CMTI COMPARISON FOR ALLEGRO INTEGRATED CONDUCTOR CURRENT SENSORS

Integrated Conductor Current Sensor Systems Engineering
Allegro MicroSystems

CMTI OVERVIEW

Common-mode transient immunity (CMTI) test injects transient voltages with high slew rates across the isolation barrier of the current sensor. During the transient event, the output stability of the device is observed. The output signal becomes disrupted due to capacitive coupling across the isolation barrier between the leadframe and the signal pins.

This test is important in applications with fast switching with high-frequency transients and demonstrates how well Allegro devices can withstand such events. Allegro integrates an on-chip shield that protects the circuitry by shunting transient disturbances away from the IC circuit, reducing the effects of common-mode transients. See Figure 1.

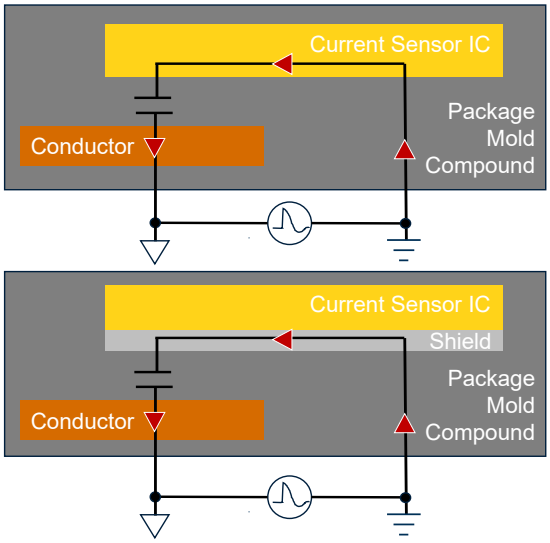


Figure 1: Diagram of Shielding in Allegro Integrated Current Sensor Packages

CMTI TEST METHOD

For the Allegro integrated current sensors, the transient voltage is applied from the input current pins (IP) to the device GND, and VOUT is monitored. Allegro integrated current sensors under recommended load conditions (depicted in the Typical Application Circuits section) were injected with 1000 V pulses of varying slew rates across the isolation barrier. Slew rate is the 1000 V step divided by the rise time of the transient in V/ns.

The high-performance parallel-interface (HPPI) pulse generator is a charged cable-type pulser. It charges an external length of cable to the desired voltage and, under program control, it dumps the cable charge to the output. The internal power supply determines the pulse voltage, and the length of the cable determines the pulse width. The system has a 50 Ω output impedance, and the control software is written to reflect the output voltage into a large impedance.

A variety of impedances can be presented at the output, producing different combinations of voltage and current. Discharge into an effective short is useful for surge testing, discharge into a 50 Ω load is desirable if the signal must be attenuated for read back, and discharge into a high impedance could be used for maximizing the applied voltage. Other combinations can be used and analyzed with simple Ohm's law calculations.

Table 1: Summary of Pulse Generator Settings

Setting [V]	Impedance [Ω]	Output voltage [V]	Output Current [A]
1000	>1 Meg	1000	~0
1000	50	500	10
1000	<1	~0	20

The connection to the Allegro current sensor and scope is illustrated Figure 2. This allows the scope to be directly connected to the pulse. The primary attenuator is supplied with the scope to allow dissipation of power; the subsequent attenuators and terminator can handle the residual power with standard BNC components. This setup is only usable for high-impedance device-under-test (DUT) connections.

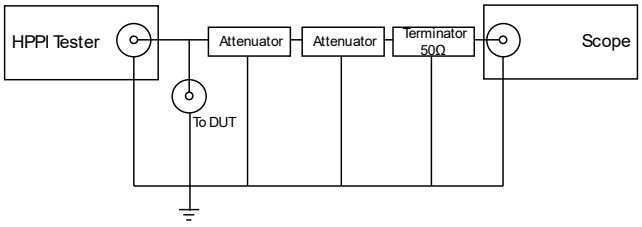


Figure 2: Pulser Connection to Device and Scope

The DUT output is monitored through an optical probe shown in Figure 3. This allows the output to be pseudo differentially monitored. The output monitor can be connected such that it rides along with the high side of the pulser voltage, or the ground side. If the high side of the CMTI pulse is connected to the output side of the DUT board, then the power source must be unreferenced, such as a battery. If the pulse is applied to the current-loop side of a sensor, a bench supply can be used for the DUT power source. When testing nonsensor devices, care must be taken to provide battery power when appropriate.

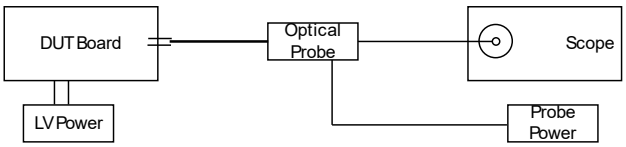


Figure 3: DUT Output Monitor Connection

CMTI RESULTS

CMTI results in a disturbance at the output. This disturbance can be quantified in two ways: 1) voltage deviation of the output; and 2) output settling time. Refer to Figure 4. Voltage deviation is the maximum voltage overshoot or undershoot of the device output after injection of the defined transient pulse. Settling time is the time it takes for the device output to settle within <100 mV of the initial value.

The images from an oscilloscope, included in this application note, show the voltage disturbances for both positive and negative 1000 V injected pulses. Slew rates used for the positive pulses include [200, 142, 108, 76, 39] ns. Slew rates used for the negative pulses include [–215, –155, –123, –86, –46] ns.

The output waveforms during and after the transient disturbances are shown in the following pages of this document.

One way to tabularize the CMTI waveforms is by the minimum slew rate that results in an output with a particular voltage disturbance that settles within a particular time. This method is common in the industry. The typical and minimum slew rate for settling within 100 mV within 0.3 µs is shown in Table 1. One way to think about the minimum slew rate is that any transient with a slew rate less than the minimum causes a disturbance of less than 100 mV on the output, with settling time of less than 0.3 µs.

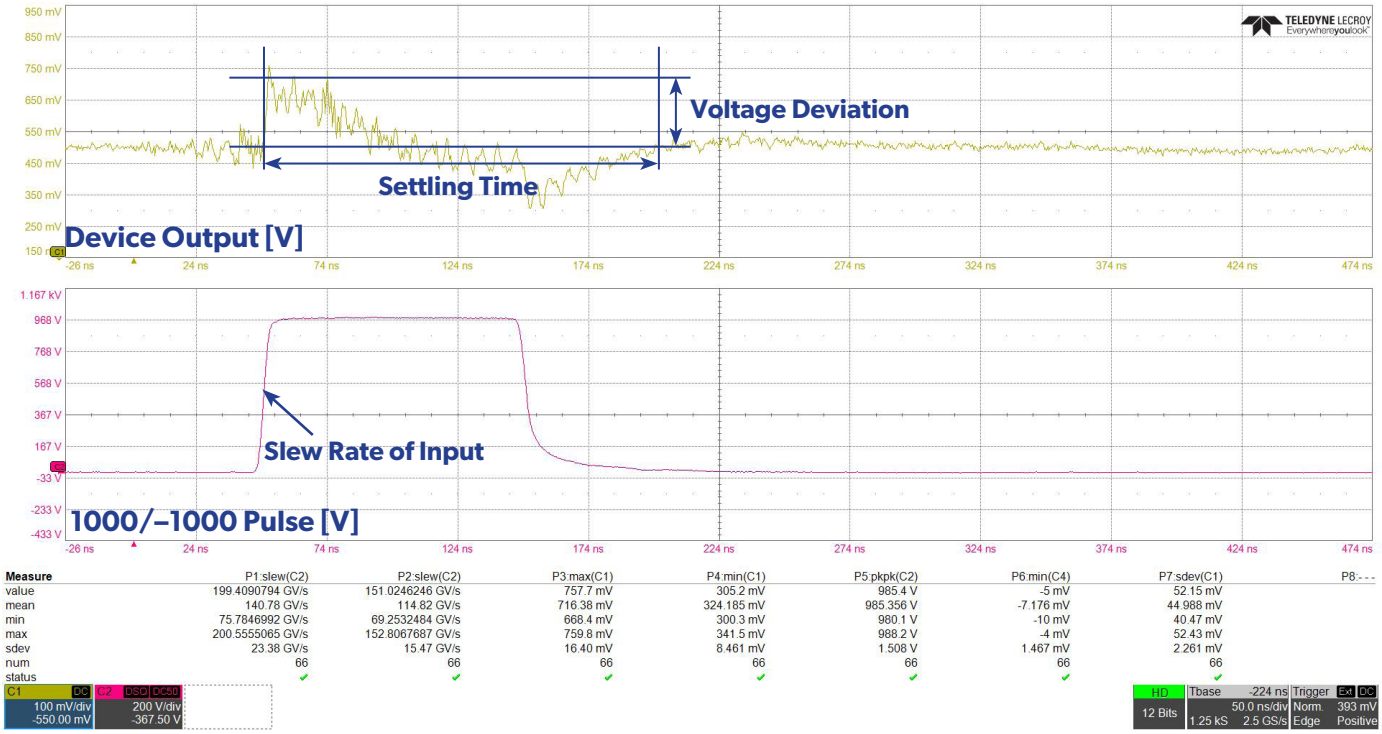
Table 2: Typical and Maximum Slew Rates

Device	Package	Minimum (V/ns)	Typical (V/ns)
ACS733	LA	100	200
	MA	100	150
ACS37002	MA	75	115
	MC	75	115
ACS37010	LZ	100	150
CT432/3	SOICW-16	100	200
CT4327/8	SOICW-8	100	200

Another way to view the CMTI waveforms is by the time it takes to settle to its original value within a particular voltage range. Pulses of 1000 V with slew rates of 140 V/ns were injected into each device to determine the settling time to within 100 mV and within 200 mV, as noted in Table 3.

