

### Features

- Very High Speed Operation 3.3GHz
- Silicon Technology for low Phase Noise (Typically better than -150dBc/Hz at 10kHz)
- Specified Over the Full Military Temperature Range
- Low Power Dissipation 390mW (typ)
- 5V Single Supply Operation
- High Input Sensitivity
- Very Wide Operating Frequency Range

**Ordering Information**  
SP8803/A/DG Military temperature range

### Description

The SP8803 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.

### Thermal Characteristics

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

### 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

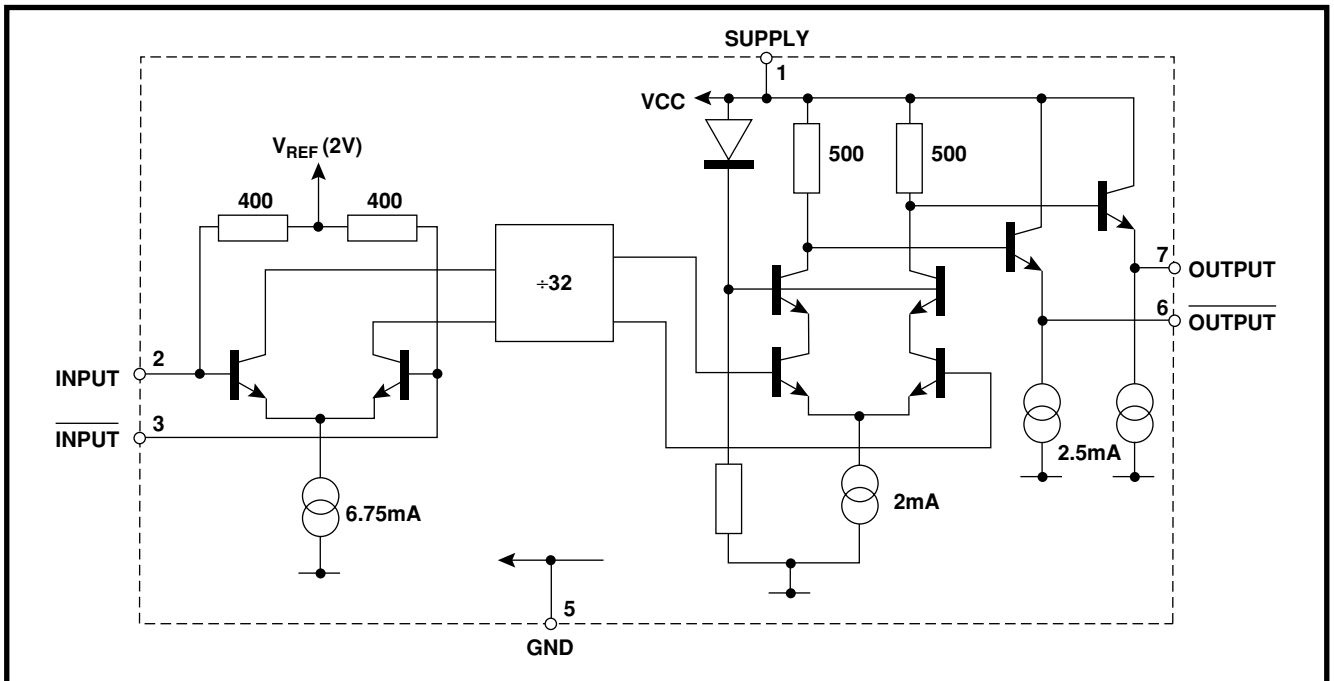


Figure 1 SP8803 Block diagram

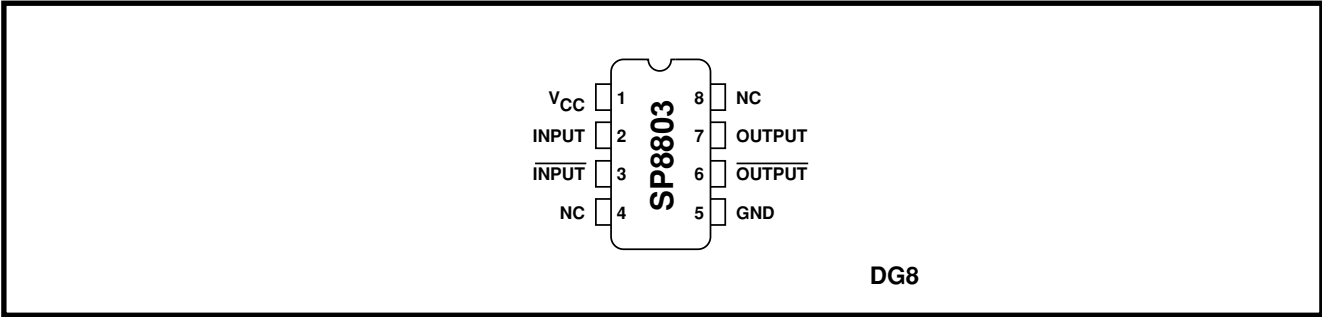


Figure 2 Pin connections

### 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  $+125^{\circ}\text{C}$ ,  $V_{CC} = 4.75\text{V}$  and  $5.25\text{V}$ .

