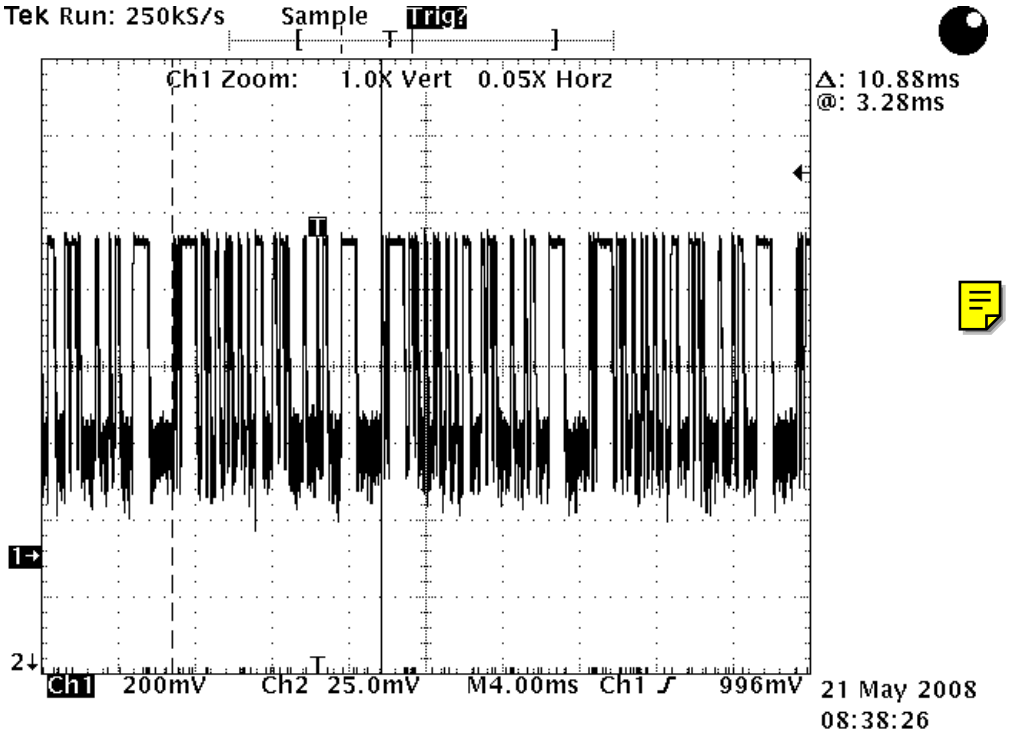
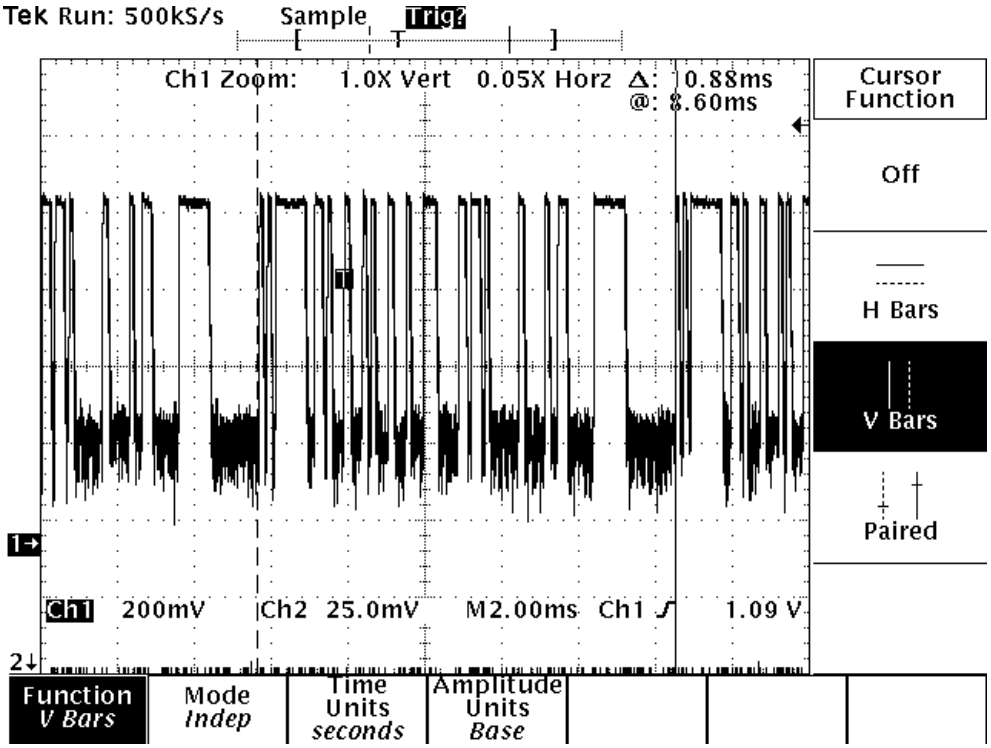
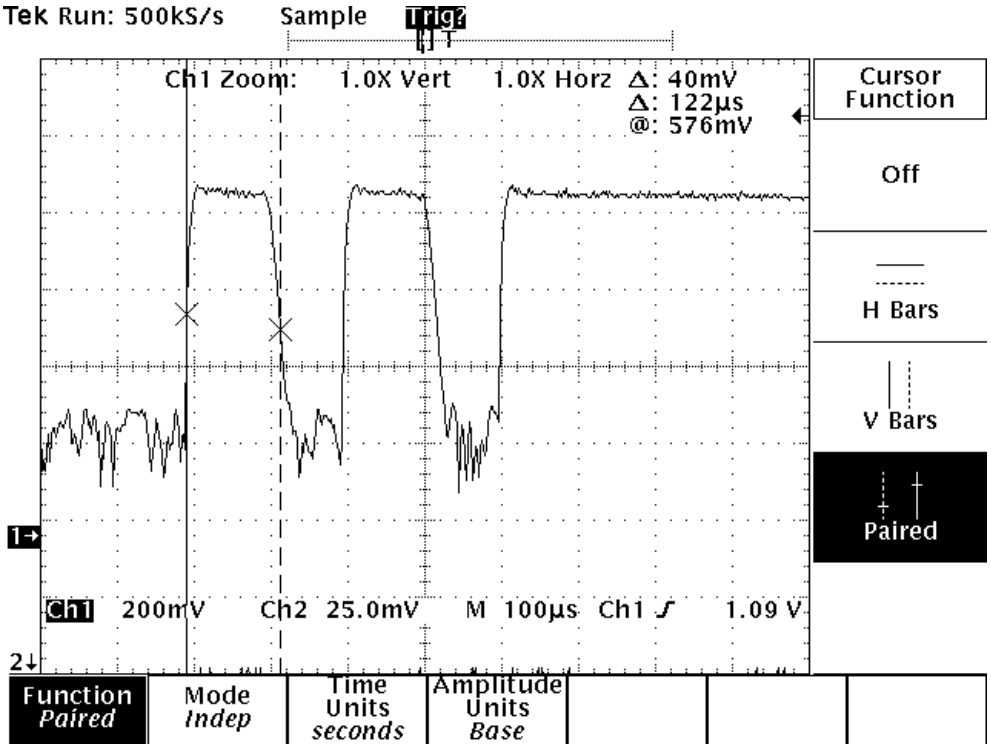
