 <p>GLAST LAT Subsystem Technical Document</p>	Document # ACD-RPT-000378	Date Effective Aug. 18, 2005
	Prepared by(s) Jim Odom, Dave Thompson	Supersedes None
	Subsystem/Office Anticoincidence Detector Subsystem	
Document Title GLAST LAT ACD Electrical Inrush Measurements		

GLAST LAT ACD Electrical Inrush Measurements

ACD-RPT-000378

INRUSH MEASUREMENT SUMMARY

1.0 - Introduction

The GLAST LAT ACD electrical inrush measurements were carried out following Thermal Vacuum testing.

1.1 - Purpose and Scope

This report summarizes the results of electrical inrush measurements

2.0 - NASA STANDARD DOCUMENTS:

There are no NASA Standard documents explicitly for performance testing.

2.1 QA Requirements

The ACD Quality Assurance (QA) Representative reviewed all reports.

2.2 Safety Requirements

All ACD activities at GSFC will adhere to the occupational safety requirements described in the following instructions and directives:

Directive	Description
GMI-1700.2	GSFC Health and Safety Program
GMI-1780.1	GSFC Confined Space Policy
GMI-1800.1	Occupational Medicine
GPD-8870.1	Environmental Program

3.0 ACD Inrush Measurements

Electrical inrush measurements were made on the assembled ACD. Each independent part of the system was turned on separately, and oscilloscope pictures were made. The details are as follows:

The current scales are as follows:

for the VDD files 100mA/Div
for the 28V files 10mA/Div
for the HV En files 20mA/Div

The VDD is the 3.3 V power to the FREE card.

The 28 V powers the low voltage part of the High Voltage Bias Supplies (HVBS)

The HV En is the turn-on of high voltage from the HVBS (two per FREE card). The second pulse seen during the HV En test occurs when the HVBS oscillator starts.

In all cases, the results obtained on the full ACD matched those seen during bench testing. Not all signals of the same type are the same, but they have been consistent. This report therefore provides a record for future comparisons.

In this version of the report, not all charts are labeled. Each FREE card has four pages – VDD, 28 V, HV1, HV2. The charts appear on pages as indicated:

