

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)

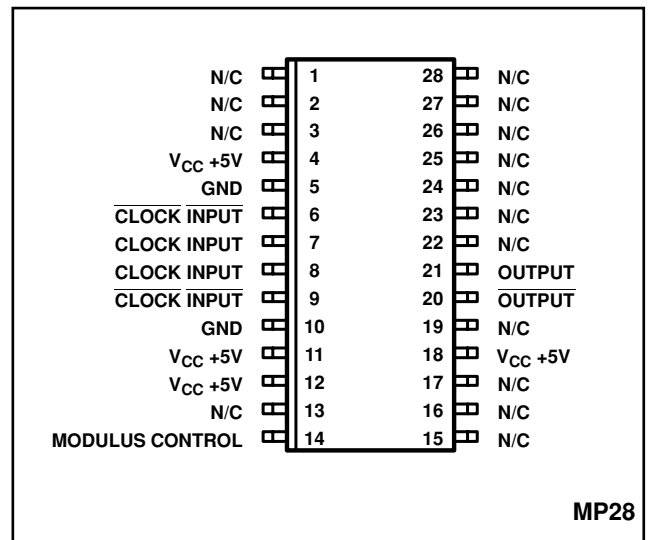


Fig.1 Pin connections - top view

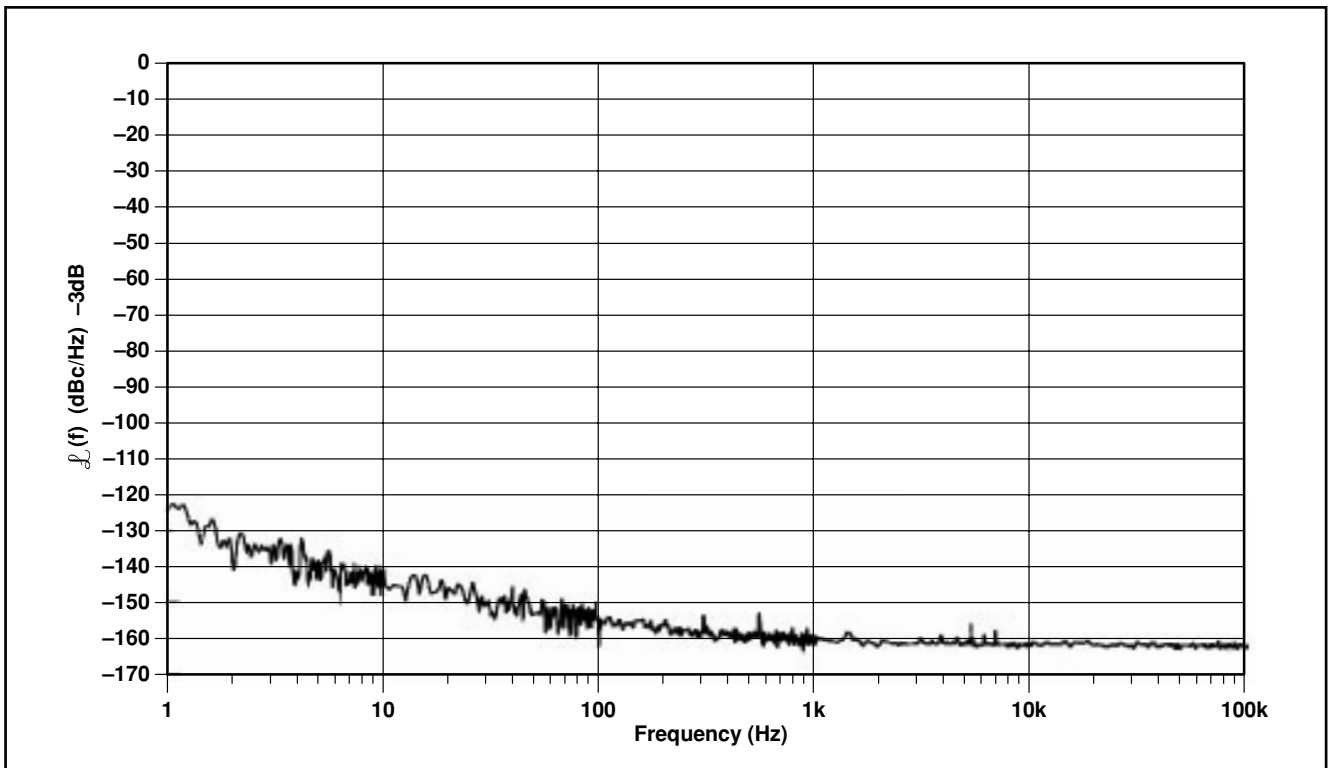


Fig.2 Typical single sideband phase noise measured at 300MHz

# SP8401

## ELECTRICAL CHARACTERISTICS

Guaranteed over: Supply voltage  $V_{CC} = +4.75V$  to  $+5.25V$  Temperature  $T_{amb} = -20^{\circ}C$  to  $+85^{\circ}C$   
 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	
<b>Modulus Control Inputs</b>						
Logic high voltage	14	2.2			V	÷ 10 mode
Low low voltage	14			0.8		÷ 11 mode
Input current	14			180	$\mu A$	Modulus control input voltage 5V
Set up time $t_s$	14		4		ns	
Release time $t_r$	14		4		ns	