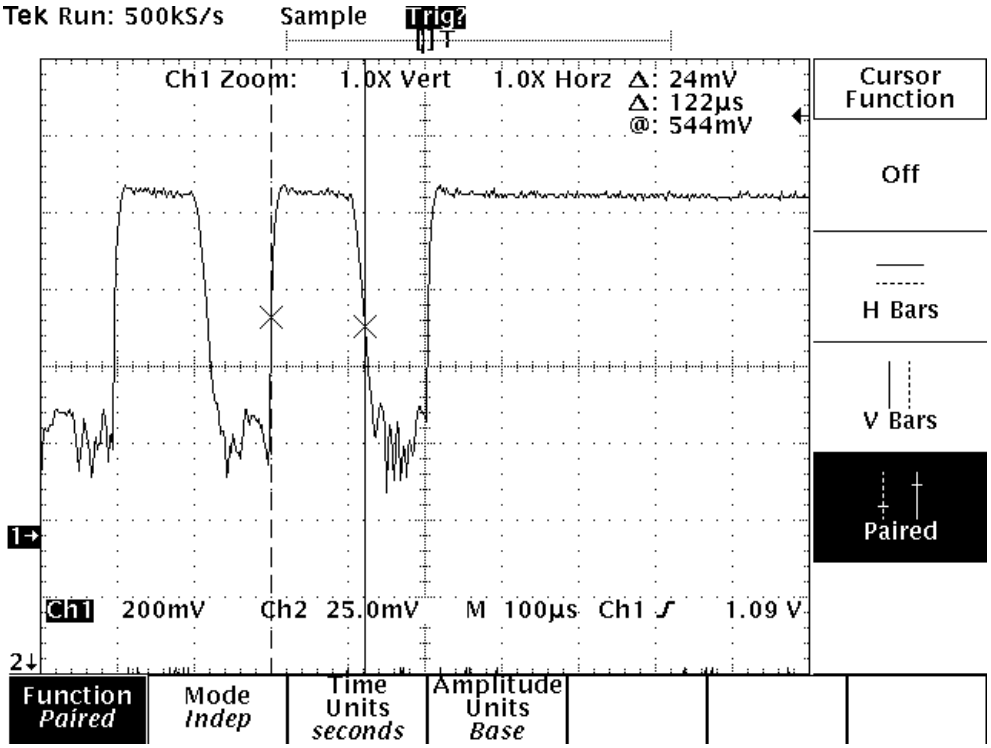
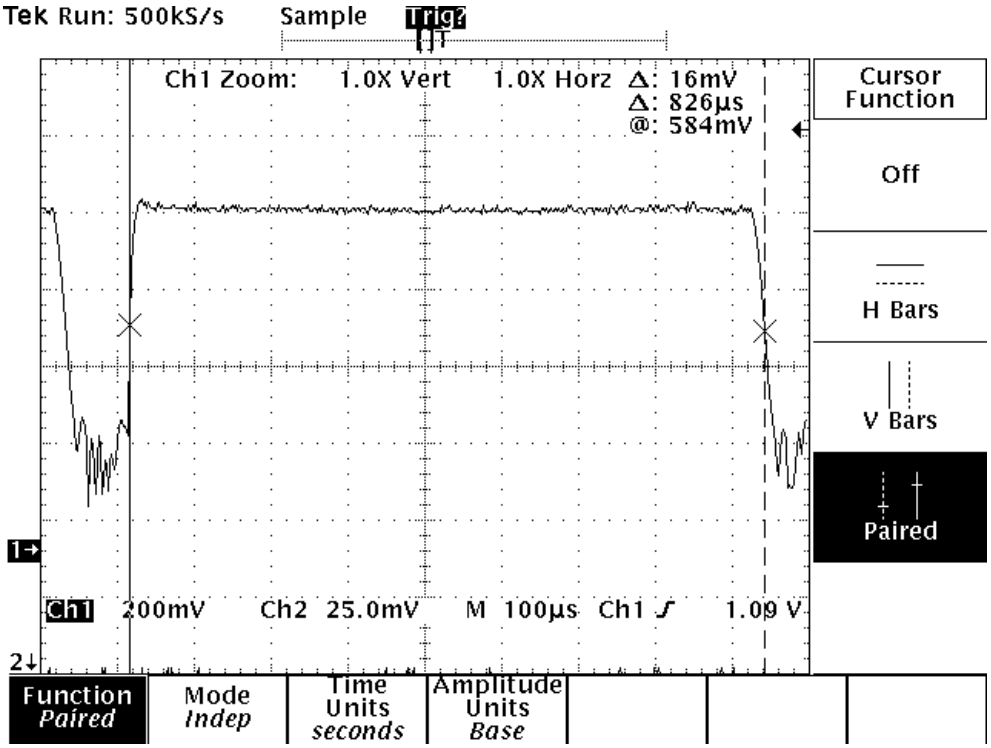
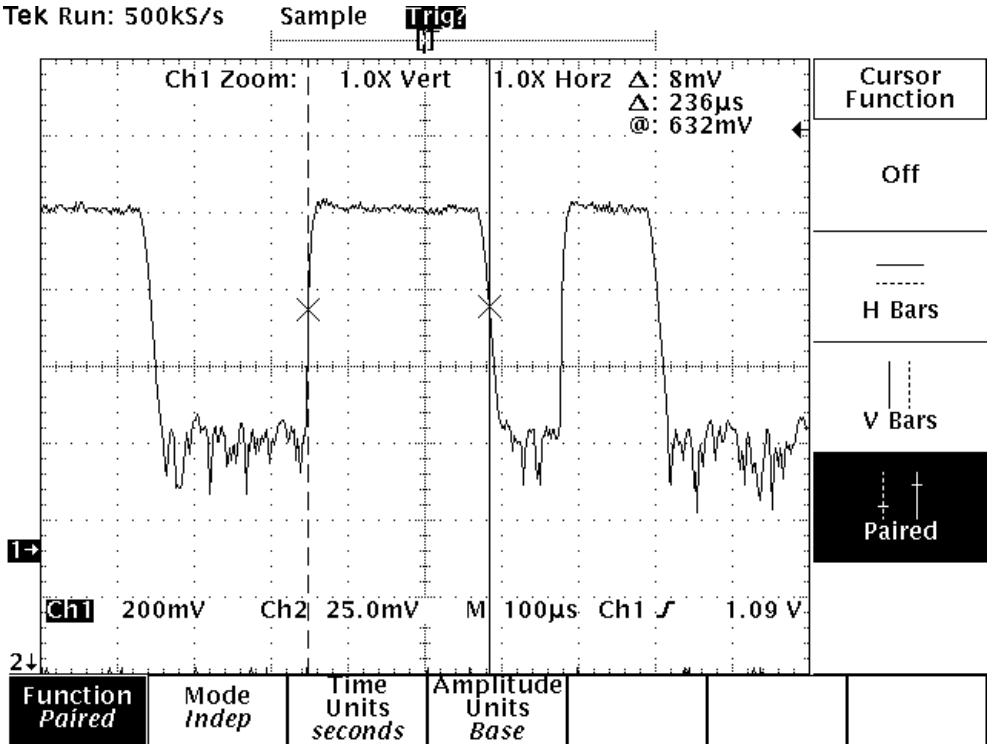

