MITEL
SEMICONDUCTOR

# SP8804

## 3.3GHz ÷ 4 fixed Modulus Divider

Advance Information

DS2112 Issue 7.3 June 1999

### Features

- Very High Speed Operation 3.3GHz
- Silicon Technology for low Phase Noise (Typically better than -140dBc/Hz at 10kHz)
- Specified Over the Full Military Temperature Range
- Low Power Dissipation 370mW (typ)
- 5V Single Supply Operation
- High Input Sensitivity
- Very Wide Operating Frequency Range
- Available as DESC SMD 5962-9056701MPA

### Description

The SP8804 is one of a range of very high speed low power prescalers for professional and military applications. The device features a complementary output stage with on chip current source for the emitter follower outputs.

### Ordering Information

SP8804/A/DG Military temperature range
DES9056701/AC/DGAZ (SMD)

### Thermal Characteristics

θja = 150°C/W
θjc = 50°C/W

### Absolute Maximum Ratings

| | |
|---|---|
| Supply voltage $V_{CC}$ | 6.5V |
| Clock Input voltage | 2.5V p-p |
| Storage temperature range | -65°C to +150°C |
| Junction temperature | +175°C |

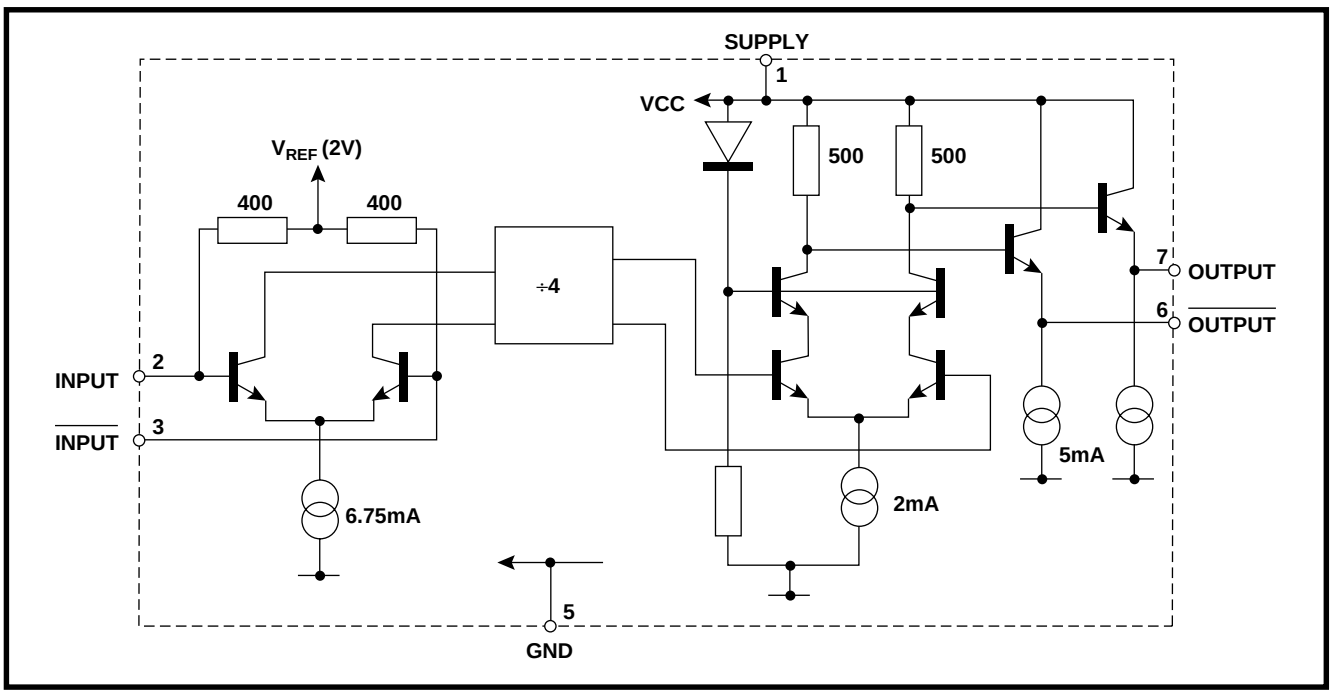
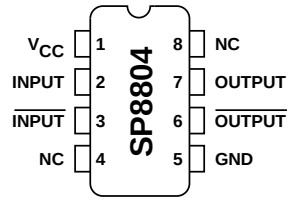