Characteristic	Pin	Value			Units	Conditions
		Min	Typ	Max		
Supply current	1		78	90	mA	$V_{CC} = 5\text{V}$ RMS sinewave measured in 50 ohm system. See Figs. 3 & 4
Input sensitivity 0.65GHz to 2.8GHz	2, 3			175	mV	
Input sensitivity 3.3GHz	2, 3			400	mV	
Input impedance (series equivalent)	2, 3		50	2	$\Omega$ pF	
Output Voltage with $f_{in} = 650\text{MHz}$	6, 7	0.815	1.09	1.36	Vp-p	$V_{CC} = 5\text{V}$
Output Voltage with $f_{in} = 3\text{GHz}$	6, 7		1.03		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  $T_{amb} > 105^{\circ}\text{C}$ .

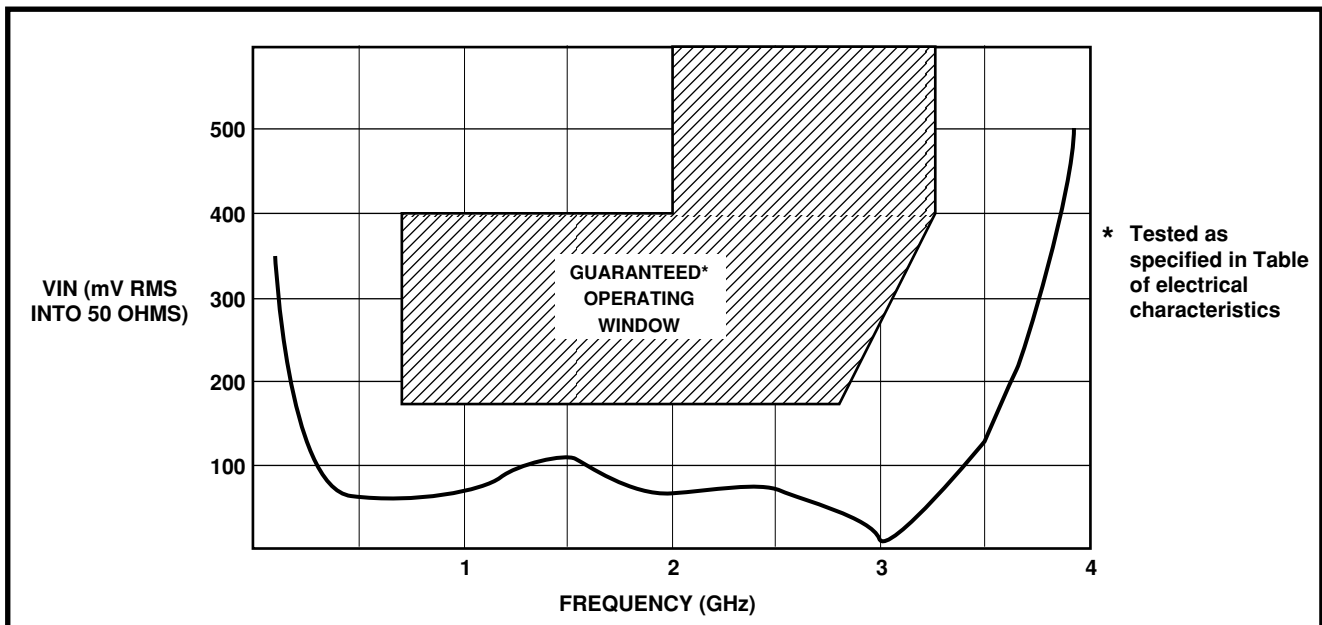


Figure 3 Typical input sensitivity

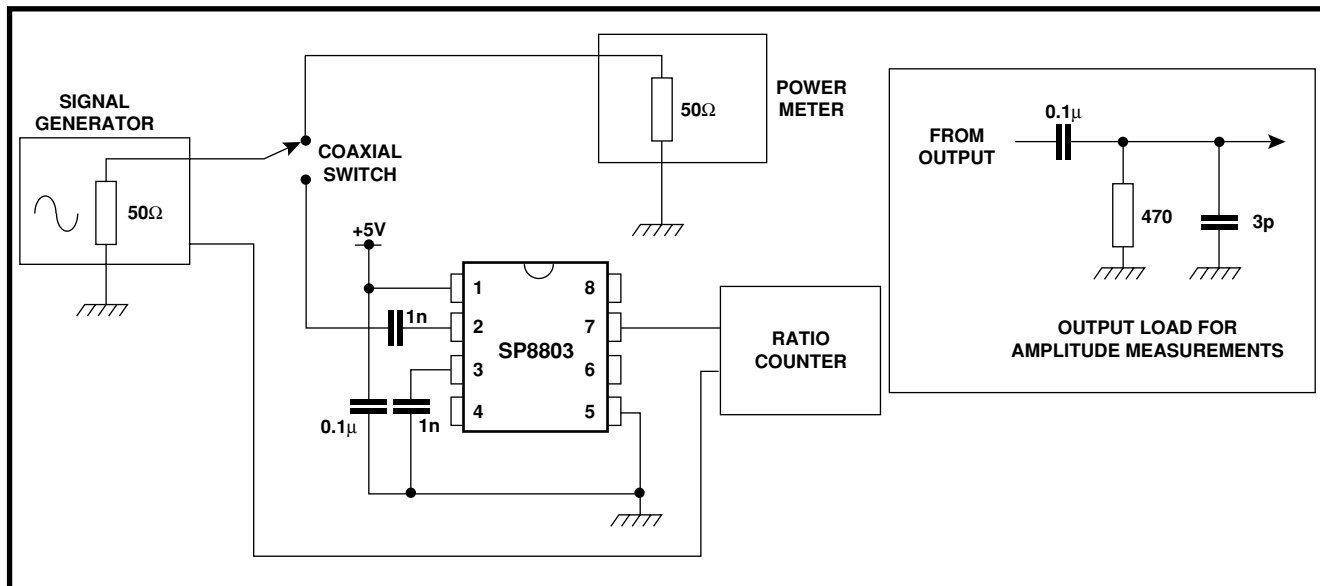


Figure 4 Test circuit

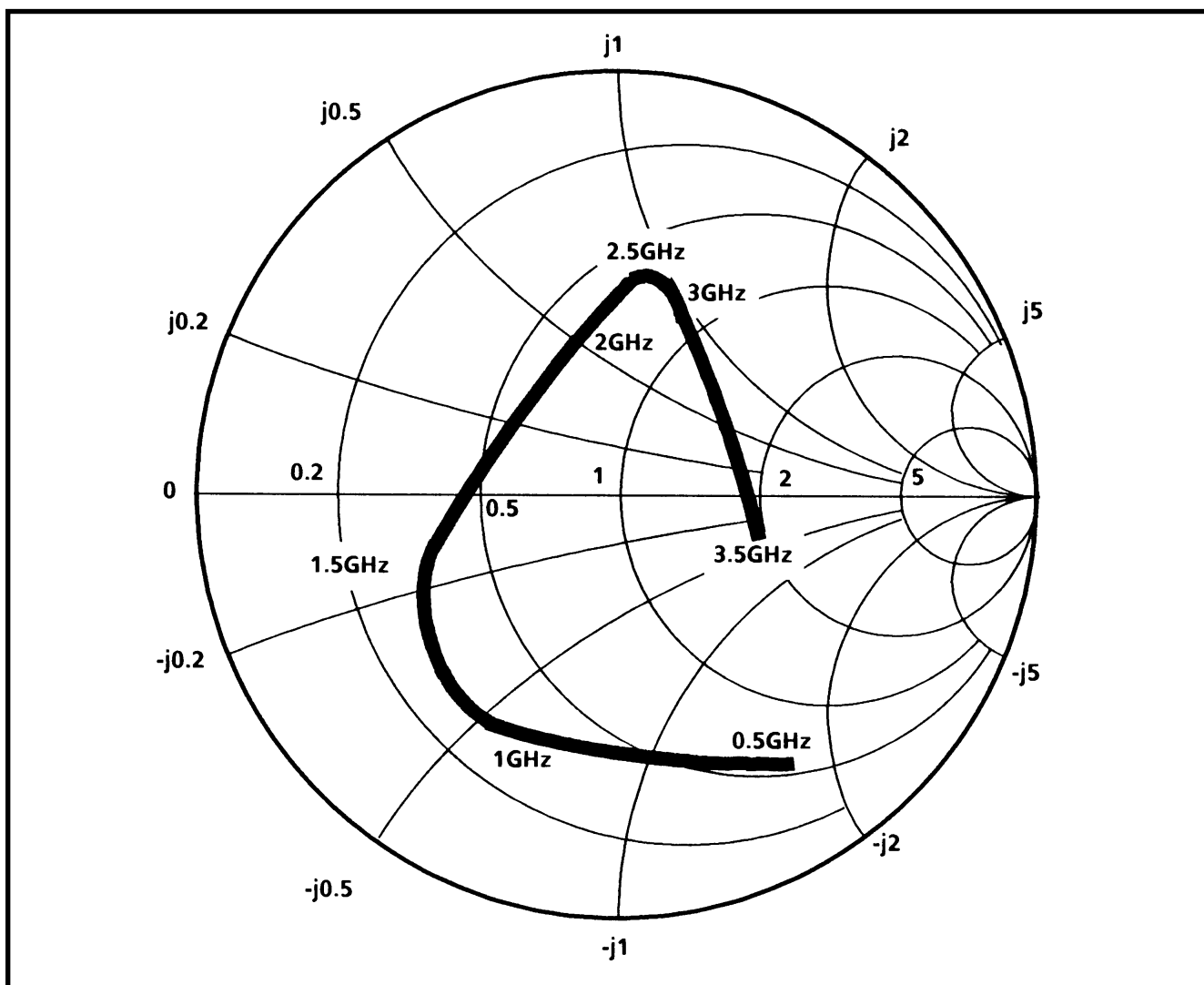


Figure 5 Typical input impedance



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