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SP8602 500MHz ÷ 2

SP8604 300MHz ÷ 2

The SP8602 and SP8604 are emitter coupled logic dividers which feature ECL10K compatible outputs when used with external pulldown resistors. The inputs are AC coupled.

FEATURES

- ECL Compatible Outputs
- AC-Coupled Inputs (Internal Bias)

QUICK REFERENCE DATA

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

ABSOLUTE MAXIMUM RATINGS

| | |
|---------------------------|-----------------|
| Supply voltage, V_{EE} | -8V |
| Output current | 10mA |
| Storage temperature range | -65°C to +150°C |
| Max. junction temperature | +175°C |
| Max. clock input voltage | 2.5V p-p |

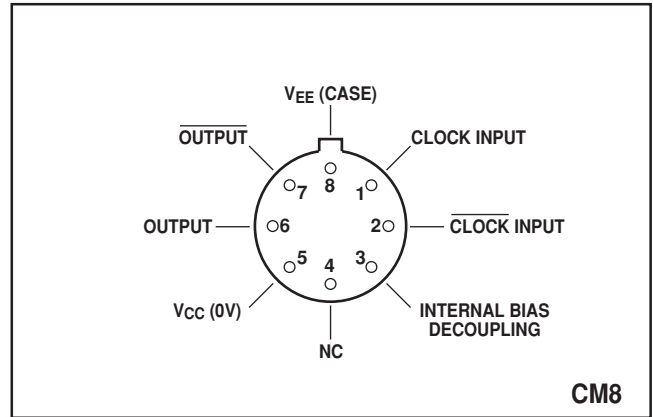


Fig. 1 Pin connections - bottom view

ORDERING INFORMATION

- SP8602 A CM
- SP8602 B CM
- SP8604 A CM
- SP8604 B CM
- 5962-92059 (SMD) (SP8602)

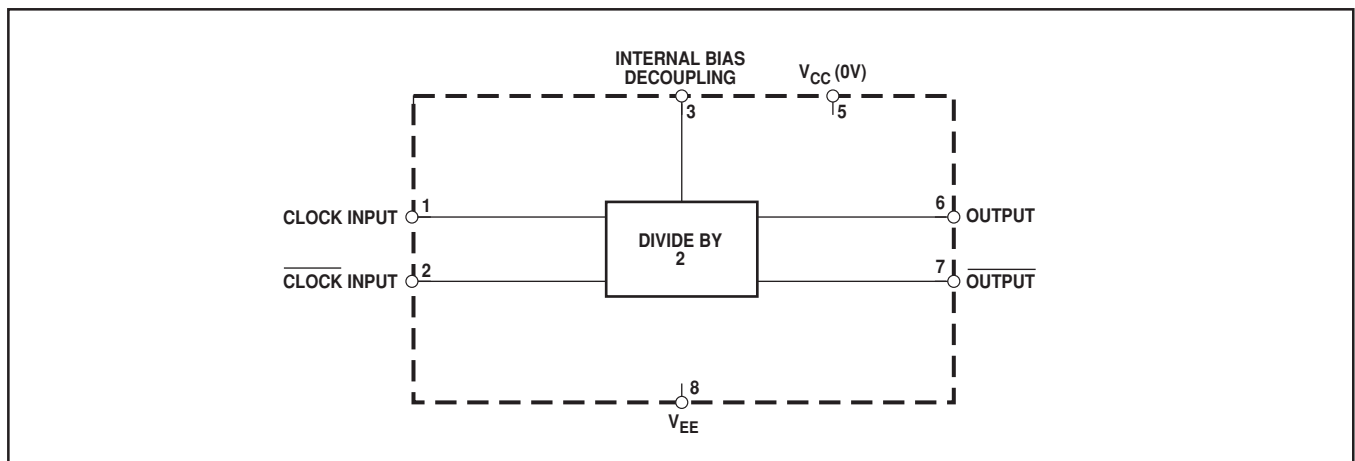


Fig. 2 Functional diagram

ELECTRICAL CHARACTERISTICS

Unless otherwise stated, the Electrical Characteristics are guaranteed over specified supply, frequency and temperature range

