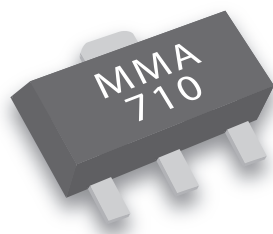


# MMA710

## DC to 4 GHz Amplifier



SOT89 OUTLINE



### Description:

The MMA710 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      | ---     | 4       | GHz   |
| Gain                                  | $G_p$     | 12      | 13      | ---     | dB    |
| Output Power                          | $P_{1dB}$ | +18     | +20     | ---     | dBm   |
| Input Standing Wave Ratio             | VSWR      | ---     | 1.5:1   | 2.0:1   | ---   |
| Output Standing Wave Ratio            | VSWR      | ---     | 2.0:1   | 3.6:1   | ---   |
| 3 <sup>rd</sup> Order Intercept Point | IP3       | +34     | +37     | ---     | dBm   |
| Noise Figure                          | NF        | ---     | 5.0     | 6.0     | dB    |
| Device Current                        | $I_c$     | 85      | 95      | 110     | mA    |

- NOTES:
1.  $T_A = +25^\circ\text{C}$ .
  2.  $V_S = 8.0\text{ Vdc}$ ,  $R_{BIAS} = 11\ \Omega$
  3. IP3 measured with two tones offset 10 MHz at 0 dBm per tone.

### Absolute Maximum Ratings:

| Parameters                           | Rating                       |
|--------------------------------------|------------------------------|
| Device Current ( $I_c$ )             | 150 mA                       |
| RF Input Power, continuous           | +13 dBm                      |
| Operating Temperature                | -40 to +85 $^\circ\text{C}$  |
| Storage Temperature                  | -55 to +125 $^\circ\text{C}$ |
| Thermal Resistance ( $\theta_{JC}$ ) | 70 $^\circ\text{C/W}$        |



Revision Date: 11/04/04

### Typical RF Performance:

Figure 1.

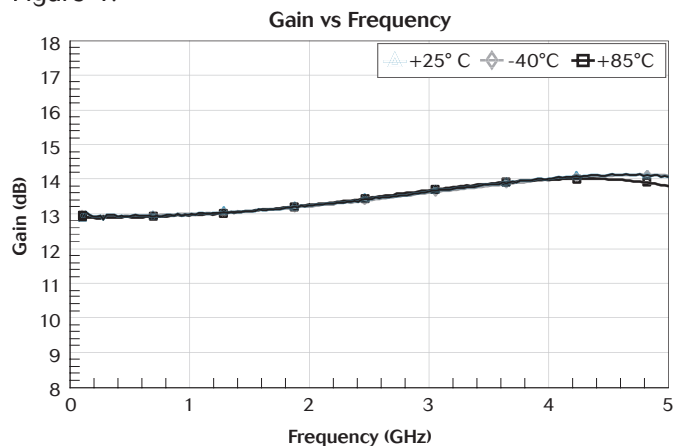


Figure 2.

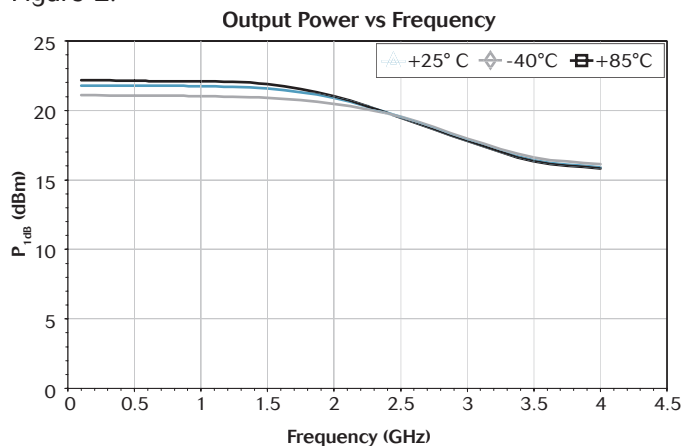


Figure 3.

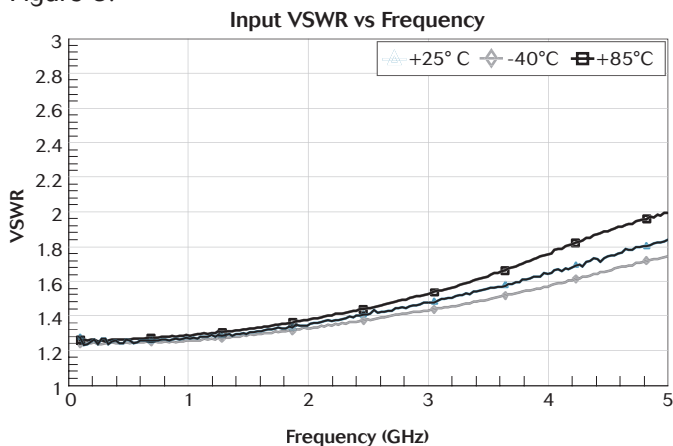


Figure 4.