1LA 1-4

1RB 5-8

2LA 9-12

2LB 13-16

2RA 17-20

2RB 21-24

3LA 25-28

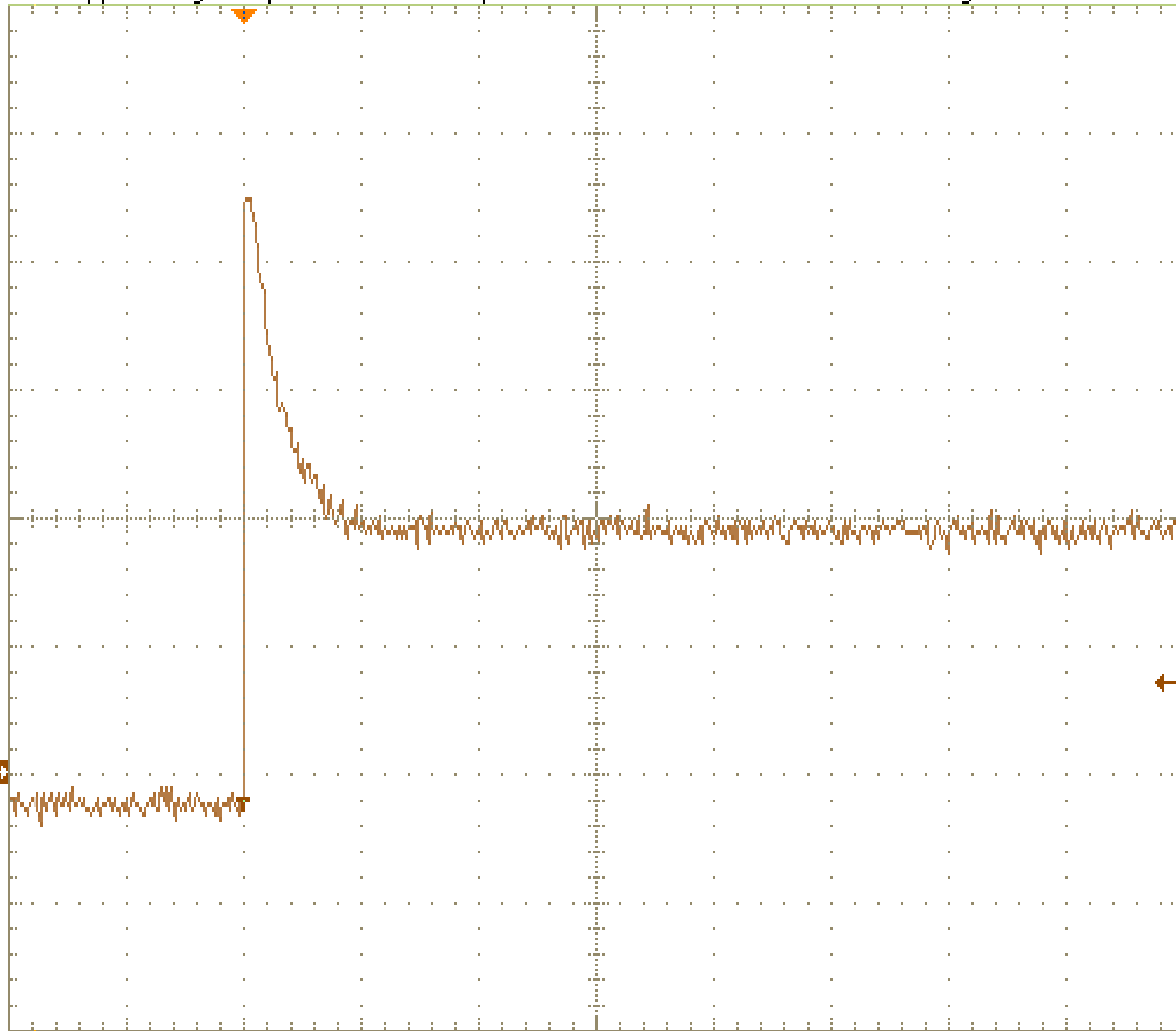
3RB 29-32

4LA 33-36

4LB 37-40

4RA 41-44

4RB 45-48

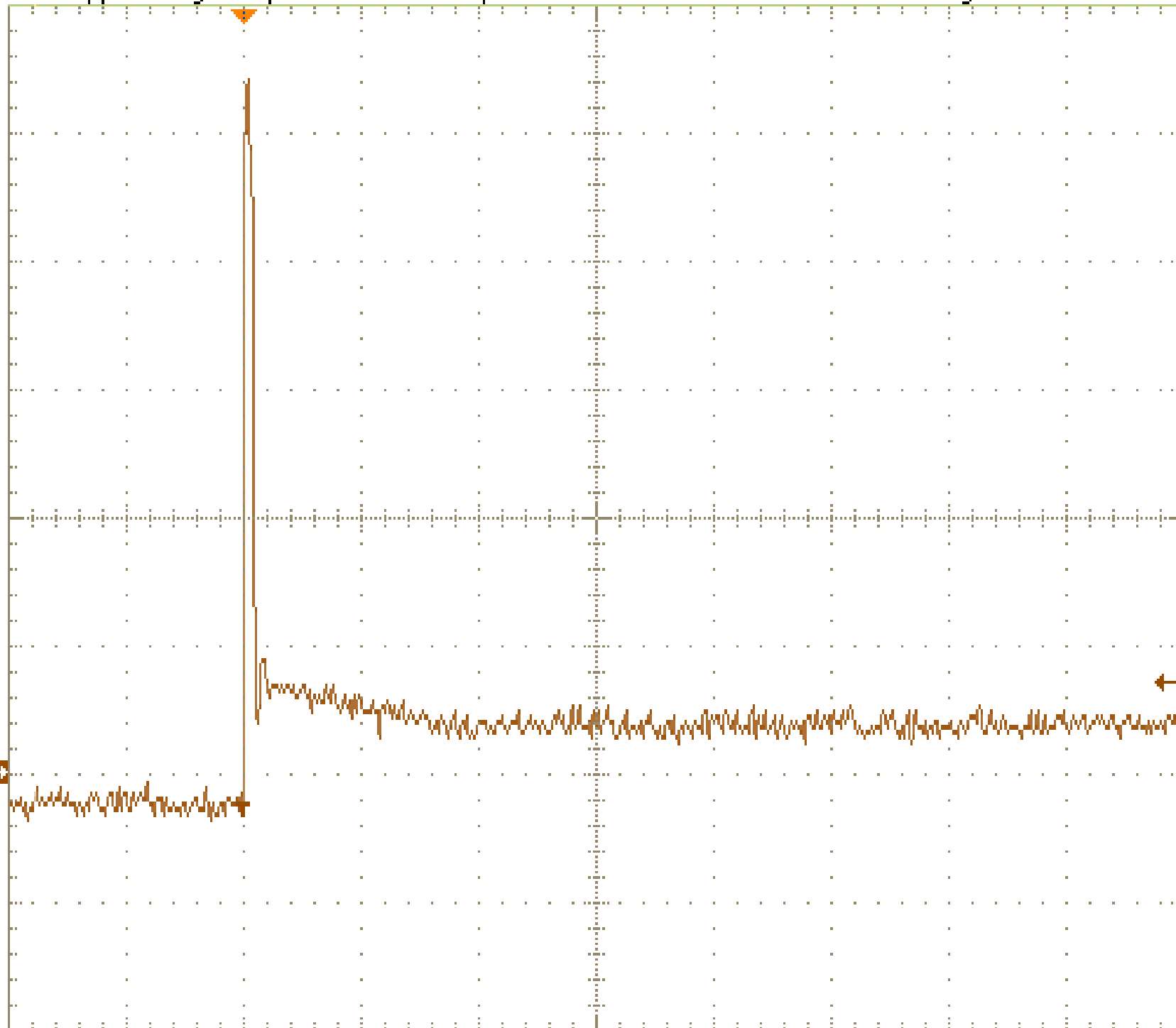


Ch1 10.0mV Ω

M 2.0ms 25.0kS/s

40.0 μ s/pt

A Ch1 7.0mV

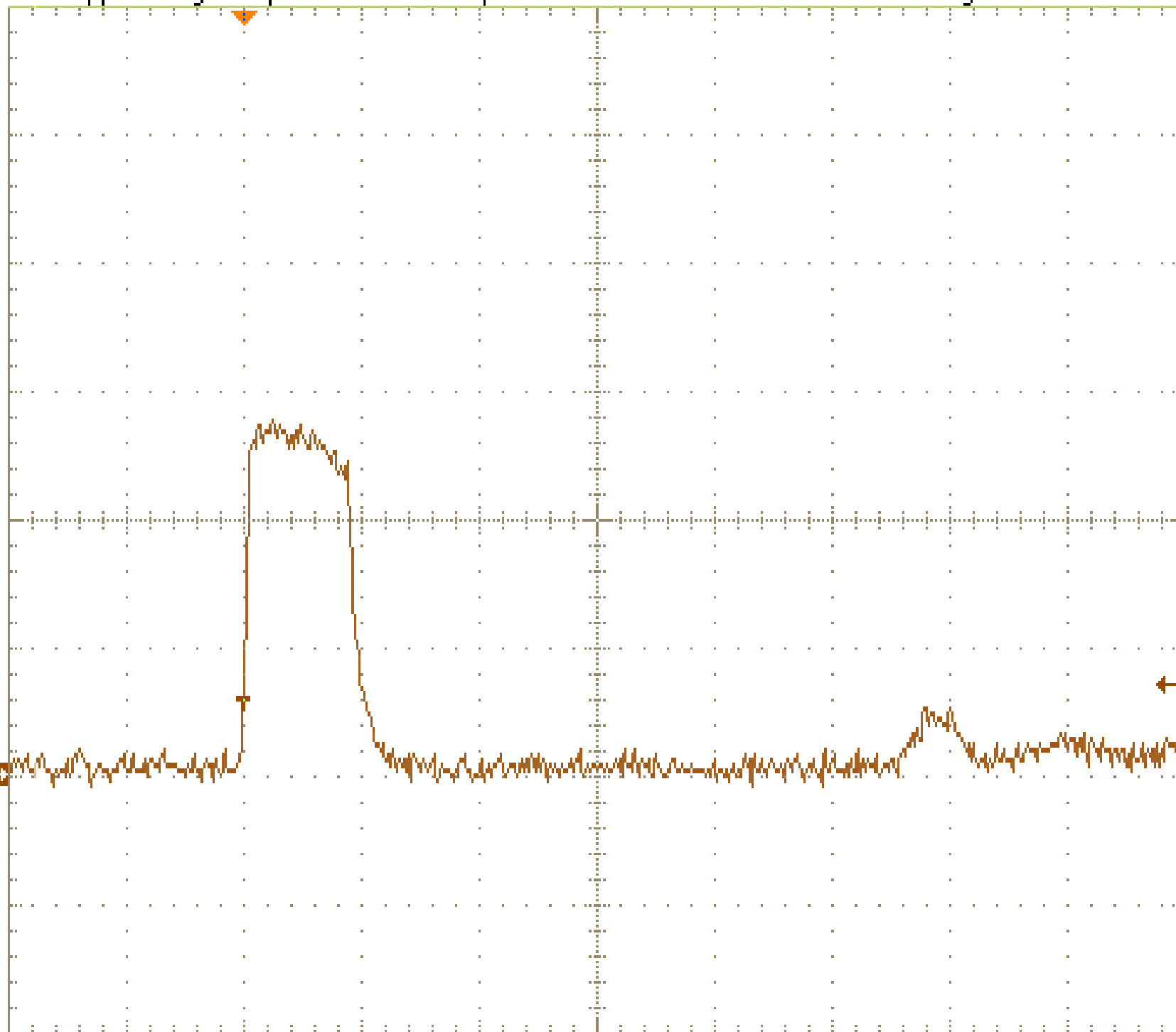


Ch1 2 10.0mV Ω

M 200 μ s 250kS/s

4.0 μ s/pt

A Ch1 \approx 7.0mV

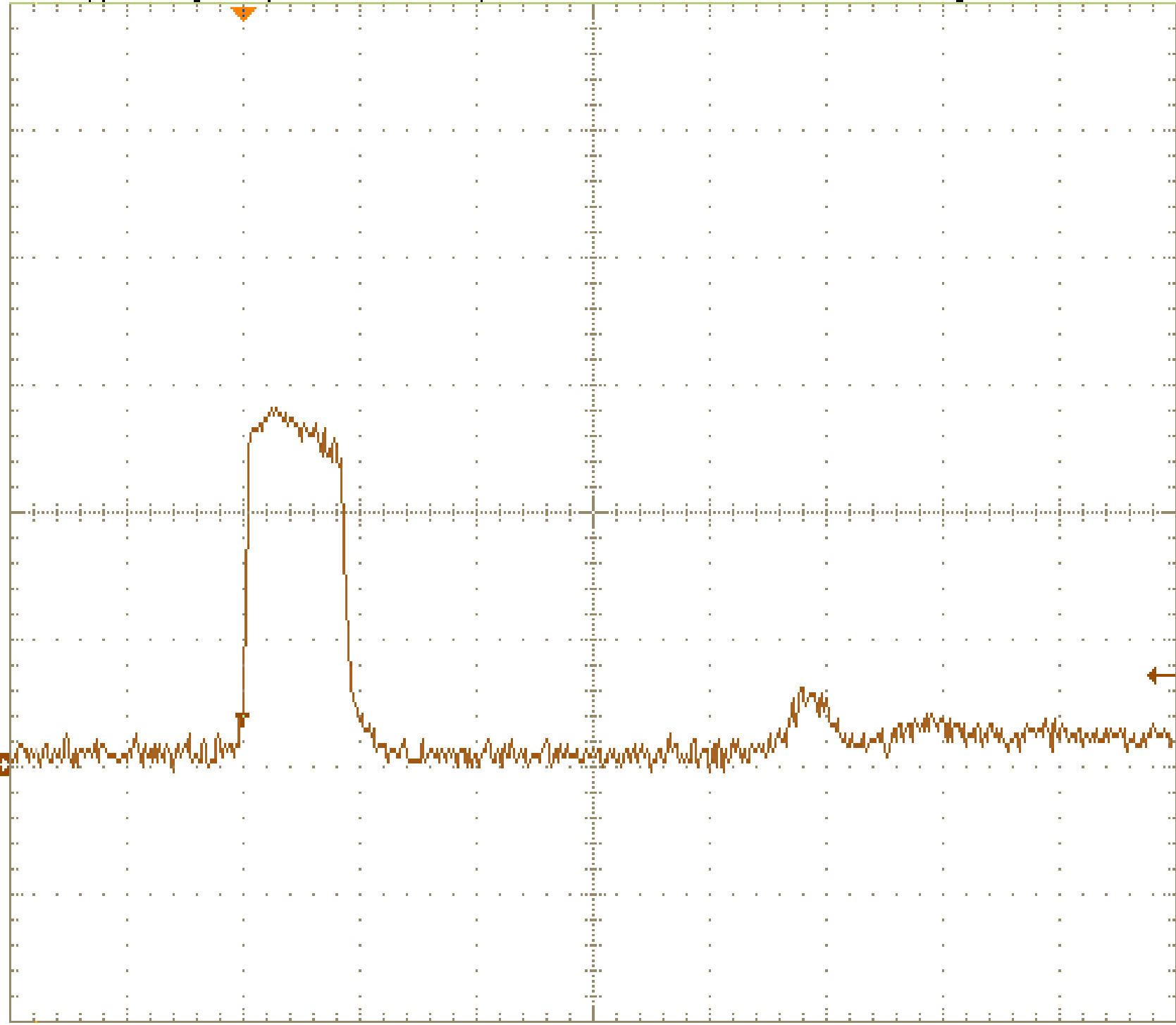


Ch1 3 10.0mV Ω

M 100 μ s 500kS/s

2.0 μ s/pt

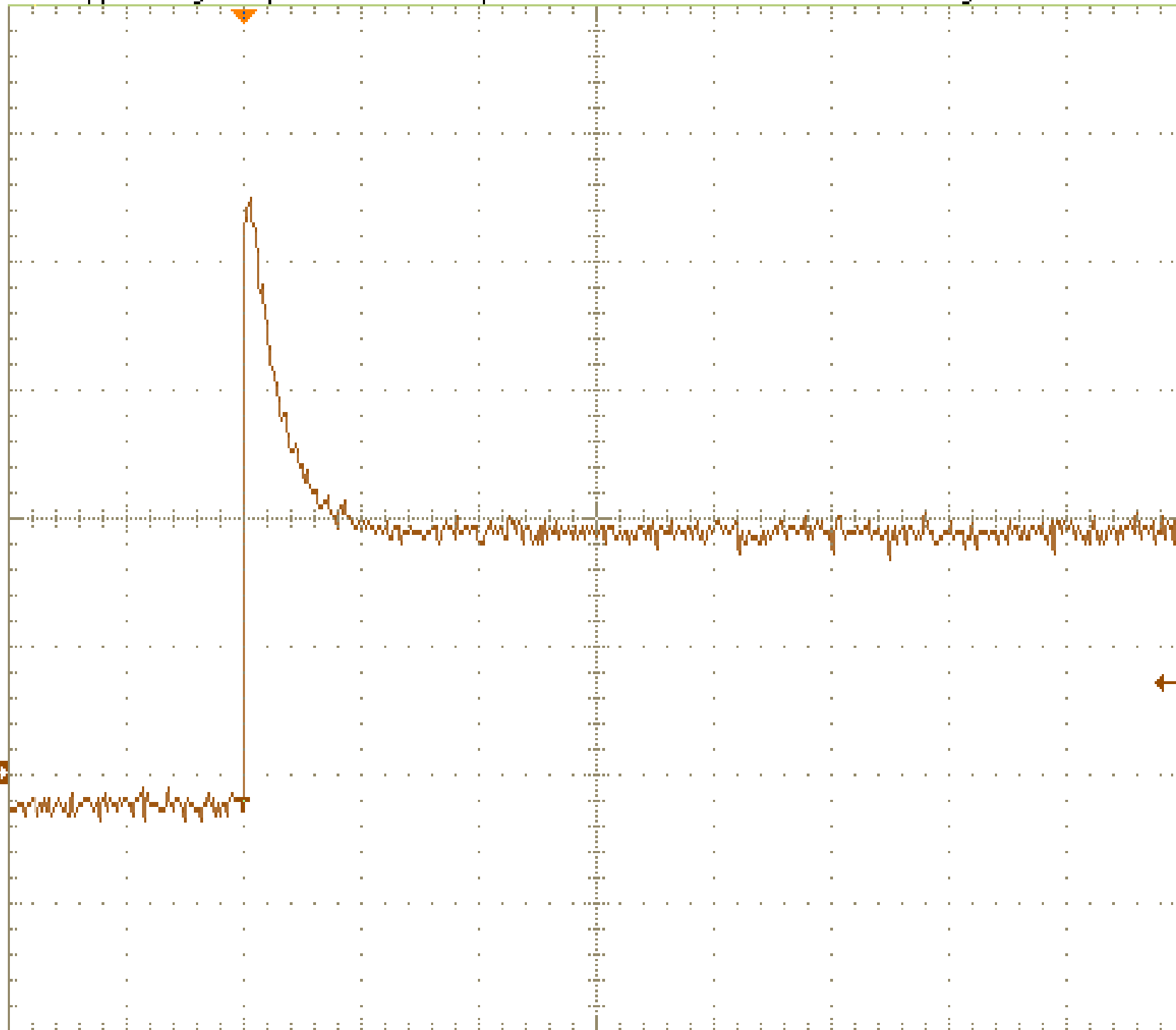
A Ch1 \nearrow 7.0mV



Ch1 4 10.0mV Ω

M 100 μ s 500kS/s 2.0 μ s/pt

A Ch1 \nearrow 7.0mV

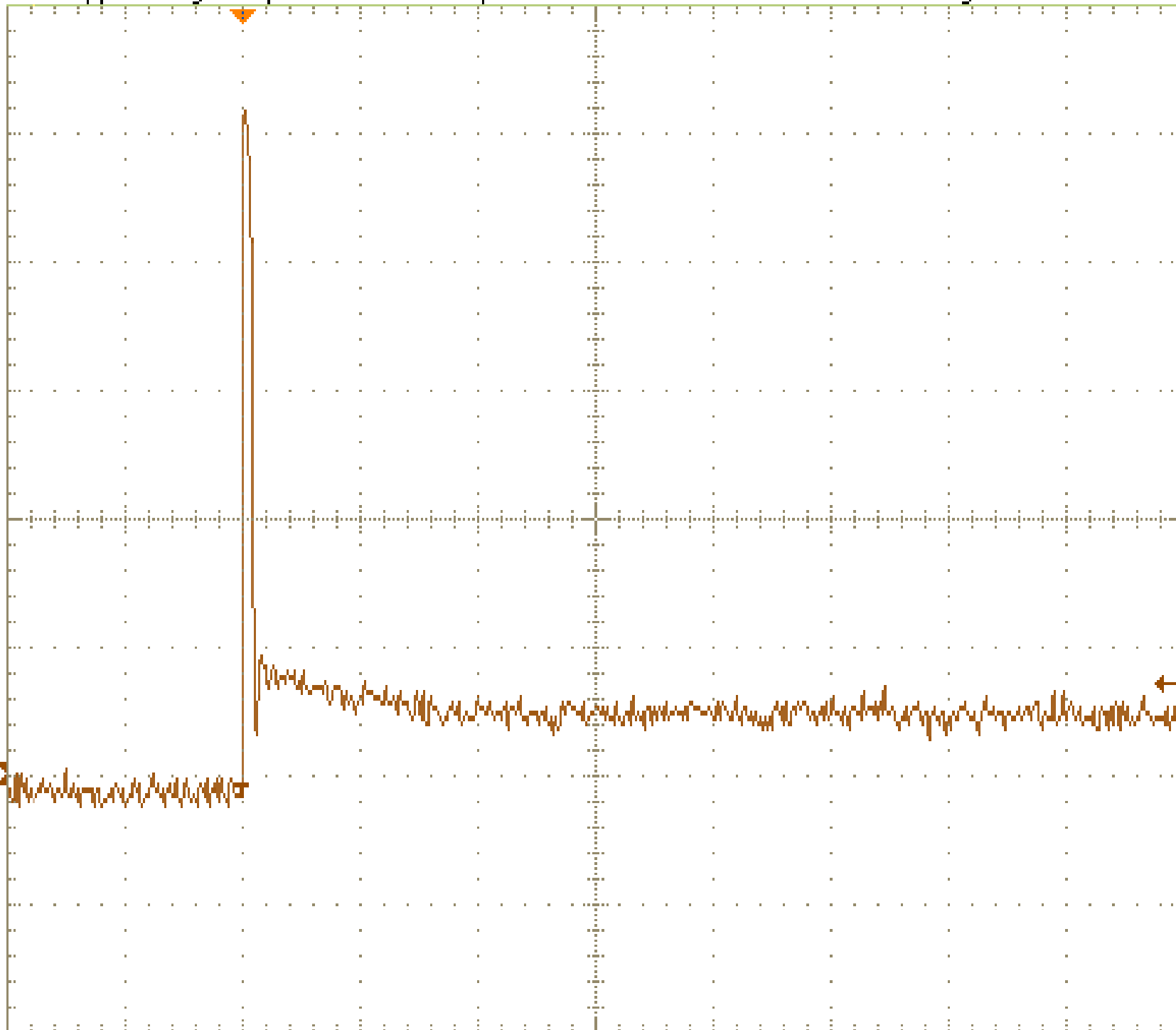


Ch1 5 10.0mV Ω

M 2.0ms 25.0kS/s

40.0 μ s/pt

A Ch1 \nearrow 7.0mV



Ch1 6 10.0mV Ω