**Figure 1 SP8804 Block diagram**




DG8

**Figure 2 Pin connections**

## Electrical Characteristics

Guaranteed over the temperature range $T_{amb}$ -55°C to +125°C (see note) and supply voltage range 4.75V to 5.25V. Tested at $T_{amb}$ = -55°C and +105°C, $V_{CC}$ = 4.75V and 5.25V.

| Characteristic | Pin | Value | | | Units | Conditions |
|---|---|---|---|---|---|---|
| | | Min | Typ | Max | | |
| Supply current | 1 | | 74 | 90 | mA | $V_{CC}$ = 5V |
| Input sensitivity | 2, 3 | | | | | RMS sinewave |
| 0.65GHz to 2.8GHz | | | | 175 | mV | measured in 50 ohm system. |
| 3.3GHz | | | | 400 | mV | See Figs. 3 & 4 |
| Input impedance | 2, 3 | | 50 | | Ω | |
| (series equivalent) | | | 2 | | pF | |
| Output Voltage with $f_{in}$ =1000MHz | 6, 7 | 0.8 | 1 | | Vp-p | $V_{CC}$ = 5V |
| Output Voltage with $f_{in}$ = 3GHz | 6, 7 | | 0.25 | | Vp-p | $V_{CC}$ = 5V load as Fig. 4 |

NOTE: Devices must be used with a suitable heatsink to maintain chip temperature below 175°C when operating at $T_{amb}$>105°C.