Table 3: Settling Time to When Output is Within 100 and 200 mV

Device	Package	Time to <100 mV [ns]	Time to <200 mV [ns]
ACS733	LA	150	125
	MA	300	250
ACS37002	MA	50	Never exceeded
	MC	50	Never exceeded
ACS37010	LZ	150	125
CT432/3	SOICW-16	500	400
CT427/8	SOICW-8	30	50



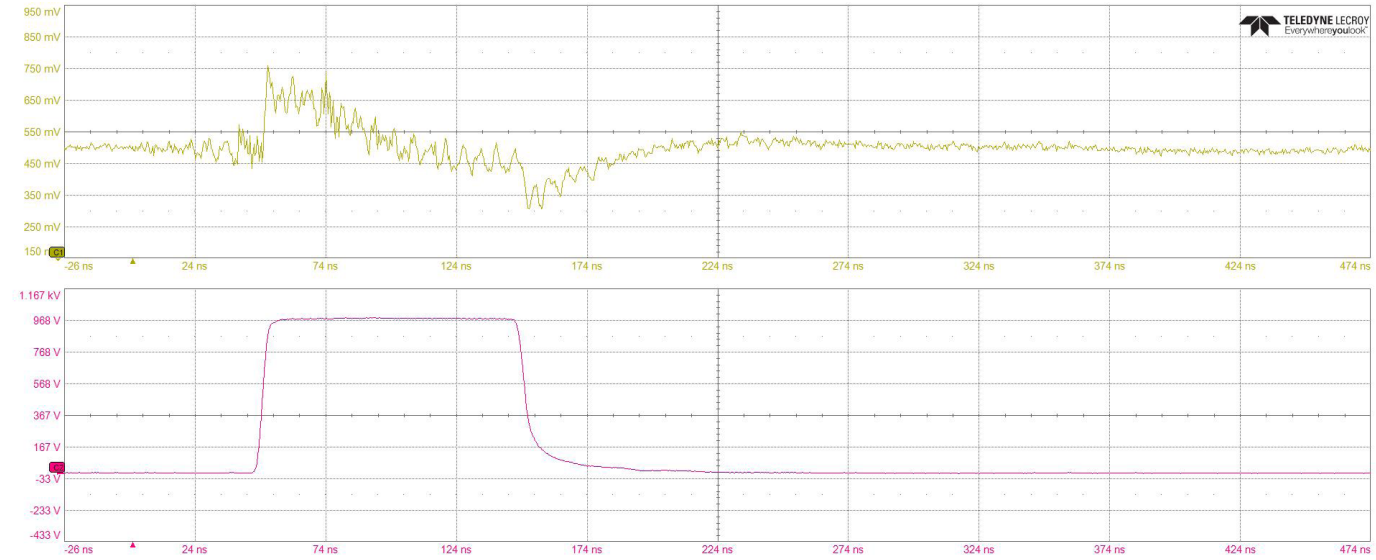
Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:---
value	199.4090794 GV/s	151.0246246 GV/s	757.7 mV	305.2 mV	985.4 V	-5 mV	52.15 mV	
mean	140.78 GV/s	114.82 GV/s	716.38 mV	324.185 mV	985.356 V	-7.176 mV	44.988 mV	
min	75.7846992 GV/s	69.2532484 GV/s	668.4 mV	300.3 mV	980.1 V	-10 mV	40.47 mV	
max	200.5555065 GV/s	152.8067687 GV/s	759.8 mV	341.5 mV	988.2 V	-4 mV	52.43 mV	
sdev	23.38 GV/s	15.47 GV/s	16.40 mV	8.461 mV	1.508 V	1.467 mV	2.261 mV	
num	66	66	66	66	66	66	66	
status	✔	✔	✔	✔	✔	✔	✔	

Figure 4: Example Showing Definitions of Voltage Disturbance, Recovery Time, and Slew Rate

CMTI PLOTS

ACS733KLA

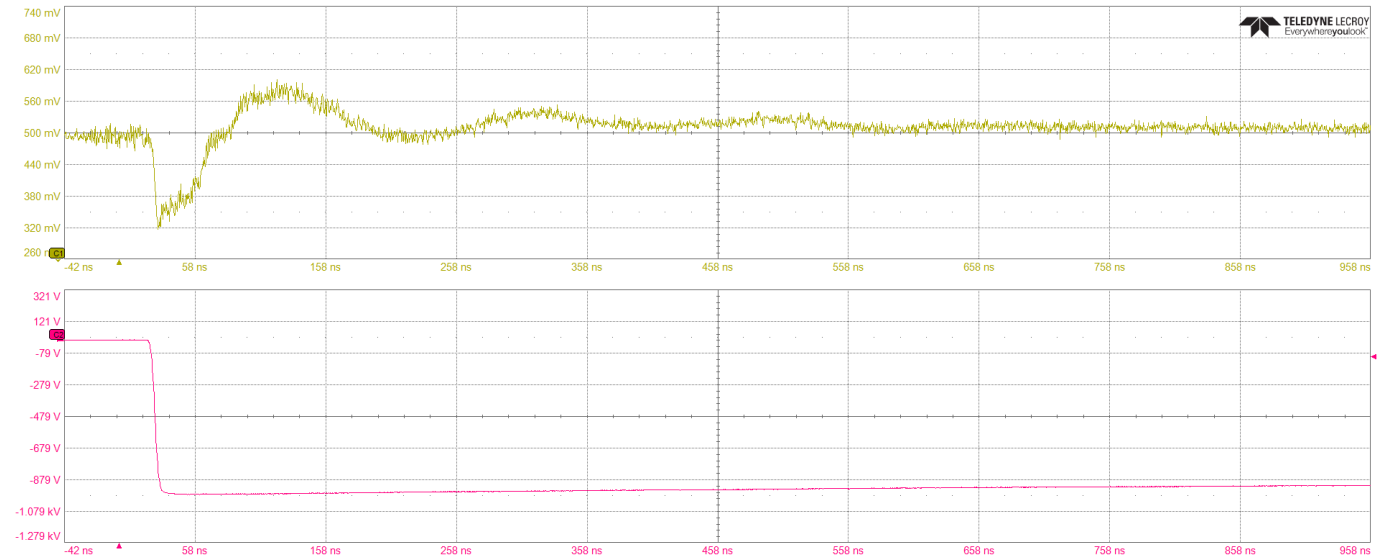
Positive Pulse



Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	199.4090794 GV/s	151.0246246 GV/s	757.7 mV	305.2 mV	985.4 V	-5 mV	52.15 mV	
mean	140.78 GV/s	114.82 GV/s	716.38 mV	324.185 mV	985.356 V	-7.176 mV	44.988 mV	
min	75.7846992 GV/s	69.2532484 GV/s	668.4 mV	300.3 mV	980.1 V	-10 mV	40.47 mV	
max	200.5555065 GV/s	152.8067687 GV/s	759.8 mV	341.5 mV	988.2 V	-4 mV	52.43 mV	
sdev	23.38 GV/s	15.47 GV/s	16.40 mV	8.461 mV	1.508 V	1.467 mV	2.261 mV	
num	66	66	66	66	66	66	66	
status	✔	✔	✔	✔	✔	✔	✔	

C1 DC 100 mV/div -550.00 mV | C2 DSO DC50 200 V/div -367.50 V | HD 12 Bits | Tbase -224 ns 50.0 ns/div 1.25 kS 2.5 GS/s | Trigger Ext DC Norm. 393 mV Edge Positive

