DOC.NR.	STATUS	DESCRIPTION
26.001.00.00.01	FINAL	Pre-amplifier - Frequency response
26.001.00.01.01	FINAL	Pre-amplifier - Transient response (31.5 Hz)
26.001.00.01.02	FINAL	Pre-amplifier - Transient response (16 kHz)
26.001.00.01.03	FINAL	Pre-amplifier - Transient response (1 kHz)
26.002.00.00.01	FINAL	31.5 Hz Band-pass Filter - Frequency response
26.002.00.01.01	FINAL	31.5 Hz Band-pass Filter - Transient response (31.5 Hz)
26.002.00.01.02	FINAL	31.5 Hz Band-pass Filter - Transient response (16 kHz)
26.002.00.02.01	FINAL	31.5 Hz Band-pass Filter - Transient response (31.5 Hz)
26.002.00.02.02	FINAL	31.5 Hz Band-pass Filter - Transient response (16 kHz)
26.002.00.03.01	FINAL	31.5 Hz Band-pass Filter - Transient response (31.5 Hz)
26.002.00.03.02	FINAL	31.5 Hz Band-pass Filter - Transient response (16 kHz)
26.003.00.00.01	FINAL	31.5 Hz Detector - Frequency response
26.003.00.01.01	FINAL	31.5 Hz Detector - Transient response (31.5 Hz)
26.003.00.02.01	FINAL	31.5 Hz Detector - Transient response (31.5 Hz)
26.003.00.03.01	FINAL	31.5 Hz Detector - Transient response (31.5 Hz)
26.004.00.00.01	FINAL	63 Hz Band-pass Filter - Frequency response
26.004.00.01.01	FINAL	63 Hz Band-pass Filter - Transient response (63 Hz)
26.004.00.01.01	FINAL	63 Hz Band-pass Filter - Transient response (63 Hz)
26.004.00.01.02	FINAL	63 Hz Band-pass Filter - Transient response (16 kHz)
26.004.00.02.01	FINAL	63 Hz Band-pass Filter - Transient response (63 Hz)
26.004.00.02.02	FINAL	63 Hz Band-pass Filter - Transient response (16 kHz)
26.004.00.03.01	FINAL	63 Hz Band-pass Filter - Transient response (63 Hz)
26.004.00.03.02	FINAL	63 Hz Band-pass Filter - Transient response (16 kHz)
26.005.00.00.01	FINAL	63 Hz Detector - Frequency response
26.005.00.01.01	FINAL	63 Hz Detector - Transient response (63 Hz)
26.005.00.02.01	FINAL	63 Hz Detector - Transient response (63 Hz)
26.005.00.03.01	FINAL	63 Hz Detector - Transient response (63 Hz)
26.006.00.00.01	FINAL	125 Hz Band-pass Filter - Frequency response
26.006.00.01.01	FINAL	125 Hz Band-pass Filter - Transient response (125 Hz)
26.006.00.01.02	FINAL	125 Hz Band-pass Filter - Transient response (16 kHz)
26.006.00.02.01	FINAL	125 Hz Band-pass Filter - Transient response (125 Hz)
26.006.00.02.02	FINAL	125 Hz Band-pass Filter - Transient response (16 kHz)
26.006.00.03.01	FINAL	125 Hz Band-pass Filter - Transient response (125 Hz)

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DOC.NR.	STATUS	DESCRIPTION
26.006.00.03.02	FINAL	125 Hz Band–pass Filter – Transient response (16 kHz)
26.007.00.00.01	FINAL	125 Hz Detector – Frequency response
26.007.00.01.01	FINAL	125 Hz Detector – Transient response (125 Hz)
26.007.00.01.01	FINAL	125 Hz Detector – Transient response (125 Hz)
26.007.00.02.01	FINAL	125 Hz Detector – Transient response (125 Hz)
26.007.00.03.01	FINAL	125 Hz Detector – Transient response (125 Hz)
26.008.00.00.01	FINAL	250 Hz Band–pass Filter – Frequency response
26.008.00.01.01	FINAL	250 Hz Band–pass Filter – Transient response (250 Hz)
26.008.00.01.02	FINAL	250 Hz Band–pass Filter – Transient response (16 kHz)
26.008.00.02.01	FINAL	250 Hz Band–pass Filter – Transient response (250 Hz)
26.008.00.02.02	FINAL	250 Hz Band–pass Filter – Transient response (16 kHz)
26.008.00.03.01	FINAL	250 Hz Band–pass Filter – Transient response (250 Hz)
26.008.00.03.02	FINAL	250 Hz Band–pass Filter – Transient response (16 kHz)
26.009.00.00.01	FINAL	250 Hz Detector – Frequency response
26.009.00.01.01	FINAL	250 Hz Detector – Transient response (250 Hz)
26.009.00.02.01	FINAL	250 Hz Detector – Transient response (250 Hz)
26.009.00.03.01	FINAL	250 Hz Detector – Transient response (250 Hz)
26.010.00.00.01	FINAL	500 Hz Band–pass Filter – Frequency response
26.010.00.01.01	FINAL	500 Hz Band–pass Filter – Transient response (500 Hz)
26.010.00.01.02	FINAL	500 Hz Band–pass Filter – Transient response (16 kHz)
26.010.00.02.01	FINAL	500 Hz Band–pass Filter – Transient response (500 Hz)
26.010.00.02.02	FINAL	500 Hz Band–pass Filter – Transient response (16 kHz)
26.010.00.03.01	FINAL	500 Hz Band–pass Filter – Transient response (500 Hz)
26.010.00.03.02	FINAL	500 Hz Band–pass Filter – Transient response (16 kHz)
26.011.00.00.01	FINAL	500 Hz Detector – Frequency response
26.011.00.01.01	FINAL	500 Hz Detector – Transient response (500 Hz)
26.011.00.02.01	FINAL	500 Hz Detector – Transient response (500 Hz)
26.011.00.03.01	FINAL	500 Hz Detector – Transient response (500 Hz)
26.012.00.00.01	FINAL	1 kHz Band–pass Filter – Frequency response
26.012.00.01.01	FINAL	1 kHz Band–pass Filter – Transient response (1 kHz)
26.012.00.01.02	FINAL	1 kHz Band–pass Filter – Transient response (16 kHz)
26.012.00.01.03	FINAL	1 kHz Band–pass Filter – Transient response (31.5 Hz)
26.012.00.02.01	FINAL	1 kHz Band–pass Filter – Transient response (1 kHz)
26.012.00.02.02	FINAL	1 kHz Band–pass Filter – Transient response (16 kHz)
26.012.00.02.03	FINAL	1 kHz Band–pass Filter – Transient response (31.5 Hz)
26.012.00.03.01	FINAL	1 kHz Band–pass Filter – Transient response (1 kHz)
26.012.00.03.02	FINAL	1 kHz Band–pass Filter – Transient response (16 kHz)
26.012.00.03.03	FINAL	1 kHz Band–pass Filter – Transient response (31.5 Hz)
26.013.00.00.01	FINAL	1 kHz Detector – Frequency response
26.013.00.01.01	FINAL	1 kHz Detector – Transient response (1 kHz)
26.013.00.02.01	FINAL	1 kHz Detector – Transient response (1 kHz)
26.013.00.03.01	FINAL	1 kHz Detector – Transient response (1 kHz)
26.014.00.00.01	FINAL	2 kHz Band–pass Filter – Frequency response
26.014.00.01.01	FINAL	2 kHz Band–pass Filter – Transient response (2 kHz)
26.014.00.01.02	FINAL	2 kHz Band–pass Filter – Transient response (16 kHz)
26.014.00.01.03	FINAL	2 kHz Band–pass Filter – Transient response (31.5 Hz)
26.014.00.02.01	FINAL	2 kHz Band–pass Filter – Transient response (2 kHz)
26.014.00.02.02	FINAL	2 kHz Band–pass Filter – Transient response (16 kHz)
26.014.00.02.03	FINAL	2 kHz Band–pass Filter – Transient response (31.5 Hz)
26.014.00.03.01	FINAL	2 kHz Band–pass Filter – Transient response (2 kHz)
26.014.00.03.02	FINAL	2 kHz Band–pass Filter – Transient response (16 kHz)
26.014.00.03.03	FINAL	2 kHz Band–pass Filter – Transient response (31.5 Hz)
26.015.00.00.01	FINAL	2 kHz Detector – Frequency response
26.015.00.01.01	FINAL	2 kHz Detector – Transient response (2 kHz)
26.015.00.02.01	FINAL	2 kHz Detector – Transient response (2 kHz)
26.015.00.03.01	FINAL	2 kHz Detector – Transient response (2 kHz)
26.016.00.00.01	FINAL	4 kHz Band–pass Filter – Frequency response
26.016.00.01.01	FINAL	4 kHz Band–pass Filter – Transient response (4 kHz)
26.016.00.01.02	FINAL	4 kHz Band–pass Filter – Transient response (16 kHz)
26.016.00.01.03	FINAL	4 kHz Band–pass Filter – Transient response (31.5 Hz)
26.016.00.02.01	FINAL	4 kHz Band–pass Filter – Transient response (4 kHz)
26.016.00.02.02	FINAL	4 kHz Band–pass Filter – Transient response (16 kHz)
26.016.00.02.03	FINAL	4 kHz Band–pass Filter – Transient response (31.5 Hz)
26.016.00.03.01	FINAL	4 kHz Band–pass Filter – Transient response (4 kHz)
26.016.00.03.02	FINAL	4 kHz Band–pass Filter – Transient response (16 kHz)
26.016.00.03.03	FINAL	4 kHz Band–pass Filter – Transient response (31.5 Hz)

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DOC.NR.	STATUS	DESCRIPTION
26.017.00.00.01	FINAL	4 kHz Detector – Frequency response
26.017.00.01.01	FINAL	4 kHz Detector – Transient response (4 kHz)
26.017.00.02.01	FINAL	4 kHz Detector – Transient response (4 kHz)
26.017.00.03.01	FINAL	4 kHz Detector – Transient response (4 kHz)
26.018.00.00.01	FINAL	8 kHz Band–pass Filter – Frequency response
26.018.00.01.01	FINAL	8 kHz Band–pass Filter – Transient response (8 kHz)
26.018.00.01.02	FINAL	8 kHz Band–pass Filter – Transient response (16 kHz)
26.018.00.01.03	FINAL	8 kHz Band–pass Filter – Transient response (31.5 Hz)
26.018.00.02.01	FINAL	8 kHz Band–pass Filter – Transient response (8 kHz)
26.018.00.02.02	FINAL	8 kHz Band–pass Filter – Transient response (16 kHz)
26.018.00.02.03	FINAL	8 kHz Band–pass Filter – Transient response (31.5 Hz)
26.018.00.03.01	FINAL	8 kHz Band–pass Filter – Transient response (8 kHz)
26.018.00.03.02	FINAL	8 kHz Band–pass Filter – Transient response (16 kHz)
26.018.00.03.03	FINAL	8 kHz Band–pass Filter – Transient response (31.5 Hz)
26.019.00.00.01	FINAL	8 kHz Detector – Frequency response
26.019.00.01.01	FINAL	8 kHz Detector – Transient response (8 kHz)
26.019.00.02.01	FINAL	8 kHz Detector – Transient response (8 kHz)
26.019.00.03.01	FINAL	8 kHz Detector – Transient response (8 kHz)
26.020.00.00.01	FINAL	16 kHz Band–pass Filter – Frequency response
26.020.00.01.01	FINAL	16 kHz Band–pass Filter – Transient response (16 kHz)
26.020.00.01.02	FINAL	16 kHz Band–pass Filter – Transient response (31.5 Hz)
26.020.00.02.01	FINAL	16 kHz Band–pass Filter – Transient response (16 kHz)
26.020.00.02.02	FINAL	16 kHz Band–pass Filter – Transient response (31.5 Hz)
26.020.00.03.01	FINAL	16 kHz Band–pass Filter – Transient response (16 kHz)
26.020.00.03.02	FINAL	16 kHz Band–pass Filter – Transient response (31.5 Hz)
26.021.00.00.01	FINAL	16 kHz Detector – Frequency response
26.021.00.01.01	FINAL	16 kHz Detector – Transient response (16 kHz)
26.021.00.02.01	FINAL	16 kHz Detector – Transient response (16 kHz)
26.021.00.03.01	FINAL	16 kHz Detector – Transient response (16 kHz)

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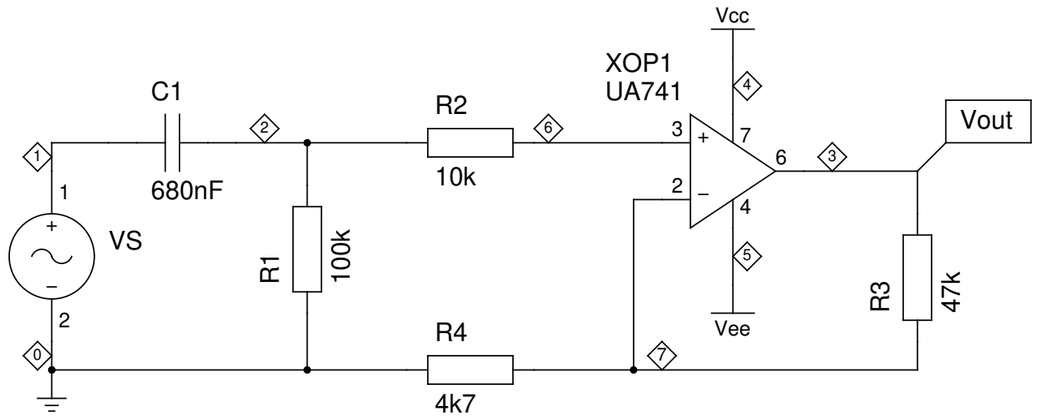
```
.TITLE OCTAVE FILTER – FUNCTION 001: PRE–AMPLIFIER – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 0.1 100)
C1 1 2 680n
R1 0 2 100k
R2 2 6 10K
R3 3 7 47k
R4 7 0 4700
XOP1 6 7 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.01   10Meg

.END
```



TITLE	OCTAVE_FILTER Pre–amplifier – Frequency response Schematic (DFS)		
FILE:	gnucap/26.001.00.00.01.sch	REVISION:	20240524
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

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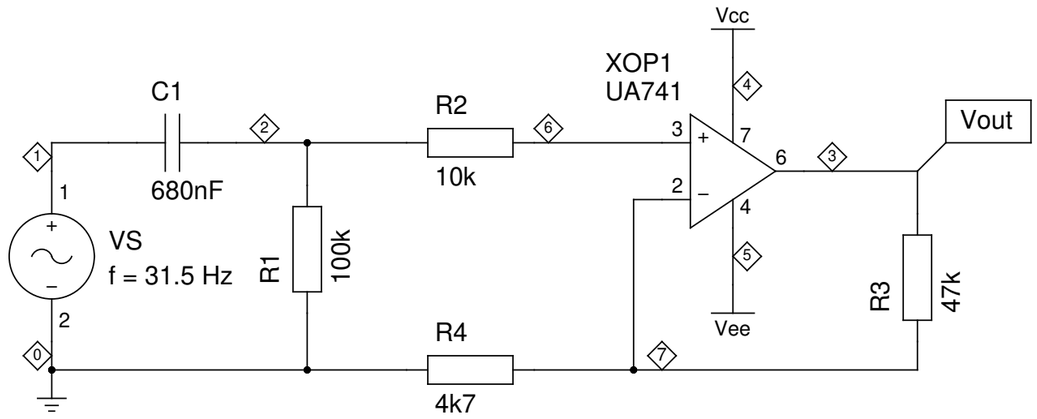
```
.TITLE OCTAVE FILTER – FUNCTION 001: PRE–AMPLIFIER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 0.141 31.5)
C1 1 2 680n
R1 0 2 100k
R2 2 6 10K
R3 3 7 47k
R4 7 0 4700
XOP1 6 7 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.4  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER Pre–amplifier – Transient response (31.5 Hz) Schematic (DFS)		
FILE:	gnucap/26.001.00.01.01.sch	REVISION:	20240524
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

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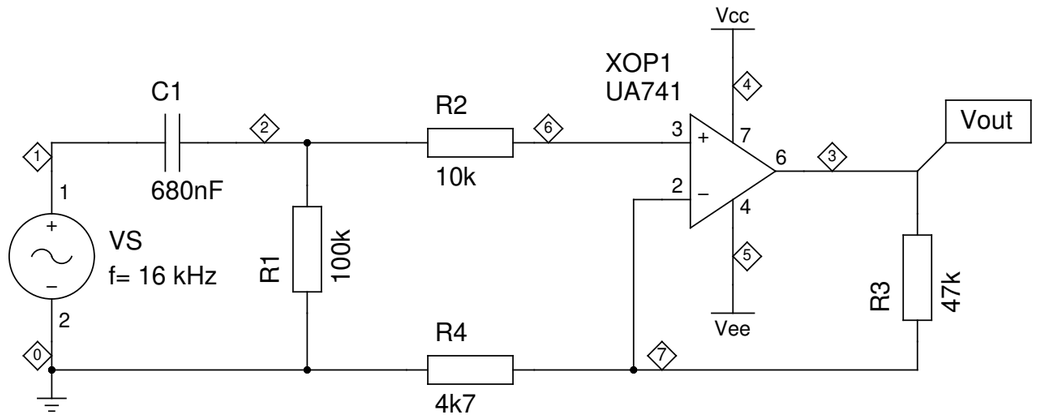
```
.TITLE OCTAVE FILTER – FUNCTION 001: PRE–AMPLIFIER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 0.141 16k)
C1 1 2 680n
R1 0 2 100k
R2 2 6 10K
R3 3 7 47k
R4 7 0 4700
XOP1 6 7 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO    STEP
.TRAN 0     0.01  0.000001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER Pre–amplifier – Transient response (16 kHz) Schematic (DFS)		
FILE:	gnucap/26.000.00.01.02.sch	REVISION:	20240609
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

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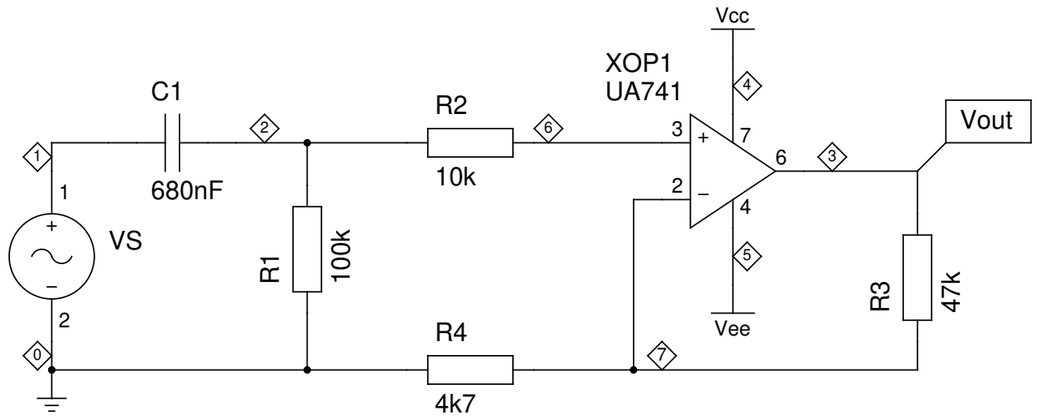
```
.TITLE OCTAVE FILTER – FUNCTION 001: PRE–AMPLIFIER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 0.141 1k)
C1 1 2 680n
R1 0 2 100k
R2 2 6 10K
R3 3 7 47k
R4 7 0 4700
XOP1 6 7 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO    STEP
.TRAN 0     0.02  0.000001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER Pre–amplifier – Transient response (1 kHz) Schematic (DFS)		
FILE:	gnucap/26.001.00.01.03.sch	REVISION:	20240524
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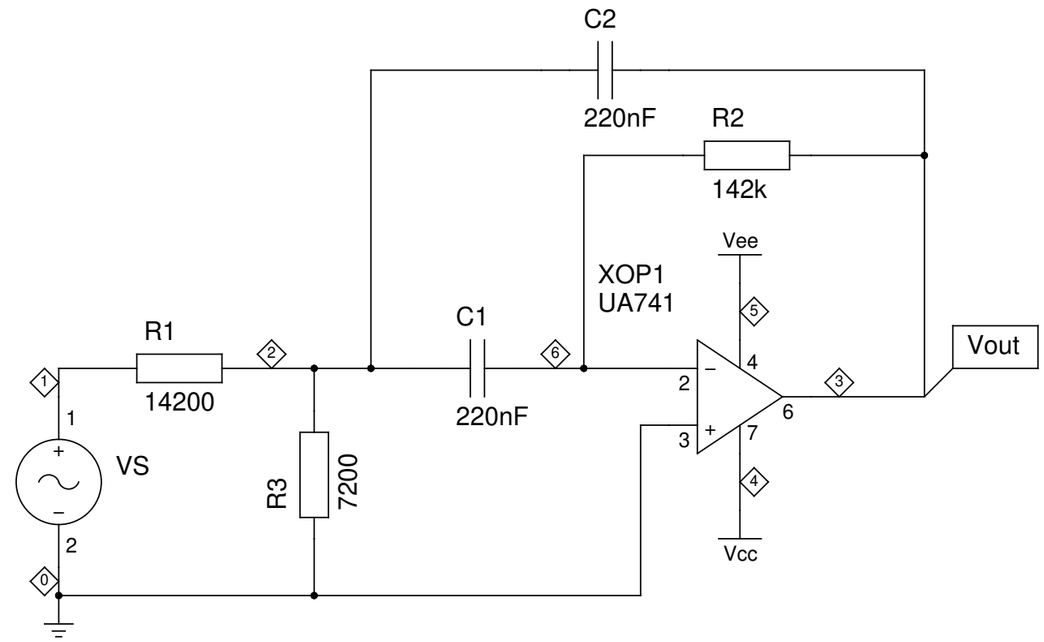
```
.TITLE OCTAVE FILTER – FUNCTION 002: 31.5 HZ BAND–PASS FILTER – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 0.1 100)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```



TITLE	OCTAVE_FILTER 31.5 Hz Band–pass Filter – Frequency response Schematic (DFS)		
FILE: gnucap/26.002.00.00.01.sch		REVISION: 20240524	A3
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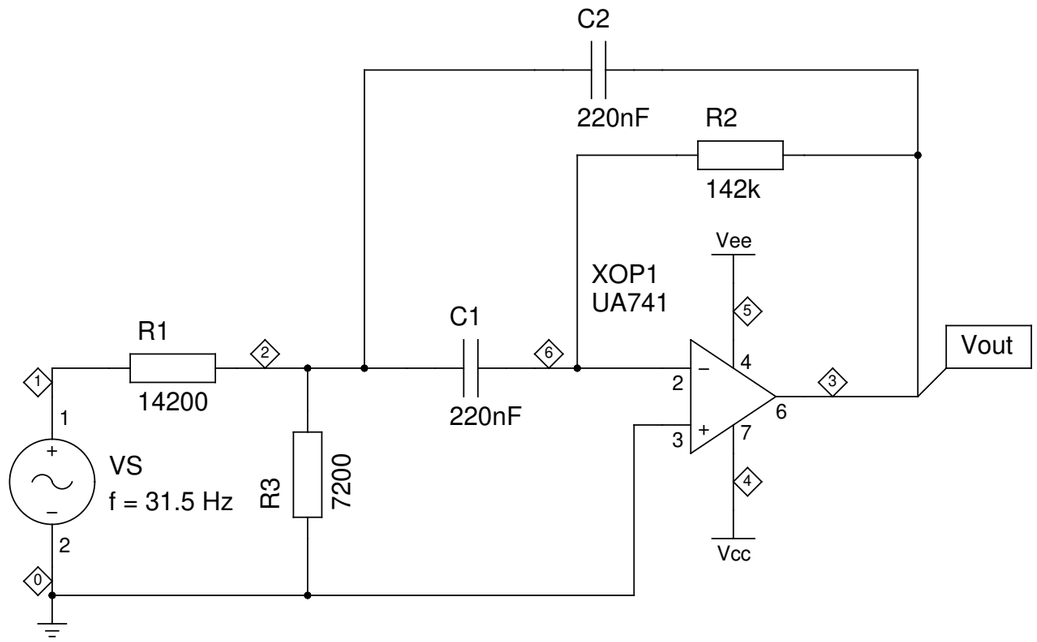
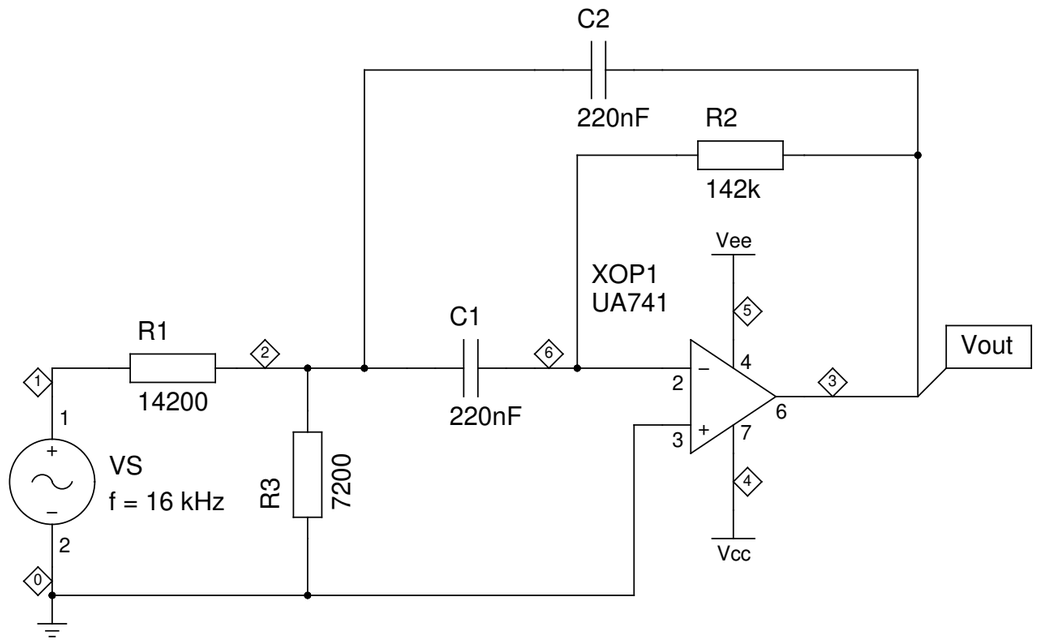
```
.TITLE OCTAVE FILTER – FUNCTION 002: 31.5 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.2  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 31.5 Hz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.002.00.01.01.sch PAGE 01 OF 01		REVISION: 20240524 DRAWN BY: Bert Timmerman	A3