Supply voltage, $V_{CC} = 0V$, $V_{EE} = -5.2V \pm 0.25V$

Temperature, $T_{AMB} = -55^{\circ}C$ to $+125^{\circ}C$ (A Grade), $-30^{\circ}C$ to $+70^{\circ}C$ (B Grade)

| Characteristic | Symbol | Value | | Units | Type | Conditions | Notes |
|------------------------------------|-----------|-------|------|-------|--------|-------------------------------------|-------|
| | | Min. | Max. | | | | |
| Maximum frequency (sinewave input) | f_{MAX} | 500 | | MHz | SP8602 | Input = 400-800mV p-p | |
| | | 300 | | MHz | SP8604 | Input = 400-800mV p-p | |
| Minimum frequency (sinewave input) | f_{MIN} | | 40 | MHz | Both | Input = 400-800mV p-p | |
| Power supply current | I_{EE} | | 18 | mA | Both | $V_{EE} = -5.2V$, outputs unloaded | |
| Output low voltage | V_{OL} | -1.8 | -1.4 | V | Both | $V_{EE} = -5.2V$ | 3 |
| Output high voltage | V_{OH} | -0.85 | -0.7 | V | Both | $V_{EE} = -5.2V$ | 3 |
| Minimum output swing | V_{OUT} | 400 | | mV | Both | $V_{EE} = -5.2V$ | |

NOTES

1. The temperature coefficients of $V_{OH} = +1.63mV/^{\circ}C$, and $V_{OL} = +0.34mV/^{\circ}C$ but these are not tested.
2. The test configuration for dynamic testing is shown in Fig.5.
3. Tested at $25^{\circ}C$ only.

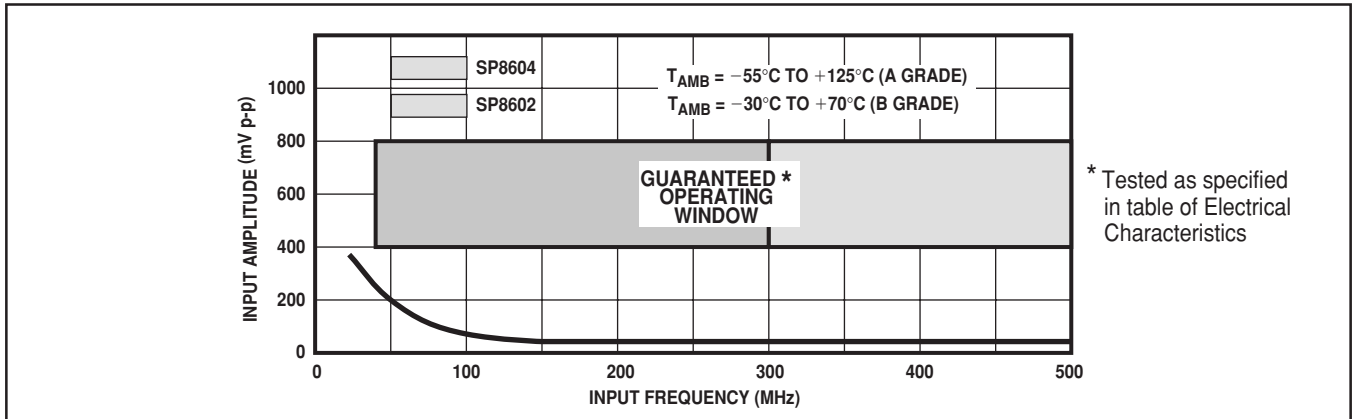


Fig. 3 Typical input characteristics of SP8602 and SP8604

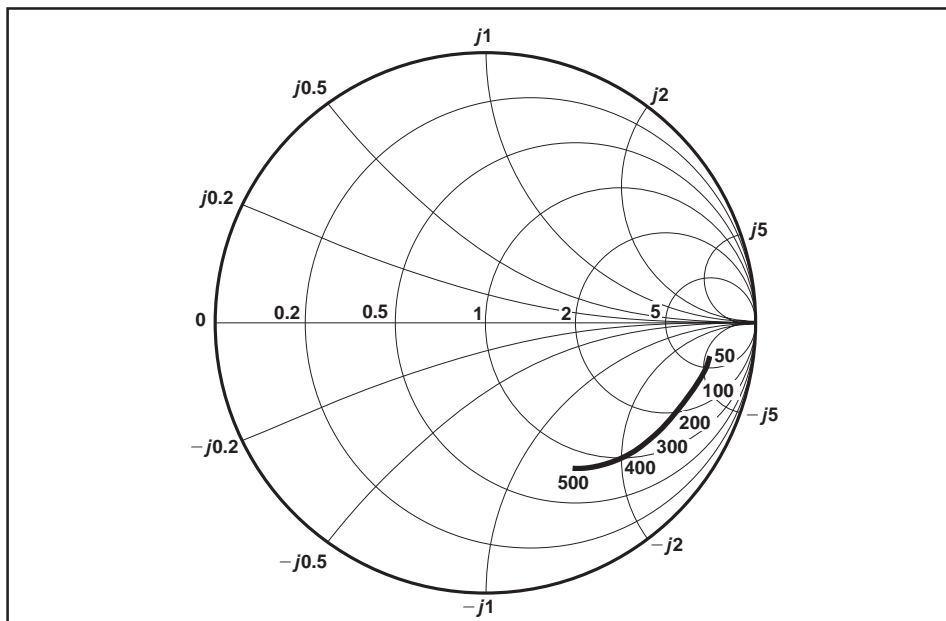


Fig. 4 Typical input impedance. Test conditions: supply voltage = $-5.2V$, ambient temperature = $25^{\circ}C$, frequencies in MHz, Impedances normalised to 50Ω