Negative Pulse

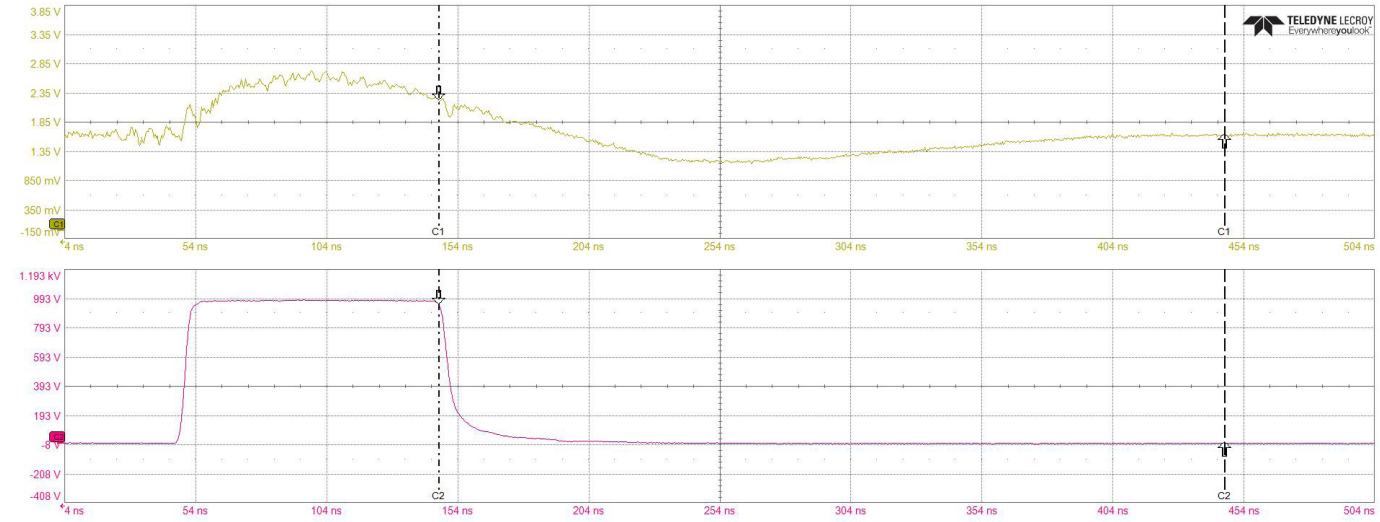


Measure	P1:slew(C3)	P2:slew(C3)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:rise(C2)	P8:fall(C2)
value	8.31425733166 MV/s	803.20670716 kV/s	600.3 mV	317.2 mV	978.3 V	-5 mV	---	5.509 ns
mean	7.54 MV/s	> 20.85 MV/s	610.838 mV	314.116 mV	978.886 V	-6.263 mV	---	5.51763 ns
min	338.93709328 kV/s	> 302.02963918 kV/s	598.5 mV	303.4 mV	976.9 V	-10 mV	---	5.486 ns
max	73.46609257266 MV/s	> 534.72222222223 MV/s	623.5 mV	323.9 mV	981.8 V	-4 mV	---	5.559 ns
sdev	10.52 MV/s	> 51.08 MV/s	5.836 mV	4.909 mV	1.192 V	1.393 mV	---	17.64 ps
num	88	201	29	29	29	29	0	29
status	⚠	⚠	✔	✔	✔	✔	⚠	✔

C1 DC 60 mV/div -500.00 mV | C2 DSO DC1M 200 V/div 478.75 V ofst | HD 12 Bits | Tbase -458 ns 100 ns/div 2.5 kS 2.5 GS/s | Trigger C2 DC Normal -100 V Edge Negative

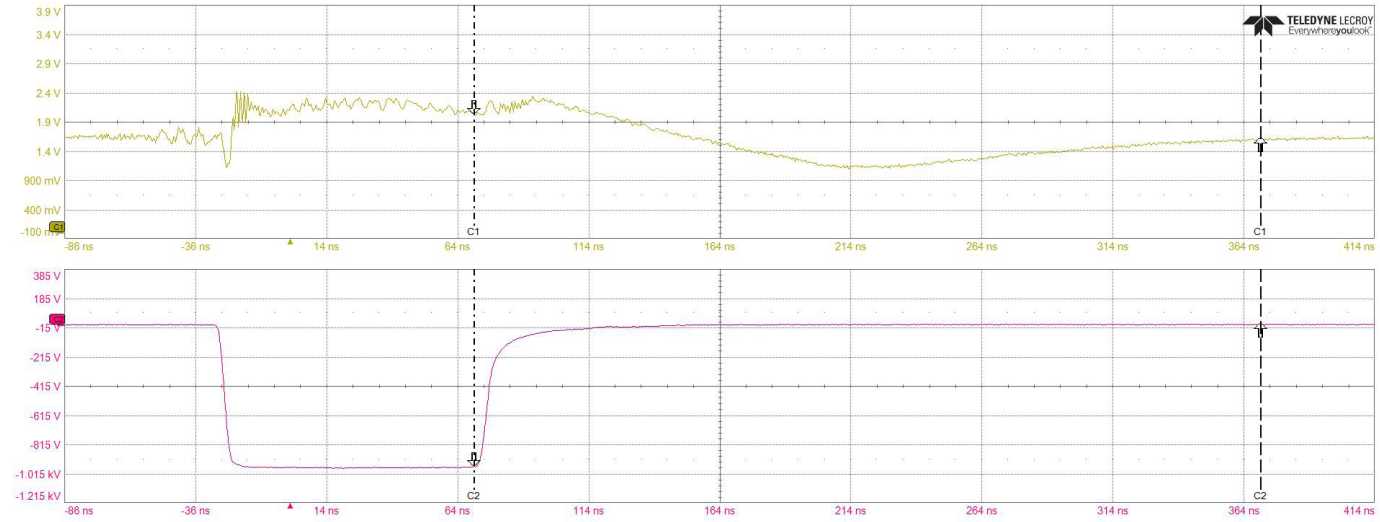
ACS733KMA

Positive Pulse



Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	229.59098 GV/s	150.861135 GV/s	2.721 V	1.133 V	986.5 V	-6 mV	423.0 mV	
mean	229.6365 GV/s	151.1383 GV/s	2.71978 V	1.10262 V	986.036 V	-6.113 mV	429.097 mV	
min	227.87743 GV/s	149.934257 GV/s	2.694 V	1.061 V	983.5 V	-10 mV	414.7 mV	
max	231.97223 GV/s	152.690238 GV/s	2.755 V	1.139 V	988.2 V	-4 mV	440.5 mV	
sdev	905.1 MV/s	610.5 MV/s	13.75 mV	23.74 mV	1.254 V	1.263 mV	7.020 mV	
num	27	27	27	27	27	27	27	
status	✔	✔	✔	✔	✔	✔	✔	

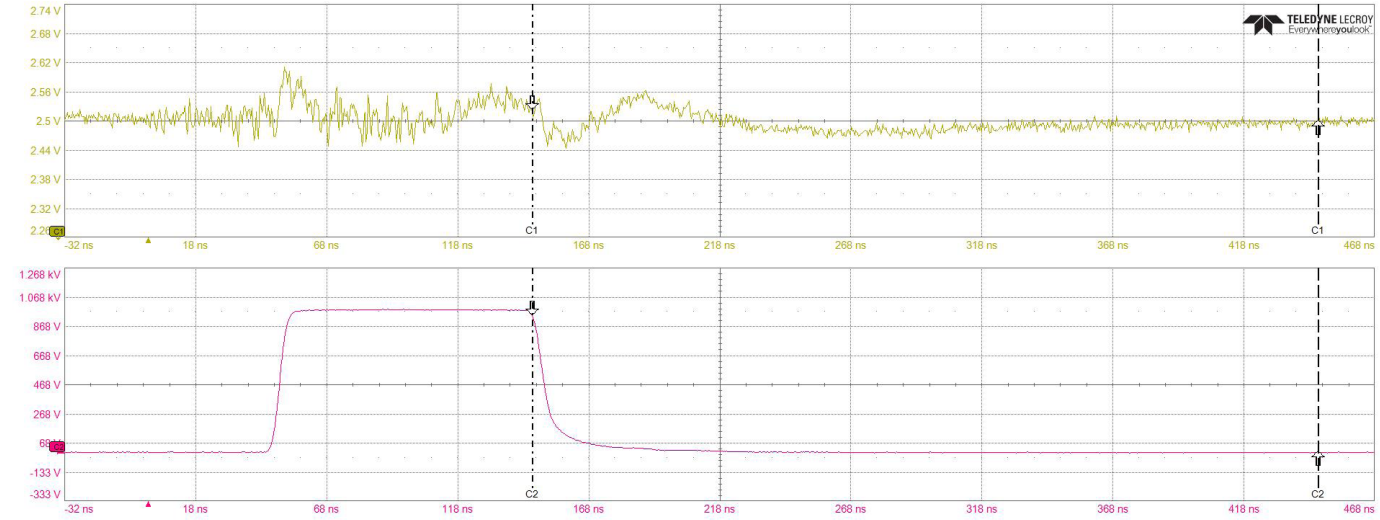
Negative Pulse



Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	150.683357 GV/s	219.239972 GV/s	2.422 V	1.095 V	988.2 V	-5 mV	351.5 mV	
mean	150.683357 GV/s	157.43 GV/s	2.28323 V	1.27464 V	988.949 V	-6.684 mV	229.59 mV	
min	150.683357 GV/s	122.252523 GV/s	2.181 V	1.054 V	986.0 V	-10 mV	173.5 mV	
max	150.683357 GV/s	221.380750 GV/s	2.563 V	1.337 V	991.0 V	-4 mV	367.0 mV	
sdev	---	27.36 GV/s	73.59 mV	74.26 mV	1.055 V	1.408 mV	50.19 mV	
num	1	71	72	72	71	77	72	
status	✔	✔	✔	✔	✔	✔	✔	

