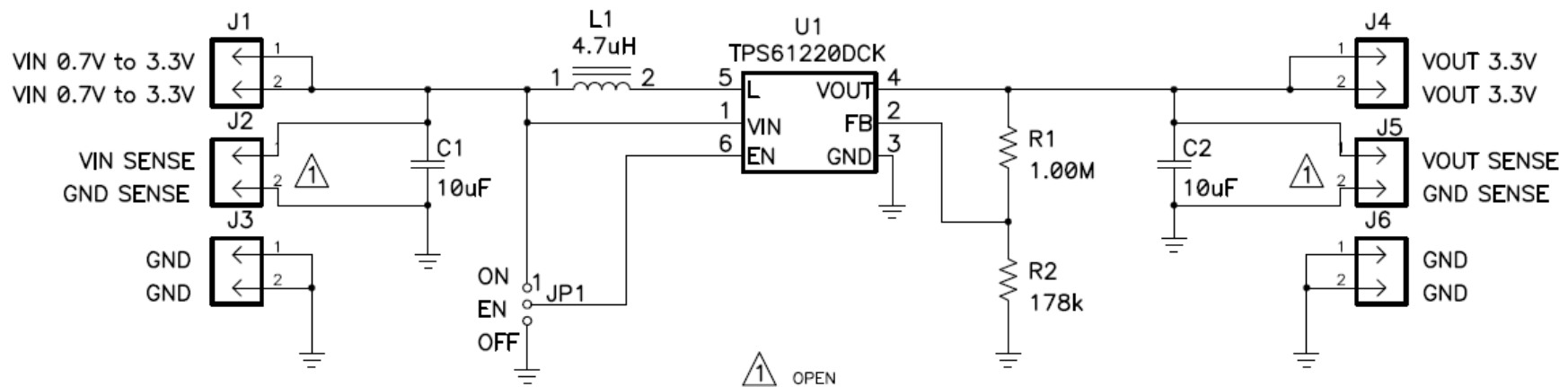


TPS61220 Vin > Vout

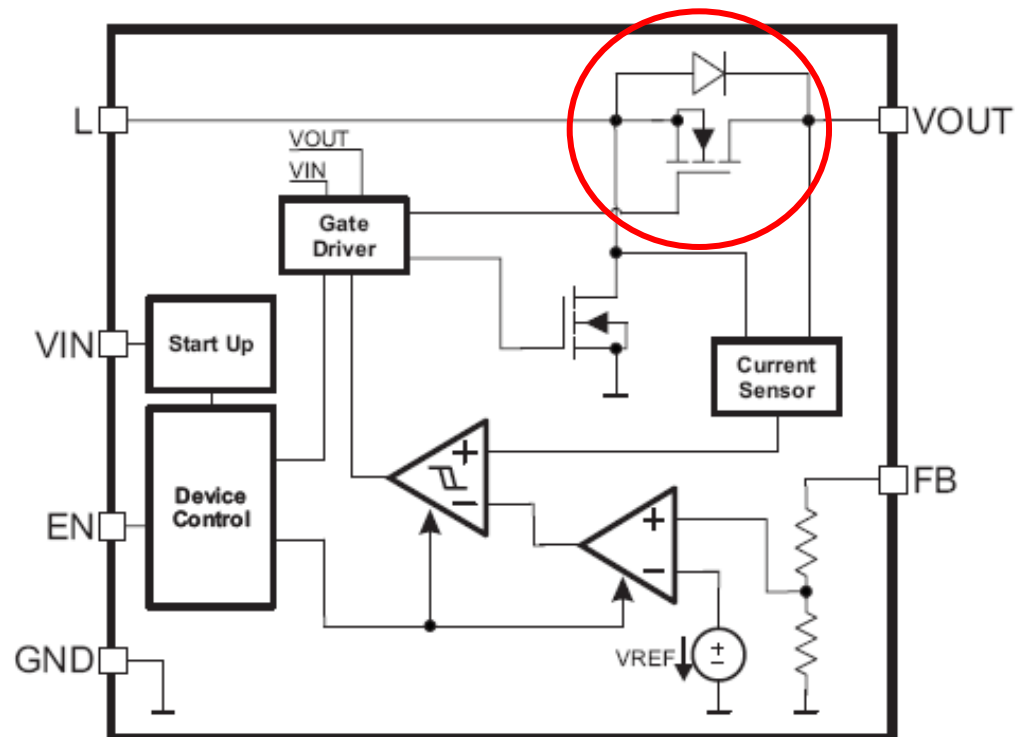
- Test Circuit is be standard EVM, TPS61220EVM-319, Vout 3.3V
- Load set to 10mA
- TPS61220 is a hysteretic converter



