

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)
- High "Goodness Level" Assured

ABSOLUTE MAXIMUM RATINGS

Supply Voltage, Vcc	6.5V
Storage Temperature	-65°C to + 150°C
Maximum Junction Temperature	+175°C
Prescaler Input Voltage	2.5Vp-p
Operating Temperature	-55°C to +150°C T _{substrate}

ORDERING INFORMATION

SP8902/KG/1CAC (Waffle Carrier Packaging)

SP8902 is one of a range of high speed prescalers available in bare die format.

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.

The back surface of the die is back-cleaned silicon and is suitable for both epoxy and eutectic die-bond.

If required please contact Mitel Marketing Department for details of the supply of bumped die or tape and reel shipping format.

This product is fully supported on the European KGD data-base.

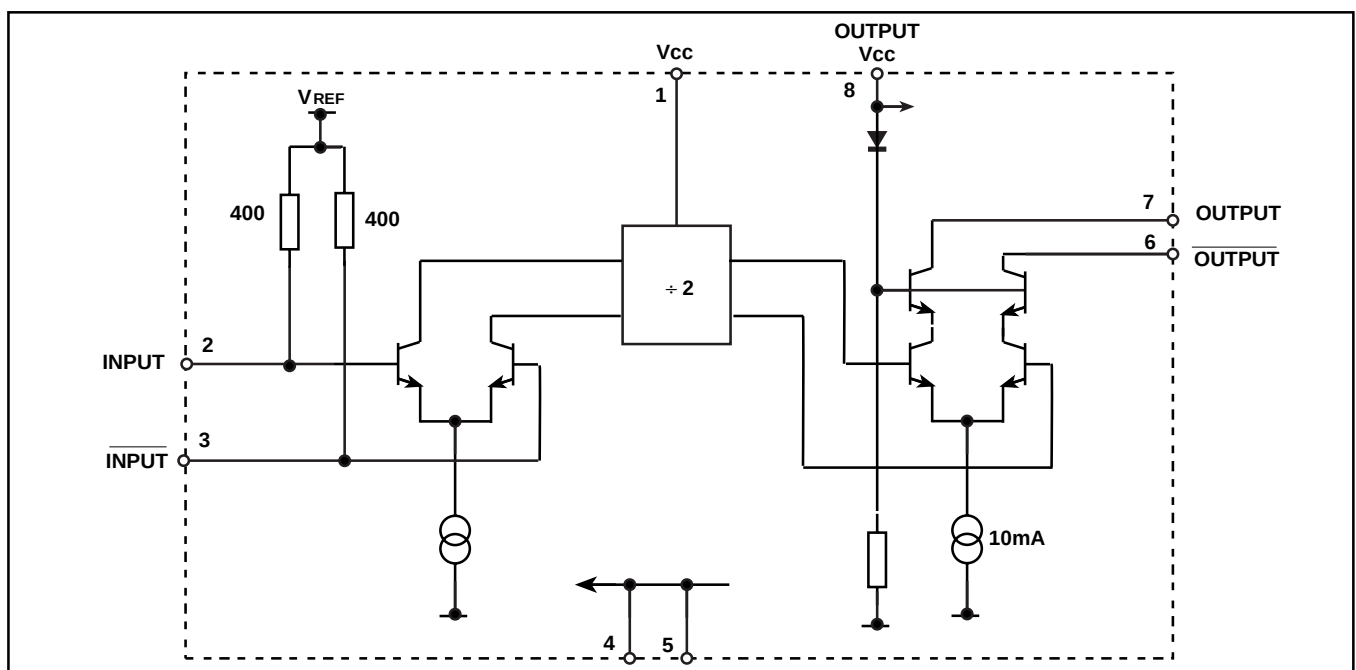


Figure 2 SP8902 block diagram

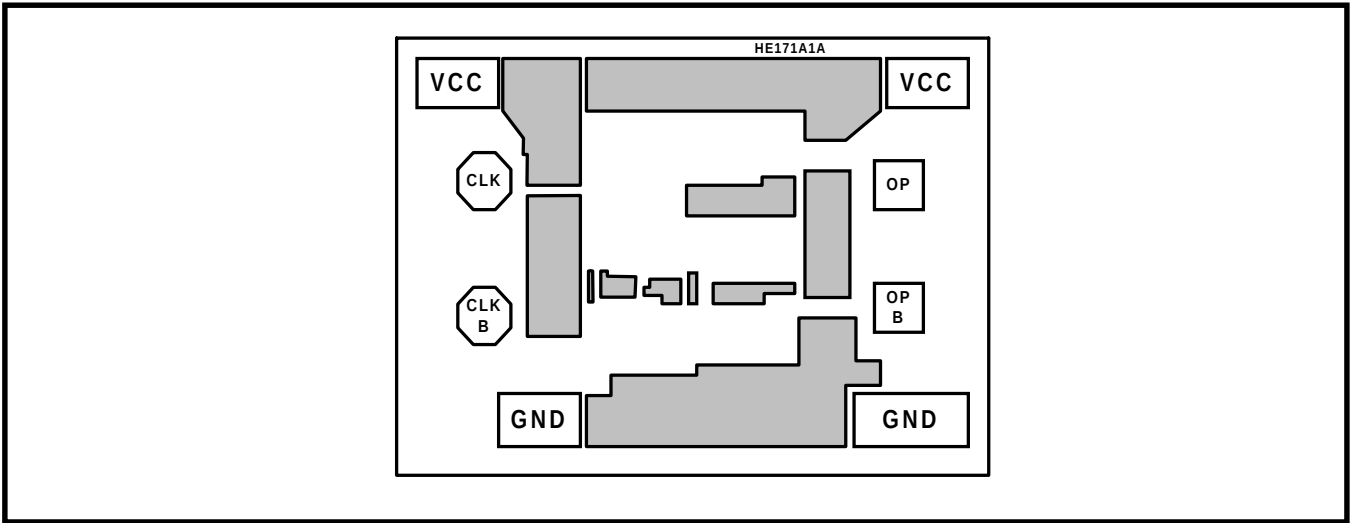


Figure. 1 Die Metallization and Pad Layout

ELECTRICAL CHARACTERISTICS

These characteristics are guaranteed by either production test or design. They apply within the specified ambient temperature and supply voltage unless otherwise stated.

Circuit probe Test conditions: Temperature T = 25°C ambient, Supply Voltage Vcc = 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	-	-	GHz	RMS sinewave
Input sensitivity	2, 3	-	-	-	-	See Fig. 3 and Note 2
Input overload		2, 3	-	-	-	- See Fig. 3 and Note 2
Output voltage	6, 7	-	0.5	-	Vp/p	into 50Ω pull up resistor
Output power	6, 7	-10.0	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. 4.
2. The frequency performance of the SP8902 die is strongly dependant on the die temperature. The performance has been characterised with the die epoxy die attached and wire-bonded to a substrate controlled at temperatures between -55°C and +150°C.
Fig. 3 shows the input operating window over which the die are guaranteed to operate at substrate temperatures of -55°C to +85°C and -55°C to +150°C

