

The SP8916 is one of a range of very high speed low power prescalers for professional applications. The dividing elements are static D type flip flops and therefore allow operation down to DC if the drive signal is a pulse waveform with fast risetime. The output stage has internal 100 ohm pull up resistors giving a 0.5V p-p output. If required an external 100 ohm resistor can be connected in parallel to give a 50 ohm output.

FEATURES

- Very High Operating Speed
- Operation down to DC with square wave input
- Silicon Technology for low Phase Noise
(Typically better than -140dBc/Hz at 1KHz)
- 5V Single Supply Operation
- Low Power Dissipation-340mW (Typ.)
- Surface Mount Plastic Package

ABSOLUTE MAXIMUM RATINGS

Supply Voltage, V_{CC}	6.5V
Storage Temperature	-65°C to $+150^{\circ}\text{C}$
Maximum Junction Temperature	$+150^{\circ}\text{C}$
Prescaler Input Voltage	2.5Vp-p
Operating Temperature	KG -40°C to $+85^{\circ}\text{C}$ T_{case}

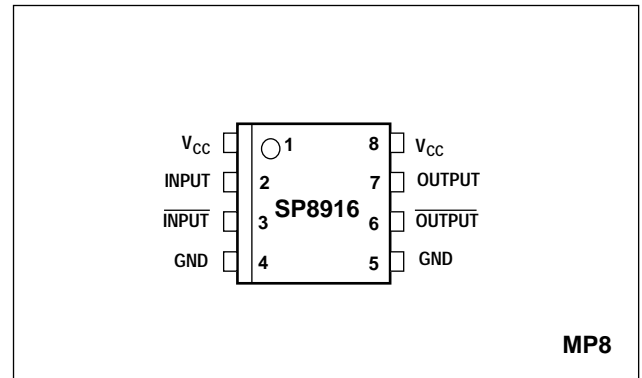


Fig.1 Pin connections - top view

ORDERING INFORMATION

SP8916/KG/MP1S (Tubes)
SP8916/KG/MP1T (Tape and Reel)

