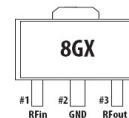


# MMIC utiles F6CXO

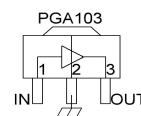
mis à jour : 29/01/2025

| Modèle    | Equivalent        | Code       | Couleur | G à 0,1 | G à 0,5 | G à 1 | G à 2 | G à 3 | G à 4 | G à 6 | G à 8 | Max P 1dB à F   | NOISE         | I mA | Vd   | 5V | 6V | 8V  | 9V  | 12V |      |      |      |
|-----------|-------------------|------------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-----------------|---------------|------|------|----|----|-----|-----|-----|------|------|------|
| ADL5545   | ADL5545           | ADL5545    |         | 24,8    | 24      | 24    | 22    | 20    | 18,6  |       |       | 27@1GHz         | 2,8@1GHz      | 56   | 5    |    |    |     | 18  | 54  | 72   | 125  |      |
| AH1       | AH1G              | AH1G       |         | 15      | 14,2    | 13,6  | 12    | 10    | 9,5   |       |       | +22 @ 1GHz      | 3,2@1GHz      | 150  | 5    |    |    |     | 6,8 | 20  | 27   | 80   |      |
| AG403     | A403G             | A403G      |         | 22,1    | 21,8    | 21,1  | 18,7  | 17    |       | 12,5  |       | 17,5@1GHz       | 3,2@1GHz      | 60   | 4,91 |    |    |     | 18  | 51  | 38   | 118  |      |
| AG604     | A604G             | A604G      |         | 23,2    | 22,5    | 21,2  | 18    | 16    |       | 12    |       | 19,4@1GHz       | 3,5@1GHz      | 75   | 5,16 |    |    |     | 11  | 38  | 51   | 92   |      |
| AWG3017   | WG3017            | WG3017     |         |         | 17,5    | 17,5  | 16,9  | 16,5  | 16,5  |       |       | 20,5@1GHz       | 1,9@1GHz      | 104  | 5    |    |    |     | 10  | 29  | 39   | 68   |      |
| CGY50     |                   |            |         | 10      |         | 10    | 10    |       |       |       |       | +16             | 3             | 60   | 4,5  |    |    |     |     |     |      |      |      |
| CXE2089Z  | CX2089            | CX2089     |         | 20      | 20      | 20    |       |       |       |       |       | 23@500 MHz      | 1,5@500 MHz   | 105  | 7    |    |    |     | 10  | 19  | 47   |      |      |
| ERA-1     | E1                | E1         |         | 12,2    |         | 12,1  | 11,8  | 11,5  | 11,3  | 11    | 10,2  | +11,7 @ 2GHz    | 5,3 @ 2 GHz   | 40   | 3,6  |    |    |     | 35  | 60  | 110  | 130  | 220  |
| ERA-2     | E2                | E2         |         | 16,2    |         | 16    | 15,6  | 15,1  | 14,6  | 14    |       | +18 @ 1GHz      | 4,7 @ 2 GHz   | 40   | 3,6  |    |    |     | 35  | 60  | 110  | 130  | 220  |
| ERA-3     | E3                | E3         |         | 22,9    |         | 22,2  | 20,8  | 19,2  |       |       |       | +12,1 @ 2GHz    | 3,8 @ 2 GHz   | 35   | 3,5  |    |    |     | 43  | 62  | 128  | 157  | 243  |
| ERA-4     | E4                | E4         |         | 13,8    |         | 13,7  | 13,5  | 13,3  | 13    |       |       | +17 @ 2 GHz     | 5,5 @ 2 GHz   | 65   | 5    |    |    |     | 15  | 47  | 62   | 109  |      |
| ERA-5     | E5                | E5         |         | 20,2    |         | 19,8  | 18,8  | 17,7  | 16,4  |       |       | +18,4 @ 2 GHz   | 4,5 @ 2 GHz   | 65   | 4,9  |    |    |     | 17  | 48  | 62   | 109  |      |
| ERA-6     | E6                | E6         |         | 11,1    |         | 11,1  | 11,3  | 11,5  | 11,3  |       |       | +18,5 @ 2 GHz   | 8,4 @ 2 GHz   | 70   | 5,5  |    |    |     | 7   | 21  | 50   | 93   |      |