M 200 μ s 250kS/s 4.0 μ s/pt

A Ch1 \nearrow 7.0mV

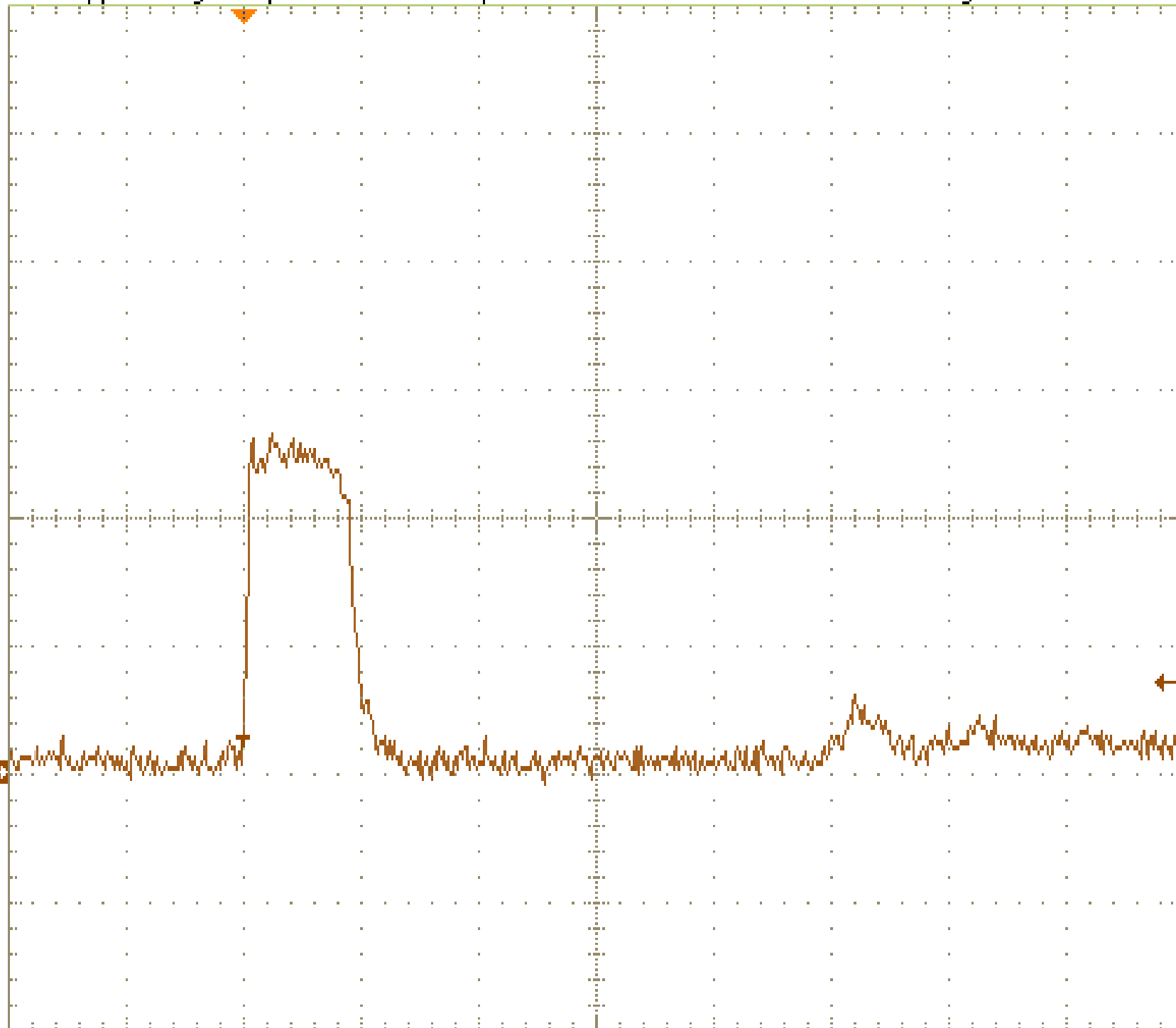


10

Ch1 7.0mV Ω

M 100 μ s 500kS/s 2.0 μ s/pt

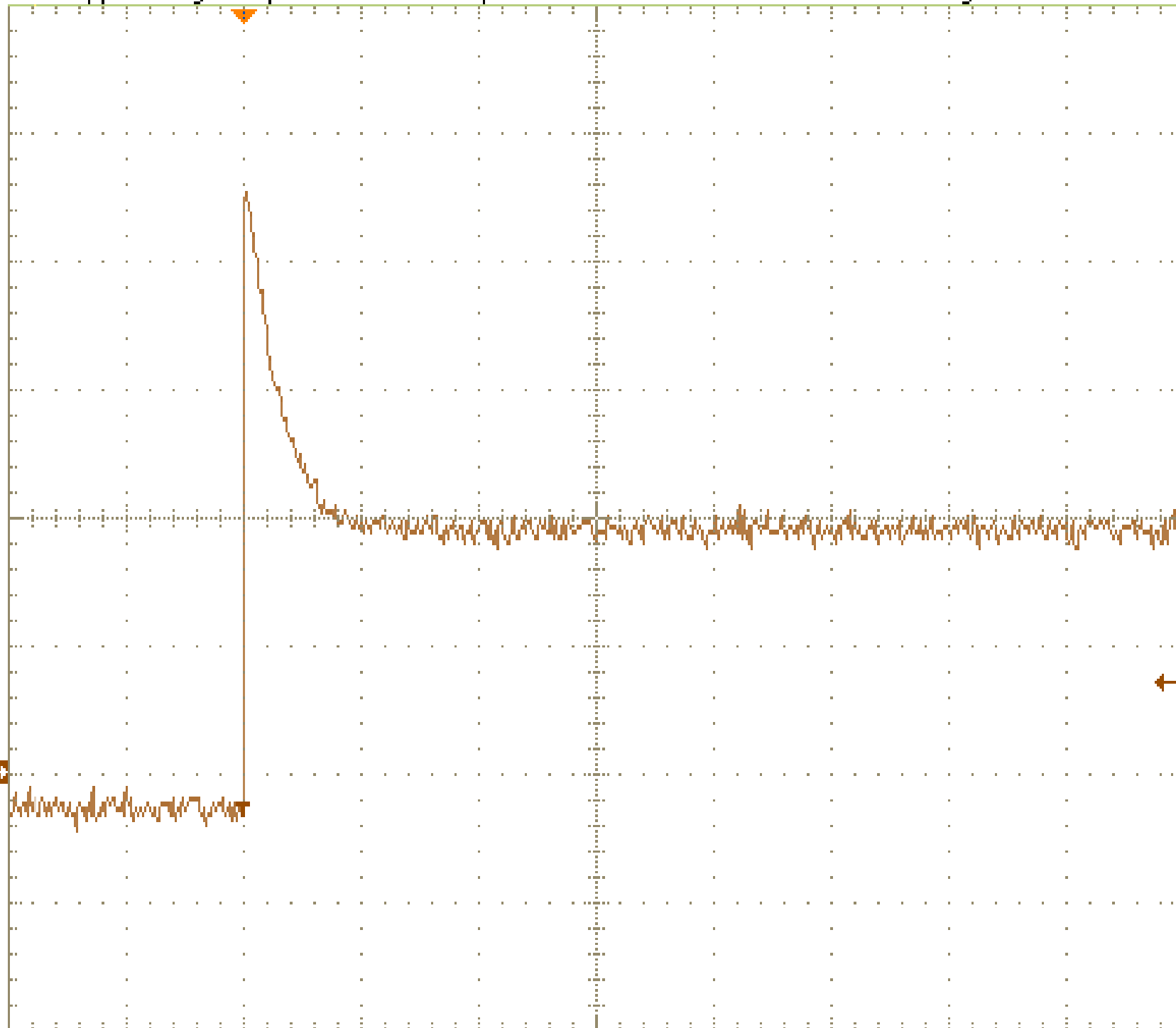
A Ch1 7.0mV



Ch1 8 10.0mV Ω

M 100 μ s 500kS/s 2.0 μ s/pt

A Ch1 \nearrow 7.0mV

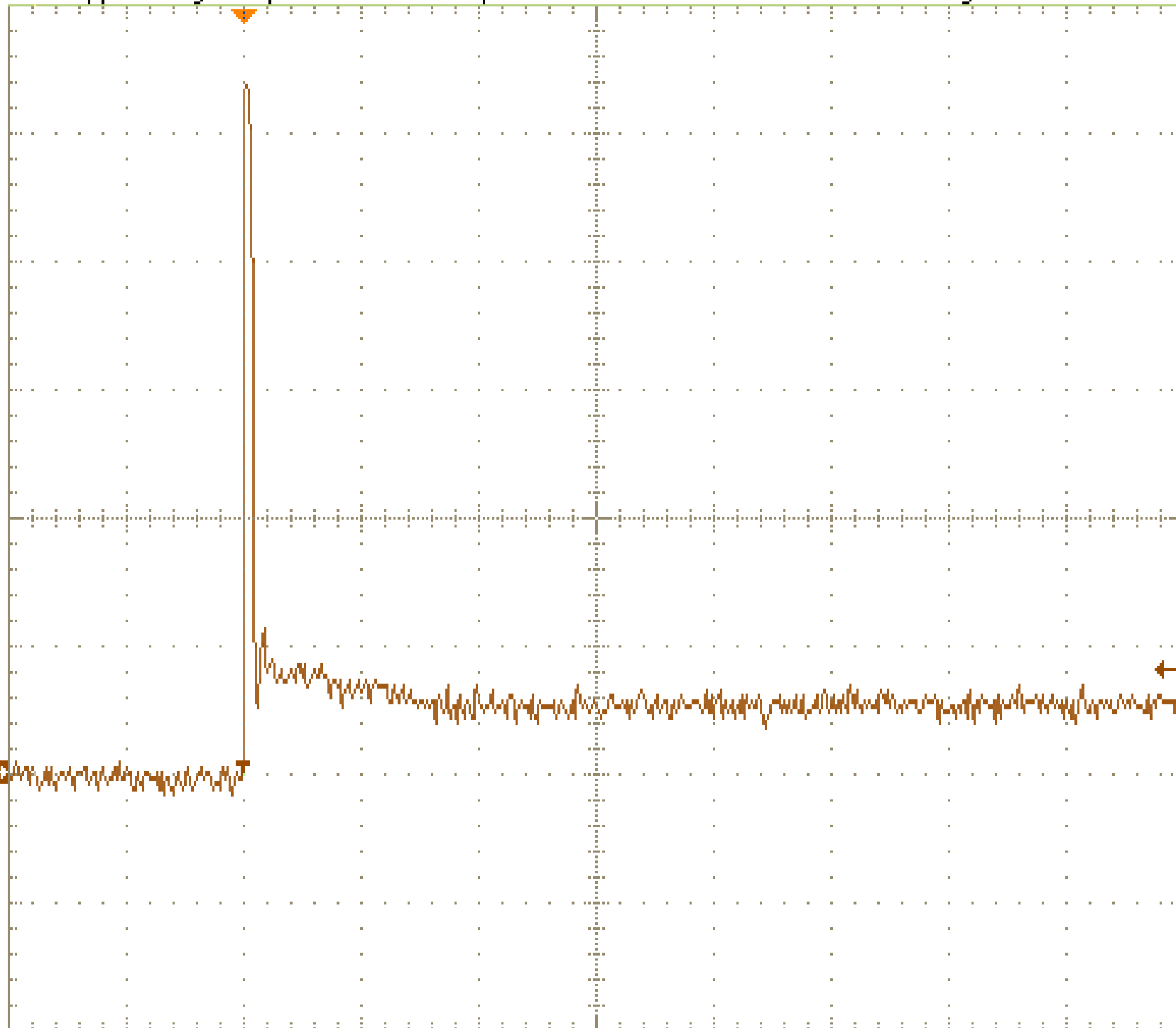


Ch1 10.0mV Ω

M 2.0ms 25.0kS/s

40.0 μ s/pt

A Ch1 7.0mV



Ch1 10.0mV Ω

M 200 μ s 250kS/s

4.0 μ s/pt

A Ch1 \nearrow 8.0mV

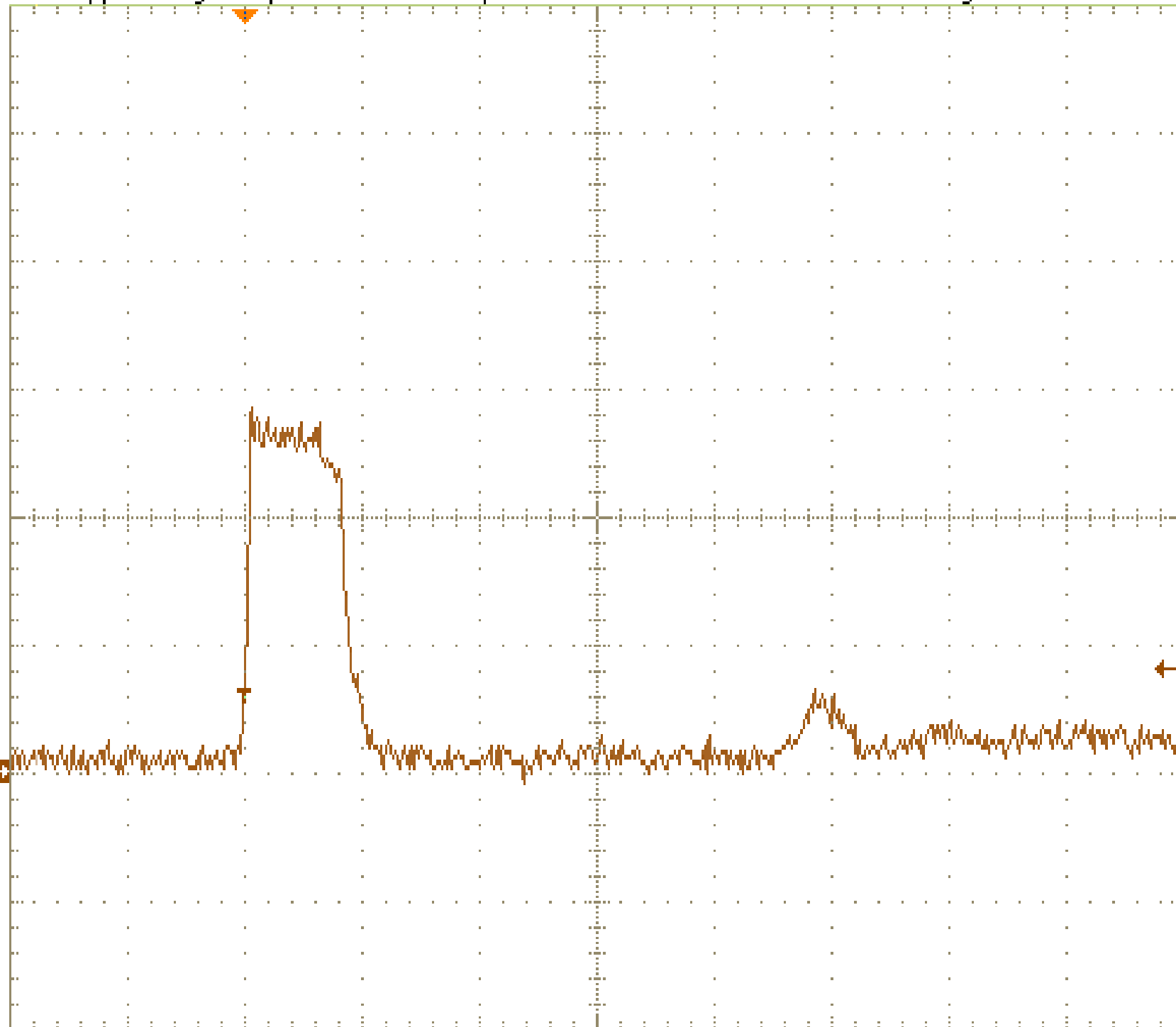


Ch1 10.0mV Ω

M 100 μ s 500kS/s

2.0 μ s/pt

A Ch1 8.0mV

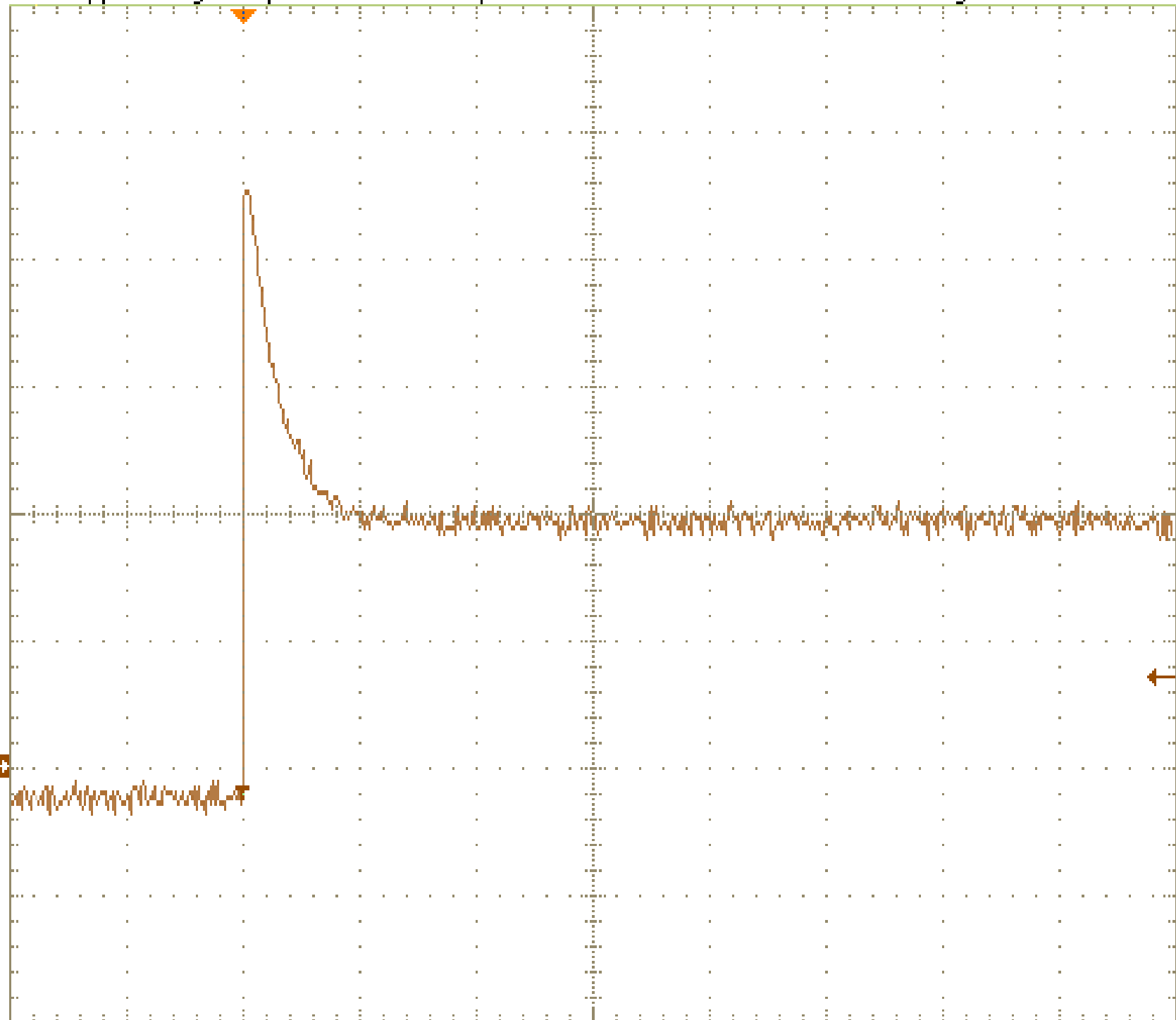


IE

Ch1 120.0mV Ω

M 100 μ s 500kS/s 2.0 μ s/pt

A Ch1 \nearrow 8.0mV



Ch1 130.0mV Ω

M 2.0ms 25.0kS/s 40.0 μ s/pt

A Ch1 \nearrow 7.0mV