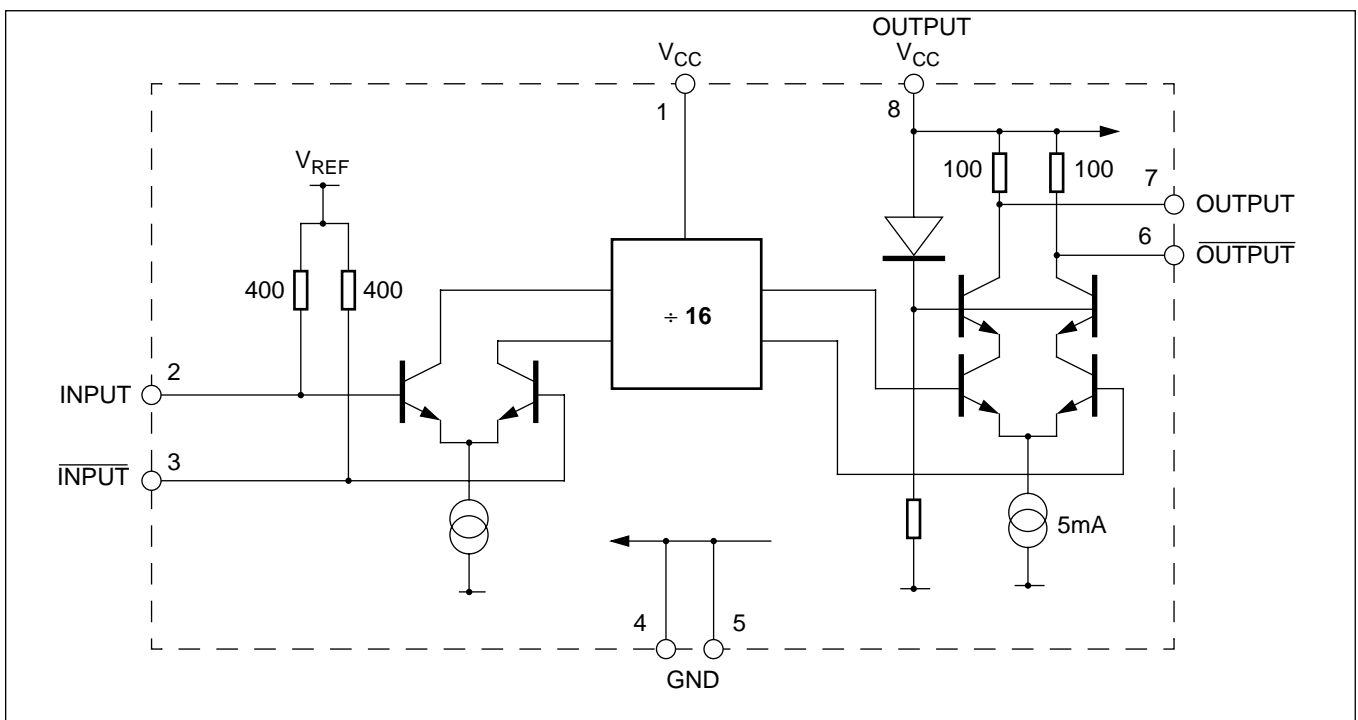


Fig.2 SP8916 block diagram

SP8916

SP8916 ELECTRICAL CHARACTERISTICS

Guaranteed over the full specified temperature and supply voltage range

Test conditions (unless otherwise stated):

Temperature $T_{amb} = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$.

Supply Voltage: $V_{CC} = 4.75\text{V}$ and 5.25V

Characteristic	Pin	Value			Units	Conditions
		Min.	Typ.	Max.		
Supply current	1, 8	-	68	92	mA	
Input frequency	2, 3	1.0	-	5.0	GHz	RMS sinewave
Input sensitivity	2, 3	-	-	180	mVrms	$f_{in} = 1\text{GHz} \ \& \ 4.2\text{GHz}$
Input sensitivity	2, 3	-	-	570	mVrms	$f_{in} = 5\text{GHz}$
Input overload	2, 3	440	-	-	mVrms	$f_{in} = 1\text{GHz} \ \& \ 3\text{GHz}$
Input overload	2, 3	700	-	-	mVrms	$f_{in} = 5\text{GHz} \ \& \ 3.8\text{GHz}$
Output voltage	6, 7	-	0.25	-	Vp/p	Into 100Ω pull up resistor
Output power	6, 7	-18.0	-9.0	-4.0	dBm	$f_{in} = 1 \ \& \ 5\text{GHz}$ (see note 1)

NOTE 1.

Measured into 50Ω measuring instrument in parallel with 100Ω pull up resistor. See Fig.5.

