 3 OUTPUT

### Recommended PCB Layout:



### Application Circuit:



$R_{BIAS}$  vs.  $V_S$

| $V_S$ (V)               | 6.0  | 8.0  | 10.0 | 12.0 | 15.0 |
|-------------------------|------|------|------|------|------|
| $R_{BIAS}$ ( $\Omega$ ) | 22   | 62   | 100  | 150  | 200  |
| Power Dissipation (W)   | 0.05 | 0.15 | 0.25 | 0.34 | 0.48 |

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.