

### 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

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

### 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

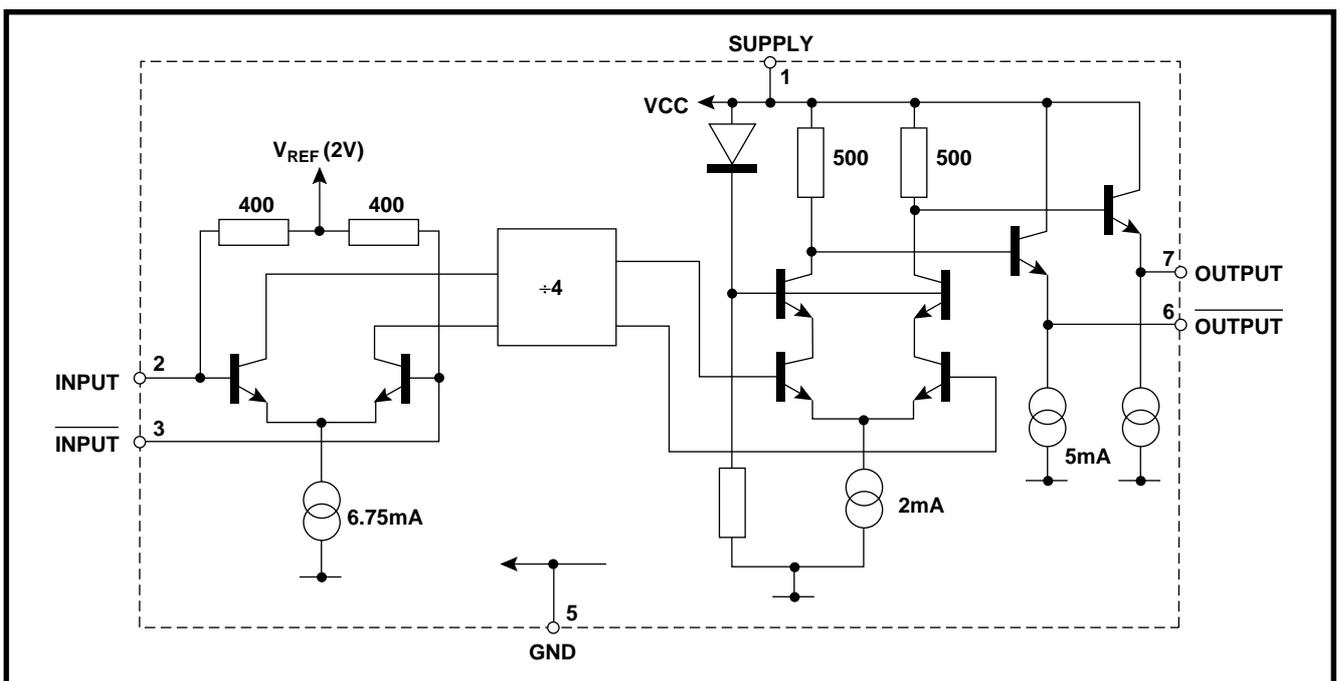


Figure 1 SP8804 Block diagram

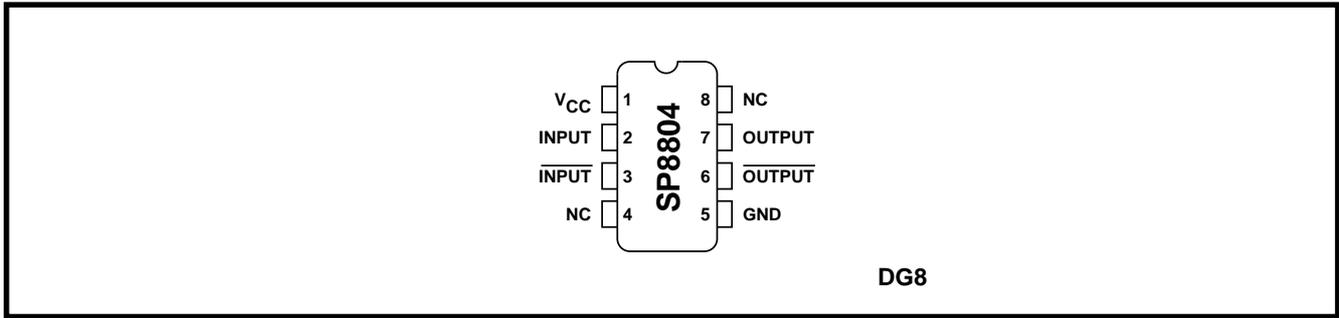


Figure 2 Pin connections

**Electrical Characteristics**

Guaranteed over the temperature range  $T_{amb}$   $-55^{\circ}\text{C}$  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  $+105^{\circ}\text{C}$ ,  $V_{CC} = 4.75\text{V}$  and  $5.25\text{V}$ .