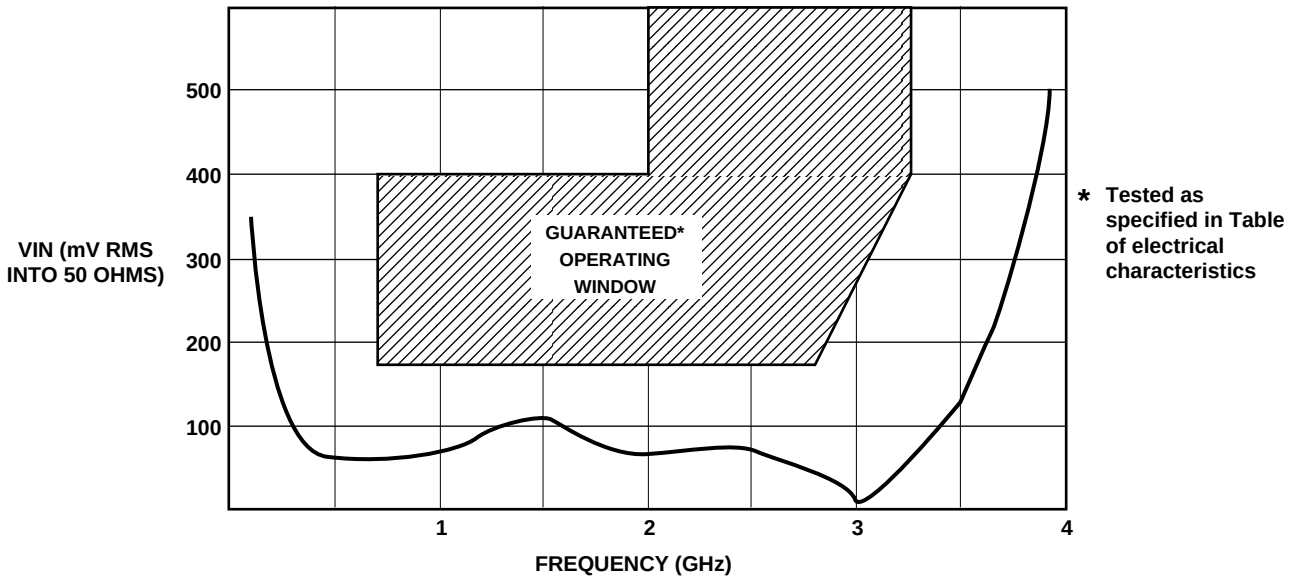



**Figure 3 Typical input sensitivity**

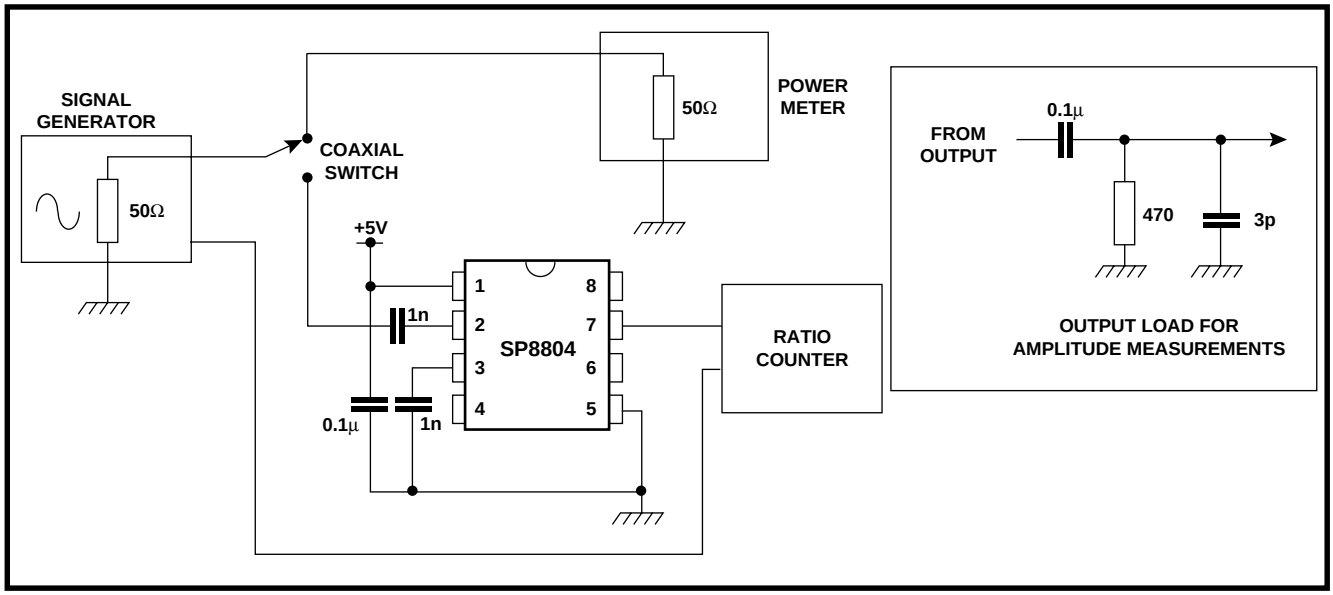



