SP8902(MP)

5.0GHz ÷ 2 Fixed Modulus Divider

Preliminary Information

DS4375 - 1.3 April 1997

The SP8902 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 a differential current output and provides a direct drive into a 50 ohm load.

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-335mW (Typ.)
- Surface Mount Plastic Package

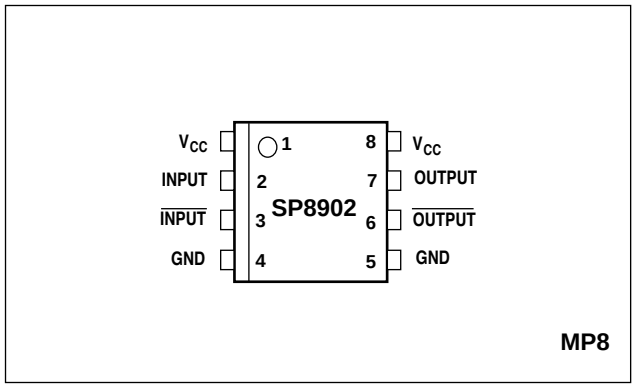


Fig.1 Pin connections - top view

ABSOLUTE MAXIMUM RATINGS

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

ORDERING INFORMATION

SP8902/KG/MP1S (Tubes)
SP8902/KG/MP1T (Tape and Reel)

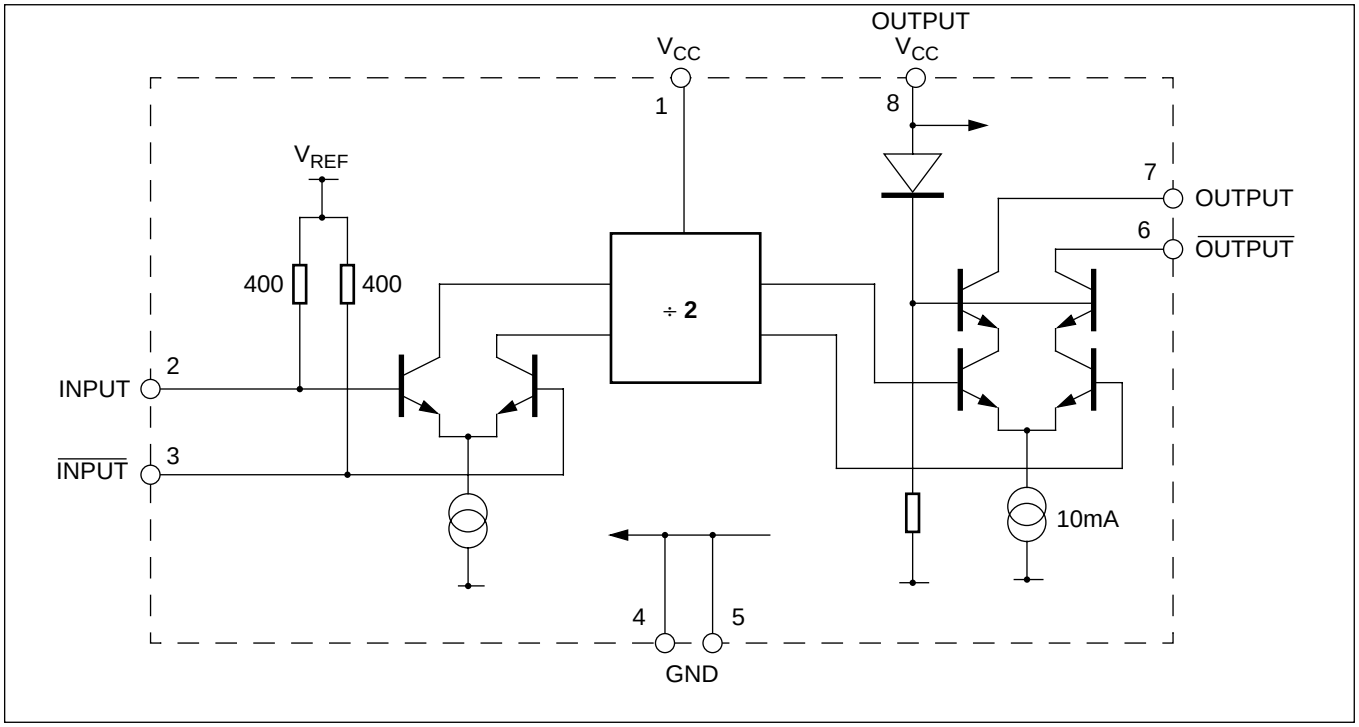


Fig.2 SP8902 block diagram

SP8902 ELECTRICAL CHARACTERISTICS

Guaranteed over the full specified temperature and supply voltage range

Test conditions (unless otherwise stated):

Temperature T_{amb} = -40°C to +85°C .