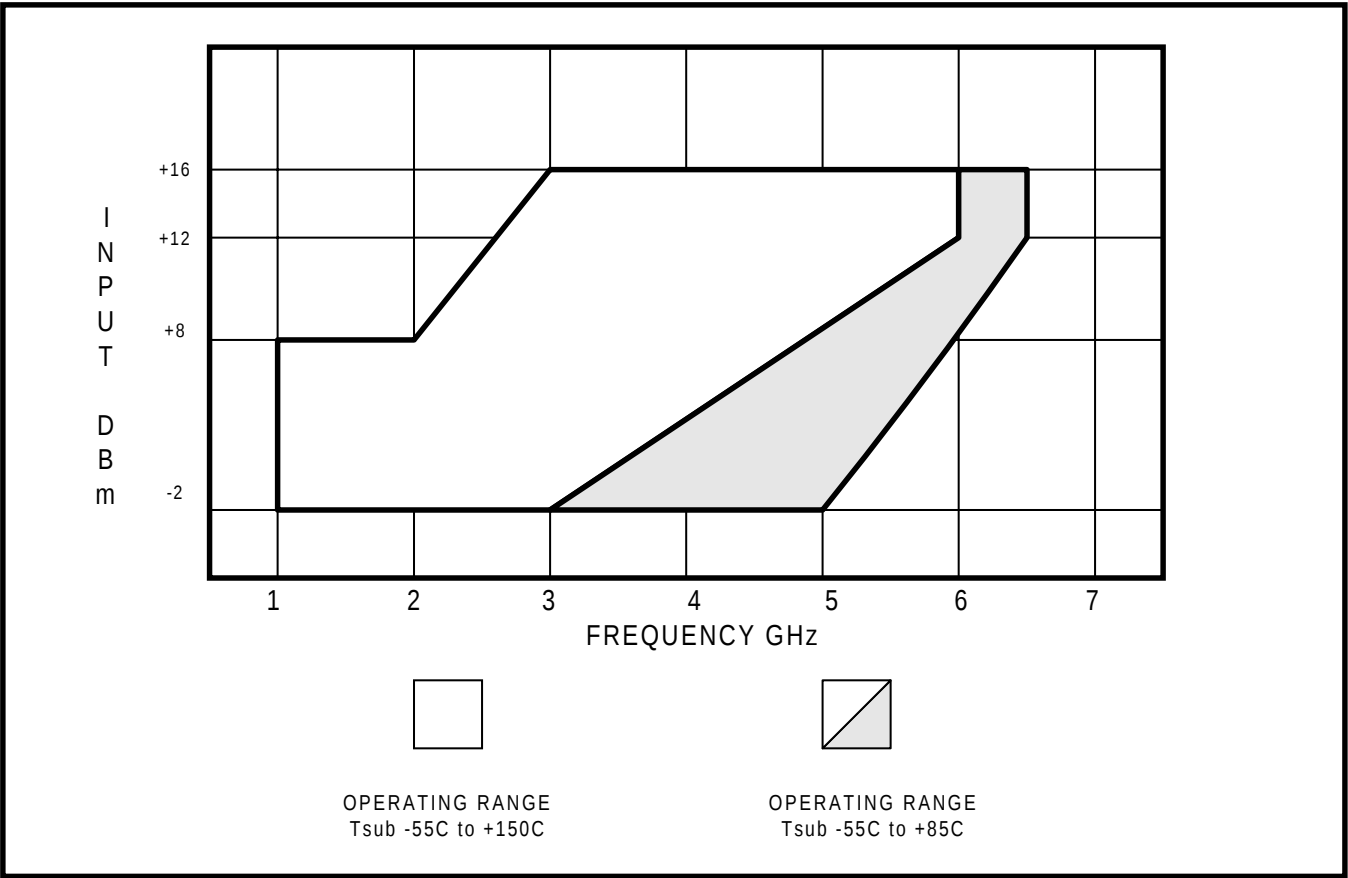


Figure. 3 Typical input sensitivity (sine wave drive)