ACS37002LMA

Positive Pulse

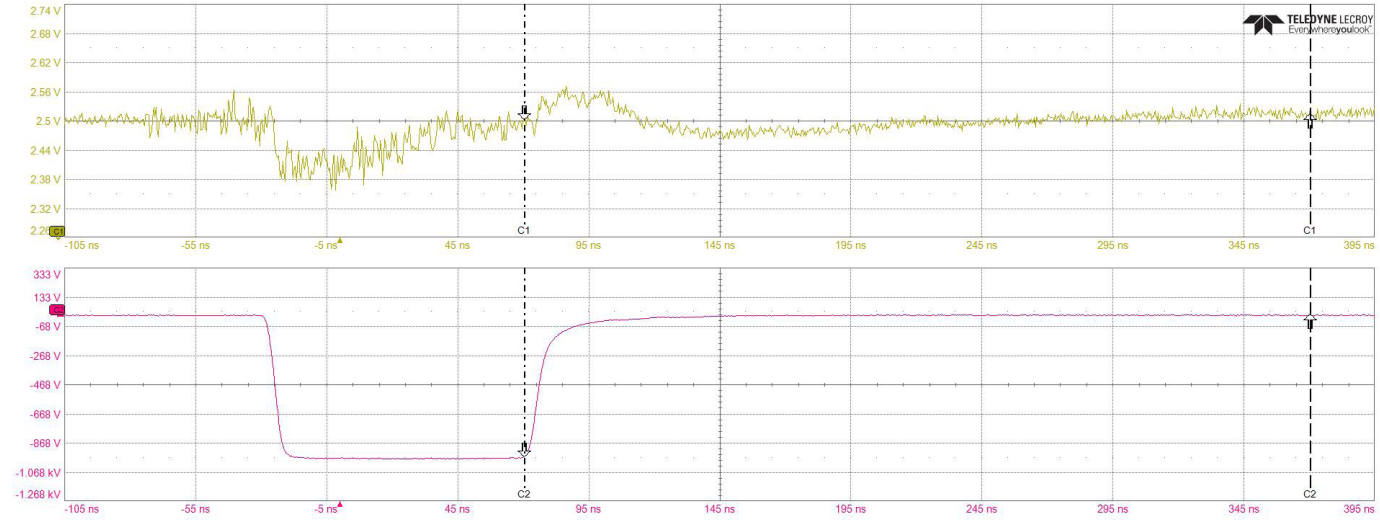


Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	154.3064463 GV/s	115.4061240 GV/s	2.6106 V	2.4434 V	985.5 V	-10 mV	23.64 mV	
mean	111.22 GV/s	82.19 GV/s	> 2.62573 V	< 2.40253 V	760.8 V	-7.343 mV	> 40.12 mV	
min	22.6612581 GV/s	19.6747690 GV/s	> 2.5600 V	< 2.2595 V	497.0 V	-10 mV	> 12.96 mV	
max	217.7254562 GV/s	151.7477208 GV/s	> 2.7386 V	< 2.4737 V	988.5 V	-4 mV	> 124.07 mV	
sdev	64.30 GV/s	43.17 GV/s	> 57.42 mV	< 71.43 mV	190.3 V	1.277 mV	> 39.87 mV	
num	52	52	52	52	52	52	52	
status	✔	✔	✔	✔	✔	✔	✔	

C1 DC: 60 mV/div, -2.50000 V, ↓ 2.52353 V, ↑ 2.49806 V, Δ -25.48 mV
C2 DSO DC50: 200 V/div, -467.50 V, ↓ 942.67 V, ↑ 1.02 V, Δ -941.65 V

HD 12 Bits | Tbase -218 ns, 50.0 ns/div, 1.25 kS 2.5 GS/s | Trigger Ext DC, Norm. 395 mV, Edge Positive
X1= 146.4 ns ΔX= 300.0 ns
X2= 446.4 ns 1/ΔX= 3.333 MHz

Negative Pulse



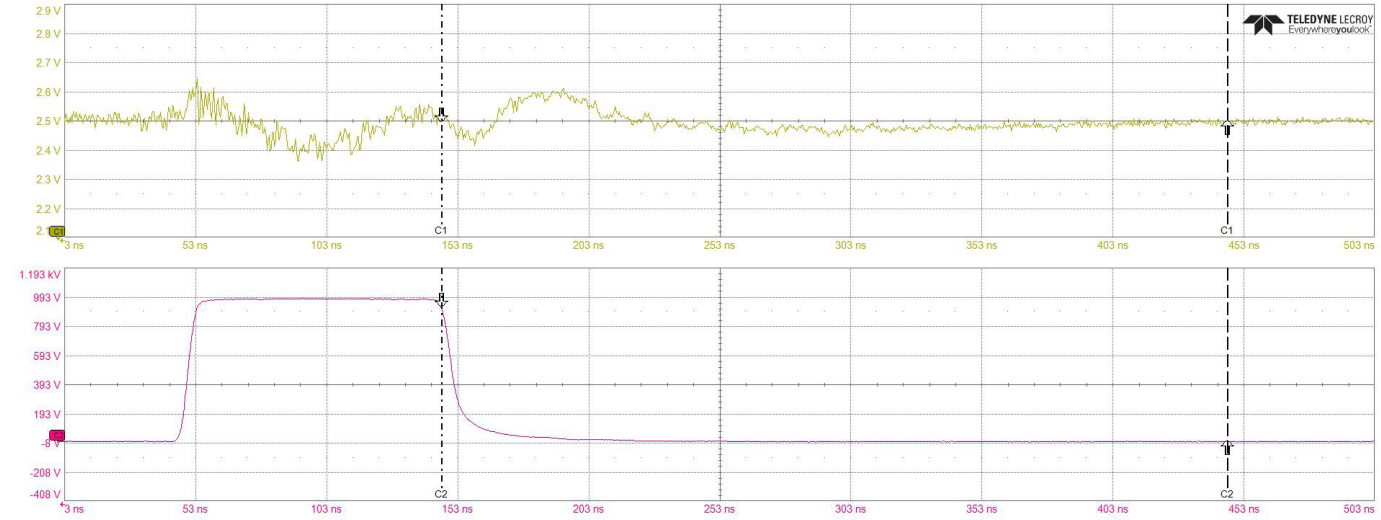
Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	113.202965 GV/s	155.407259 GV/s	2.5705 V	2.3575 V	989.7 V	-6 mV	32.02 mV	
mean	112.8838 GV/s	155.407259 GV/s	2.568486 V	2.355161 V	988.9624 V	-7.031 mV	32.737 mV	
min	112.243414 GV/s	155.407259 GV/s	2.5588 V	2.3398 V	987.0 V	-11 mV	29.48 mV	
max	113.370734 GV/s	155.407259 GV/s	2.5781 V	2.3692 V	990.6 V	-4 mV	36.78 mV	
sdev	342.5 MV/s	---	6.138 mV	9.184 mV	969.5 mV	1.680 mV	1.819 mV	
num	10	1	11	11	10	15	11	
status	✔	✔	✔	✔	✔	✔	✔	

C1 DC: 60 mV/div, -2.50000 V, ↓ 2.50187 V, ↑ 2.51092 V, Δ 9.05 mV
C2 DSO DC50: 200 V/div, 467.50 V ofst, ↓ -962.89 V, ↑ 4.77 V, Δ 967.65 V

HD 12 Bits | Tbase -145 ns, 50.0 ns/div, 1.25 kS 2.5 GS/s | Trigger Ext DC, Norm. 395 mV, Edge Positive
X1= 70.4 ns ΔX= 300.0 ns
X2= 370.4 ns 1/ΔX= 3.333 MHz

ACS37002LMC

Positive Pulse

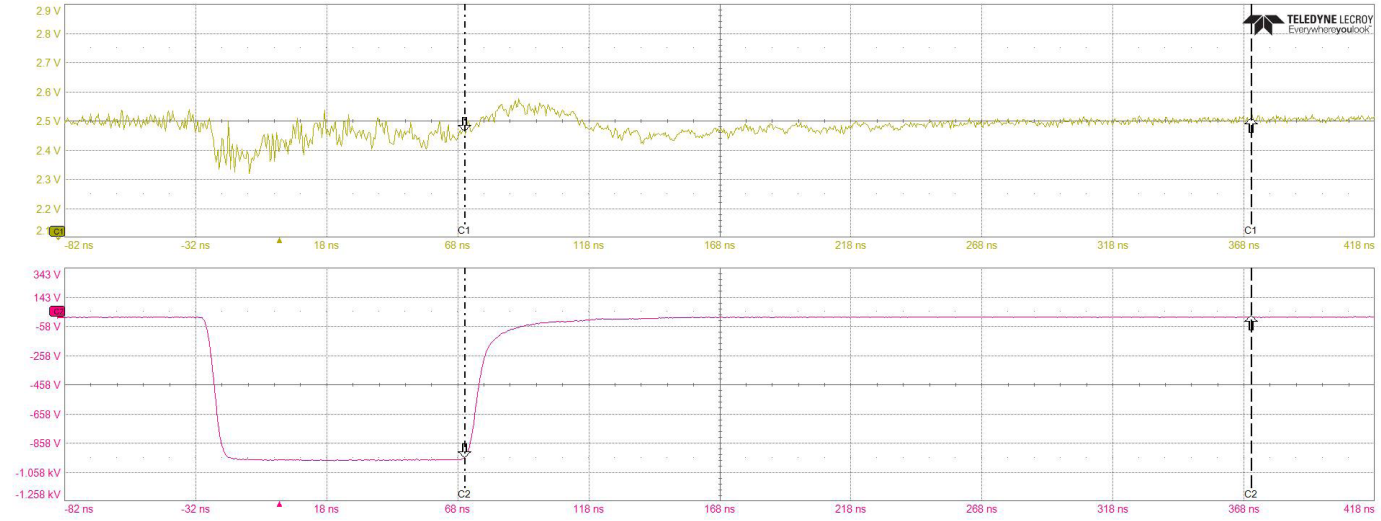


Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	162.006907 GV/s	115.066169 GV/s	2.6442 V	2.3593 V	985.7 V	-7 mV	38.19 mV	
mean	162.7316 GV/s	115.4586 GV/s	2.62126 V	2.352818 V	985.9212 V	-6.185 mV	37.8353 mV	
min	161.926384 GV/s	115.066169 GV/s	2.6110 V	2.3437 V	985.0 V	-10 mV	36.87 mV	
max	164.326900 GV/s	115.903209 GV/s	2.6442 V	2.3658 V	986.9 V	-5 mV	38.68 mV	
sdev	804.5 MV/s	281.6 MV/s	12.53 mV	7.907 mV	624.1 mV	1.753 mV	695.2 µV	
num	6	6	6	6	6	6	6	
status	✔	✔	✔	✔	✔	✔	✔	