```
.TITLE OCTAVE FILTER – FUNCTION 002: 31.5 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1 0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 31.5 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.002.00.01.02.sch		REVISION: 20240524	A3
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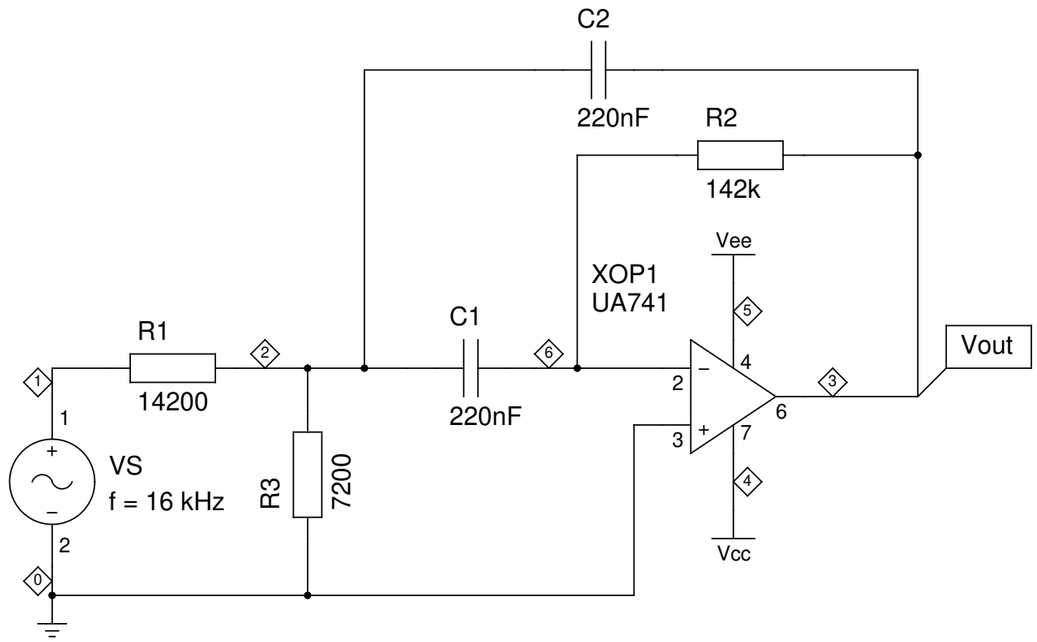
```
.TITLE OCTAVE FILTER – FUNCTION 002: 31.5 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 31.5 Hz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.002.00.02.01.sch		REVISION: 20240524	A3
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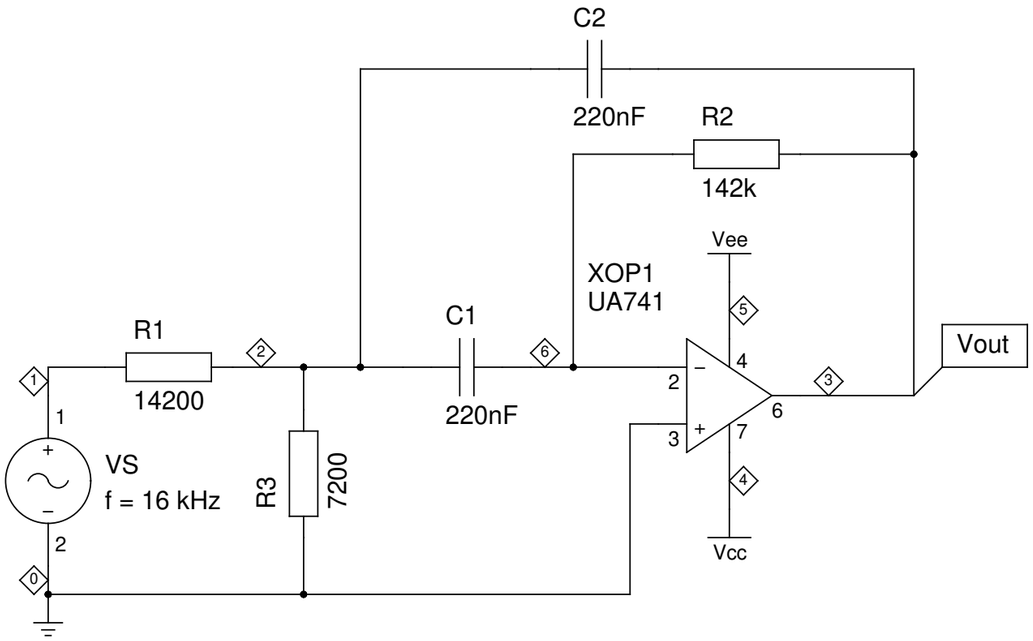
```
.TITLE OCTAVE FILTER – FUNCTION 002: 31.5 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 31.5 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
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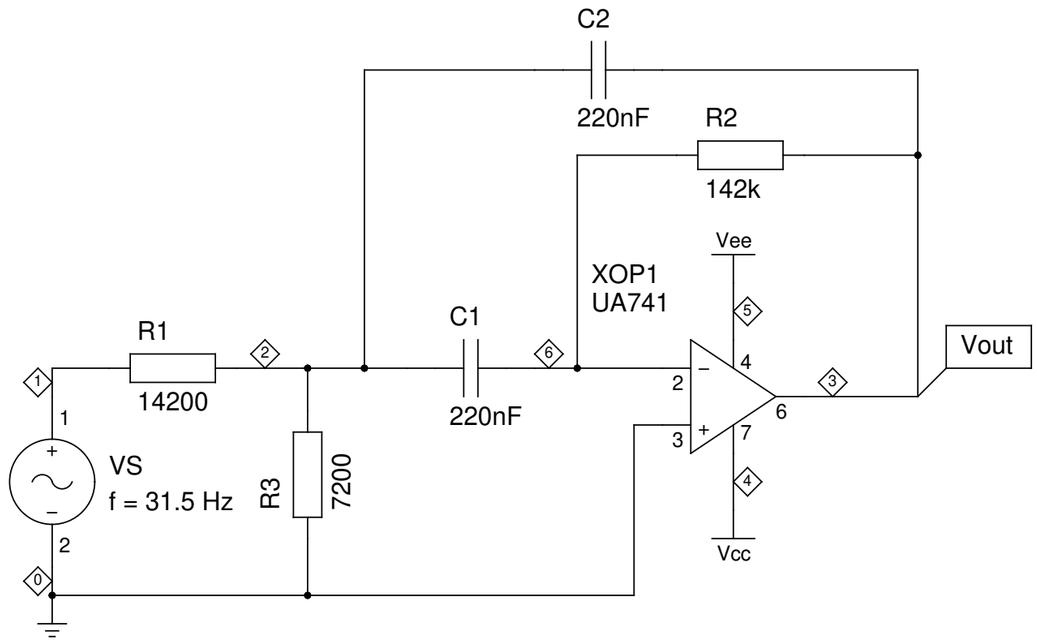
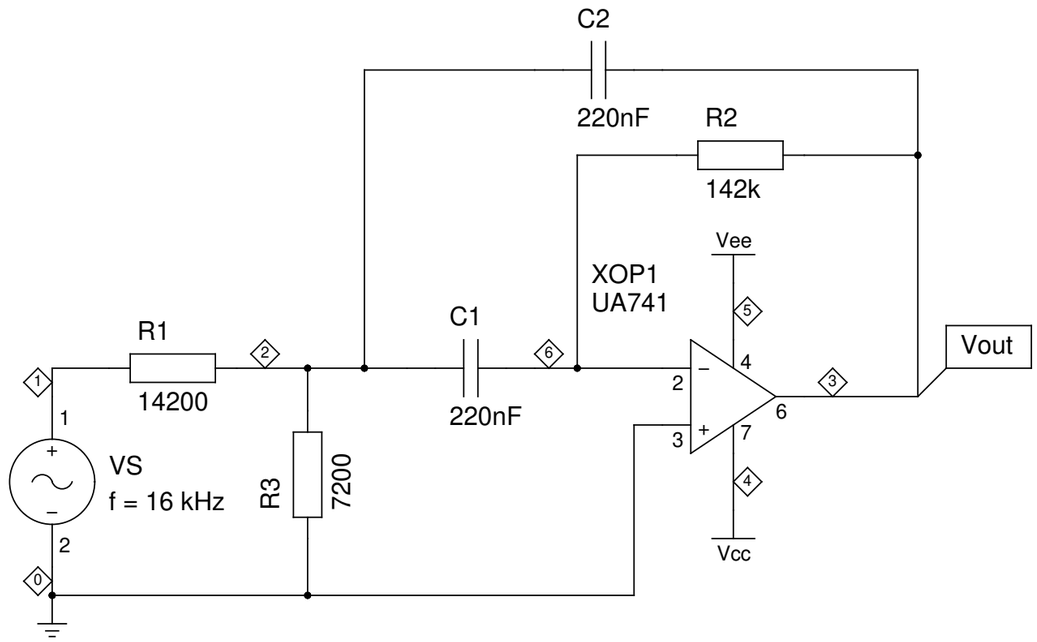
```
.TITLE OCTAVE FILTER – FUNCTION 002: 31.5 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.2  0.00001 TRACE ALL

.END
```



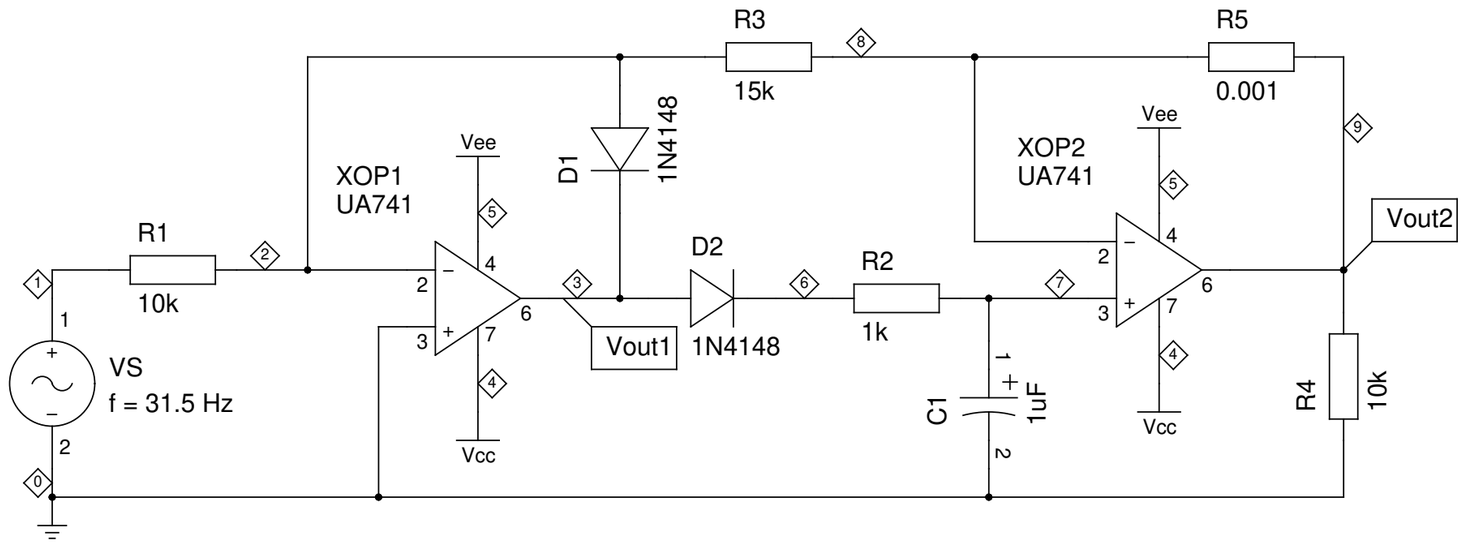
TITLE	OCTAVE_FILTER 31.5 Hz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.002.00.03.01.sch PAGE 01 OF 01		REVISION: 20240525 DRAWN BY: Bert Timmerman	A3

```
.TITLE OCTAVE FILTER – FUNCTION 002: 31.5 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 14200
R2 3 6 142K
R3 0 2 7200
C1 2 6 220nF
C2 3 2 220nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



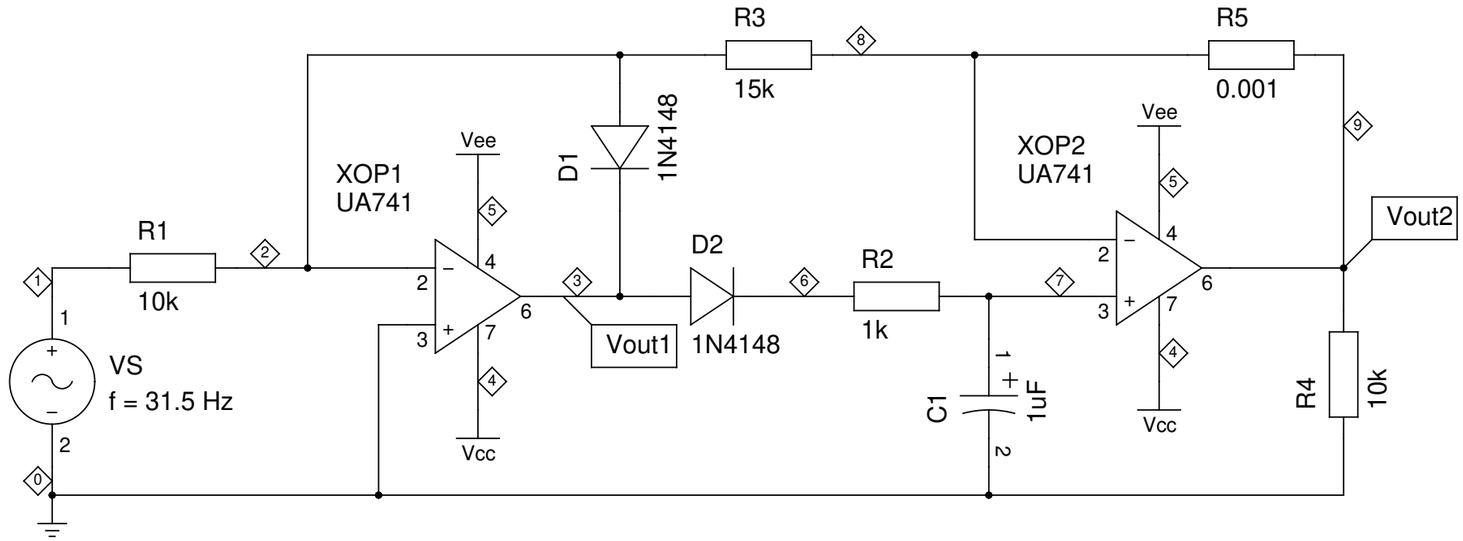
TITLE	OCTAVE_FILTER 31.5 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.002.00.03.02.sch PAGE 01 OF 01		REVISION: 20240525 DRAWN BY: Bert Timmerman	A3

```
.TITLE OCTAVE FILTER – FUNCTION 003: 31.5 HZ DETECTOR – FREQUENCY RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 0.1 31.5)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3) VDB(9)

*     FROM     TO   STEP
.TRAN 0.00001  0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20            0.1    100k

.END
```



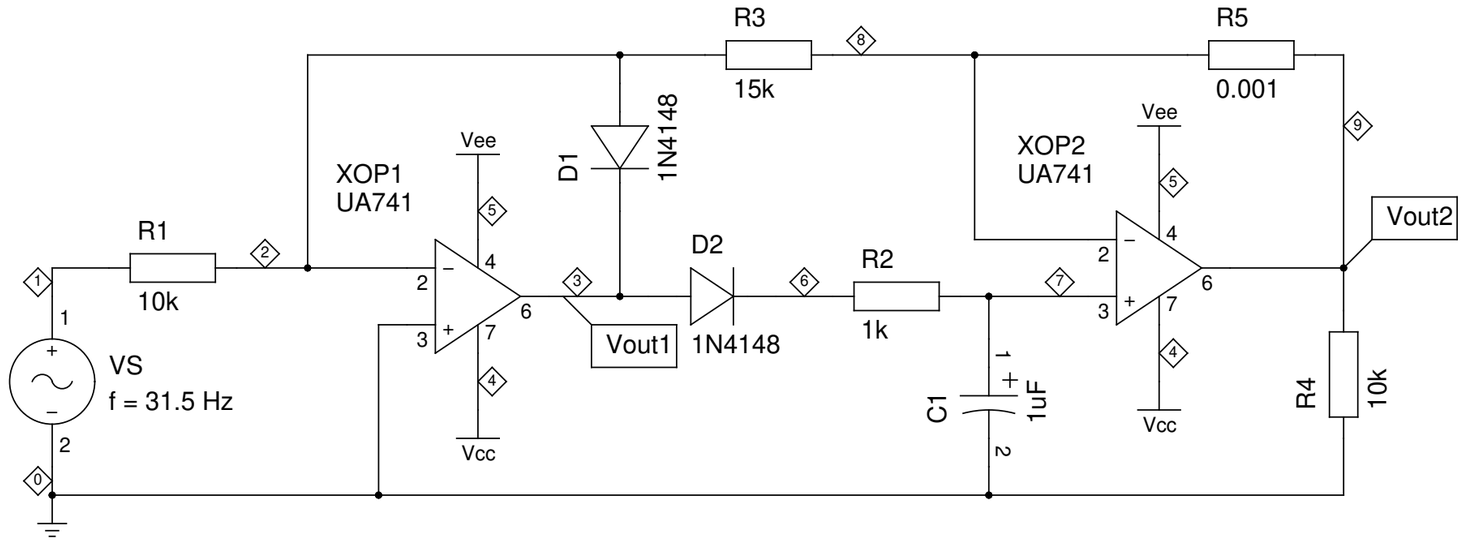
	OCTAVE_FILTER 31.5 Hz Detector – Frequency response
TITLE	Schematic (DFS)
FILE: gnucap/26.003.00.00.01.sch	REVISION: 20240609
PAGE 01 OF 01	DRAWN BY: Bert Timmerman
	A3

```
.TITLE OCTAVE FILTER – FUNCTION 003: 31.5 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14

VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(9) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.4  0.00001 TRACE ALL

.END
```



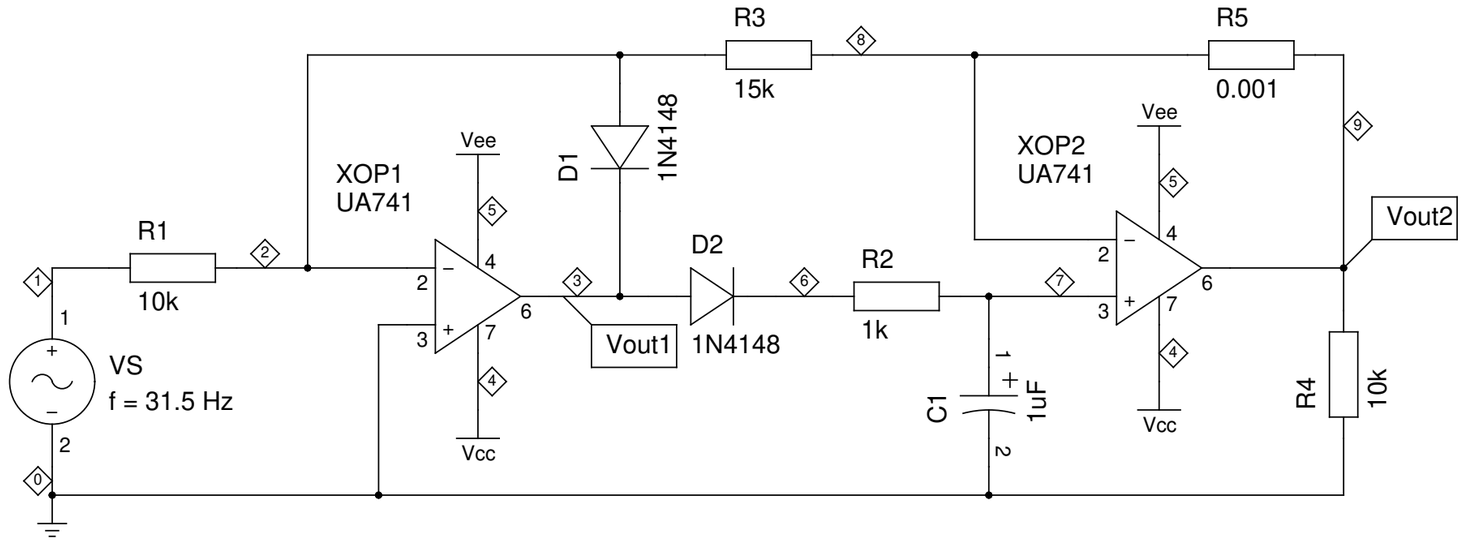
TITLE	OCTAVE_FILTER 31.5 Hz Detector – Transient response (31.5 Hz) Schematic (DFS)		
FILE:	gnucap/26.003.00.01.01.sch	REVISION:	20240525
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman
			A3

```
.TITLE OCTAVE FILTER – FUNCTION 003: 31.5 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14

VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3) I(R4) I(R5) I(D1) I(D2)

*     FROM  TO   STEP
.TRAN 0     0.4  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 31.5 Hz Detector – Transient response (31.5 Hz) Schematic (DFS)		
FILE:	gnucap/26.003.00.02.01.sch	REVISION:	20240525
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman
			A3

```
.TITLE OCTAVE FILTER – FUNCTION 003: 31.5 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14

VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3) P(R4) P(R5) P(D1) P(D2)

*    FROM  TO   STEP
.TRAN 0    0.4  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 31.5 Hz Detector – Transient response (31.5 Hz) Schematic (DFS)		
FILE:	gnucap/26.003.00.03.01.sch	REVISION:	20240525
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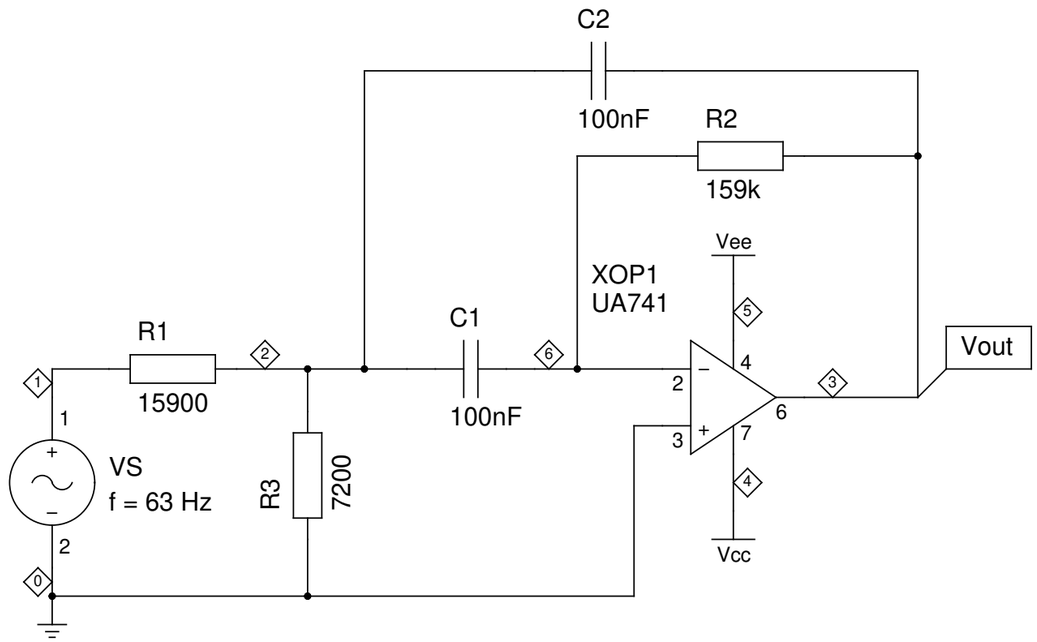
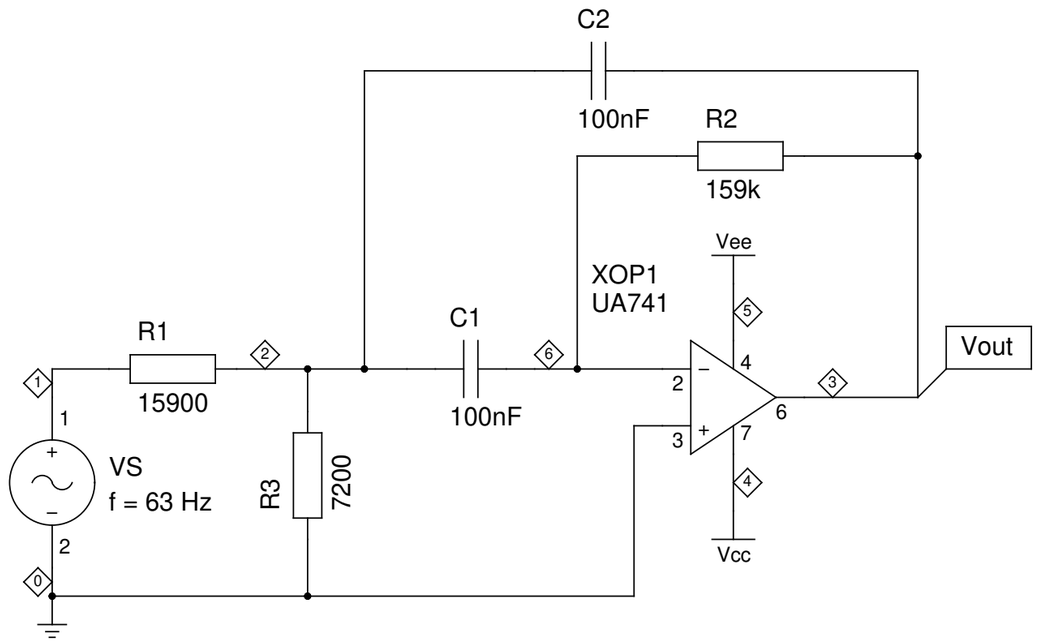
```
.TITLE OCTAVE FILTER – FUNCTION 004: 63 HZ BAND–PASS FILTER – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 0.1 100)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```



