THIS DOCUMENT IS FOR MAINTENANCE PURPOSES ONLY AND IS NOT RECOMMENDED FOR NEW DESIGNS

GEC PLESSEY
SEMICONDUCTORS

DS 3292 -1

SP8716/8/9

520MHz LOW CURRENT TWO-MODULUS DIVIDERS

SP8716 ÷ 40/41, SP8718 ÷ 64/65, SP8719 ÷ 80/81 are 50mW programmable dividers with a maximum specified operating frequency of 520MHz over the temperature range -40 °C to + 85 °C.

The signal (clock) inputs are biased internally and require to be capacitor coupled. The output stage is of an unusual low power design featuring dynamic pull-up, and optimised for driving CMOS. The 0 to 1 output edge should be used to give the best loop delay performance.

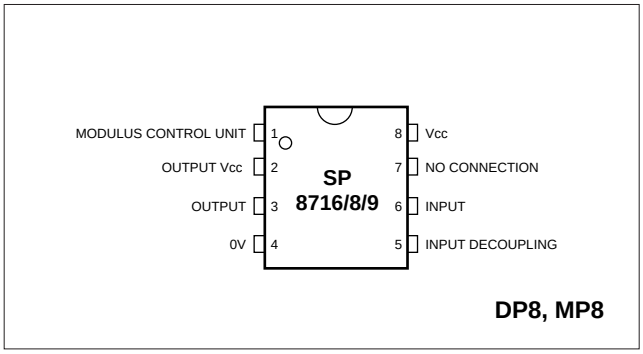


Figure : 1 Pin connections - top view

FEATURES

- DC to 520MHz Operation
- -40°C to +85°C Temperature Range
- Control Inputs and Outputs are CMOS Compatible

QUICK REFERENCE DATA

- Supply Voltage 5.0V ± 0.25V
- Supply Current 10.5mA typ.

ABSOLUTE MAXIMUM RATINGS

Supply voltage pin 2 or 8):	8V
Storage temperature range:	-55°C to +150°C
Max. Junction temperature:	+175°C
Max. clock I/P voltage:	2.5V p-p

