

Test setups ELNG 360W 60 V 6A F V1

Load Diodes in series

Action PWM Id+ fast; Pulse 50µs; Period 500µs; Current Id PWM off 1mA; Current PWM on 3A/1A/500mA

Control software Power Devices - Johanna Jäger Elektronik

Messages

U Id P Um Is >Se >P >T >Vo

Temperatures

Temp 1 Temp 2

26 24

Step Voltage u, ui, uik, Step Current id, ii

Step Current is

1mA 100µA 1mA 100µA

1mV 100µV 10µA 10µA

Actual values

Voltage ui 0 mV

Average 30,0 ms

Filter 0

Current ii 0,0 mA

Average 30,0 ms

Filter 0

Power pi 0,000 W

Clamp voltage uik 0 mV

Free Channel uim 0 mV

Average 30,0 ms

Digital inputs 3

Set values

Voltage u 20000 mV

I-Comp. 4

D-Comp. 0

Filter 1

Readjust on off

Voltage uf 19999 mV

Current id 0,0 mA

I-Comp. 2

D-Comp. 4

Readjust on off

Current idf 0,0 mA

Power p 360,000 W

Shutdown on off

Voltage um 63000 mV

Sense lead on off

Current is 6000,0 mA

Sense volt. usen 3000 mV

Output stage volt. ulin 25000 mV

Base load igs 150 mA

Base load igd 1 A

Digital outputs 0

Output C erc 0

Output L erl 0

Trigger

Trigger 1

off Voltage ui 1000 mV

on Current ii 100,0 mA

single Channel uim 1000 mV

rising edge digital input 1

falling edge digital input 2

over level

under level

Stays 0,0 ms

Trigger 2

off Voltage ui 1000 mV

on Current ii 100,0 mA

single Channel uim 1000 mV

rising edge digital input 1

falling edge digital input 2

over level

under level

Stays 0,0 ms

Trigger 0

off Voltage ui 1000 mV

on Current ii 100,0 mA

single Channel uim 1000 mV

over level digital input 1

under level digital input 2

Stays 0,0 ms

PWM u fast

Start time 0,0 ms

Execution 2,0 ms

Periode 0,25 ms

Impuls 0,10 ms

Amplitude 1000 mV

PWM id fast

Start time 0,0 ms

Execution 2,0 ms

Periode 0,50 ms

Impuls 0,05 ms

Amplitude 1000,0 mA

Sine function u fast

Start time 0,0 ms

Execution 2,0 ms

Period 0,50 ms

Amplitude 1000 mV

Sine function id fast

Start time 0,0 ms

Execution 2,0 ms

Period 0,50 ms

Amplitude 100,0 mA

Measure actual values fast

Start time 0,0 ms

End time 2,0 ms

Sample time 0,01 ms

Actions

PWM u

Start time 0,0 ms

Execution 10,0 ms

Periode 2,0 ms

Impuls 1,0 ms

Ris. time 0,0 ms

Fal. time 0,0 ms

Amplitude 1000 mV

PWM id

Start time 0,0 ms

Execution 10,0 ms

Periode 2,0 ms

Impuls 1,0 ms

Ris. time 0,0 ms

Fal. time 0,0 ms

Amplitude 100,0 mA

PWM digital output 1

Start time 0,0 ms

Execution 5,0 ms

Periode 0,5 ms

Impuls 0,2 ms

PWM digital output 2

Start time 0,0 ms

Execution 5,0 ms

Periode 0,5 ms

Impuls 0,2 ms

Sine function u

Start time 0,0 ms

Execution 10,0 ms

Periode 1,0 ms

Phase 0 °

Amplitude 1000 mV

Sine function id

Start time 0,0 ms

Execution 100,0 ms

Period 1,0 ms

Phase 0 °

Amplitude 100,0 mA

Setpoint at start of action

Voltage u 20000 mV

Current id 1,0 mA

Digit. Outputs 0

Setpoint at end of action

Voltage u 0 mV

Current id 0,0 mA

Digit. Outputs 0

Measure actual values

Start time 0,0 ms

End time 2,0 ms

Sample time 0,2 ms

Curve

Start point 0

End point 8

Times 1

Memory Curve / Memory Measure

Start action Stop action

Action Trigger 1 Action Trigger 2

Curve u

Curve id

Curve do

Curve su

Curve measure

Ramp u

Ramp id

PWM u +/-

PWM id +/-

PWM do1

PWM do2

Sinus u

Sinus id

Set u at start

Set do at start

Set u at end

Set id at end

Measure steps

PWM U +

PWM Id +

PWM U fast +/-

PWM Id fast +/-

PWM U fast +

PWM Id fast +

Sinus u fast

Sinus id fast

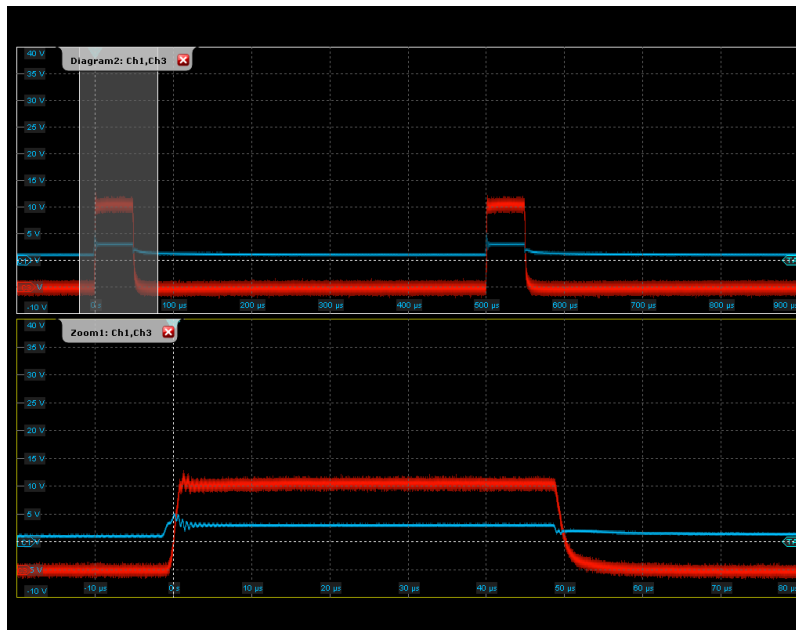
Measure steps fast

Load Diodes in series

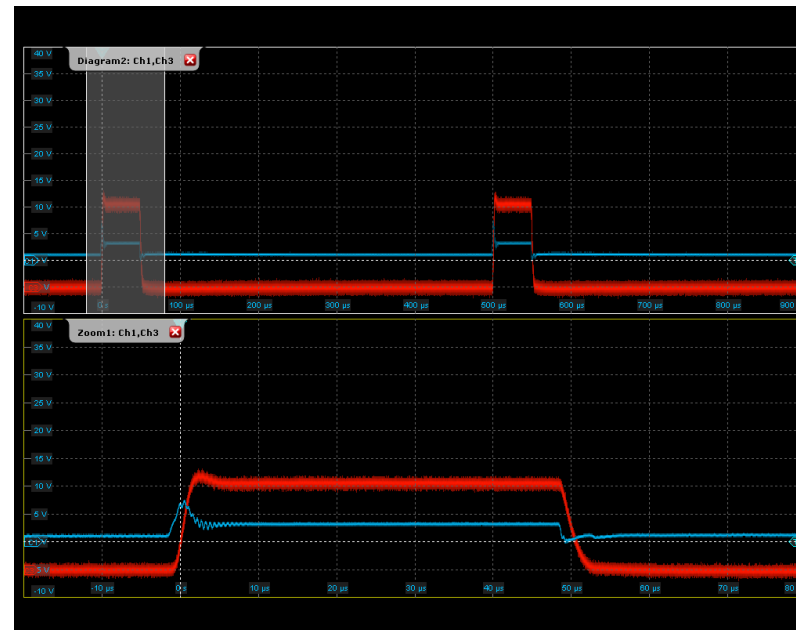
Action PWM Id+ fast; Pulse 50 μ s; Period 500 μ s; Current Id PWM off 1mA; Current PWM on 3A/1A/500mA

Amplitude 3A; I-Component idic 6; D-Component iddc 4

1m Load line parallel (ca. 1 μ H)



1m Load line (ca. 2 μ H)



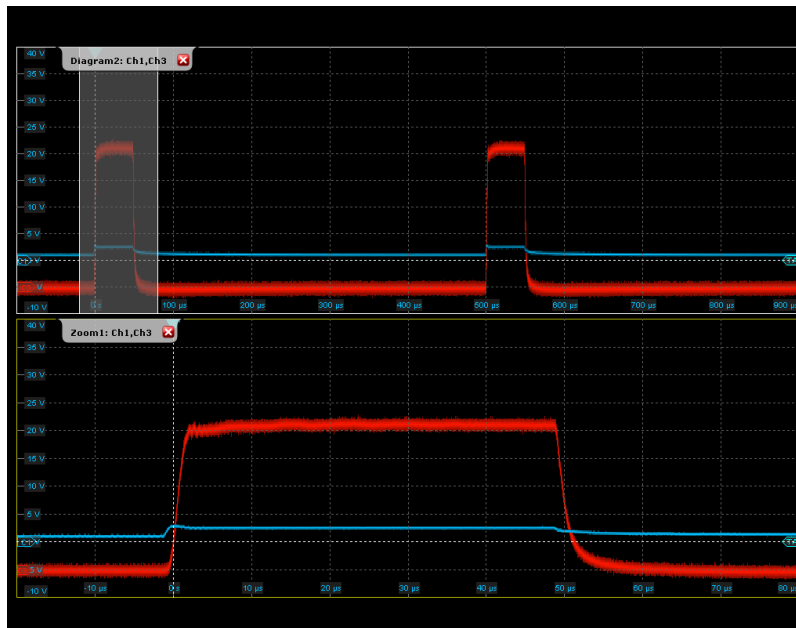
— Voltage 5V/div
— Current 1A/div

Load Diodes in series

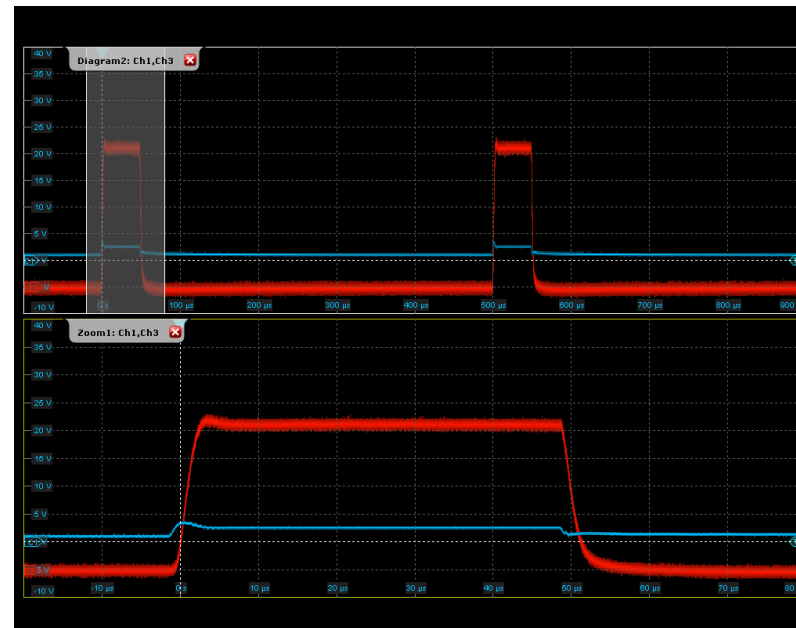
Action PWM Id+ fast; Pulse 50 μ s; Period 500 μ s; Current Id PWM off 1mA; Current PWM on 3A/1A/500mA

Amplitude 1A; I-Component idic 2; D-Component iddc 4

1m Load line parallel (ca. 1 μ H)



1m Load line (ca. 2 μ H)



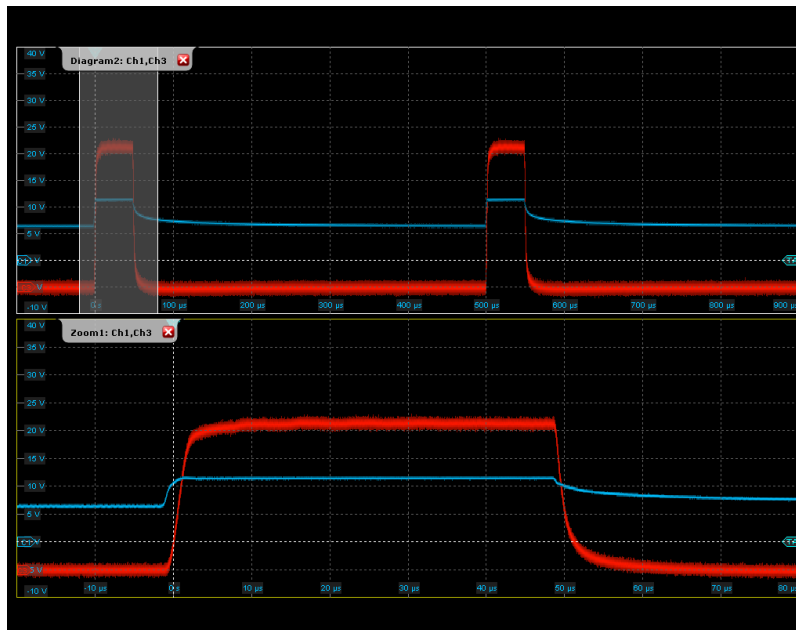
— Voltage 5V/div
— Current 200mA/div

Load Diodes in series

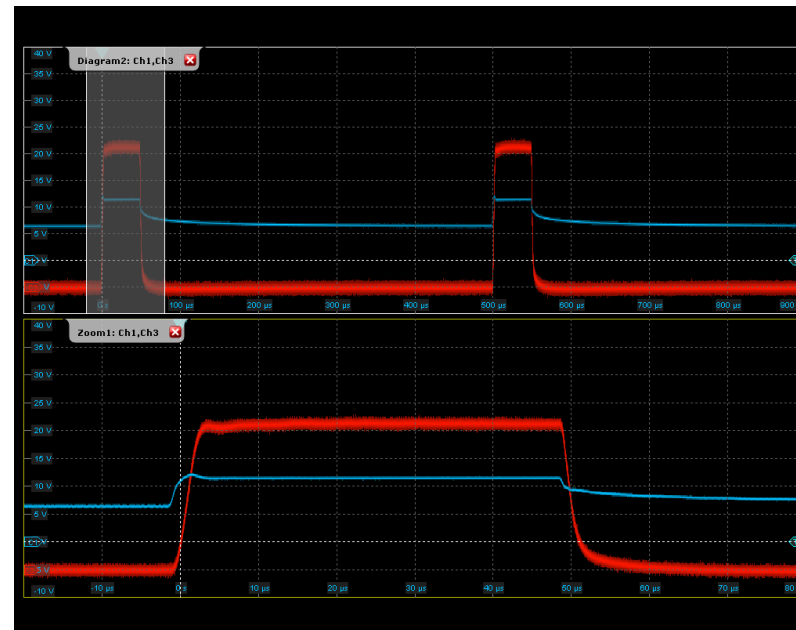
Action PWM Id+ fast; Pulse 50 μ s; Period 500 μ s; Current Id PWM off 1mA; Current PWM on 3A/1A/500mA

Amplitude 1A; I-Component idic 2; D-Component iddc 2

1m Load line parallel (ca. 1 μ H)



1m Load line (ca. 2 μ H)