Tek Run: 250kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 0.05X Horz
Δ: 10.88ms
@: 3.28ms
Ch1 200mV Ch2 25.0mV M4.00ms Ch1 ƒ 996mV
21 May 2008
08:38:26

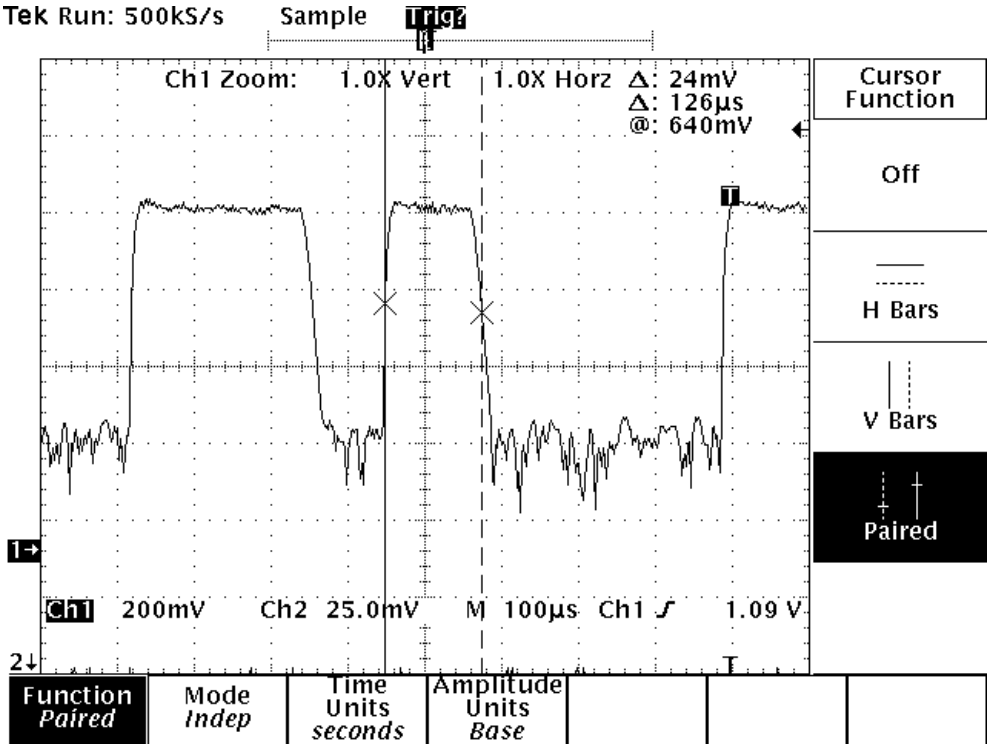

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 0.05X Horz Δ: 0.88ms
@: 8.60ms
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M2.00ms Ch1 1.09 V
Function V Bars
Mode Indep
Time Units seconds
Amplitude Units Base

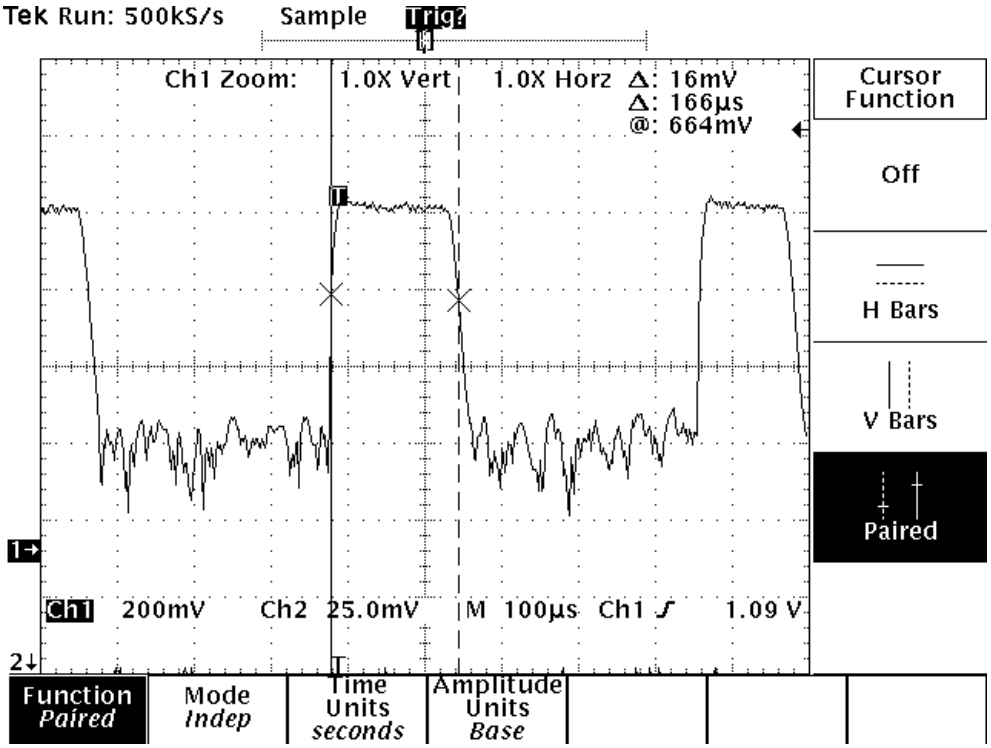

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 40mV
Δ: 122µs
@: 576mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 1.09 V
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

