

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 420mW (typ)
- 5V Single Supply Operation
- High Input Sensitivity
- Very Wide Operating Frequency Range
- Available as DESC SMD 5962-9066101MPA

Ordering Information

SP8802/A/DG Military temperature range
DES9066101/AC/DGAZ (SMD)

Thermal Characteristics

$\theta_{ja} = 150^{\circ}\text{C/W}$
 $\theta_{jc} = 50^{\circ}\text{C/W}$

Description

The SP8802 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

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 |

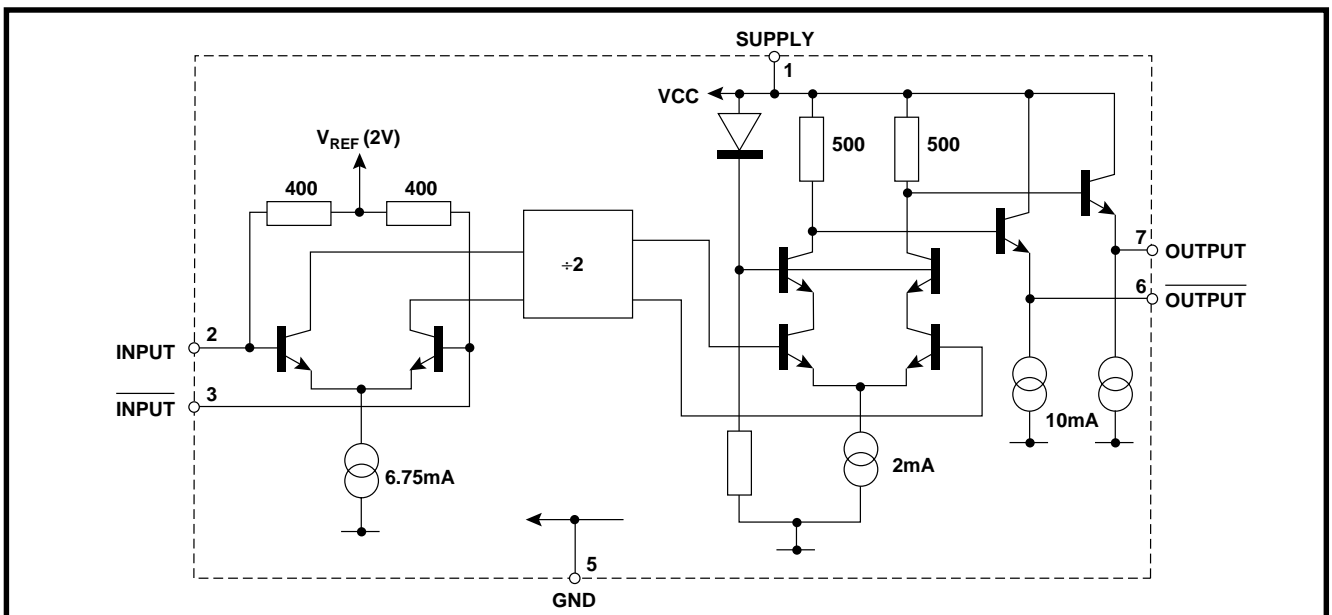


Figure 1 SP8802 Block diagram

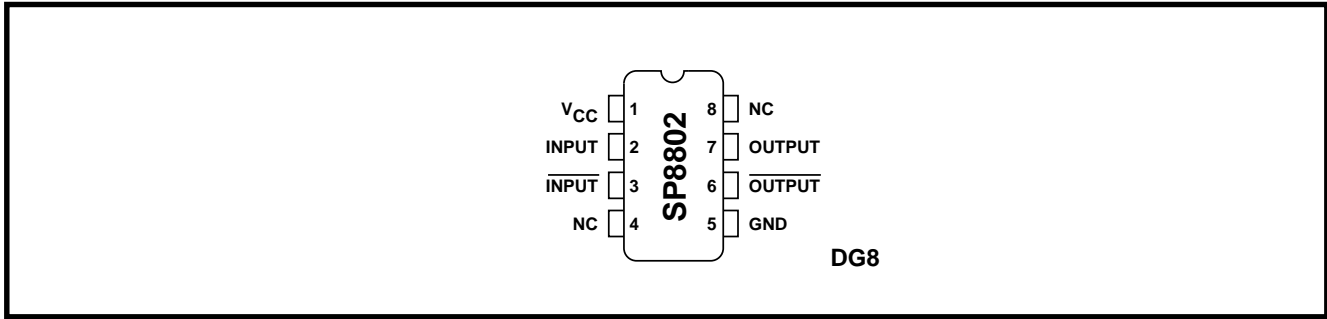


Figure 2 Pin connections

Electrical Characteristics

Guaranteed over the temperature range T_{amb} -55°C to $+125^{\circ}\text{C}$ (see note) and supply voltage range 4.75V to 5.25V. Tested at $T_{amb} = -55^{\circ}\text{C}$ and $+100^{\circ}\text{C}$, $V_{CC} = 4.75\text{V}$ and 5.25V .

| Characteristic | Pin | Value | | | Units | Conditions |
|---|------|-------|------|-----|----------|-------------------------------------|
| | | Min | Typ | Max | | |
| Supply current | 1 | | 84 | 100 | mA | $V_{CC} = 5\text{V}$ |
| Input sensitivity 0.65GHz to 2.8GHz | 2, 3 | | | 175 | mV | RMS sinewave |
| 3.3GHz | | | | 400 | mV | measured in 50 ohm system. |
| Input impedance (series equivalent) | 2, 3 | | 50 | | Ω | See Figs. 3 & 4 |
| Output Voltage with $f_{in} = 1000\text{MHz}$ | 6, 7 | 0.8 | 1 | | Vp-p | $V_{CC} = 5\text{V}$ |
| Output Voltage with $f_{in} = 3\text{GHz}$ | 6, 7 | | 0.35 | | Vp-p | $V_{CC} = 5\text{V}$ load as Fig. 4 |

NOTE: Devices must be used with a suitable heatsink to maintain chip temperature below 175°C when operating at $T_{amb} > 100^{\circ}\text{C}$.