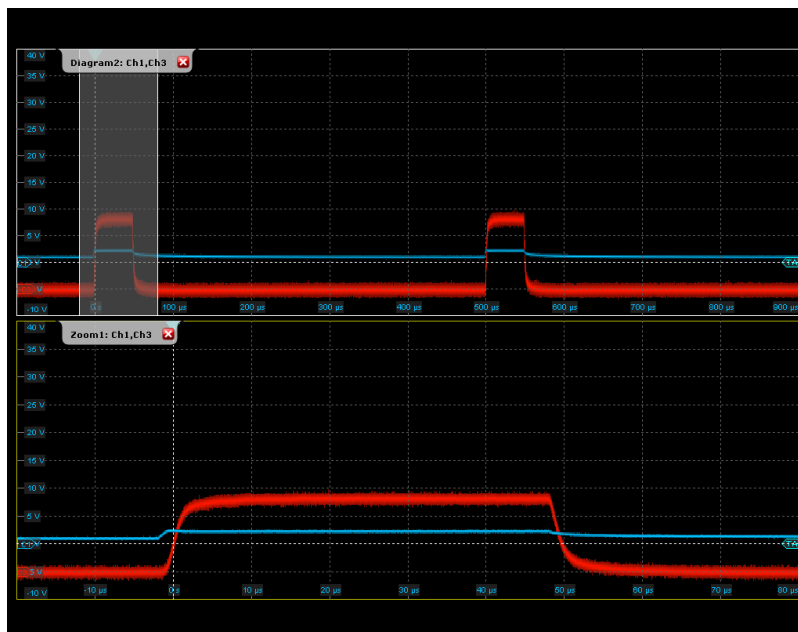
— Voltage 5V/div
— Current 200mA/div

Load Diodes in series

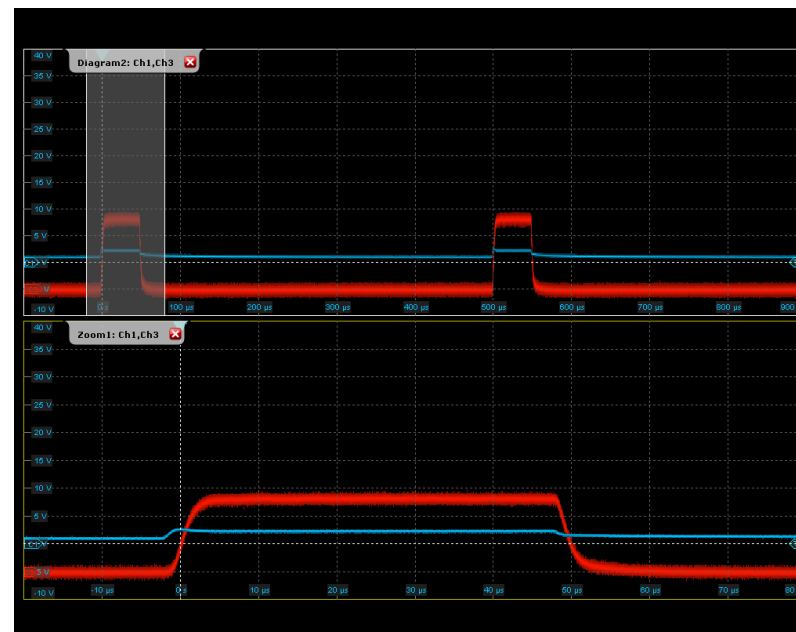
Action PWM Id+ fast; Pulse 50 μ s; Period 500 μ s; Current Id PWM off 1mA; Current PWM on 3A/1A/500mA

Amplitude 500mA; I-Component idic 2; D-Component iddc 4

1m Load line parallel (ca. 1 μ H)



1m Load line (ca. 2 μ H)



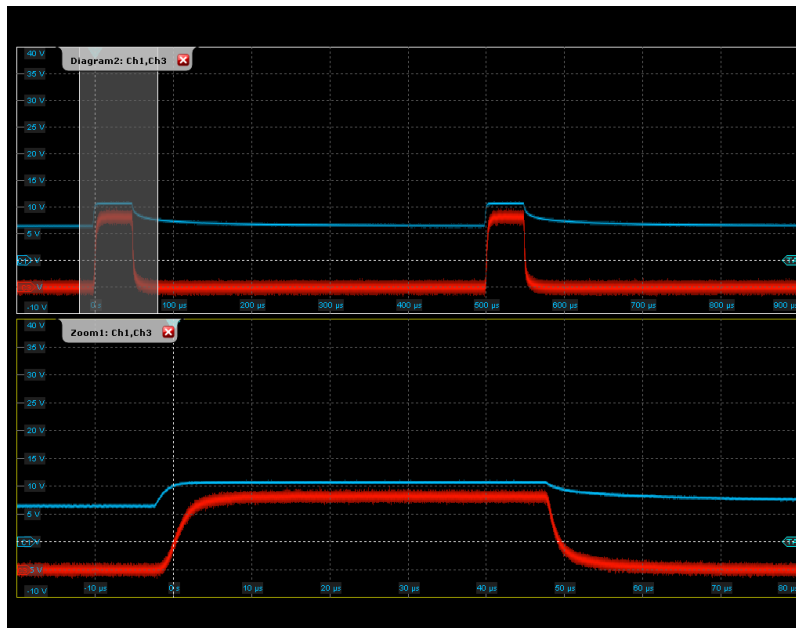
— Voltage 5V/div
— Current 200mA/div

Load Diodes in series

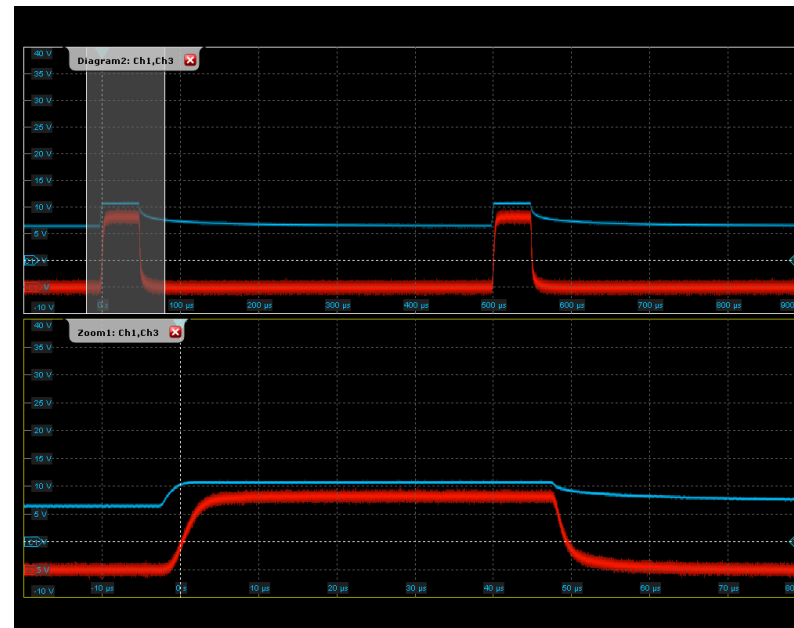
Action PWM Id+ fast; Pulse 50 μ s; Period 500 μ s; Current Id PWM off 1mA; Current PWM on 3A/1A/500mA

Amplitude 500mA; I-Component idic 2; D-Component iddc 2

1m Load line parallel (ca. 1 μ H)



1m Load line (ca. 2 μ H)



— Voltage 5V/div
— Current 200mA/div

Load Diodes in series

Action PWM Id+ fast; Pulse 50µs; Period 500µs; Current Id PWM off 0A; Current PWM on 3A/1A/500mA

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Messages

U Id P Um Is >Se >P >T >Vo

Temperatures

Temp 1 26 Temp 2 24

Step Voltage u, ui, uik, Step Current id, ii

Step Voltage is ☒ 1mA ☒ 100µA ☐ 10uA

Step Current is ☐ 1mA ☒ 100µA ☐ 10uA

Actual values

Voltage ui
0 mV
Average 30,0 ms
Filter 0

Current ii
0,0 mA
Average 30,0 ms
Filter 0

Power pi
0,000 W

☒ Clamp voltage uik
0 mV
☐ Free Channel uim
0 mV
Average 30,0 ms
Digital inputs 3

Set values

Voltage u 1
20000 mV
Readjust ☐ on ☒ off
I-Comp. 4
D-Comp. 0
Filter 1
Voltage uf 19999 mV

Current id 0,1
0,0 mA
Readjust ☐ on ☒ off
I-Comp. 2
D-Comp. 4
Current idf 0,0 mA

Power p
360,000 W

Voltage um
63000 mV

Current is
6000,0 mA

Output stage volt. ulin
25000 mV

Digital outputs
0

Shutdown
☐ on ☒ off

Sense lead
☐ on ☒ off

Sense volt. usen
3000 mV

Base load Igs
150 mA

Base load Igd
1 A

Output C
0

Output L
0

Trigger

Trigger 1
☒ off ☐ on
☐ on, action off
☐ single
☒ rising edge
☐ falling edge
☐ over level
☐ under level
Voltage ui 1000 mV
Current ii 100,0 mA
Channel uim 1000 mV
digital input 1
digital input 2
Stays 0,0 ms

Trigger 2
☒ off ☐ on
☐ on, action off
☐ single
☒ rising edge
☐ falling edge
☐ over level
☐ under level
Voltage ui 1000 mV
Current ii 100,0 mA
Channel uim 1000 mV
digital input 1
digital input 2
Stays 0,0 ms

Trigger 0
☒ off ☐ on
☐ single
☒ over level
☐ under level
Voltage ui 1000 mV
Current ii 100,0 mA
Channel uim 1000 mV
digital input 1
digital input 2
Stays 0,0 ms

Actions

PWM u
Start time 0,0 ms
Execution 10,0 ms
Periode 2,0 ms
Impuls 1,0 ms
Ris. time 0,0 ms
Fal. time 0,0 ms
Amplitude 1000 mV

PWM id
Start time 0,0 ms
Execution 10,0 ms
Periode 2,0 ms
Impuls 1,0 ms
Ris. time 0,0 ms
Fal. time 0,0 ms
Amplitude 100,0 mA

PWM digital output 1
Start time 0,0 ms
Execution 5,0 ms
Periode 0,5 ms
Impuls 0,2 ms

PWM digital output 2
Start time 0,0 ms
Execution 5,0 ms
Periode 0,5 ms
Impuls 0,2 ms

Sine function u
Start time 0,0 ms
Execution 10,0 ms
Periode 1,0 ms
Phase 0 °
Amplitude 1000 mV

Sine function id
Start time 0,0 ms
Execution 100,0 ms
Period 1,0 ms
Phase 0 °
Amplitude 100,0 mA

Setpoint at start of action
Voltage u 20000 mV
Current id 1,0 mA
Digit. Outputs 0

Setpoint at end of action
Voltage u 0 mV
Current id 0,0 mA
Digit. Outputs 0

Measure actual values
Start time 0,0 ms
End time 2,0 ms
Sample time 0,2 ms

Curve
Start point 0
End point 8
Times 1

Memory Curve / Memory Measure

Start action **Stop action**

Action Trigger 1 **Action Trigger 2**

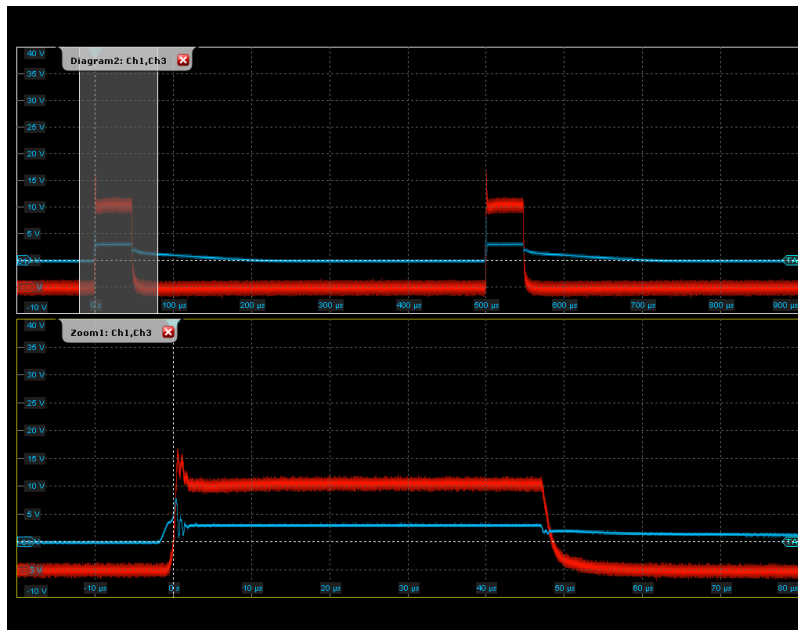
Close

Load Diodes in series

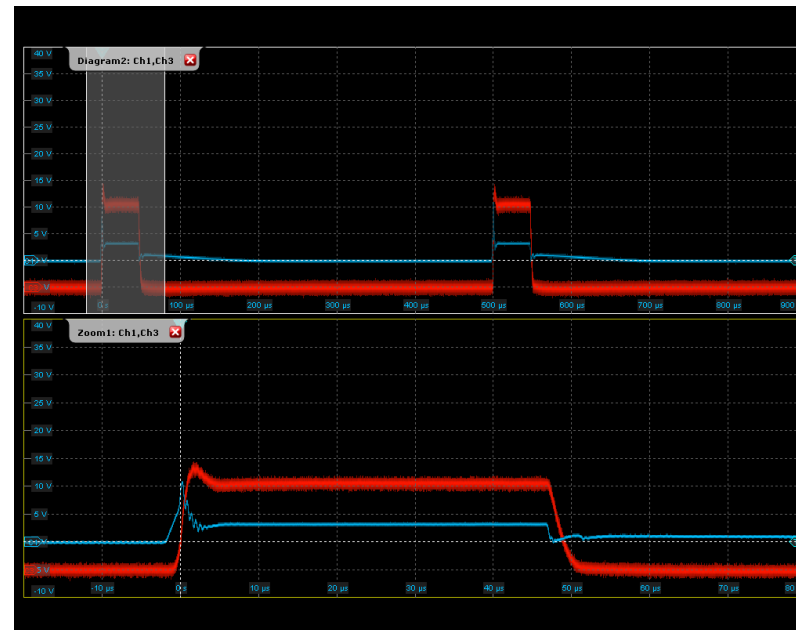
Action PWM Id+ fast; Pulse 50 μ s; Period 500 μ s; Current Id PWM off 0A; Current PWM on 3A/1A/500mA

Amplitude 3A; I-Component idic 6; D-Component iddc 4

1m Load line parallel (ca. 1 μ H)



1m Load line (ca. 2 μ H)



— Voltage 5V/div
— Current 1A/div

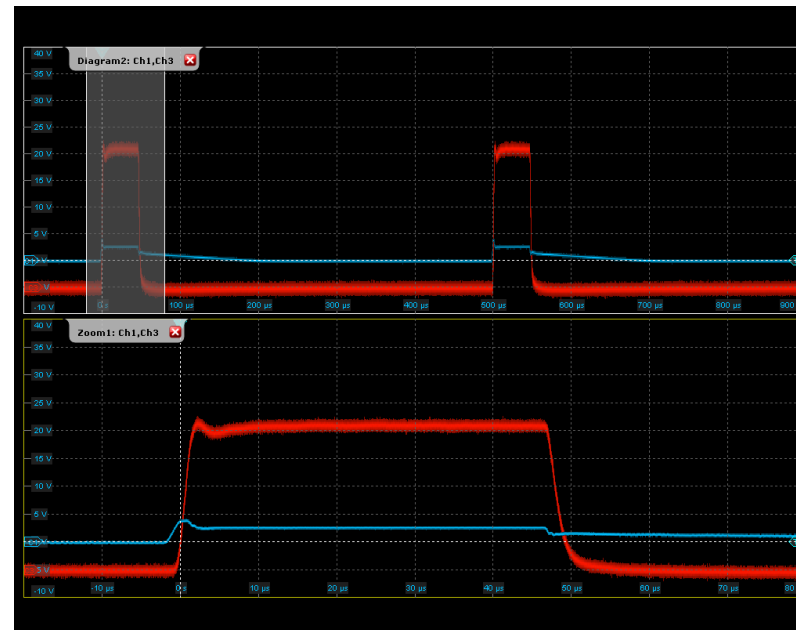
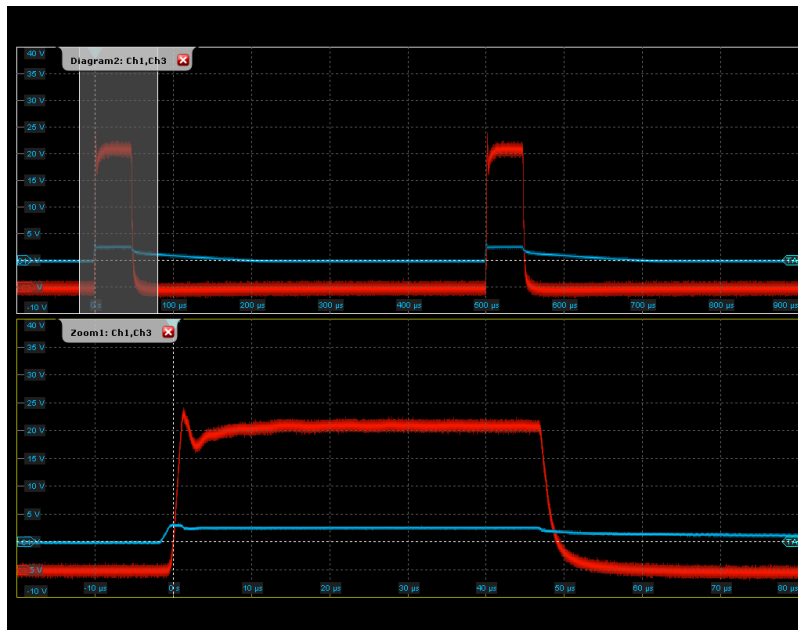
Load Diodes in series