| GALI 3+   | 03                | 03         |         | 22,4    |         | 21,1  | 19,1  | 17,3  | 16,1  | 15,8  |       | +12,5 @ 2 GHz   | 3,5 à 2 GHz   | 35   | 3,3  |    |    |     | 77  | 133 | 162  | 249  |      |
| GALI 5+   | 05                | 05         |         | 20,6    |         | 19,4  | 17,5  | 16    | 14,9  | 15,1  |       | +18 @ 1 GHz     | 3,5 à 1 GHz   | 65   | 4,4  |    |    |     | 24  | 53  | 68   | 113  |      |
| GALI-74+  | 74                | 74         |         | 25,1    |         | 21,8  | 18    | 15,3  | 13,4  |       |       | +19,2 @ 0,1 GHz | 2,7           | 80   | 4,8  |    |    | 2,5 | 15  | 40  | 52   | 90   |      |
| GALI-84+  | 84                | 84         |         | 25,6    |         | 22,7  | 19,2  | 16,7  | 15    | 11,8  |       | +21,5 @ 0,1 GHz | 4,4 @ 1 GHz   | 100  | 5,8  |    |    |     | 2   | 22  | 33   | 62   |      |
| HA102     | 102AG             | 102AG      |         | 15,6    | 14,9    | 13,9  | 12,5  | 11,1  |       |       |       | 27@1GHz         | 3,1@1GHz      | 200  | 9    |    |    |     |     |     |      | 15   |      |
| INA 02184 | N02               | N02        |         | 31,9    | 31      | 28,4  | 18,8  | 11,5  | 6,6   |       |       | +11 @ 500 MHz   | 2 @ 0,5 GHz   | 35   | 5,5  |    |    |     | 35  | 72  | 100  | 186  |      |
| INA 03184 | N03 ou 031        | N03 ou 031 |         | 25      | 25      | 25    | 25    | 22    |       |       |       | -2 @ 1,5 GHz    | 2,6 @ 1,5 GHz | 10   | 4    |    |    |     | 200 | 400 | 500  | 800  |      |
| INA 10386 | N10 ou 103        | N10 ou 103 |         | 26      | 26      | 26    | 23    | 20    | 14    |       |       | +10 @ 1,5 GHz   | 3,8 @ 1,5 GHz | 45   | 6    |    |    |     | 45  | 67  | 134  |      |      |
| MAR-1     | MAV-1 MSA0185     | A01 brun   |         | 18,5    | 17,5    | 15,5  |       |       |       |       |       | +1,5 dBm        | 5,5           | 17   | 5    |    |    |     | 59  | 176 | 220  | 470  |      |
| MAR-2     | MAV-2 MSA0285     | A02 rouge  |         | 12,5    | 12,3    | 12    | 11    |       |       |       |       | +4,5            | 6,5           | 25   | 5    |    |    |     | 40  | 120 | 150  | 270  |      |
| MAR-3     | MAV-3 MSA0385     | A03 orange |         | 12,5    | 12,2    | 12    | 11,5  |       |       |       |       | +10             | 6             | 35   | 5    |    |    |     | 28  | 85  | 120  | 200  |      |
| MAR-4     | MAV-4 MSA0485     | A04 jaune  |         | 8,3     | 8,2     | 8     |       |       |       |       |       | +12,5           | 3             | 50   | 5,25 |    |    |     | 15  | 55  | 75   | 150  |      |
| MAR-6     | MSA0686           | A06 blanc  |         | 20      | 18,5    | 16    | 11    |       |       |       |       | +2 @ 500 MHz    | 3 @ 500 MHz   | 16   | 3,5  |    |    |     | 94  | 156 | 282  | 344  | 532  |
| MAR-7     |                   | A07 violet |         | 13,5    | 13,1    | 12,5  | 11    |       |       |       |       | +5,5 @ 1 GHz    | 5 @ 2 GHz     | 22   | 4    |    |    |     | 46  | 91  | 182  | 227  | 367  |
| MAR-8     | MSA0885           | A08 bleu   |         | 32,5    | 28      | 22,5  | 17    |       |       |       |       | +12,5 @ 1 GHz   | 3,3           | 36   | 7,8  |    |    |     | 5,6 | 33  | 117  |      |      |
| MAV-1     | MSA 0104          | 1          |         | 18,5    |         | 15    |       |       |       |       |       | +1,5            | 6             | 17   | 5    |    |    |     | 59  | 177 | 235  | 412  |      |
