

The SP8401 is a very low phase noise variable modulus divider. Special circuit techniques have been used to reduce the phase noise considerably below that produced by standard dividers. The modulus control input is CMOS or TTL compatible.

The SP8401 is packaged in a 28 pin plastic SO package to be compatible with the SP8400 and SP8402 devices.

FEATURES

- Very low Phase Noise (Typically -160dBc/Hz at 1kHz offset)
- Supply Voltage 5V

ABSOLUTE MAXIMUM RATINGS

| | |
|-----------------------------|-----------------|
| Supply Voltage | 6.5V |
| Output Current | 20mA |
| Storage Temperature Range | -55°C to +125°C |
| Maximum Clock Input Voltage | 2.5V p-p |

DS3230

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Ordering Information

SP8401 KG MPES(Commercial Grade)

| | | | |
|---------------------|----|----|---------------------|
| N/C | 1 | 28 | N/C |
| N/C | 2 | 27 | N/C |
| N/C | 3 | 26 | N/C |
| V _{CC} +5V | 4 | 25 | N/C |
| GND | 5 | 24 | N/C |
| CLOCK INPUT | 6 | 23 | N/C |
| CLOCK INPUT | 7 | 22 | N/C |
| CLOCK INPUT | 8 | 21 | OUTPUT |
| CLOCK INPUT | 9 | 20 | OUTPUT |
| GND | 10 | 19 | N/C |
| V _{CC} +5V | 11 | 18 | V _{CC} +5V |
| V _{CC} +5V | 12 | 17 | N/C |
| N/C | 13 | 16 | N/C |
| MODULUS CONTROL | 14 | 15 | N/C |