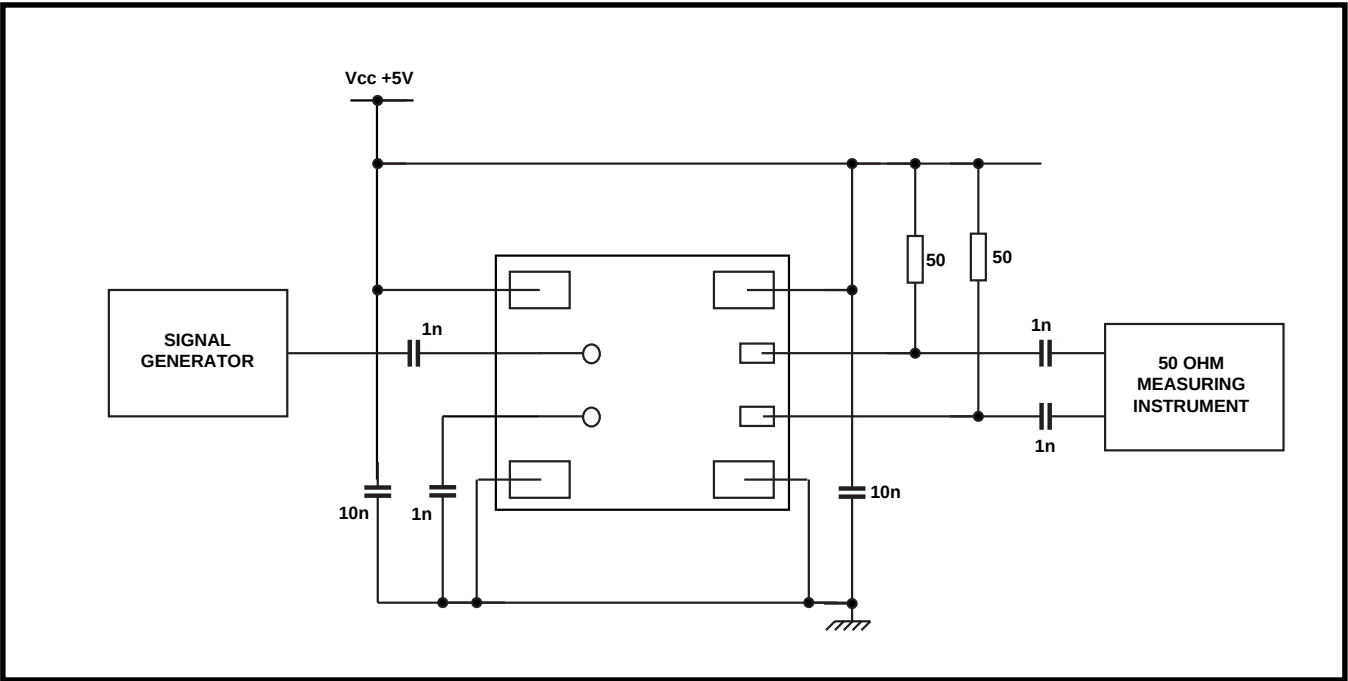


Figure. 4 Typical application and test circuit

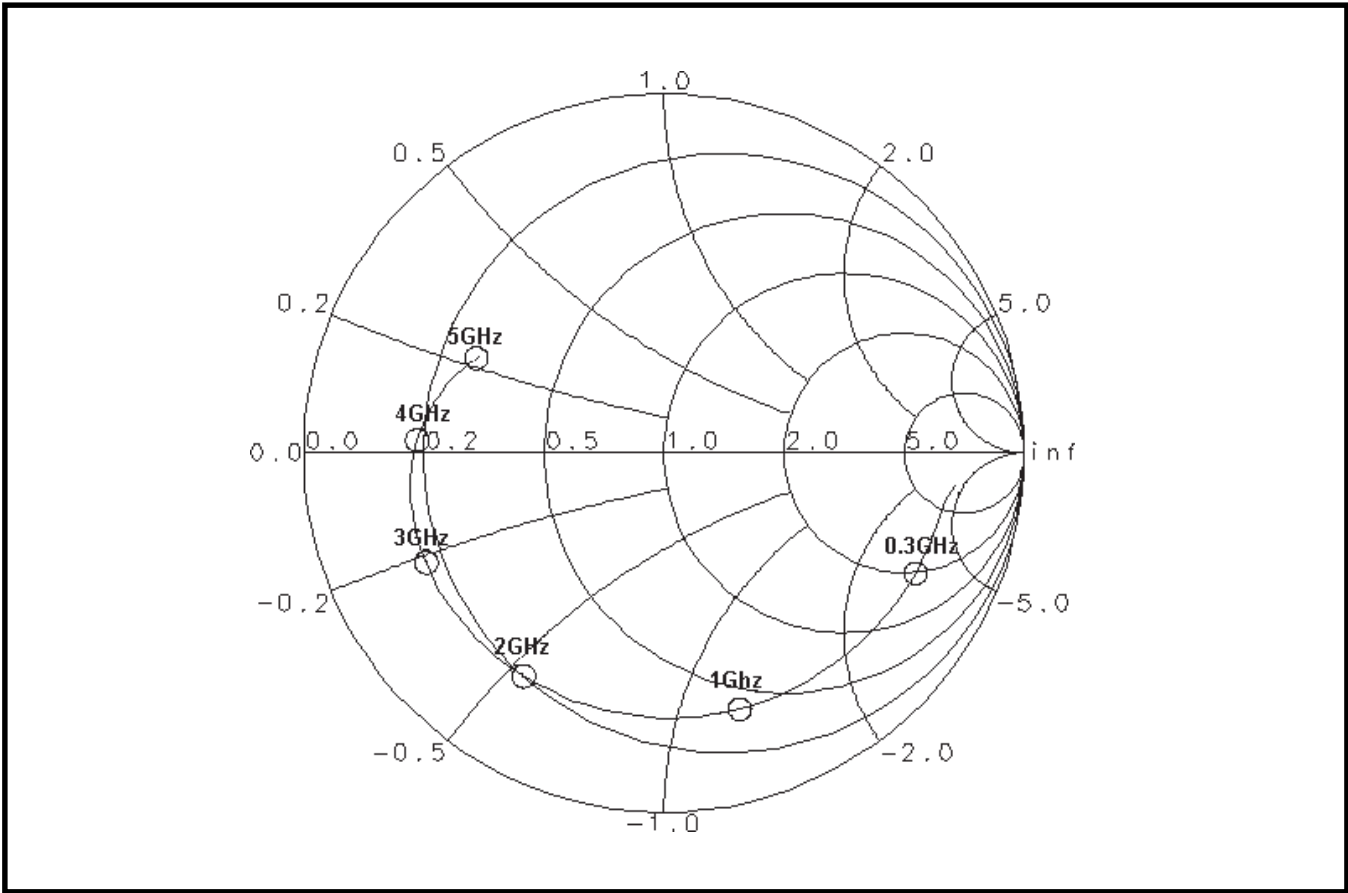


Figure. 5 Typical input impedance