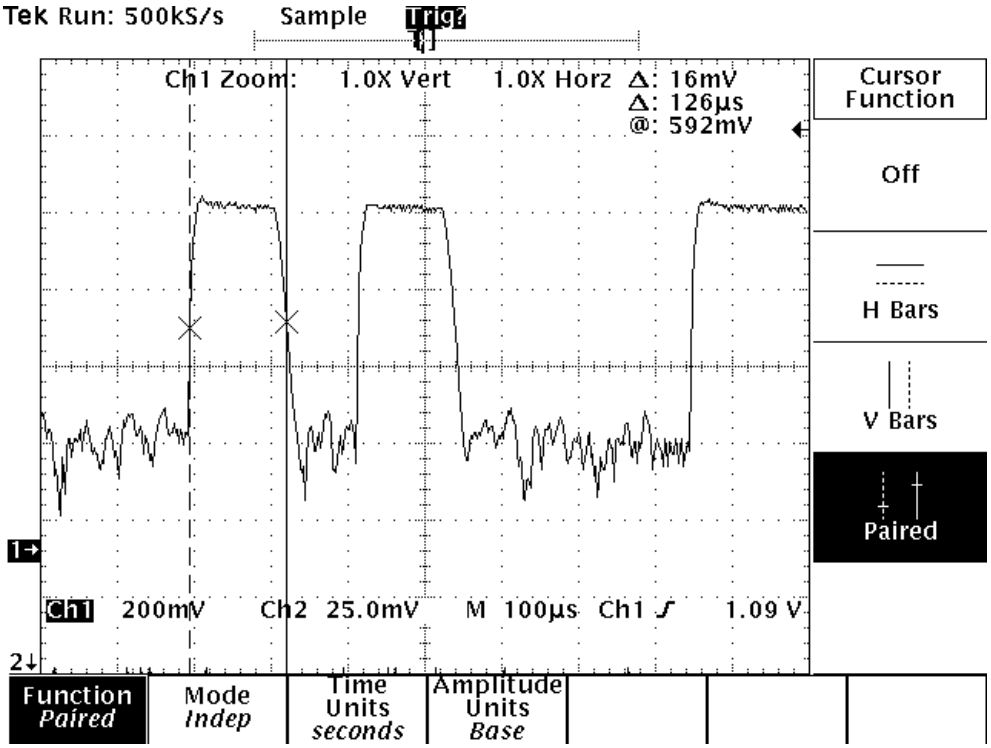

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 24mV
Δ: 122µs
@: 544mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 1.09 V
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

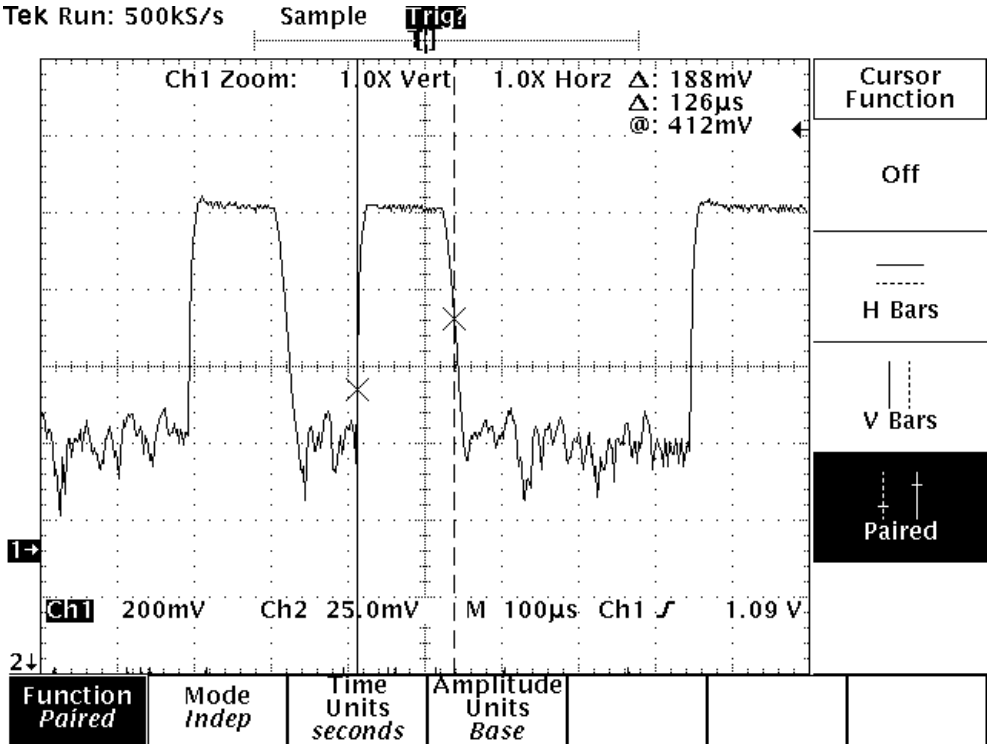

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 16mV
Δ: 826µs
@: 584mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 1.09 V
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

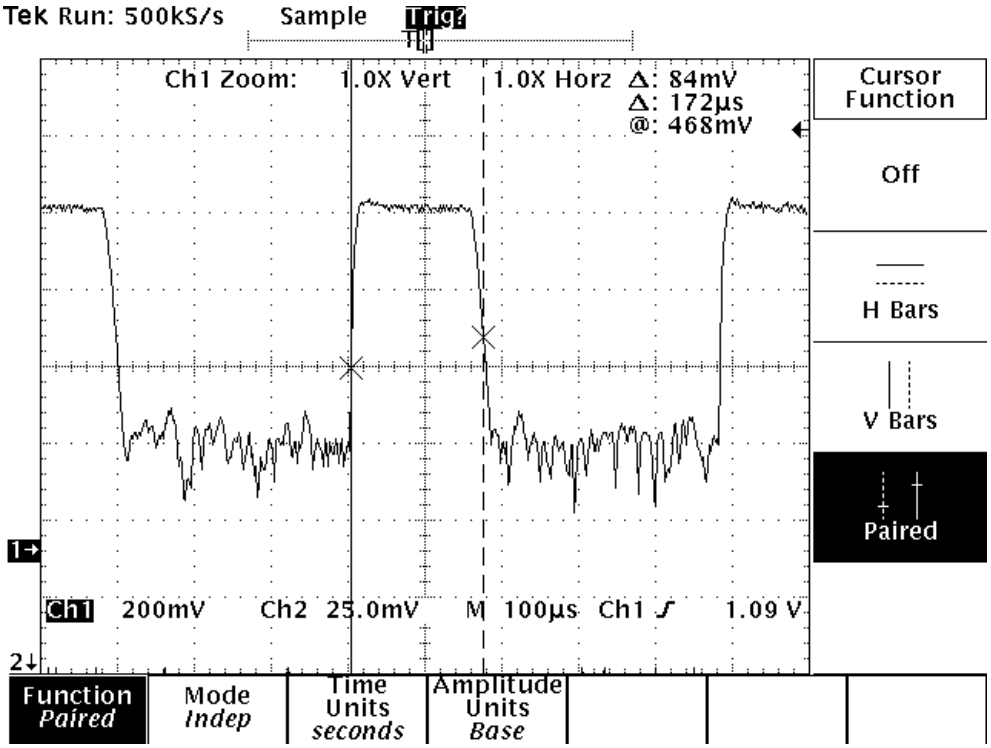

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 8mV
Δ: 236µs
@: 632mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 1.09 V
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