TITLE	OCTAVE_FILTER 63 Hz Band–pass Filter – Frequency response Schematic (DFS)		
FILE: gnucap/26.004.00.00.01.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 004: 63 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 63)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.2  0.0001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 63 Hz Band–pass Filter – Transient response (63 Hz) Schematic (DFS)		
FILE: gnucap/26.004.00.01.01.sch		REVISION: 20240525	A3
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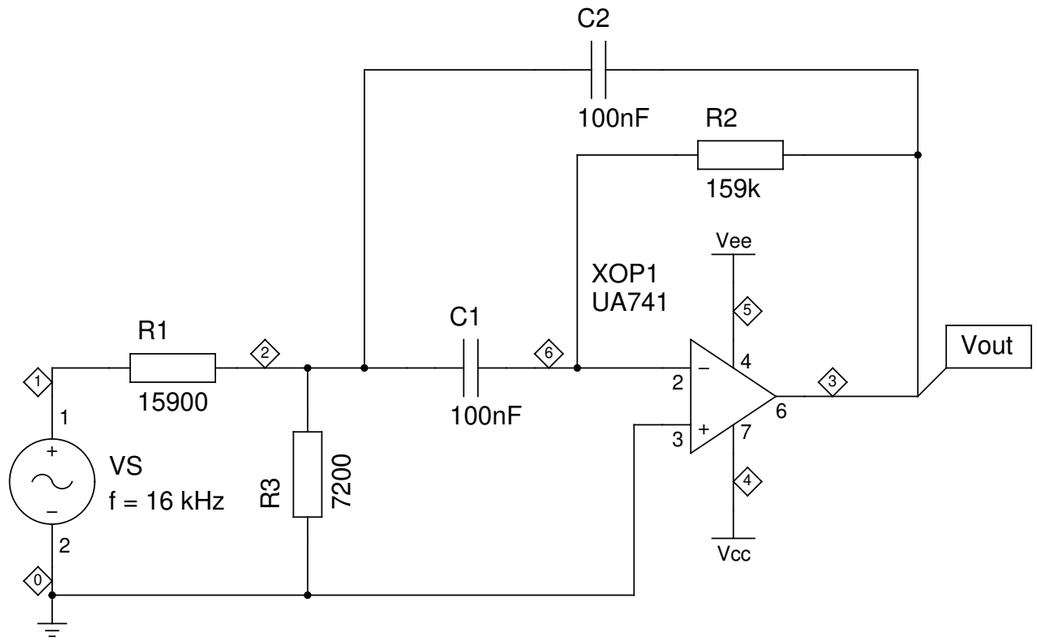
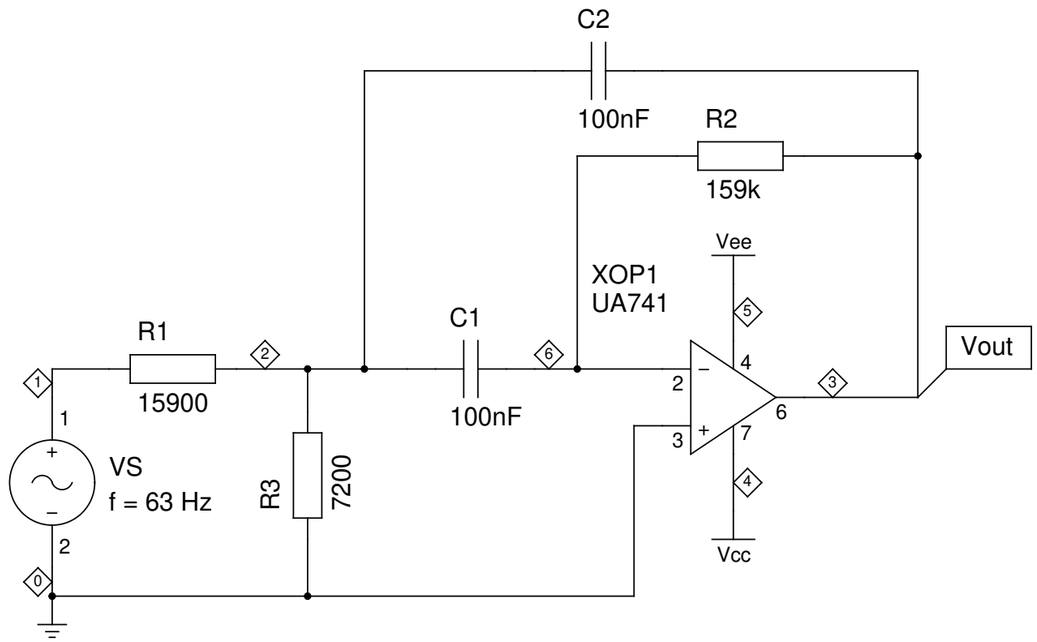
```
.TITLE OCTAVE FILTER – FUNCTION 004: 63 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 63 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE:	gnucap/26.004.00.01.02.sch	REVISION:	20240525
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman
			A3

```
.TITLE OCTAVE FILTER – FUNCTION 004: 63 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 63)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.2  0.0001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 63 Hz Band–pass Filter – Transient response (63 Hz) Schematic (DFS)		
FILE:	gnucap/26.004.00.02.01.sch	REVISION:	20240525
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman
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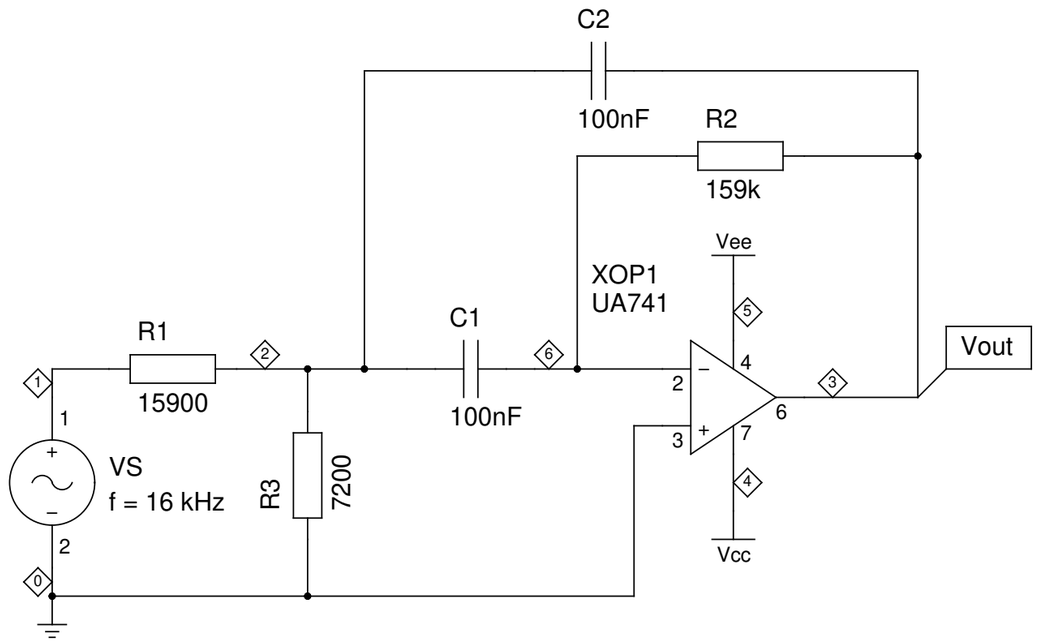
```
.TITLE OCTAVE FILTER – FUNCTION 004: 63 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 63 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE:	gnucap/26.004.00.02.02.sch	REVISION:	20240525
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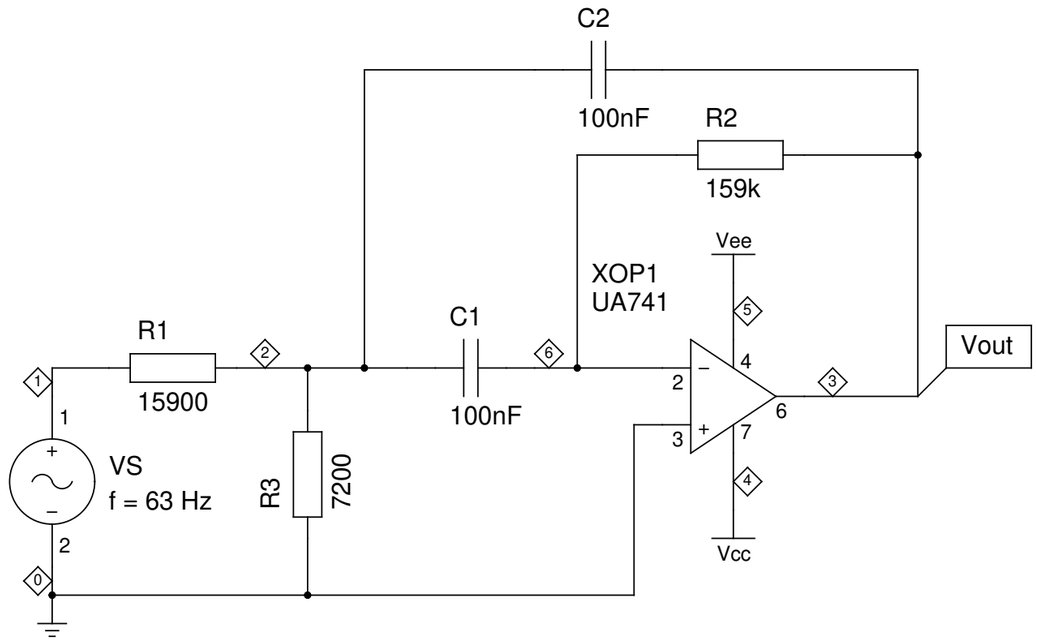
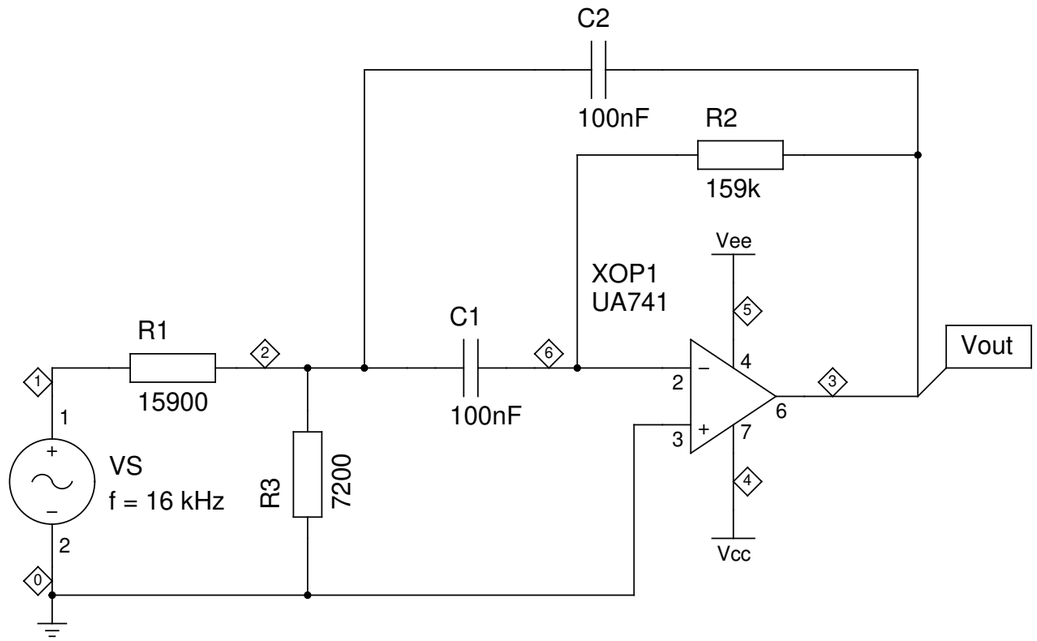
			A3

```
.TITLE OCTAVE FILTER – FUNCTION 004: 63 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 63)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.2  0.0001 TRACE ALL

.END
```



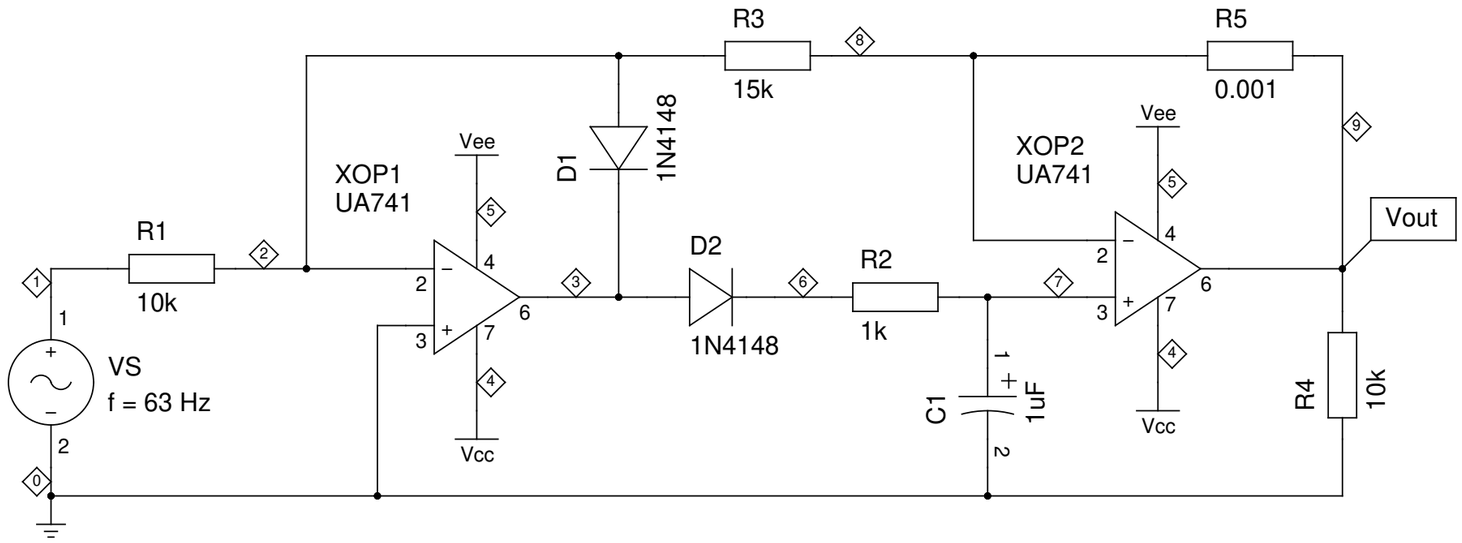
TITLE	OCTAVE_FILTER 63 Hz Band–pass Filter – Transient response (63 Hz) Schematic (DFS)		
FILE: gnucap/26.004.00.03.01.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 004: 63 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 0.141 16k)
R1 1 2 15900
R2 3 6 159K
R3 0 2 7200
C1 2 6 100nF
C2 3 2 100nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



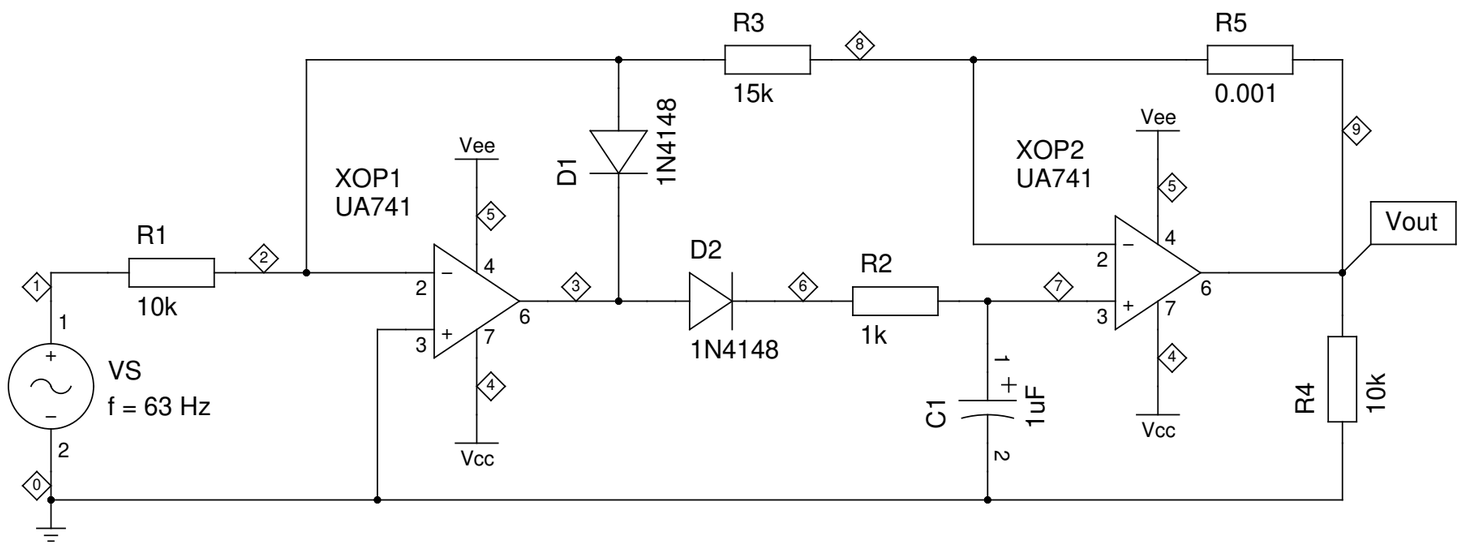
TITLE	OCTAVE_FILTER 63 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.004.00.03.02.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 005: 63 HZ DETECTOR – FREQUENCY RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 0.1 63)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3) VDB(9)

*     FROM     TO   STEP
.TRAN 0.00001  0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```



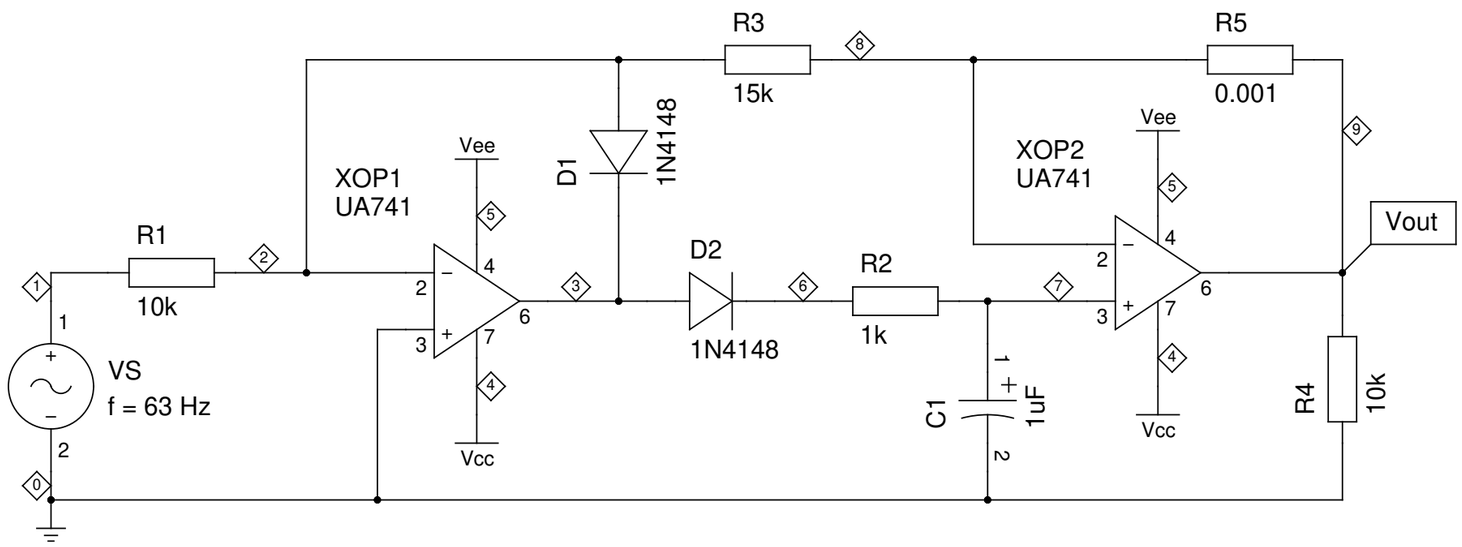
TITLE	OCTAVE_FILTER 63 Hz Detector – Frequency response Schematic (DFS)		
FILE: gnucap/26.005.00.00.01.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 005: 63 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 63)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(9) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.4  0.00001

.END
```



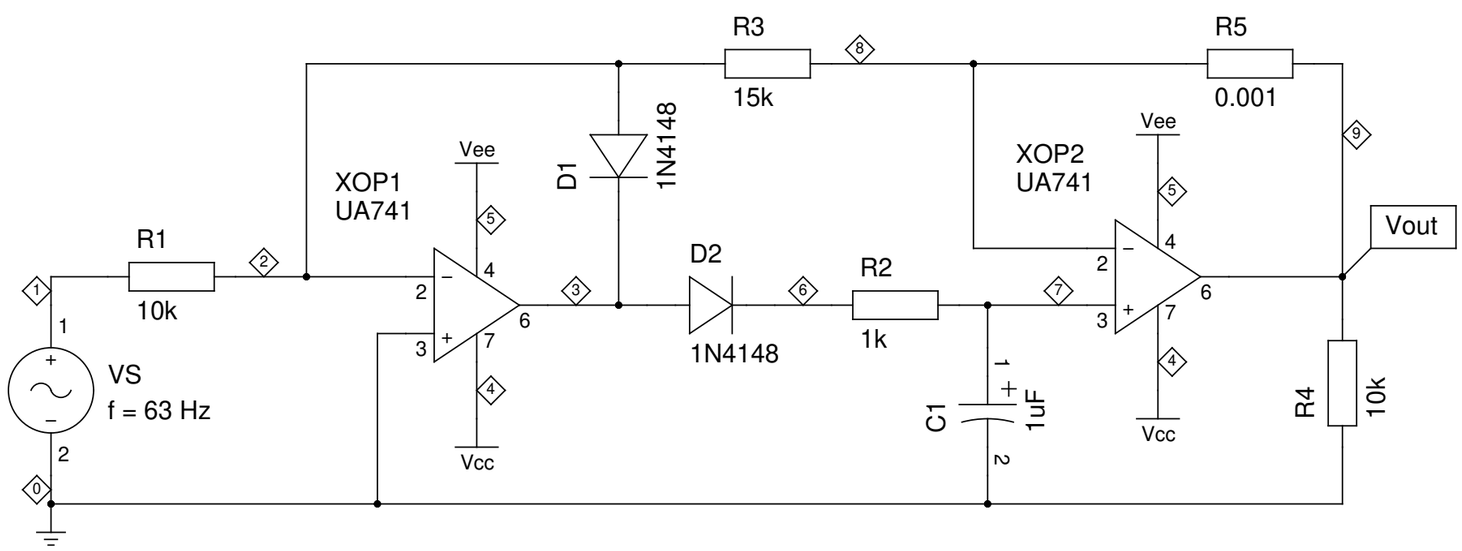
TITLE	OCTAVE_FILTER 63 Hz Detector – Transient response (63 Hz) Schematic (DFS)		
FILE: gnucap/26.005.00.01.01.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 005: 63 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e−14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=−15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 63)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3) I(R4) I(R5) I(D1) I(D2)