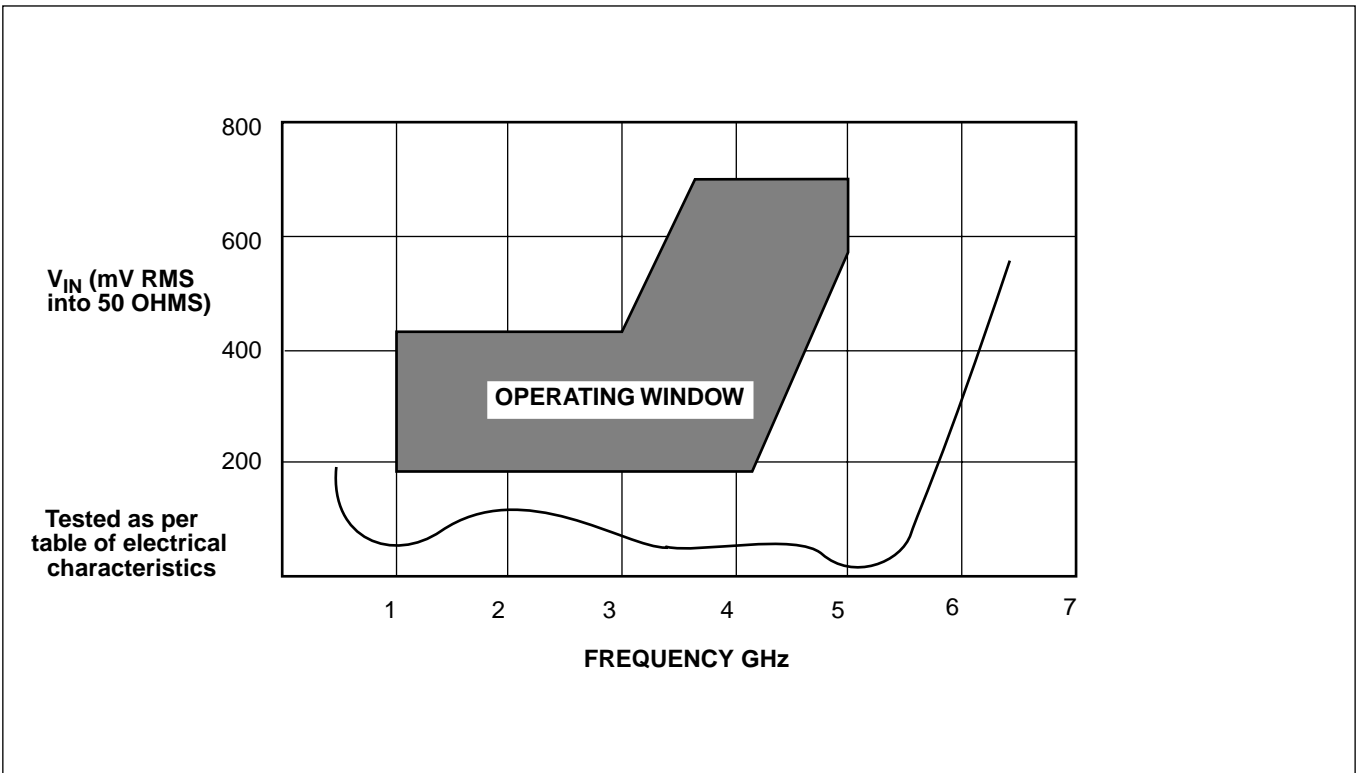


Fig.3 Typical input sensitivity (sine wave drive)