MP28

Fig.1 Pin connections - top view

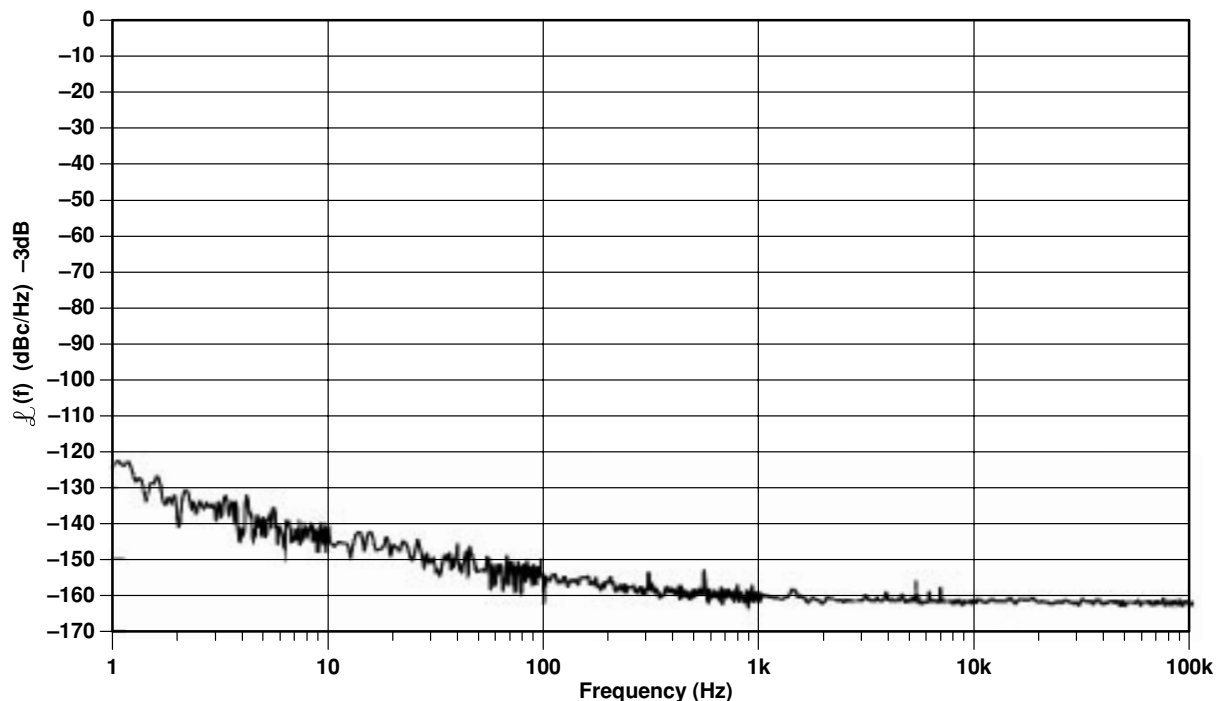


Fig.2 Typical single sideband phase noise measured at 300MHz

ELECTRICAL CHARACTERISTICS

Guaranteed over: Supply voltage $V_{CC} = +4.75V$ to $+5.25V$ Temperature $T_{amb} = -10^{\circ}C$ to $+75^{\circ}C$

Tested at $+4.75V$ and $+5.25V$ at $T_{amb} = +25^{\circ}C$

| Characteristic | Pin | Value | | | Units | Conditions |
|-----------------------------------|---------------|-------|------|-------------|-----------|--|
| | | Min. | Typ. | Max. | | |
| Supply current | 4, 11, 12, 18 | 50 | 57 | 64 | mA | Output loaded with 300R See Fig.5 p-p @ 330MHz input ÷ 11 mode Output loaded with 300R RMS Sine wave into 50 Ohms (dBm equivalent) See Fig.3 |
| Output voltage swing | 20, 21 | 340 | 440 | | mV | |
| Input sensitivity 50MHz to 300MHz | 7, 8 | | | 140 (-4) | mV dBm | |
| | | | | | | |
| Modulus Control Inputs | | | | | | |
| Logic high voltage | 14 | 2.2 | | | V | ÷ 10 mode |
| Low low voltage | 14 | | | 0.8 | | ÷ 11 mode |
| Input current | 14 | | | 180 | μA | Modulus control input voltage 5V |
| Set up time t _s | 14 | | 4 | | ns | |
| Release time t _r | 14 | | 4 | | ns | |