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

Characteristic	Pin	Value			Units	Conditions
		Min.	Typ.	Max.		
Supply current	1, 8	-	67	92	mA	
Input frequency	2, 3	1.0	-	5.0	GHz	RMS sinewave
Input sensitivity	2, 3	-	-	180	mVrms	fin = 1GHz & 4.2GHz
Input sensitivity	2, 3	-	-	570	mVrms	fin = 5GHz
Input overload	2, 3	440	-	-	mVrms	fin = 1GHz & 3GHz
Input overload	2, 3	700	-	-	mVrms	fin = 5.0GHz & 3.8GHz
Output voltage	6, 7	-	0.5	-	Vp/p	Into 50Ω pull up resistor
Output power	6, 7	–15.0	–9.0	+2.0	dBm	fin = 1 and 5GHz (see note 1)

NOTE 1.

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

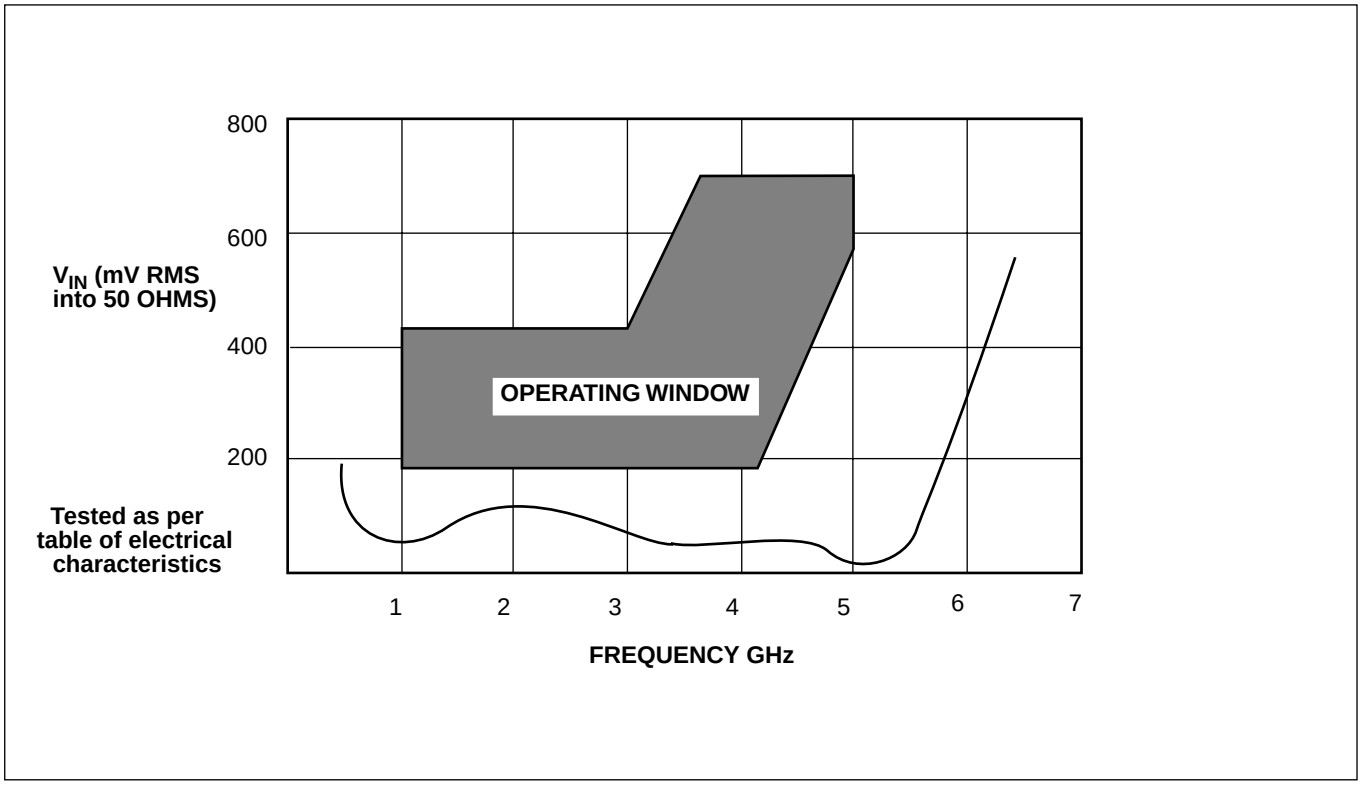


Fig.3 Typical input sensitivity (sine wave drive)