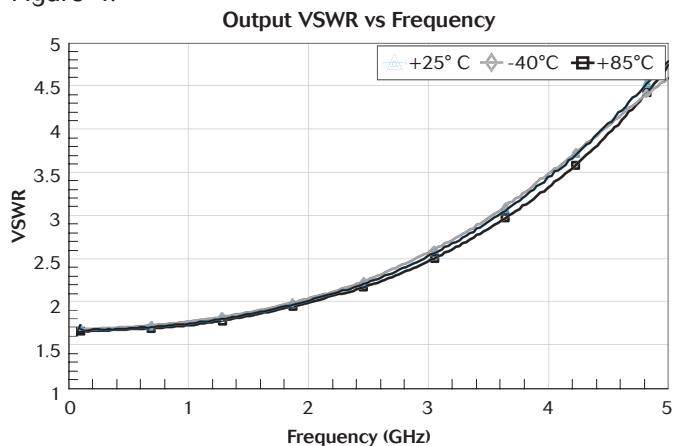


Figure 5.

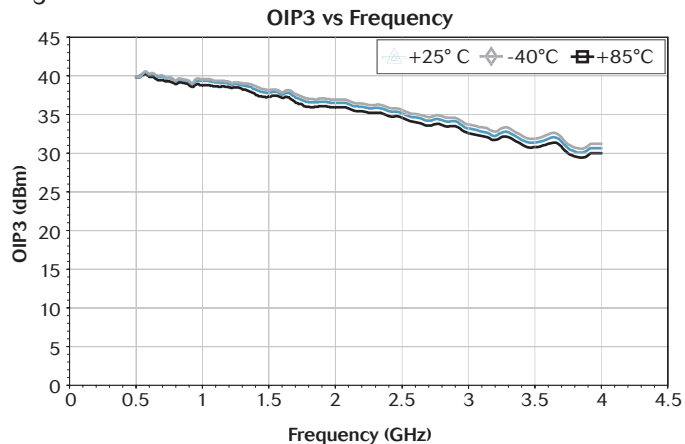
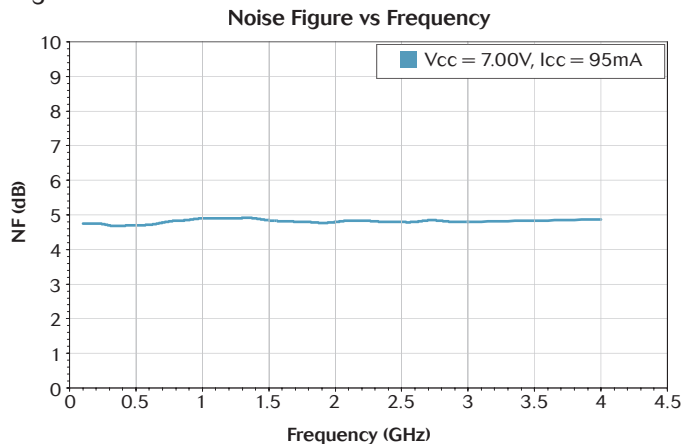


Figure 6.