*    FROM  TO   STEP
.TRAN 0    0.1  0.00001

.END
```



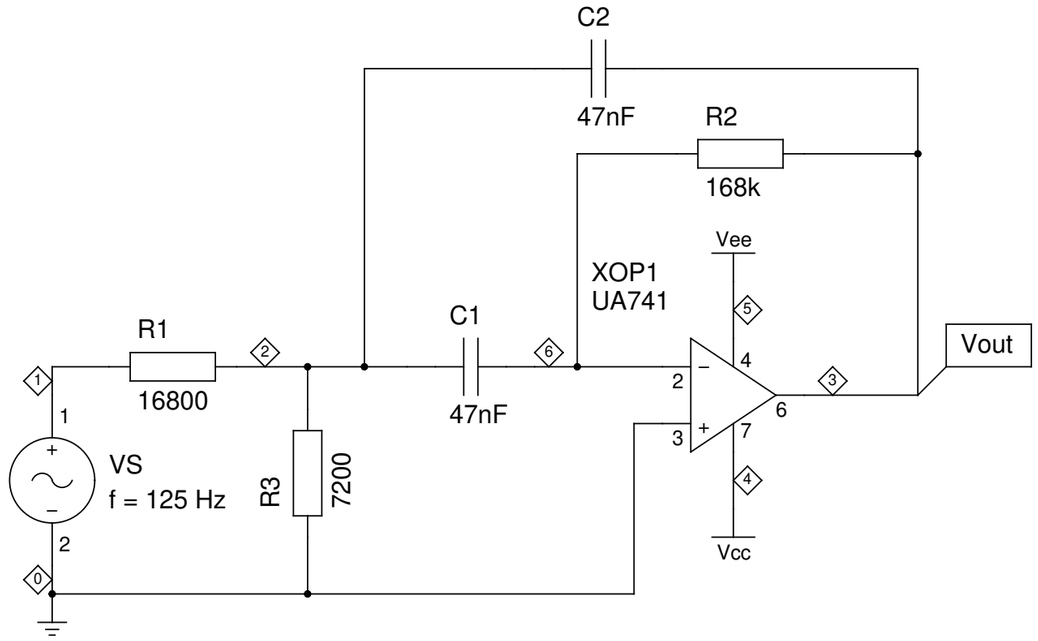
TITLE	OCTAVE_FILTER 63 Hz Detector – Transient response (63 Hz) Schematic (DFS)		
FILE: gnucap/26.005.00.02.01.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 005: 63 DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 63)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3) P(R4) P(R5) P(D1) P(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



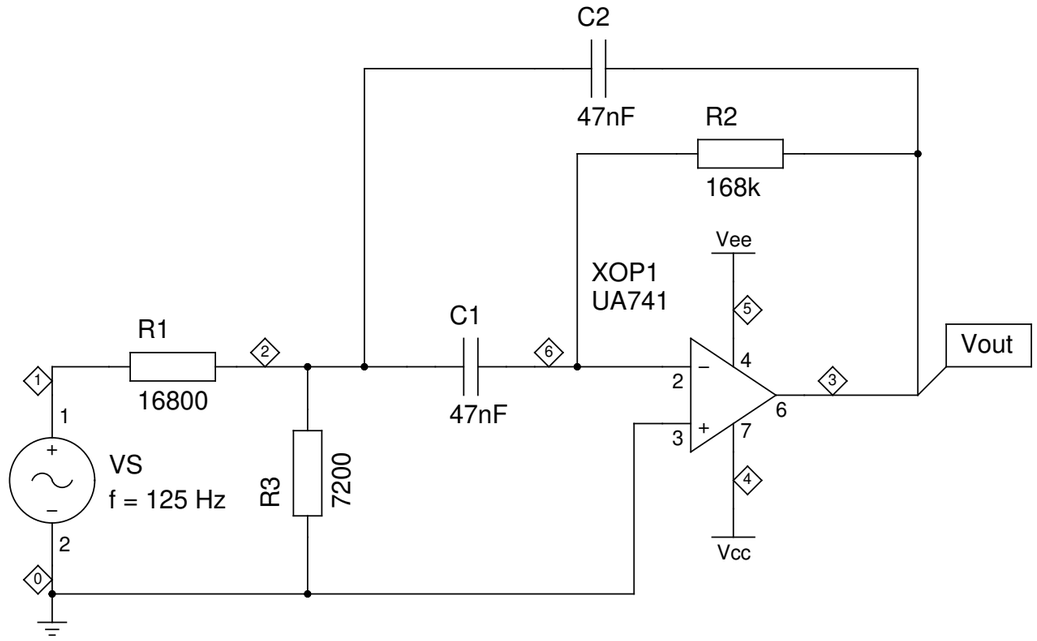
TITLE	OCTAVE_FILTER 63 Hz Detector – Transient response (63 Hz) Schematic (DFS)		
FILE: gnucap/26.005.00.03.01.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 006: 125 HZ BAND–PASS FILTER – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 0.1 100)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```



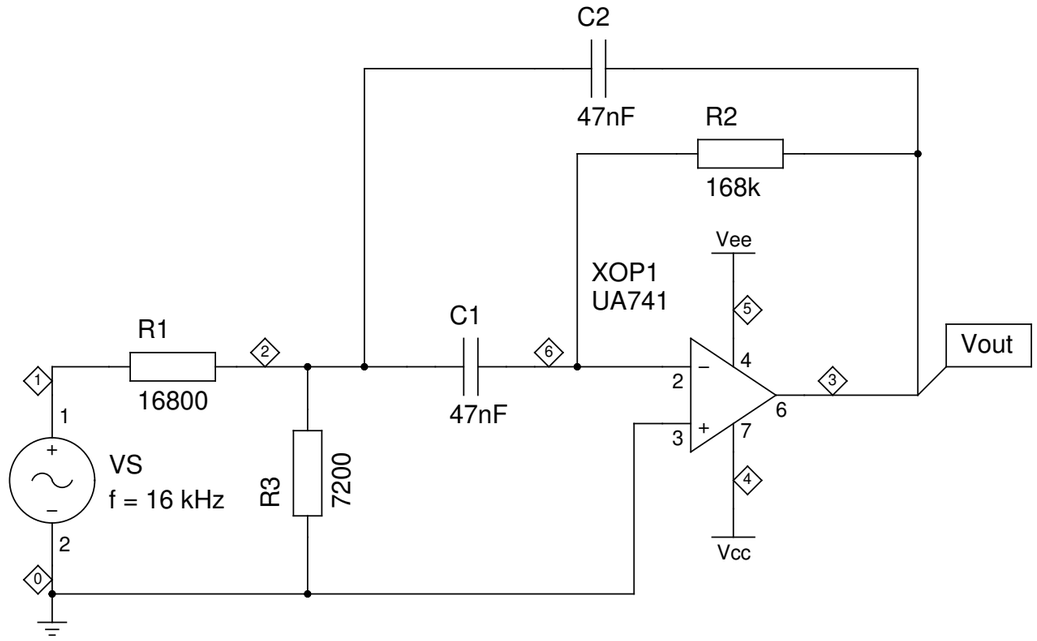
TITLE	OCTAVE_FILTER 125 Hz Band–pass Filter – Frequency response Schematic (DFS)		
FILE: gnucap/26.006.00.00.01.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 006: 125 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 125)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



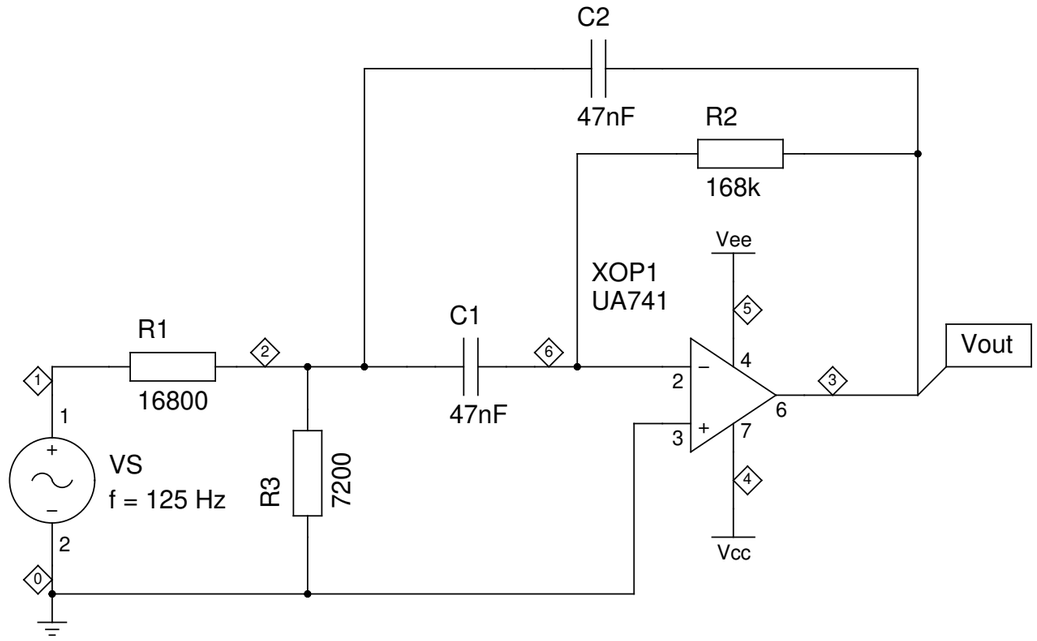
TITLE	OCTAVE_FILTER 125 Hz Band–pass Filter – Transient response (125 Hz) Schematic (DFS)		
FILE: gnucap/26.006.00.01.01.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 006: 125 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 125 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.006.00.01.02.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 006: 125 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 125)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 125 Hz Band–pass Filter – Transient response (125 Hz) Schematic (DFS)		
FILE: gnucap/26.006.00.02.01.sch		REVISION: 20240525	A3
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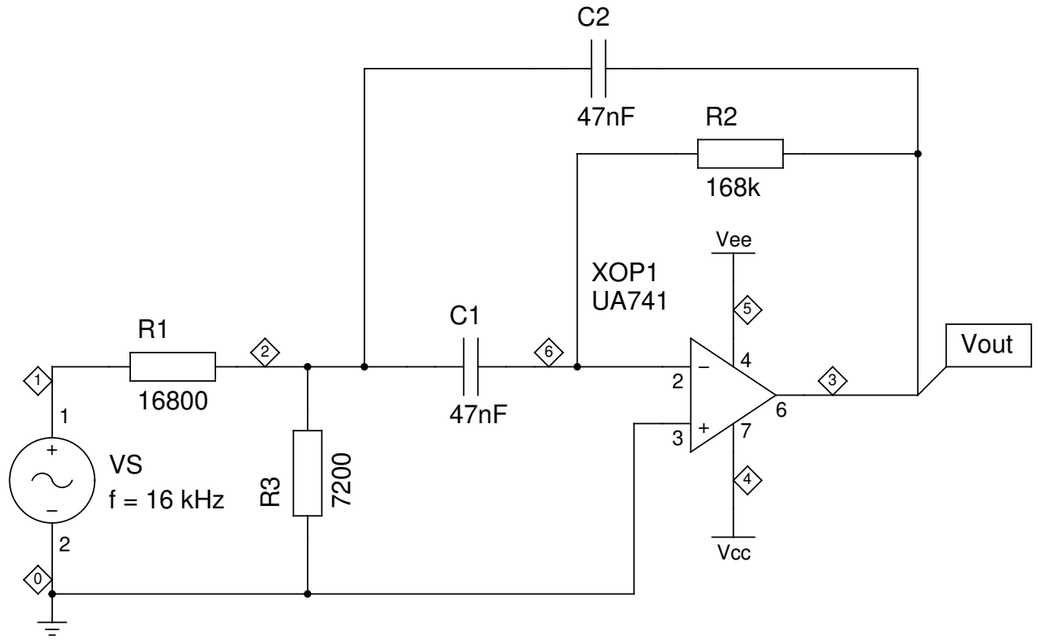
```
.TITLE OCTAVE FILTER – FUNCTION 006: 125 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 125 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.006.00.02.02.sch		REVISION: 20240525	A3
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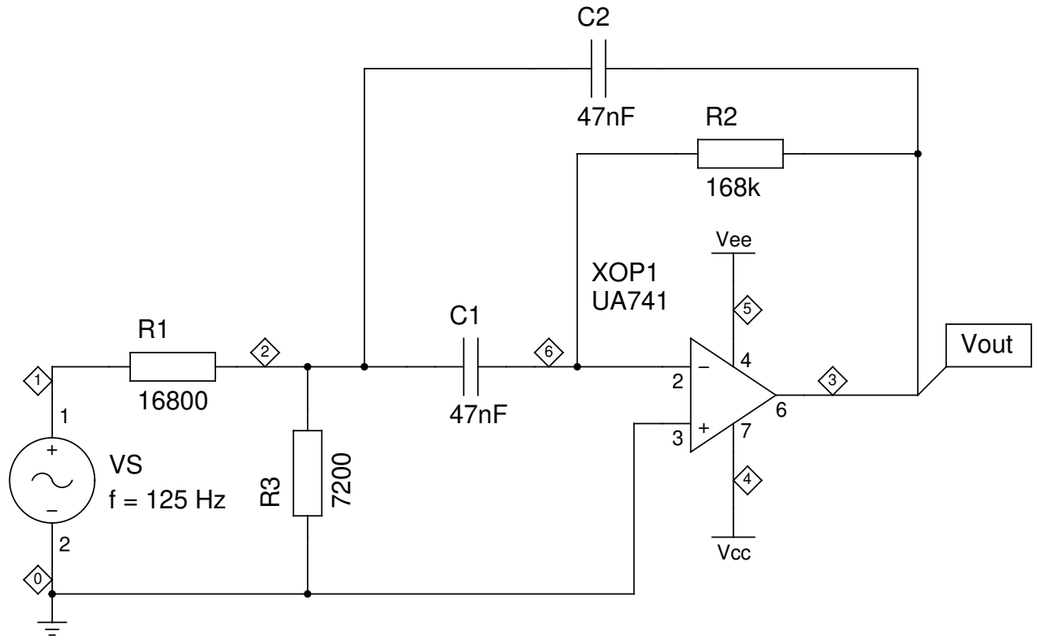
```
.TITLE OCTAVE FILTER – FUNCTION 006: 125 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 125)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 125 Hz Band–pass Filter – Transient response (125 Hz) Schematic (DFS)		
FILE: gnucap/26.006.00.03.01.sch		REVISION: 20240525	A3
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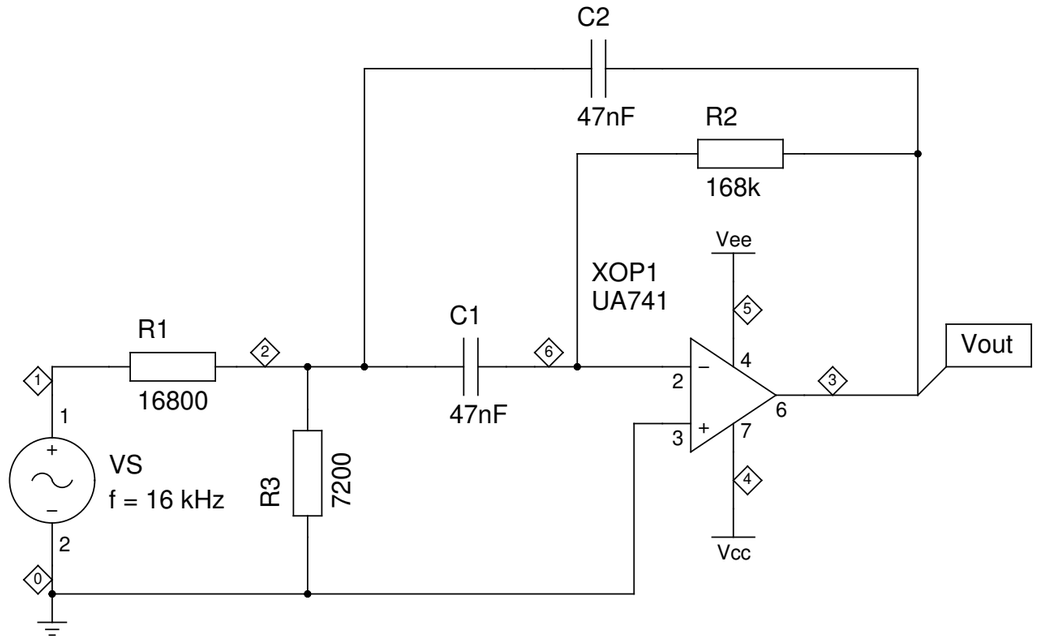
```
.TITLE OCTAVE FILTER – FUNCTION 007: 125 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 16800
R2 3 6 168K
R3 0 2 7200
C1 2 6 47nF
C2 3 2 47nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 125 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.006.00.03.02.sch		REVISION: 20240525	A3
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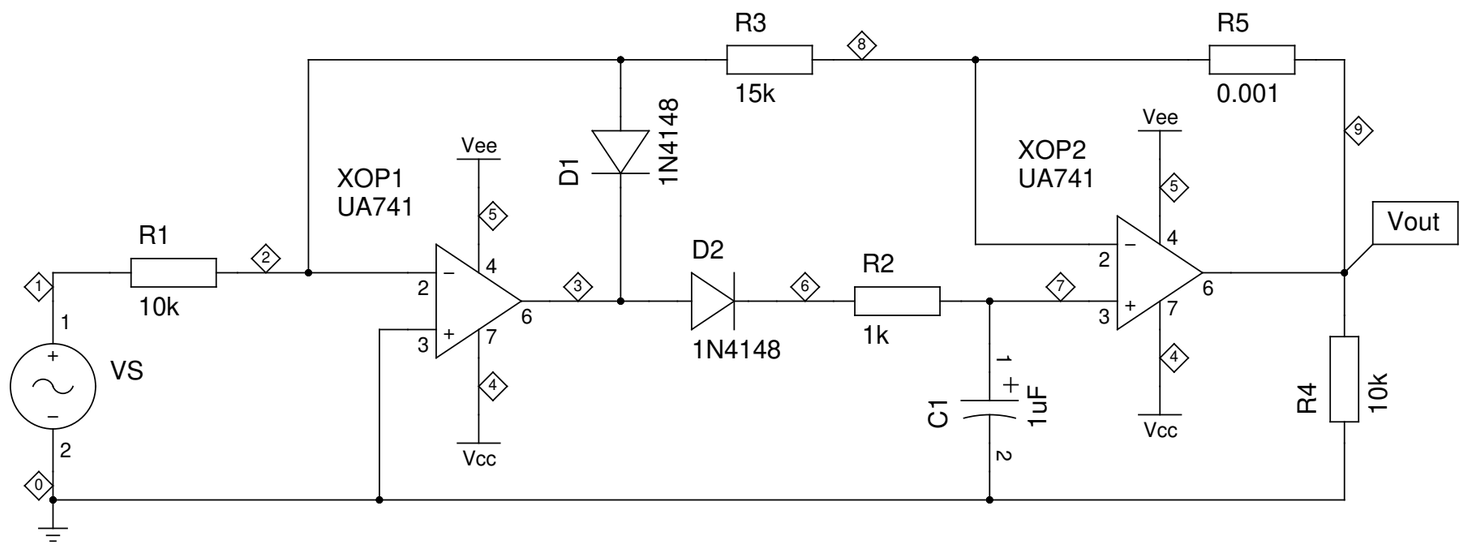
```
.TITLE OCTAVE FILTER – FUNCTION 007: 125 HZ DETECTOR – FREQUENCY RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1 125)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3) VDB(9)

*     FROM     TO   STEP
.TRAN 0.00001  0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20            0.1    100k

.END
```



TITLE	OCTAVE_FILTER 125 Hz Detector – Frequency response Schematic (DFS)		
FILE: gnucap/26.007.00.00.01.sch		REVISION: 20240525	A3
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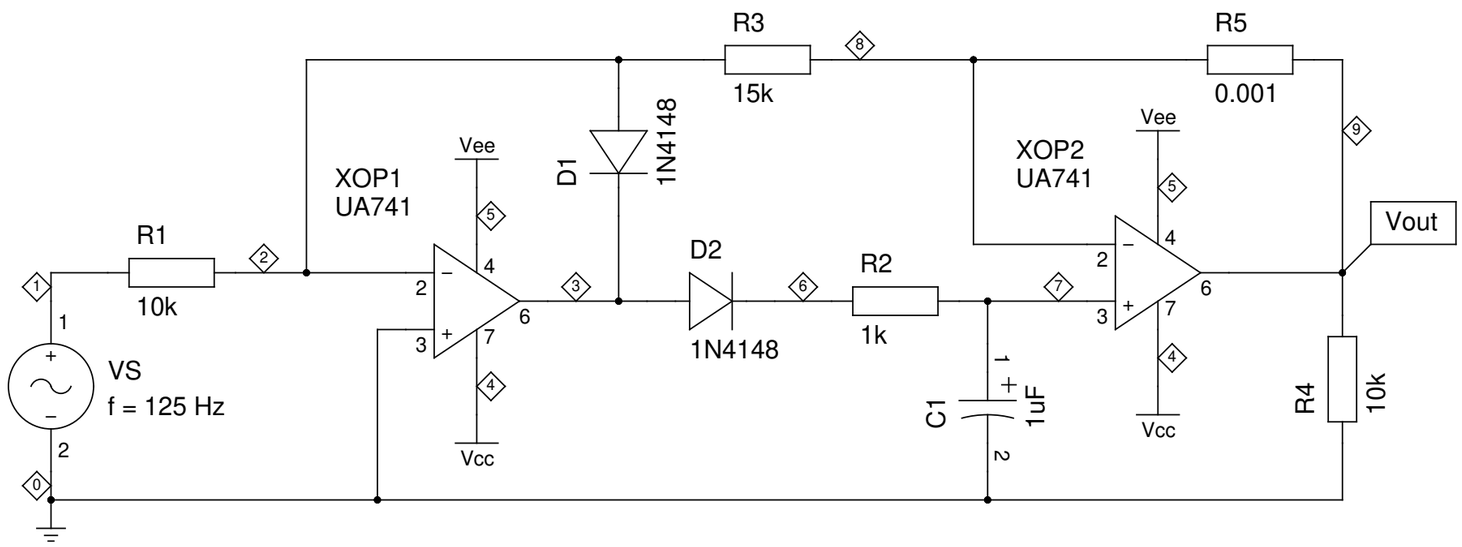
```
.TITLE OCTAVE FILTER – FUNCTION 007: 125 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1 125)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(9) V(4) V(5)

*    FROM  TO   STEP
.TRAN 0    0.4  0.00001

.END
```



TITLE	OCTAVE_FILTER 125 Hz Detector – Transient response (125 Hz) Schematic (DFS)		
FILE: gnucap/26.007.00.01.01.sch		REVISION: 20240525	A3
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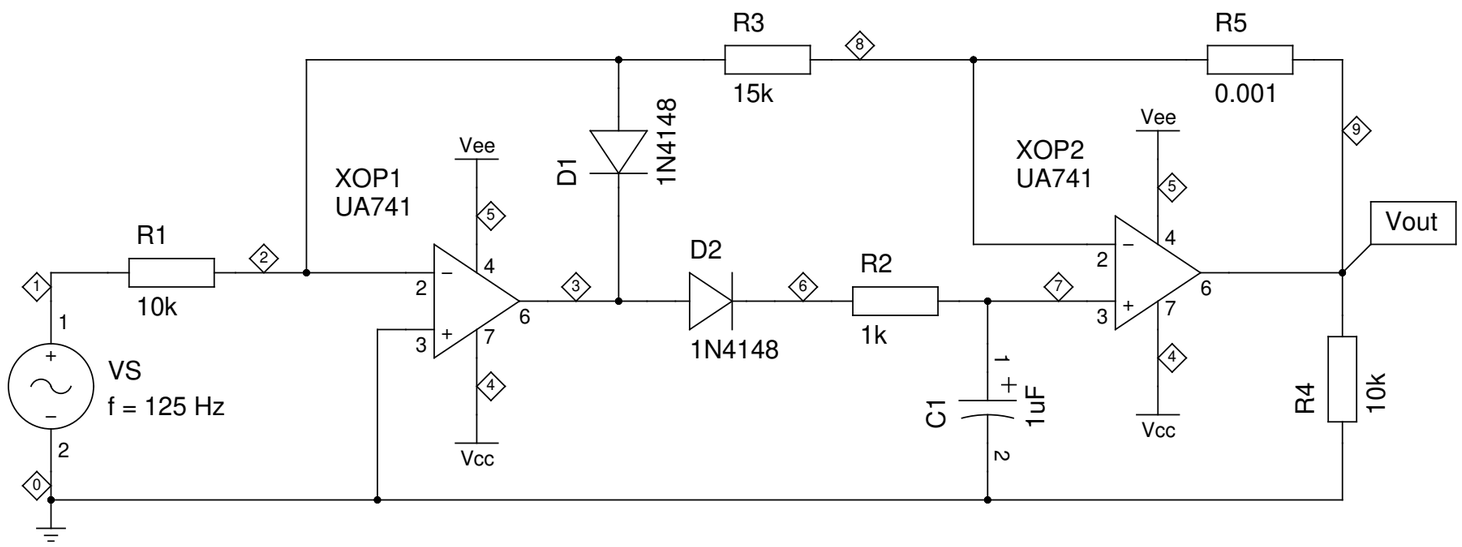
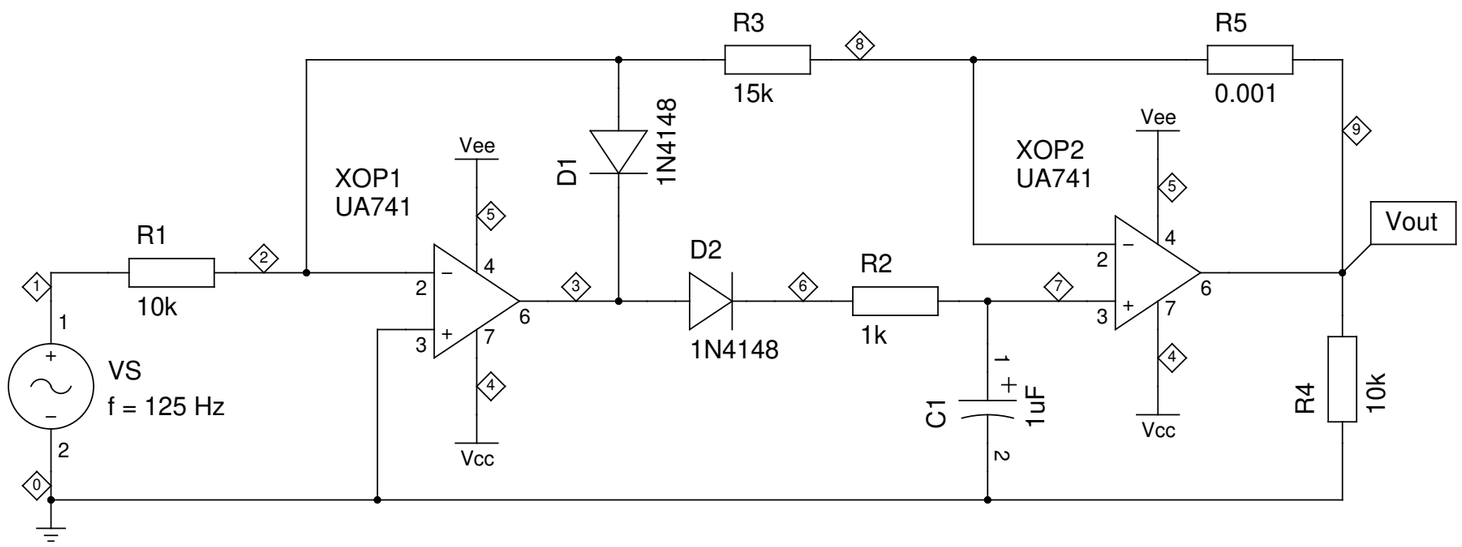
```
.TITLE OCTAVE FILTER – FUNCTION 007: 125 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 125)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3) I(R4) I(R5) I(D1) I(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



TITLE	OCTAVE_FILTER 125 Hz Detector – Transient response (125 Hz) Schematic (DFS)		
FILE: gnucap/26.007.00.02.01.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 007: 125 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 125)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3) P(R4) P(R5) P(D1) P(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



TITLE	OCTAVE_FILTER 125 Hz Detector – Transient response (125 Hz) Schematic (DFS)		
FILE: gnucap/26.007.00.03.01.sch		REVISION: 20240525	A3
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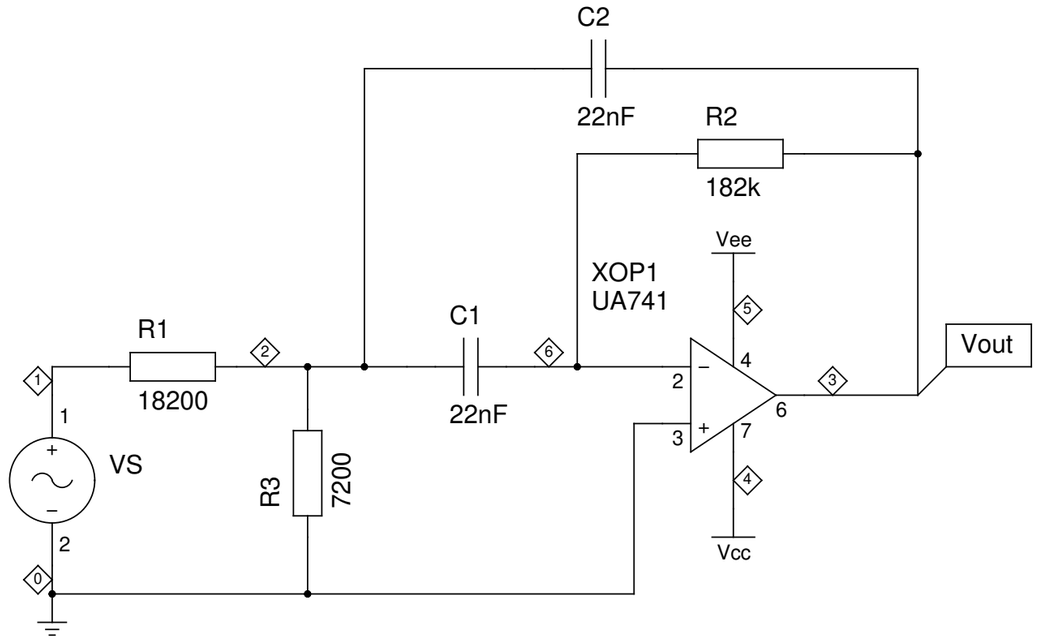
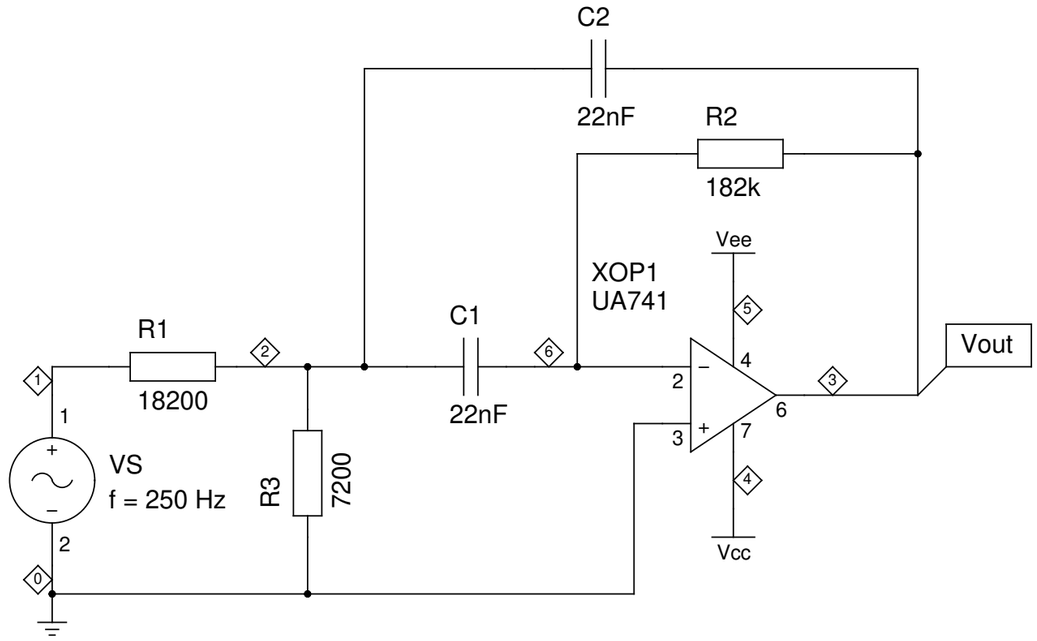
```
.TITLE OCTAVE FILTER – FUNCTION 008: 250 HZ BAND–PASS FILTER – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1 100)
R1 1 2 18200
R2 3 6 182K
R3 0 2 7200
C1 2 6 22nF
C2 3 2 22nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20          0.1    100k