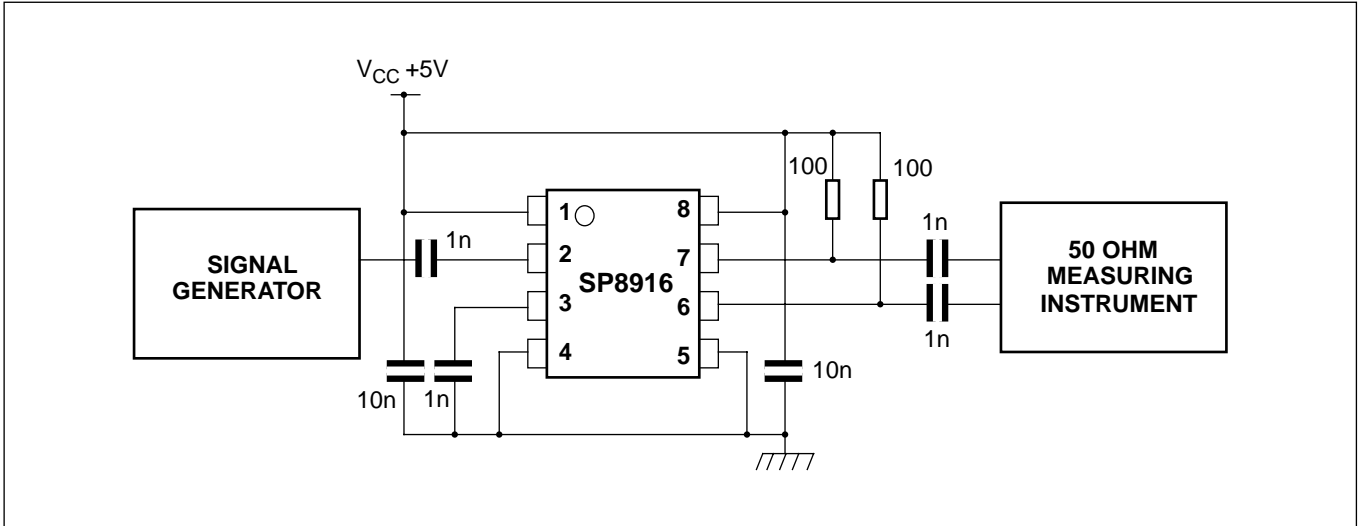


Fig.4 Typical application and test circuit