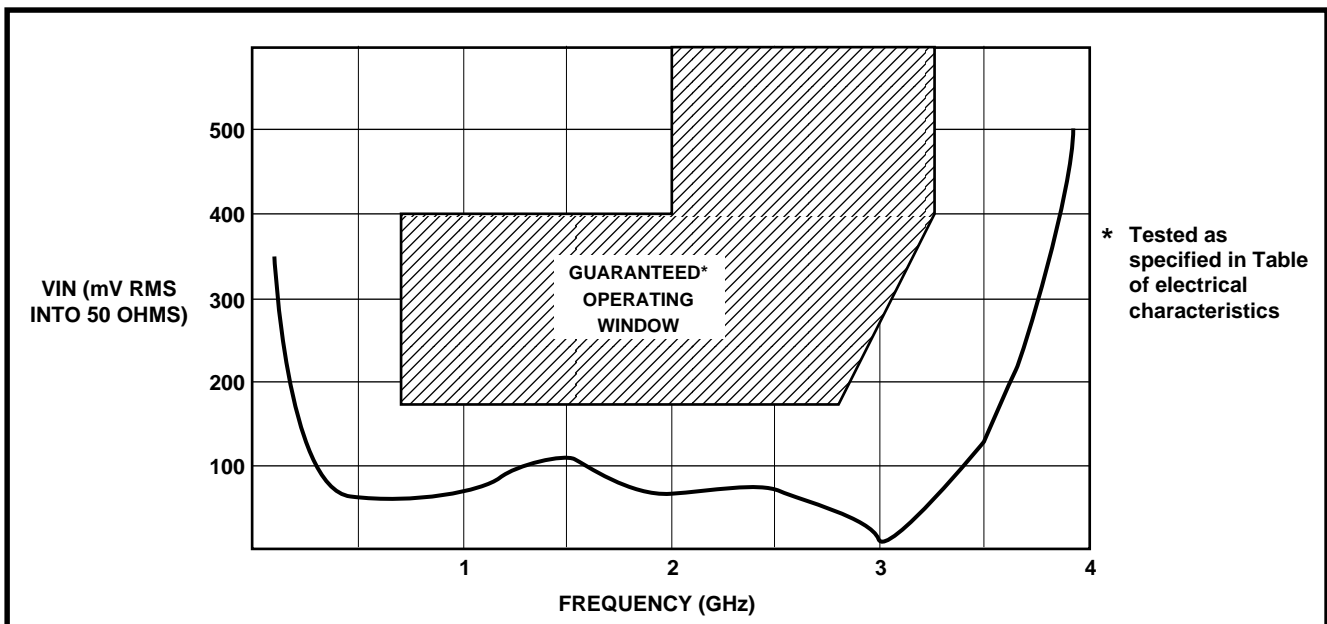


Figure 3 Typical input sensitivity

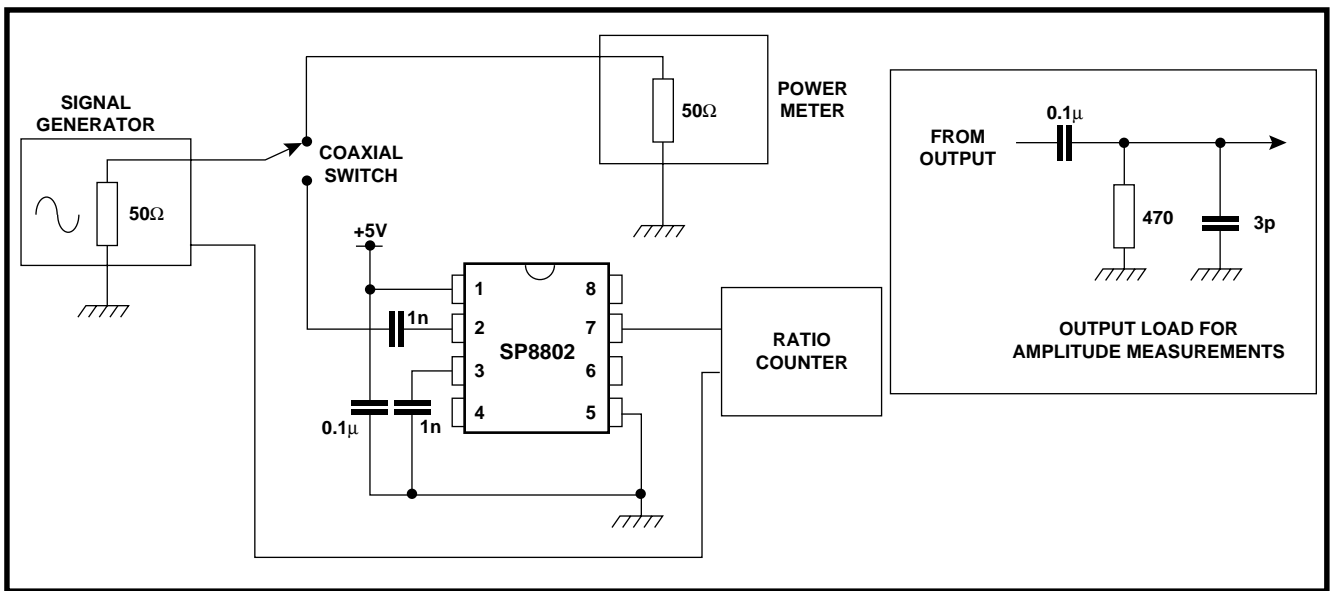


Figure 4 Test circuit

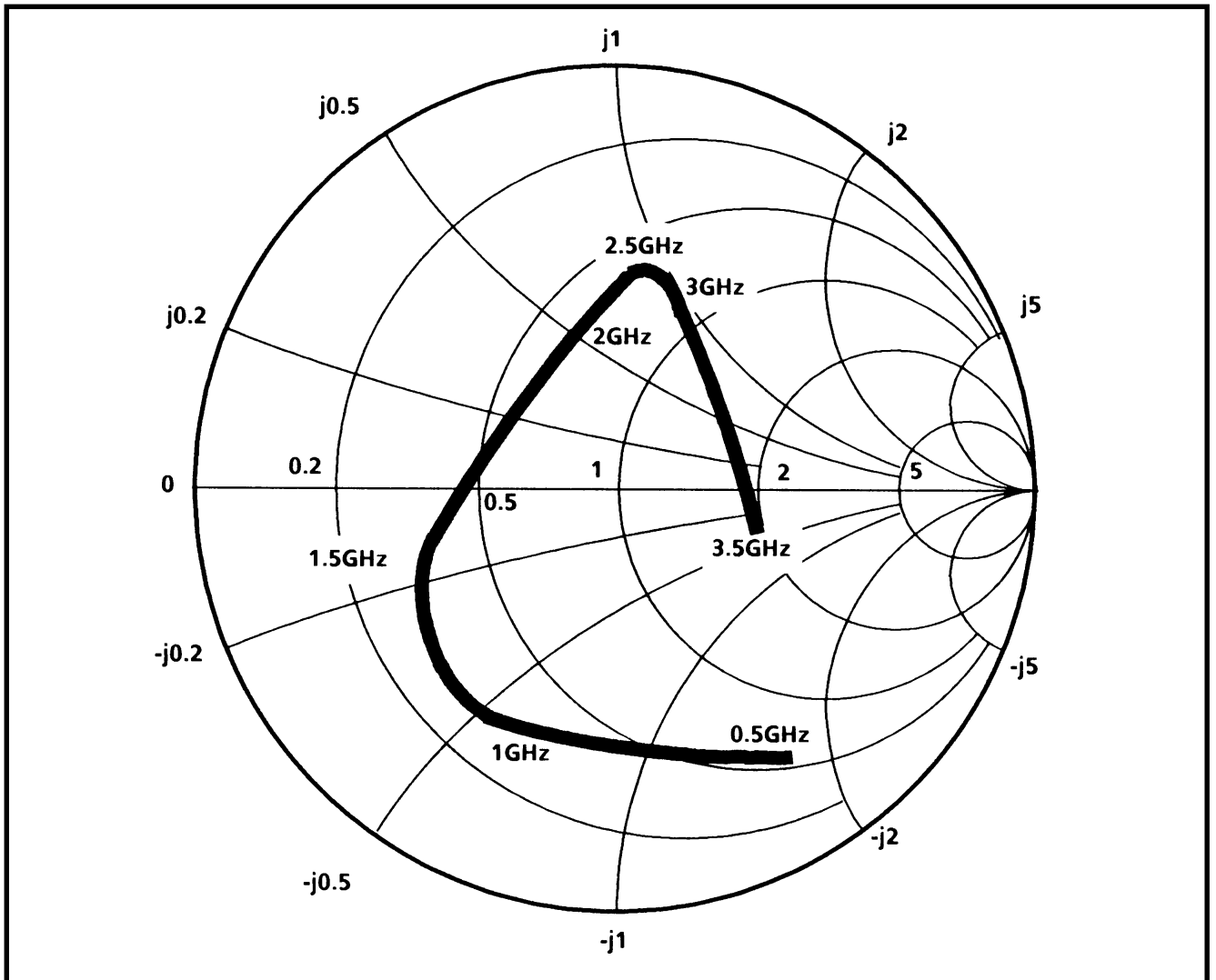
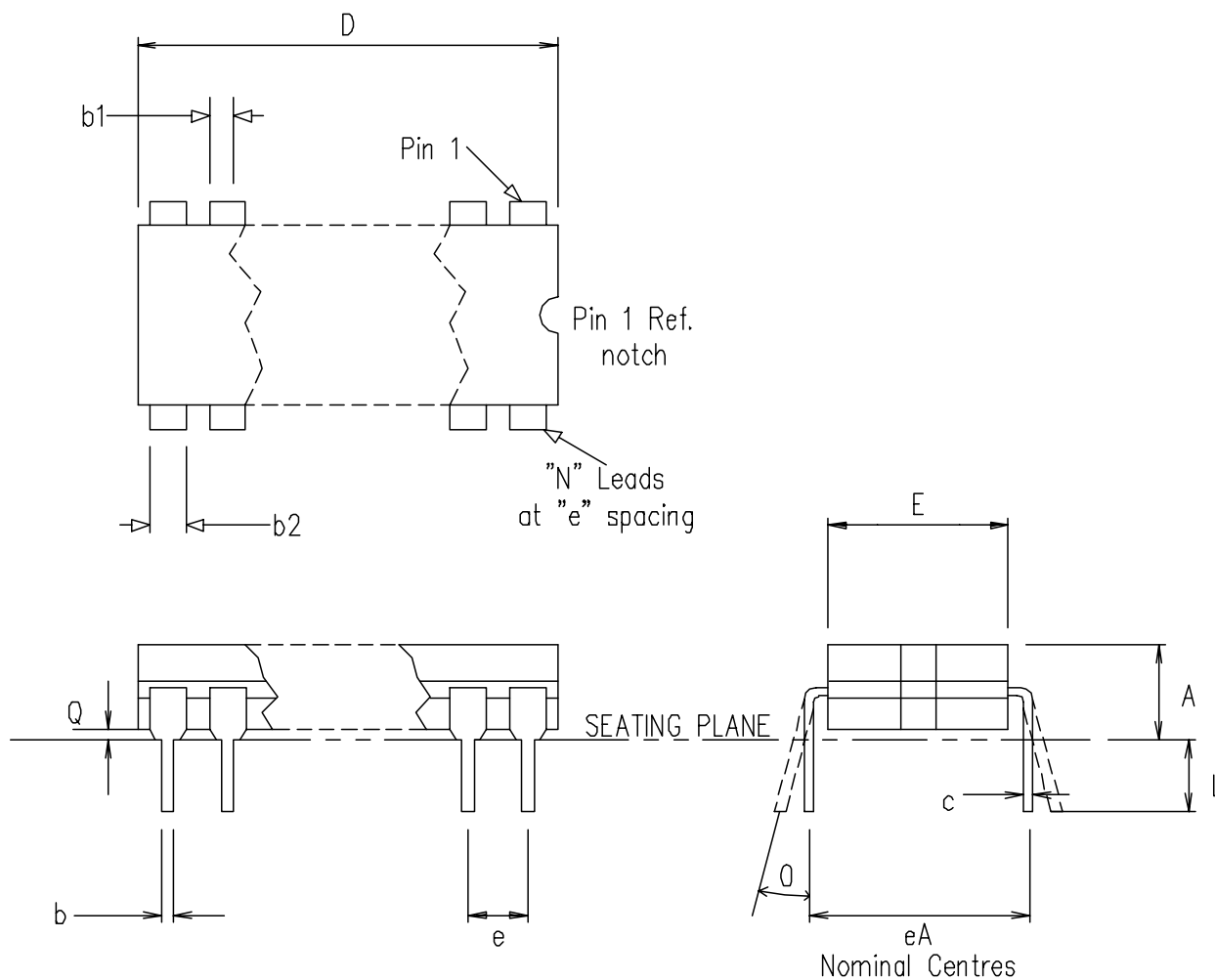


Figure 5 Typical input impedance



| 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 |
| Ø | | | 15° | | | 15° |
| | Pin features | | | | | |
| N | 8 | | | | | |
| ND | 4 | | | | | |
| NE | 0 | | | | | |
| NOTE | RECTANGULAR | | | | | |

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

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ORIGINATING SITE: SWINDON

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