TPS61220 $V_{in} > V_{out}$

- TPS61220 does not have load disconnect, V_{in} present of V_{out}
 - Output voltage drop one diode drop, approximately 700mV
 - Or impedance of Output Switch, approximately 1ohm

FUNCTIONAL BLOCK DIAGRAM (FIXED OUTPUT VOLTAGE VERSION)



TPS61220 $V_{in} > V_{out}$

Data:

- **Slide 3** V_{in} 3.0V
 - Standard Boost Mode
- **Slide 4** V_{in} 3.6V
 - Mix of Boost Mode and Pass Thru mode
- **Slide 5** V_{in} 3.9V
 - Mix of Boost Mode and Pass Thru mode
- **Slide 6** V_{in} 4.2V
 - Pass Thru mode

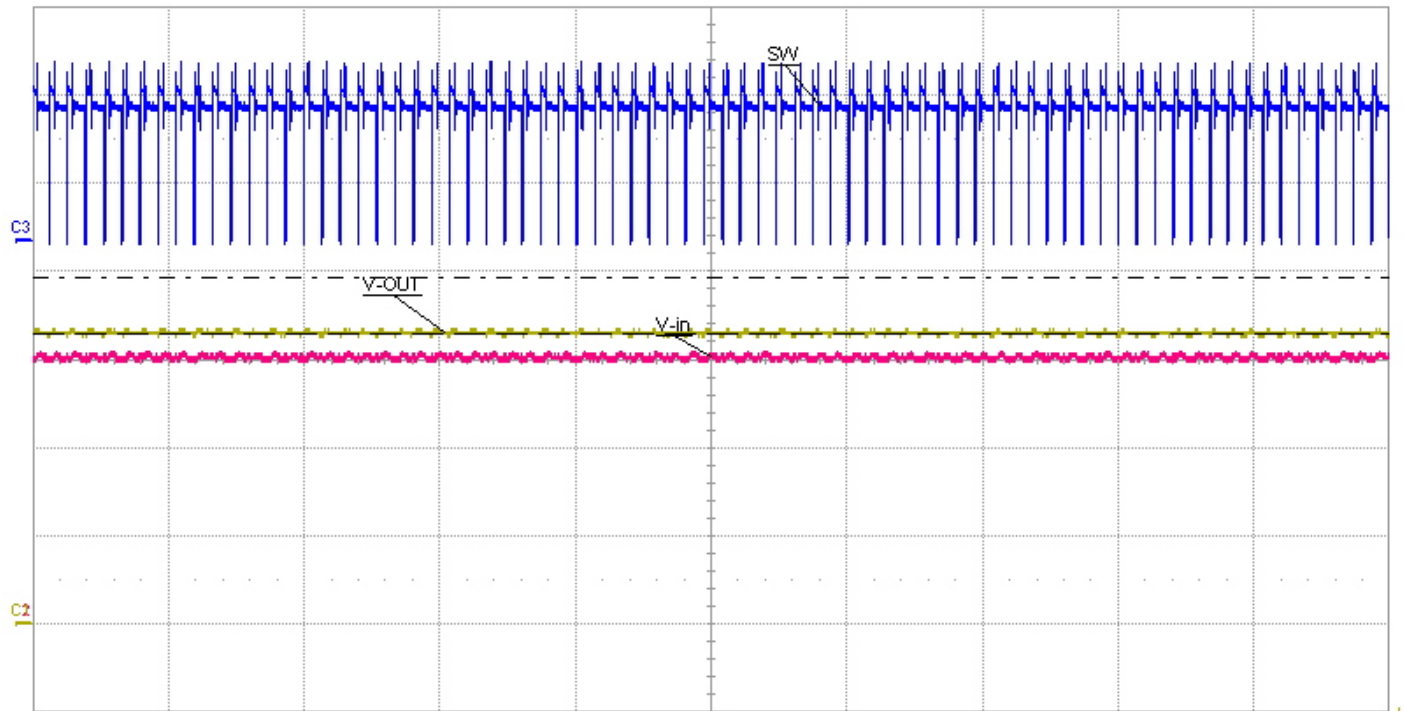
TPS61220 Vin 3.0V, Boost Mode

CH3 SW
2V/div

CH1 V-out
1V/div

CH2 V-in
1V/div

Time base
50us/div



Measure	P1:rms(C2)	P2:---	P3:---	P4:---	P5:---	P6:---
value	3.024 V					
status	✓					