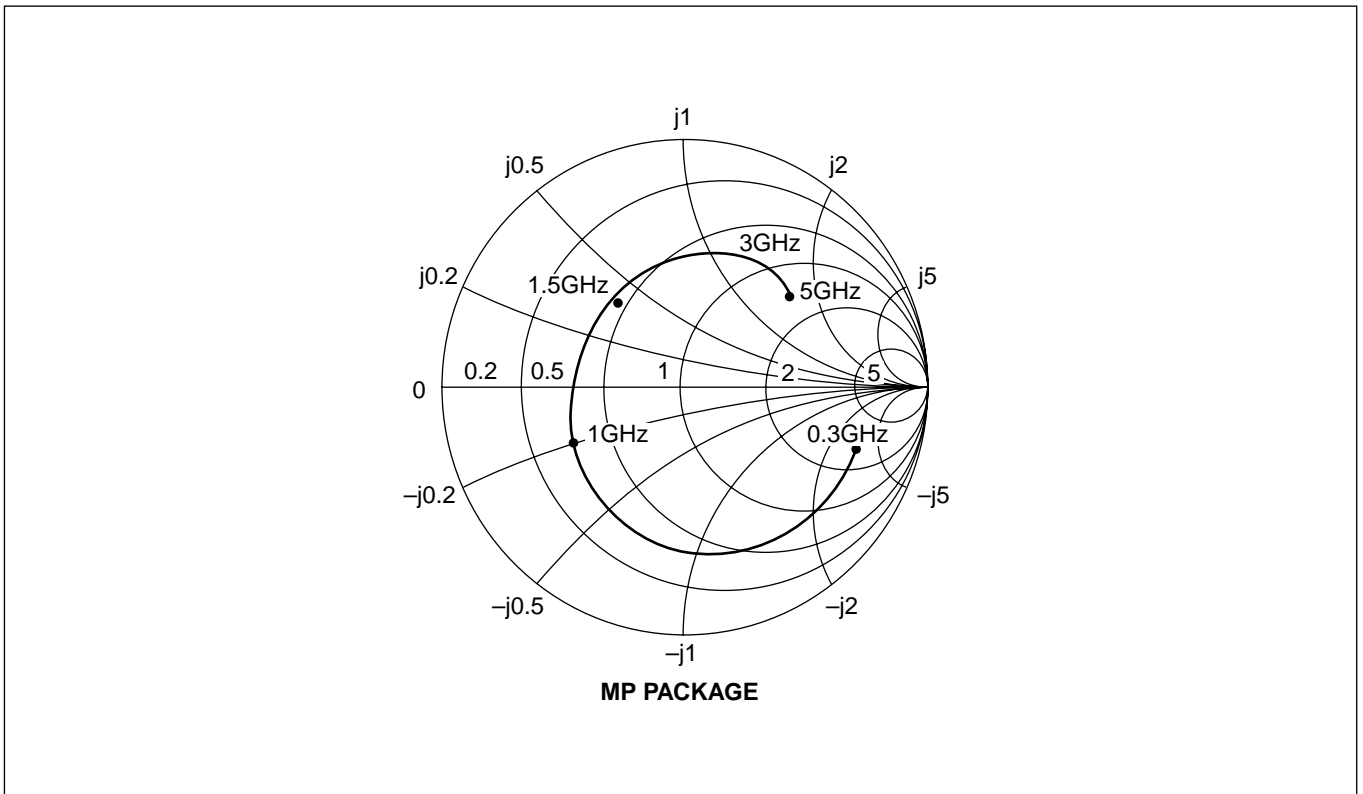
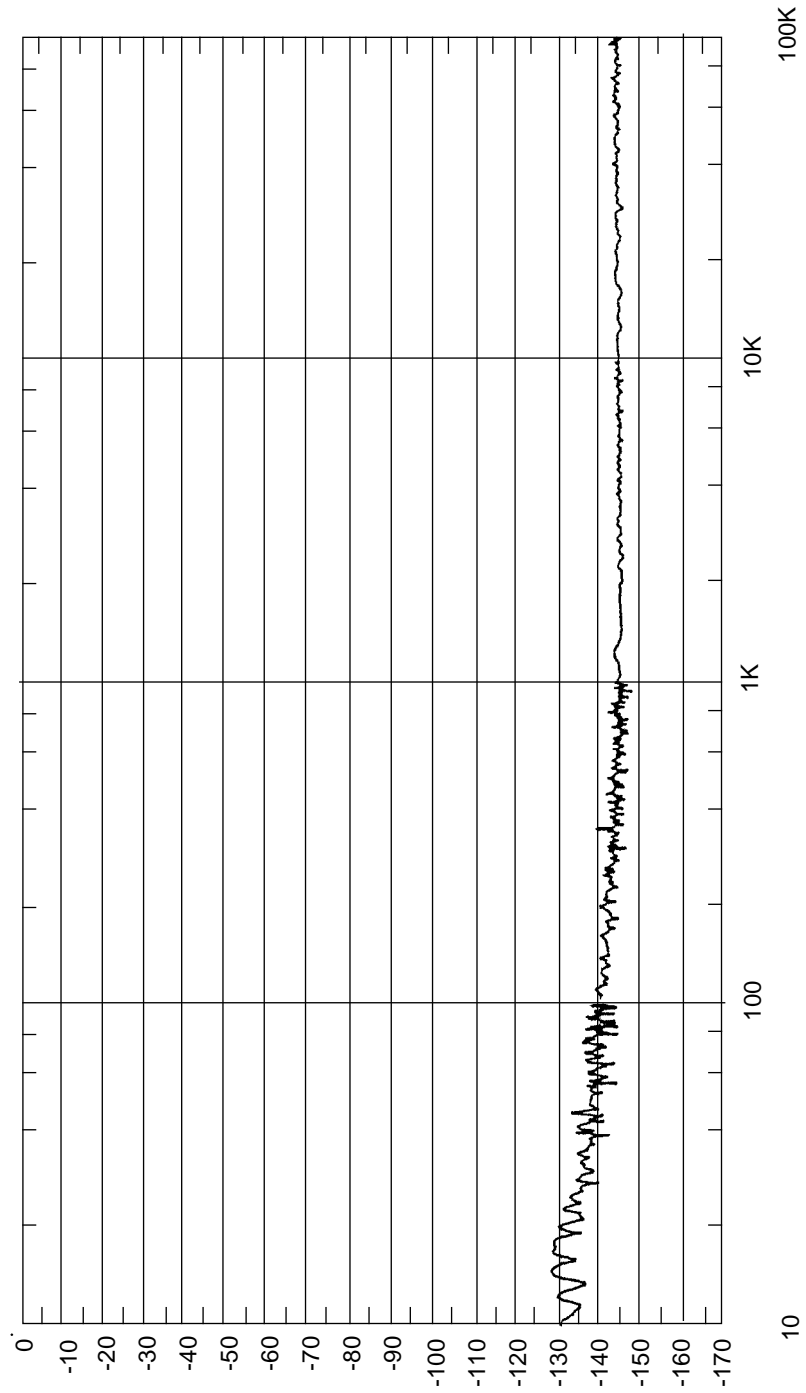


