PLESSEY
Semiconductors

SP8600A & B

250MHz ÷ 4

The SP8600 is an asynchronous ECL counter with open collector outputs. It requires external input bias and an AC coupled input signal of 600mV p-p.

FEATURES

- Open Collector Output
- AC Coupled Input

QUICK REFERENCE DATA

- Supply Voltage: -5.2V
- Power Consumption: 85mW
- Max. Input Frequency: 250MHz
- Temperature Range:
  -55°C to +125°C (A Grade)
  -30°C to +70°C (B Grade)

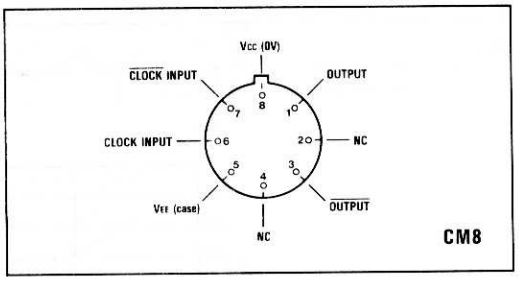
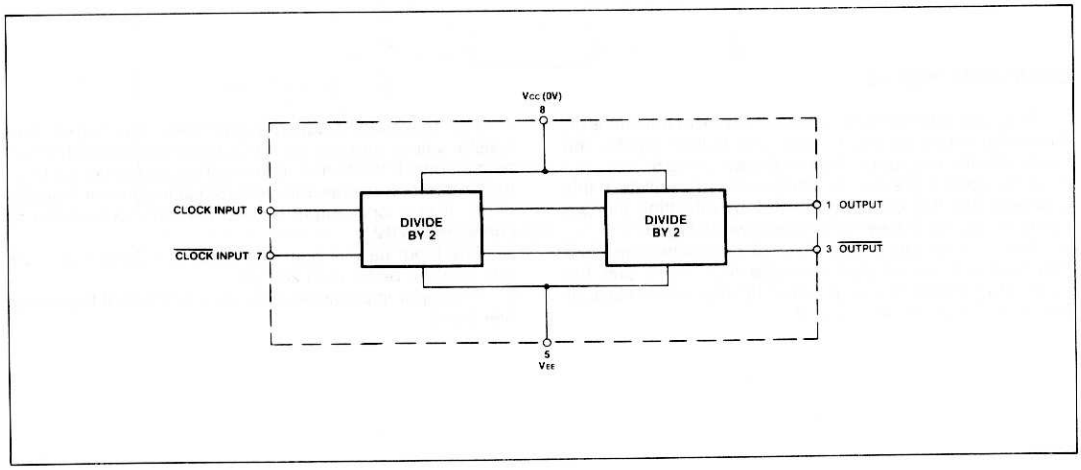


Fig.1 Pin connections - bottom view

ABSOLUTE MAXIMUM RATINGS

Supply voltage	-10V
Output voltage (Pins 1 and 3)	VEE +14V
Storage temperature range	-55°C to +175°C
Max. junction temperature	+175°C
Max. clock I/P voltage	2.5V p-p

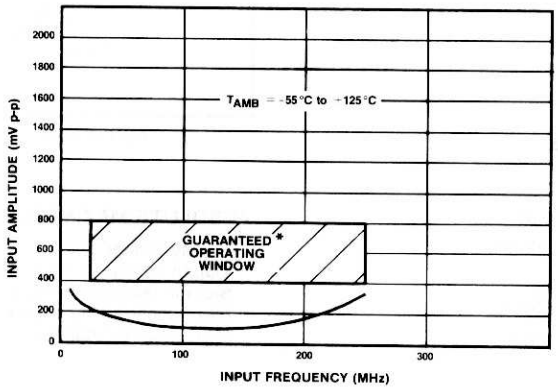


ELECTRICAL CHARACTERISTICS

Supply voltage: V_{EE} = -5.2V ± 0.25V V_{CC} = 0V
Temperature: A Grade T_{amb} = -55°C to +125°C
B Grade T_{amb} = -30°C to +70°C

Characteristic	Symbol	Value		Units	Conditions
		Min.	Max.		
Maximum frequency (sinewave input)	f_{max}	250		MHz	Input = 400-800mV
Minimum frequency (sinewave input)	f_{min}		25	MHz	Input = 400-800mV
Power supply current	I_{EE}		25	mA	V_{EE} = -5.2V
Output current	I_{OUT}	1.65		mA	

NOTES
1. Unless otherwise stated the electrical characteristics are guaranteed over specified supply, frequency and temperature range.
2. The dynamic test circuit is shown in Fig. 5.



*Tested as specified in table of Electrical Characteristics

Fig.3 Typical input characteristics of SP8600A

OPERATING NOTES

1. The input is normally AC coupled to one of the inputs or, if complementary signals are available, to both inputs. The inputs require an external bias as shown in Fig.5.
2. If no signal is present the device will self-oscillate. If this is undesirable this can be prevented by offsetting the two inputs by approximately 40mV as shown in Fig. 6.
3. The outputs are in the form of complementary free collectors with about 2mA available from them over full temperature range. The outputs can be interfaced to ECL or Schottky TTL as shown in Fig. 7.
4. For maximum frequency operation the output load resistor values must be such that the output transistors will not saturate. If the output load resistors are connected to 0V then saturation occurs with resistor values greater than 600 ohms. If only one output is used the other output can be connected to 0V.
5. The input can be operated down to DC but input slew rate must be better than 20V/µs.
6. The input impedance varies as a function of frequency. See Fig. 4.