C1	BWL	DC1M	C2	BWL	DC1M	C3	BWL	DC1M
1.00 V/div			1.00 V/div			2.00 V/div		
-3.000 V ofst			-3.000 V ofst			2.700 V offset		
----- 3.92 V			----- 3.92 V			----- -860 mV		
..... 3.28 V		 3.28 V		 -2.14 V		
Δy -640 mV			Δy -640 mV			Δy -1.28 V		

Timebase	0 μs	Trigger	C1 DC
	50.0 μs/div		-2.00 V
250 kS	500 MS/s	Edge	Positive

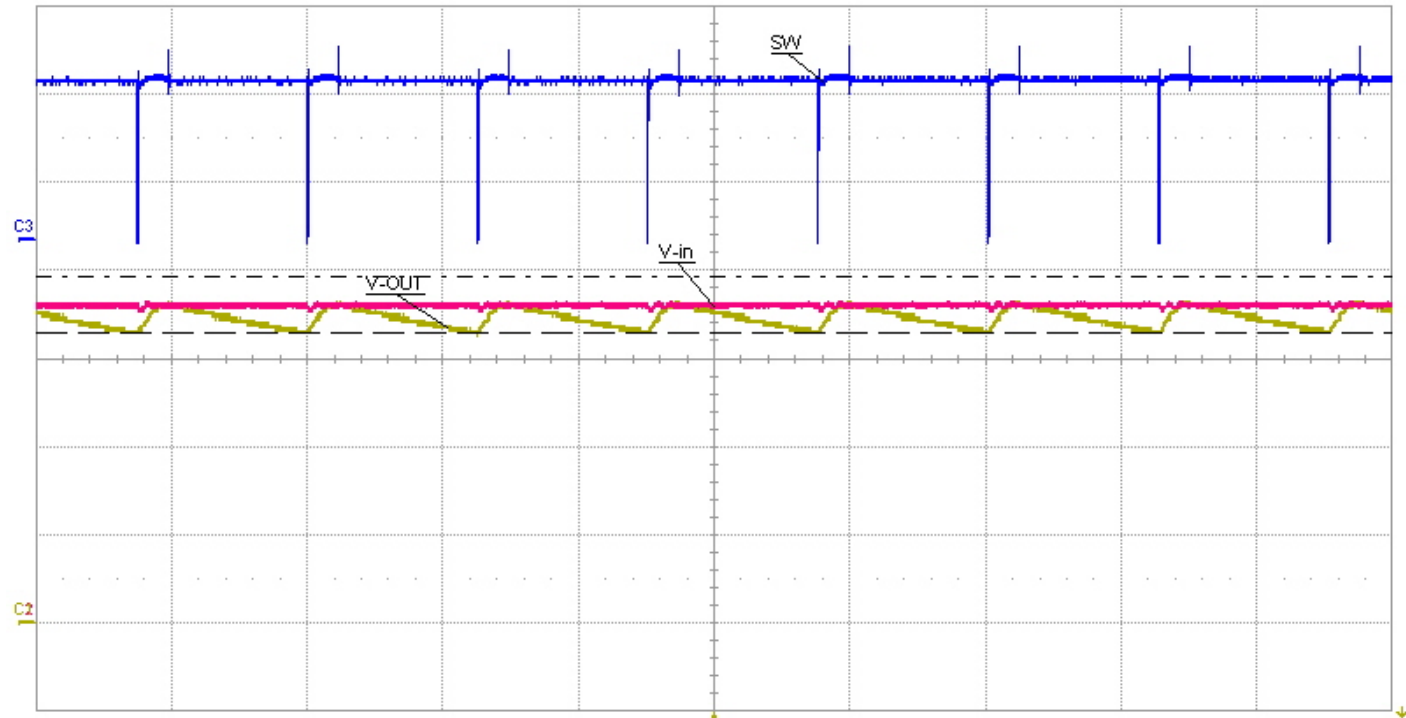
TPS61220 Vin 3.6V, Boost / Pass thru Mode