Fig.5 Typical input impedance



L (f) [dBc/Hz] vs f [Hz]

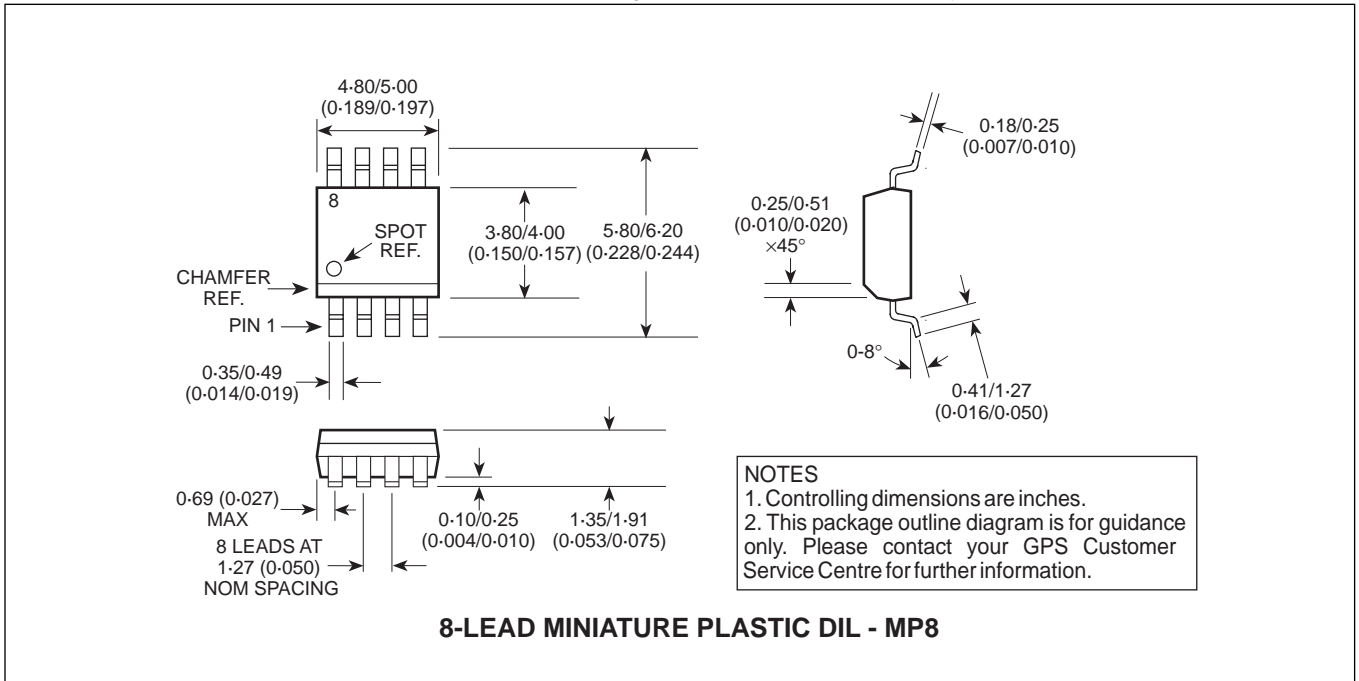
Fig.6 Typical phase noise of SP8916, input frequency = 3GHz

NOTES

SP8916

PACKAGE DETAILS

Dimensions are shown thus: mm (in). For further package information please contact your local Customer Service Centre.



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