C1 DC: 100 mV/div, -2.50000 V, ↓ 2.49623 V, ↑ 2.49647 V, Δ 240 µV
C2 DSO DC50: 200 V/div, -392.50 V, ↓ 922.92 V, ↑ -590 mV, Δ -923.51 V

HD 12 Bits | Tbase -253 ns, 50.0 ns/div, 1.25 kS, 2.5 GS/s | Trigger Ext DC, Norm. 395 mV, Edge Positive
X1= 146.8 ns ΔX= 300.0 ns
X2= 446.8 ns 1/ΔX= 3.333 MHz

Negative Pulse



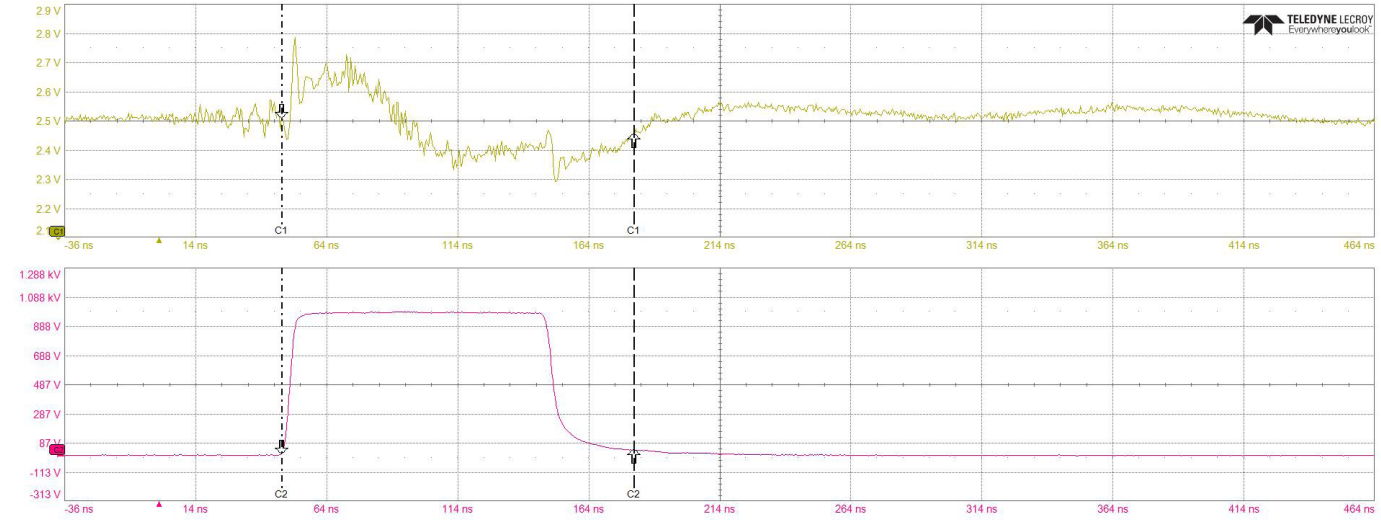
Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	116.352356 GV/s	154.895015 GV/s	2.5764 V	2.3193 V	988.5 V	-7 mV	34.41 mV	
mean	116.5125 GV/s	155.6687 GV/s	2.57486 V	2.32203 V	988.900 V	-6.491 mV	35.994 mV	
min	115.595103 GV/s	154.895015 GV/s	2.5465 V	2.2892 V	986.4 V	-9 mV	31.97 mV	
max	117.703461 GV/s	156.881023 GV/s	2.5950 V	2.3525 V	991.5 V	-5 mV	41.39 mV	
sdev	621.9 MV/s	571.0 MV/s	11.79 mV	15.31 mV	1.346 V	1.295 mV	2.145 mV	
num	17	17	17	17	17	17	17	
status	✔	✔	✔	✔	✔	✔	✔	

C1 DC: 100 mV/div, -2.50000 V, ↓ 2.46503 V, ↑ 2.50393 V, Δ 38.90 mV
C2 DSO DC50: 200 V/div, 457.50 V ofst, ↓ -957.55 V, ↑ 5.44 V, Δ 962.99 V

HD 12 Bits | Tbase -168 ns, 50.0 ns/div, 1.25 kS, 2.5 GS/s | Trigger Ext DC, Norm. 395 mV, Edge Positive
X1= 70.8 ns ΔX= 300.0 ns
X2= 370.8 ns 1/ΔX= 3.333 MHz

ACS37010LLZ

Positive Pulse

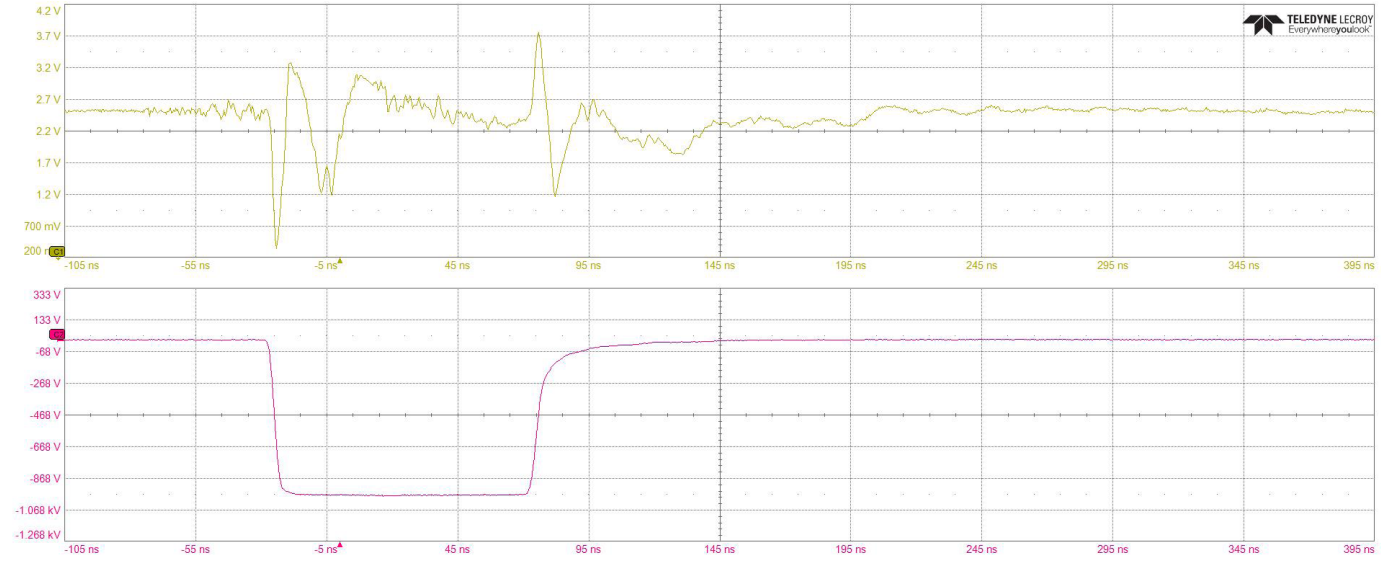


Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	218.962801 GV/s	150.007260 GV/s	2.7854 V	2.2904 V	986.9 V	-6 mV	63.91 mV	
mean	219.4929 GV/s	150.0978 GV/s	2.783749 V	2.283264 V	986.0238 V	-6.901 mV	64.067 mV	
min	217.718281 GV/s	148.459984 GV/s	2.7778 V	2.2800 V	984.6 V	-9 mV	62.03 mV	
max	221.817632 GV/s	152.033343 GV/s	2.7913 V	2.2904 V	987.6 V	-6 mV	65.30 mV	
sdev	921.0 MV/s	827.3 MV/s	4.675 mV	3.975 mV	967.5 mV	1.038 mV	1.035 mV	
num	15	15	6	6	15	15	6	
status	✔	✔	✔	✔	✔	✔	✔	