| MAV-3     | MSA 0204          | 3          |         | 12,5    |         | 11    |       |       |       |       |       | +10             | 6             | 35   | 5    |    |    |     | 29  | 86  | 115  | 200  |      |
| MAV-4     | MSA 0404          | 4          |         | 8,3     | 0       | 7,7   |       |       |       |       |       | +11,5           | 7             | 50   | 5,3  |    |    |     | 14  | 54  | 74   | 134  |      |
| MAV-11    | MSA01104          | A          |         | 12,7    | 12      | 10,5  |       |       |       |       |       | +17             | 3,6           | 60   | 5,5  |    |    |     | 15  | 50  | 56   | 120  |      |
| MGA 30889 | 8Gx               | 8Gx        |         | 15,9    |         | 15,5  | 15,7  |       |       |       |       | 20 à 1,95 GHz   | 2 à 1950 MHz  | 65   | 5    |    |    |     | 22  | 50  | 61   | 108  |      |
| MGA 86563 | 86                | 86         |         | 3,1     | 14,7    | 18,9  | 21,7  | 21,3  | 18,8  | 13,9  | 10,4  | +4 @ 2,4 GHz    | 1,6 @ 2,4 GHz | 14   | 5    |    |    |     | 72  | 214 | 286  | 500  |      |
| MGA 86576 | 865               | 865        |         |         | 15,5    | 19,8  | 22,8  | 23,8  | 23,2  | 19,2  | 15,5  | +6,4            | 1,6 @ 4 GHz   | 16   | 5    |    |    |     | 63  | 188 | 250  | 438  |      |
| MGA 87563 | 87                | 87         |         |         | 6,7     | 10,1  | 11,4  | 10,7  | 10    |       |       | -2 @ 2 GHz      | 1,6 @ 2,4 GHz | 4,5  | 3    |    |    |     | 445 | 667 | 1111 | 1334 | 2000 |
| NLB310    | G=9,6 10 à 12 GHz | N6         |         | 12,7    | 12,7    | 12,7  | 10,7  | 10,7  | 10,7  | 10    | 9,8   | 12,6 @ 2 GHz    | 5 dB à 3 GHz  | 50   | 4,6  |    |    |     | 8   | 28  | 60   | 88   | 140  |
| PGA-103+  | P103              | P103       |         | 26      | 22      | 16,2  | 11    | 8,2   | 6,2   |       |       | 22,5 @ 2 GHz    | 0,9 @ 2GHz    | 97   | 5    |    |    |     | 4,7 | 15  | 36   | 47   | 75   |
| RF2045    | C5                | C5         |         | 13,8    |         | 13,7  | 13,6  | 13,4  | 13    | 12,7  |       | +18 dBm         | 5 à 1 GHz     | 65   | 5    |    |    |     | 22  | 50  | 61   | 108  |      |
| SCA1      | C1                | C1         |         |         | 10,2    | 10,1  | 10,2  | 10,1  |       |       |       | +20 dBm         | 3,5           | 90   | 5    |    |    |     | 11  | 33  | 44   | 78   |      |
| SBB5089Z  | SBB5089Z          | SBB5089Z   |         | 20,9    | 20,8    | 20,5  | 20    | 19    | 17,8  |       |       | 20,4@1GHz       | 3,9@1GHz      | 100  | 5,5  |    |    |     | 5   | 25  | 35   | 65   |      |
| SGA6389Z  | SGA6389Z          | SGA6389Z   |         | 15,7    | 15,6    | 15    | 13,8  | 12,2  |       |       |       | 20@1GHz         | 3,9@1GHz      | 80   | 4,9  |    |    |     | 14  | 39  | 51   | 89   |      |
| SPF5189Z  | SPF5189Z          | SPF5189Z   |         |         |         | 18    | 12,8  | 9     | 7,5   | 4     |       | +22 dBm         | 0,9 @ 2 GHz   | 90   | 5    |    |    |     | 11  | 33  | 44   | 78   |      |
| VNA25     | MCL25             | MCL25      |         |         | 15,5    | 18    | 17,8  |       |       |       |       | +18,2 dBm       | 5,5@2,5 GHz   | 80   | 5    |    |    |     | 12  | 39  | 50   | 88   |      |