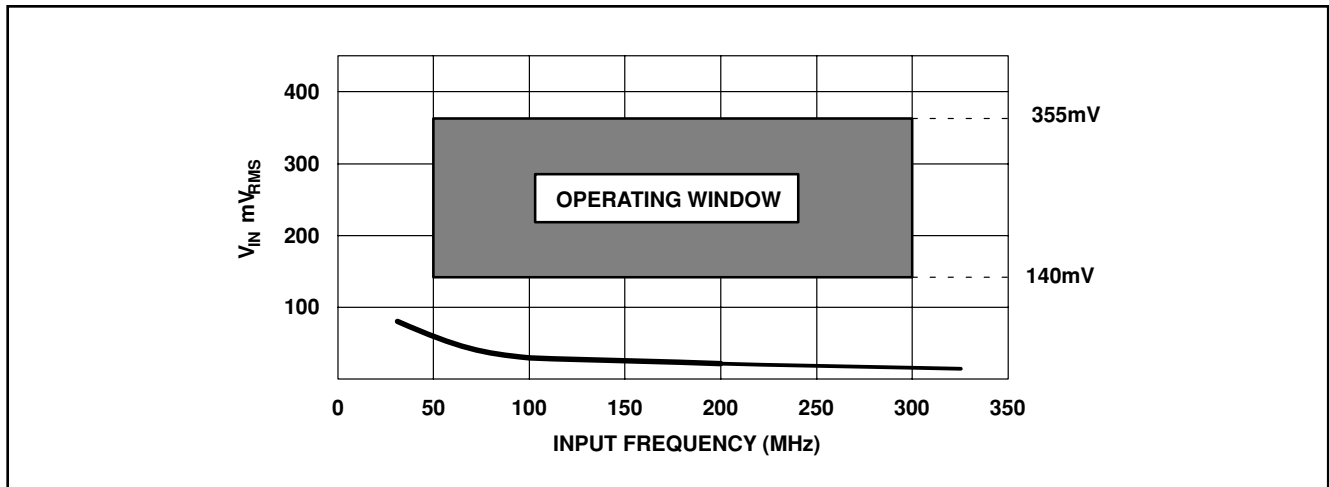


Fig.3 Typical input sensitivity

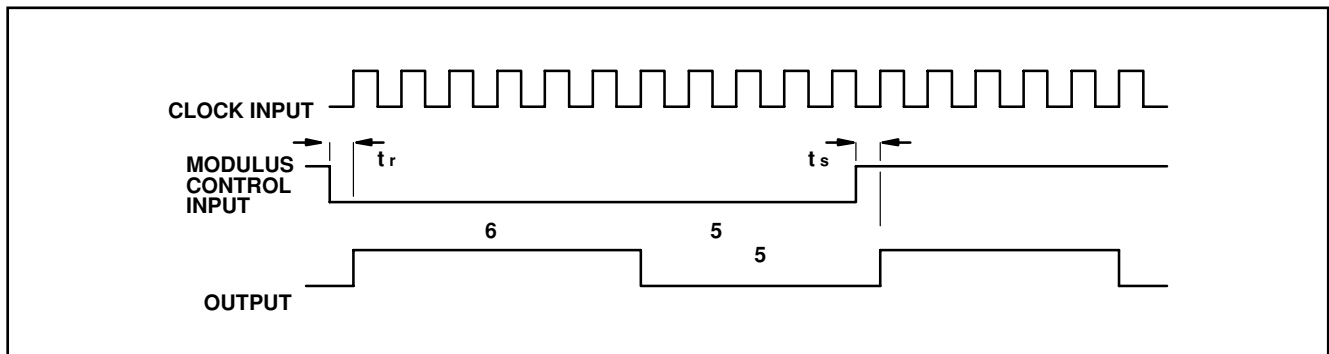