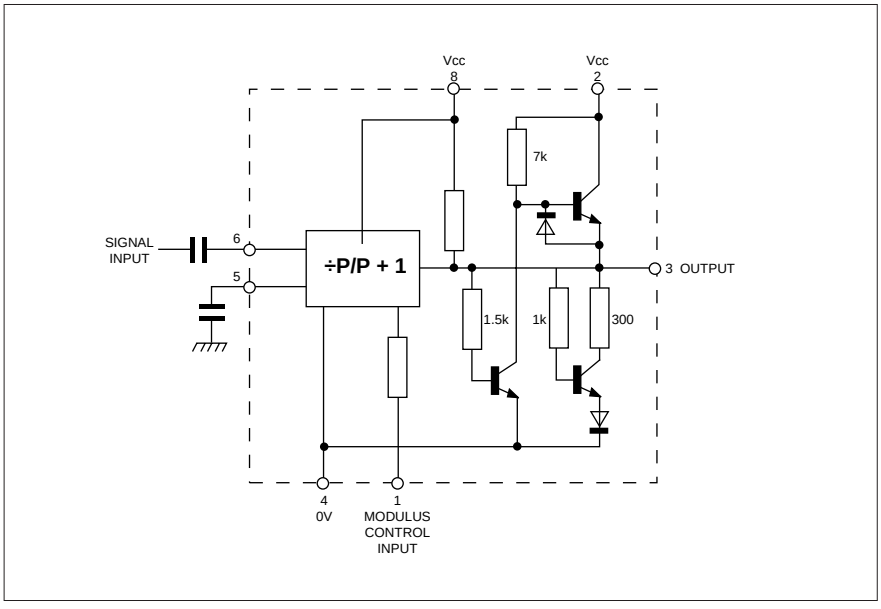


Figure 2 : Functional diagram

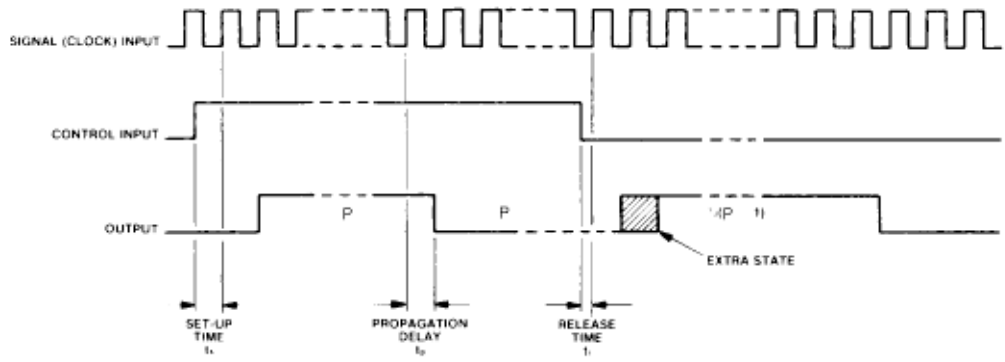
ELECTRICAL CHARACTERISTICS

Test conditions (unless otherwise stated):]

Supply voltage: Vcc = +4/95 to 5.45V, Temperature: T_{amb} = -40°C to +85°C

Characteristics	Symbol	Value		Units	Conditions	Notes
		Min.	Max.			
Max. frequency	f_{max}	520		MHz	Input 100-280mV p-p	1
Min. frequency (sinewave input)	f_{min}		30	MHz	Input 400-800mV p-p	2
Power supply current	I_{CC}		11.9	mA	C_L = 3pF; pins 2, 8 linked	1
Output high voltage	V_{OH}	(V_{cc} - 1.2)		V	I_L = -0.2mA	1
Output low voltage	V_{OL}		1	V	I_L = 0.2mA	1
Control input high voltage	V_{INH}	3.3	8	V	÷P	1
Control input low voltage	V_{INL}	0	1.7	V	÷P +1	1
Control input high current	V_{INH}		0.41	mA	V_{INH} = 8V	1
Control input low current	VINL	-0.20		mA	V_{INL} = 0V	1
Clock to output delay	t_p		28	ns	C_L = 10pF	2
Set-up time	t_s	10		ns	C_L = 10pF	2
Release time	t_r	10		ns	C_L = 10pF	2

NOTES
1. Tested at 25°C only
2. Guaranteed but not tested

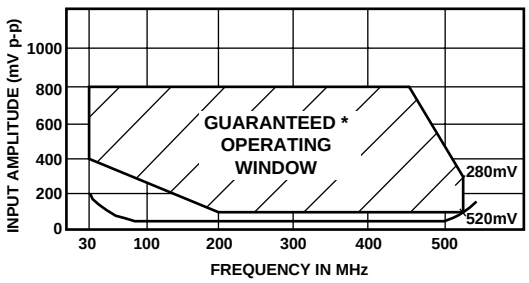


NOTE

The set-up time ts is defined as the minimum time that can elapse between a L → H transition of the control input and the next L → H clock pulse transition to ensure that the ÷P mode is obtained.

The release time tr is defined as the minimum time that can elapse between a H → L transition of the control input and the next L → H clock pulse transition to ensure that the ÷(P +1) mode is obtain

Figure 3 : Timing diagram



*Tested as specified in table of Electrical Characteristics

Figure 4 : Typical input characteristics

OPERATING NOTES

1. The inputs are biased internally and coupled to a signal source with suitable capacitors.
2. If no signal is present the devices will self-oscillate. If this is undesirable it may be prevented by connecting a 15k resistor from one input to pin 4 (ground). This will reduce the sensitivity.
3. The circuits will operate down to DC but slew rate must be better than 100V/,us.
4. The output stage is of an unusual design and is intended to interface with CMOS. External pull-up resistors or circuits must not be used.
5. This device is NOT suitable for driving TTL or its derivatives.