C1 DC: 100 mV/div, -2.50000 V; ↓ 2.50923 V, ↑ 2.45063 V, Δ -58.60 mV
C2 DSQ DC50: 200 V/div, -487.50 V; ↓ 9.25 V, ↑ 36.74 V, Δ 27.49 V

HD 12 Bits | Tbase -214 ns, 50.0 ns/div, 1.25 kS 2.5 GS/s | Trigger Ext DC, Norm. 395 mV, Edge Positive
X1= 46.8 ns ΔX= 134.4 ns
X2= 181.2 ns 1/ΔX= 7.44 MHz

Negative Pulse



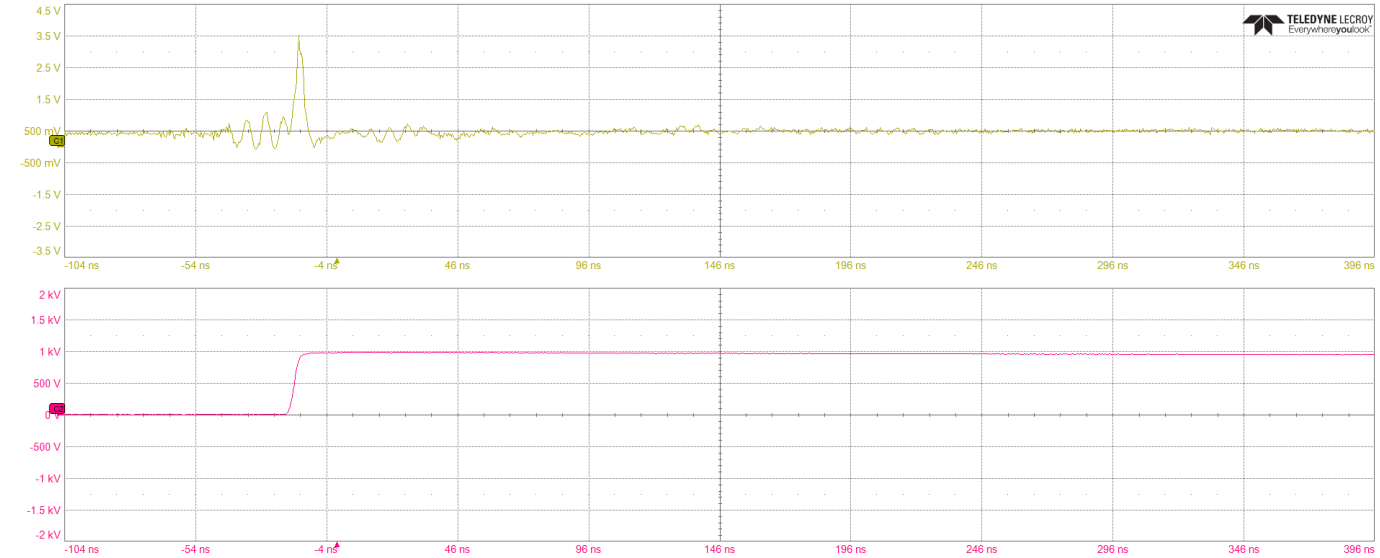
Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	145.791760 GV/s	219.392285 GV/s	3.746 V	338 mV	990.4 V	-8 mV	308.1 mV	
mean	145.791760 GV/s	219.392285 GV/s	3.746 V	338 mV	990.4 V	-8 mV	308.1 mV	
min	145.791760 GV/s	219.392285 GV/s	3.746 V	338 mV	990.4 V	-8 mV	308.1 mV	
max	145.791760 GV/s	219.392285 GV/s	3.746 V	338 mV	990.4 V	-8 mV	308.1 mV	
sdev	---	---	---	---	---	---	---	
num	1	1	1	1	1	1	1	
status	✔	✔	✔	✔	✔	✔	✔	

C1 DC: 500 mV/div, -2.20000 V
C2 DSQ DC50: 200 V/div, 467.50 V ofst

HD 12 Bits | Tbase -145 ns, 50.0 ns/div, 1.25 kS 2.5 GS/s | Trigger Ext DC, Norm. 395 mV, Edge Positive

CT432/3

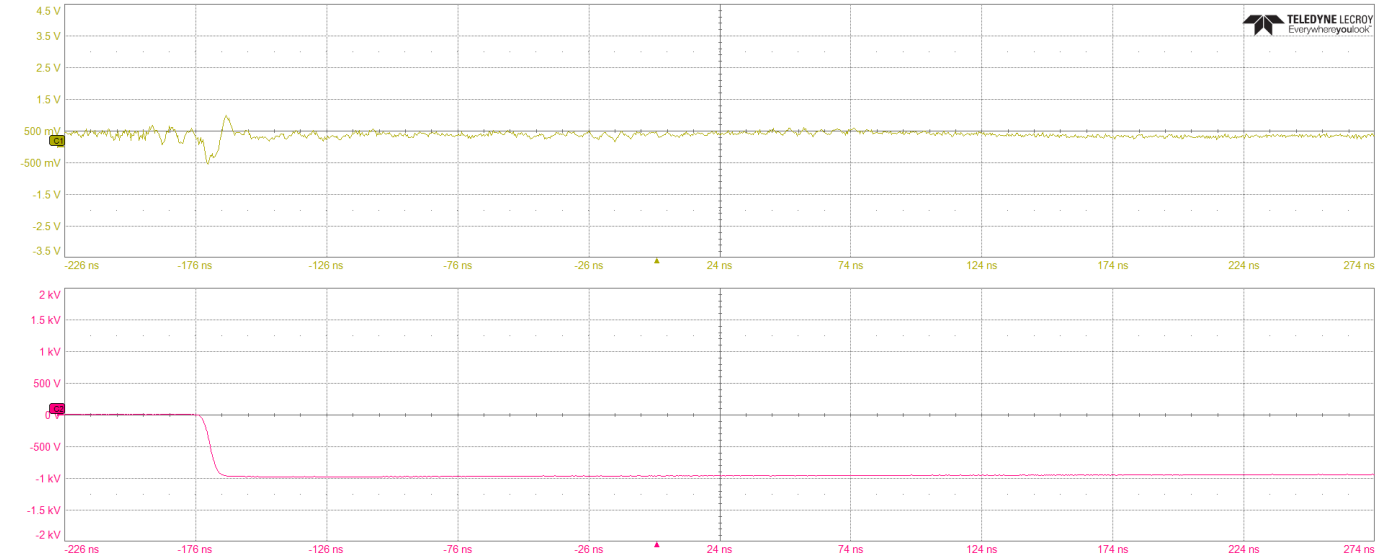
Positive Pulse



Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	203.608226 GV/s	---	3.478 V	-82 mV	987.9 V	-8 mV	226.0 mV	
mean	203.589 GV/s	---	3.47877 V	-111.56 mV	988.515 V	-6.348 mV	228.371 mV	
min	199.140620 GV/s	---	3.420 V	-185 mV	986.0 V	-8 mV	224.3 mV	
max	205.160105 GV/s	---	3.514 V	-82 mV	990.9 V	-4 mV	232.2 mV	
sdev	2.051 GV/s	---	35.30 mV	35.00 mV	1.604 V	1.352 mV	2.826 mV	
num	6	0	6	6	6	6	6	
status	✔	⚠	✔	✔	✔	✔	✔	

C1 DC 1.00 V/div -500.0 mV | C2 BSQ DC50 500 V/div 0.00 V offset | HD 12 Bits | Tbase -146 ns 50.0 ns/div 1.25 kS 2.5 GS/s | Trigger Ext DC Norm. 247 mV Width Either