CH3 SW
2V/div

CH1 V-out
1V/div

CH2 V-in
1V/div

Time base
50us/div



Measure	P1:rms(C2)	P2:---	P3:---	P4:---	P5:---	P6:---
value	3.599 V					
status	✓					
C1	C2	C3				
BwL DCIM	BwL DCIM	BwL DCIM				
1.00 V/div	1.00 V/div	2.00 V/div				
-3.000 V ofst	-3.000 V ofst	2.700 V offset				
----	----	----				
3.92 V	3.92 V	-860 mV				
.....				
3.28 V	3.28 V	-2.14 V				
Δy	Δy	Δy				
-640 mV	-640 mV	-1.28 V				

Timebase	0 μs	Trigger	C1 DC
	50.0 μs/div	Auto	-2.00 V
250 kS	500 MS/s	Edge	Positive

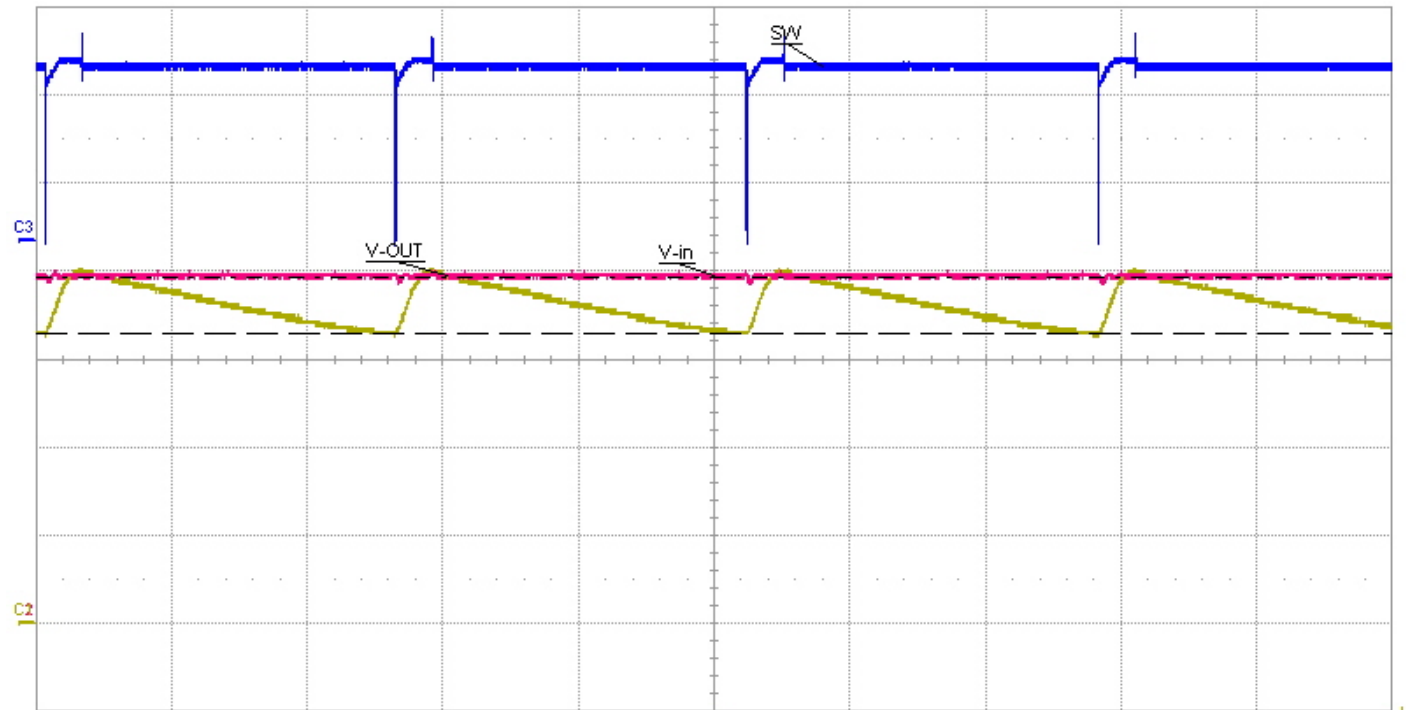
TPS61220 Vin 3.9V, Boost / Pass thru Mode

CH3 SW
2V/div

CH1 V-out
1V/div

CH2 V-in
1V/div

Time base
50us/div



Measure	P1:rms(C2)	P2:---	P3:---	P4:---	P5:---	P6:---
value	3.941 V					
status	✓					

C1	BWL	DCIM	C2	BWL	DCIM	C3	BWL	DCIM
1.00 V/div			1.00 V/div			2.00 V/div		
-3.000 V offset			-3.000 V offset			2.700 V offset		
3.92 V			3.92 V			-860 mV		
3.28 V			3.28 V			-2.14 V		
Δy -640 mV			Δy -640 mV			Δy -1.28 V		