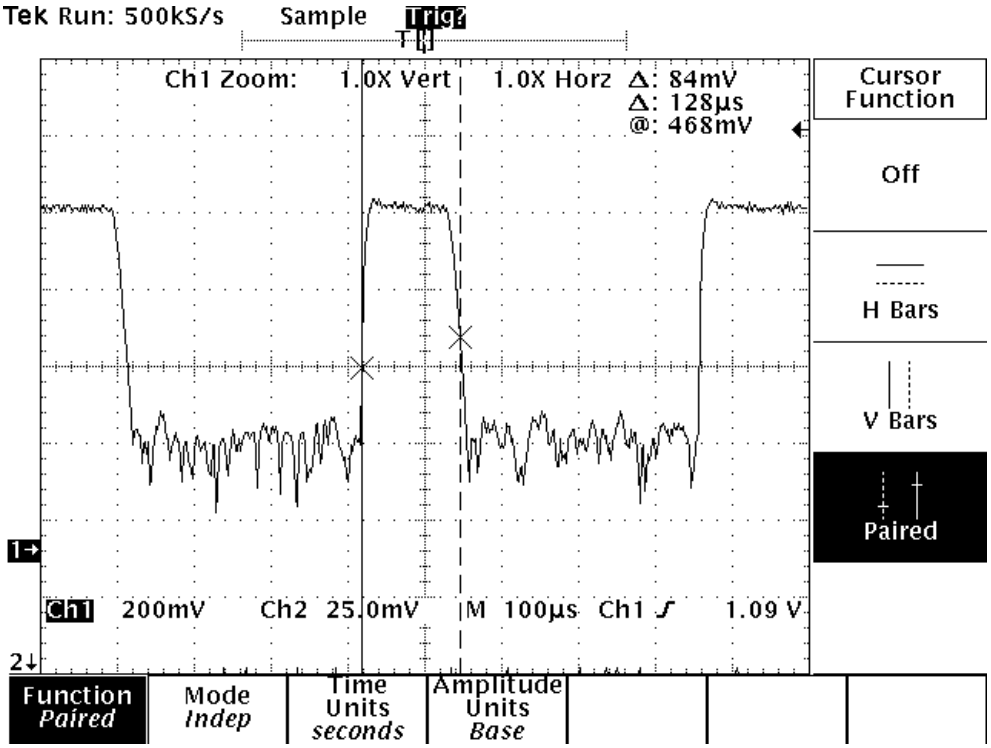

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 24mV
Δ: 126µs
@: 640mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 1.09 V
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

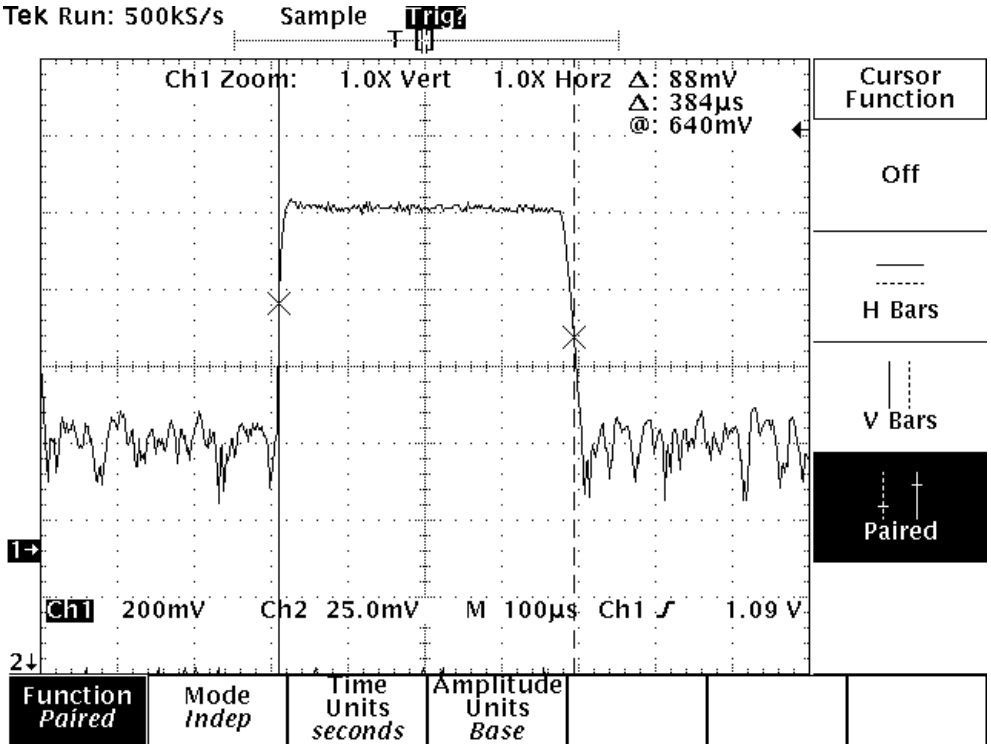

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 16mV
Δ: 166µs
@: 664mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 1.09 V
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