.END
```



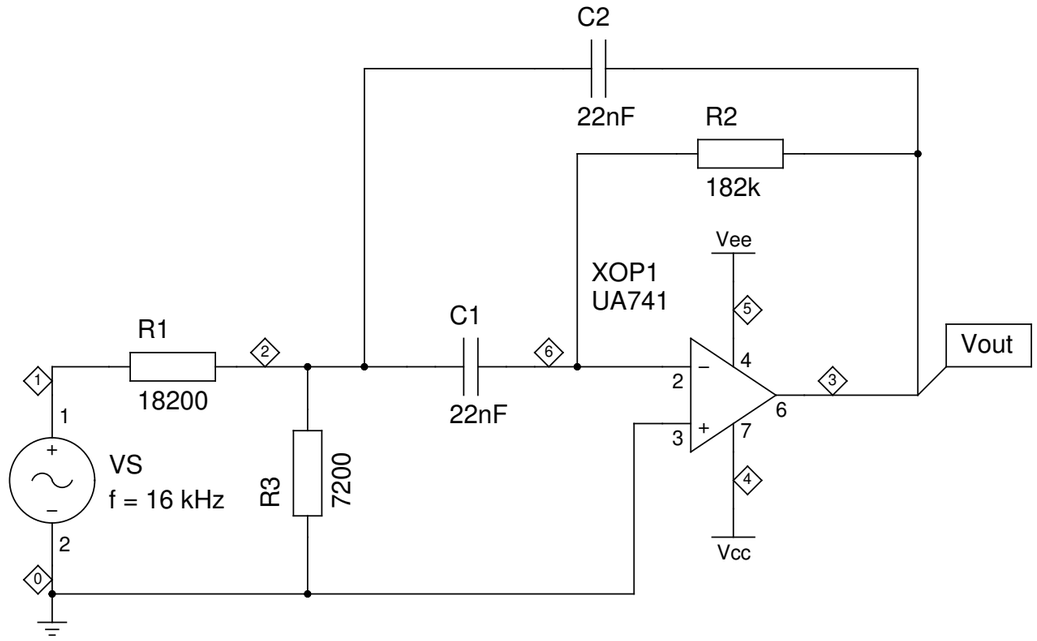
TITLE	OCTAVE_FILTER 250 Hz Band–pass Filter – Frequency response Schematic (DFS)		
FILE: gnucap/26.008.00.00.01.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 008: 250 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 250)
R1 1 2 18200
R2 3 6 182K
R3 0 2 7200
C1 2 6 22nF
C2 3 2 22nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*    FROM  TO    STEP
.TRAN 0     0.05  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 250 Hz Band–pass Filter – Transient response (250 Hz) Schematic (DFS)		
FILE: gnucap/26.008.00.01.01.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 008: 250 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 18200
R2 3 6 182K
R3 0 2 7200
C1 2 6 22nF
C2 3 2 22nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 250 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.008.00.01.02.sch		REVISION: 20240525	A3
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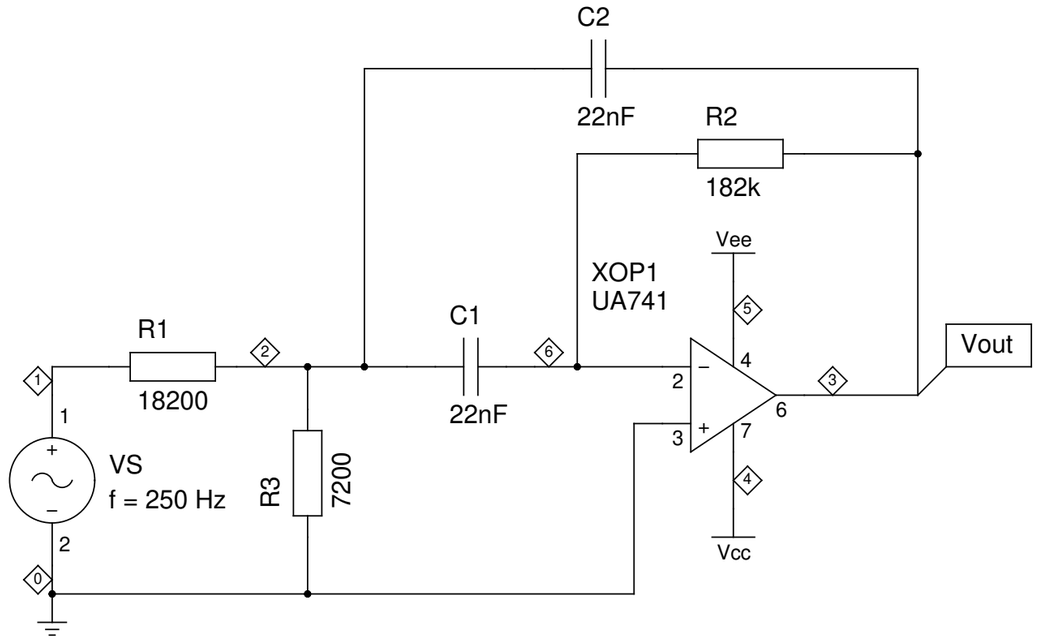
```
.TITLE OCTAVE FILTER – FUNCTION 008: 250 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 250)
R1 1 2 18200
R2 3 6 182K
R3 0 2 7200
C1 2 6 22nF
C2 3 2 22nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 250 Hz Band–pass Filter – Transient response (250 Hz) Schematic (DFS)		
FILE: gnucap/26.008.00.02.01.sch		REVISION: 20240525	A3
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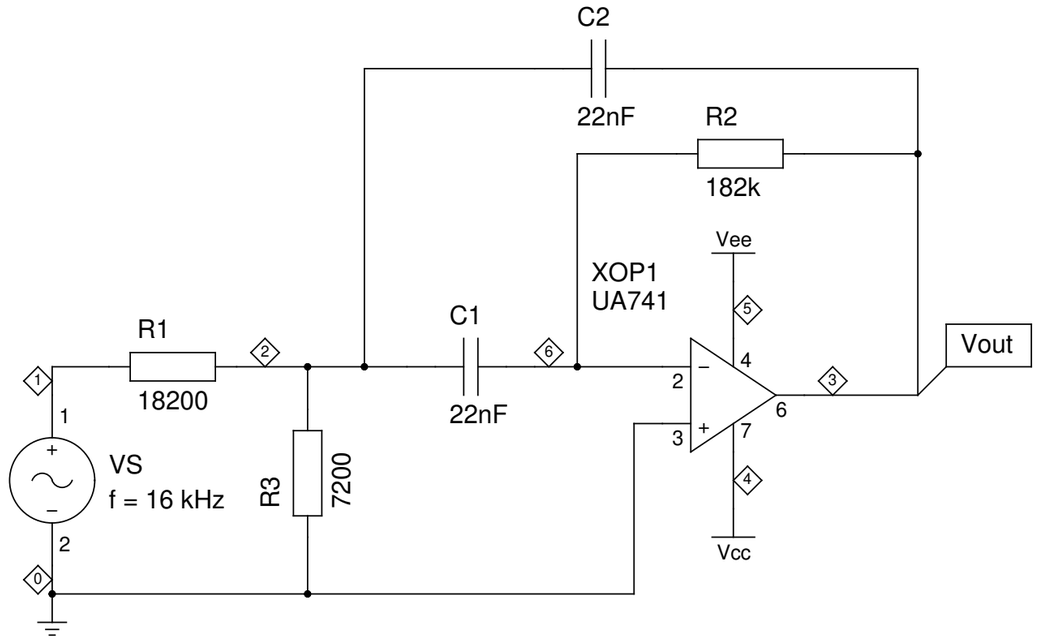
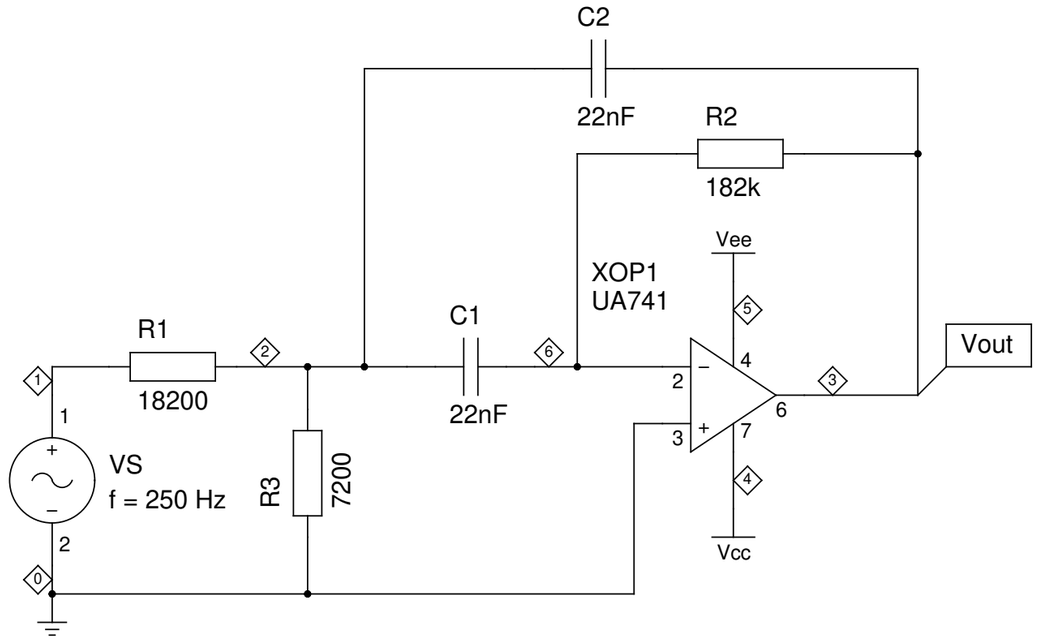
```
.TITLE OCTAVE FILTER – FUNCTION 008: 250 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 18200
R2 3 6 182K
R3 0 2 7200
C1 2 6 22nF
C2 3 2 22nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



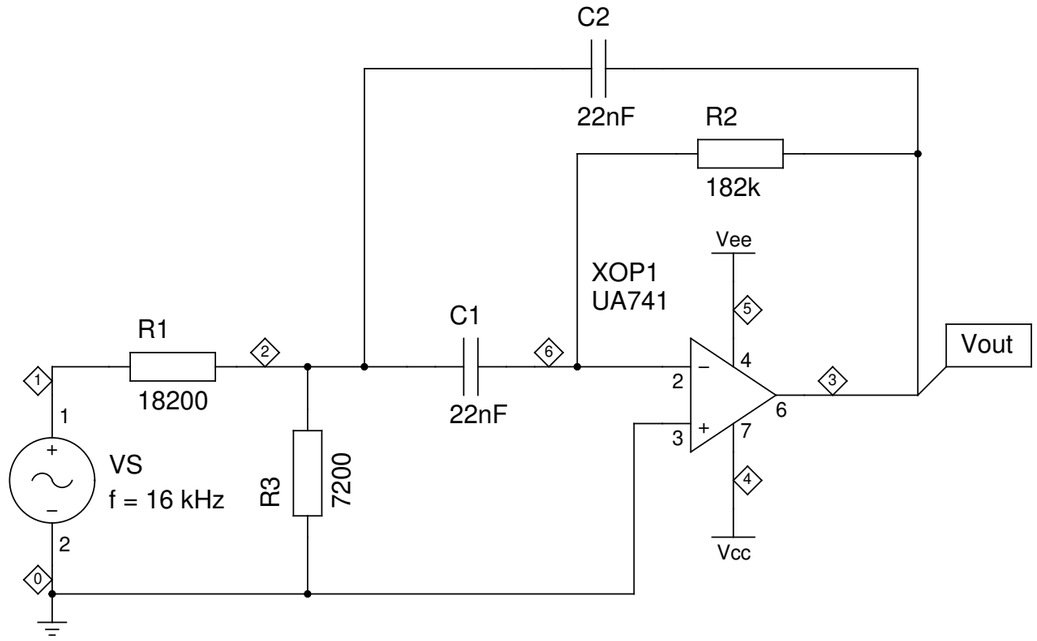
TITLE	OCTAVE_FILTER 250 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.008.00.02.02.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 008: 250 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 250)
R1 1 2 18200
R2 3 6 182K
R3 0 2 7200
C1 2 6 22nF
C2 3 2 22nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



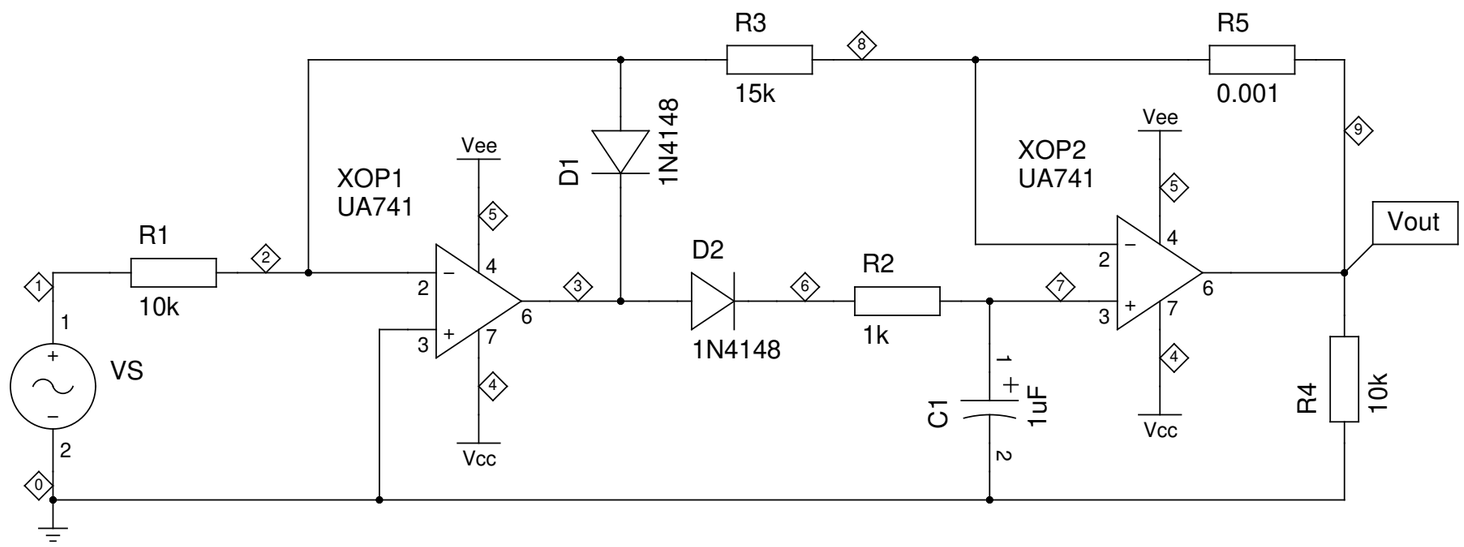
TITLE	OCTAVE_FILTER 250 Hz Band–pass Filter – Transient response (250 Hz) Schematic (DFS)		
FILE: gnucap/26.008.00.03.01.sch		REVISION: 20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 008: 250 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 18200
R2 3 6 182K
R3 0 2 7200
C1 2 6 22nF
C2 3 2 22nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



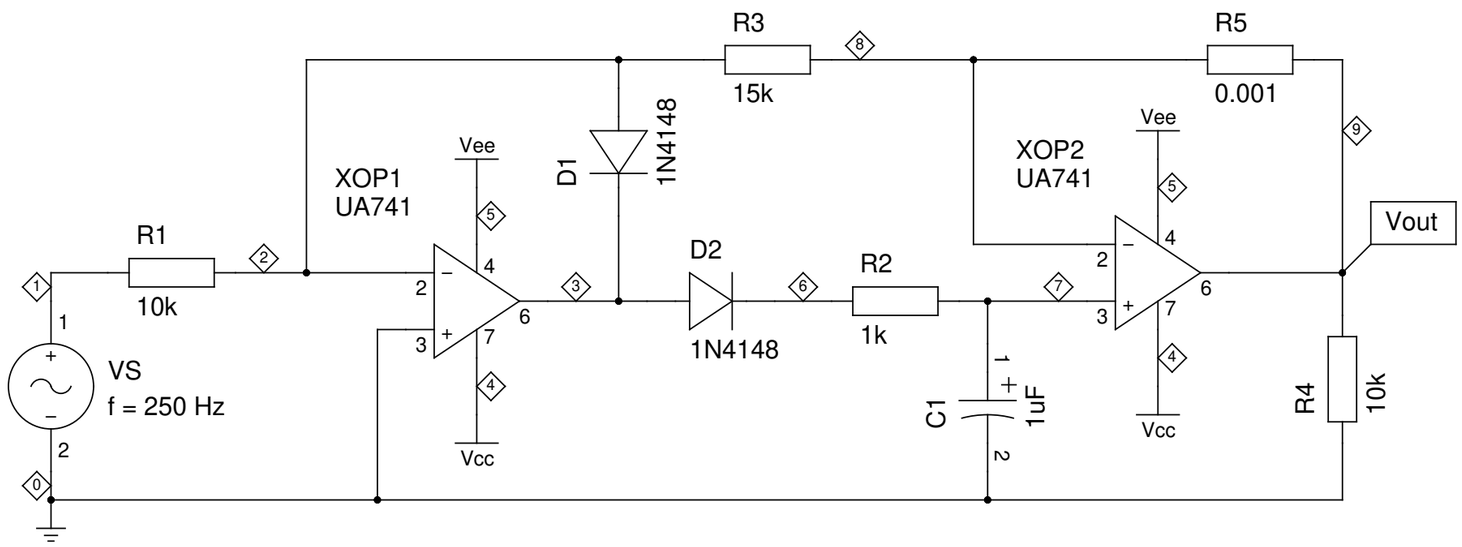
TITLE	OCTAVE_FILTER 250 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.008.00.03.02.sch		REVISION: ee20240525	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 009: 250 HZ DETECTOR – FREQUENCY RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1 250)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3) VDB(9)

*     FROM     TO   STEP
.TRAN 0.00001  0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20            0.1    100k

.END
```



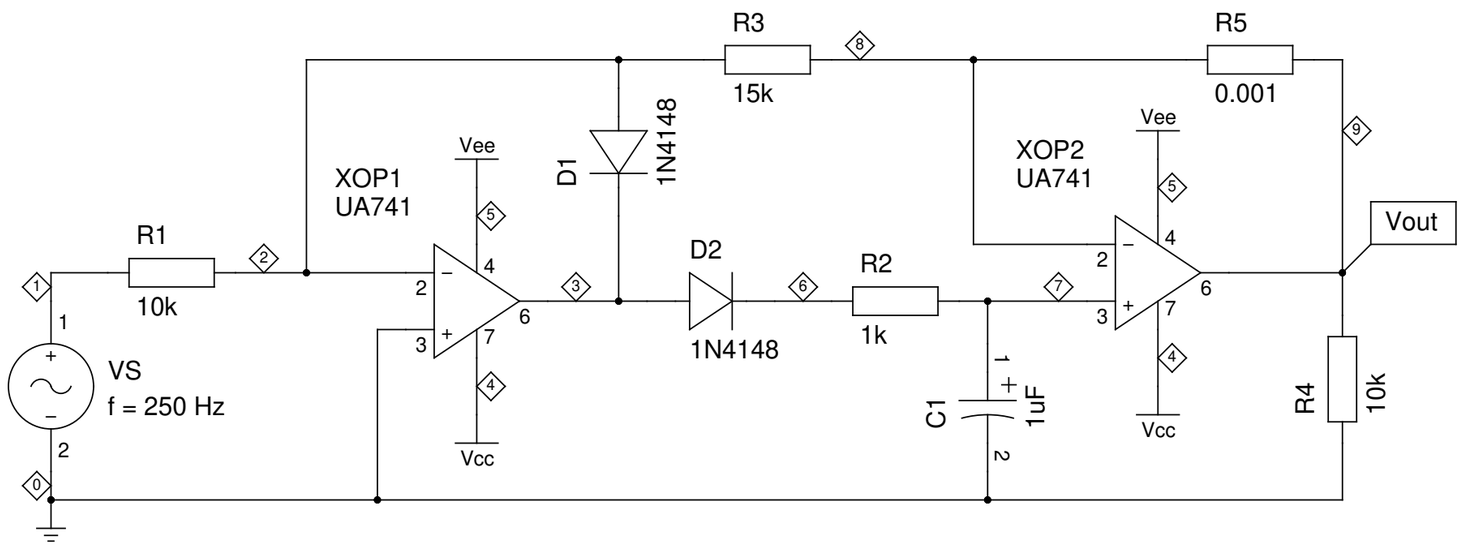
TITLE	OCTAVE_FILTER 250 Hz Detector – Frequency response Schematic (DFS)		
FILE: gnucap/26.009.00.00.01.sch		REVISION: 20240526	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 009: 250 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1 250)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(9) V(4) V(5)

*    FROM  TO   STEP
.TRAN 0    0.2  0.00001

.END
```



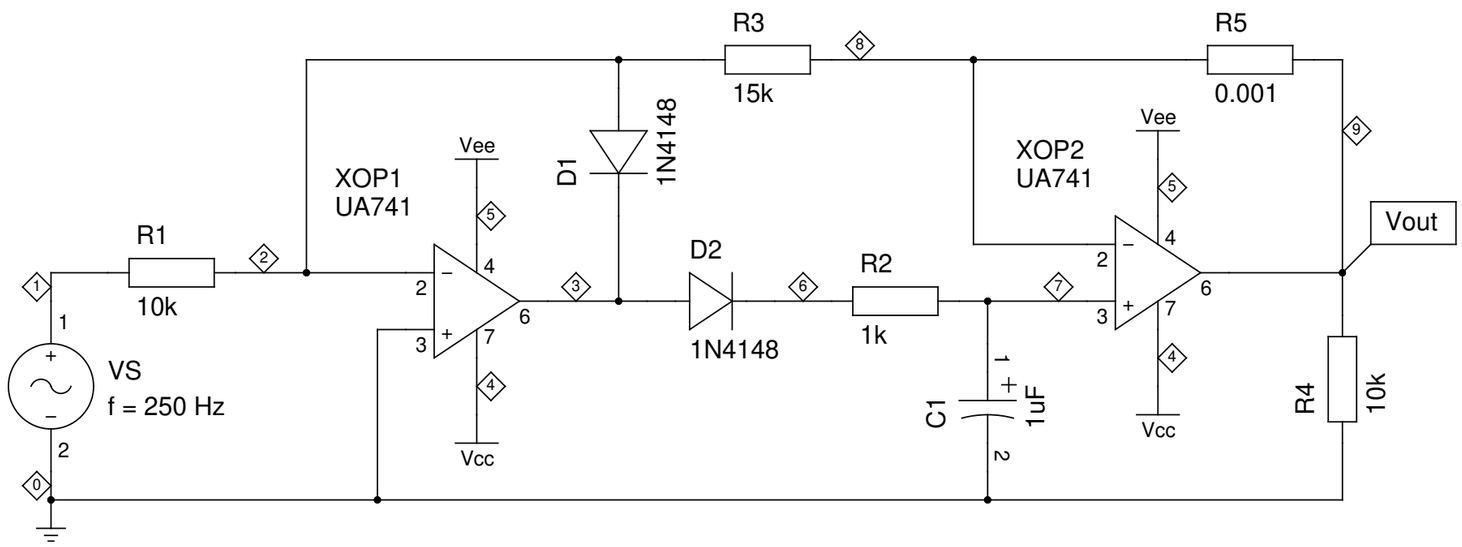
TITLE	OCTAVE_FILTER 250 Hz Detector – Transient response (250 Hz) Schematic (DFS)		
FILE: gnucap/26.009.00.01.01.sch		REVISION: 20240526	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 009: 250 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e−14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=−15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 250)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3) I(R4) I(R5) I(D1) I(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



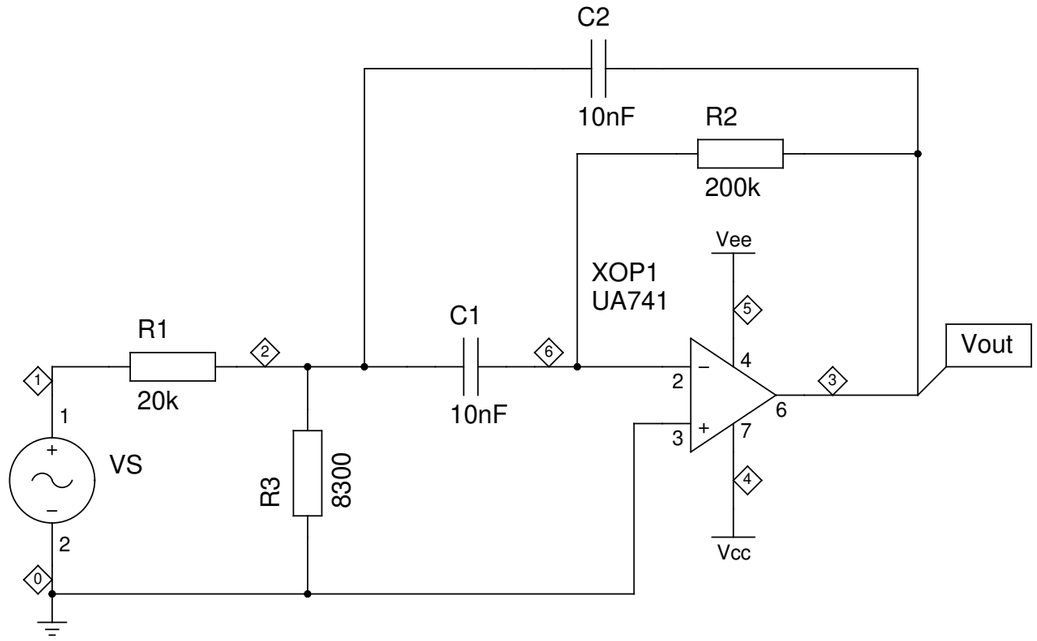
TITLE	OCTAVE_FILTER 250 Hz Detector – Transient response (250 Hz) Schematic (DFS)		
FILE: gnucap/26.009.00.02.01.sch		REVISION: 20240526	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 009: 250 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 250)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3) P(R4) P(R5) P(D1) P(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



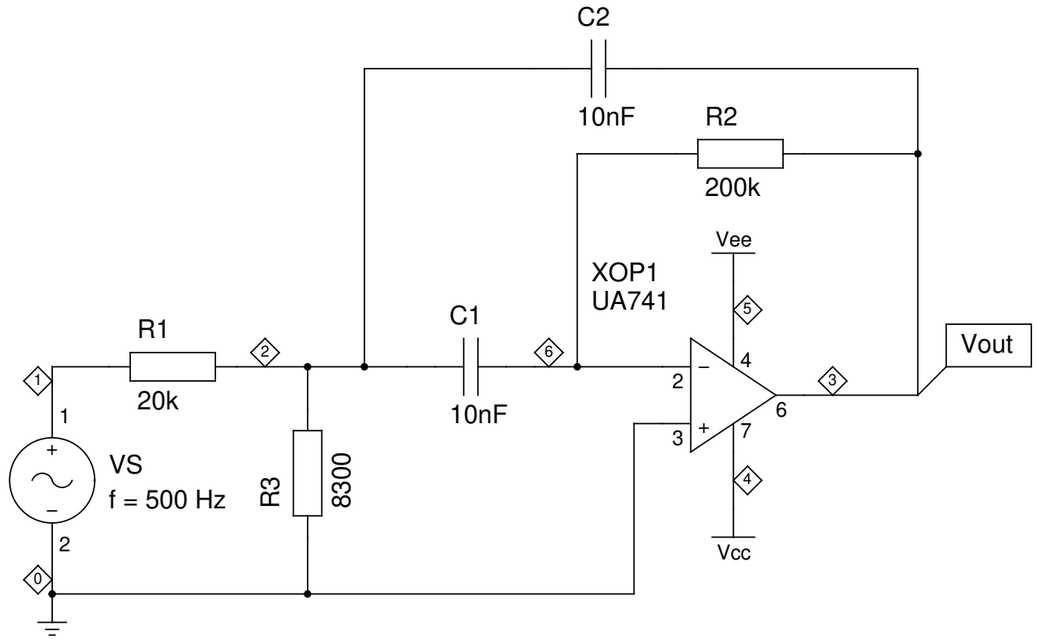
TITLE	OCTAVE_FILTER 250 Hz Detector – Transient response (250 Hz) Schematic (DFS)		
FILE: gnucap/26.009.00.03.01.sch		REVISION: 20240526	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 010: 500 HZ BAND–PASS FILTER – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1.41 500)
R1 1 2 20k
R2 3 6 200K
R3 0 2 8300
C1 2 6 10nF
C2 3 2 10nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20          0.1    100k

.END
```