Action PWM Id+ fast; Pulse 50 μ s; Period 500 μ s; Current Id PWM off 0A; Current PWM on 3A/1A/500mA

Amplitude 1A; Current Id 0A; I-Component idic 2; D-Component iddc 4

1m Load line parallel (ca. 1 μ H)

1m Load line (ca. 2 μ H)



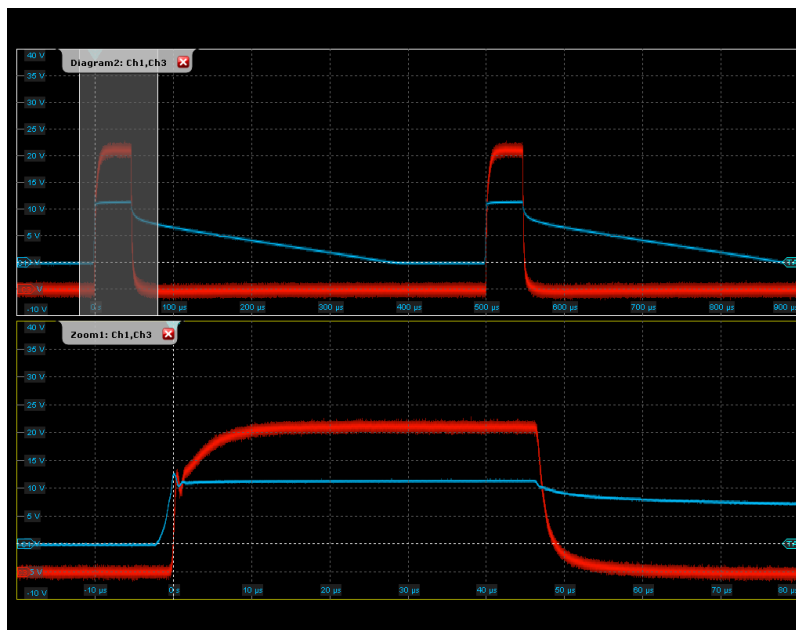
— Voltage 5V/div
— Current 200mA/div

Load Diodes in series

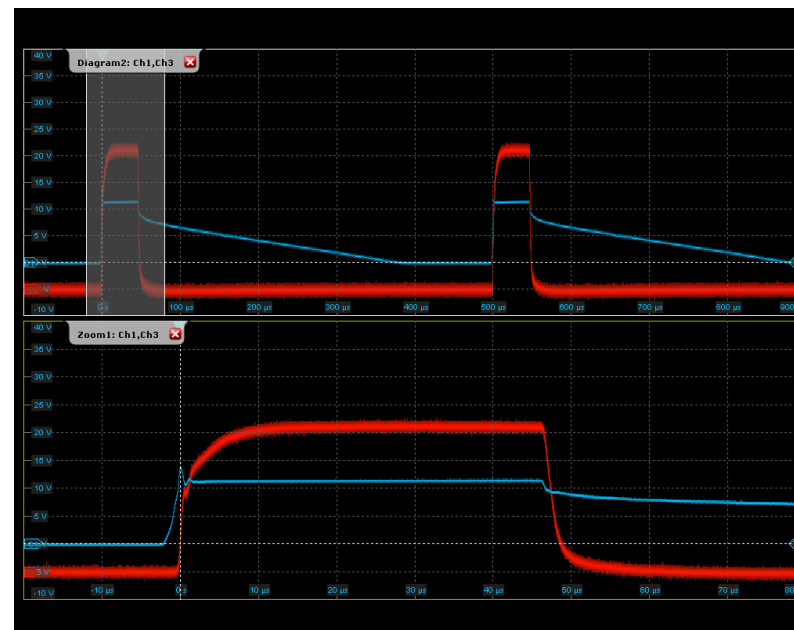
Action PWM Id+ fast; Pulse 50 μ s; Period 500 μ s; Current Id PWM off 0A; Current PWM on 3A/1A/500mA

Amplitude 1A; Current Id 0A; I-Component idic 2; D-Component iddc 2

1m Load line parallel (ca. 1 μ H)



1m Load line (ca. 2 μ H)



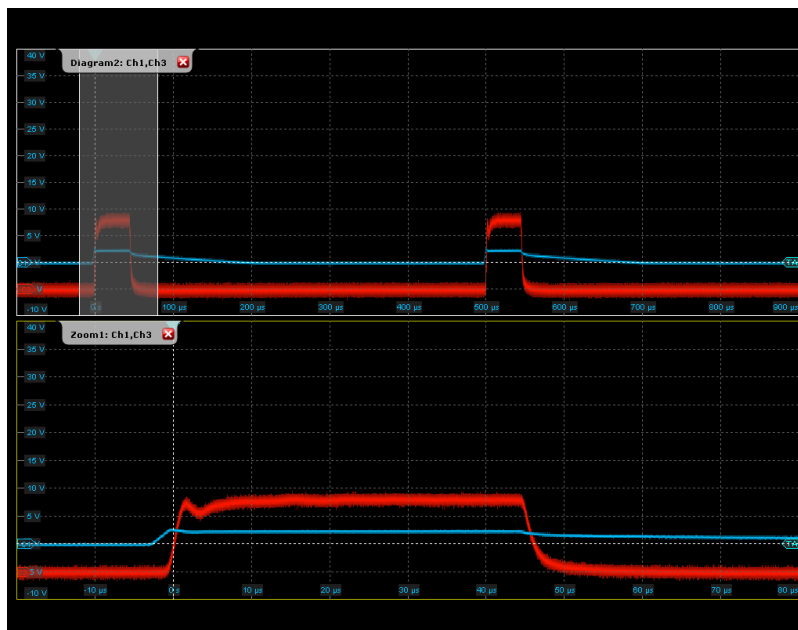
— Voltage 5V/div
— Current 200mA/div

Load Diodes in series

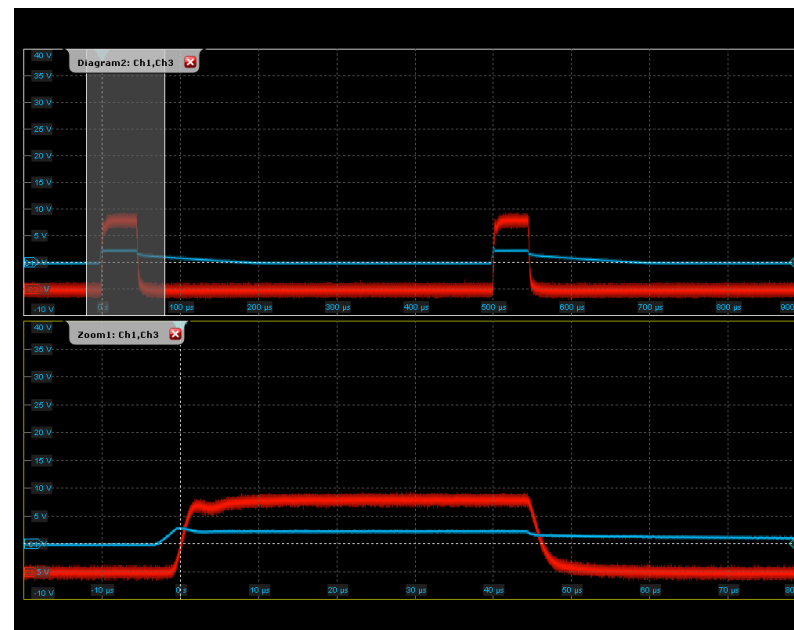
Action PWM Id+ fast; Pulse 50 μ s; Period 500 μ s; Current Id PWM off 0A; Current PWM on 3A/1A/500mA

PWM Id+ fast Pulse 50 μ s; I-Component idic 2; D-Component iddc 4

1m Load line parallel (ca. 1 μ H)



1m Load line (ca. 2 μ H)



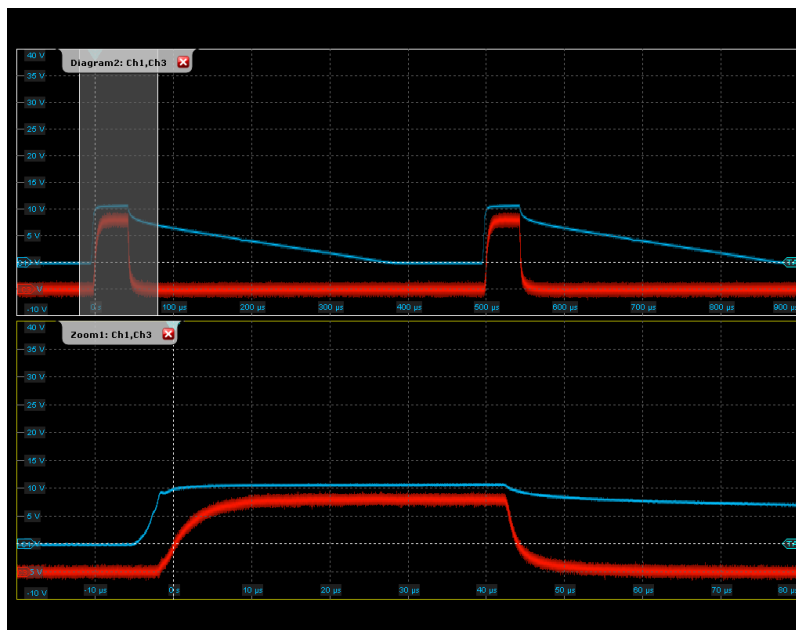
— Voltage 5V/div
— Current 200mA/div

Load Diodes in series

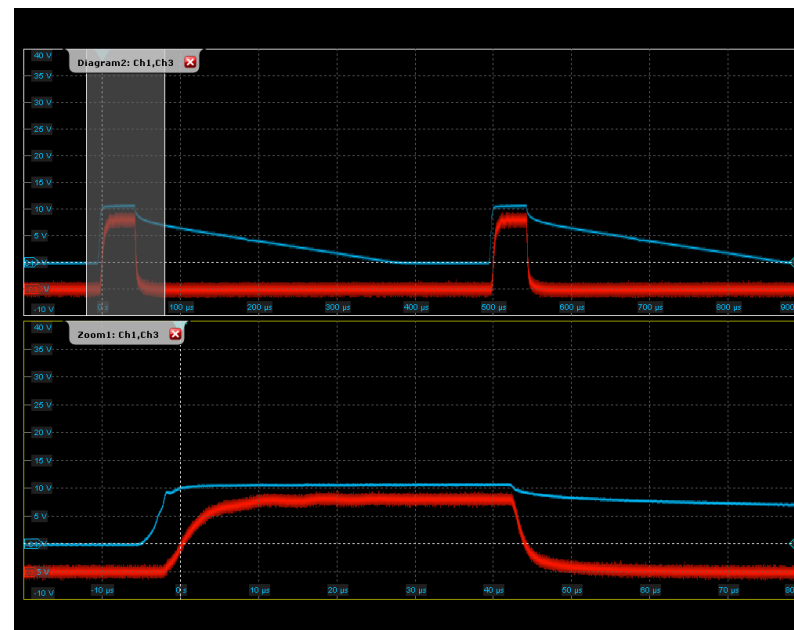
Action PWM Id+ fast; Pulse 50 μ s; Period 500 μ s; Current Id PWM off 0A; Current PWM on 3A/1A/500mA

PWM Id+ fast Pulse 50 μ s; I-Component idic 2; D-Component iddc 2

1m Load line parallel (ca. 1 μ H)



1m Load line (ca. 2 μ H)