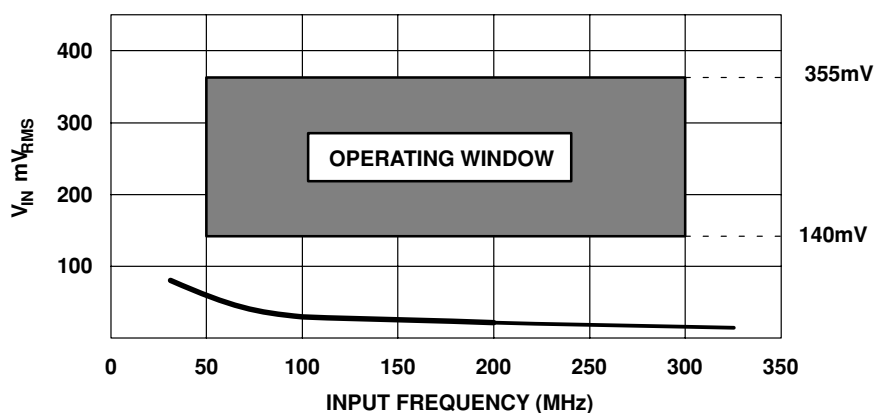


Fig.3 Typical input sensitivity

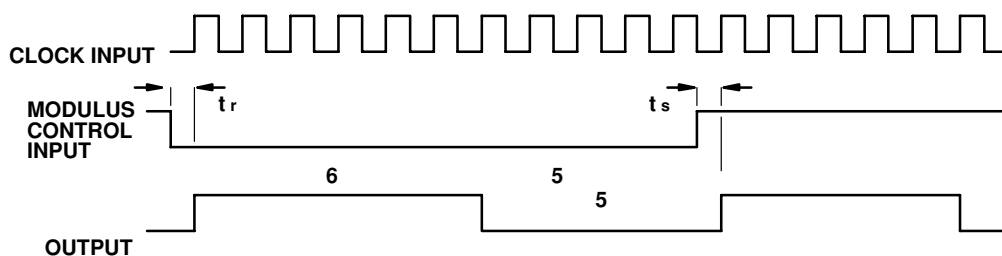


Fig.4 Timing diagram

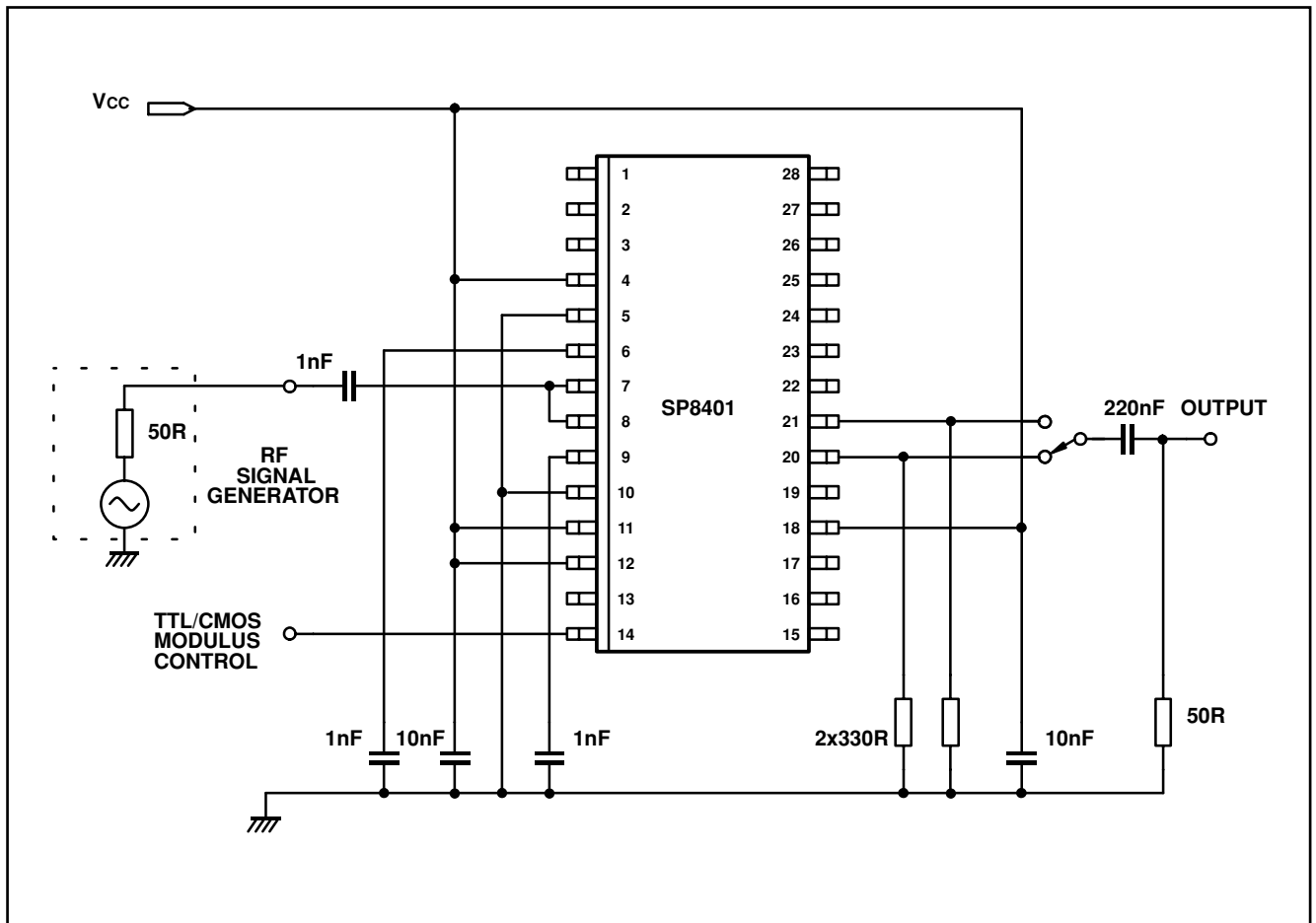


Fig.4 Test circuit



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