Negative Pulse

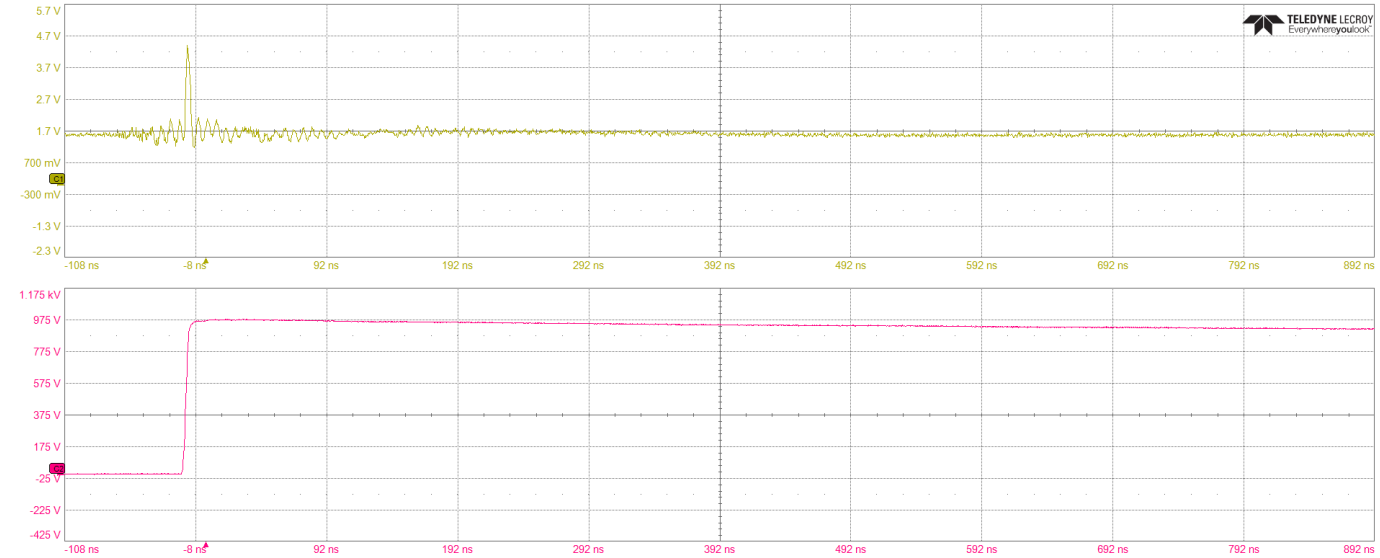


Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	---	154.401073 GV/s	992 mV	-560 mV	993.2 V	-7 mV	114.2 mV	
mean	---	154.401073 GV/s	992 mV	-560 mV	993.2 V	-7 mV	114.2 mV	
min	---	154.401073 GV/s	992 mV	-560 mV	993.2 V	-7 mV	114.2 mV	
max	---	154.401073 GV/s	992 mV	-560 mV	993.2 V	-7 mV	114.2 mV	
sdev	---	---	---	---	---	---	---	
num	0	1	1	1	1	1	1	
status	⚠	✔	✔	✔	✔	✔	✔	

C1 DC 1.00 V/div -500.0 mV | C2 BSQ DC50 500 V/div 0.00 V offset | HD 12 Bits | Timebase -24 ns 50.0 ns/div 1.25 kS 2.5 GS/s | Trigger Ext DC Norm. 247 mV Width Either

CT427/8

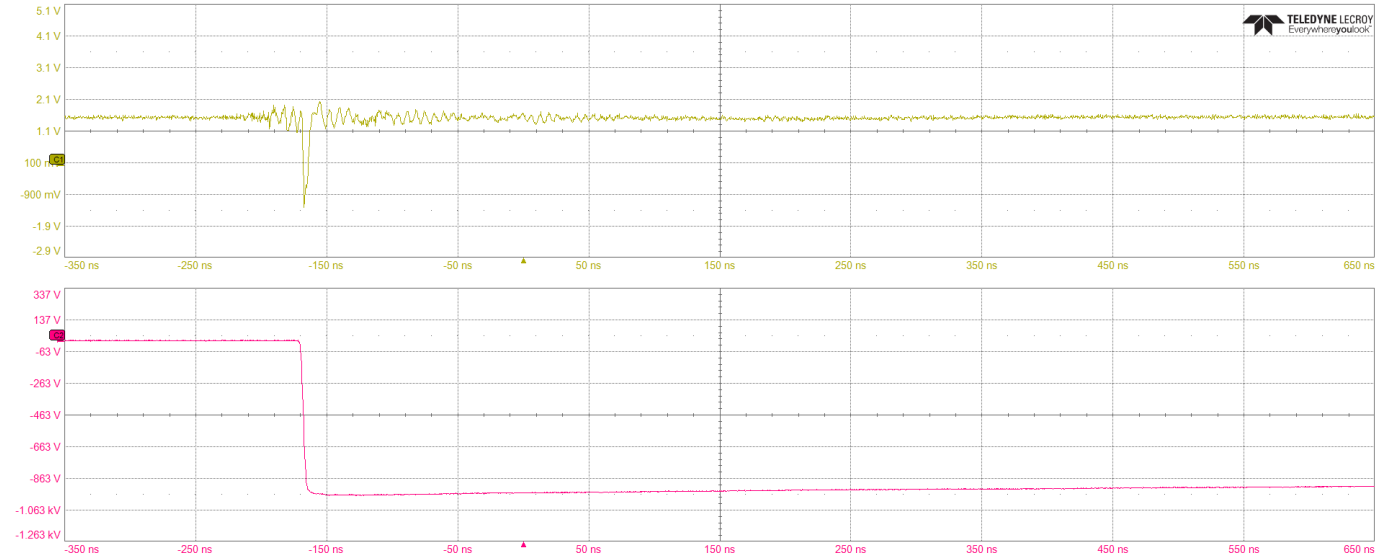
Positive Pulse



Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	203.873803 GV/s	---	4.395 V	1.177 V	979.5 V	-6 mV	165.2 mV	
mean	184.90 GV/s	---	4.2100 V	1.14227 V	889.0 V	-7.0801 mV	153.79 mV	
min	128.023918 GV/s	---	3.773 V	1.107 V	616.8 V	-8 mV	122.6 mV	
max	204.837049 GV/s	---	4.395 V	1.177 V	980.9 V	-6 mV	165.2 mV	
sdev	32.85 GV/s	---	256.4 mV	27.48 mV	157.2 V	809.7 µV	18.06 mV	
num	4	0	4	4	4	4	4	
status	✔	⚠	✔	✔	✔	✔	✔	

C1 DC: 1.00 V/div -1.7000 V | C2 BSQ DC50: 200 V/div -375.00 V | HD 12 Bits | Tbase -392 ns 100 ns/div 2.5 kS 2.5 GS/s | Trigger Ext DC Norm. 247 mV Width Either

Negative Pulse

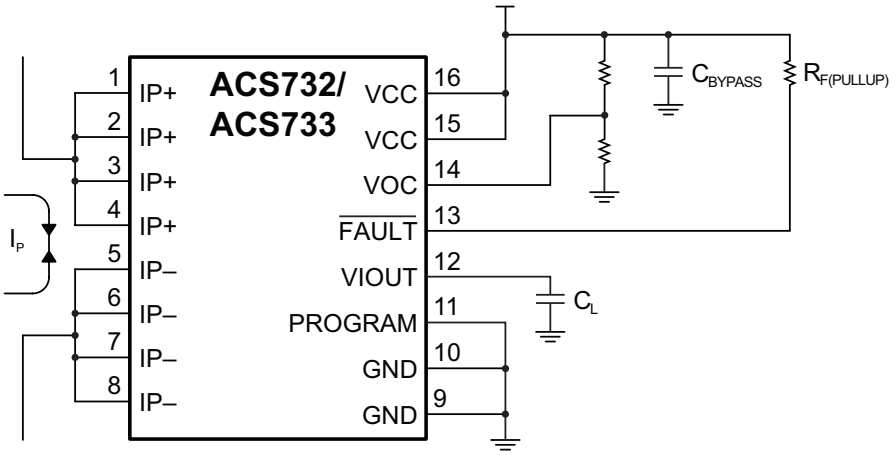


Measure	P1:slew(C2)	P2:slew(C2)	P3:max(C1)	P4:min(C1)	P5:pkpk(C2)	P6:min(C4)	P7:sdev(C1)	P8:- - -
value	---	216.001575 GV/s	2.010 V	-1.316 V	980.4 V	-7 mV	163.5 mV	
mean	---	203.02 GV/s	2.03524 V	-1.2129 V	920.3 V	-7.650 mV	158.64 mV	
min	---	134.353905 GV/s	1.971 V	-1.316 V	617.1 V	-10 mV	134.2 mV	
max	---	219.059188 GV/s	2.099 V	-832 mV	982.3 V	-5 mV	164.9 mV	
sdev	---	30.74 GV/s	41.90 mV	174.4 mV	135.6 V	1.535 mV	10.98 mV	
num	0	6	6	6	6	6	6	
status	⚠	✔	✔	✔	✔	✔	✔	

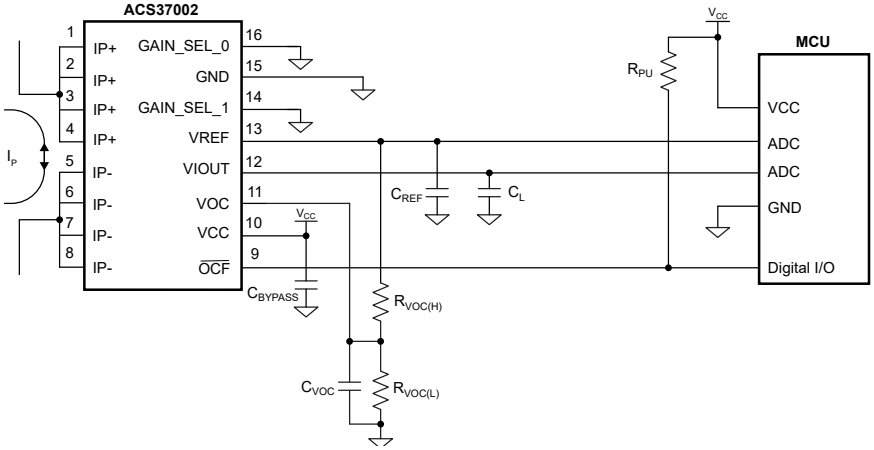
C1 DC: 1.00 V/div -1.1000 V | C2 BSQ DC50: 200 V/div 462.50 V ofst | HD 12 Bits | Tbase -150 ns 100 ns/div 2.5 kS 2.5 GS/s | Trigger Ext DC Norm. 247 mV Width Either