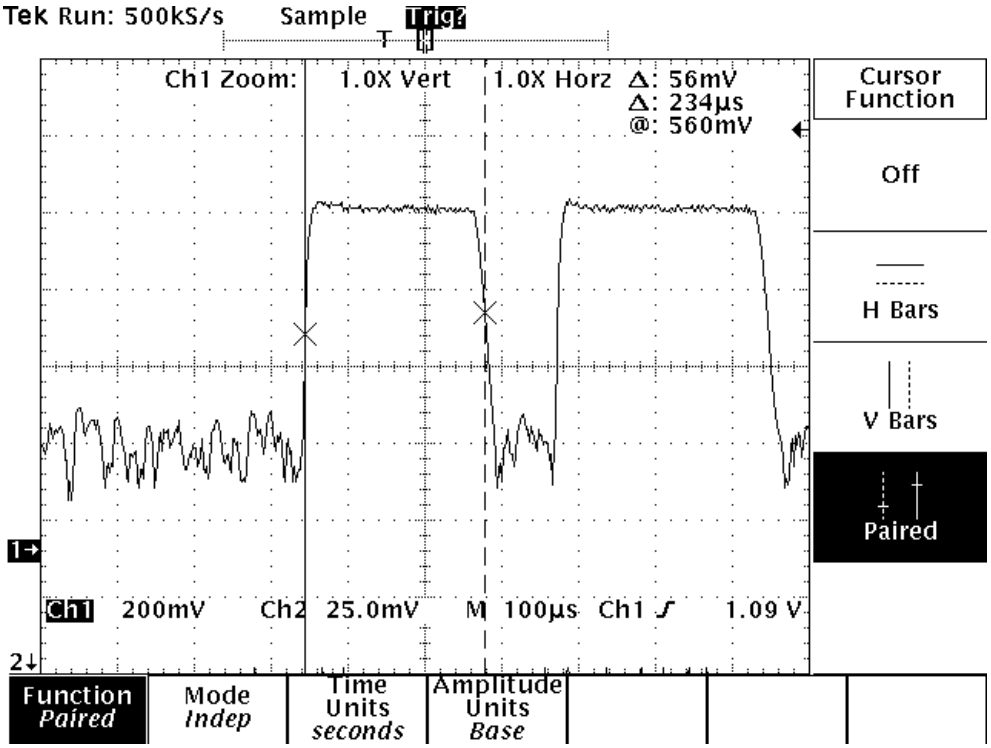

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 16mV
Δ: 126µs
@: 592mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 1.09 V
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

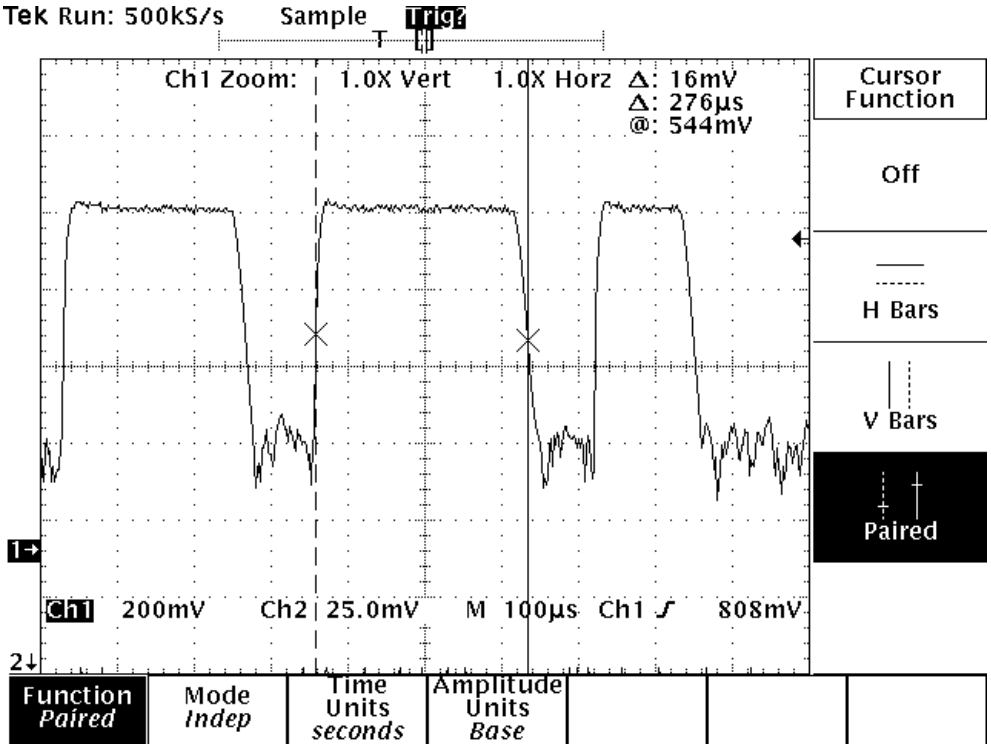

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 188mV
Δ: 126µs
@: 412mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 1.09 V
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

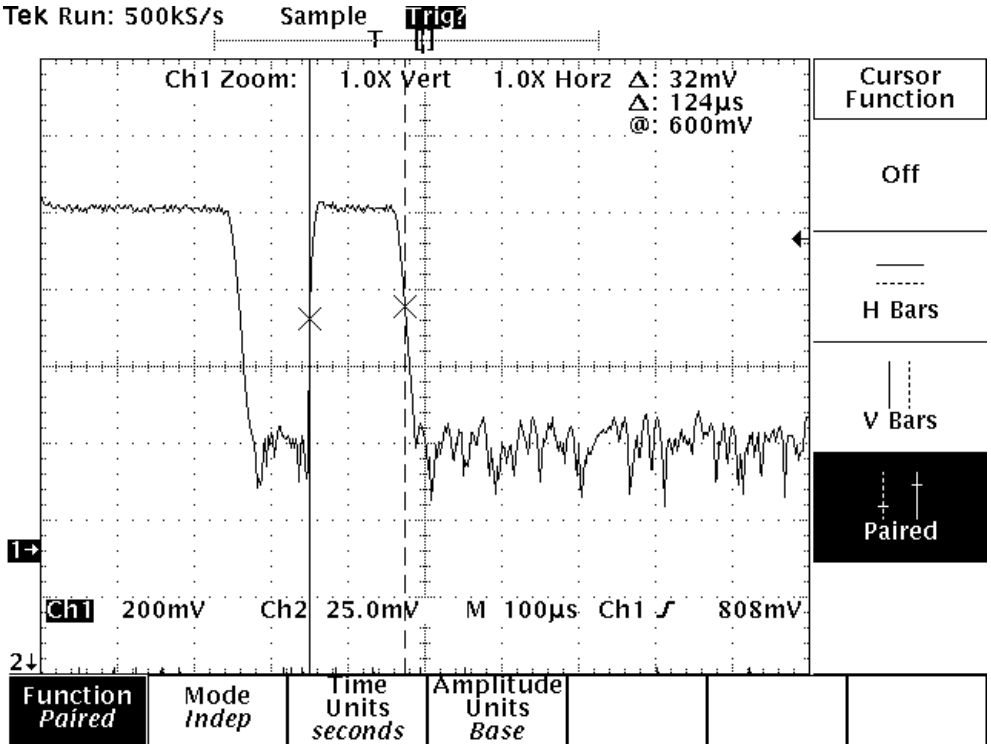

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 84mV
Δ: 172µs
@: 468mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 1.09 V
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