Ch1 140.0mV Ω

M 200 μ s 250kS/s

4.0 μ s/pt

A Ch1 \nearrow 7.0mV



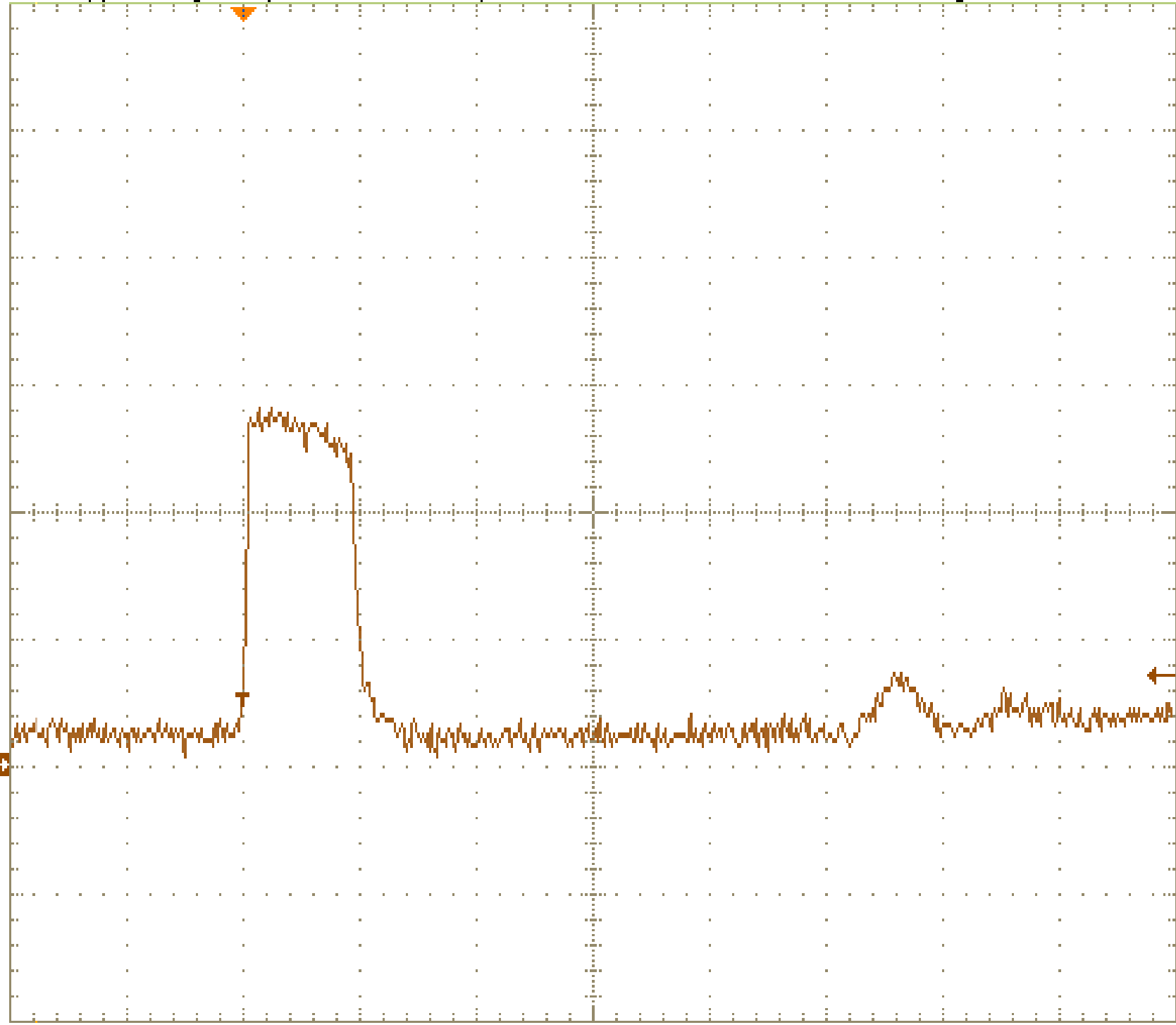
10

Ch1 150.0mV Ω

M 100 μ s 500kS/s

2.0 μ s/pt

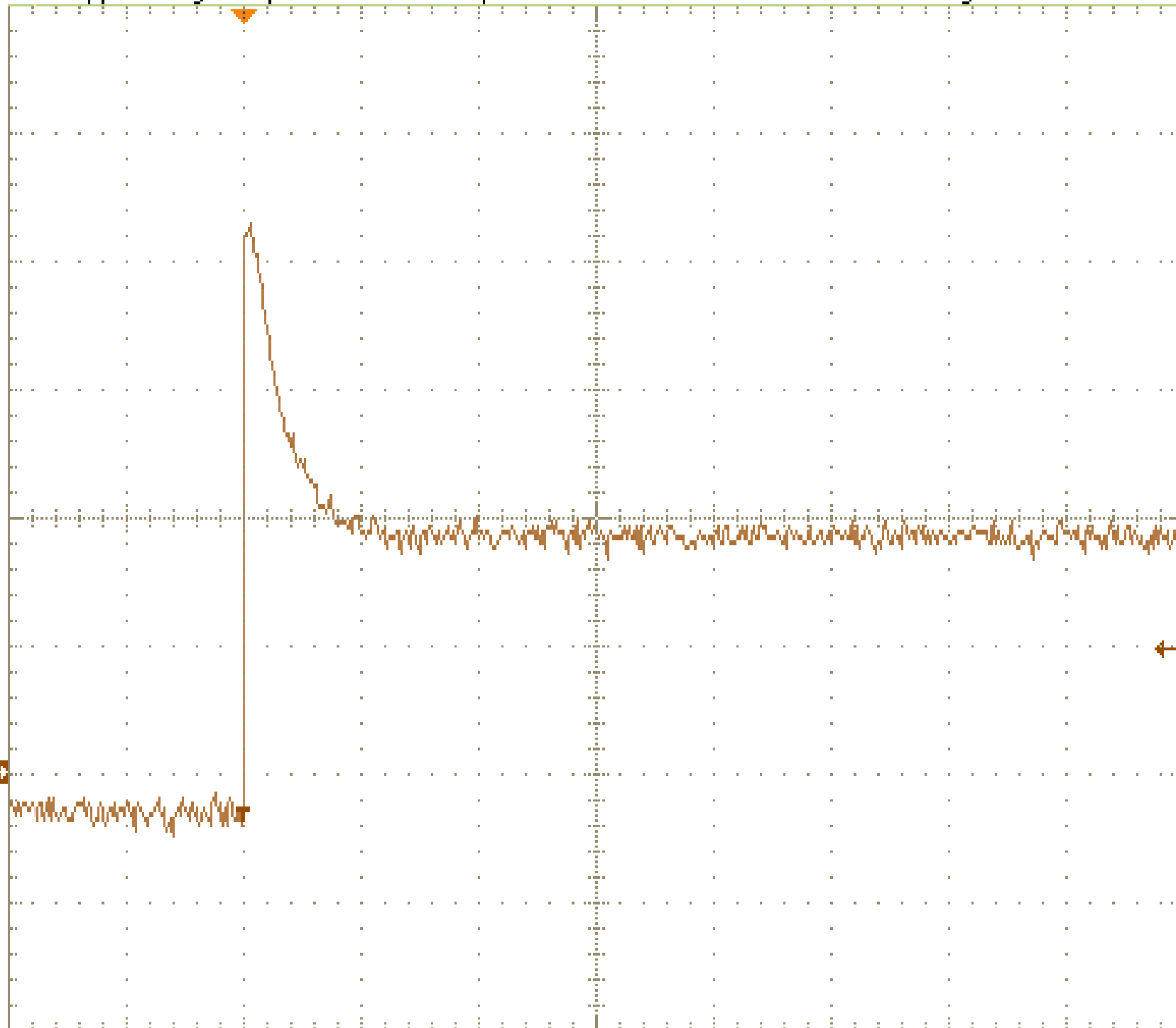
A Ch1 \approx 7.0mV



Ch1 10.0mV Ω

M 100 μ s 500kS/s 2.0 μ s/pt

A Ch1 7.0mV

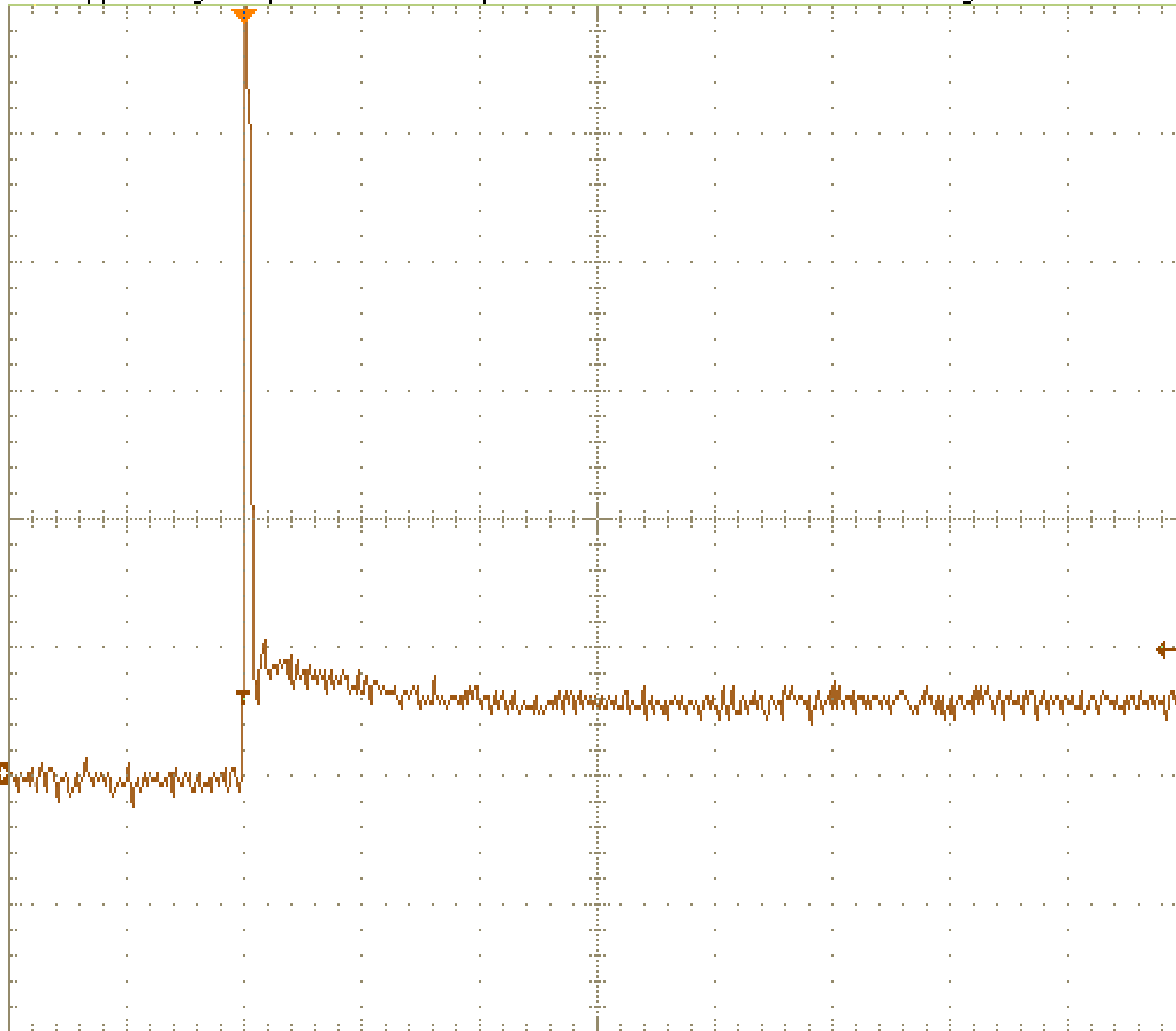


Ch1 10.0mV Ω

M 2.0ms 25.0kS/s

40.0 μ s/pt

A Ch1 \approx 9.6mV

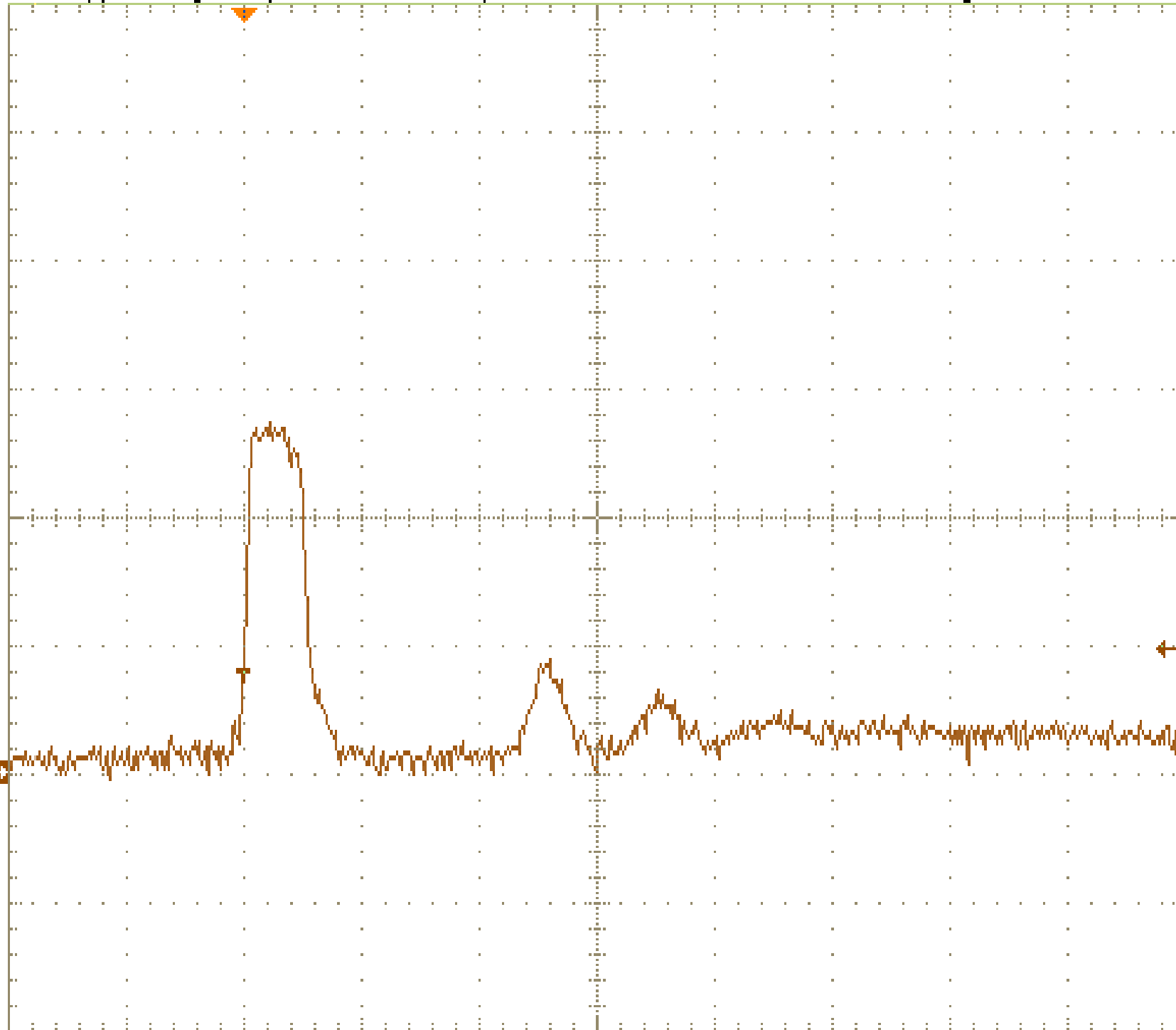


Ch1 180.0mV Ω

M 200 μ s 250kS/s

4.0 μ s/pt

A Ch1 \nearrow 9.6mV

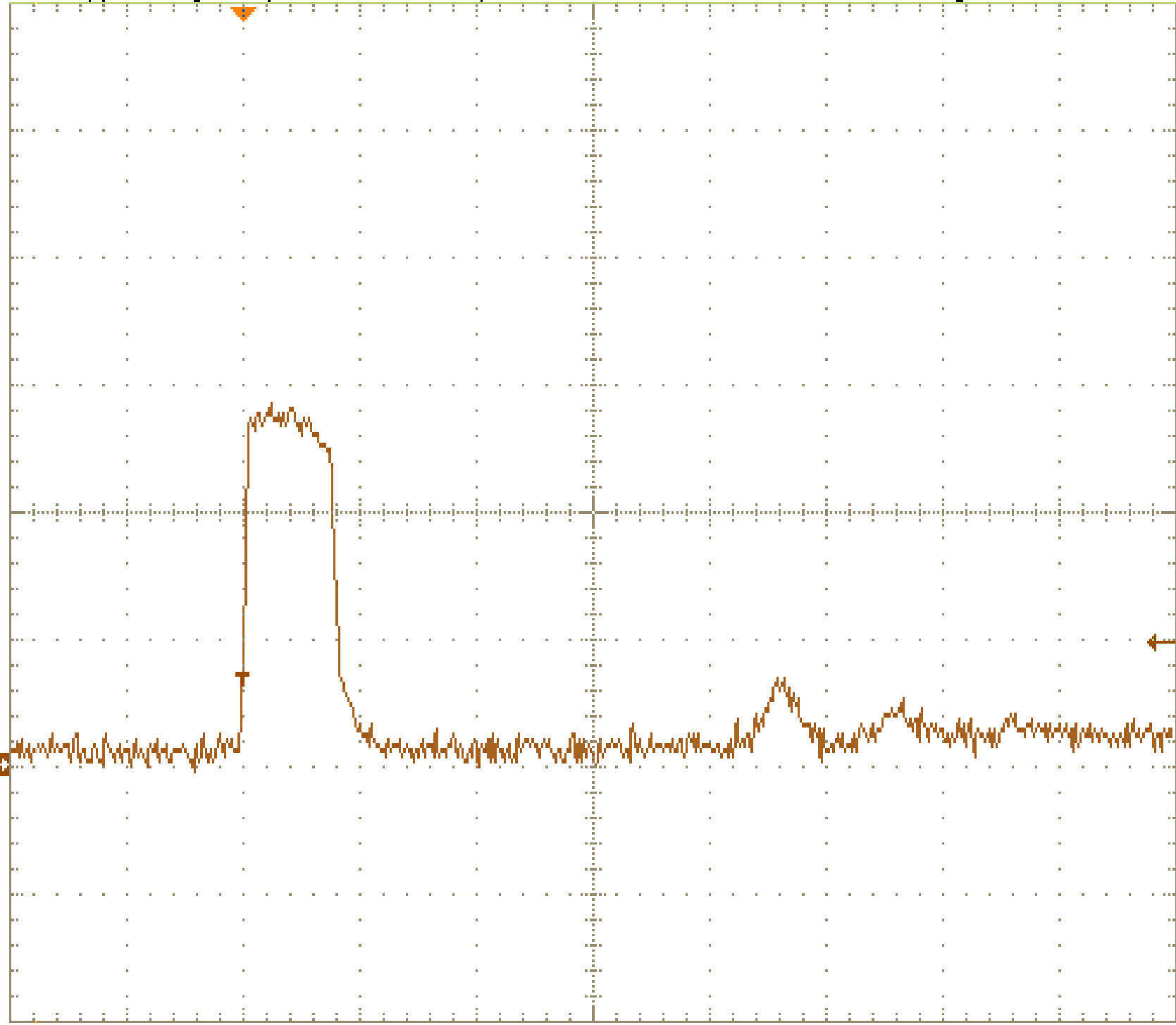


Ch1 190.0mV Ω

M 100 μ s 500kS/s

2.0 μ s/pt

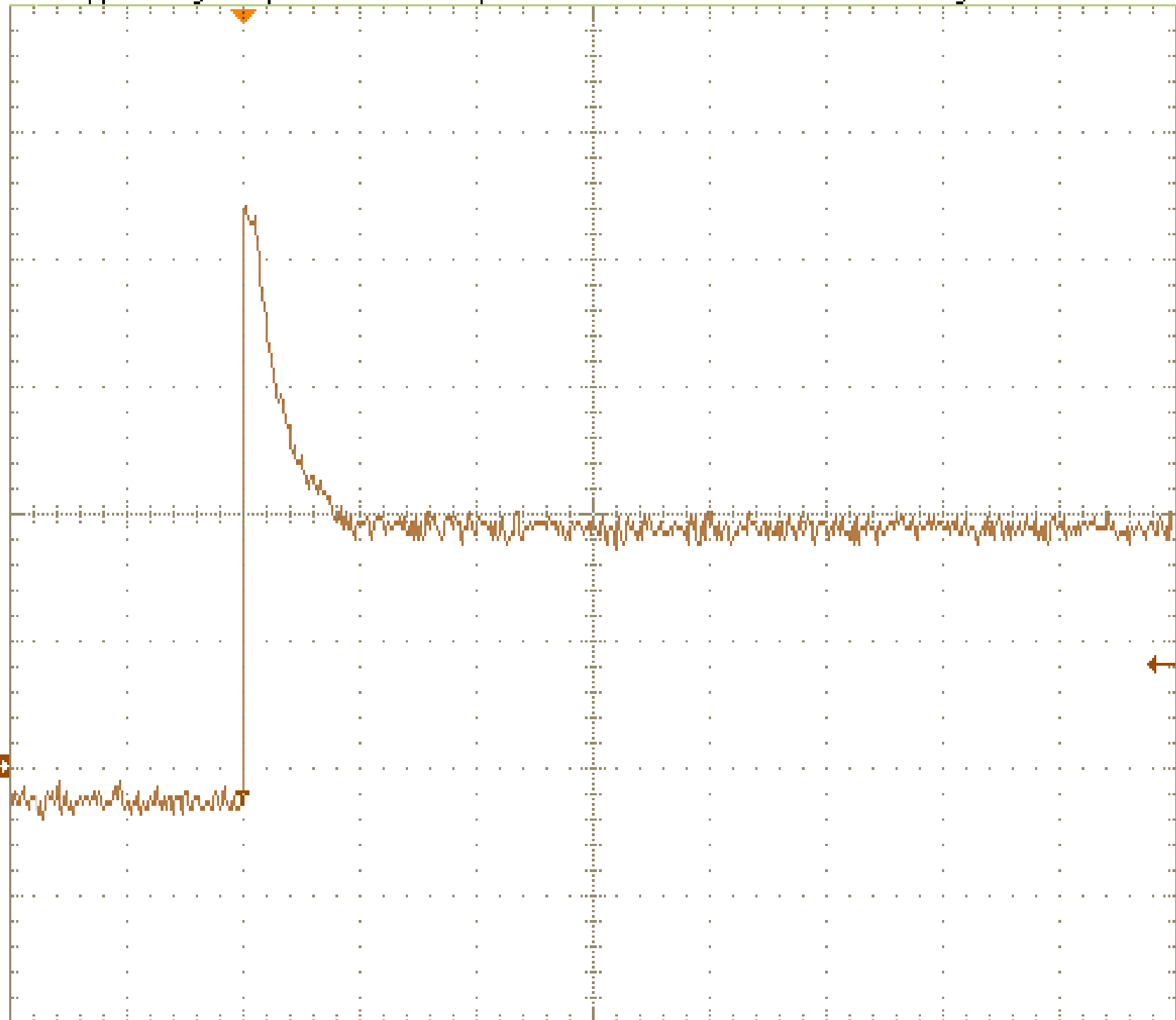
A Ch1 \simeq 9.6mV



Ch1 20.0mV Ω

M 100 μ s 500kS/s 2.0 μ s/pt

A Ch1 \approx 9.6mV



Ch1 210.0mV Ω