Timebase	0 μ s	Trigger	C1 DC
	50.0 μ s/div		-2.00 V
250 kS	500 MS/s	Edge	Positive

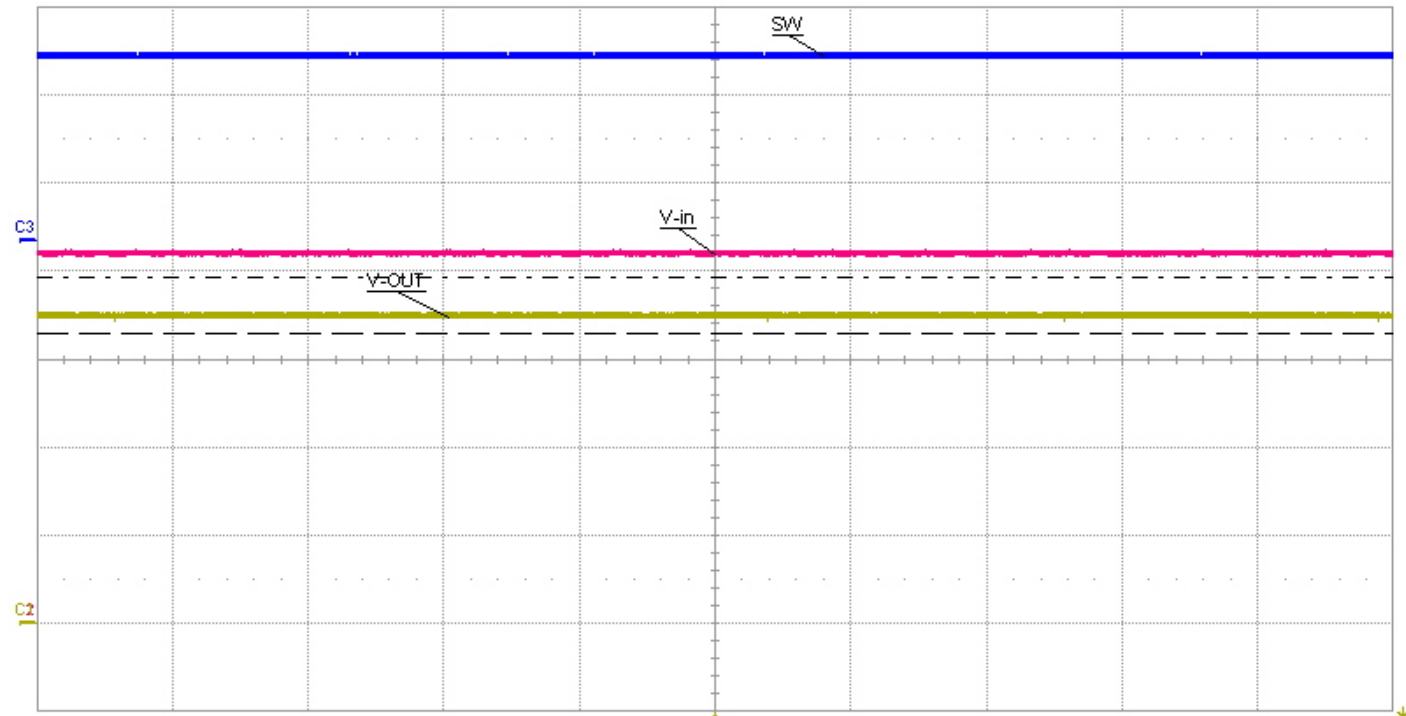
TPS61220 Vin 4.2V, Pass thru Mode

CH3 SW
2V/div

CH1 V-out
1V/div

CH2 V-in
1V/div

Time base
50us/div



Measure	P1:rms(C2)	P2:---	P3:---	P4:---	P5:---	P6:---
value	4.194 V					
status	✓					

C1	C2	C3
BWL [DCIM]	BWL [DCIM]	BWL [DCIM]
1.00 V/div	1.00 V/div	2.00 V/div
-3.000 V ofst	-3.000 V ofst	2.700 V ofst
----- 3.92 V	----- 3.92 V	----- -860 mV
----- 3.28 V	----- 3.28 V	----- -2.14 V
Δy -640 mV	Δy -640 mV	Δy -1.28 V

Timebase	0 μs	Trigger	C1 DC
	50.0 μs/div	Auto	-2.00 V
	250 kS	Edge	Positive
	500 MS/s		