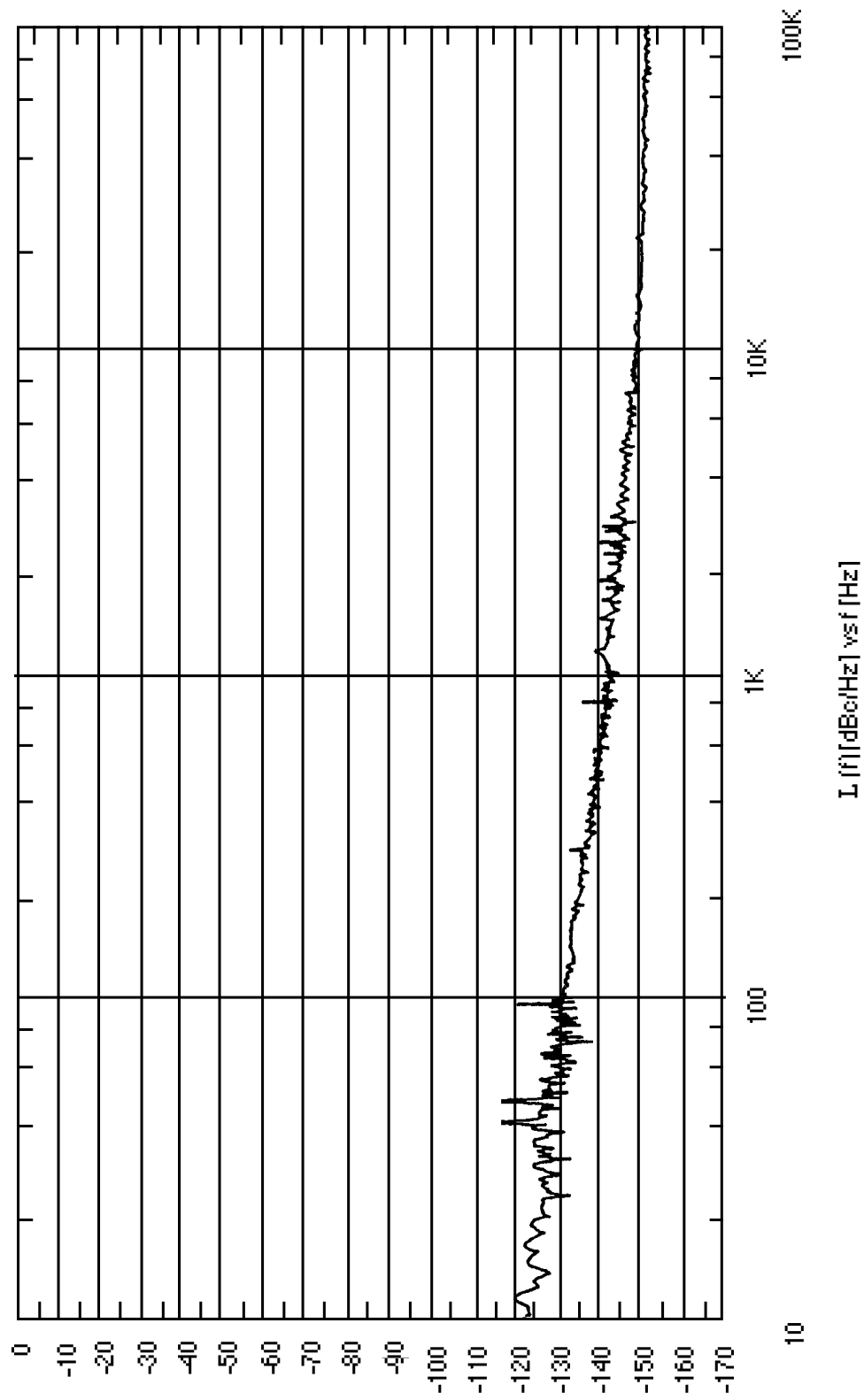
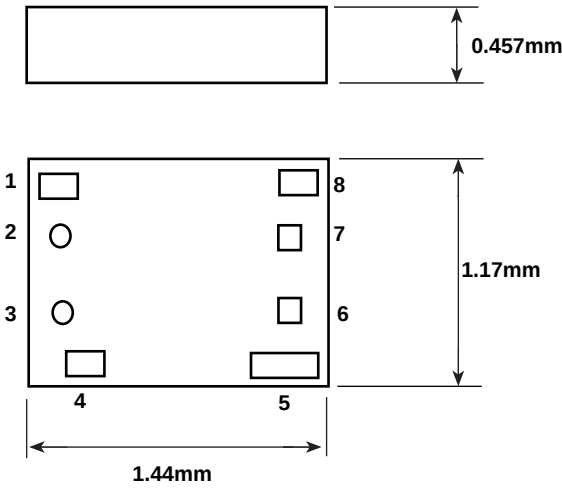


Figure. 6 Typical phase noise of SP8902 input frequency = 3GHz

CHIP DIMENSIONS (to centre of scribe lanes)
For further information please contact your local Customer Service Centre.





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