Characteristic	Pin	Value			Units	Conditions
		Min	Typ	Max		
Supply current	1		74	90	mA	$V_{CC} = 5\text{V}$
Input sensitivity 0.65GHz to 2.8GHz	2, 3			175	mV	RMS sinewave measured in 50 ohm system.
3.3GHz				400	mV	See Figs. 3 & 4
Input impedance (series equivalent)	2, 3		50		$\Omega$	
			2		pF	
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		0.25		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  $175^{\circ}\text{C}$  when operating at  $T_{amb} > 105^{\circ}\text{C}$ .

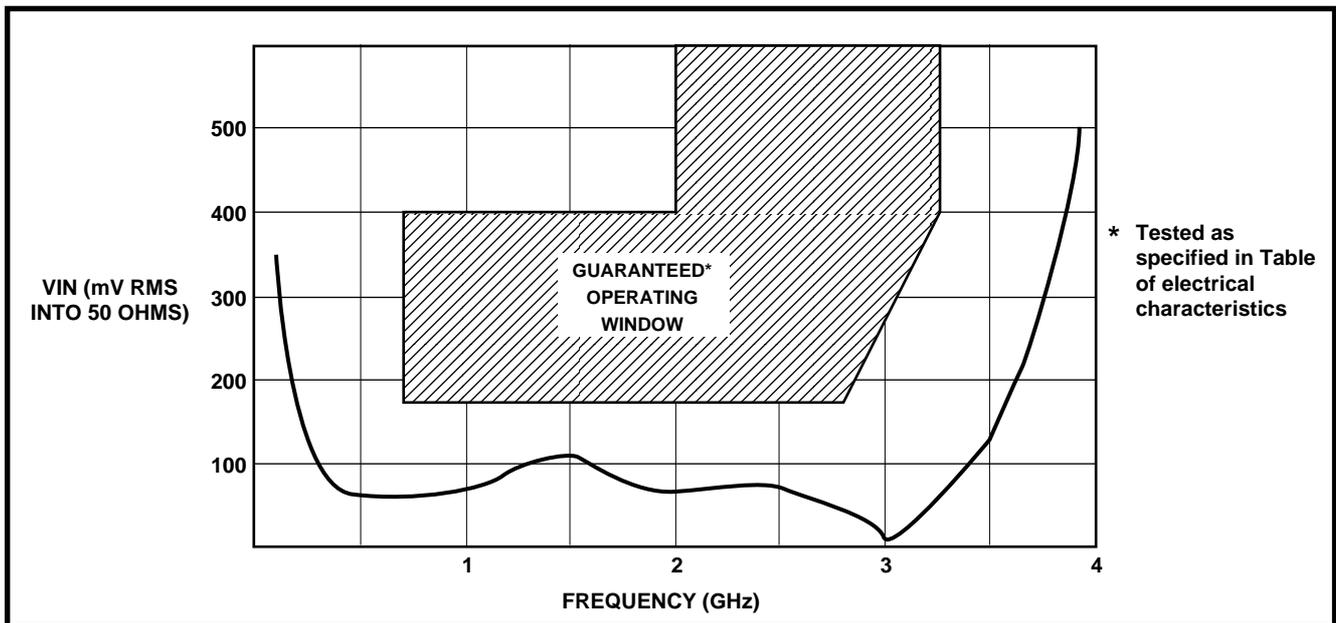


Figure 3 Typical input sensitivity

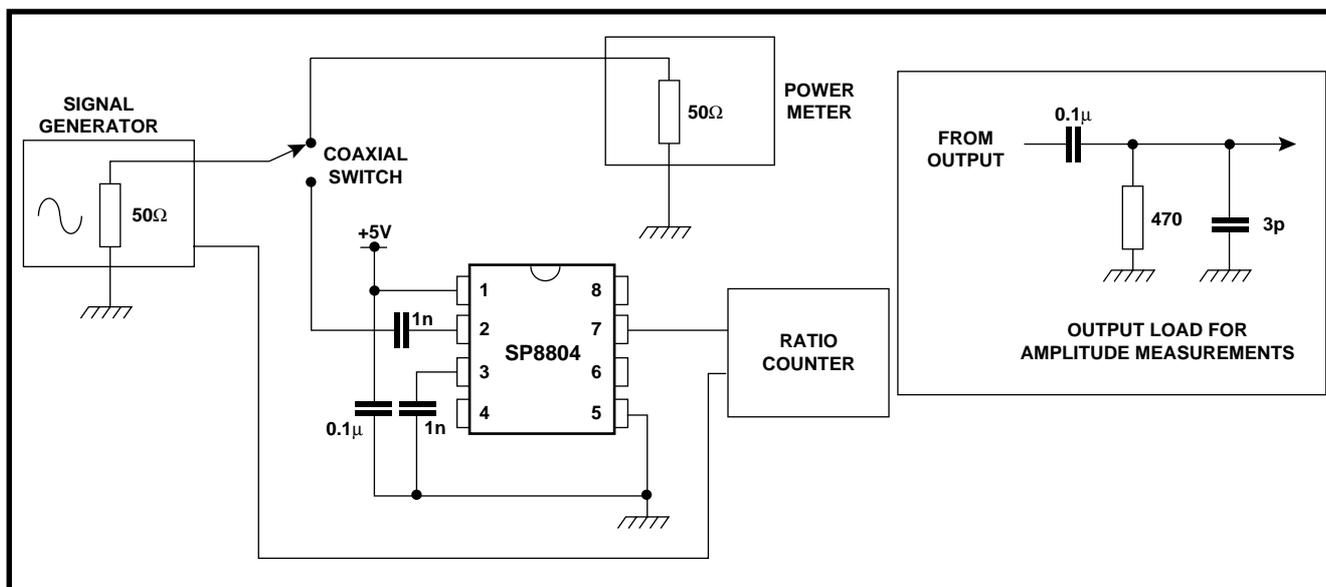


Figure 4 Test circuit

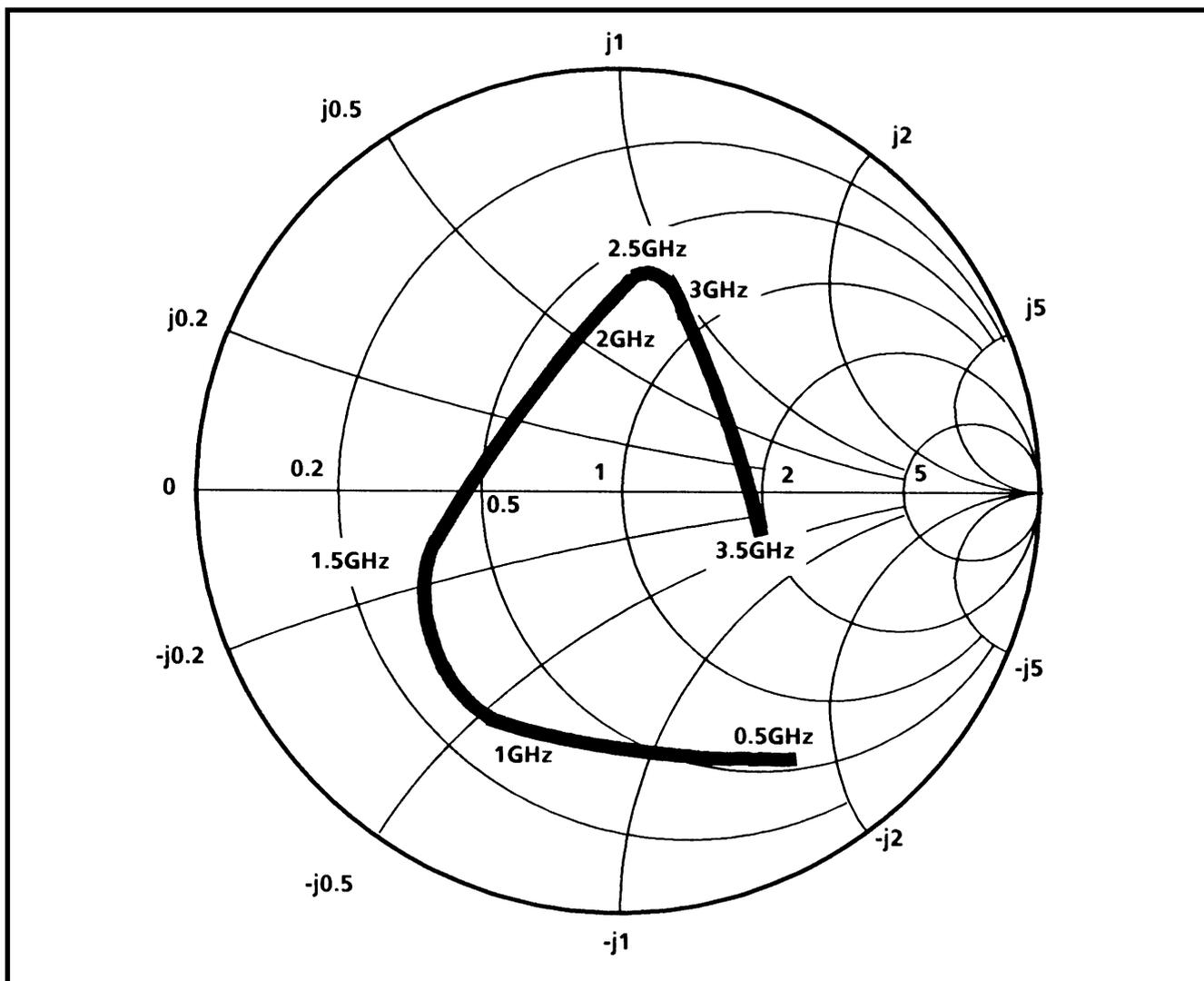