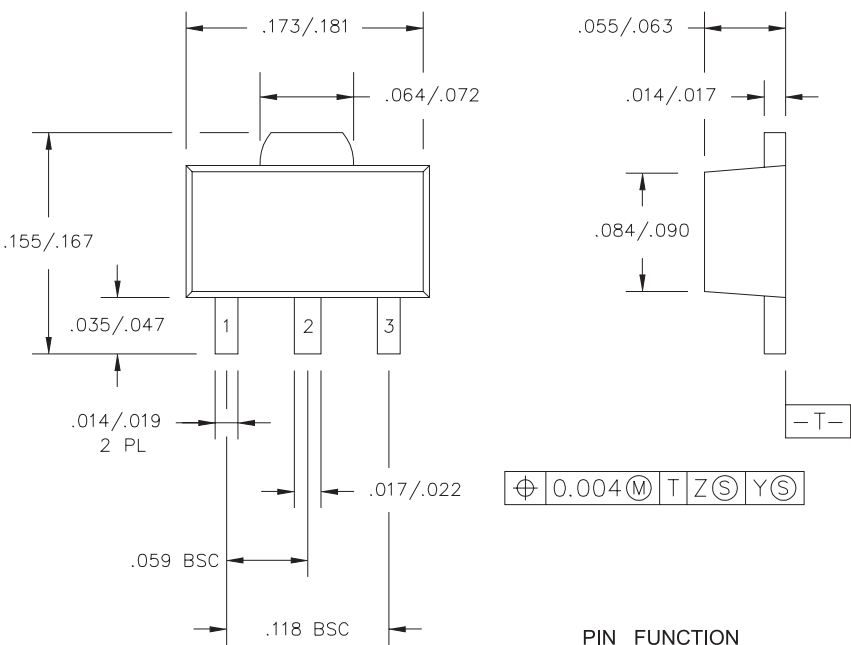


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## DC to 4 GHz Amplifier



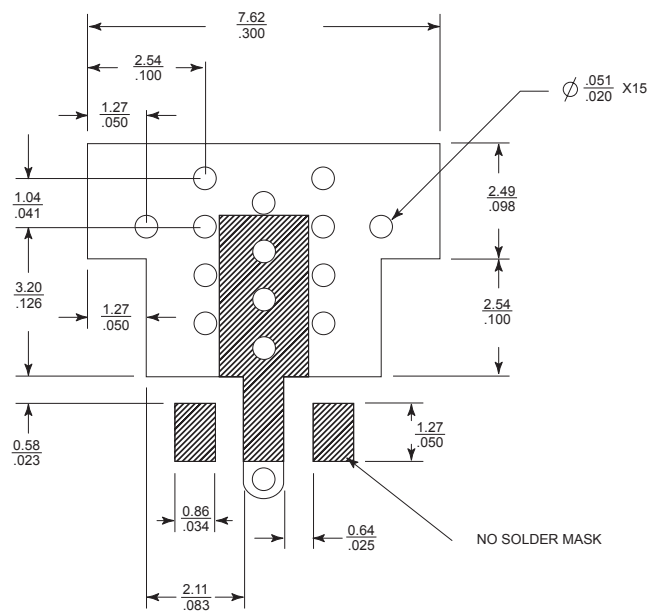
### SOT89 Outline Dimensions:



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

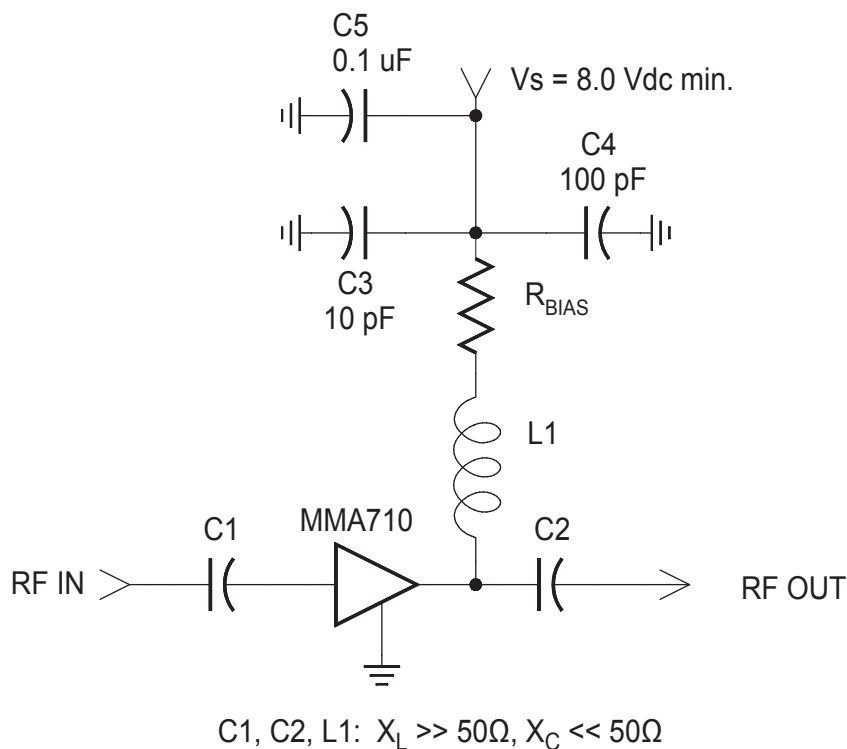
| PIN | FUNCTION |
|-----|----------|
| 1   | INPUT    |
| 2   | GROUND   |
| 3   | OUTPUT   |

### Recommended PCB Layout:



ALL DIMENSIONS  $\pm 0.001 \text{ INCH}$   
0.02 MM

### Application Circuit:



$R_{BIAS}$  vs.  $V_S$

| $V_S$ (V)               | 8.0 | 10.0 | 12.0 | 15.0 |
|-------------------------|-----|------|------|------|
| $R_{BIAS}$ ( $\Omega$ ) | 11  | 30   | 51   | 86   |
| Power Dissipation (W)   | 0.1 | 0.3  | 0.5  | 0.8  |

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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.