

# The JITO-2 Phase Jitter Advantage

Phase Jitter has long been recognized as one of the most critical and defining parameters in the design and application of oscillators. Fox JITO-2 Just-In-Time Oscillators meet the need for more tightly controlled phase jitter. As detailed in the technical data below, JITO-2 oscillators offer a 67% reduction in phase jitter over competitive programmed oscillators. And in certain frequency bands, the phase jitter characteristics of our JITO-2 oscillators compare favorably to fixed frequency oscillators.

The dramatically reduced phase jitter of Fox JITO-2 oscillators can make your systems less prone to the introduction of bit errors with microprocessors and increase the reliability of any data sensitive application.

If phase jitter is a critical specification for your application, specify JITO-2 to be sure.

## Phase Jitter Measurements at Fox Electronics

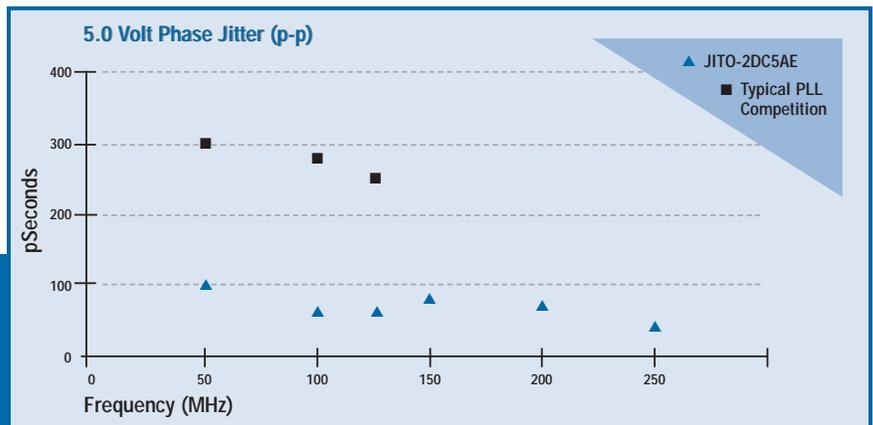
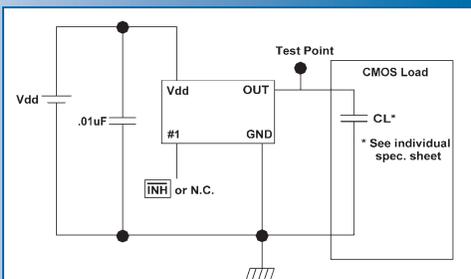
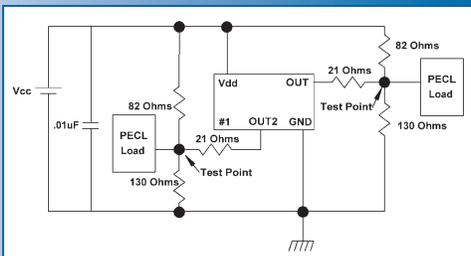
Cycle to Cycle Phase Jitter measurements on our JITO-2 oscillators are performed with a Tektronix TDS 784C Digital Oscilloscope using the histogram function.

With the trigger set at the midpoint of the rising edge, a histogram of the horizontal deviation of the first rising edge from the trigger point is constructed. The peak to peak distribution and standard deviation (Sigma or RMS) is derived from this histogram. This is the "measured" cycle to cycle phase jitter, peak to peak and RMS. The same measurement is then taken at the trigger point to determine "trigger phase jitter" (typically 60 ~ 80pS p-p/10 ~ 13pS RMS). The trigger phase jitter is then subtracted from the measured phase jitter one cycle out to determine cycle to cycle phase jitter, peak to peak and RMS. Typical phase jitter measurements listed here are based on subtracting the lesser, 60pS p-p/10pS RMS, value from all measured values.

Typical phase jitter values for the frequency range of 50MHz ~ 250MHz are listed below:

Frequency (MHz)	Supply Voltage	p-p Jitter	RMS Jitter
50	3.3	160	26
	5.0	100	16
100	3.3	80	13
	5.0	60	10
125	3.3	60	10
	5.0	60	10
150	3.3	80	13
	5.0	80	13
250	3.3	60	10
	5.0	40	6

JITO-2 PECL Test Circuit (below) and HCMOS Test Circuit (bottom).



JITO-2 Typical Input Current (mA)

Frequency (MHz):	16.000	50.000	100.000	125.000	150.000	250.000
Typical Competitor	11.9	18.0	28.5	30.1	n.a.	n.a.
JITO-2 @ 5.0v Vdd	9.4	13.7	20.0	21.2	24.8	42.3
JITO-2 @ 3.3v Vdd	6.2	7.8	12.3	12.9	15.0	25.0