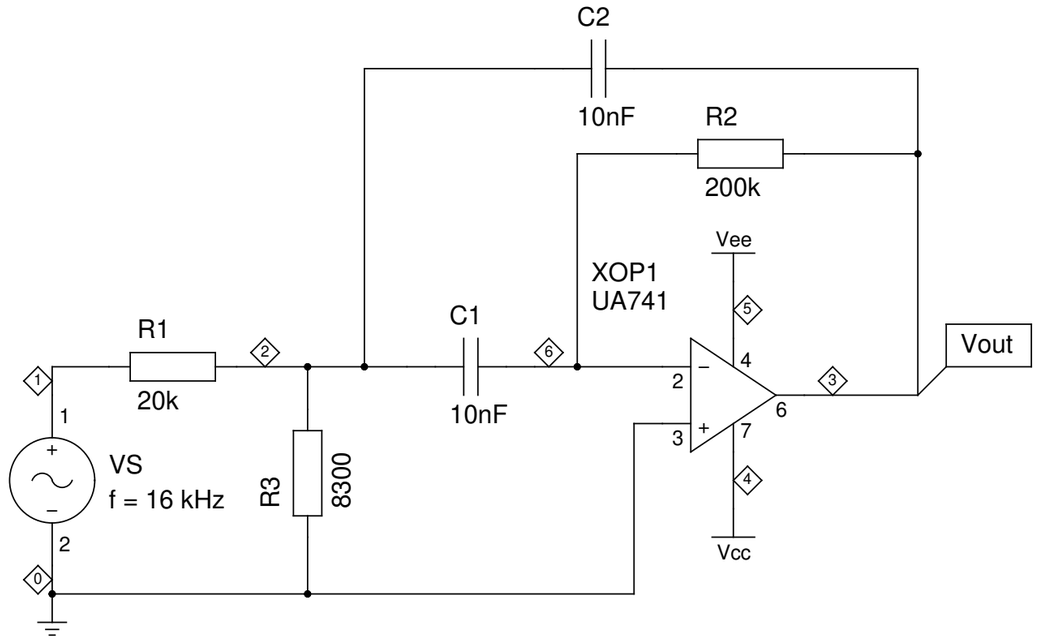
TITLE	OCTAVE_FILTER 500 Hz Band–pass Filter – Frequency response Schematic (DFS)		
FILE: gnucap/26.010.00.00.01.sch		REVISION: 20240526	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 010: 500 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 500)
R1 1 2 20k
R2 3 6 200K
R3 0 2 8300
C1 2 6 10nF
C2 3 2 10nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO    STEP
.TRAN 0     0.05  0.00001 TRACE ALL

.END
```



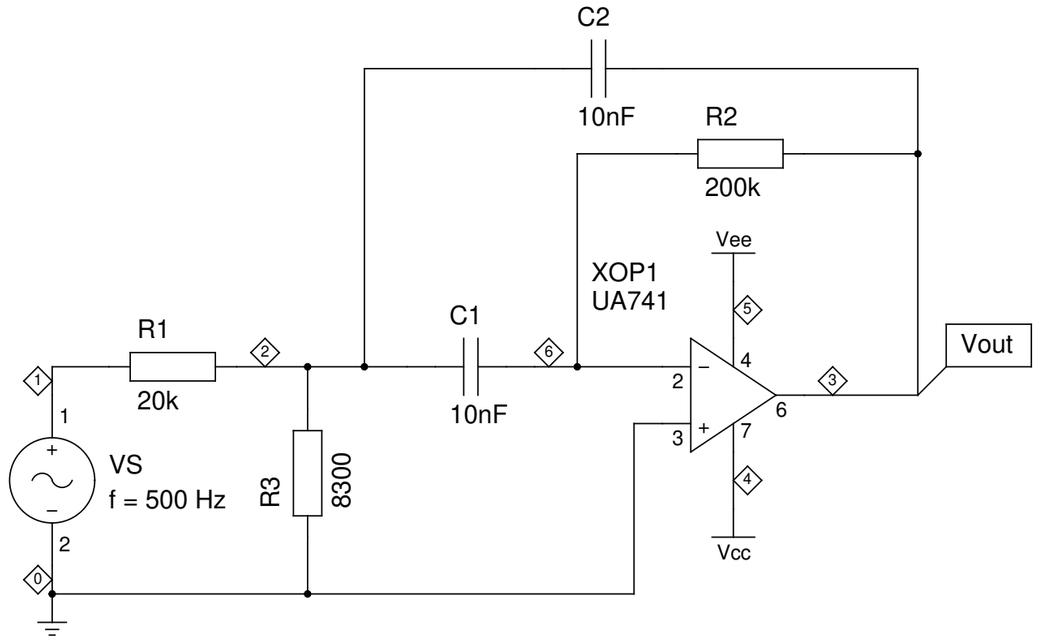
TITLE	OCTAVE_FILTER 500 Hz Band–pass Filter – Transient response (500 Hz) Schematic (DFS)		
FILE: gnucap/26.010.00.01.01.sch		REVISION: 20240526	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 010: 500 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 20k
R2 3 6 200K
R3 0 2 8300
C1 2 6 10nF
C2 3 2 10nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



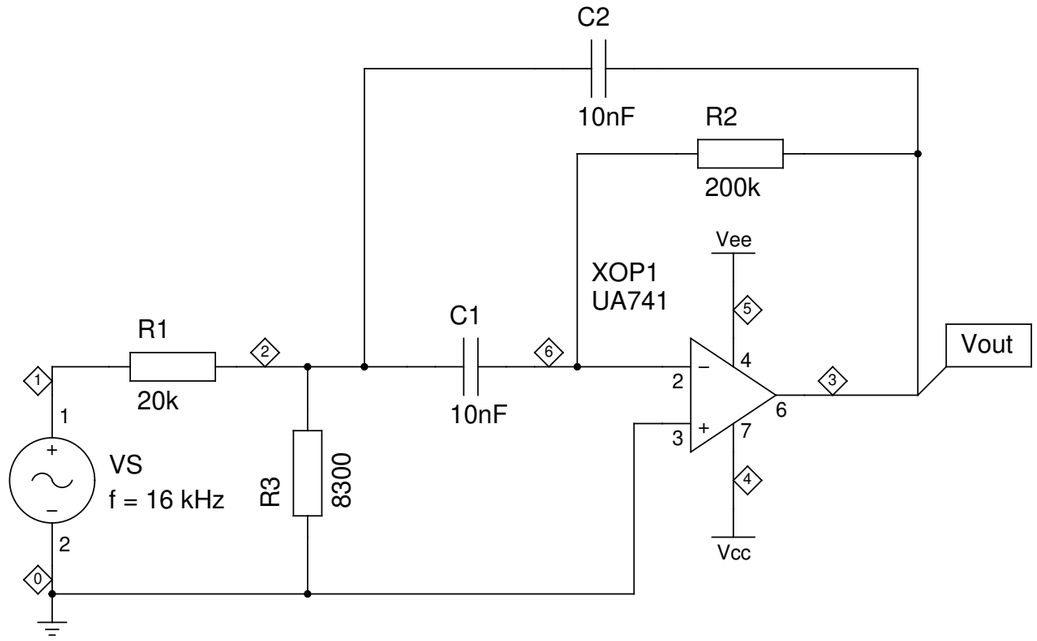
TITLE	OCTAVE_FILTER 500 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.010.00.01.02.sch		REVISION: 20240526	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 010: 500 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 500)
R1 1 2 20k
R2 3 6 200K
R3 0 2 8300
C1 2 6 10nF
C2 3 2 10nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



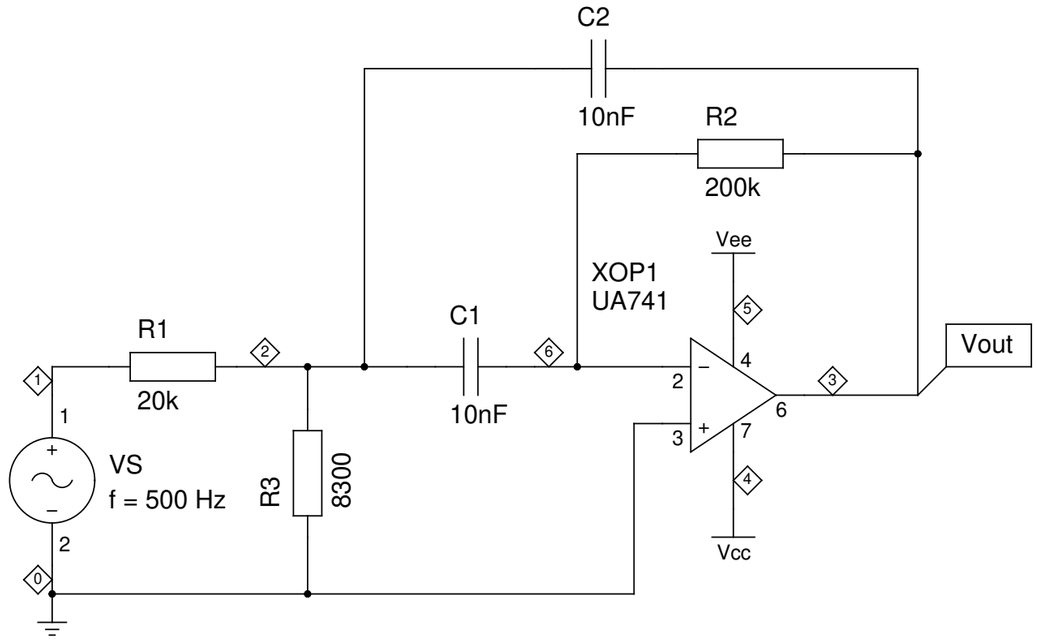
TITLE	OCTAVE_FILTER 500 Hz Band–pass Filter – Transient response (500 Hz) Schematic (DFS)		
FILE: gnucap/26.010.00.02.01.sch		REVISION: 20240526	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 010: 500 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 20k
R2 3 6 200K
R3 0 2 8300
C1 2 6 10nF
C2 3 2 10nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



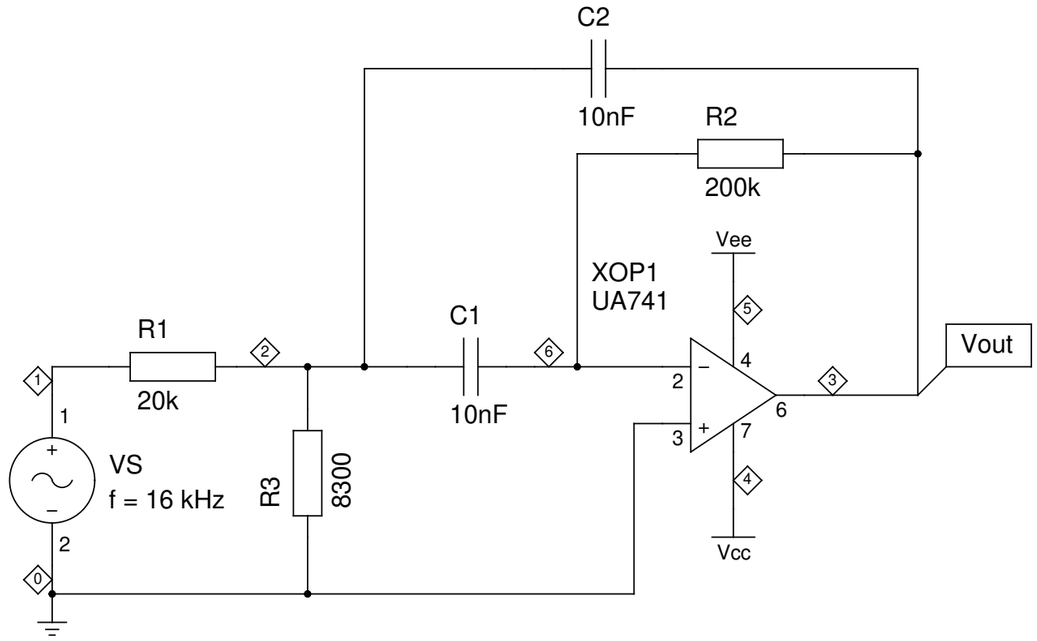
TITLE	OCTAVE_FILTER 500 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.010.00.02.02.sch		REVISION: 20240526	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 010: 500 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 500)
R1 1 2 20k
R2 3 6 200K
R3 0 2 8300
C1 2 6 10nF
C2 3 2 10nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



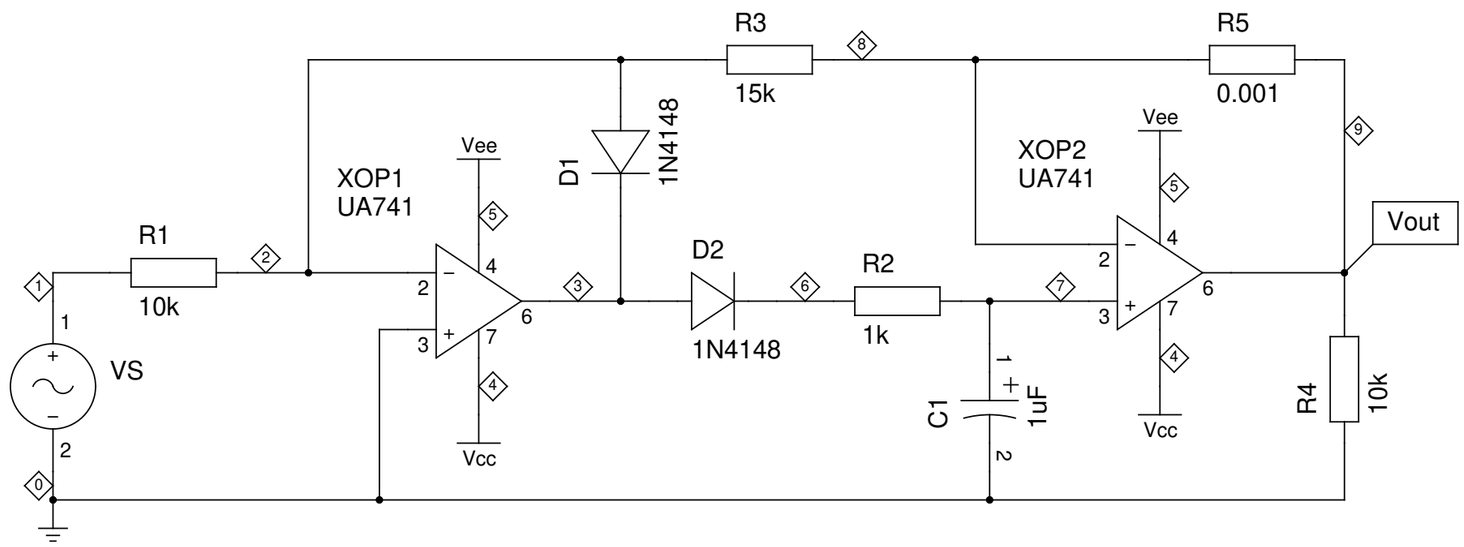
TITLE	OCTAVE_FILTER 500 Hz Band–pass Filter – Transient response (500 Hz) Schematic (DFS)		
FILE: gnucap/26.010.00.03.01.sch		REVISION: 20240527	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 010: 500 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 20k
R2 3 6 200K
R3 0 2 8300
C1 2 6 10nF
C2 3 2 10nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



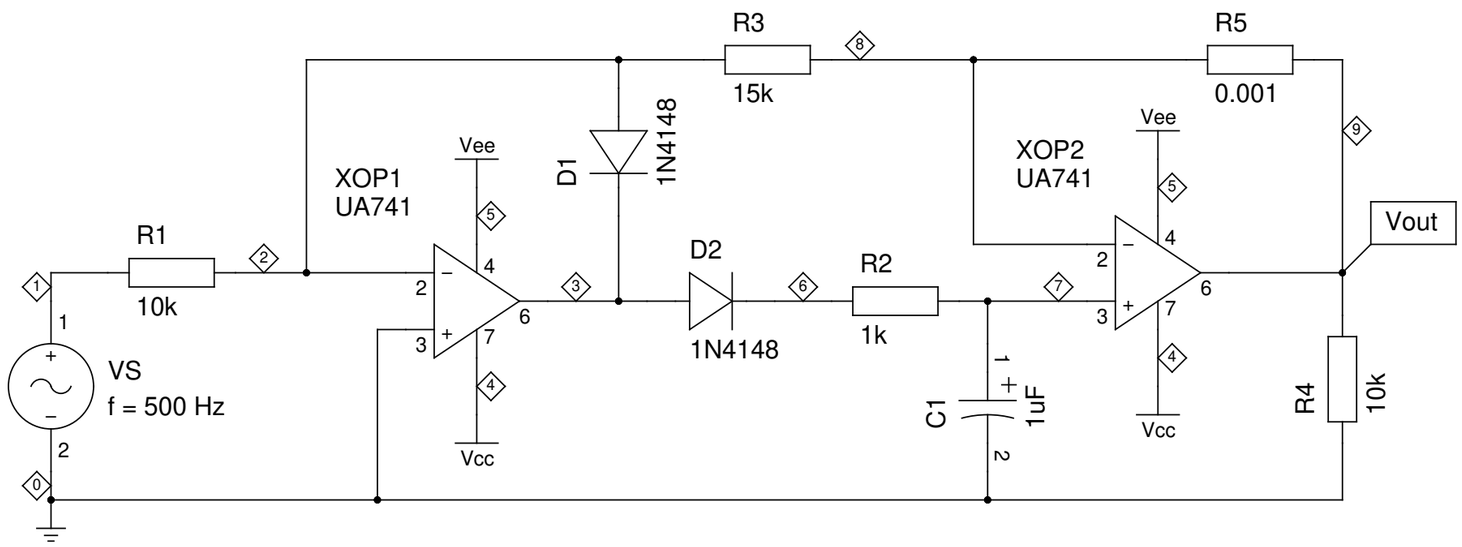
TITLE	OCTAVE_FILTER 500 Hz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.010.00.03.02.sch		REVISION: 20240527	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 011: 500 HZ DETECTOR – FREQUENCY RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1 500)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3) VDB(9)

*     FROM     TO   STEP
.TRAN 0.00001  0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20            0.1    100k

.END
```



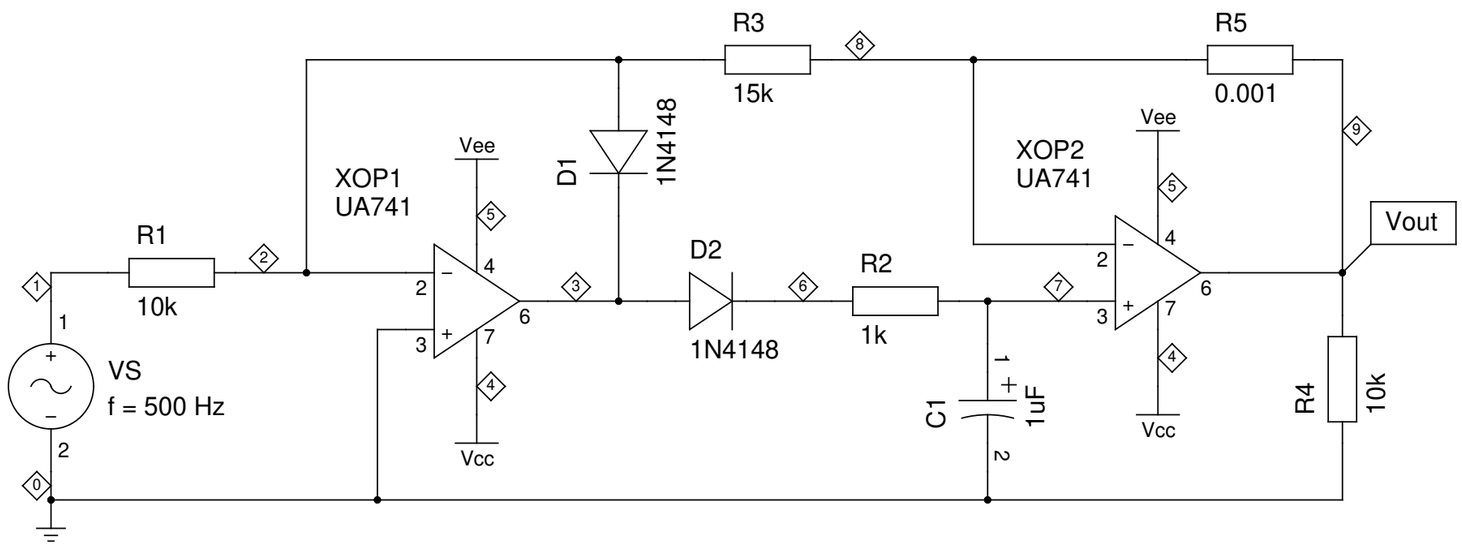
TITLE	OCTAVE_FILTER 500 Hz Detector – Frequency response Schematic (DFS)		
FILE: gnucap/26.011.00.00.01.sch		REVISION: 20240527	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 011: 500 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1 500)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(9) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



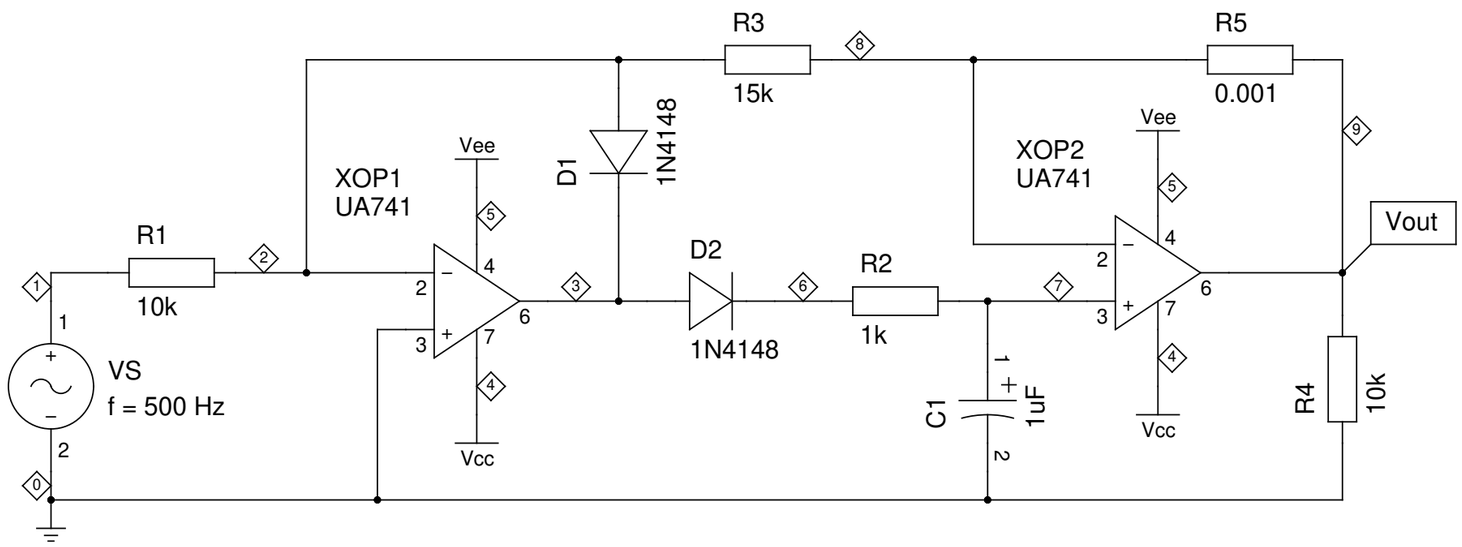
TITLE	OCTAVE_FILTER 500 Hz Detector – Transient response (500 Hz) Schematic (DFS)		
FILE: gnucap/26.011.00.01.01.sch		REVISION: 20240527	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 011: 500 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 500)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3) I(R4) I(R5) I(D1) I(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



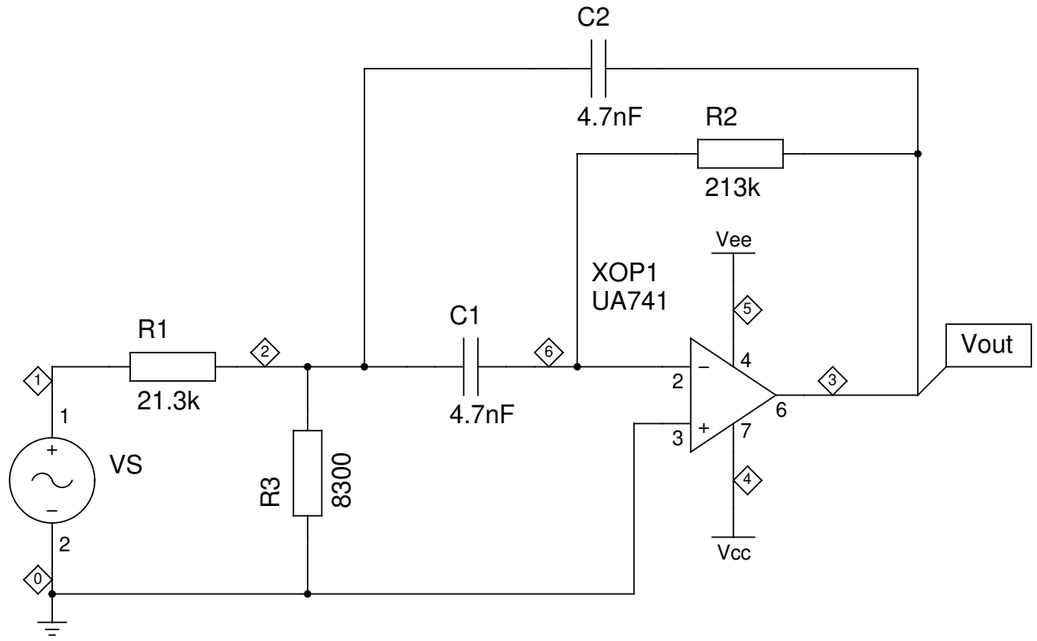
TITLE	OCTAVE_FILTER 500 Hz Detector – Transient response (500 Hz) Schematic (DFS)		
FILE: gnucap/26.011.00.02.01.sch		REVISION: 20240527	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 011: 500 HZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 500)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3) P(R4) P(R5) P(D1) P(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