TYPICAL APPLICATION CIRCUITS

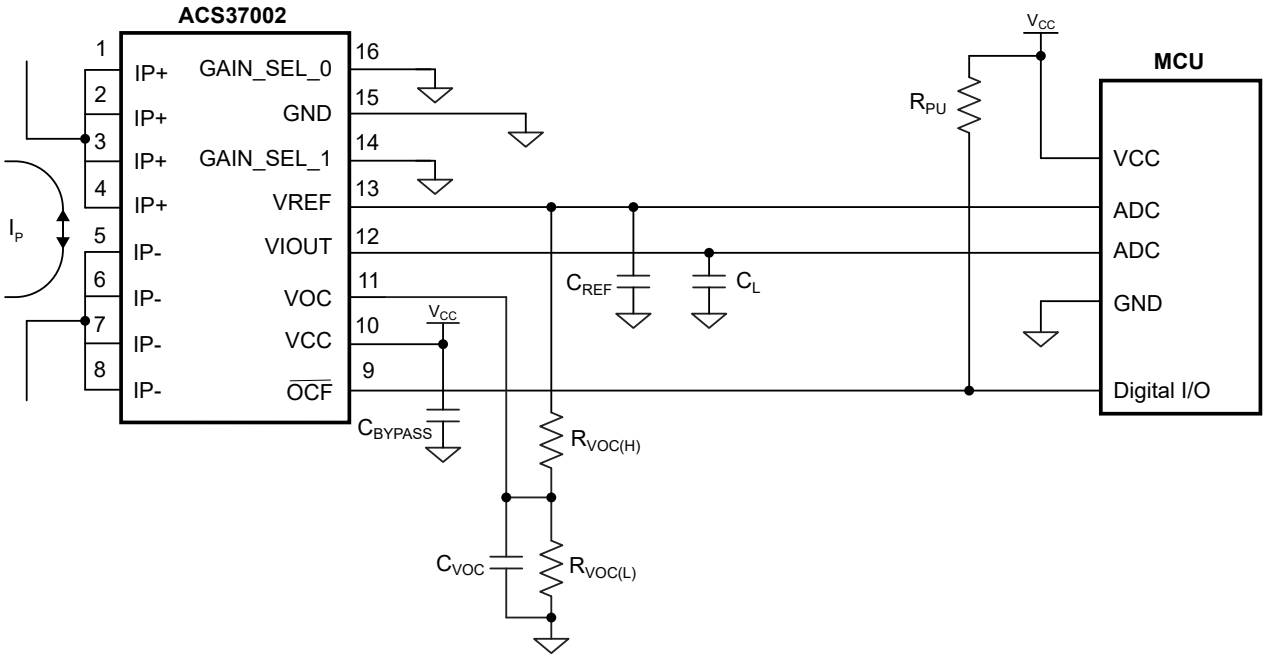
ACS733LA



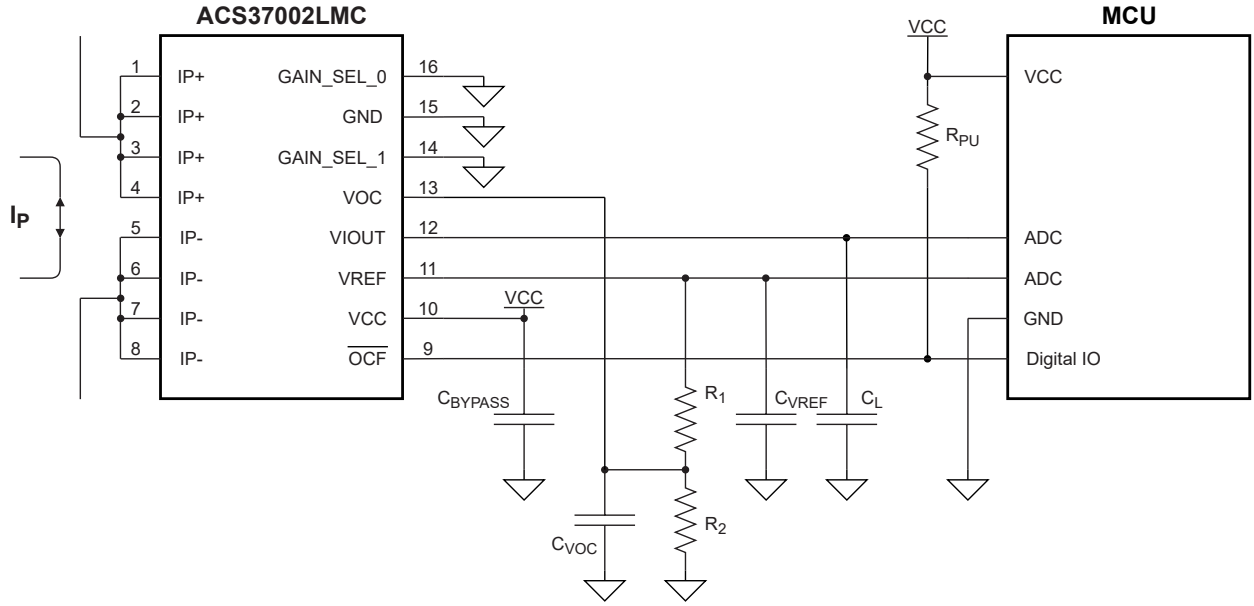
ACS733MA



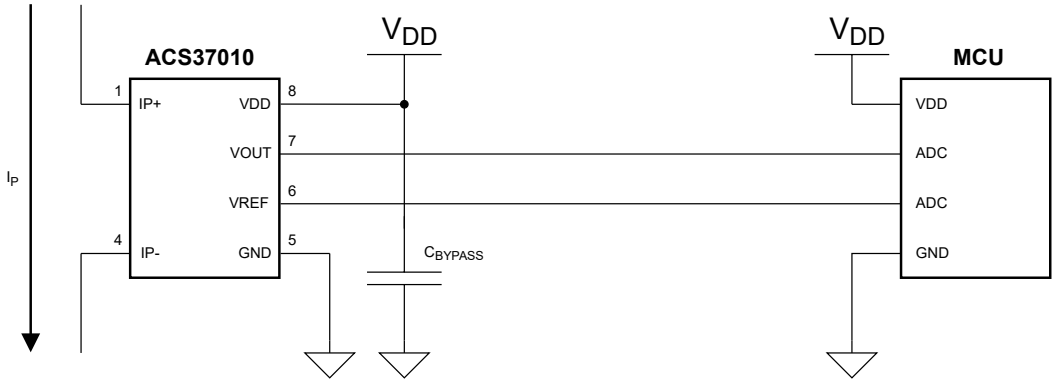
ACS37002MA



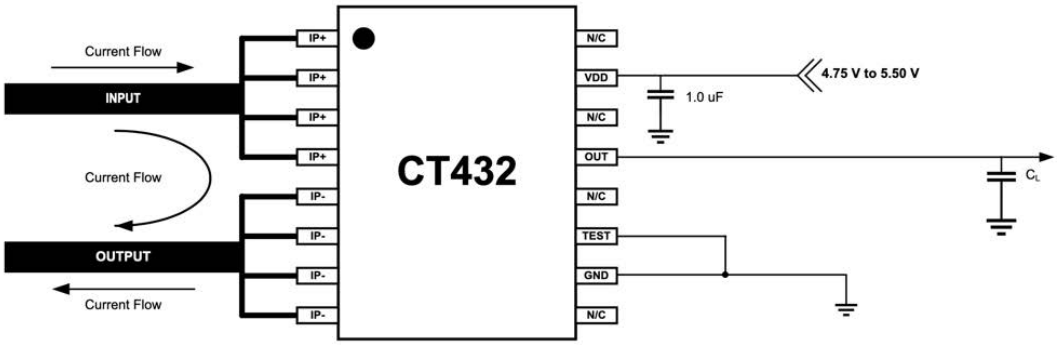
ACS37002MC



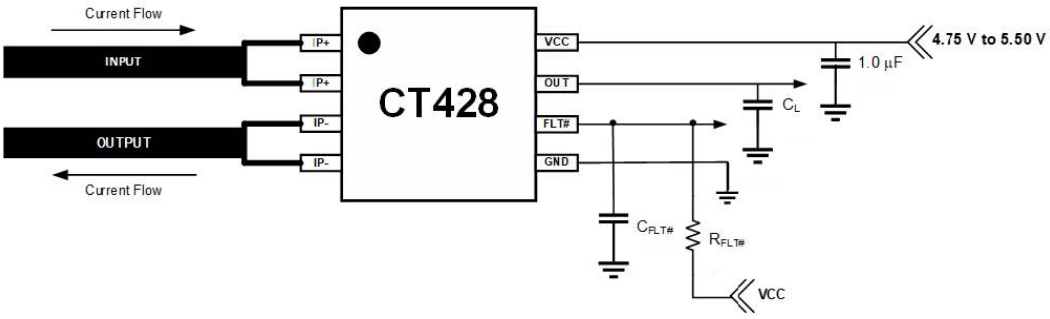
ACS37010LZ



CT432/3



CT427/8



Revision History

Number	Date	Description
–	June 14, 2024	Initial release

955 PERIMETER ROAD • MANCHESTER, NH 03103 • USA
+1-603-626-2300 • FAX: +1-603-641-5336 • ALLEGROMICRO.COM