Fig.4 Timing diagram

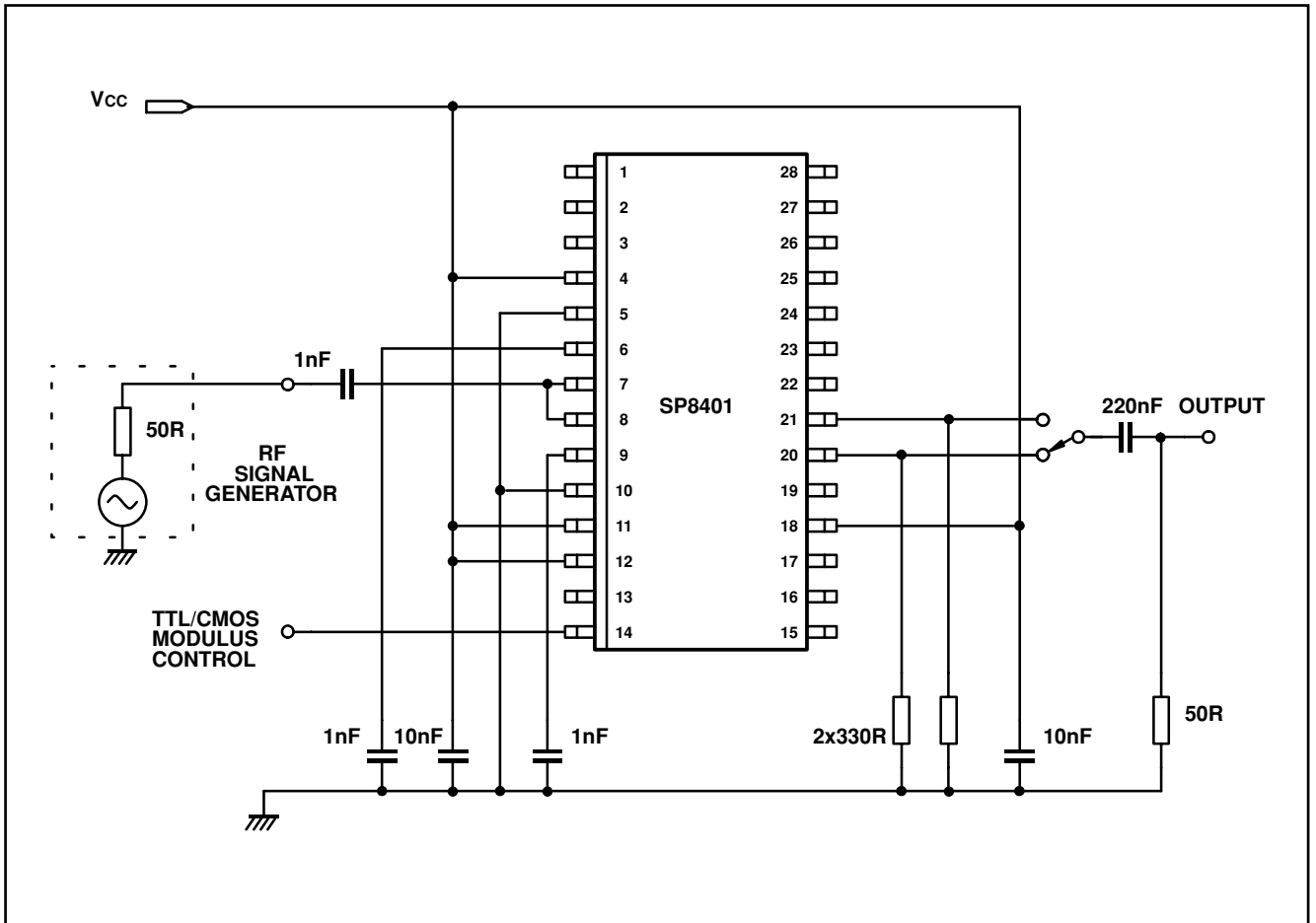


Fig.4 Test circuit



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