OPERATING NOTES

1. The clock inputs (pins 1 and 2) can be driven single ended or differentially and should be capacitively coupled to the signal source. The input signal path is completed by connecting a capacitor from the internal bias decoupling, pin 3, to ground.
2. In the absence of a signal the device will self-oscillate. If this is undesirable, it may be prevented by connecting a 15kΩ resistor from the unused input to V_{EE}. This will reduce the input sensitivity by approximately 100mV.

3. The circuit will operate down to DC but slew rate must be better than 100V/μs.
4. The outputs are compatible with ECLII. There is an internal load of 4kΩ on each output. The outputs can be interfaced to ECL10K by the addition of 1.5kΩ pull-down resistors from the outputs to V_{EE} to increase output voltage swing.
5. Input impedance is a function of frequency, See Fig. 4.
6. All components should be suitable for the frequency in use.

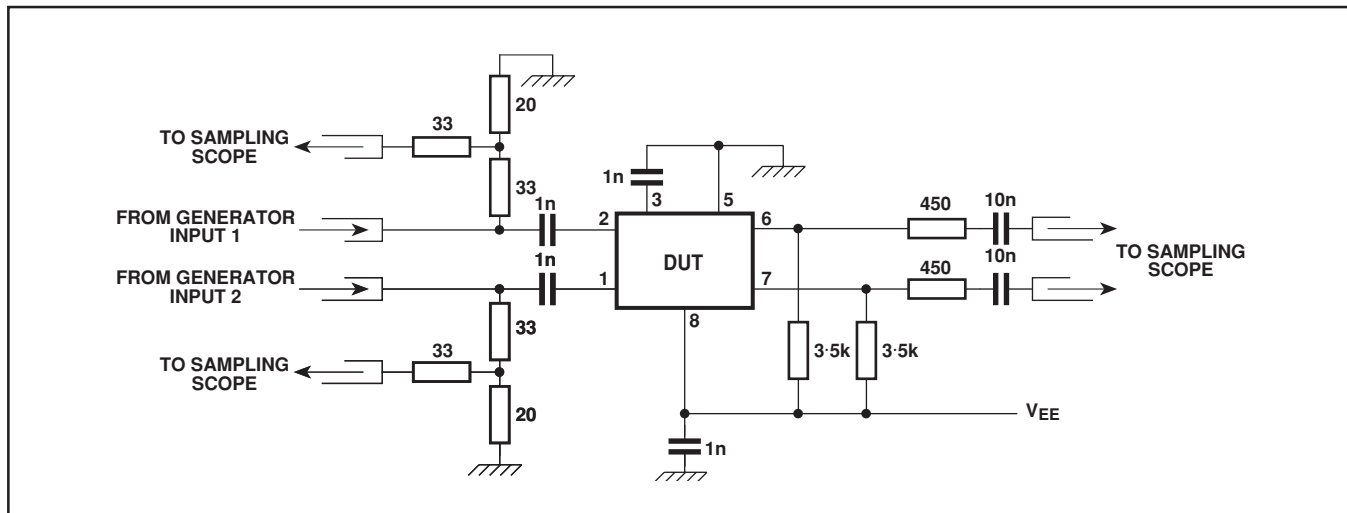


Fig. 5 Test circuit

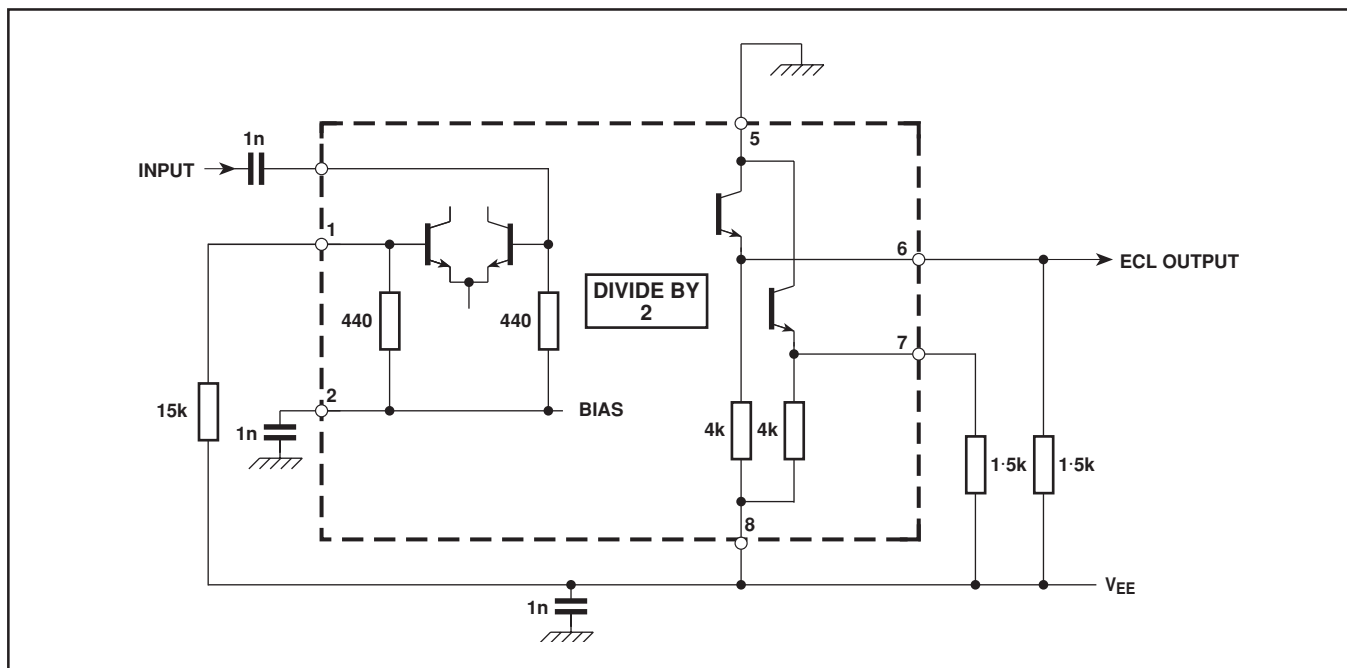
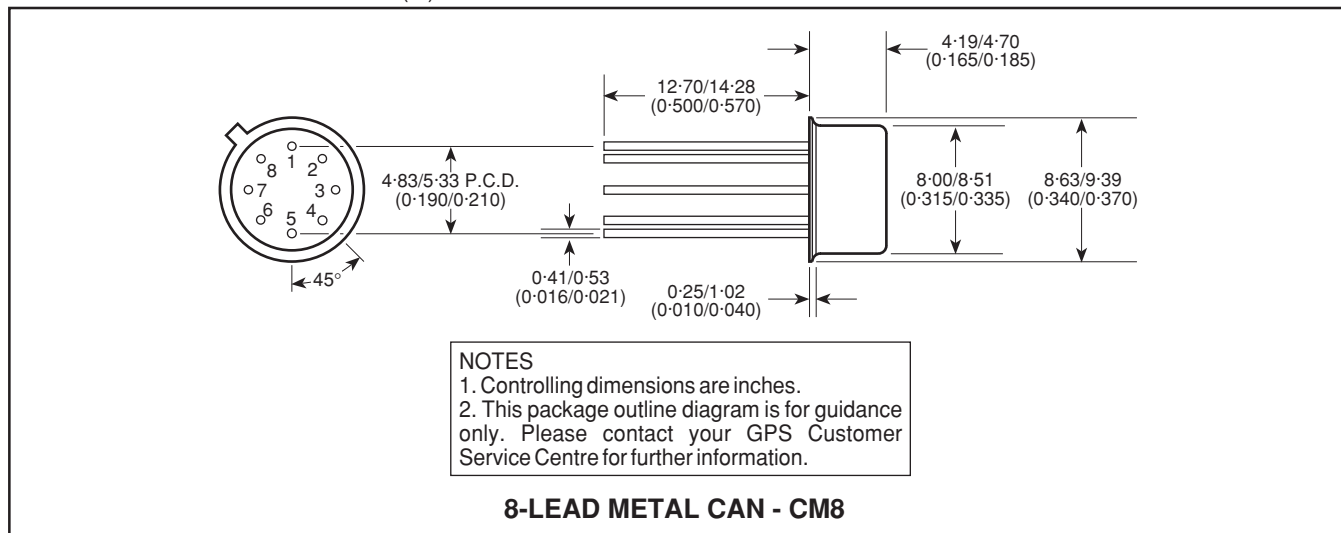


Fig. 6 Typical application showing interfacing

PACKAGE DETAILS

Dimensions are shown thus: mm (in).



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