— Voltage 5V/div
— Current 200mA/div

Load Diodes in series

Switch externally

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Messages

U Id P Um Is >Se >P >T >Vo

Temperatures

Temp 1 Temp 2

27 24

Step Voltage u, ui, uik, Step Current id, ii

Step Current is

1mA 100µA 1mA 100µA

1mV 100µV 10µA 10µA

Actual values

Voltage ui

30000 mV

Average 30,0 ms

Filter 0

Current ii

0,0 mA

Average 30,0 ms

Filter 0

Power pi

0,000 W

Clamp voltage uik

30010 mV

Free Channel uim

0 mV

Average 30,0 ms

Digital inputs 3

Set values

Voltage u

30000 mV

I-Comp. 4

D-Comp. 0

Filter 1

Readjust on off

Voltage uf

29999 mV

Current id

60,0 mA

I-Comp. 2

D-Comp. 8

Readjust on off

Current idf

59,9 mA

Power p

360,000 W

Voltage um

63000 mV

Current is

6000,0 mA

Output stage volt. ulin

35000 mV

Digital outputs

0

Output C

0

Output L

1

Shutdown

on off

Sense lead

on off

Sense volt. usen

3000 mV

Base load Igs

150 mA

Base load Igd

1 A

Trigger

Trigger 1

off on on, action off single rising edge falling edge over level under level

Voltage ui 1000 mV

Current ii 100,0 mA

Channel uim 1000 mV

digital input 1 digital input 2

Stays 0,0 ms

Trigger 2

off on on, action off single rising edge falling edge over level under level

Voltage ui 1000 mV

Current ii 100,0 mA

Channel uim 1000 mV

digital input 1 digital input 2

Stays 0,0 ms

Trigger 0

off on on, action off single over level under level

Voltage ui 1000 mV

Current ii 100,0 mA

Channel uim 1000 mV

digital input 1 digital input 2

Stays 0,0 ms

Actions

PWM u

Start time 0,0 ms

Execution 10,0 ms

Periode 2,0 ms

Impuls 1,0 ms

Ris. time 0,0 ms

Fal. time 0,0 ms

Amplitude 1000 mV

PWM id

Start time 0,0 ms

Execution 10,0 ms

Periode 2,0 ms

Impuls 1,0 ms

Ris. time 0,0 ms

Fal. time 0,0 ms

Amplitude 100,0 mA

PWM digital output 1

Start time 0,0 ms

Execution 5,0 ms

Periode 0,5 ms

Impuls 0,2 ms

PWM digital output 2

Start time 0,0 ms

Execution 5,0 ms

Periode 0,5 ms

Impuls 0,2 ms

Sine function u

Start time 0,0 ms

Execution 10,0 ms

Periode 1,0 ms

Phase 0°

Amplitude 1000 mV

Sine function id

Start time 0,0 ms

Execution 100,0 ms

Period 1,0 ms

Phase 0°

Amplitude 100,0 mA

Setpoint at start of action

Voltage u 2000 mV

Current id 200,0 mA

Digit. Outputs 0

Setpoint at end of action

Voltage u 0 mV

Current id 0,0 mA

Digit. Outputs 0

Measure actual values

Start time 0,0 ms

End time 2,0 ms

Sample time 0,2 ms

Curve

Start point 0

End point 8

Times 1

Memory Curve / Memory Measure

Start action Stop action

Action Trigger 1 Action Trigger 2

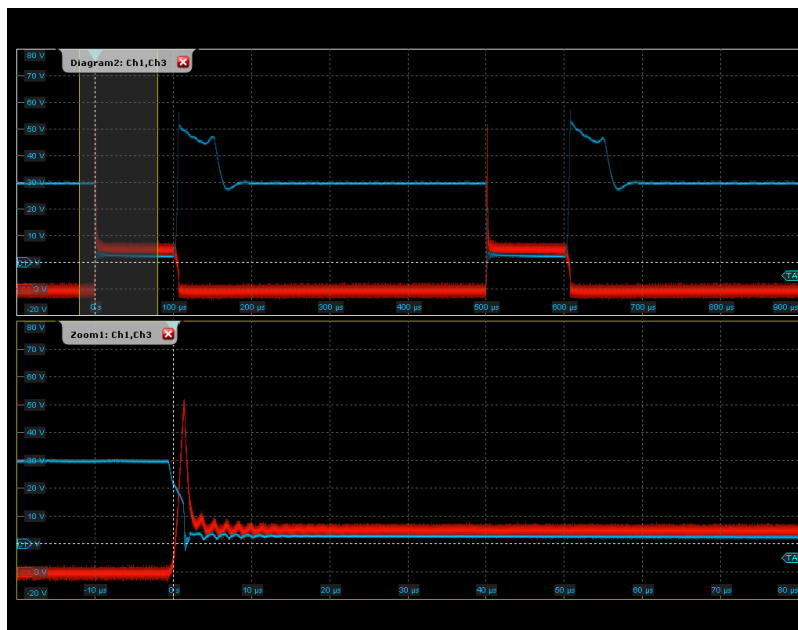
Close

Load Diodes in series

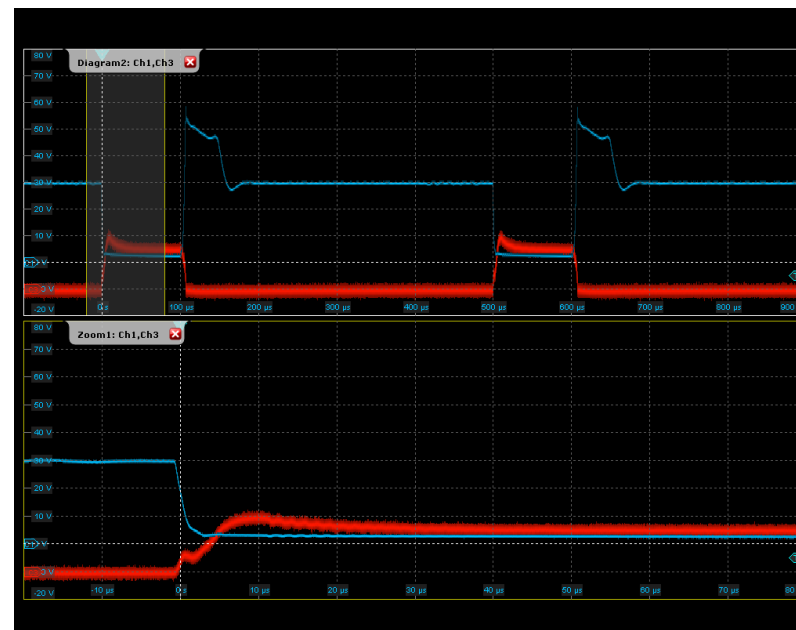
Switch externally

Current Id 3A; I-Component idic 6; D-Component iddc 0; 1m Load line parallel (ca. 1 μ H)

Output inductance erl 0



Output inductance erl 1



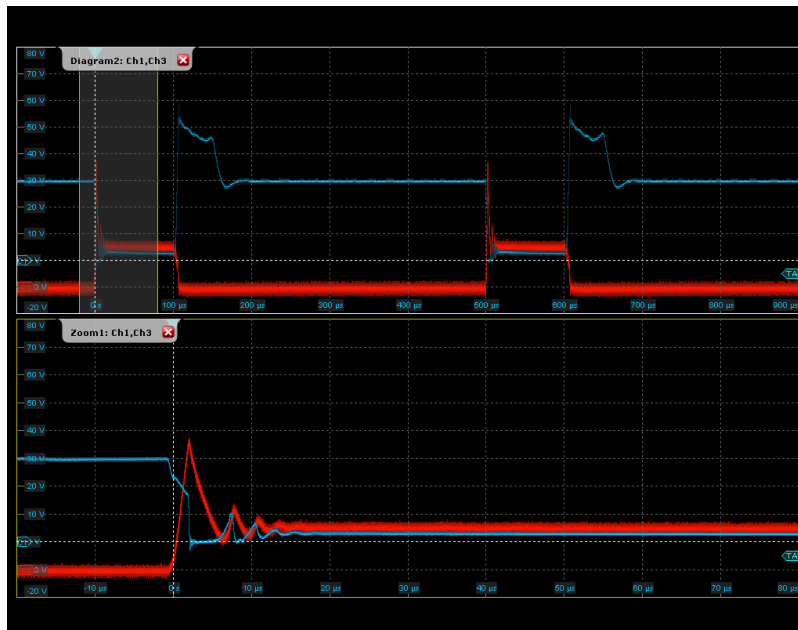
— Voltage 10V/div
— Current 2A/div

Load Diodes in series

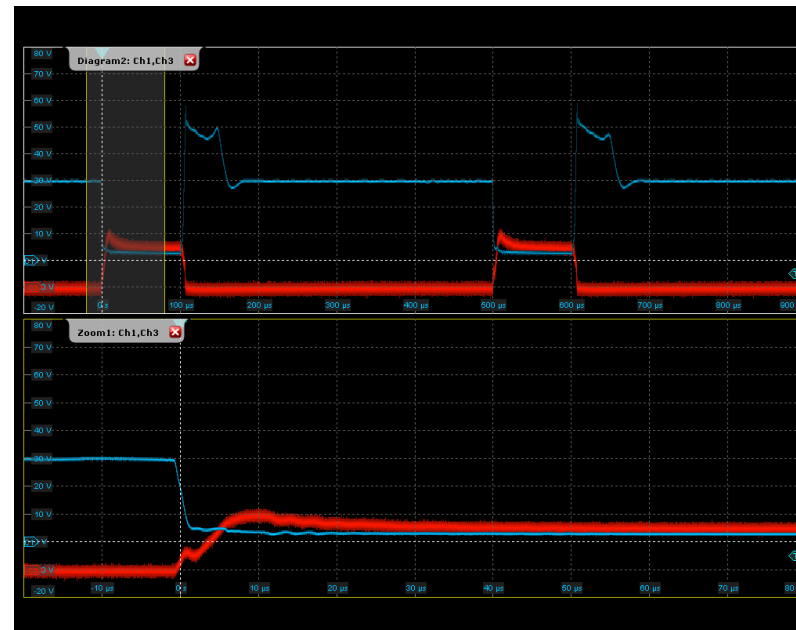
Switch externally

Current Id 3A; I-Component idic 6; 1m Load line (ca. 2μH)

D-Component iddc 0; Output inductance erl 0



D-Component iddc 8; Output inductance erl 1

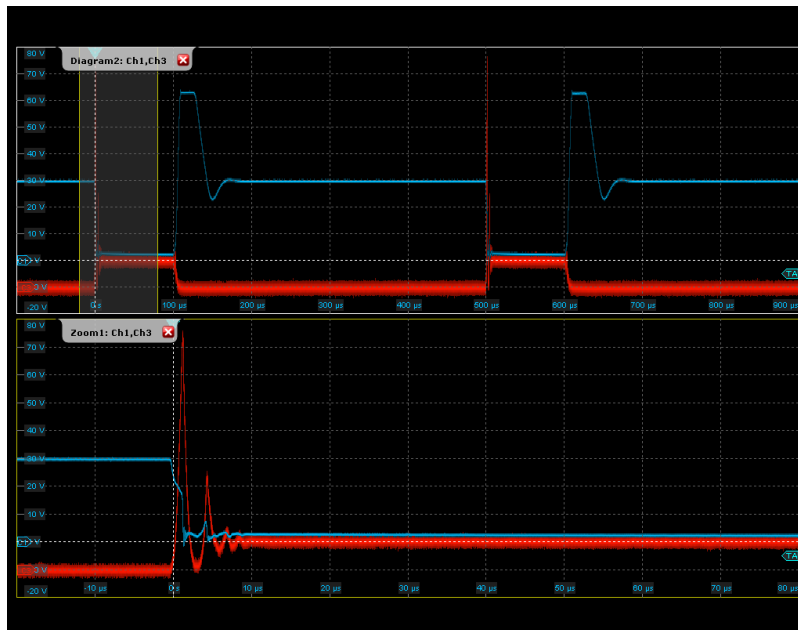


— Voltage 10V/div
— Current 2A/div

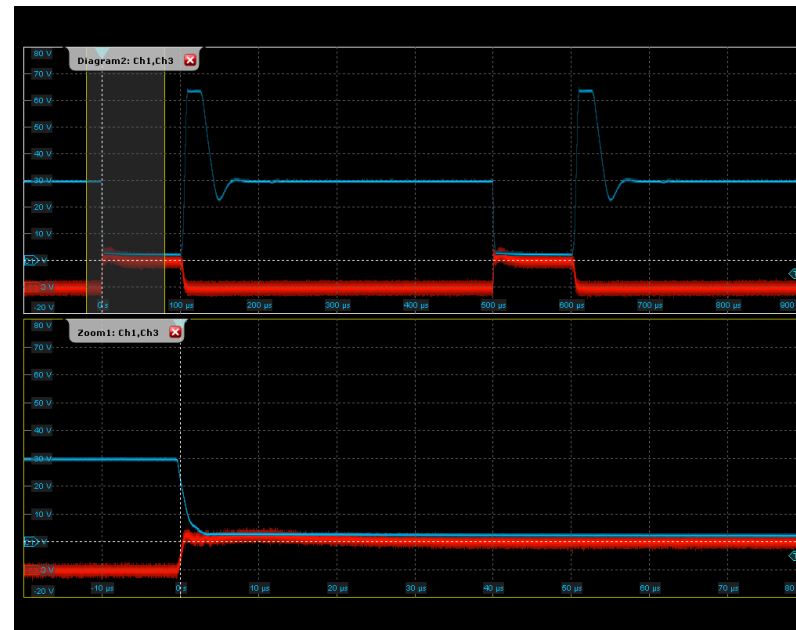
Load Diodes in series**Switch externally**

Current Id 1A; I-Component idic 2; 1m Load line parallel (ca. 1 μ H)

D-Component iddc 0; Output inductance erl 0



D-Component iddc 8; Output inductance erl 1



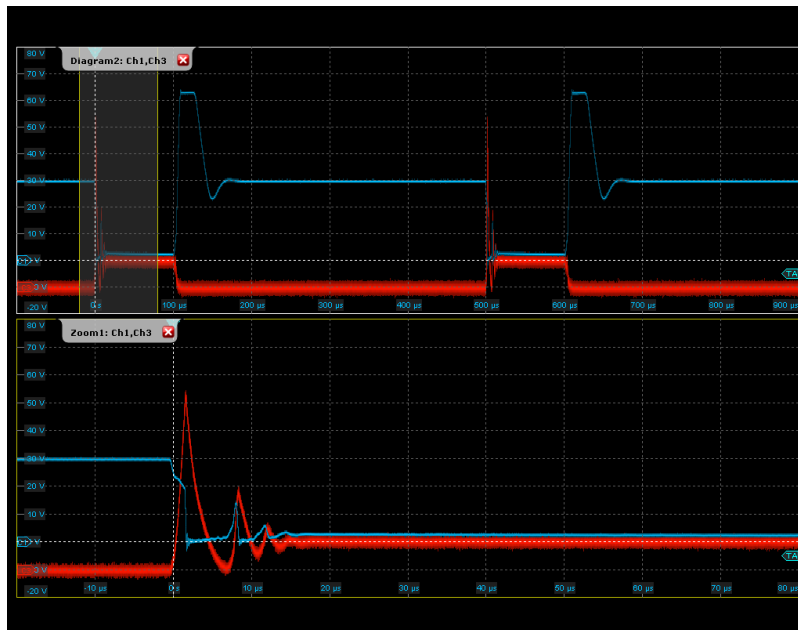
— Voltage 10V/div
— Current 1A/div

Load Diodes in series

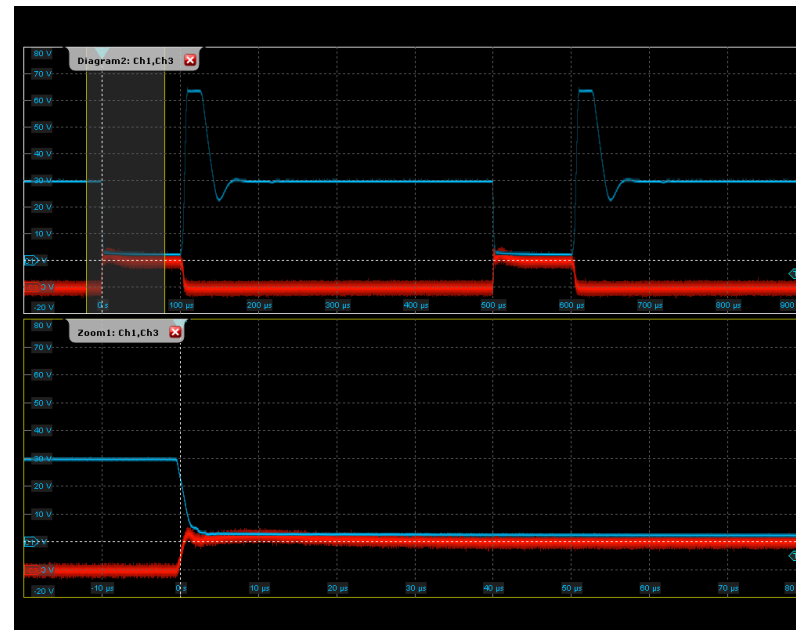
Switch externally

Current Id 1A; I-Component idic 2; 1m Load line (ca. 2μH)

D-Component iddc 0; Output inductance erl 0



D-Component iddc 8; Output inductance erl 1



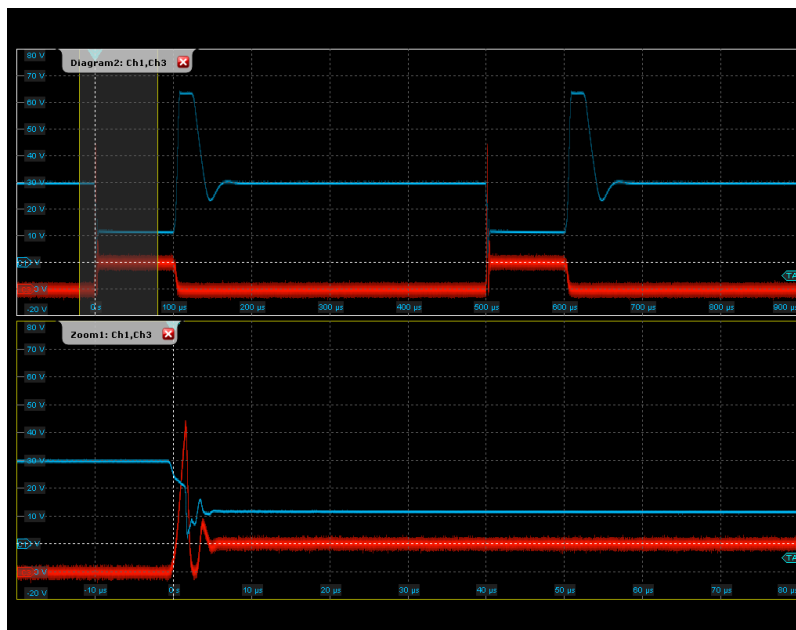
— Voltage 10V/div
— Current 1A/div

Load Diodes in series

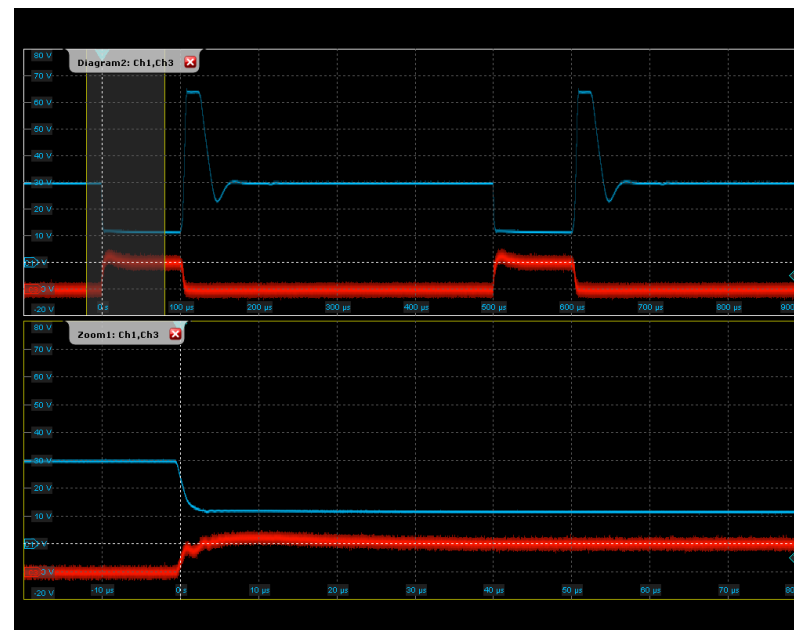
Switch externally

Current Id 1A; I-Component idic 2; 1m Load line parallel (ca. 1 μ H)