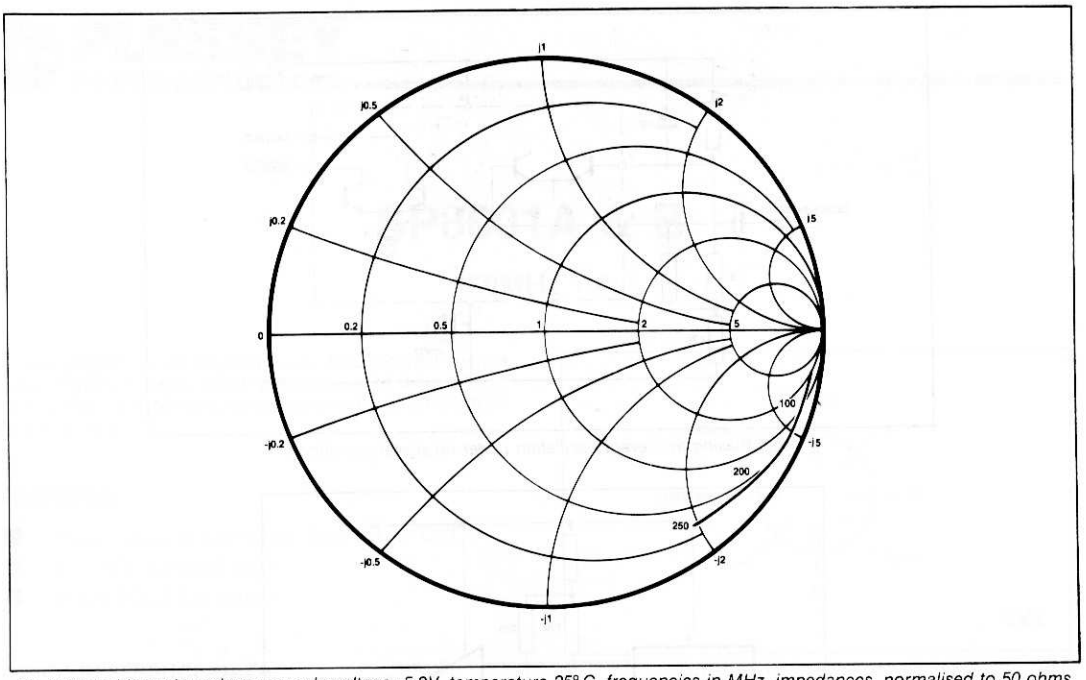


Fig.4 Typical input impedance: supply voltage -5.2V, temperature 25° C, frequencies in MHz, impedances normalised to 50 ohms.

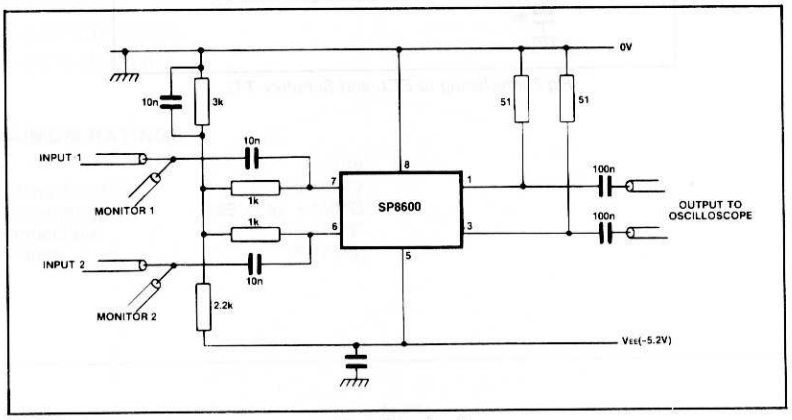


Fig.5 Test circuit

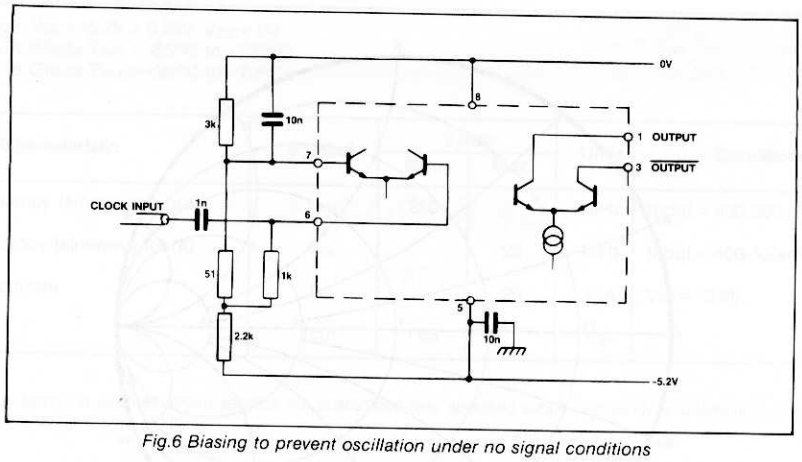


Fig.6 Biasing to prevent oscillation under no signal conditions

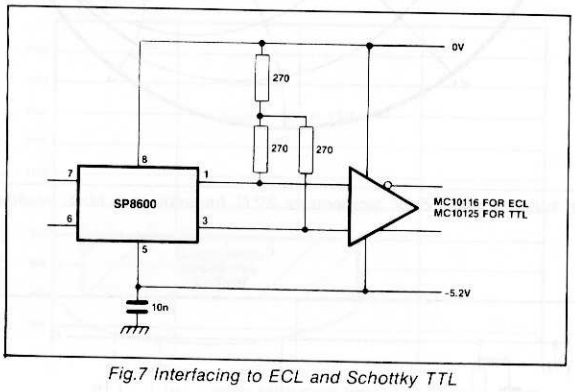


Fig.7 Interfacing to ECL and Schottky TTL