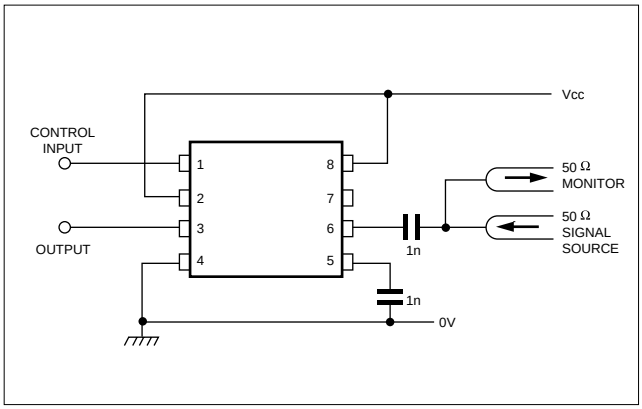


Figure 5: Toggle frequency test circuit

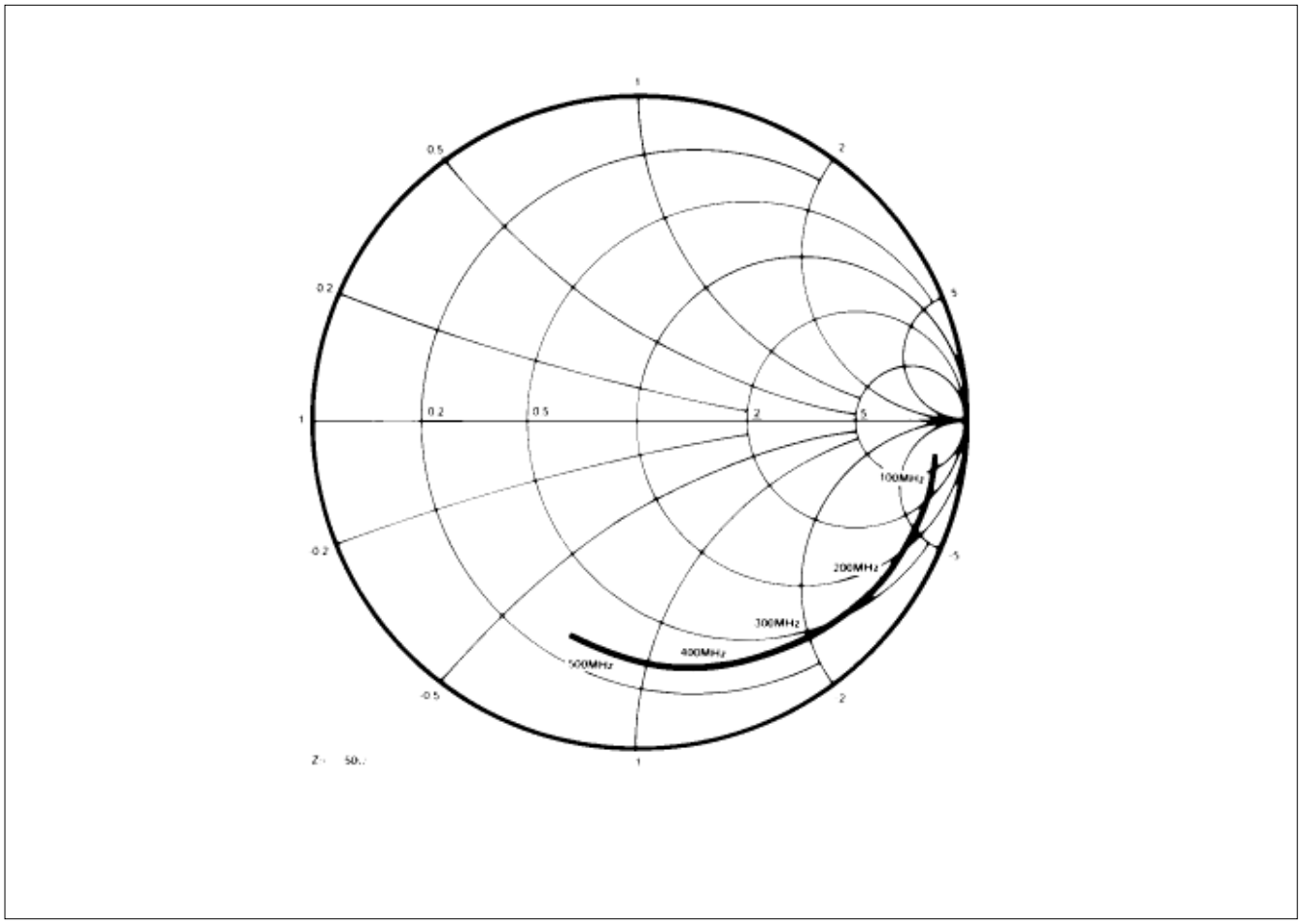


Figure 6 : Typical input impedance