D-Component iddc 0; Output inductance erl 0



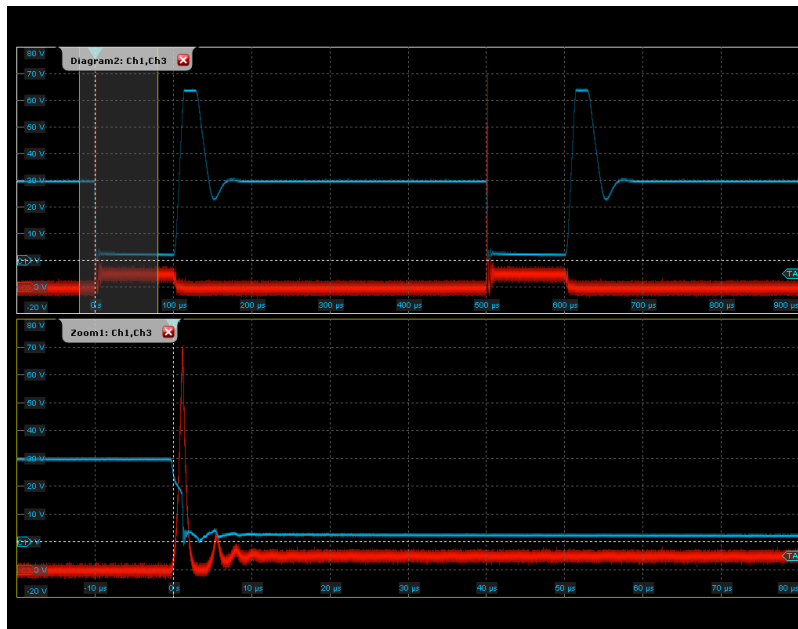
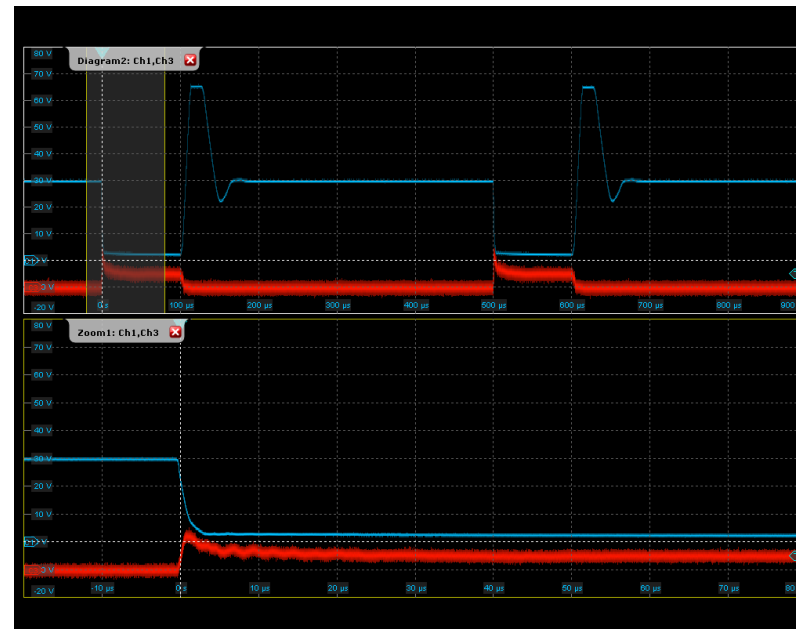
D-Component iddc 8; Output inductance erl 1



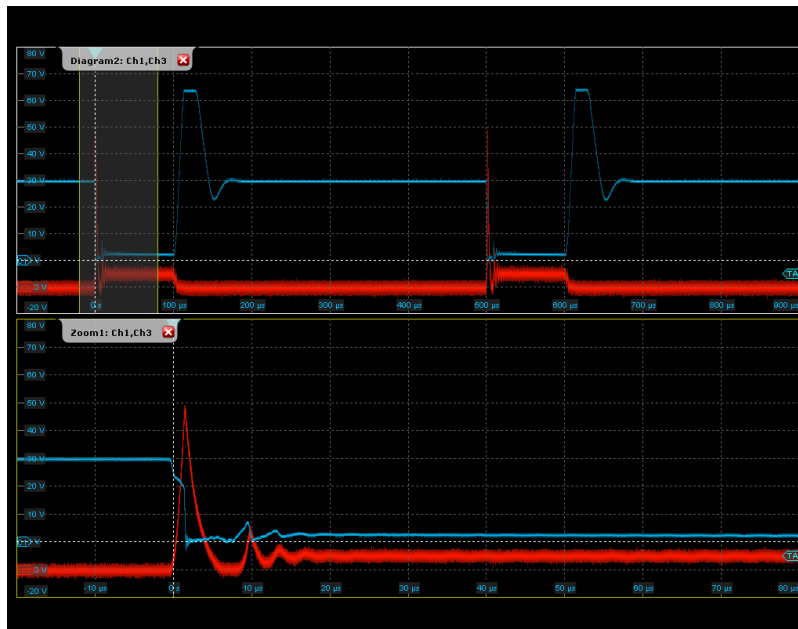
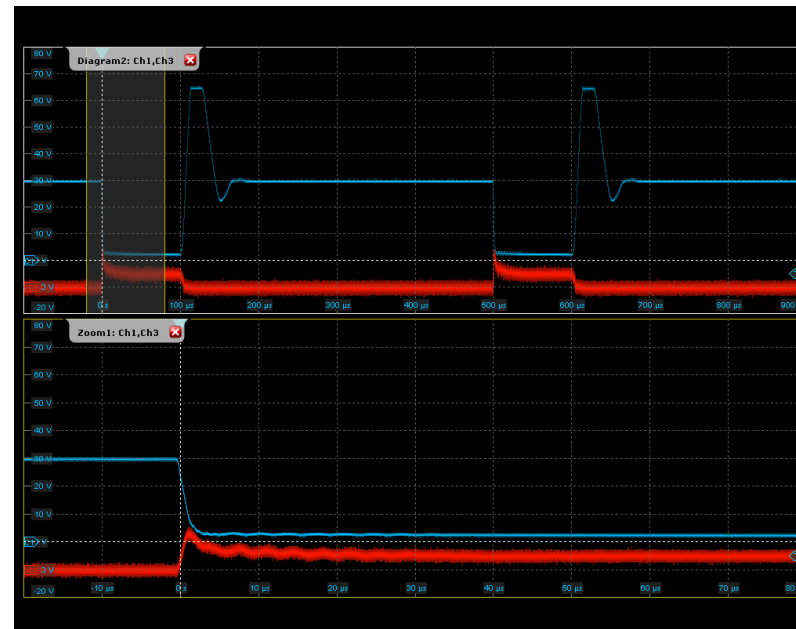
— Voltage 10V/div
 — Current 1A/div

Load Diodes in series

Switch externally

Current I_d 500mA; I-Component i_{dic} 2; 1m Load line parallel (ca. $1\mu\text{H}$)D-Component i_{ddc} 0; Output inductance erl 0D-Component i_{ddc} 8; Output inductance erl 1

— Voltage 10V/div
— Current 1A/div

Load Diodes in series**Switch externally****Current Id 500mA; I-Component idic 2; 1m Load line (ca. 2 μ H)****D-Component iddc 0; Output inductance erl 0****D-Component iddc 8; Output inductance erl 1**

— Voltage 10V/div
— Current 1A/div

Load Diodes in series

Switch externally; Sinus Id fast 800 μ s; Amplitude 100mA

Control software Power Devices - Johanna Jäger Elektronik

Messages

U Id P Um Is >Se >P >T >Vo

Temperatures

Temp 1 28 Temp 2 24

Step Voltage u, ui, uik, Step Current id, ii

Step Voltage u, ui, uik, Step Current id, ii

Step Current is

1mA 100 μ A 100 μ A 10uA

Actual values

Voltage ui 30001 mV

Average 30,0 ms

Filter 0

Current ii 0,0 mA

Average 30,0 ms

Filter 0

Power pi 0,000 W

Clamp voltage uik 30010 mV

Free Channel uim

0 mV

Average 30,0 ms

Digital inputs 3

Set values

Voltage u 30000 mV

I-Comp. 4

D-Comp. 0

Filter 1

Readjust on off

Voltage uf 29999 mV

Current id 1000,0 mA

I-Comp. 2

D-Comp. 8

Readjust on off

Current idf 999,9 mA

Power p 360,000 W

Shutdown on off

Voltage um 63000 mV

Sense lead on off

Current is 6000,0 mA

Sense volt. usen 3000 mV

Output stage volt. ulin 35000 mV

Base load Igs 150 mA

Digital outputs 0

Base load Igd 1 A

Output C 0

Output L 1

Trigger

Trigger 1

off on on, action off single rising edge falling edge over level under level

Voltage ui 1000 mV

Current ii 100,0 mA

Channel uim 1000 mV

digital input 1 digital input 2

Stays 0,0 ms

Trigger 2

off on on, action off single rising edge falling edge over level under level

Voltage ui 1000 mV

Current ii 100,0 mA

Channel uim 1000 mV

digital input 1 digital input 2

Stays 0,0 ms

Trigger 0

off on on, action off single over level under level

Voltage ui 1000 mV

Current ii 100,0 mA

Channel uim 1000 mV

digital input 1 digital input 2

Stays 0,0 ms

Actions

PWM u

Start time 0,0 ms

Execution 10,0 ms

Periode 2,0 ms

Impuls 1,0 ms

Ris. time 0,0 ms

Fal. time 0,0 ms

Amplitude 1000 mV

PWM id

Start time 0,0 ms

Execution 10,0 ms

Periode 2,0 ms

Impuls 1,0 ms

Ris. time 0,0 ms

Fal. time 0,0 ms

Amplitude 100,0 mA

PWM digital output 1

Start time 0,0 ms

Execution 5,0 ms

Periode 0,5 ms

Impuls 0,2 ms

PWM digital output 2

Start time 0,0 ms

Execution 5,0 ms

Periode 0,5 ms

Impuls 0,2 ms

Sine function u

Start time 0,0 ms

Execution 10,0 ms

Periode 1,0 ms

Phase 0°

Amplitude 1000 mV

Sine function id

Start time 0,0 ms

Execution 100,0 ms

Period 1,0 ms

Phase 0°

Amplitude 100,0 mA

Setpoint at start of action

Voltage u 2000 mV

Current id 200,0 mA

Digit. Outputs 0

Setpoint at end of action

Voltage u 0 mV

Current id 0,0 mA

Digit. Outputs 0

Measure actual values

Start time 0,0 ms

End time 2,0 ms

Sample time 0,2 ms

Curve

Start point 0

End point 8

Times 1

Memory Curve / Memory Measure

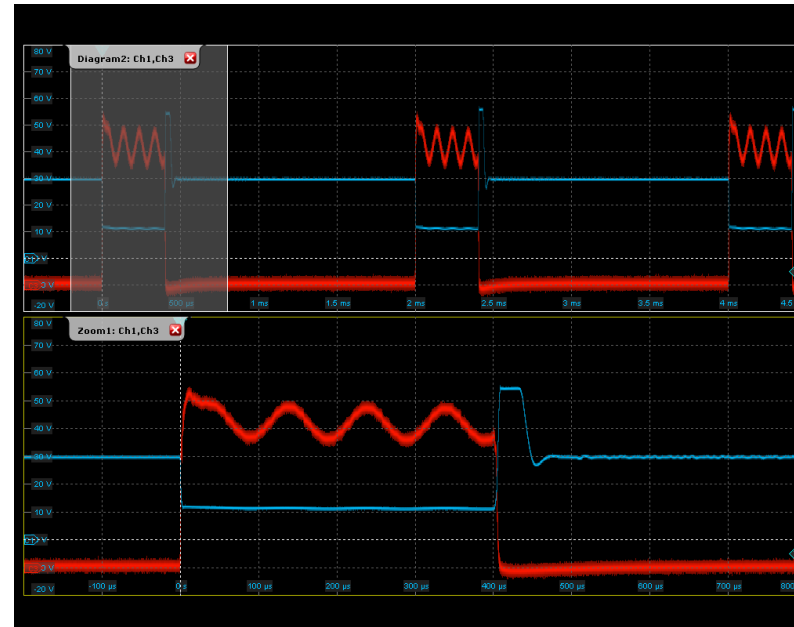
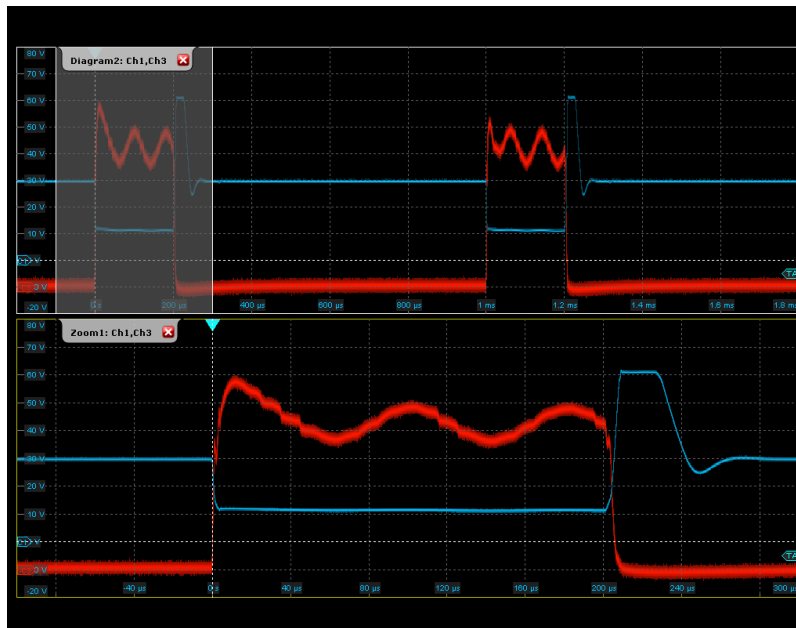
Start action Stop action

Action Trigger 1 Action Trigger 2

Close

Load Diodes in series

Switch externally; Sinus I_d fast 800 μ s; Amplitude 100mA; 1m Load line parallel (ca. 1 μ H)



— Voltage 10V/div
— Current 200mA/div

Load resistance, Line resistance between output and sense point

Switch externally

Bediensoftware Netzgeräte - Johanna Jäger Elektronik

Meldungen
☒ U ☐ Id ☐ P ☐ Um ☐ Is ☐ >Se ☐ >P ☐ >T ☐ >Vo

Temperaturen
 Temp 1: 29 Temp 2: 22

Step Spannung u, ui, ulk, uim
☒ 1mV ☐ 100µV

Step Strom id, ii
☐ 1mA ☒ 100µA ☐ 10µA

Step Strom is
☐ 1mA ☒ 100µA ☐ 10µA

Aktionen

PWM u
 Startzeit: 0,0 ms
 Ausführzeit: 10,0 ms
 Periode: 2,0 ms
 Impuls: 1,0 ms
 steig. Flanke: 0,0 ms
 fall. Flanke: 0,0 ms
 Amplitude: 1000 mV

PWM id
 Startzeit: 0,0 ms
 Ausführzeit: 10,0 ms
 Periode: 2,0 ms
 Impuls: 1,0 ms
 steig. Flanke: 0,0 ms
 fall. Flanke: 0,0 ms
 Amplitude: 100,0 mA

PWM dig. Ausgang 1
 Startzeit: 0,0 ms
 Ausführzeit: 5,0 ms
 Periode: 0,5 ms
 Impuls: 0,2 ms

PWM dig. Ausgang 2
 Startzeit: 0,0 ms
 Ausführzeit: 5,0 ms
 Periode: 0,5 ms
 Impuls: 0,2 ms

Sinusfunktion u
 Startzeit: 0,0 ms
 Ausführzeit: 10,0 ms
 Periode: 1,0 ms
 Phase: 0 °
 Amplitude: 1000 mV

Sollwert bei Aktionsstart
 Spannung u: 2000 mV
 Strom id: 200,0 mA
 digit. Ausgänge: 0