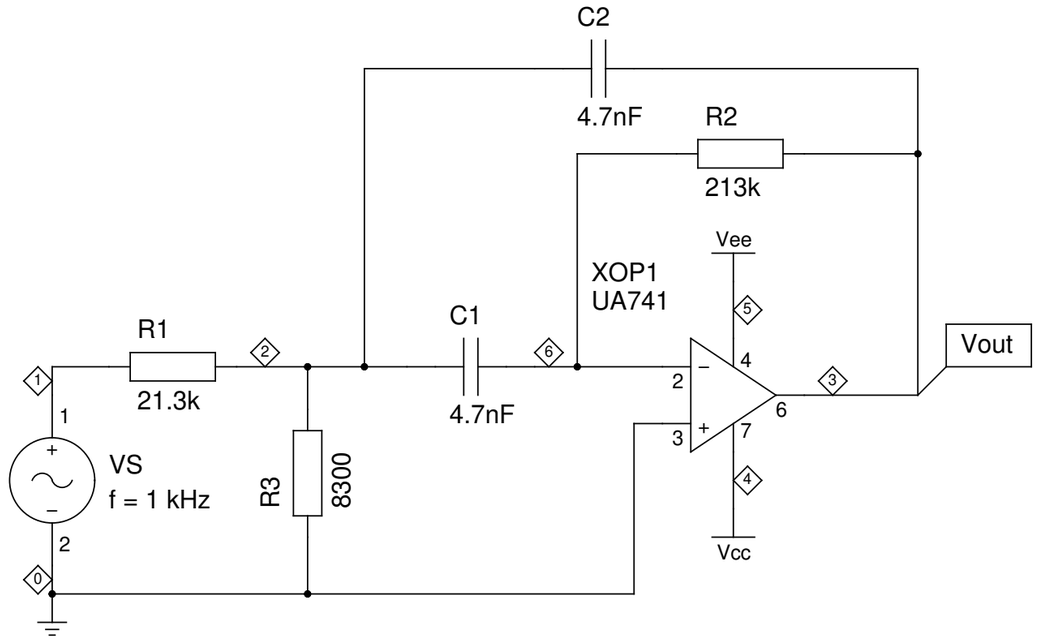
TITLE	OCTAVE_FILTER 500 Hz Detector – Transient response (500 Hz) Schematic (DFS)		
FILE: gnucap/26.011.00.03.01.sch		REVISION: 20240527	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 012: 1 kHZ BAND–PASS FILTER – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1.41 1k)
R1 1 2 21.3k
R2 3 6 213K
R3 0 2 8300
C1 2 6 4.7nF
C2 3 2 4.7nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20          0.1    100k

.END
```



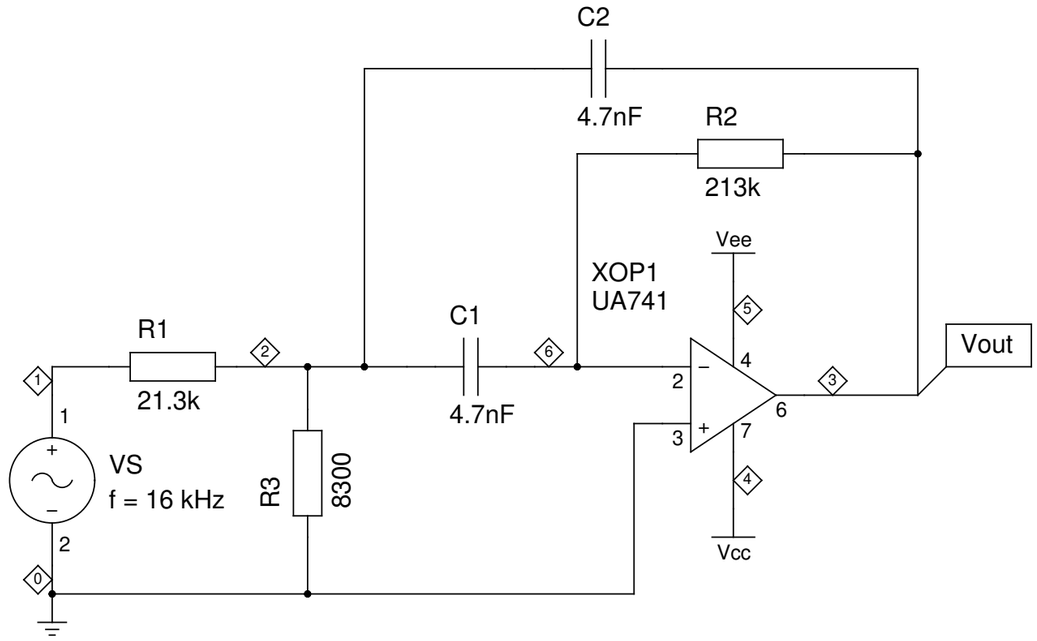
TITLE	OCTAVE_FILTER 1 kHz Band–pass Filter – Frequency response Schematic (DFS)		
FILE: gnucap/26.012.00.00.01.sch		REVISION: 20240528	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 012: 1 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 1k)
R1 1 2 21.3k
R2 3 6 213K
R3 0 2 8300
C1 2 6 4.7nF
C2 3 2 4.7nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO    STEP
.TRAN 0     0.05  0.00001 TRACE ALL

.END
```



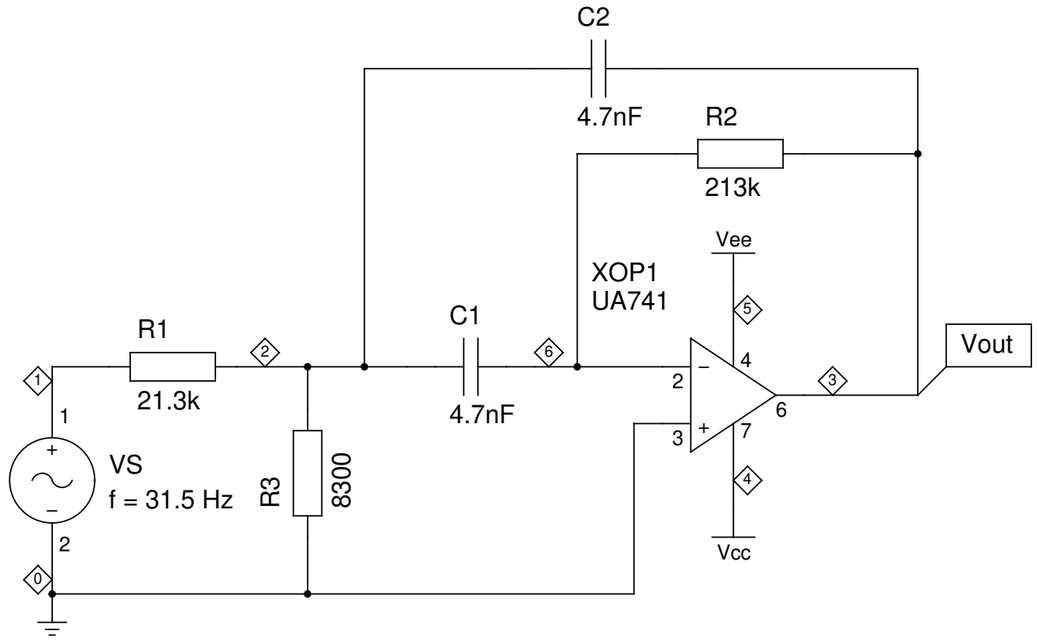
TITLE	OCTAVE_FILTER 1 kHz Band–pass Filter – Transient response (1 kHz) Schematic (DFS)		
FILE: gnucap/26.012.00.01.01.sch		REVISION: 20240528	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 012: 1 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 21.3k
R2 3 6 213K
R3 0 2 8300
C1 2 6 4.7nF
C2 3 2 4.7nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



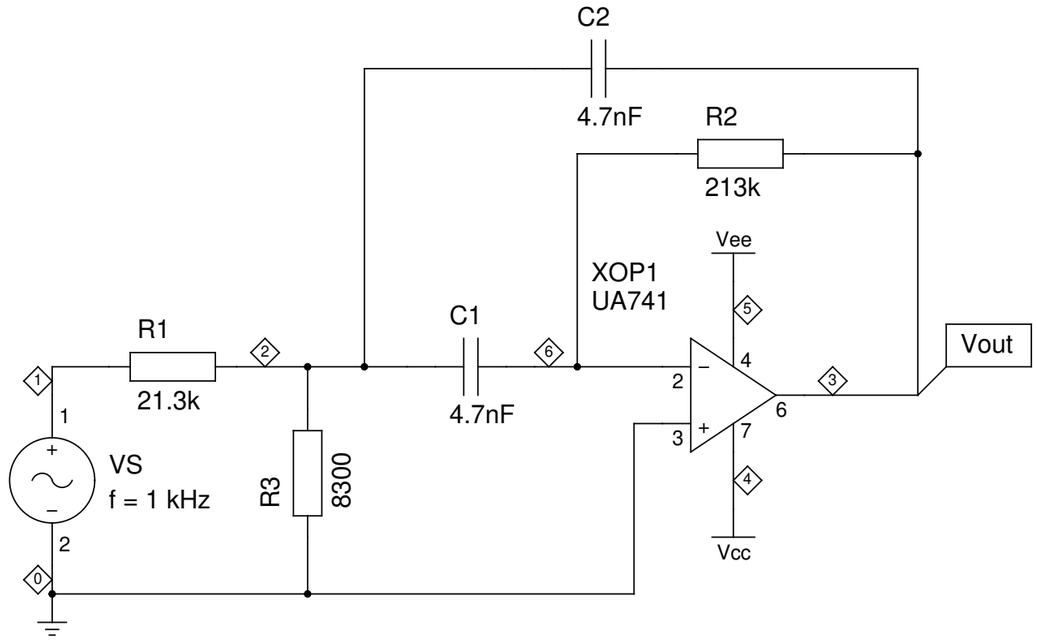
TITLE	OCTAVE_FILTER 1 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.012.00.01.02.sch		REVISION: 20240528	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 012: 1 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 21.3k
R2 3 6 213K
R3 0 2 8300
C1 2 6 4.7nF
C2 3 2 4.7nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



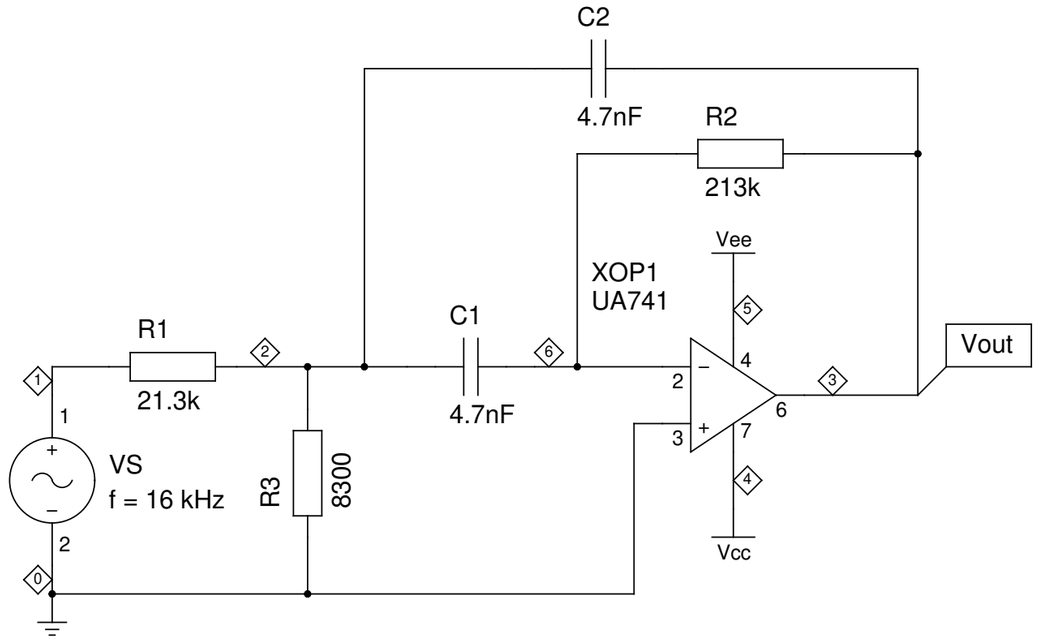
TITLE	OCTAVE_FILTER 1 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.012.00.01.03.sch		REVISION: 20240528	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 012: 1 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 1k)
R1 1 2 21.3k
R2 3 6 213K
R3 0 2 8300
C1 2 6 4.7nF
C2 3 2 4.7nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



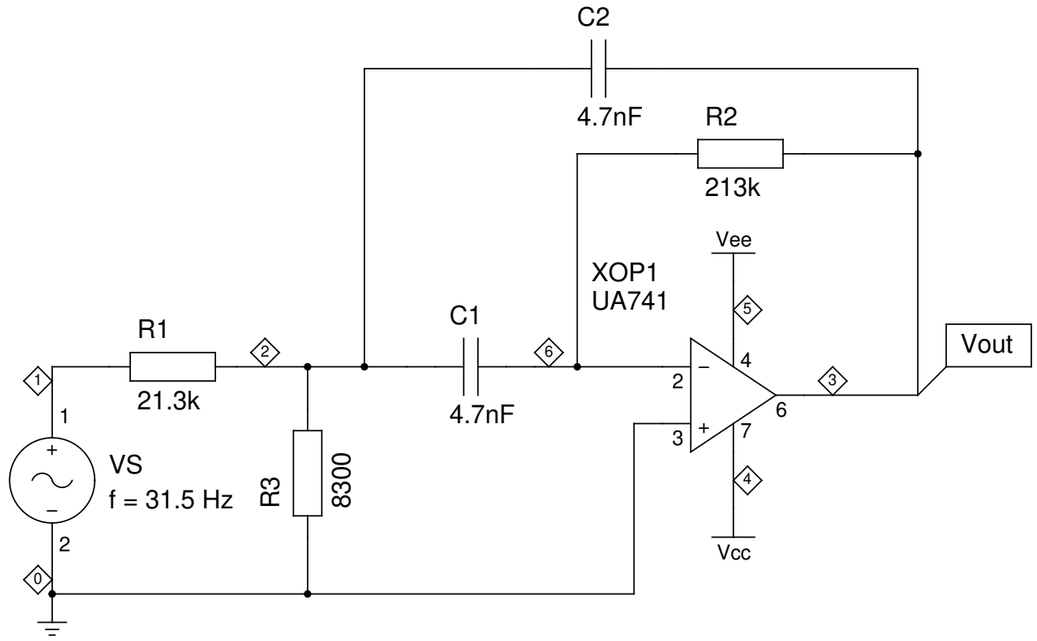
TITLE	OCTAVE_FILTER 1 kHz Band–pass Filter – Transient response (1 kHz) Schematic (DFS)		
FILE: gnucap/26.012.00.02.01.sch		REVISION: 20240528	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 012: 1 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 21.3k
R2 3 6 213K
R3 0 2 8300
C1 2 6 4.7nF
C2 3 2 4.7nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



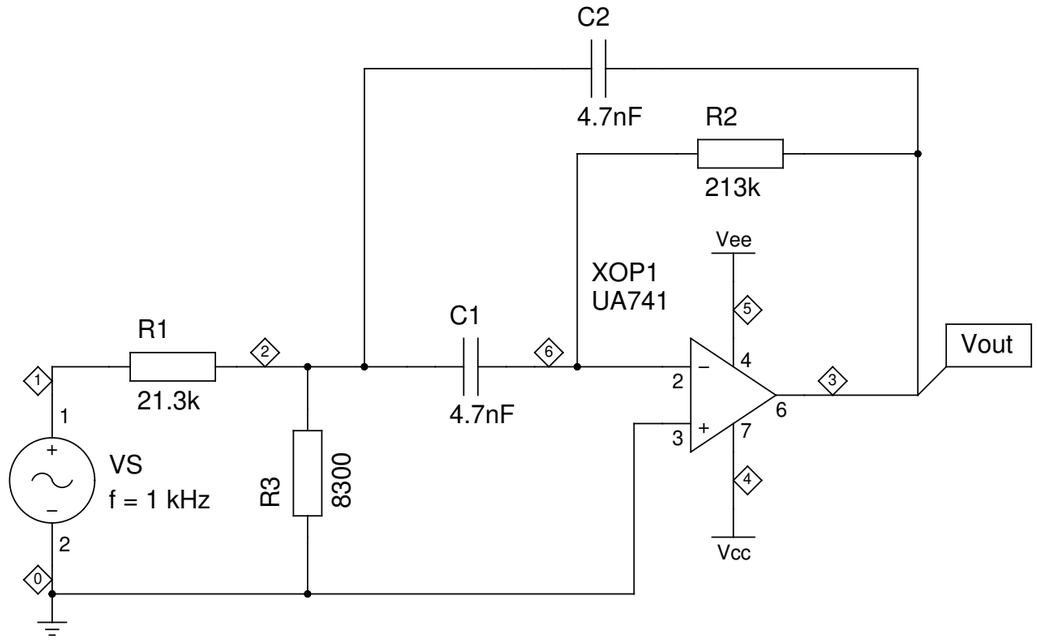
TITLE	OCTAVE_FILTER 1 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.012.00.02.02.sch		REVISION: 20240529	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 012: 1 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 21.3k
R2 3 6 213K
R3 0 2 8300
C1 2 6 4.7nF
C2 3 2 4.7nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



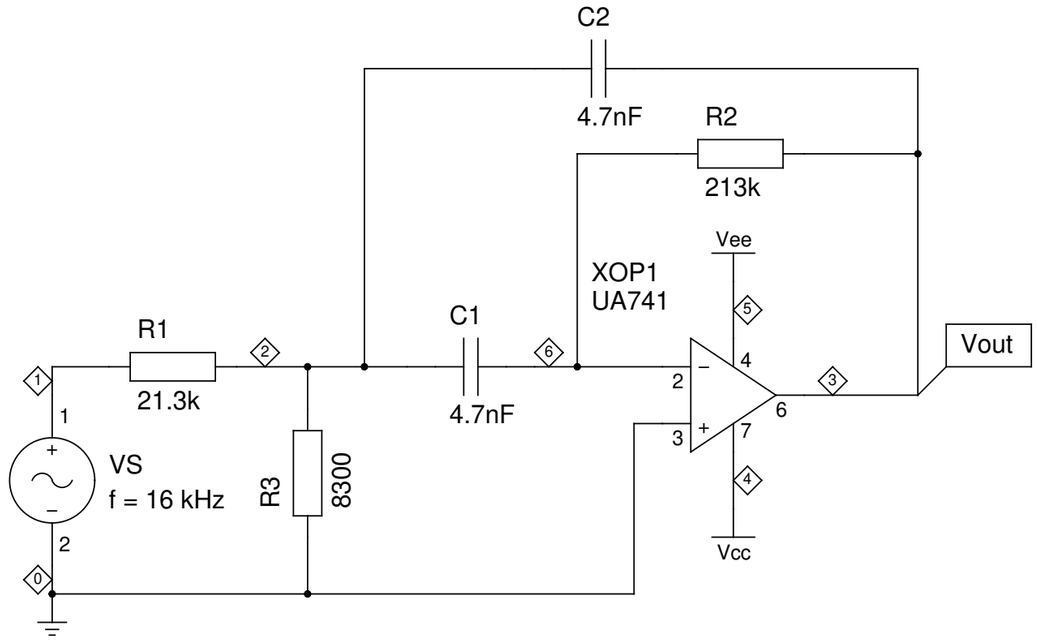
TITLE	OCTAVE_FILTER 1 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.012.00.02.03.sch		REVISION: 20240529	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 012: 1 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 1k)
R1 1 2 21.3k
R2 3 6 213K
R3 0 2 8300
C1 2 6 4.7nF
C2 3 2 4.7nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



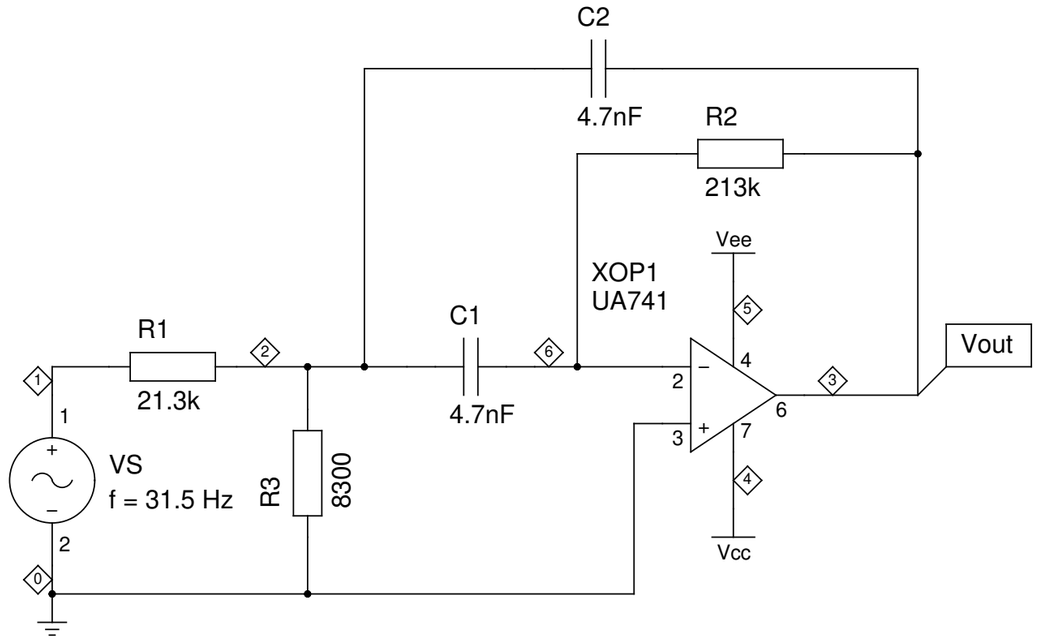
TITLE	OCTAVE_FILTER 1 kHz Band–pass Filter – Transient response (1 kHz) Schematic (DFS)		
FILE: gnucap/26.012.00.03.01.sch		REVISION: 20240529	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 012: 1 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 21.3k
R2 3 6 213K
R3 0 2 8300
C1 2 6 4.7nF
C2 3 2 4.7nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



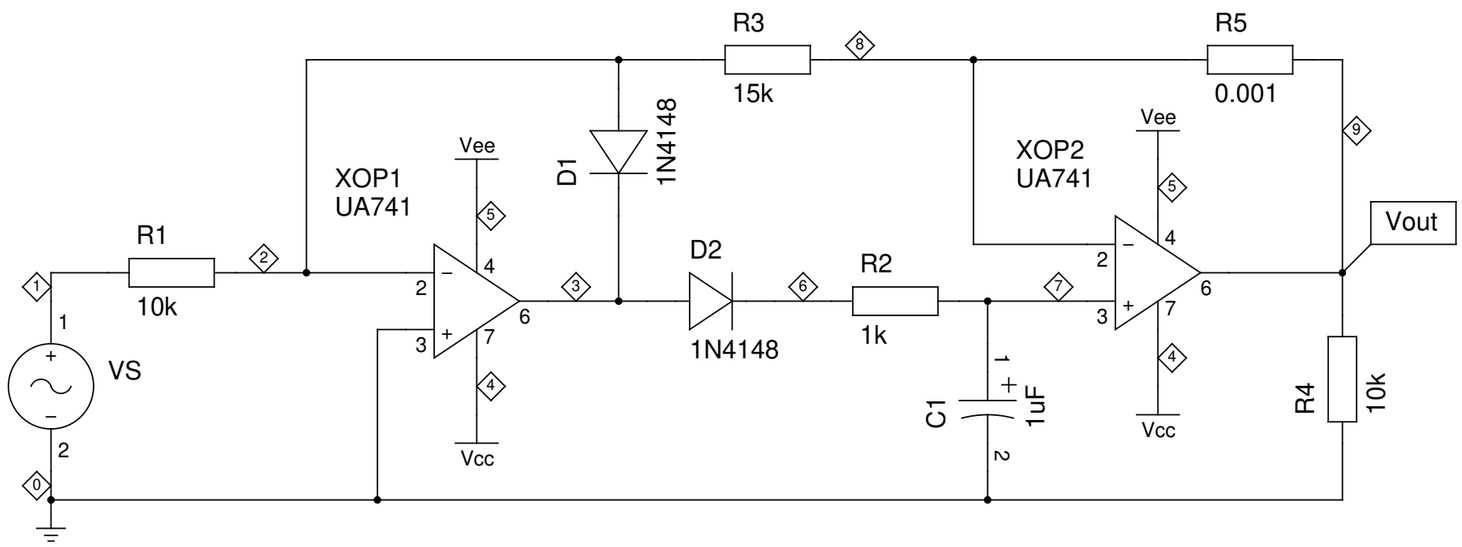
TITLE	OCTAVE_FILTER 1 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.012.00.03.02.sch		REVISION: 20240529	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 010: 500 HZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 21.3k
R2 3 6 213K
R3 0 2 8300
C1 2 6 4.7nF
C2 3 2 4.7nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