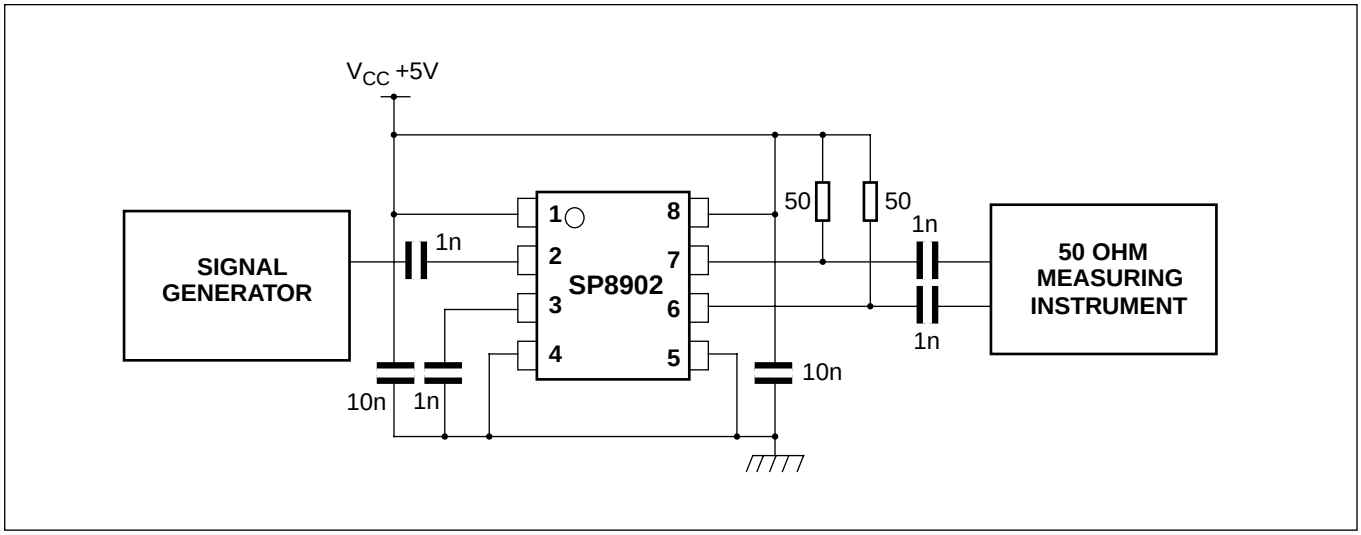


Fig.4 Typical application and test circuit

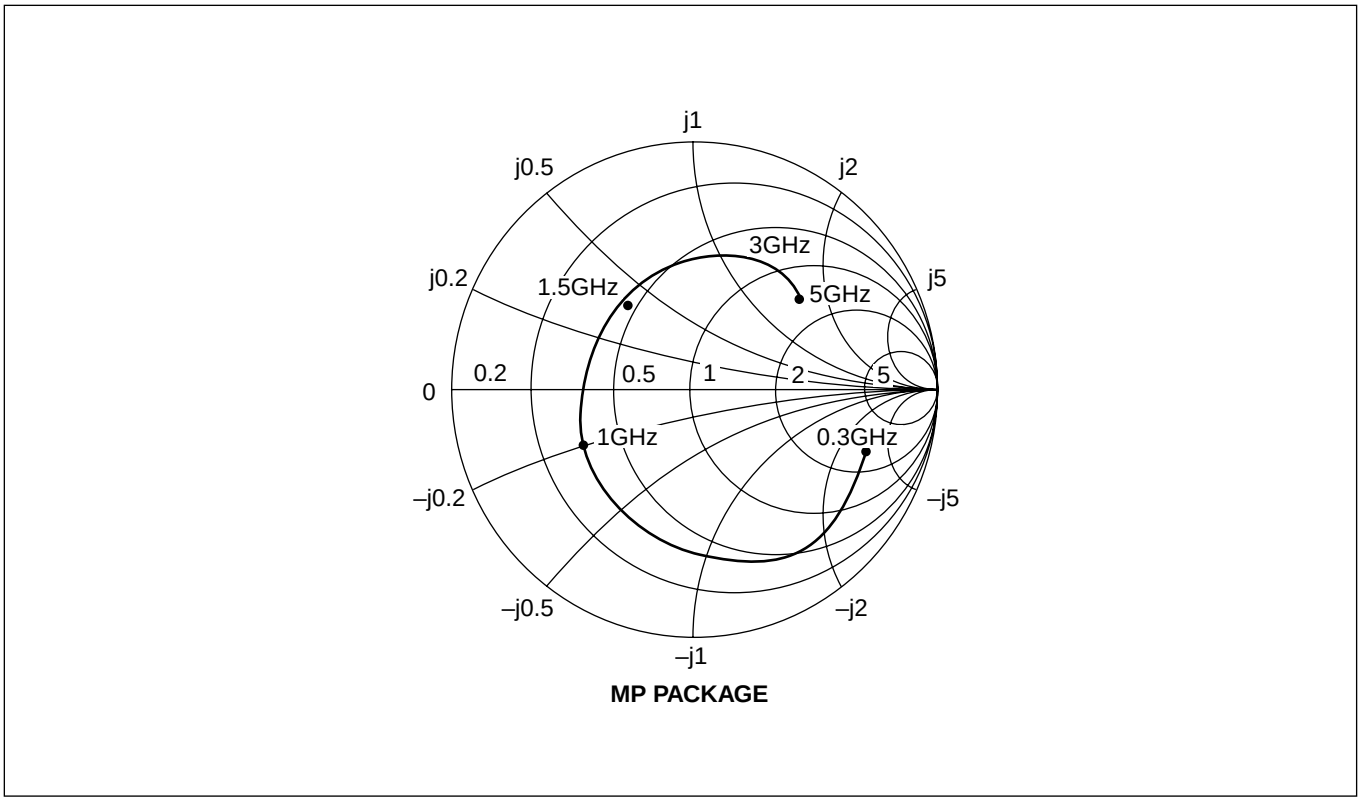


Fig.5 Typical input impedance

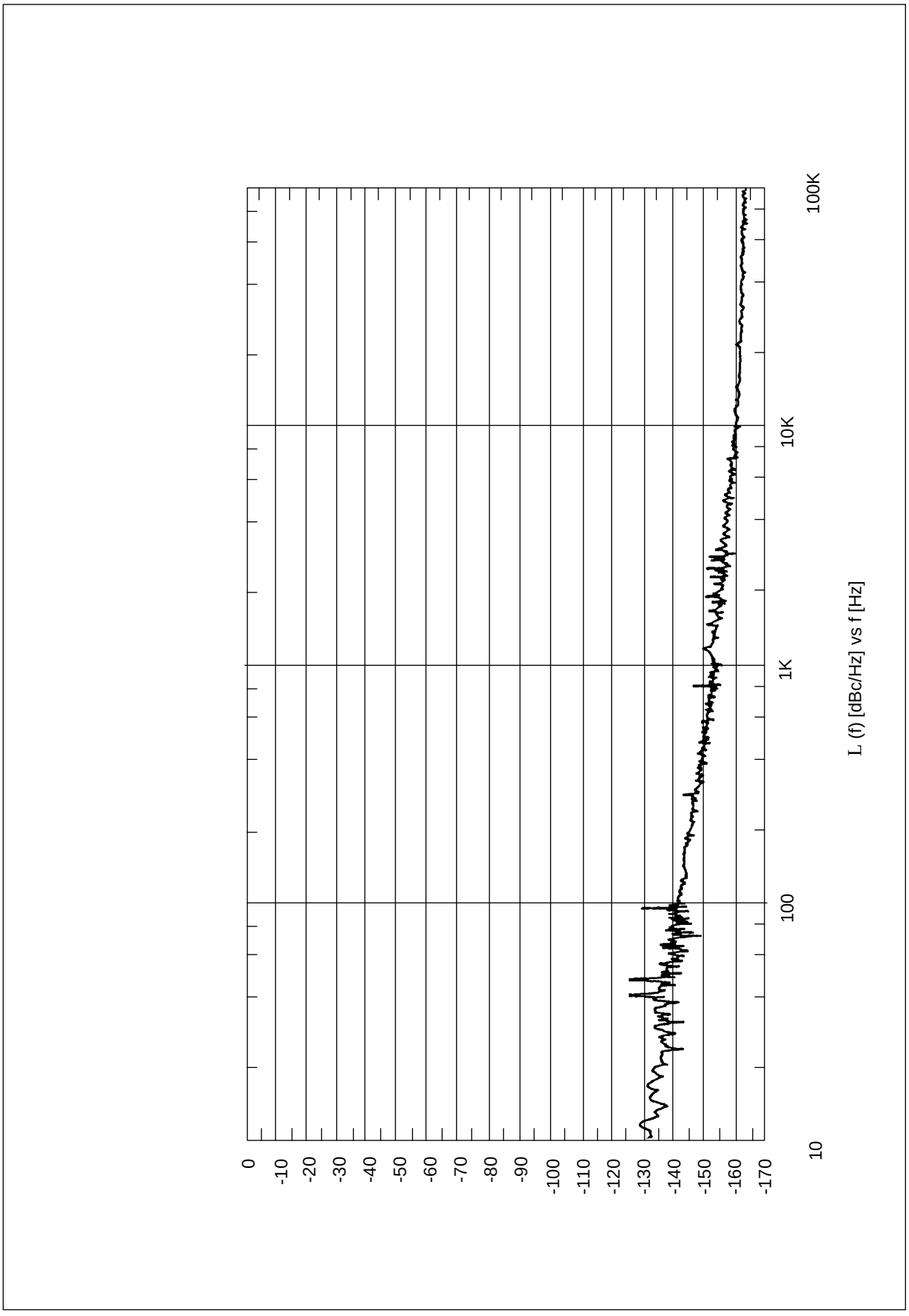
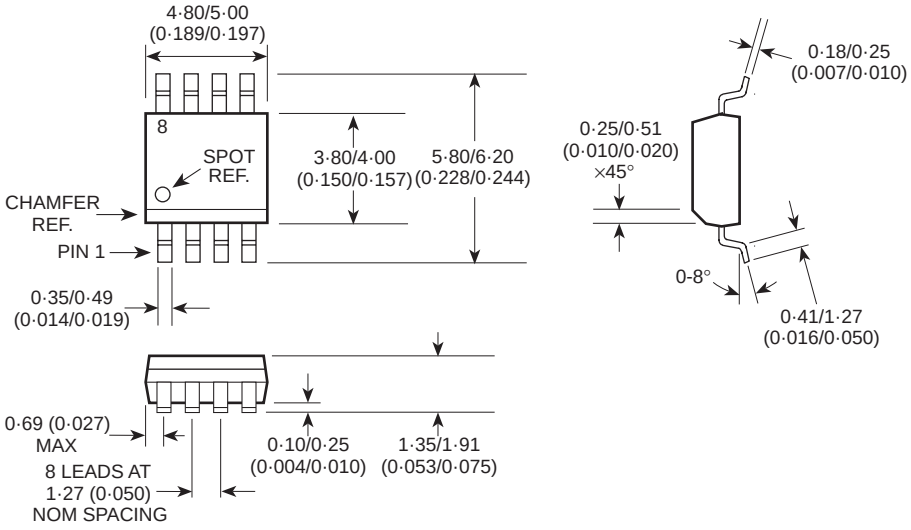


Fig.6 Typical phase noise of SP8902, input frequency = 3GHz

NOTES

PACKAGE DETAILS

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



8-LEAD MINIATURE PLASTIC DIL - MP8

HEADQUARTERS OPERATIONS
MITEL SEMICONDUCTOR
Cheney Manor, Swindon,
Wiltshire, United Kingdom. SN2 2QW
Tel: (01793) 518000
Fax: (01793) 518411

MITEL SEMICONDUCTOR
P.O. Box 660017,
1500 Green Hills Road,
Scotts Valley, California 95067-0017,
United States of America.
Tel (408) 438 2900
Fax: (408) 438 5576

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