Istwerte messen
 Startzeit: 0,0 ms
 Ausführzeit: 2,0 ms
 Abtastzeit: 0,2 ms

☐ Kurve u
☐ Kurve id
☐ Kurve do
☐ Kurve Sinus u
☐ Kurve messen
☐ Rampe u
☐ Rampe id
☐ PWM u +/-
☐ PWM id +/-
☐ PWM do1
☐ PWM do2
☐ Sinus u
☐ Sinus id
☐ Aktionsstart u
☐ Aktionsstart id
☐ Aktionsstart do
☐ Aktionsende u
☐ Aktionsende id
☐ Aktionsende do
☐ Istwerte messen
☐ PWM U +
☐ PWM Id +
☐ PWM Id fast +
☐ PWM Id fast +
☐ Sinus u fast
☐ Sinus id fast
☐ Ist messen fast

 Aktion: ■ ■ ■
 Trigger 1: ■ Trigger 2: ■
 Aktion starten: Aktion starten Aktion stoppen: Aktion stoppen
 Aktion Trigger 1: Aktion Trigger 1 Aktion Trigger 2: Aktion Trigger 2
Istwerte
 Spannung ui: 6000 mV
 Mittelwert: 30,0 ms
 Filter: 0
 Strom ii: 0,0 mA
 Mittelwert: 30,0 ms
 Filter: 0
 Leistung pi: 0,000 W
☒ Klemmspannung uik: 6001 mV
☐ Messkanal uim: 0 mV
 Mittelwert: 30,0 ms
 digitale Eingänge: 3

Sollwerte
 Spannung u: 6000 mV
 I-Komp.: 2
 D-Komp.: 0
 Filter: 1
 Nachreg.: ☐ an ☒ aus
 Spannung uf: 5999 mV
 Strom id: 6000,0 mA
 I-Komp.: 4
 D-Komp.: 0
 Nachreg.: ☐ an ☒ aus
 Strom idf: 6000,0 mA
 Leistung p: 360,000 W
 Shutdown: ☐ an ☒ aus
 Klemmspannung um: 63000 mV
 Senseleitung: ☒ an ☐ aus
 Strom is: 6000,0 mA
 Sensespg usen: 3000 mV
 Endstufenspg ulin: 35000 mV
 Grundlaststrom igs: 150 mA
 Grundlaststrom igd: 1 A
 dig. Ausgänge: 0
 Ausgang C erc: 0
 Ausgang L erl: 0

Trigger
Trigger 1
☒ aus ☐ an ☐ an, Aktion aus ☐ einmal
☒ steig. Flanke ☐ fall. Flanke ☐ über Schwelle ☐ unter Schwelle
☒ Spannung ui: 1000 mV
☐ Strom ii: 100,0 mA
☐ Messkanal uim: 1000 mV
 Haltezeit: 0,0 ms
Trigger 2
☒ aus ☐ an ☐ an, Aktion aus ☐ einmal
☒ steig. Flanke ☐ fall. Flanke ☐ über Schwelle ☐ unter Schwelle
☒ Spannung ui: 1000 mV
☐ Strom ii: 100,0 mA
☐ Messkanal uim: 1000 mV
 Haltezeit: 0,0 ms
Trigger 0
☒ aus ☐ an ☐ einmal
☒ über Schwelle ☐ unter Schwelle
☒ Spannung ui: 1000 mV
☐ Strom ii: 100,0 mA
☐ Messkanal uim: 1000 mV
 Haltezeit: 0,0 ms

PWM u fast
 Startzeit: 0,0 ms
 Ausführzeit: 2,0 ms
 Periode: 0,25 ms
 Impuls: 0,10 ms
 Amplitude: 1000 mV

PWM id fast
 Startzeit: 0,0 ms
 Ausführzeit: 2,0 ms
 Periode: 0,50 ms
 Impuls: 0,05 ms
 Amplitude: 100,0 mA

Sinusfunktion u fast
 Startzeit: 0,0 ms
 Ausführzeit: 2,0 ms
 Periode: 0,50 ms
 Amplitude: 1000 mV

Sinusfunktion id fast
 Startzeit: 0,0 ms
 Ausführzeit: 2,0 ms
 Periode: 0,50 ms
 Amplitude: 100,0 mA

Istwerte messen fast
 Startzeit: 0,0 ms
 Ausführzeit: 2,0 ms
 Abtastzeit: 0,01 ms

Speicher Kurve / Speicher Messen

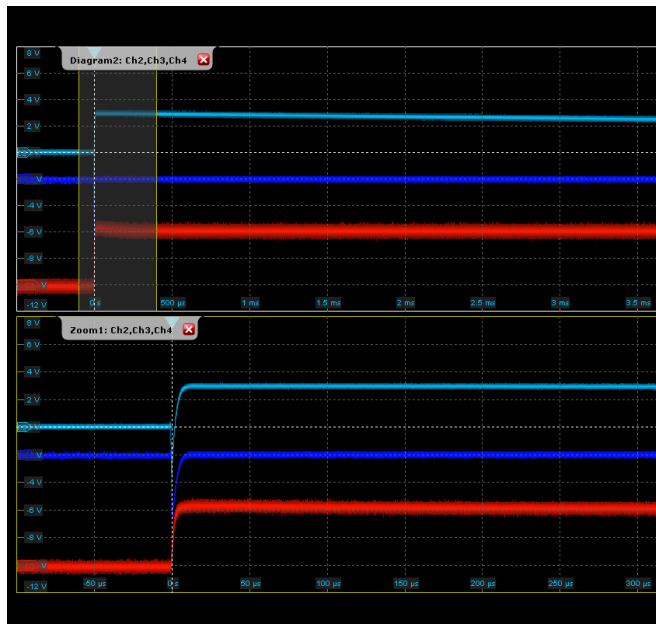
Beenden

Load resistance, Line resistance between output and sense point

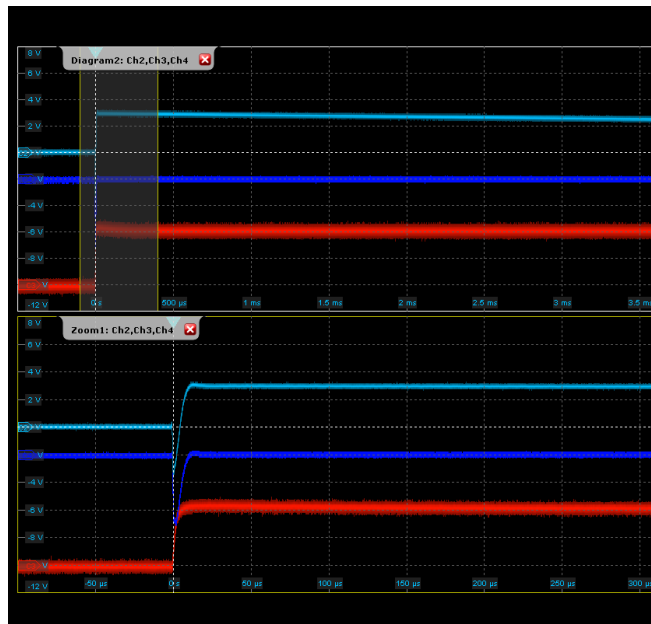
Switch externally

Voltage U 50V; Voltage Ulin 55V; Sense on

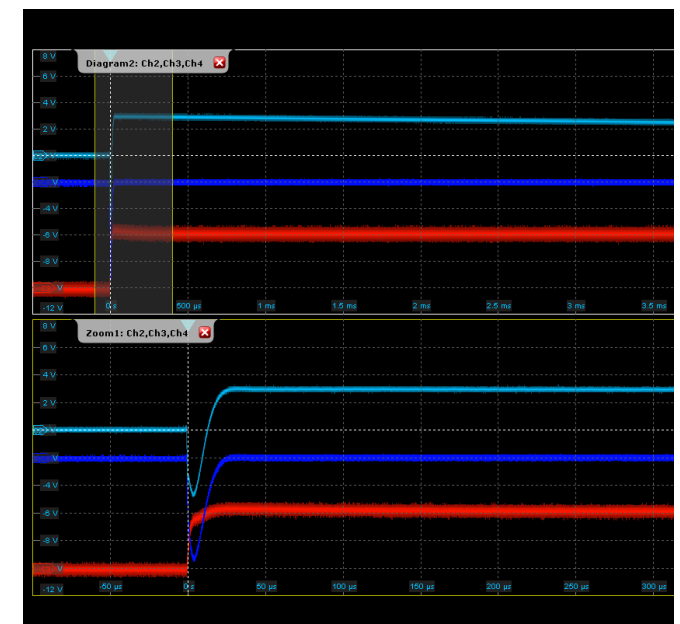
I-Component uic 1



I-Component uic 2



I-Component uic 4



- Voltage Output AC 2V/div
- Voltage Sense point AC 2V/div
- Current 1A/div

Load resistance, Line resistance between output and sense point

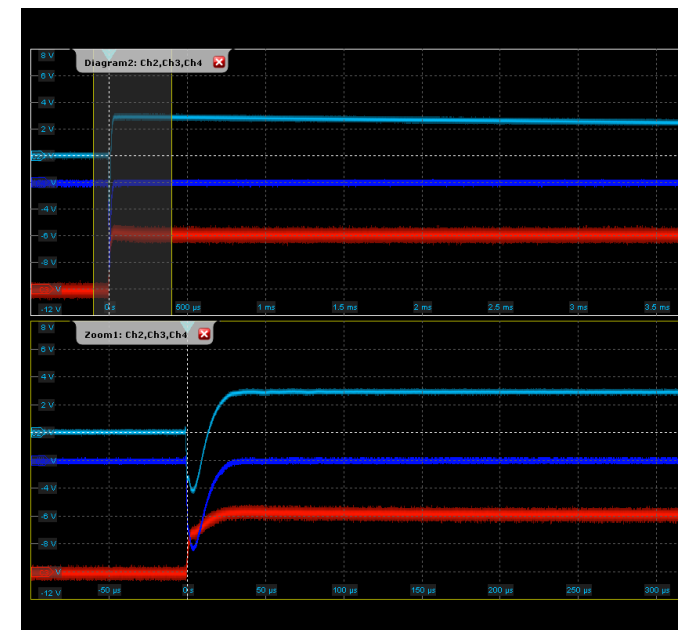
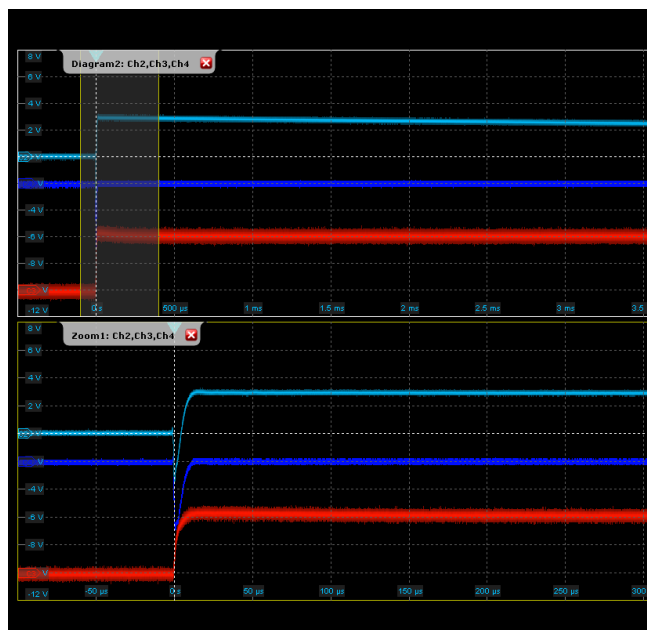
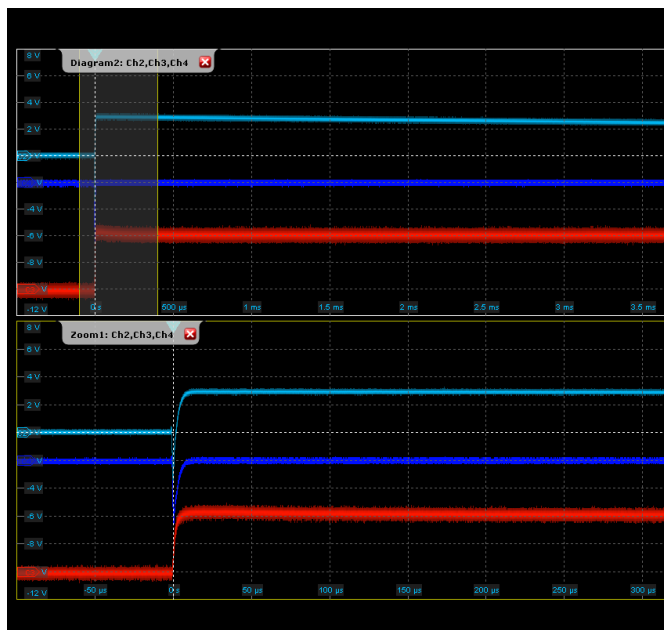
Switch externally

Voltage U 20V; Voltage U_{lin} 40V; Sense on

I-Component uic 1

I-Component uic 2

I-Component uic 4



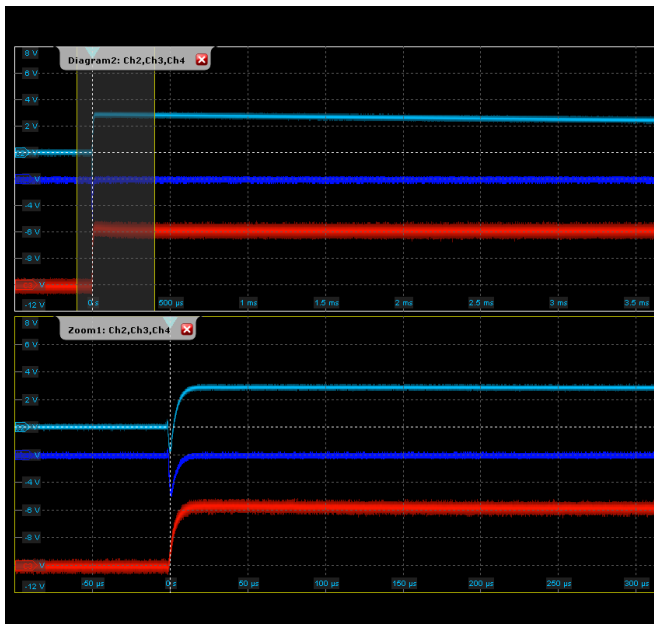
— Voltage Output AC 2V/div
 — Voltage Sense point AC 2V/div
 — Current 1A/div

