

SP8770B SP8771B SP8772B

1.0GHz 1.1GHz 1.2GHz

UHF ÷ 256 PRESCALERS

The SP8770/1/2 are ECL divide by 256 prescalers which will operate at frequencies up to 1.2 GHz.

The device has a typical power dissipation of 500mW at the nominal supply voltage of +6.8V.

FEATURES

- Self-Biasing Clock Input
- Variable Input Hysteresis Capability for Wide Band Operation
- Push Pull TTL O/P

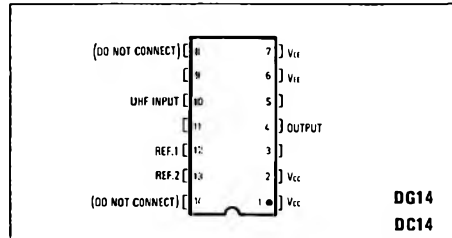


Fig. 1 Pin Connections

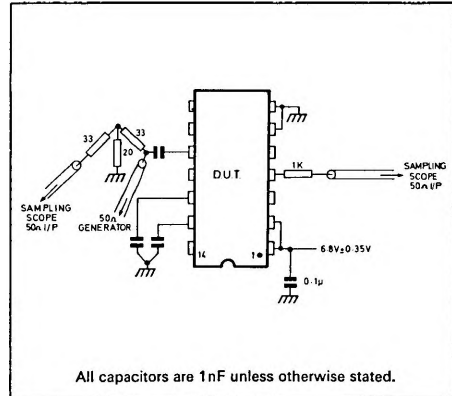
OPERATING NOTES

The input is terminated by a nominal 400Ω and should be AC coupled to the signal source. Input power to the device is terminated to ground by the two decoupling capacitors on the reference pins. Input coupling and reference decoupling capacitors should be of a type suitable for use at a frequency of 1 GHz.

If the device is required to operate with a sinewave input below 100 MHz, then the required hysteresis may be applied externally as shown in Fig. 4.

Large values of hysteresis should be avoided as this will degrade the input sensitivity of the device at the maximum frequency. The divide by 256 output is designed to interface with TTL which has a common V_{EE} (ground). The specified fan-out of 3 standard TTL inputs may be increased to 6 standard or 5 high power/Schottky inputs at a logic zero level of 0.5V. At low frequency the output will change when one of the clock inputs changes from a low to a high level.

The devices may be operated down to very low frequencies if a square wave input is applied with an edge speed of greater than 200V/μs.



All capacitors are 1nF unless otherwise stated.

Fig. 2 AC test circuit

ABSOLUTE MAXIMUM RATINGS

Power supply voltage [$V_{CC}-V_{EE}$]	0V to +10V
Input voltage, clock input	2.5V p-p
Output current	+30mA to -30mA
Operating junction temperature	+150°C
Storage temperature	-55°C to +150°C

ELECTRICAL CHARACTERISTICS

Supply voltage: 6.8V ± 0.35V
 Supply current: 72mA typ., 95mA max.
 Temperature range: 0°C to +70°C
 Clock input: AC coupled, self biasing via 400 Ω

Test conditions (unless otherwise stated):

Supply voltage: $V_{EE} = 0V$,
 $V_{CC} = +6.45V$ to $+7.15V$
 Clock input voltage: 400mV to 1.2V p-p
 $T_{amb} = 25^{\circ}C$

Characteristic	Value			Units	Conditions
	Min.	Typ.	Max.		
Max. input frequency	SP8770 SP8771 SP8772	1.0 1.1 1.2			GHz 400mV p-p. input GHz 600mV p-p. input GHz 600mV p-p. input
Min input frequency				200 100 75	MHz 400mV p-p. sinewave input MHz 600mV p-p. sinewave input MHz 800mV p-p. sinewave input
Min. slew rate for square wave input				200	V/μs
Output					
High level		2.5	3.5	4.5	V
Low level				0.4	V
Supply current			68	90	mA
					5mA current sink $V_{CC} = 6.8V$

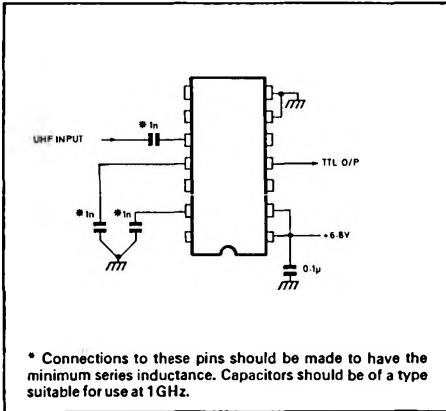


Fig. 3 Application circuit

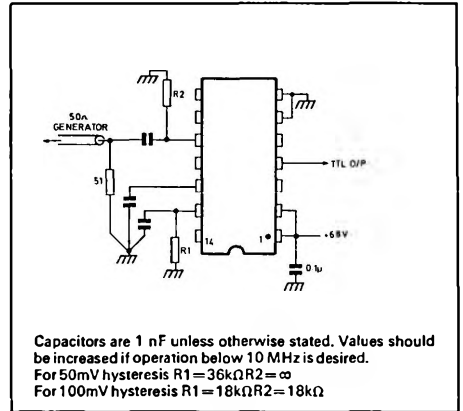
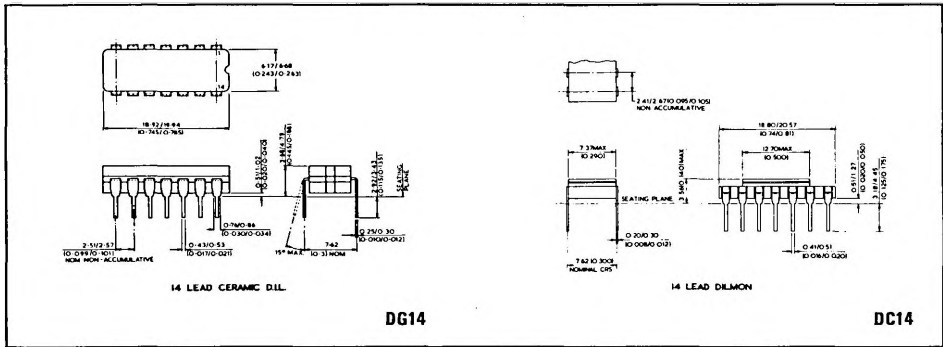


Fig. 4 Wideband operation

PACKAGE DETAILS

Dimensions are shown thus: mm (in)



14 LEAD CERAMIC DIL

DG14

14 LEAD DILMOM

DC14