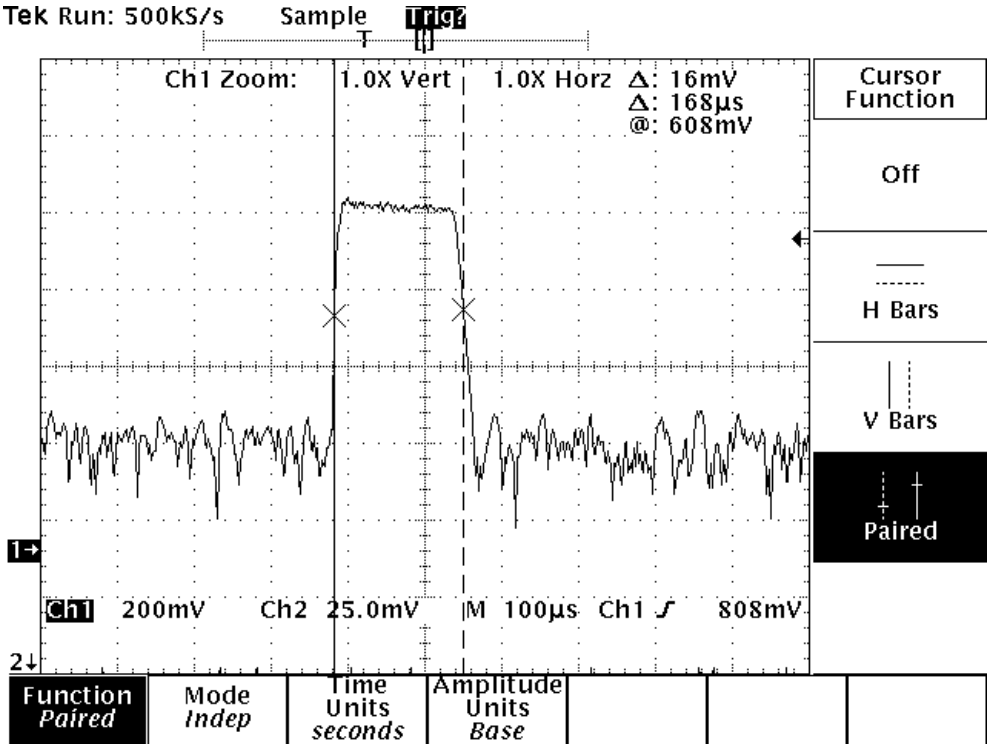

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 84mV
Δ: 128µs
@: 468mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 1.09 V
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

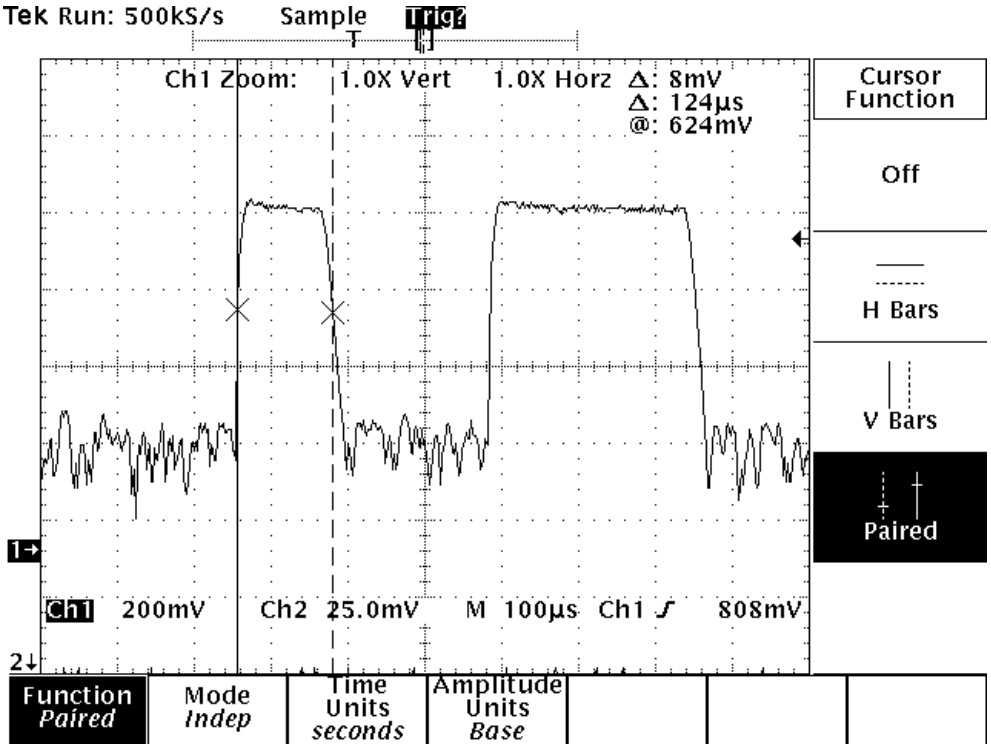

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 88mV
Δ: 384µs
@: 640mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 1.09 V
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

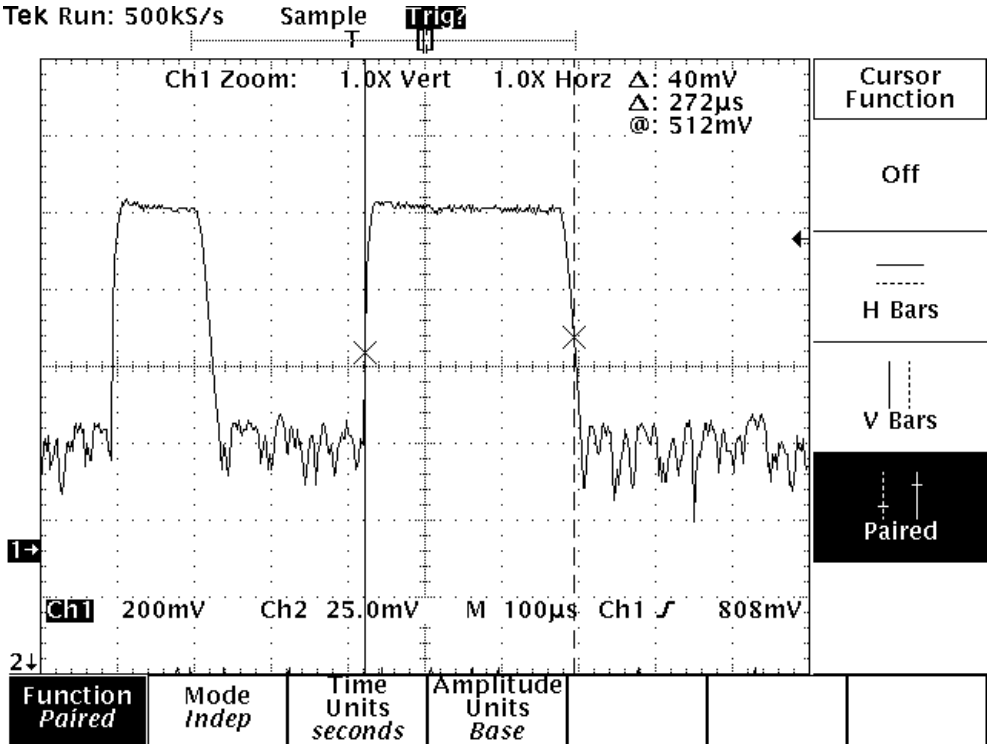

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 56mV
Δ: 234µs
@: 560mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 1.09 V
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