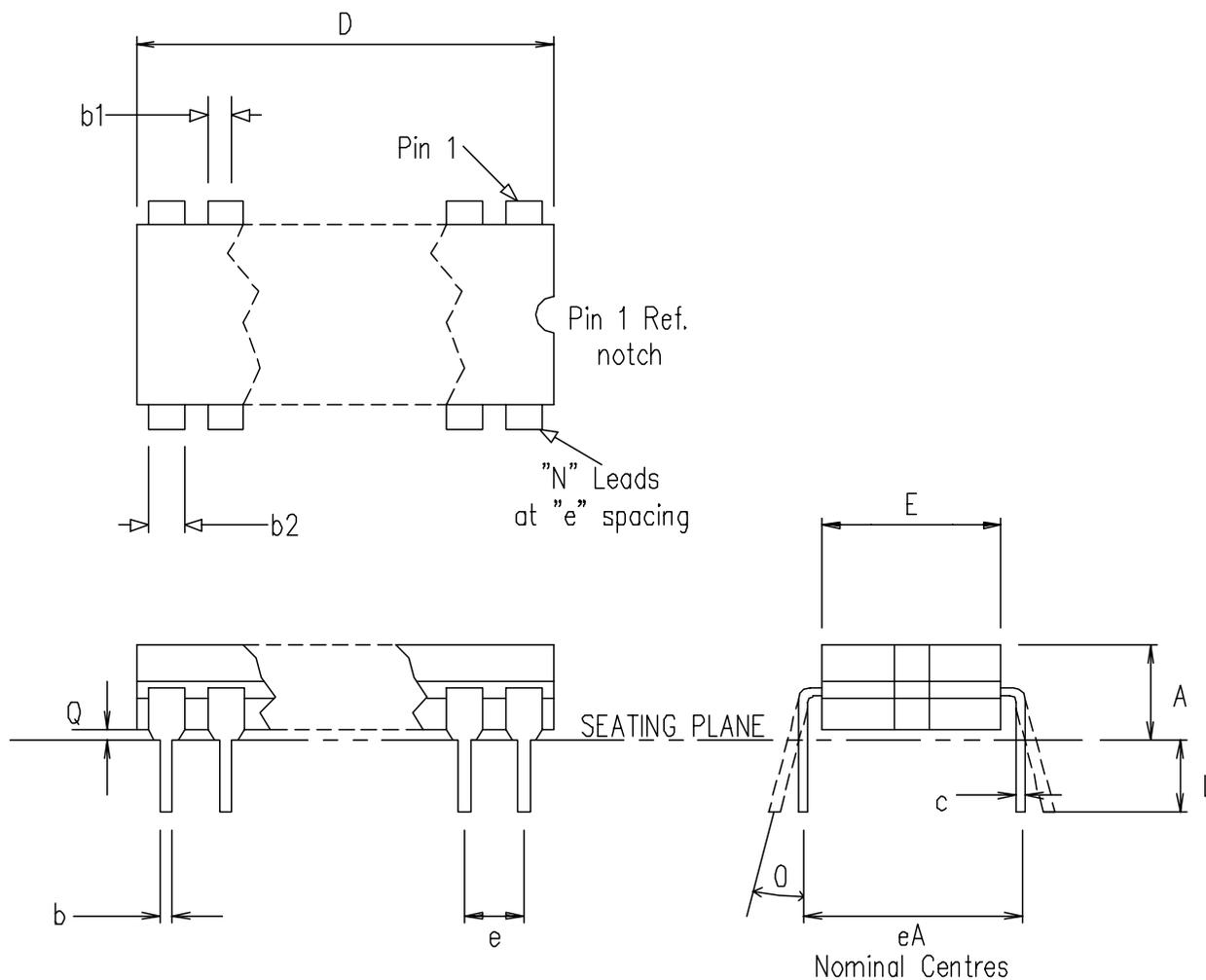


Figure 5 Typical input impedance



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
Q			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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8 Lead Cerdip (DG)

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