M 2.0ms 25.0kS/s 40.0 μ s/pt

A Ch1 \nearrow 8.0mV

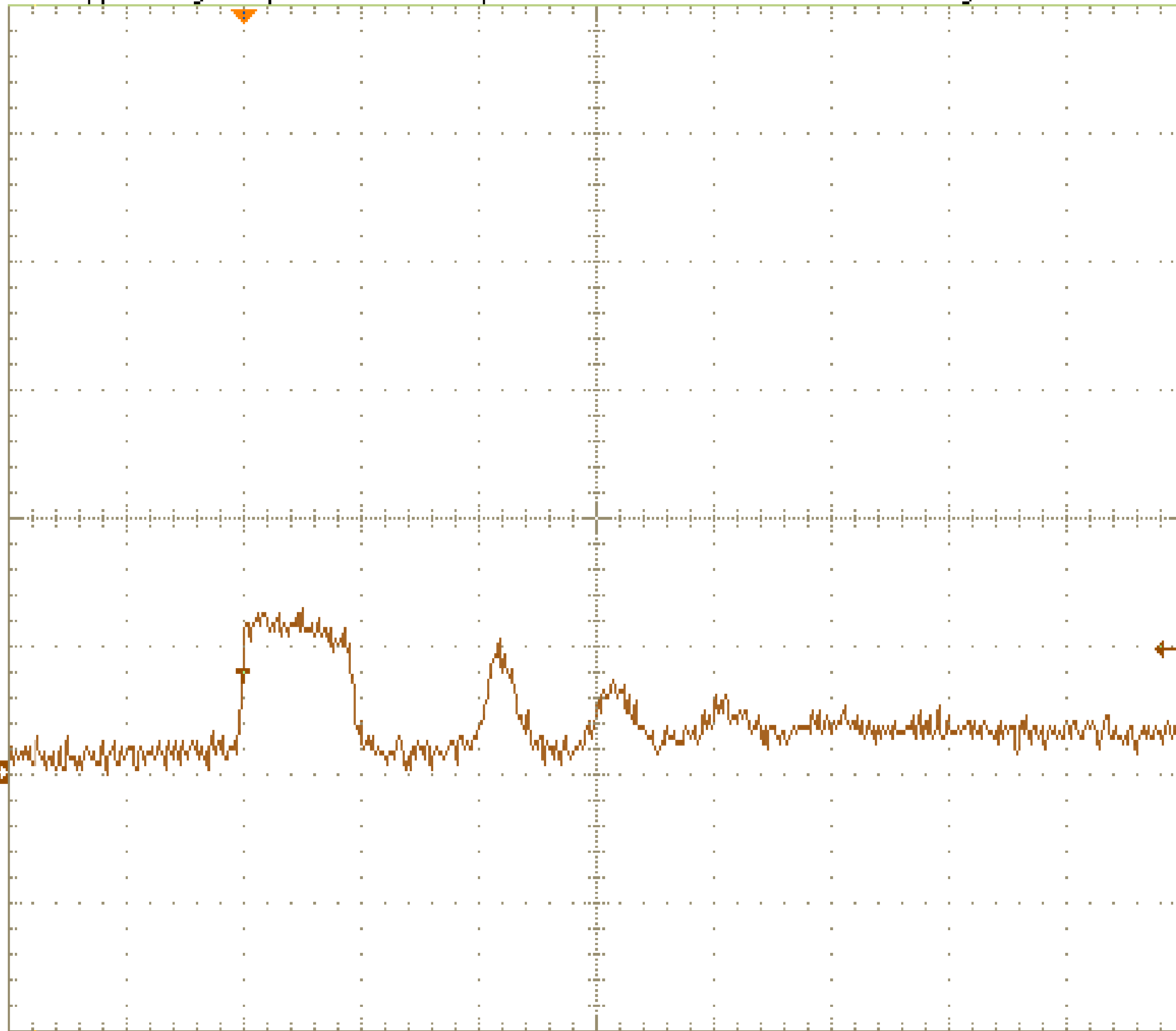


Ch1 20.0mV Ω

M 200 μ s 250kS/s

4.0 μ s/pt

A Ch1 \approx 9.6mV

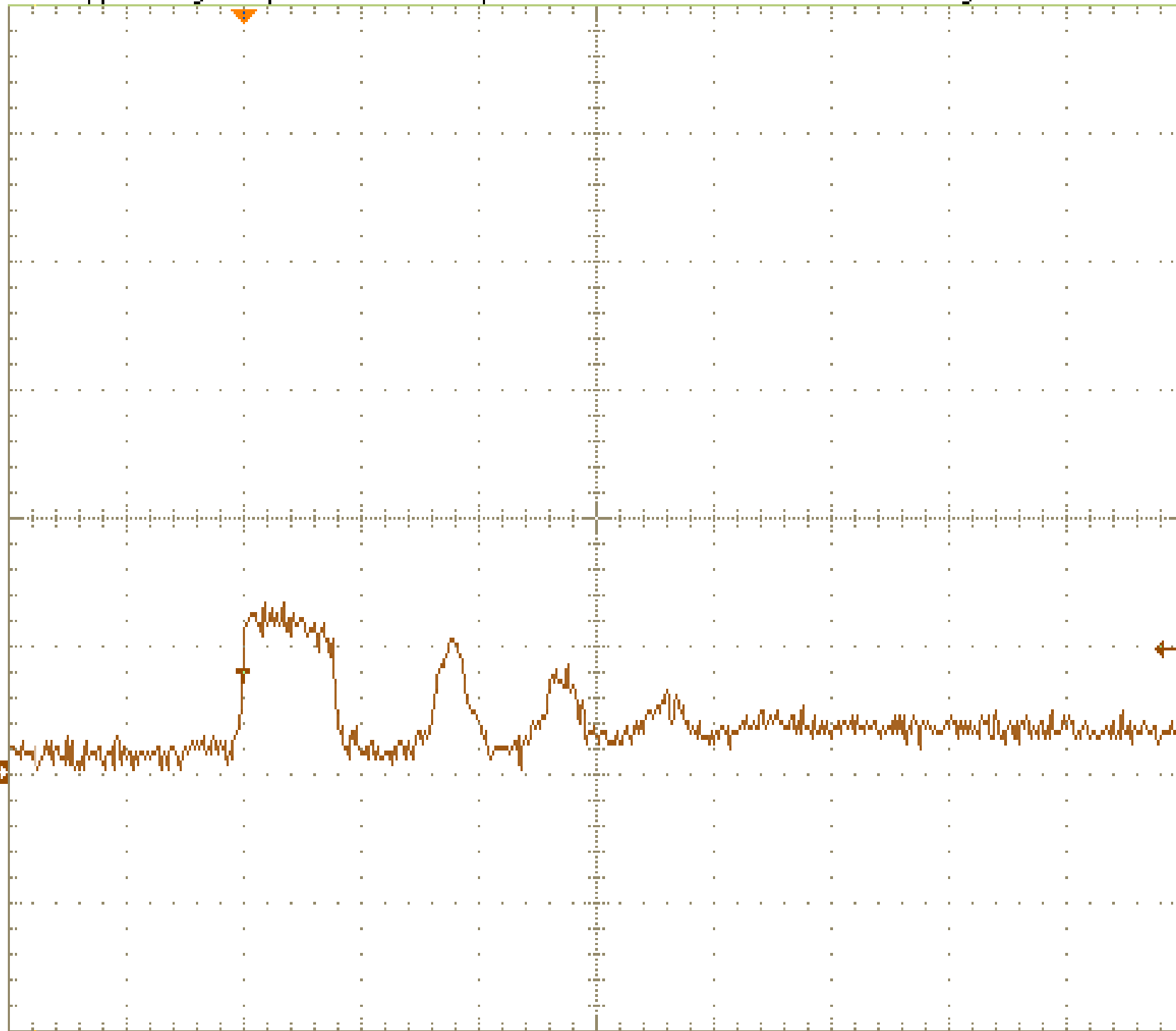


Ch1 20.0mV Ω

M 100 μ s 500kS/s

2.0 μ s/pt

A Ch1 9.6mV

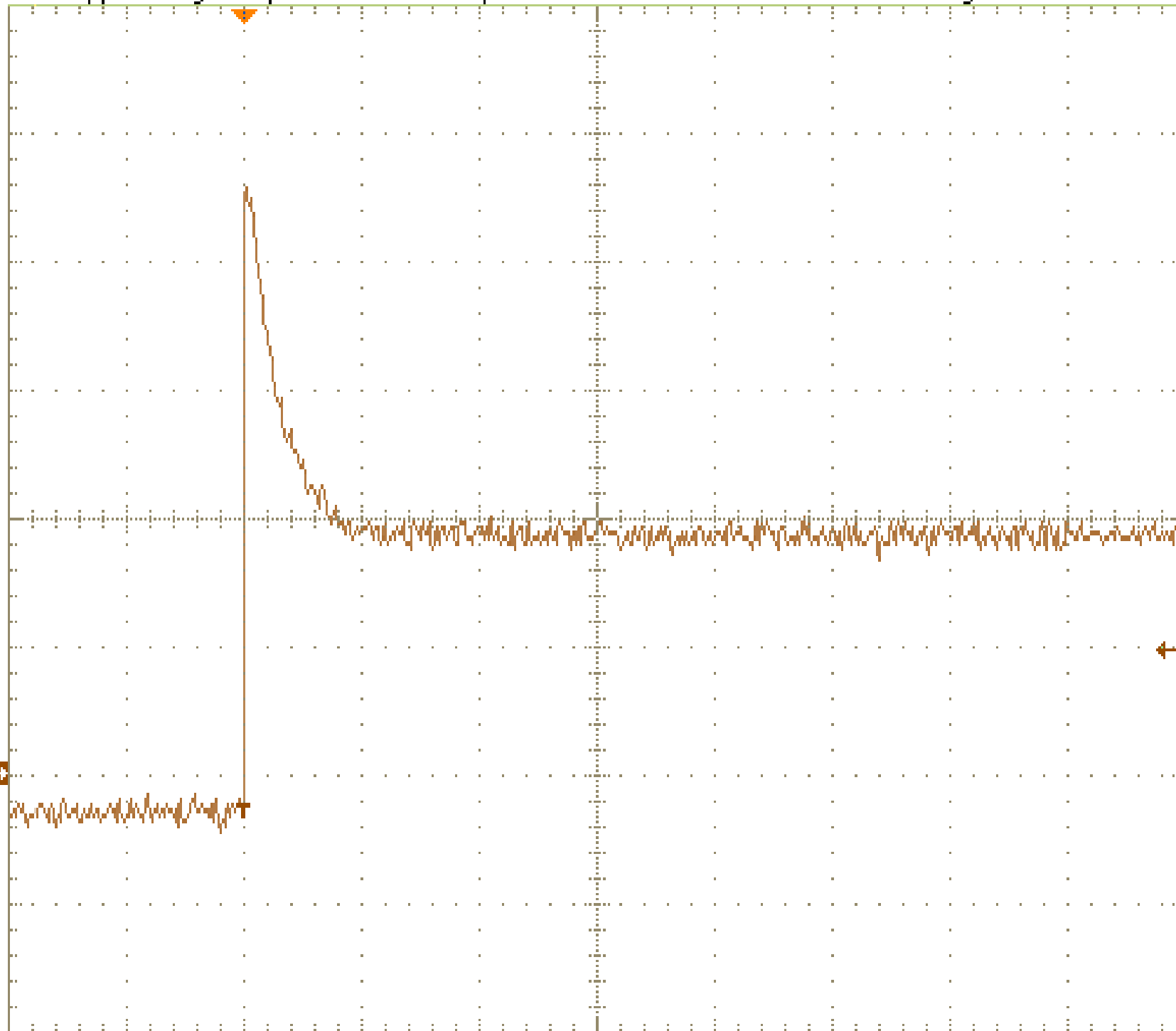


Ch1 240.0mV Ω

M 100 μ s 500kS/s

2.0 μ s/pt

A Ch1 \simeq 9.6mV

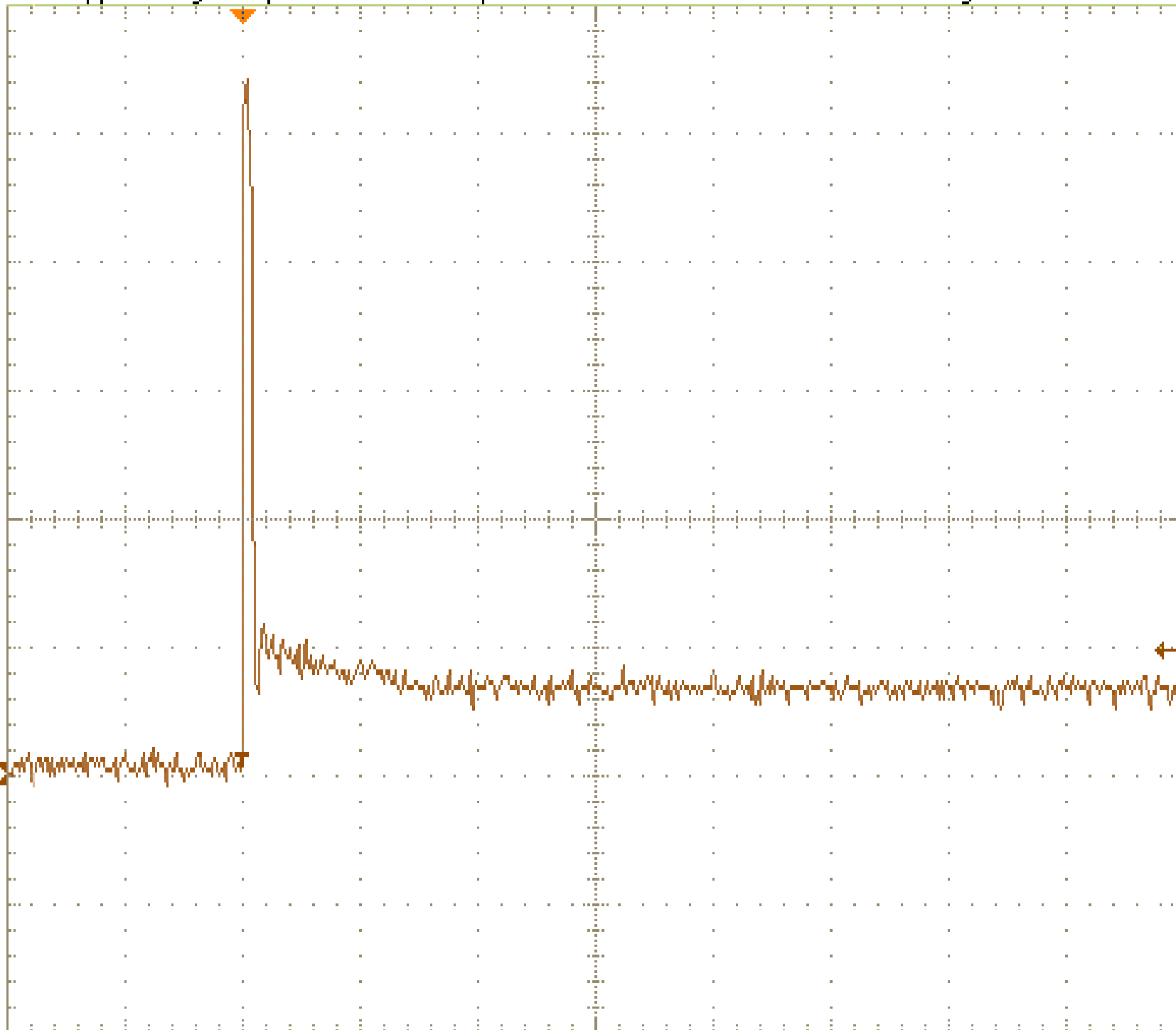


Ch1 250.0mV Ω

M 2.0ms 25.0kS/s

40.0 μ s/pt

A Ch1 \approx 9.6mV

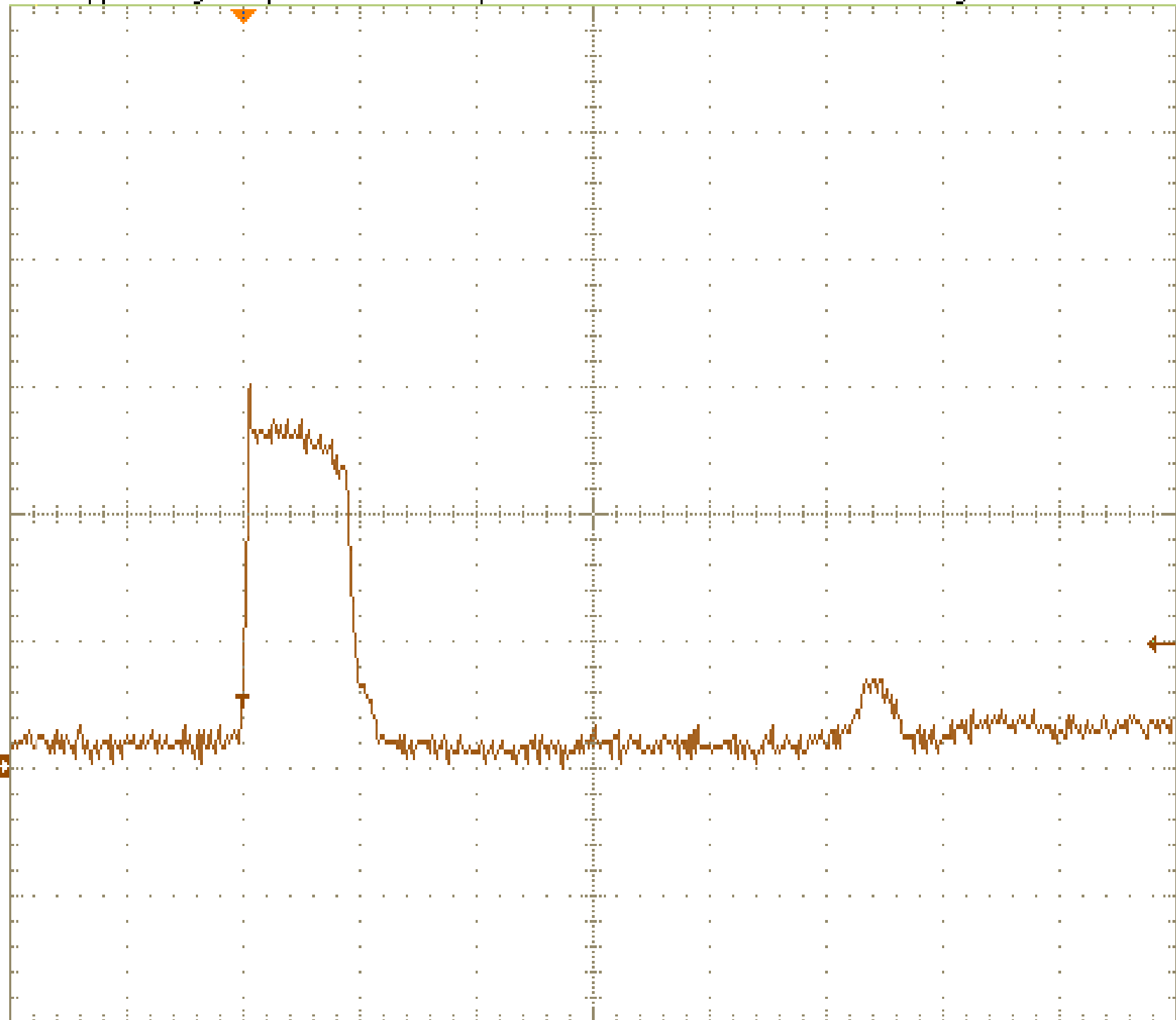


10

Ch1 20.0mV Ω

M 200 μ s 250kS/s 4.0 μ s/pt

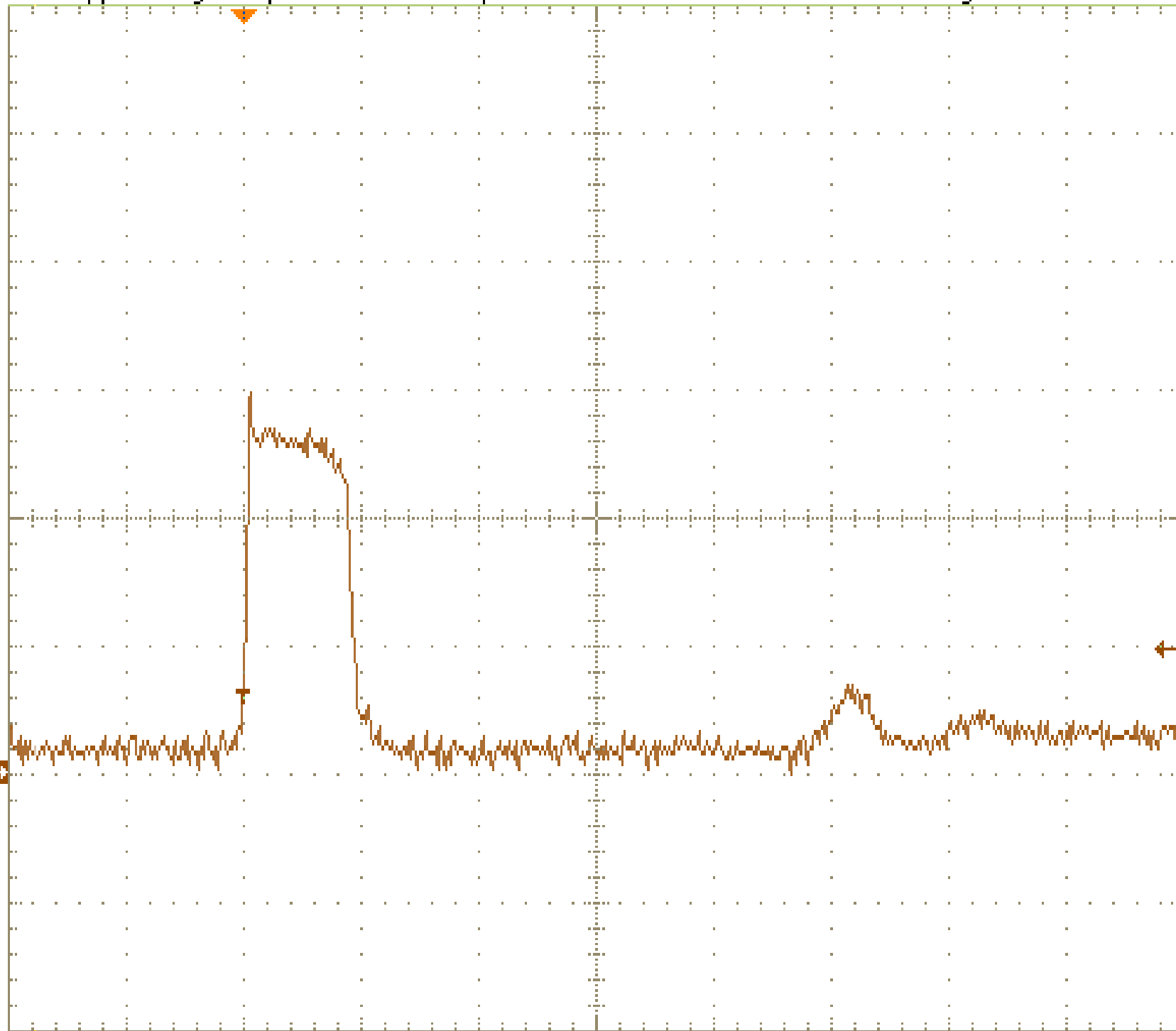
A Ch1 \approx 9.6mV



Ch1 270.0mV Ω

M 100 μ s 500kS/s 2.0 μ s/pt

A Ch1 \approx 9.6mV