Load resistance, Line resistance between output and sense point

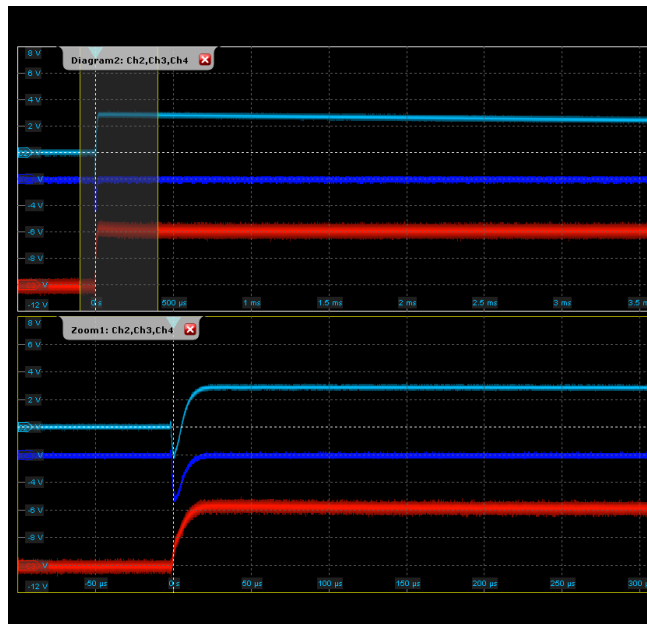
Switch externally

Voltage U 6V; Voltage U_{lin} 35V; Sense on

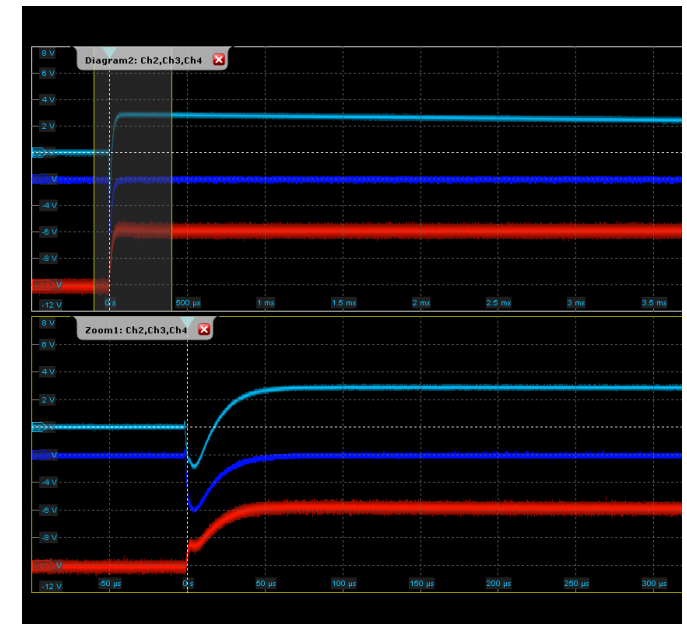
I-Component uic 1



I-Component uic 2



I-Component uic 4

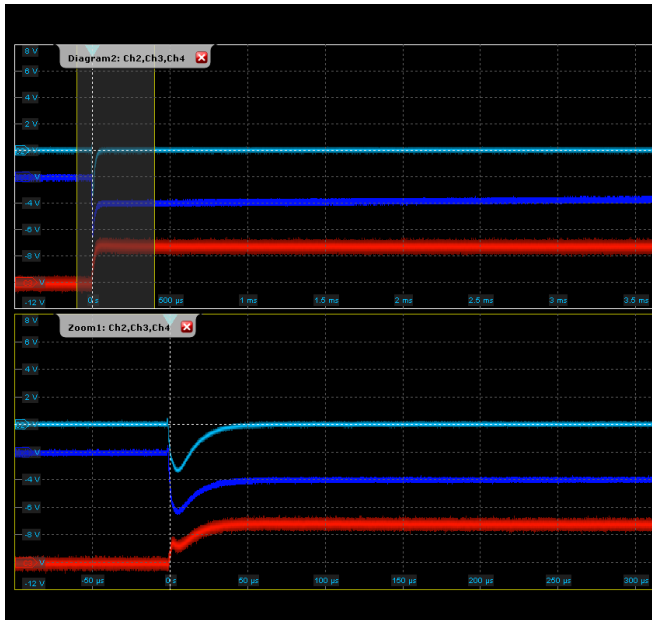


- Voltage Output AC 2V/div
- Voltage Sense point AC 2V/div
- Current 1A/div

Load resistance, Line resistance between output and sense point

Switch externally

Voltage U 6V; Voltage U_{lin} 35V; Sense off; I-Component uic 4



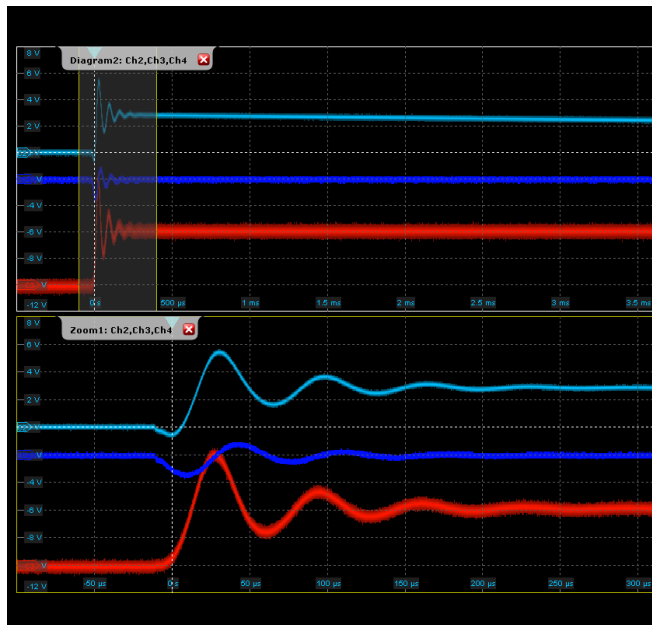
- Voltage Output AC 2V/div
- Voltage Sense point AC 2V/div
- Current 1A/div

Load resistance parallel capacitor 10 μ F, Line resistance between output and sense point

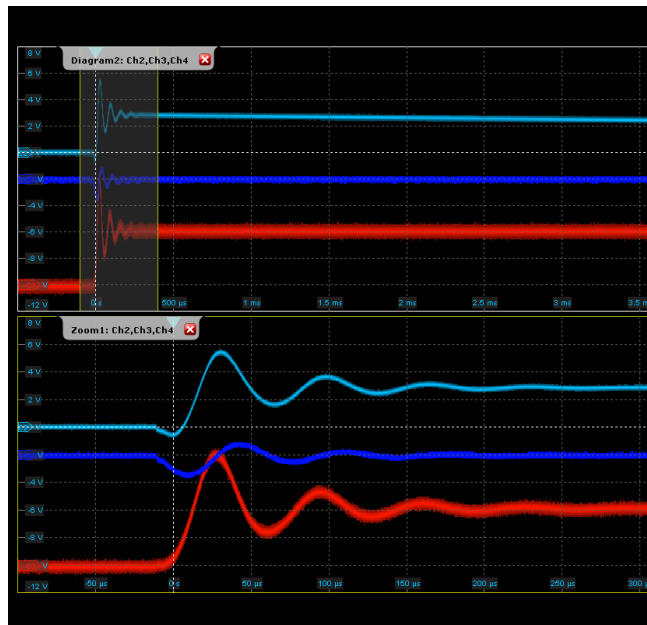
Switch externally

Voltage U 6V; Voltage U_{lin} 35V; Sense on

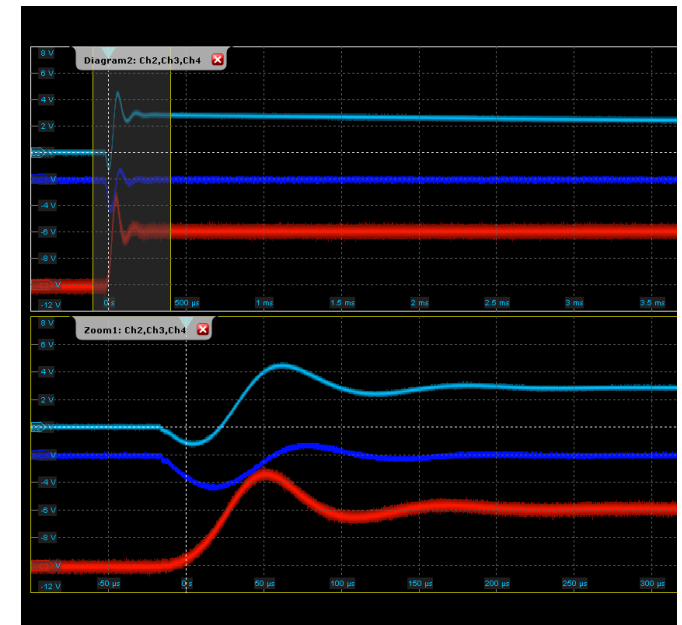
I-Component uic 1



I-Component uic 2



I-Component uic 4



- Voltage Output AC 2V/div
- Voltage Sense point AC 2V/div
- Current 1A/div

Load Resistance / Resistance parallel Capacitor / Resistance in series with Inductance