**Figure 4 Test circuit**

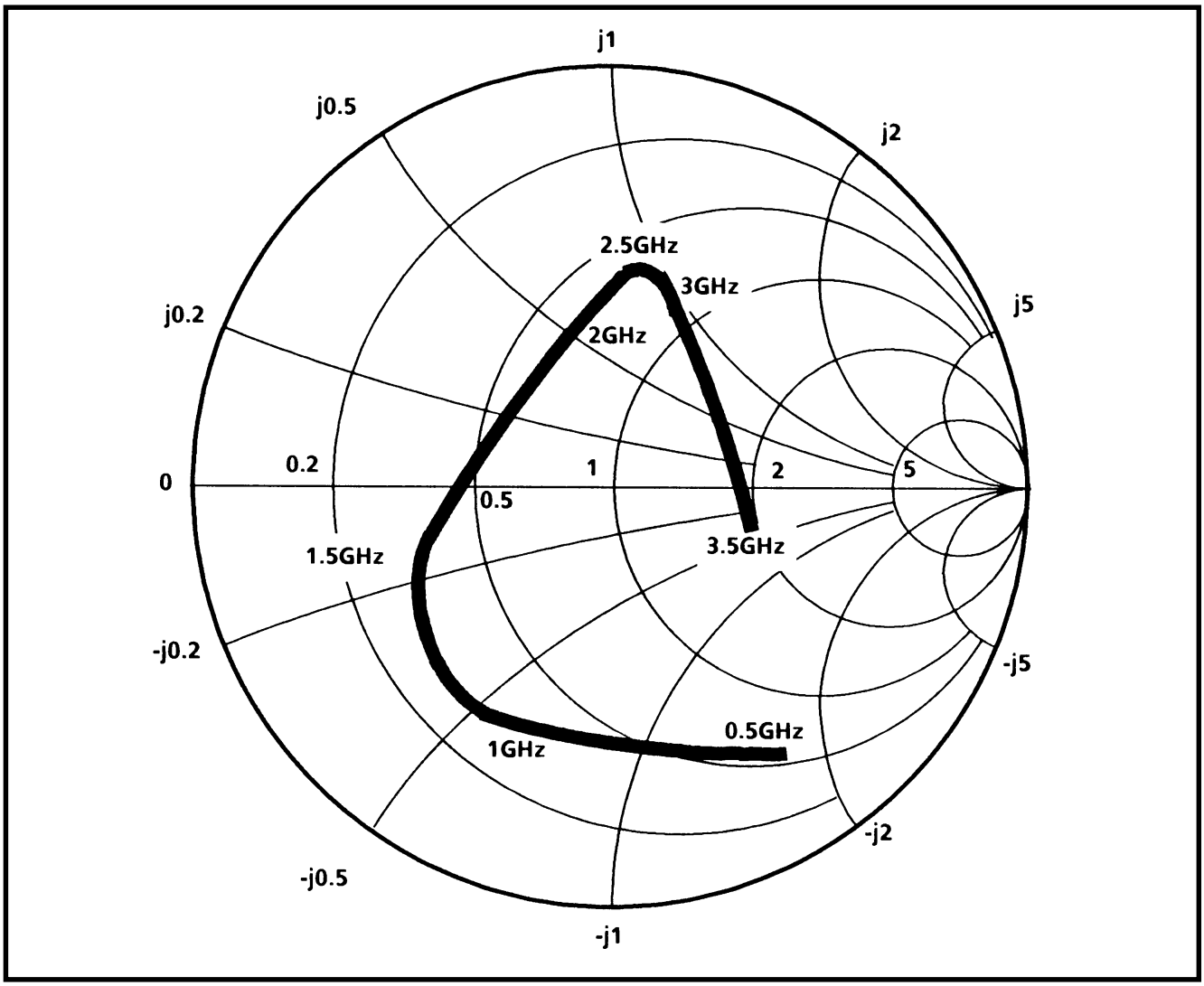
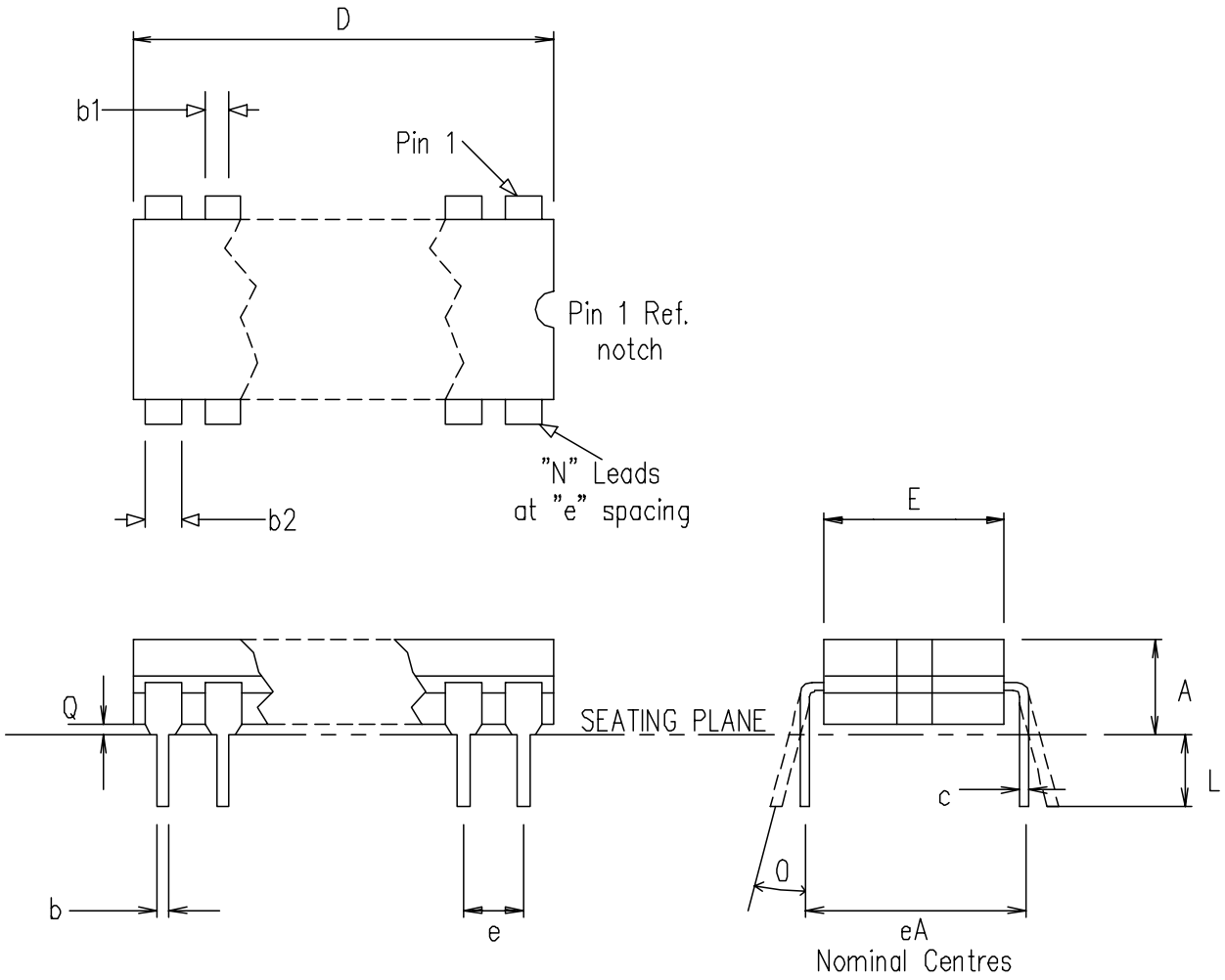