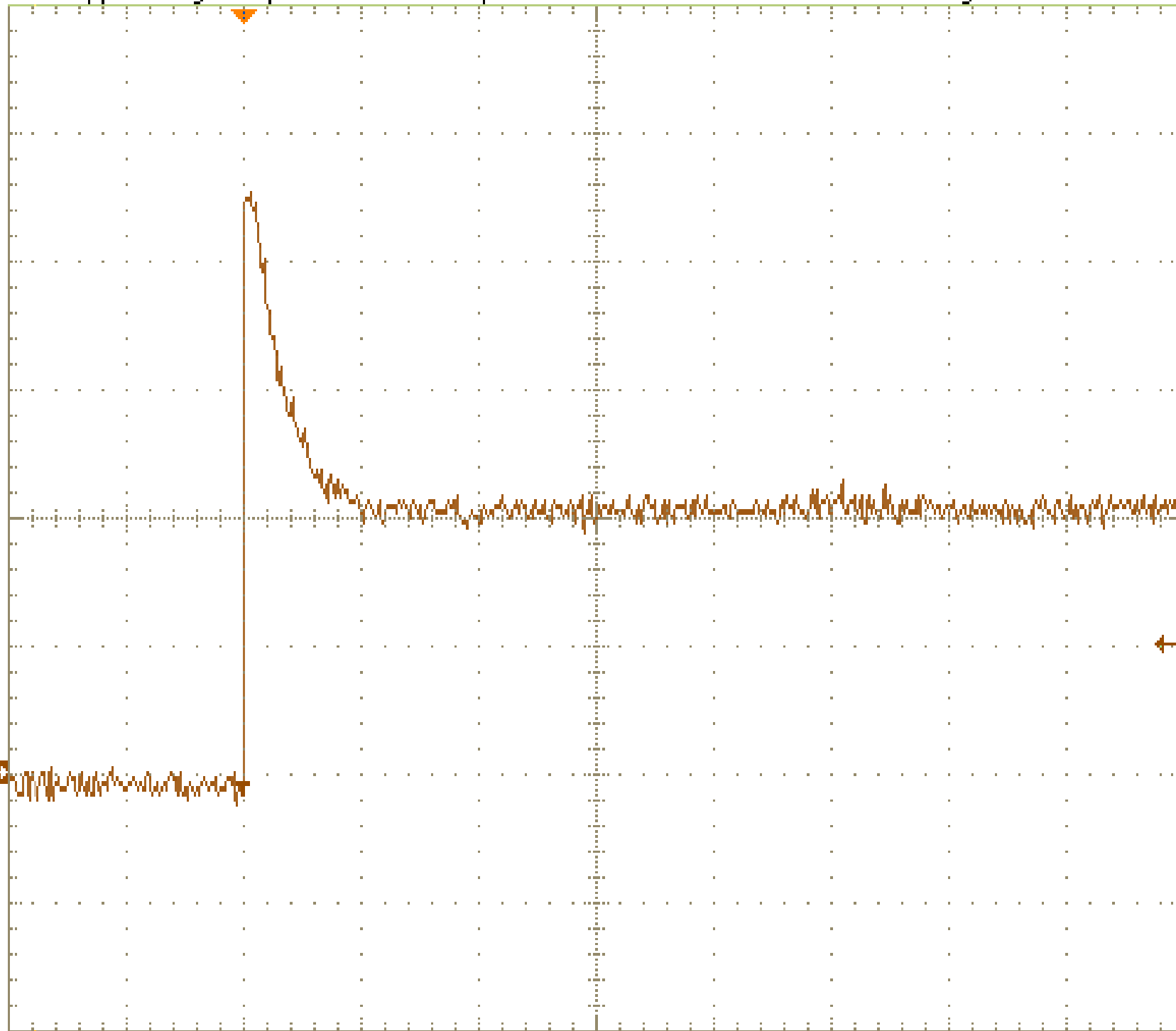


Ch1 280.0mV Ω

M 100 μ s 500kS/s

2.0 μ s/pt

A Ch1 \nearrow 9.6mV

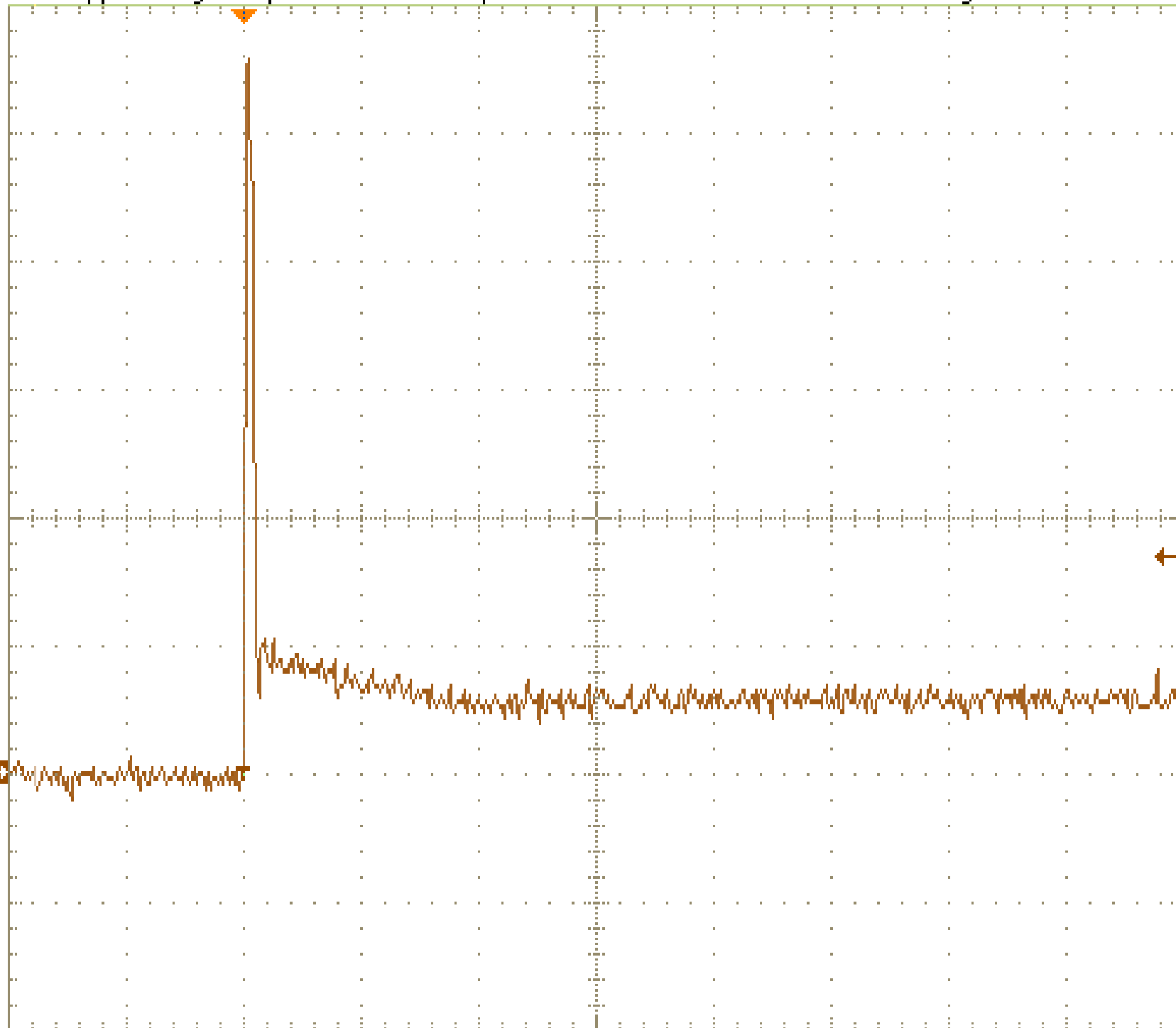


Ch1 290.0mV Ω

M 2.0ms 25.0kS/s

40.0 μ s/pt

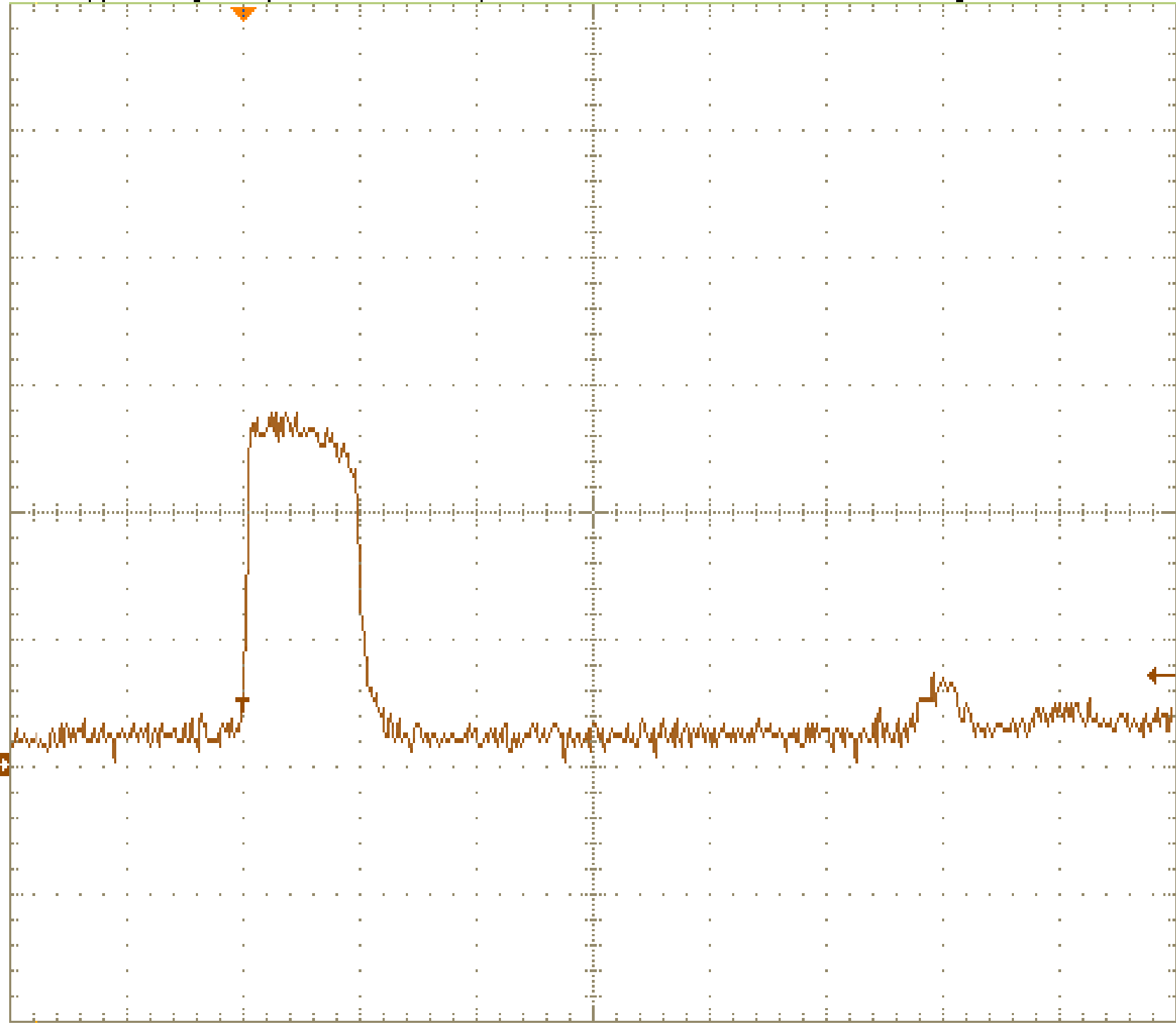
A Ch1 \nearrow 10.0mV



Ch1 30.0mV Ω

M 200 μ s 250kS/s 4.0 μ s/pt

A Ch1 \simeq 16.8mV



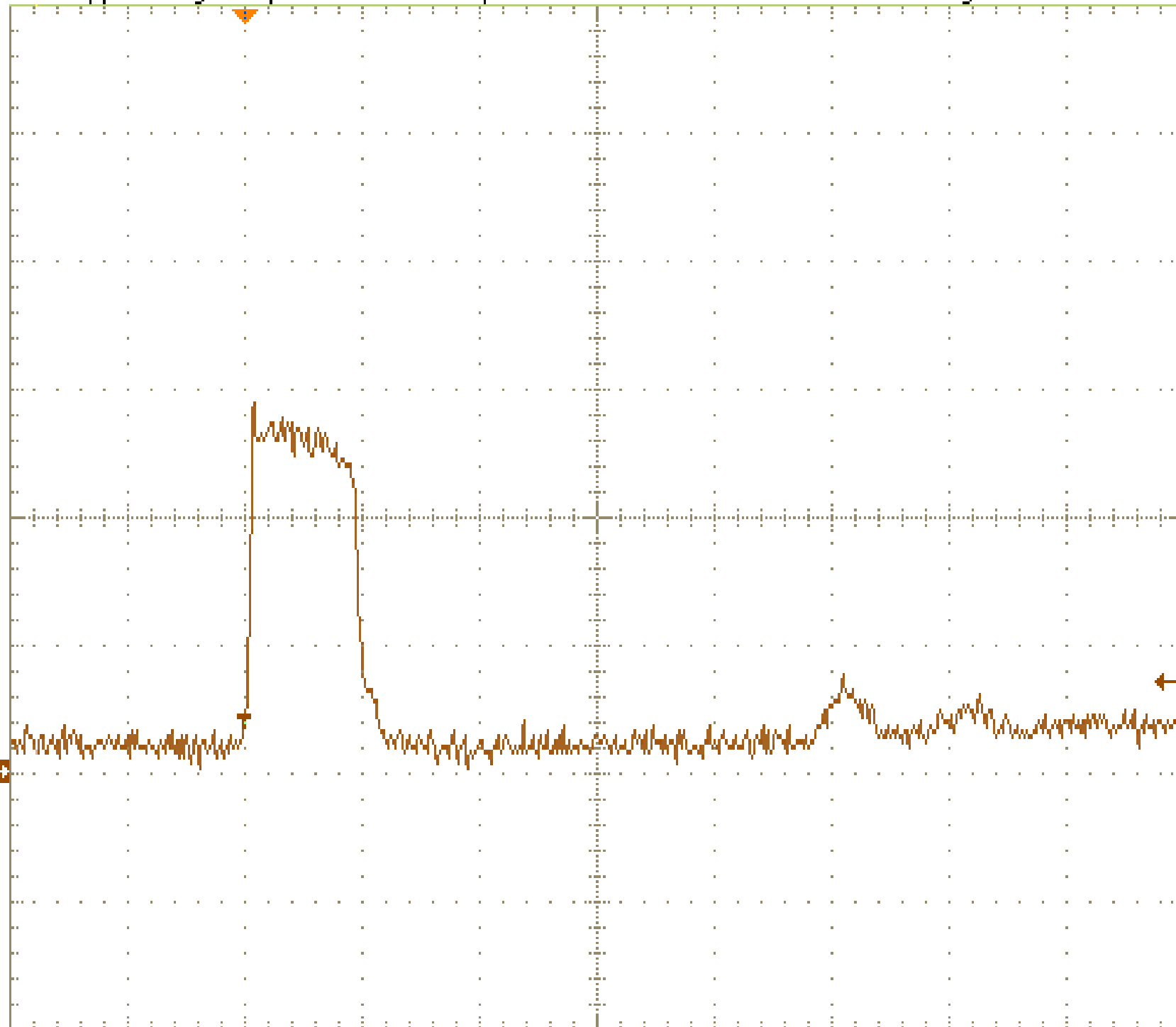
1E

←

Ch1 310.0mV Ω

M 100 μ s 500kS/s 2.0 μ s/pt

A Ch1 \approx 7.0mV



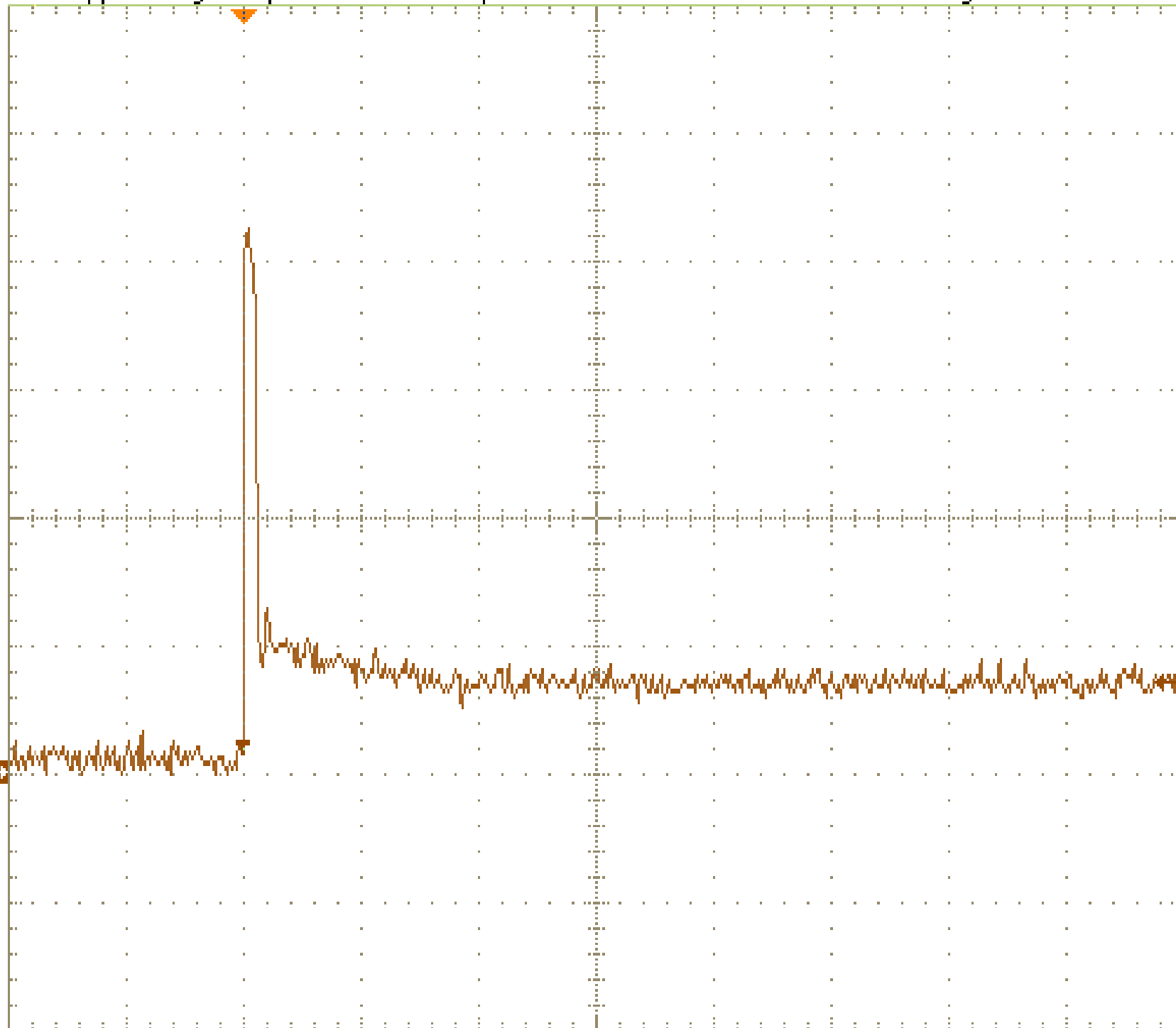
1E

←

Ch1 320.0mV Ω

M 100 μ s 500kS/s 2.0 μ s/pt

A Ch1 7.0mV

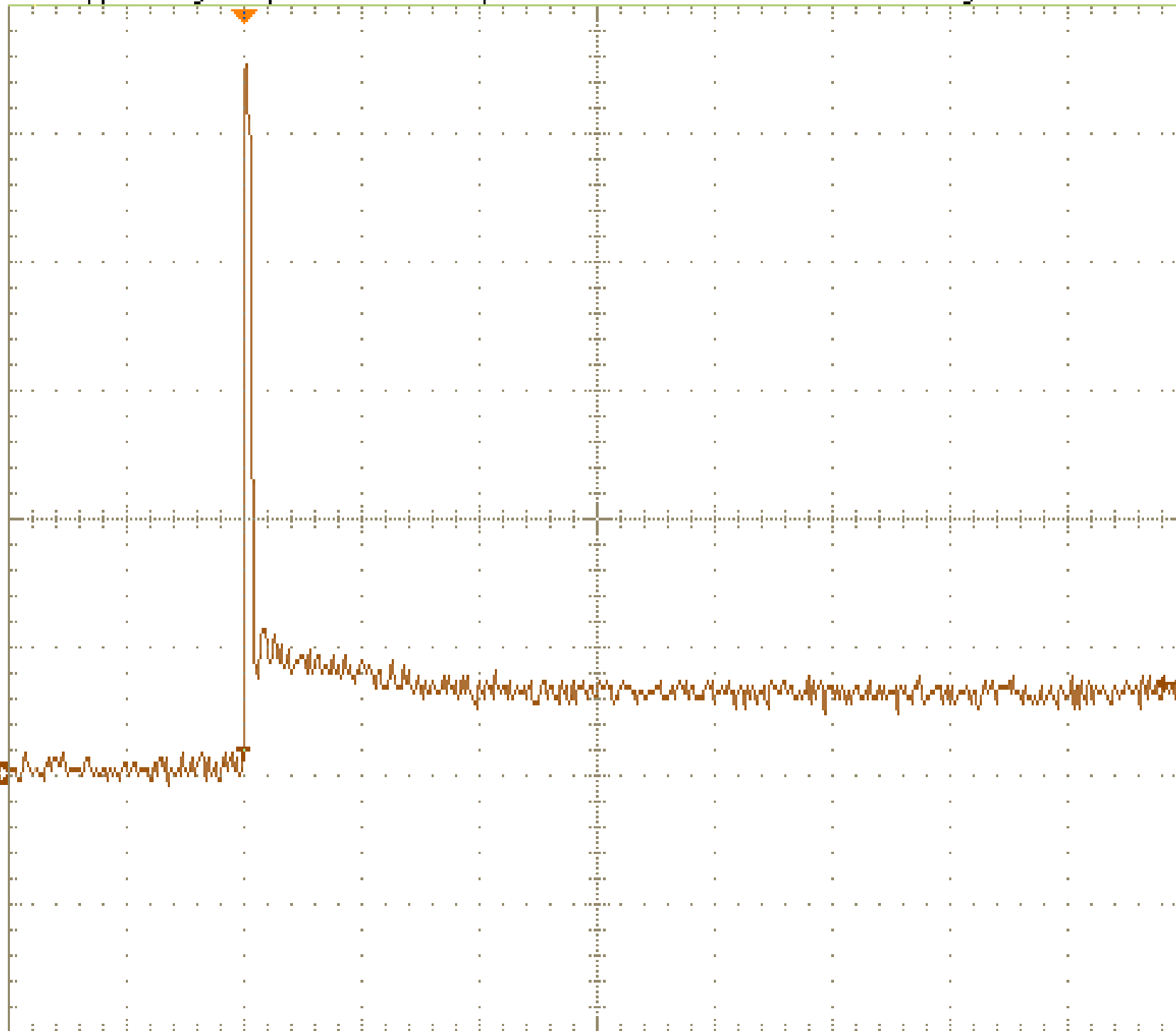


Ch1 30.0mV Ω

M 200 μ s 250kS/s

4.0 μ s/pt

A Ch1 7.0mV

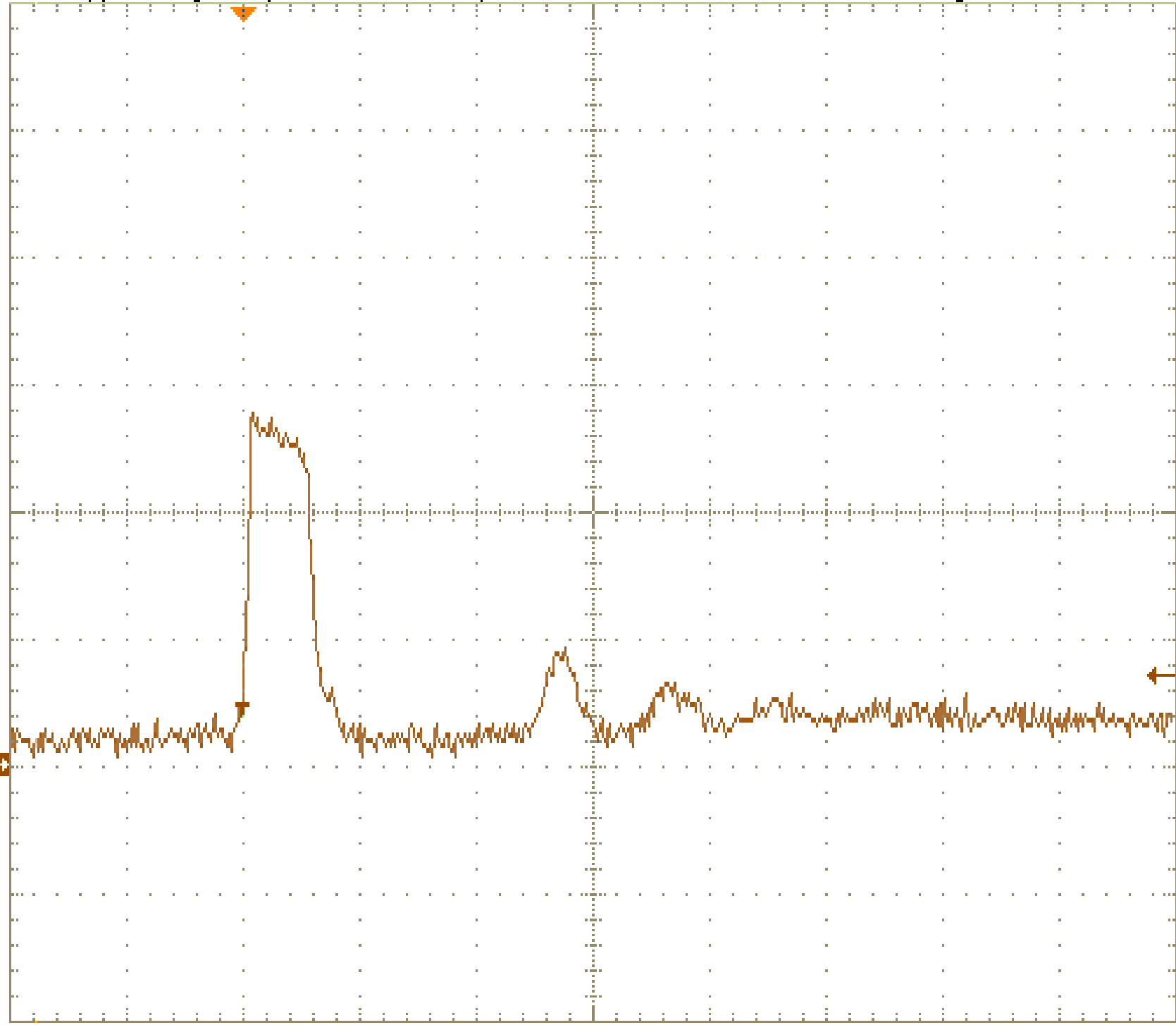


Ch1 340.0mV Ω

M 200 μ s 250kS/s

4.0 μ s/pt