Switch externally

Control software Power Devices - Johanna Jäger Elektronik

Messages

U Id P Um Is >Se >P >T >Vo

Temperatures

Temp 1 Temp 2

28 24

Step Voltage u, ui, uik, Step Current id, ii

1mA 100µA 100µA 100µA

1mV 100µV 100µA 100µA

Step Current is

1mA 100µA 100µA 100µA

10µA

Actual values

Voltage ui

6000 mV

Average 30,0 ms

Filter 0

Current ii

0,0 mA

Average 30,0 ms

Filter 0

Power pi

0,000 W

☒ Clamp voltage uik

6000 mV

☐ Free Channel uim

0 mV

Average 30,0 ms

Digital inputs 3

Set values

Voltage u

6000 mV

I-Comp. 2

D-Comp. 0

Filter 1

Readjust ☐ on ☒ off

Voltage uf

5999 mV

Current id

0,1

6000,0 mA

I-Comp. 4

D-Comp. 0

Readjust ☐ on ☒ off

Current idf

6000,0 mA

Power p

360,000 W

Shutdown

☐ on ☒ off

Voltage um

63000 mV

Sense lead

☒ on ☐ off

Current is

6000,0 mA

Sense volt. usen

3000 mV

Output stage volt. ulin

35000 mV

Base load igs

150 mA

Base load igd

1 A

Digital outputs

0

Output C

0

Output L

0

Trigger

Trigger 1

☒ off ☐ on

☒ Voltage ui

1000 mV

☐ Current ii

100,0 mA

☐ Channel uim

1000 mV

☐ digital input 1

☐ digital input 2

☒ rising edge

☐ falling edge

☐ over level

☐ under level

Stays

0,0 ms

Trigger 2

☒ off ☐ on

☒ Voltage ui

1000 mV

☐ Current ii

100,0 mA

☐ Channel uim

1000 mV

☐ digital input 1

☐ digital input 2

☒ rising edge

☐ falling edge

☐ over level

☐ under level

Stays

0,0 ms

Trigger 0

☒ off ☐ on

☒ Voltage ui

1000 mV

☐ Current ii

100,0 mA

☐ Channel uim

1000 mV

☐ digital input 1

☐ digital input 2

☒ over level

☐ under level

Stays

0,0 ms

PWM u fast

Start time 0,0 ms

Execution 2,0 ms

Periode 0,25 ms

Impuls 0,10 ms

Amplitude 1000 mV

PWM id fast

Start time 0,0 ms

Execution 2,0 ms

Periode 0,50 ms

Impuls 0,05 ms

Amplitude 100,0 mA

Sine function u fast

Start time 0,0 ms

Execution 2,0 ms

Period 0,50 ms

Amplitude 1000 mV

Sine function id fast

Start time 0,0 ms

Execution 2,0 ms

Period 0,50 ms

Amplitude 100,0 mA

Measure actual values fast

Start time 0,0 ms

End time 2,0 ms

Sample time 0,01 ms

Actions

PWM u

Start time 0,0 ms

Execution 10,0 ms

Periode 2,0 ms

Impuls 1,0 ms

Ris. time 0,0 ms

Fal. time 0,0 ms

Amplitude 1000 mV

PWM id

Start time 0,0 ms

Execution 10,0 ms

Periode 2,0 ms

Impuls 1,0 ms

Ris. time 0,0 ms

Fal. time 0,0 ms

Amplitude 100,0 mA

PWM digital output 1

Start time 0,0 ms

Execution 5,0 ms

Periode 0,5 ms

Impuls 0,2 ms

PWM digital output 2

Start time 0,0 ms

Execution 5,0 ms

Periode 0,5 ms

Impuls 0,2 ms

Sine function u

Start time 0,0 ms

Execution 10,0 ms

Periode 1,0 ms

Phase 0 °

Amplitude 1000 mV

Sine function id

Start time 0,0 ms

Execution 100,0 ms

Period 1,0 ms

Phase 0 °

Amplitude 100,0 mA

Setpoint at start of action

Voltage u 2000 mV

Current id 200,0 mA

Digit. Outputs 0

Setpoint at end of action

Voltage u 0 mV

Current id 0,0 mA

Digit. Outputs 0

Measure actual values

Start time 0,0 ms

End time 2,0 ms

Sample time 0,2 ms

Curve

Start point 0

End point 8

Times 1

Memory Curve / Memory Measure

☐ Curve u

☐ Curve id

☐ Curve do

☐ Curve su

☐ Curve measure

☐ Ramp u

☐ Ramp id

☐ PWM u +/-

☐ PWM id +/-

☐ PWM do1

☐ PWM do2

☐ Sinus u

☐ Sinus id

☐ Set u at start

☐ Set id at start

☐ Set do at start

☐ Set u at end

☐ Set id at end

☐ Set do at end

☐ Measure steps

☐ PWM U +

☐ PWM Id +

☐ PWM U fast +/-

☐ PWM Id fast +/-

☐ PWM U fast +

☐ PWM Id fast +

☐ Sinus u fast

☐ Sinus id fast

☐ Measure steps fast

Action Trigger 1 Trigger 2

Start action Stop action

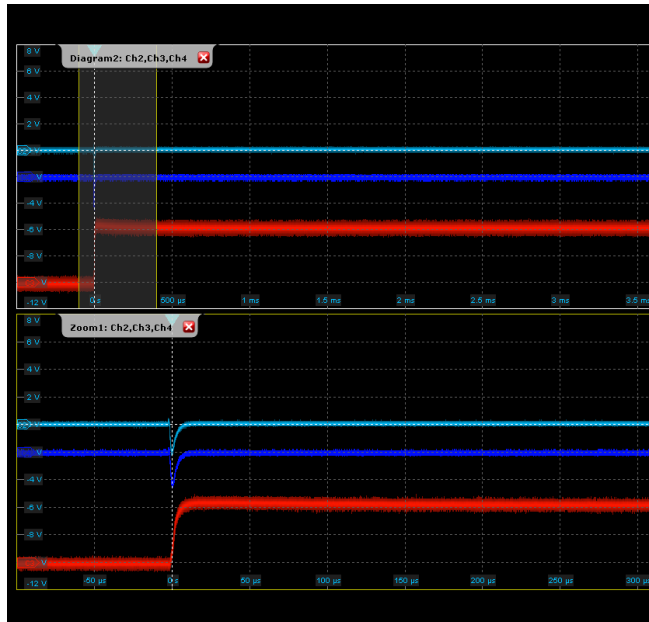
Action Trigger 1 Action Trigger 2

Close

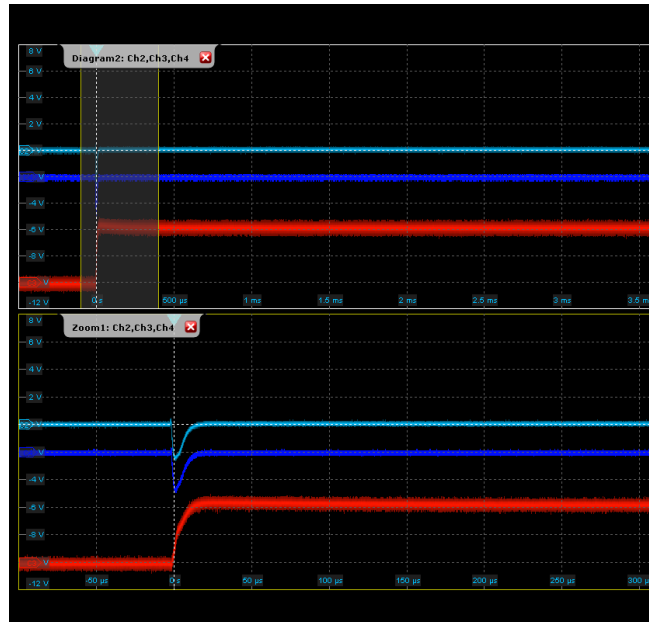
Load Resistance

Switch externally

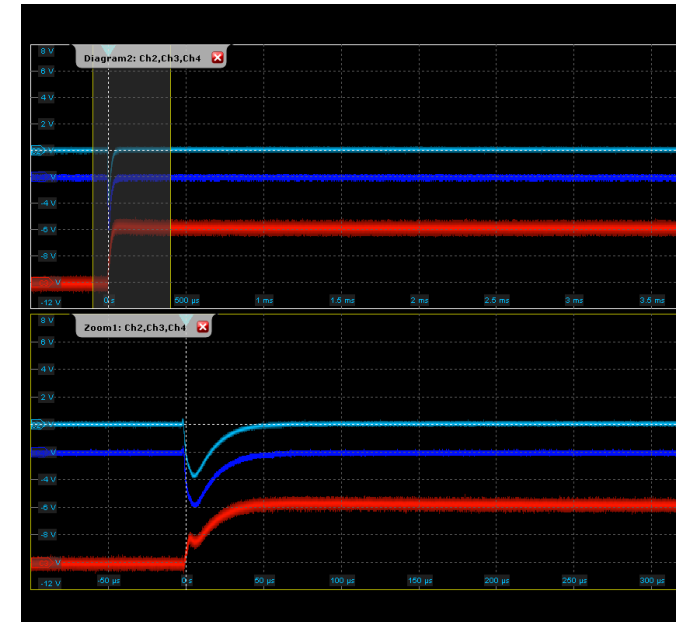
I-Component uic 1



I-Component uic 2



I-Component uic 4

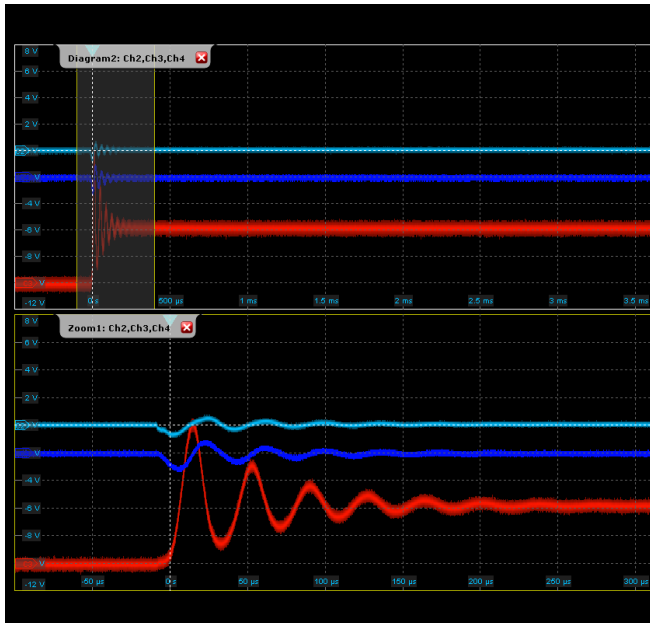


- Voltage Output AC 2V/div
- Voltage Sense point AC 2V/div
- Current 1A/div

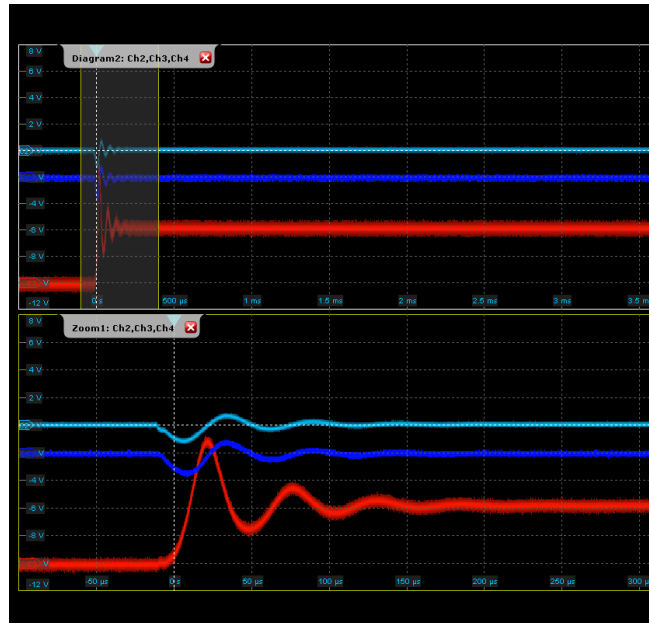
Load resistor parallel capacitor $10\mu\text{F}$

Switch externally

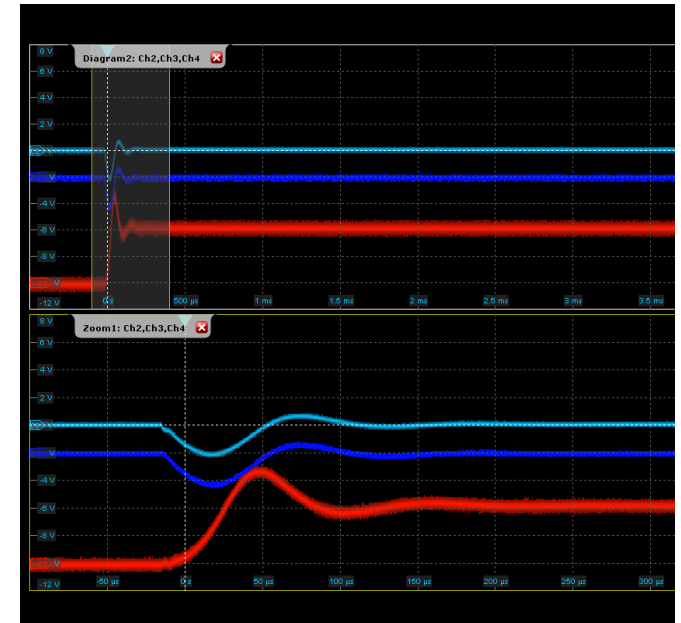
I-Component uic 1



I-Component uic 2



I-Component uic 4

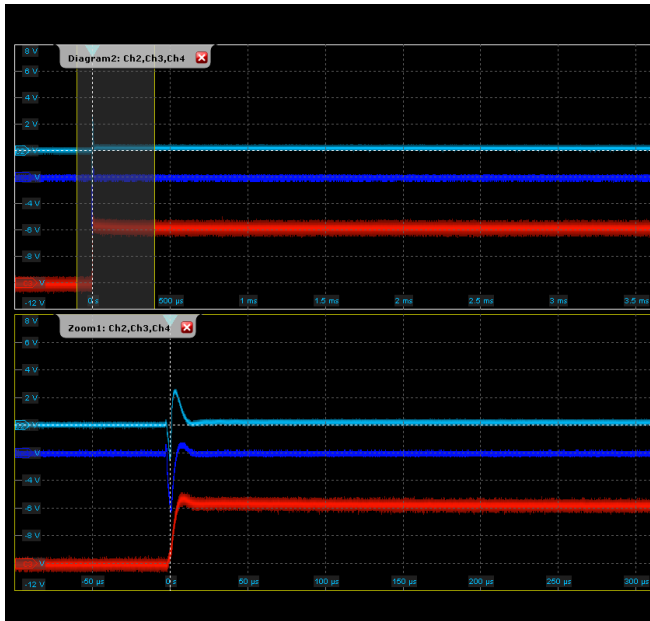


- Voltage Output AC 2V/div
- Voltage Sense point AC 2V/div
- Current 1A/div

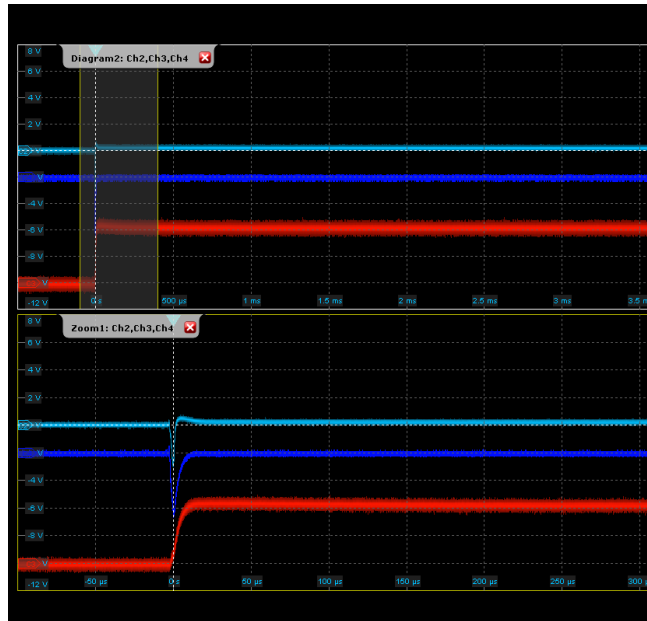
Load resistance in series with induction $8\mu\text{H}$

Switch externally

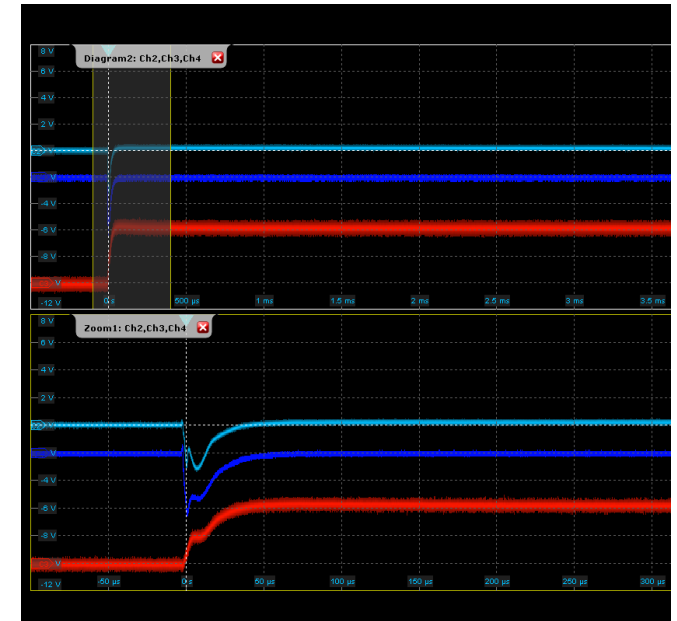
I-Component uic 1



I-Component uic 2



I-Component uic 4

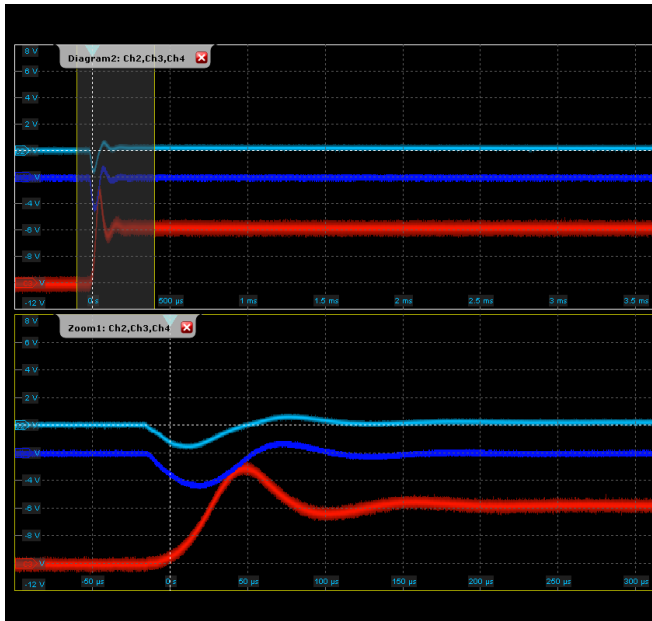


- Voltage Output AC 2V/div
- Voltage Sense point AC 2V/div
- Current 1A/div

Load resistor parallel capacitor $10\mu\text{F}$ in series with induction $8\mu\text{H}$

Switch externally

I-Component uic 4

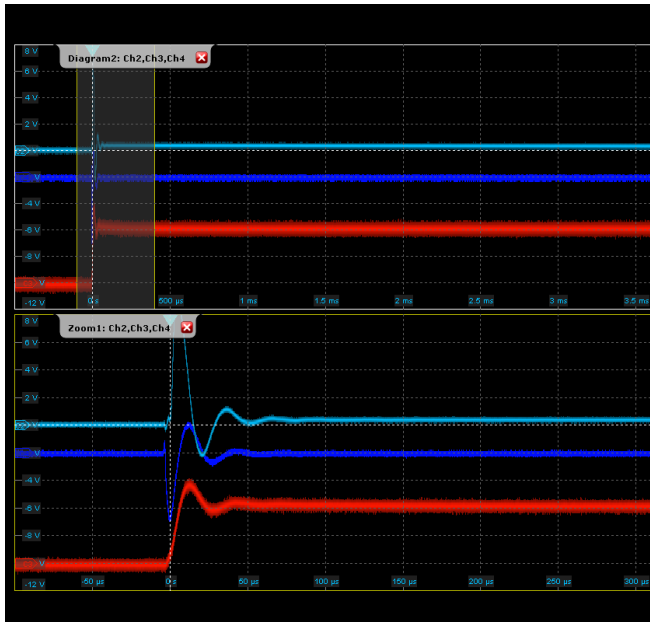


- Voltage Output AC 2V/div
- Voltage Sense point AC 2V/div
- Current 1A/div

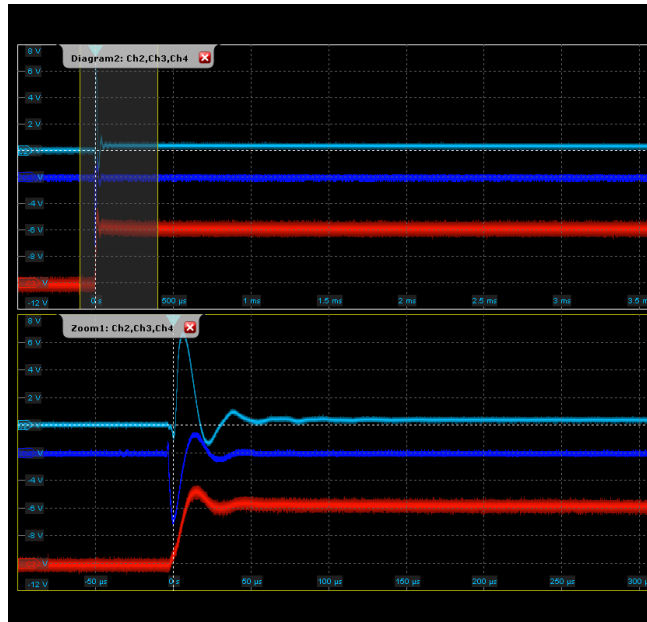
Load resistance in series with induction $31\mu\text{H}$

Switch externally

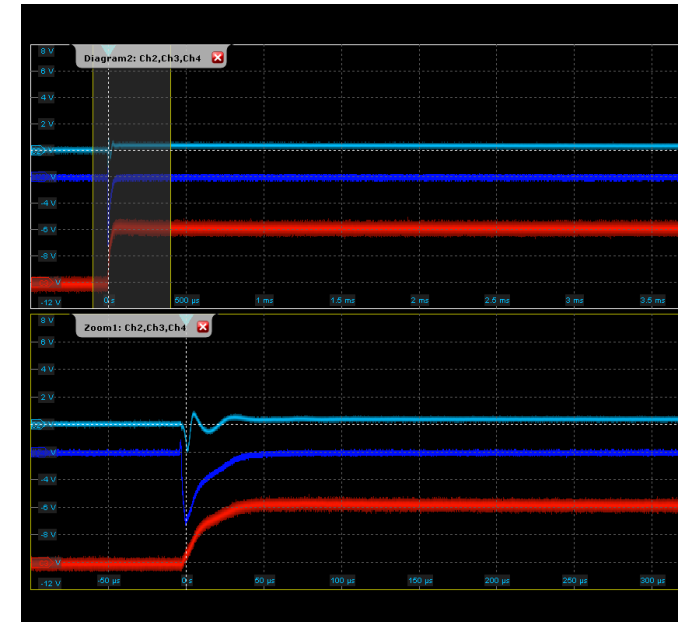
I-Component uic 1



I-Component uic 2



I-Component uic 4

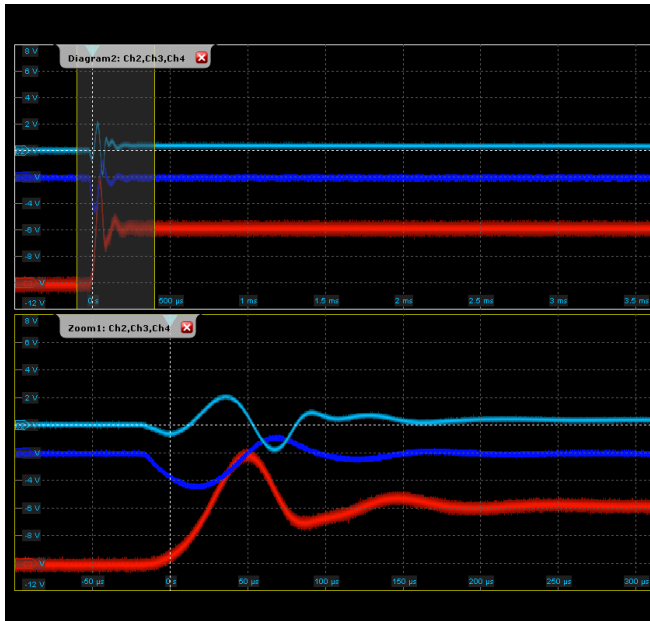


— Voltage Output AC 2V/div
 — Voltage Sense point AC 2V/div
 — Current 1A/div

Load resistor parallel capacitor $10\mu\text{F}$ in series with induction $31\mu\text{H}$

Switch externally

I-Component uic 4



- Voltage Output AC 2V/div
- Voltage Sense point AC 2V/div
- Current 1A/div