MGA30889



GALI 5\_GALI74\_SCA1

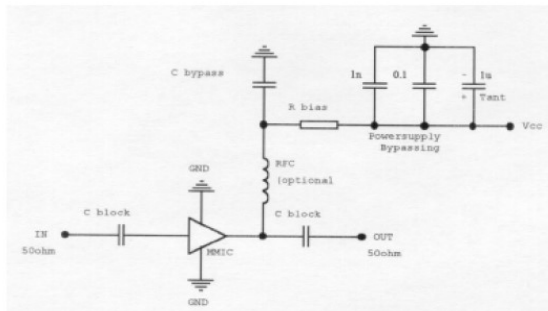


$$R \text{ bias} = \frac{V_{cc} - V_d}{I \text{ bias}}$$

V<sub>cc</sub> = The supply Voltage  
V<sub>d</sub> = The Device Voltage  
I bias = The Bias Current In mA ( ImA )

$$P \text{ Watts} = V \times I$$

P Watts = Power Rating Of R bias  
V = Volts across R bias  
I = Current Through R bias



**C block:** Determines the low frequency cut off of the amplifier circuit. The Capacitors value is chosen to suit the frequency that the amplifier circuit is going to be used for.

- 100MHz ( 1nF )
- 400MHz ( 100pF )
- 1.2GHz ( 10pF )
- 2.5GHz ( 5pF )
- 10GHz ( 1 - 2pF )

**RFC (Optional):** Is used to isolate the bias resistor so that it does not appear in parallel with the output load of the amplifier, degrading the output match of the amplifier. The impedance of the choke at the lowest frequency of operation of the amplifier plus the value of the bias resistor should be at least 50ohms

- 100MHz ( 10uH )
- 400MHz ( 3 turns 0.315mm TCW on a FX1112 ferrite bead )
- 1.2GHz ( 6 turns 0.315mm ECW 3mm dia closewound airspaced )
- > 2GHz ( printed 1/4wave lines on PC board )

**C bypass:** A Capacitor should be used in conjunction with the RFC to present a low impedance path to ground for any signal that manages to get past the RFC. The Capacitor should be connected at the junction of the R bias resistor & the RFC to ground.

- 100MHz ( 1nF )
- 400MHz ( 100pF )
- 1.2GHz ( 10pF )
- > 2.5GHz ( printed on the PC board )

**Power supply Bypassing:** Suitable Capacitors should be used on the V<sub>cc</sub> rail to effectively bypass low & high frequencies.

- Suggested Values**
- 1uF Tantalum
- 0.1uF
- 1nF ( Use all in parallel )