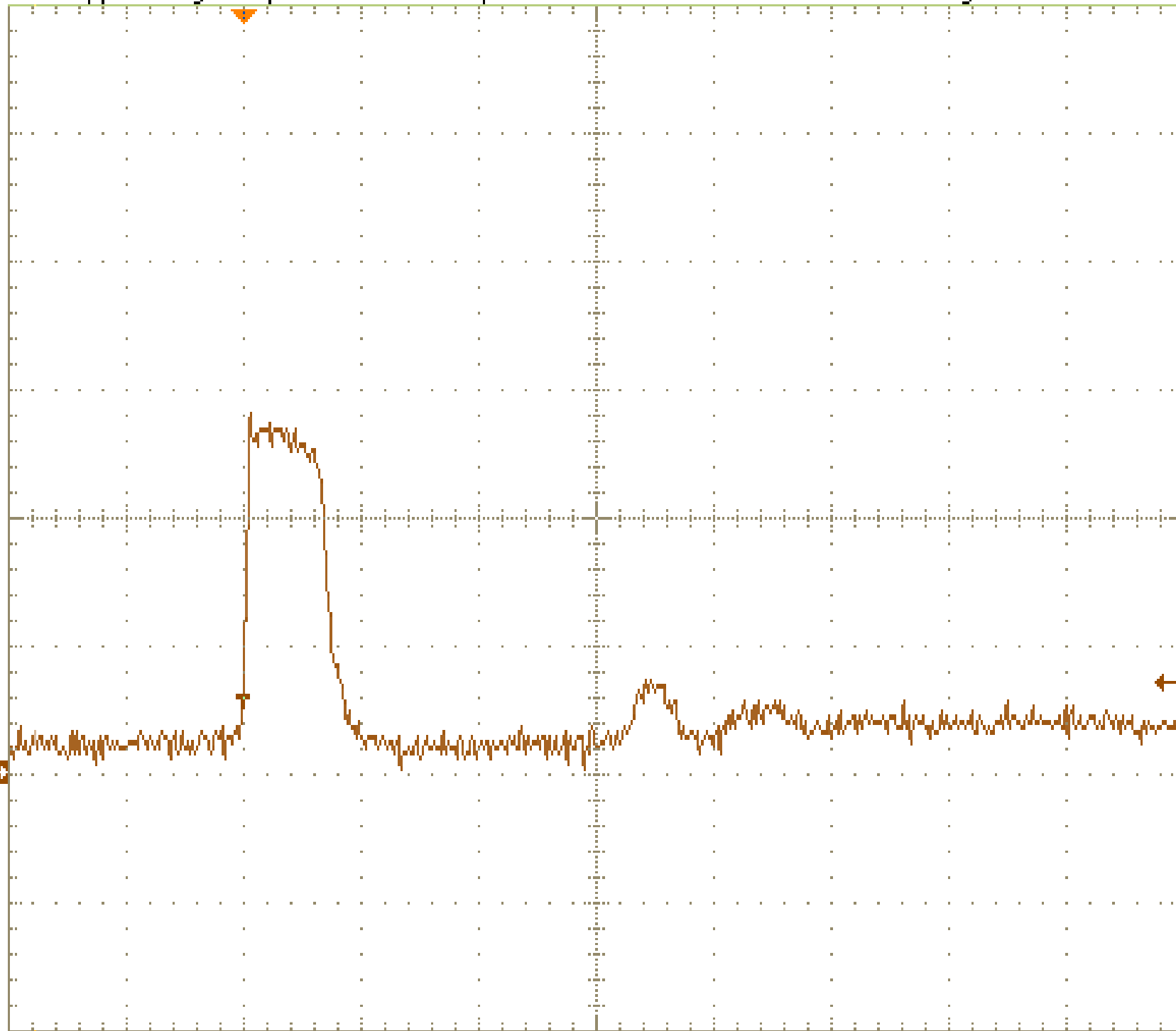
A Ch1 \approx 7.0mV



Ch1 35 10.0mV Ω

M 100 μ s 500kS/s 2.0 μ s/pt

A Ch1 \simeq 7.0mV

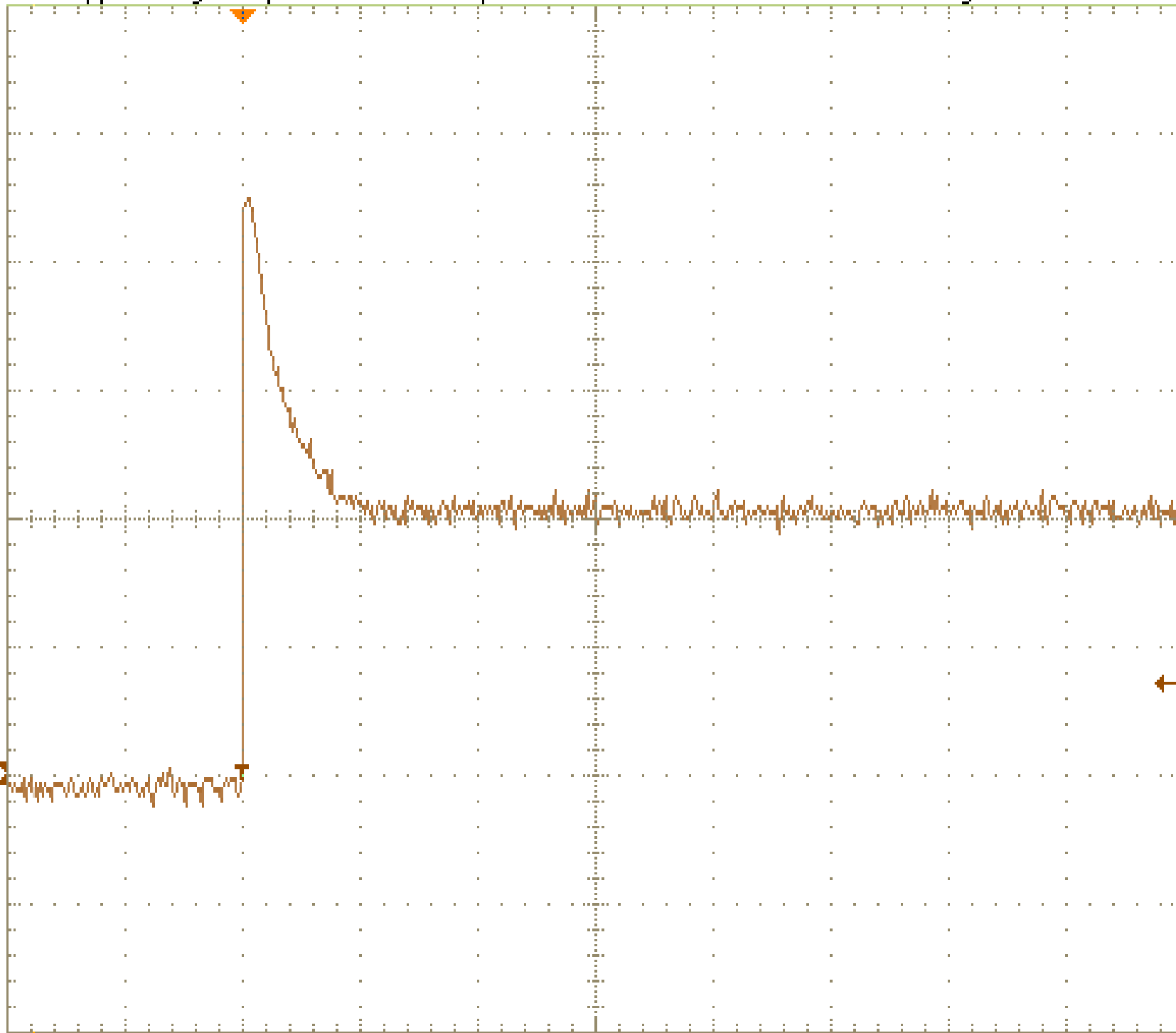


Ch1 360.0mV Ω

M 100 μ s 500kS/s

2.0 μ s/pt

A Ch1 \approx 7.0mV

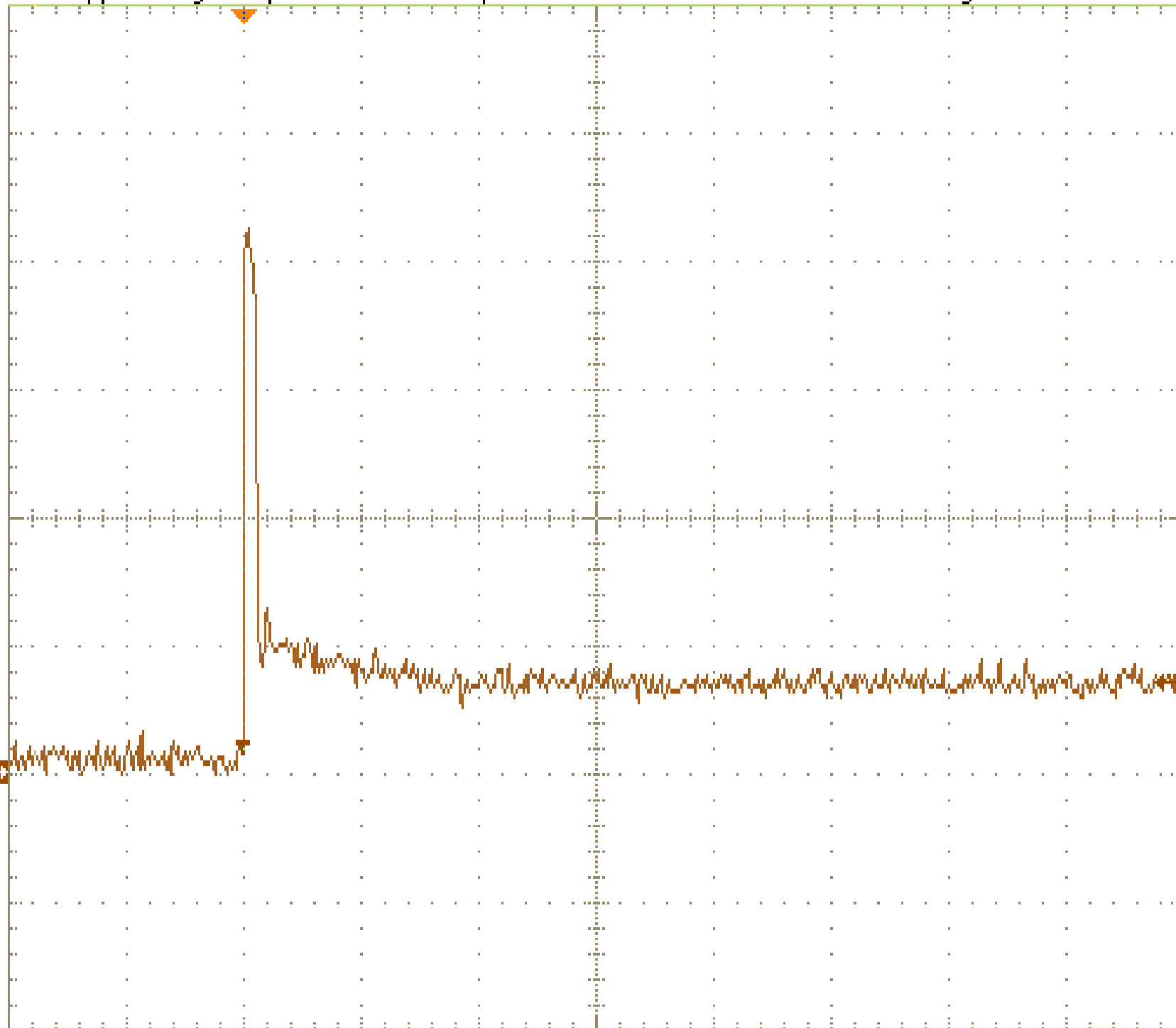


Ch1 37 10.0mV Ω

M 2.0ms 25.0kS/s

40.0 μ s/pt

A Ch1 \nearrow 7.0mV

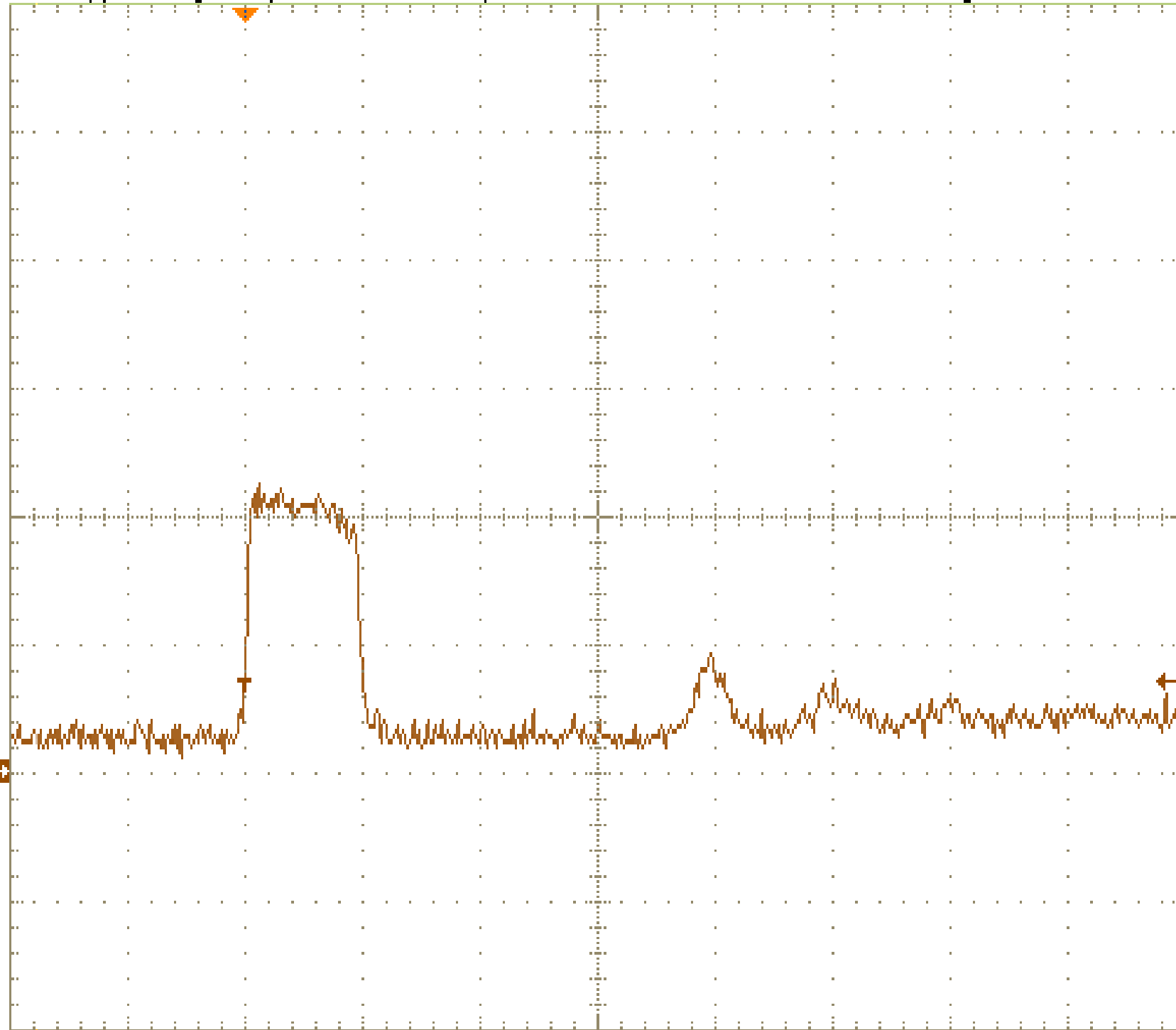


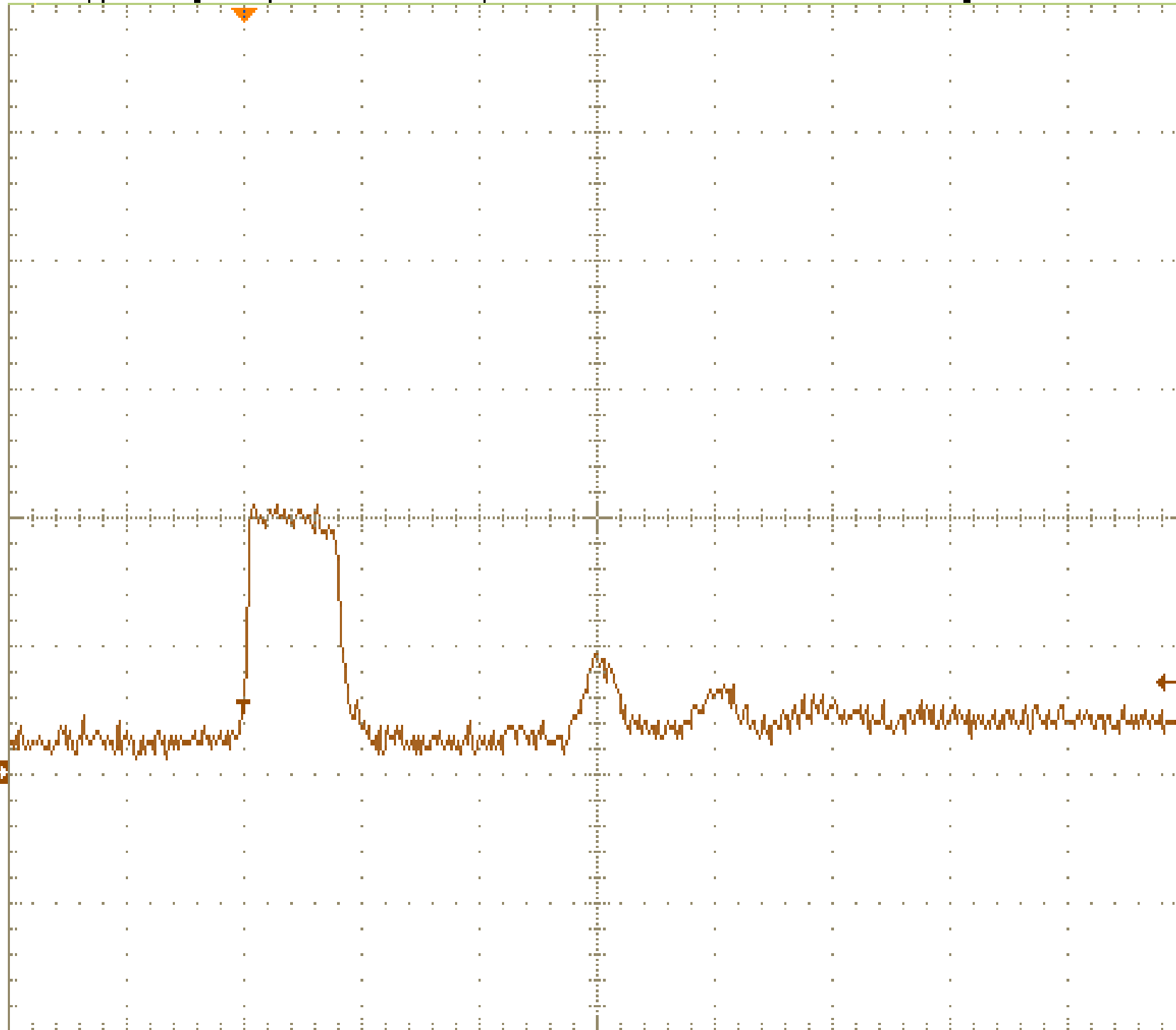
1E

Ch1 380.0mV Ω

M 200 μ s 250kS/s 4.0 μ s/pt

A Ch1 \nearrow 7.0mV

Ch1 390.0mV Ω M 100 μ s 500kS/s2.0 μ s/ptA Ch1 \nearrow 7.0mV

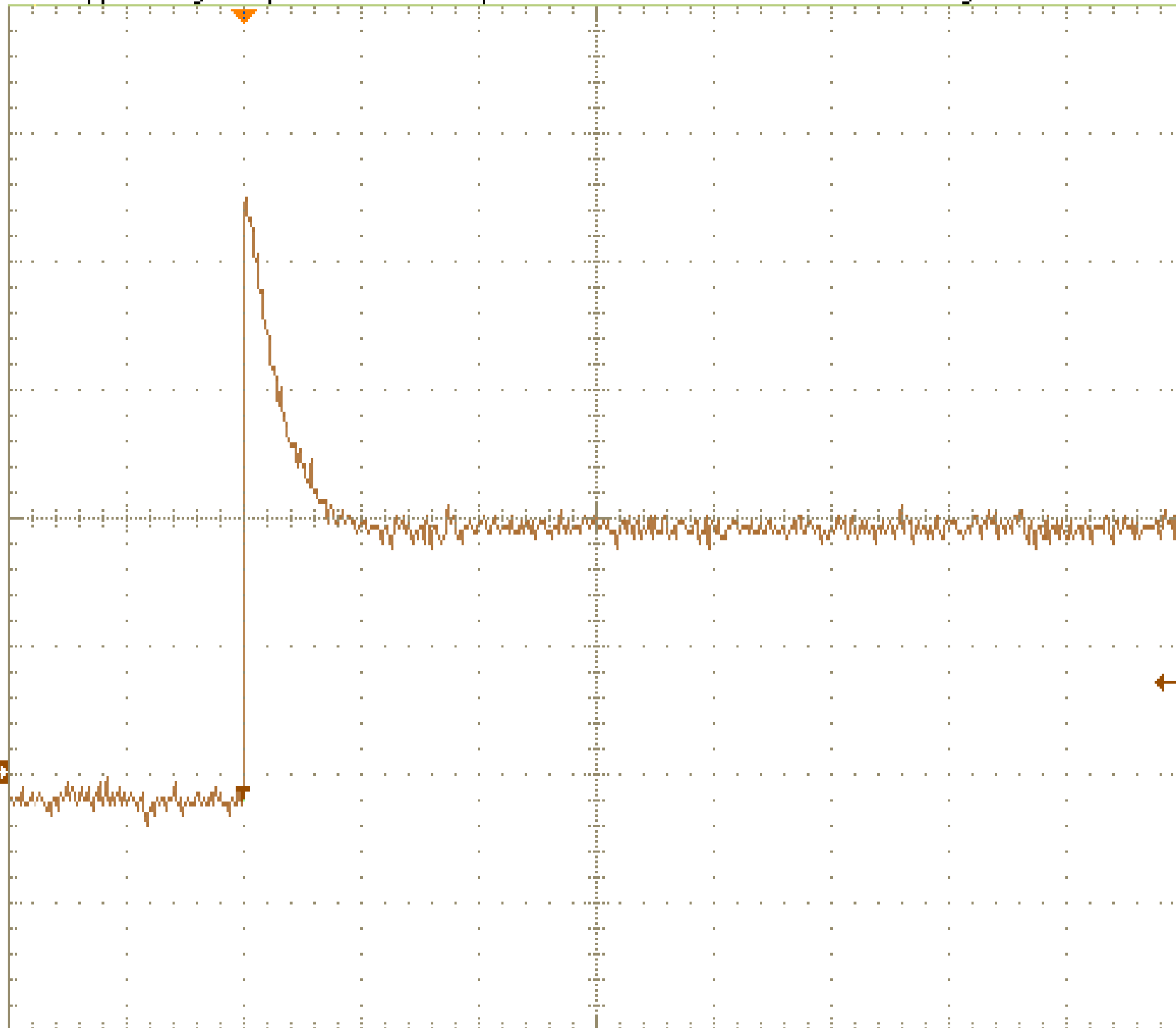


Ch1 40.0mV Ω

M 100 μ s 500kS/s

2.0 μ s/pt

A Ch1 \nearrow 7.0mV

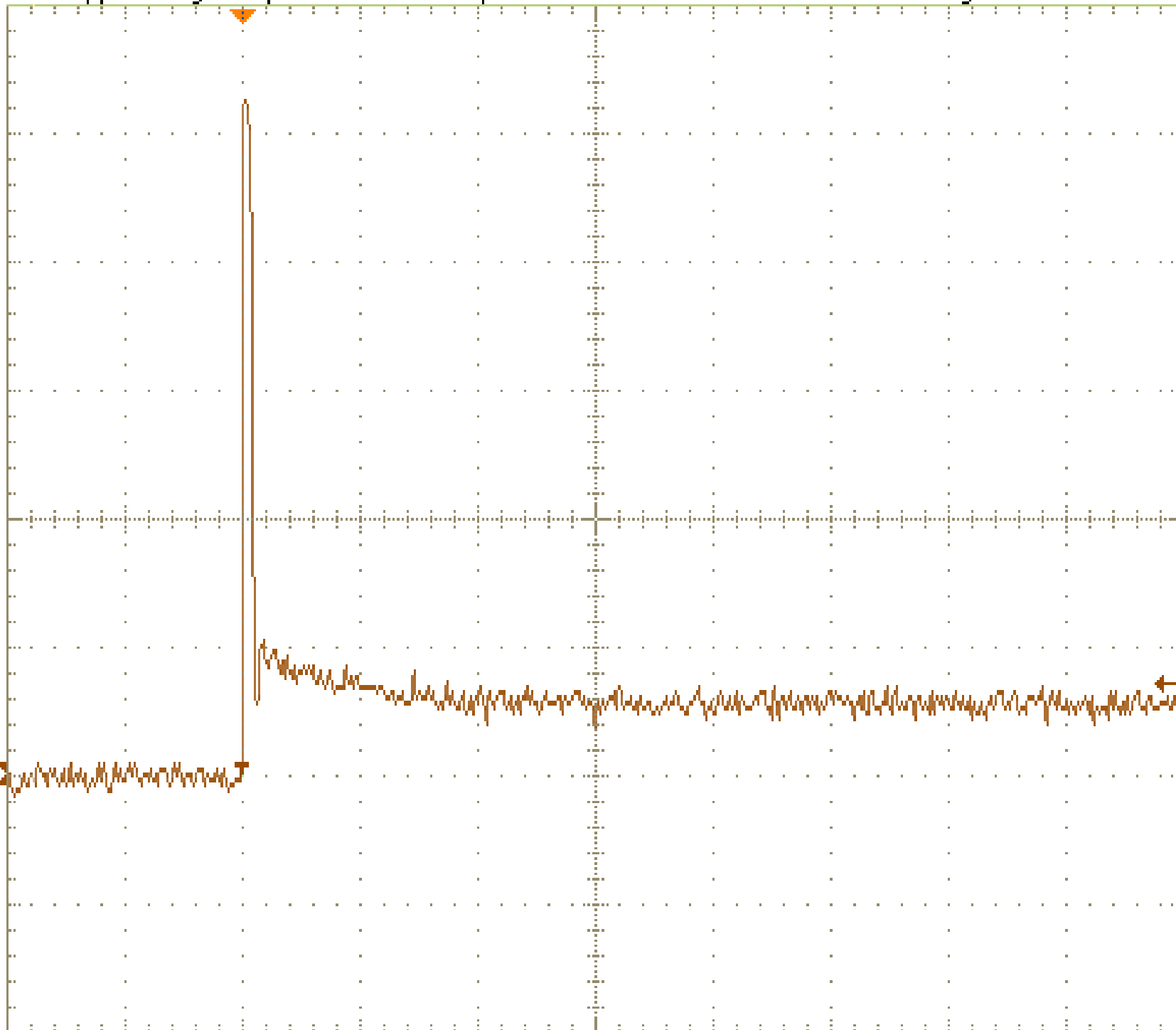


Ch1 410.0mV Ω