**Figure 5 Typical input impedance**




| Symbol | Altern. Dimensions in millimetres | | | | Control Dimensions in inches | | |
|---|---|---|---|---|---|---|---|
| | MIN | Nominal | MAX | | MIN | Nominal | MAX |
| L | 3.18 | | 4.06 | | 0.125 | | 0.160 |
| A | | | 5.08 | | | | 0.200 |
| Q | 0.51 | | | | 0.020 | | |
| E | 5.59 | | 7.87 | | 0.220 | | 0.310 |
| eA | | 7.62 | | | | 0.300 | |
| c | 0.20 | | 0.36 | | 0.008 | | 0.014 |
| D | | | 10.29 | | | | 0.405 |
| e | 2.54 BSC. | | | | 0.100 BSC. | | |
| b1 | 1.14 | | 1.65 | | 0.045 | | 0.065 |
| b | 0.36 | | 0.58 | | 0.014 | | 0.023 |
| b2 | 0.73 | | 1.12 | | 0.029 | | 0.044 |
| 0 | | | 15° | | | | 15° |
| | | | | | | | |
| | Pin features | | | | | | |
| N | 8 | | | | | | |
| ND | 4 | | | | | | |
| NE | 0 | | | | | | |
| NOTE | RECTANGULAR | | | | | | |

This drawing supersedes 418/ED/39501/001 (Swindon)



ORIGINATING SITE: SWINDON

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Title: Outline drawing for 8 Lead Cerdip (DG)

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