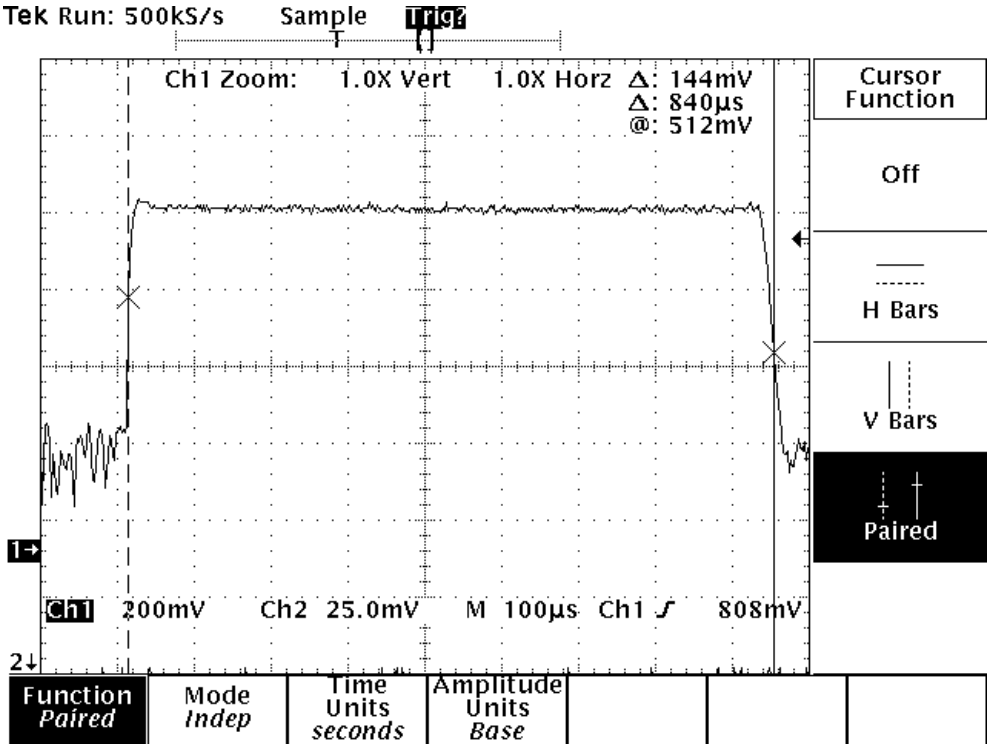

Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 16mV
Δ: 276µs
@: 544mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 808mV
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base


Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 32mV
Δ: 124µs
@: 600mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 808mV
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base


Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 16mV
Δ: 168µs
@: 608mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 808mV
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base


Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 8mV
Δ: 124µs
@: 624mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 808mV
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base


Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 40mV
Δ: 272µs
@: 512mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 808mV
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base


Tek Run: 500kS/s Sample Trig?
Ch1 Zoom: 1.0X Vert 1.0X Horz Δ: 144mV
Δ: 840µs
@: 512mV
Cursor Function
Off
H Bars
V Bars
Paired
Ch1 200mV Ch2 25.0mV M 100µs Ch1 ƒ 808mV
Function Paired
Mode Indep
Time Units seconds
Amplitude Units Base

Pulse Number	Length of pulse (uS)
1	122
2	122
3	826
4	236
5	126
6	166
7	126
8	126
9	172
10	128
11	384
12	234
13	276
14	124
15	168
16	124
17	272
18	840
	4572

4.572 mS / 10.88 mS = 42.02% = Measured Duty Cycle

MS Series Encoder Data Structure

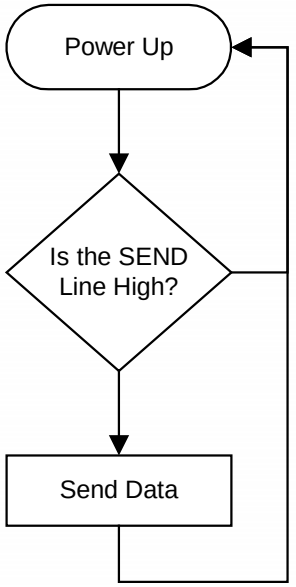
The MS Series encoder is designed to securely register button presses or switch closures over a wireless link for remote control applications. It will turn eight parallel input lines into a secure, encoded serial bit stream output.

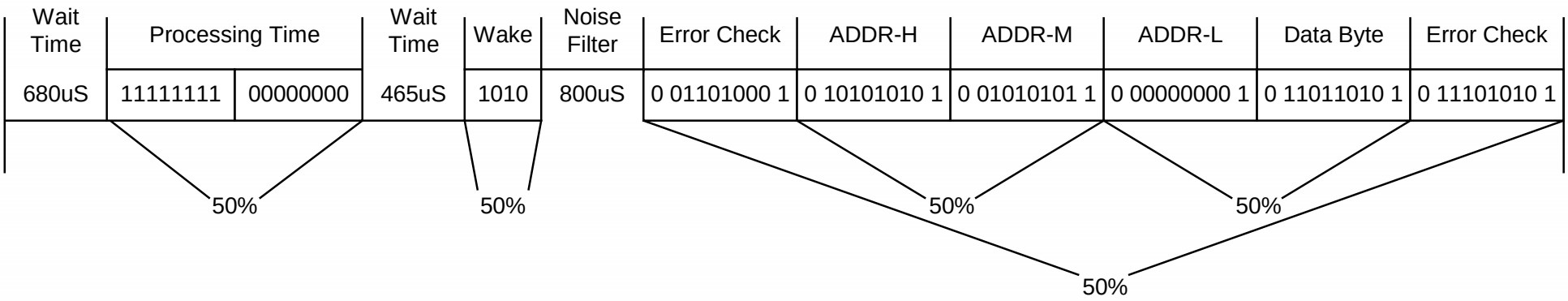
The MS Series algorithm is designed to create a data stream with 5 High Data Bits at 9600bps.

Logic State Description:
- 1 = HIGH
- 0 = LOW

Total bits, including start and stop bits = 80
- Total 1's = 40
- Total 0's = 40

Value for each bit per baud rate:
- 2400bps = 417uS or 1.18% of duty cycle
- 9600bps = 104uS or 1.01% of duty cycle
- 19200bps = 52uS or 0.85% of duty cycle
- 28800bps = 35uS or 0.74% of duty cycle





$$\text{Duty Cycle} = \frac{\text{Time High}}{\text{Total Time}} \rightarrow \frac{37 \text{ bits} + 800\text{uS}}{80 \text{ bits} + 680\text{uS} + 465\text{uS} + 800\text{uS}} \rightarrow \frac{(37*104\text{uS}) + 800\text{uS}}{(80*104\text{uS}) + 1{,}945\text{uS}} = \frac{4{,}648\text{uS}}{10{,}265\text{uS}} = 45.28\%$$