M 2.0ms 25.0kS/s

40.0 μ s/pt

A Ch1 7.0mV

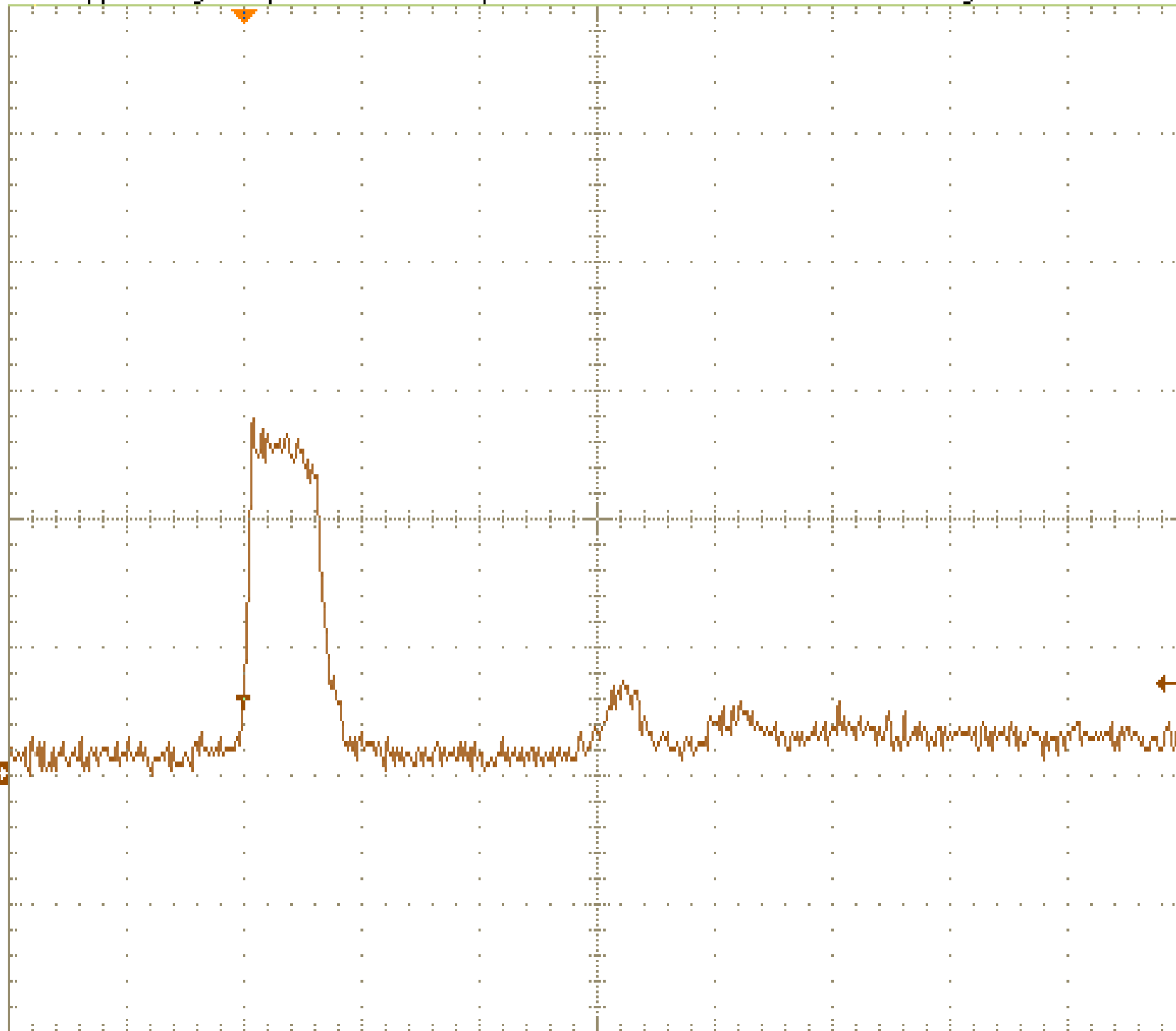


Ch1 40.0mV Ω

M 200 μ s 250kS/s 4.0 μ s/pt

A Ch1 \nearrow 7.0mV

Ch1 430.0mV Ω M 100 μ s 500kS/s2.0 μ s/ptA Ch1 \approx 7.0mV

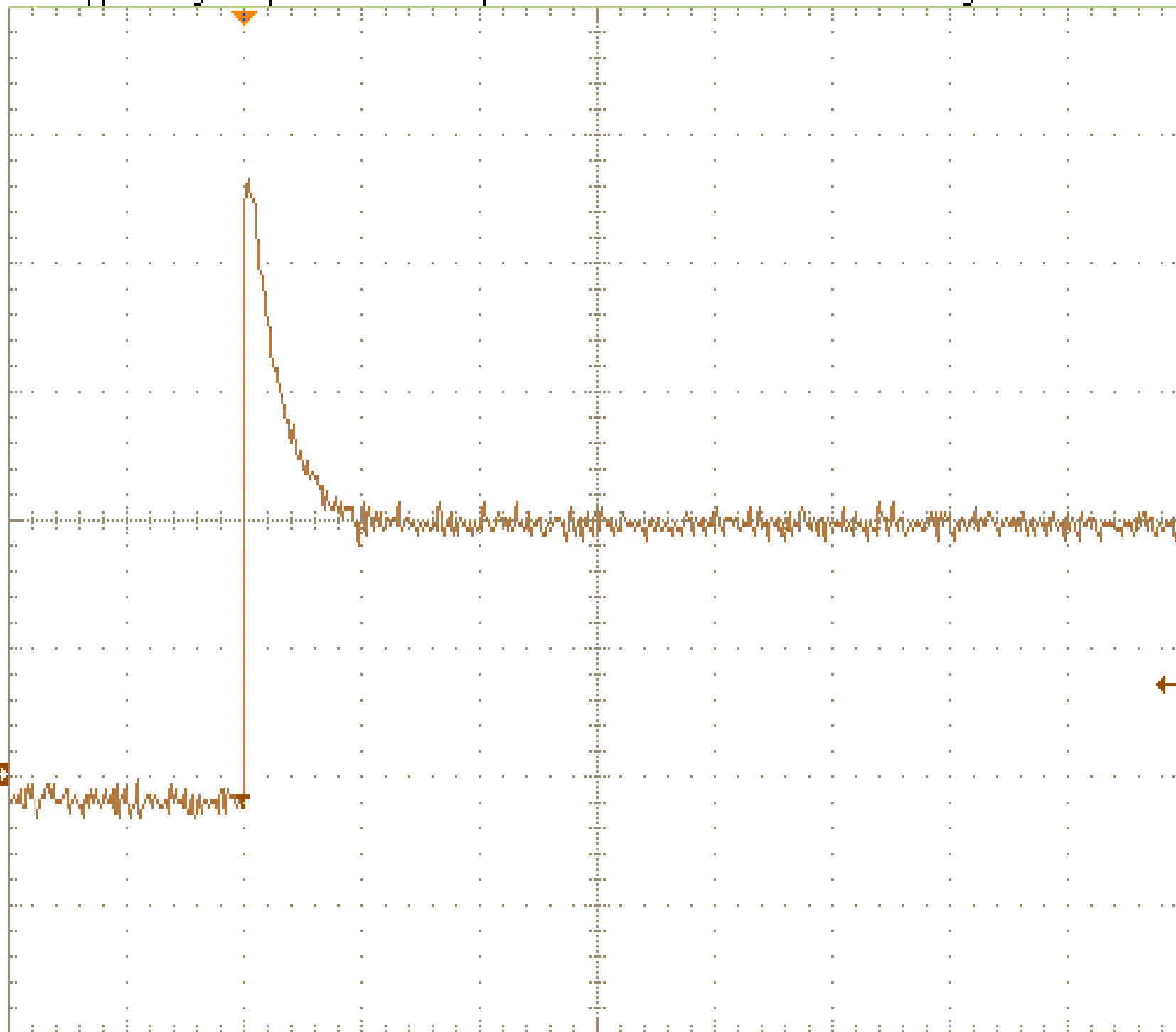


Ch1 440.0mV Ω

M 100 μ s 500kS/s

2.0 μ s/pt

A Ch1 \approx 7.0mV

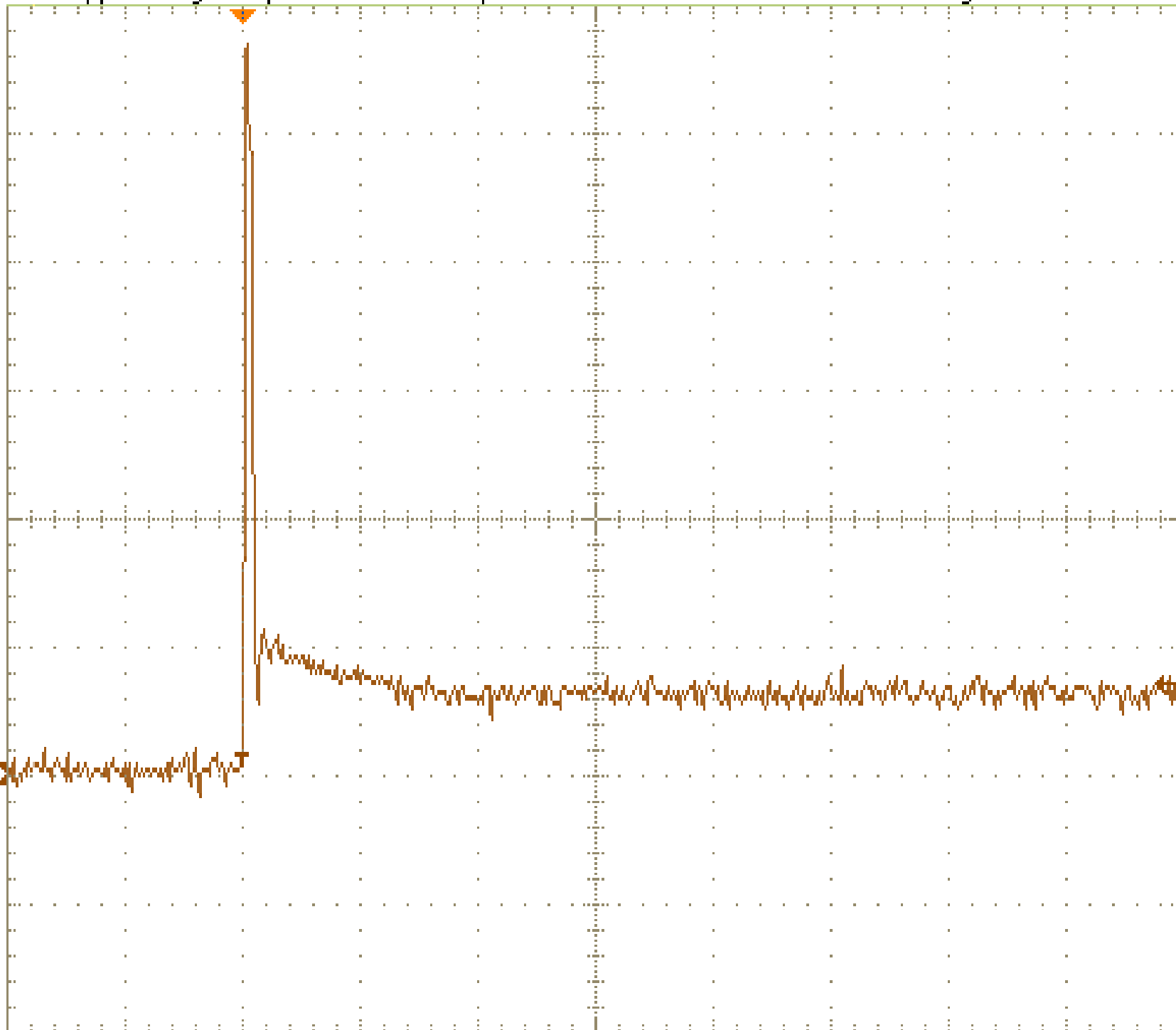


Ch1 450.0mV Ω

M 2.0ms 25.0kS/s

40.0 μ s/pt

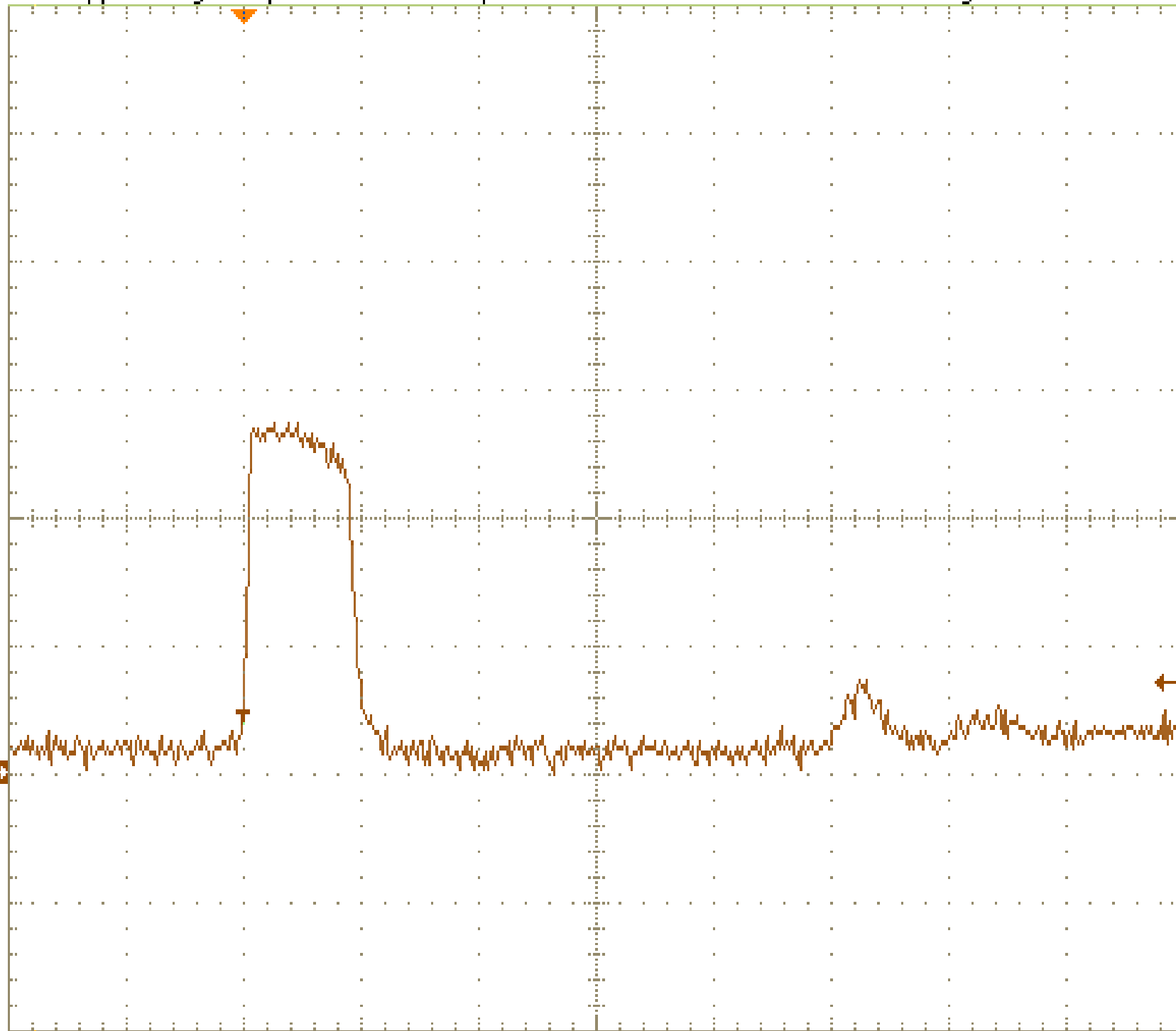
A Ch1 \nearrow 7.0mV



Ch1 40.0mV Ω

M 200 μ s 250kS/s 4.0 μ s/pt

A Ch1 \approx 7.0mV

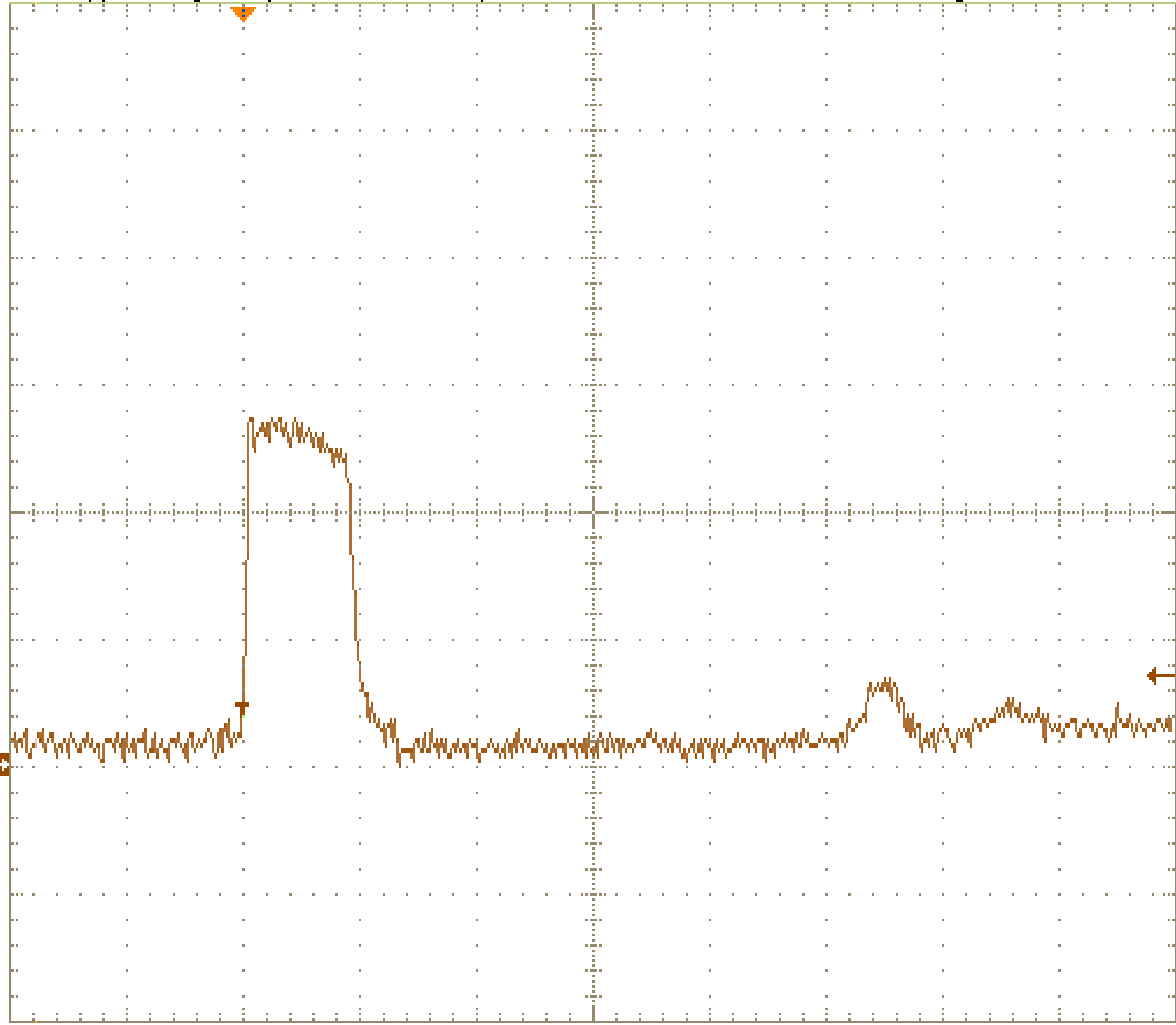


Ch1 470.0mV Ω

M 100 μ s 500kS/s

2.0 μ s/pt

A Ch1 \nearrow 7.0mV



Ch1 480.0mV Ω

M 100 μ s 500kS/s 2.0 μ s/pt

A Ch1 \nearrow 7.0mV