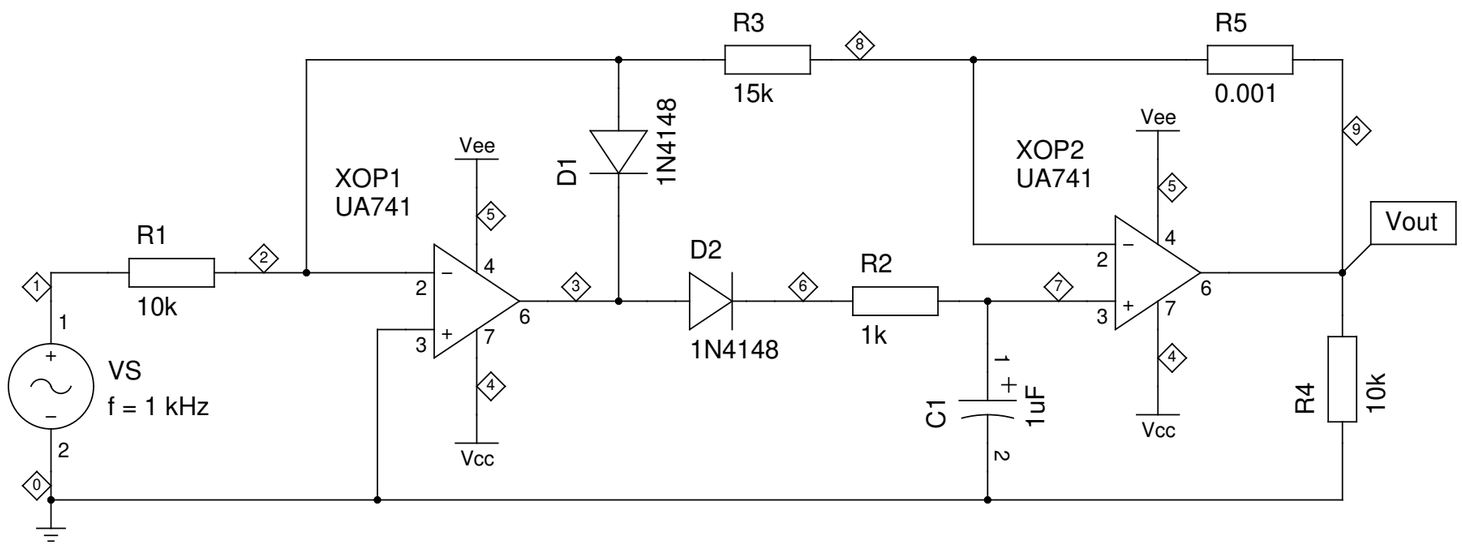
TITLE	OCTAVE_FILTER 1 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.012.00.03.03.sch		REVISION: 20240529	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 013: 1 KHZ DETECTOR – FREQUENCY RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1 1k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3) VDB(9)

*     FROM     TO   STEP
.TRAN 0.00001  0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```



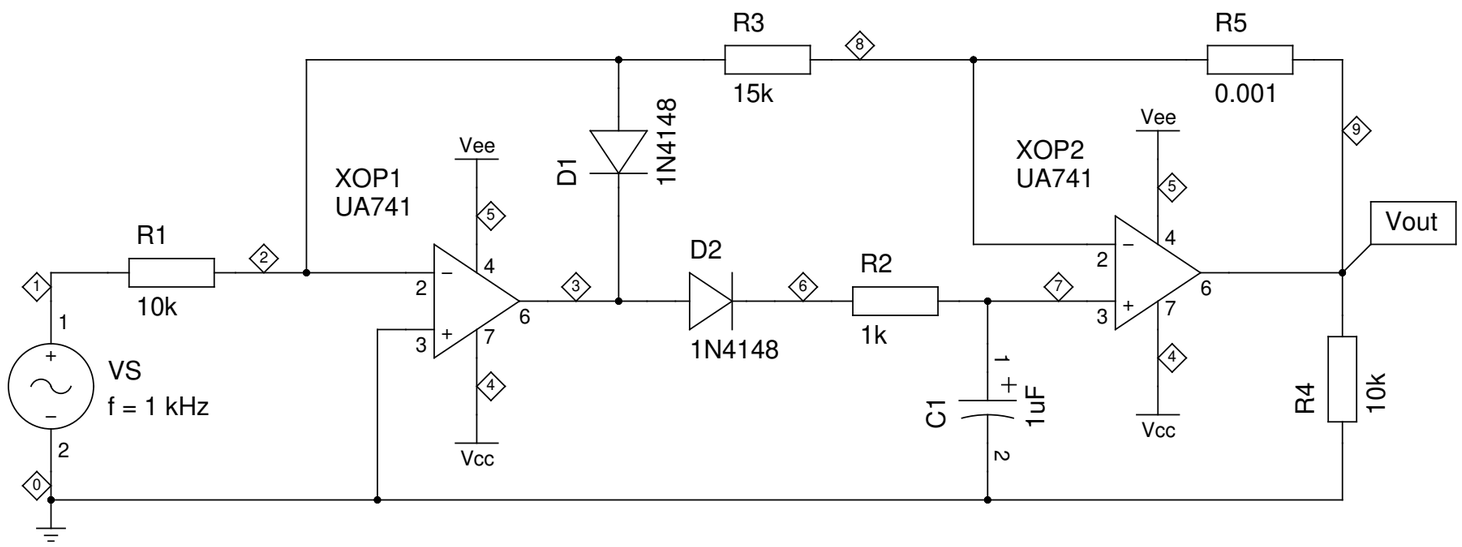
TITLE	OCTAVE_FILTER 1 kHz Detector – Frequency response Schematic (DFS)		
FILE: gnucap/26.013.00.00.01.sch		REVISION: 20240529	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 013: 1 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e−14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=−15 rise=0.01)

VS 1 0 AC 1 SIN(0 1 1k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(9) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



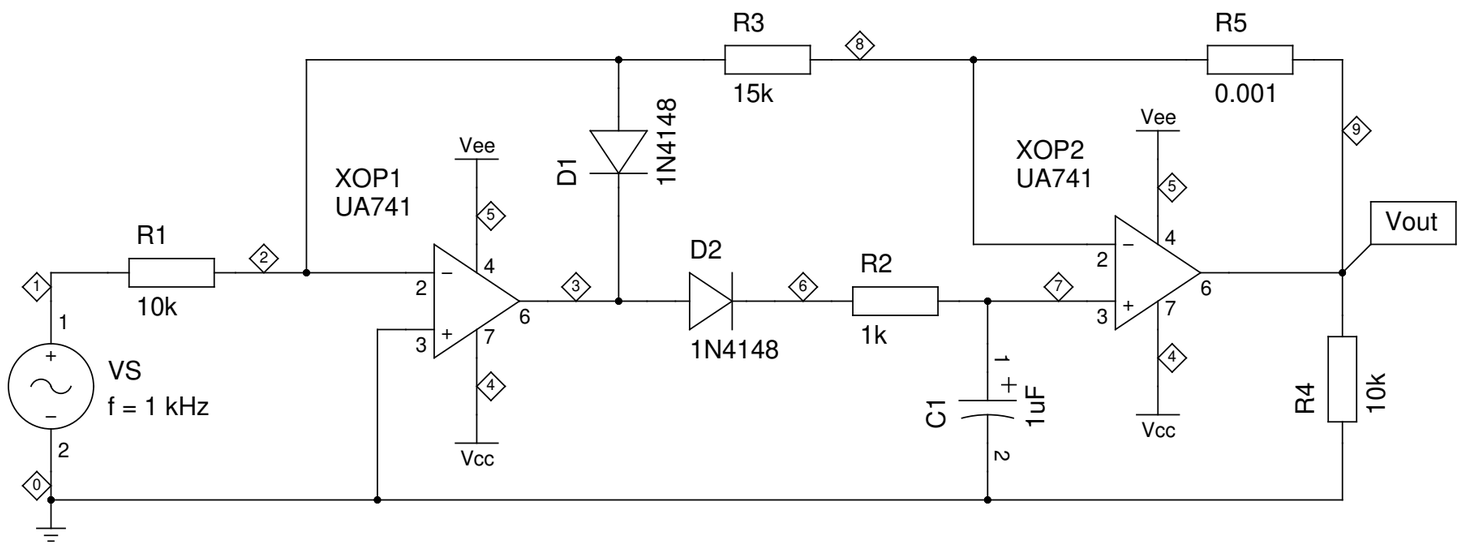
TITLE	OCTAVE_FILTER 1 kHz Detector – Transient response (1 kHz) Schematic (DFS)		
FILE: gnucap/26.013.00.01.01.sch		REVISION: 20240529	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 013: 1 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e−14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=−15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 1k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3) I(R4) I(R5) I(D1) I(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



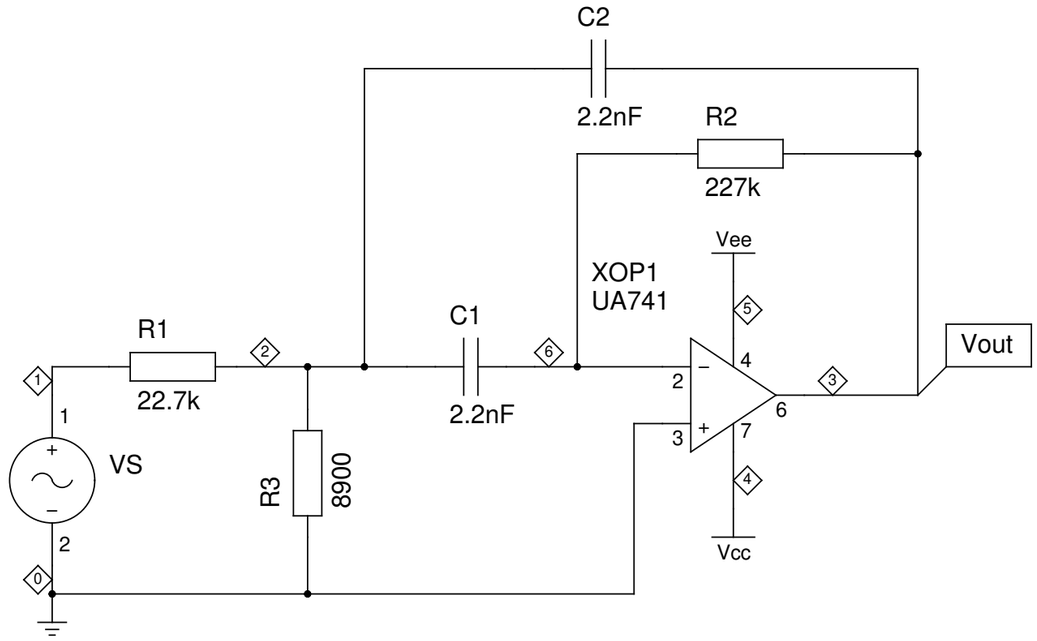
TITLE	OCTAVE_FILTER 1 kHz Detector – Transient response (1 kHz) Schematic (DFS)		
FILE: gnucap/26.013.00.02.01.sch		REVISION: 20240529	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 013: 1 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e−14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=−15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 1k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3) P(R4) P(R5) P(D1) P(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



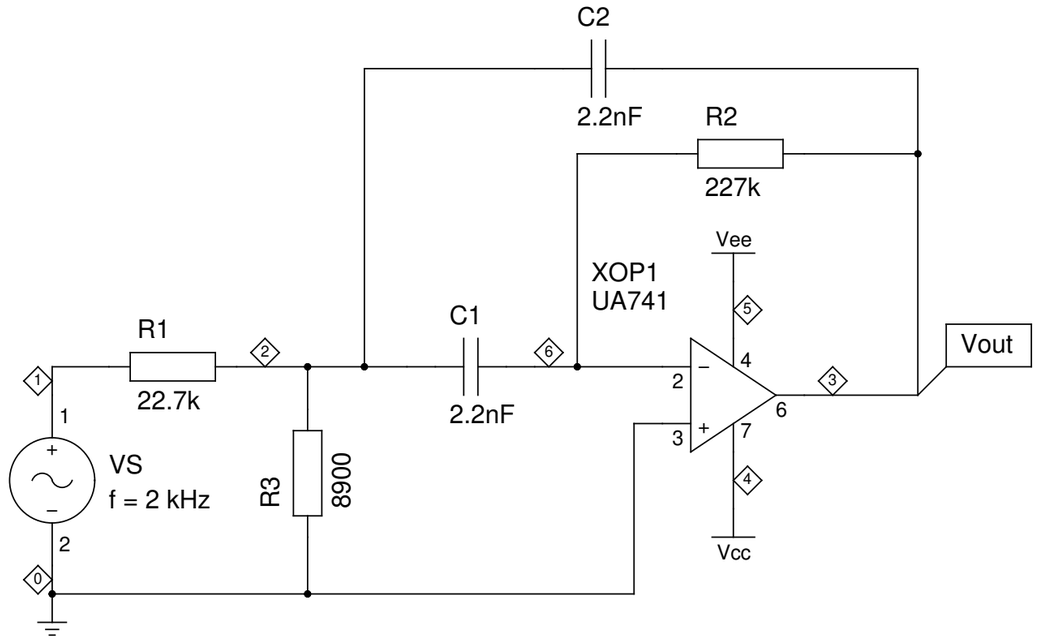
TITLE	OCTAVE_FILTER 1 kHz Detector – Transient response (1 kHz) Schematic (DFS)		
FILE: gnucap/26.013.00.03.01.sch		REVISION: 20240529	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 014: 2 kHZ BAND–PASS FILTER – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1.41 2k)
R1 1 2 22.7k
R2 3 6 227K
R3 0 2 8900
C1 2 6 2.2nF
C2 3 2 2.2nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```



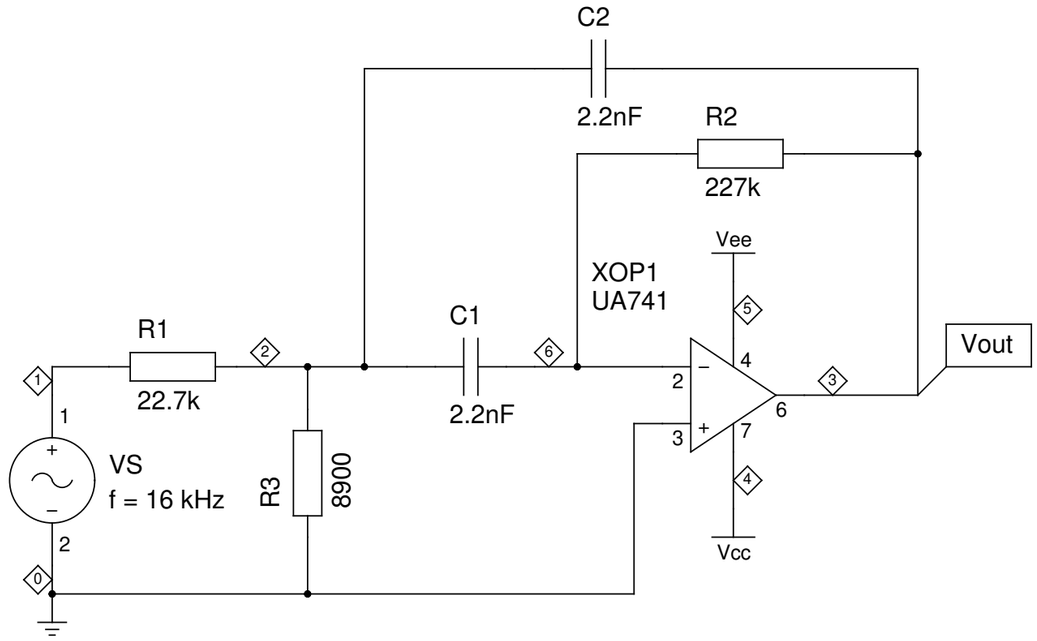
TITLE	OCTAVE_FILTER 2 kHz Band–pass Filter – Frequency response Schematic (DFS)		
FILE: gnucap/26.014.00.00.01.sch		REVISION: 20240530	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 014: 2 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 2k)
R1 1 2 22.7k
R2 3 6 227K
R3 0 2 8900
C1 2 6 2.2nF
C2 3 2 2.2nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO    STEP
.TRAN 0     0.05  0.00001 TRACE ALL

.END
```



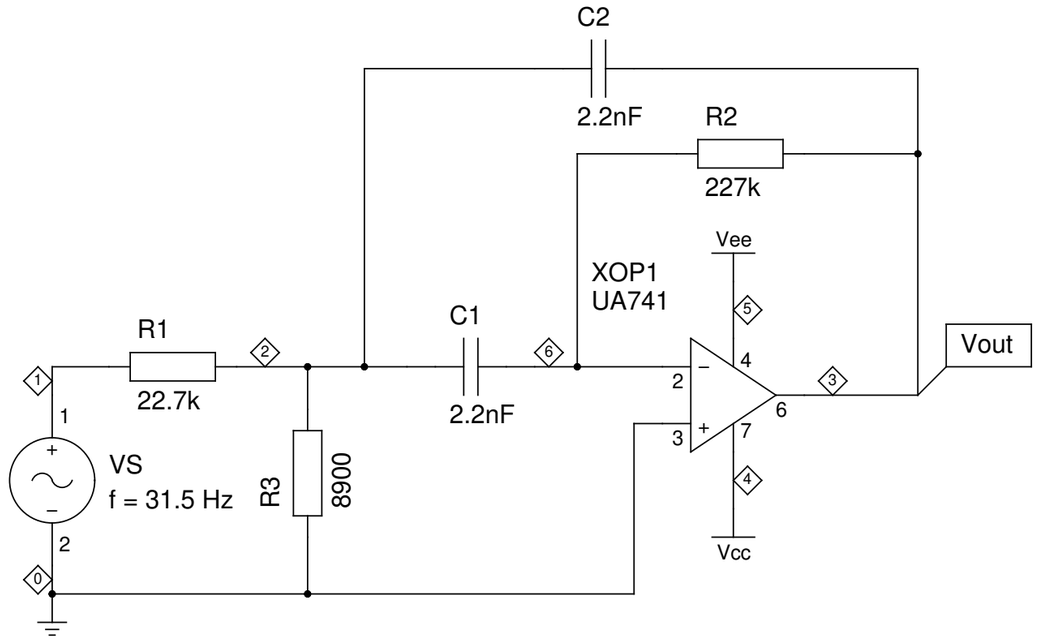
TITLE	OCTAVE_FILTER 2 kHz Band–pass Filter – Transient response (2 kHz) Schematic (DFS)		
FILE: gnucap/26.014.00.01.01.sch		REVISION: 20240530	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 014: 2 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 22.7k
R2 3 6 227K
R3 0 2 8900
C1 2 6 2.2nF
C2 3 2 2.2nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



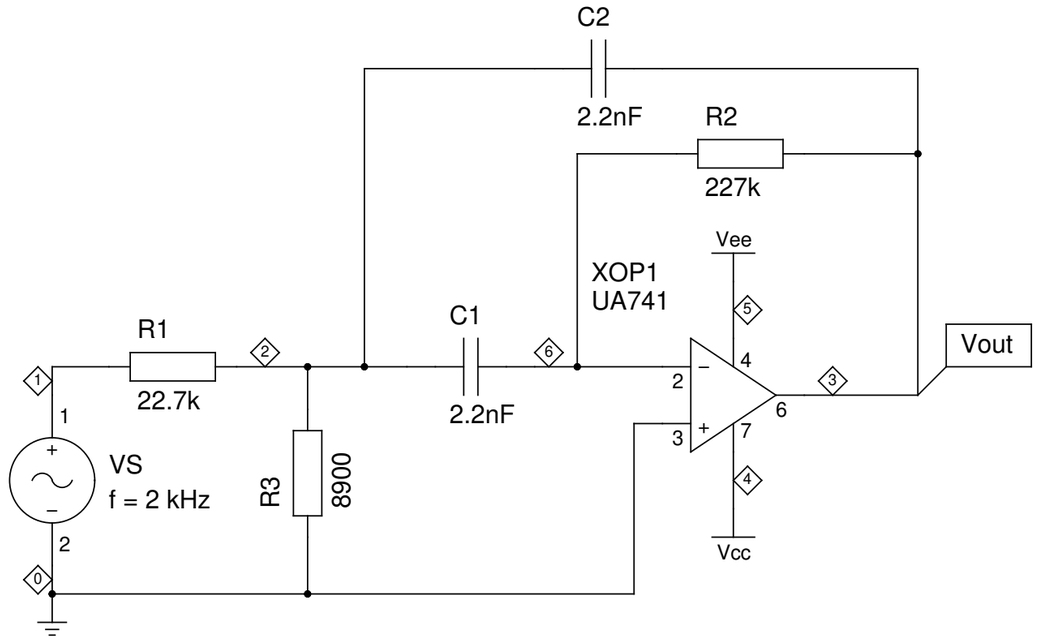
TITLE	OCTAVE_FILTER 2 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.014.00.01.02.sch		REVISION: 20240531	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 014: 2 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 22.7k
R2 3 6 227K
R3 0 2 8900
C1 2 6 2.2nF
C2 3 2 2.2nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



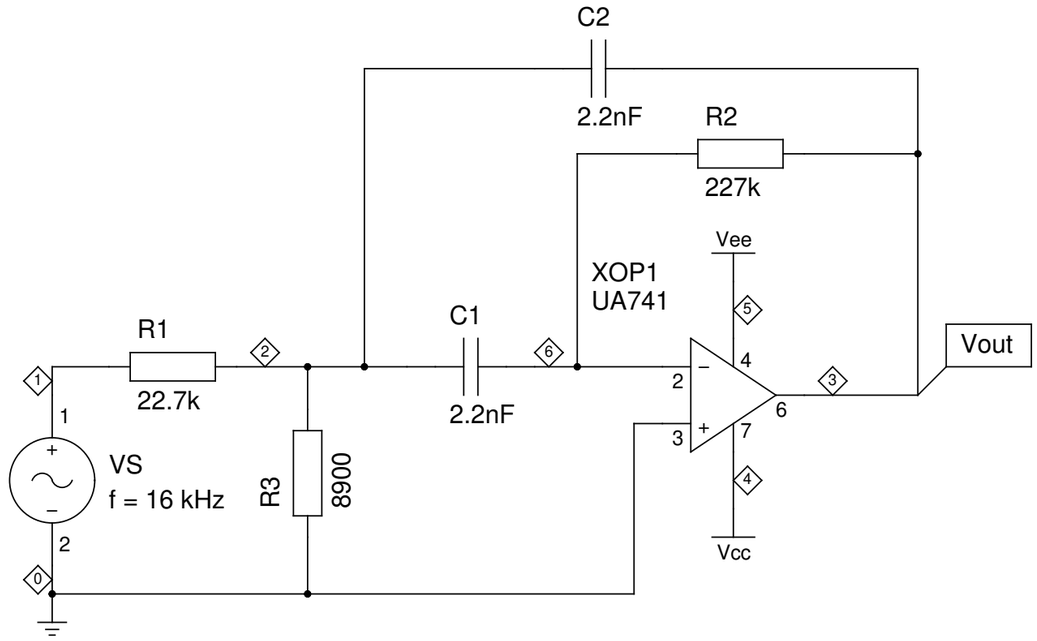
TITLE	OCTAVE_FILTER 2 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.014.00.01.03.sch		REVISION: 20240531	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 014: 2 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 2k)
R1 1 2 22.7k
R2 3 6 227K
R3 0 2 8900
C1 2 6 2.2nF
C2 3 2 2.2nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



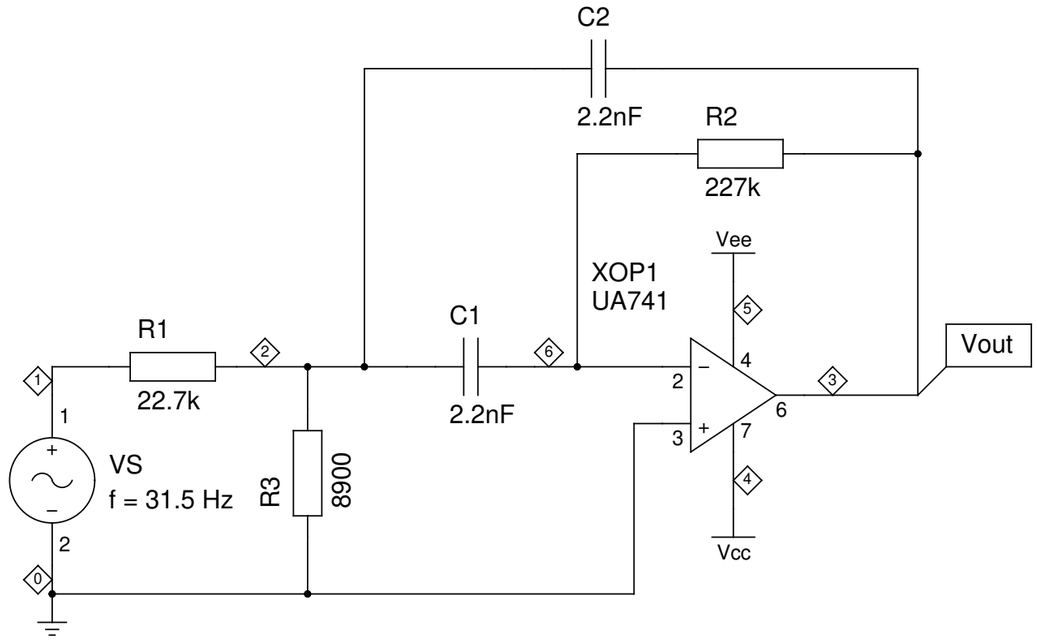
TITLE	OCTAVE_FILTER 2 kHz Band–pass Filter – Transient response (2 kHz) Schematic (DFS)		
FILE: gnucap/26.014.00.02.01.sch		REVISION: 20240531	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 014: 2 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 22.7k
R2 3 6 227K
R3 0 2 8900
C1 2 6 2.2nF
C2 3 2 2.2nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



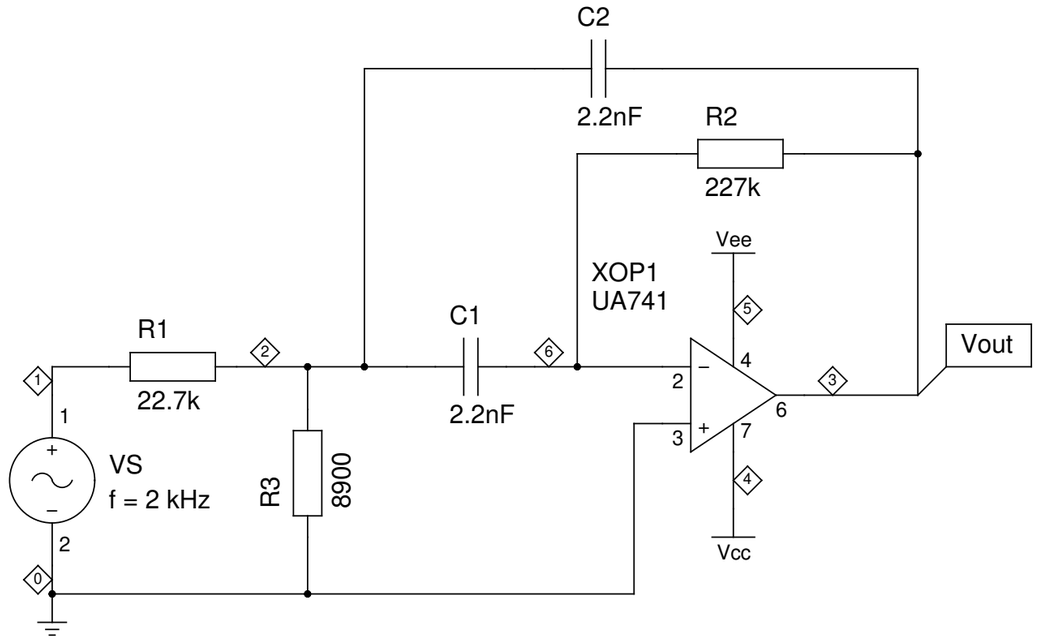
TITLE	OCTAVE_FILTER 2 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.014.00.02.02.sch		REVISION: 20240531	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 014: 2 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 22.7k
R2 3 6 227K
R3 0 2 8900
C1 2 6 2.2nF
C2 3 2 2.2nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



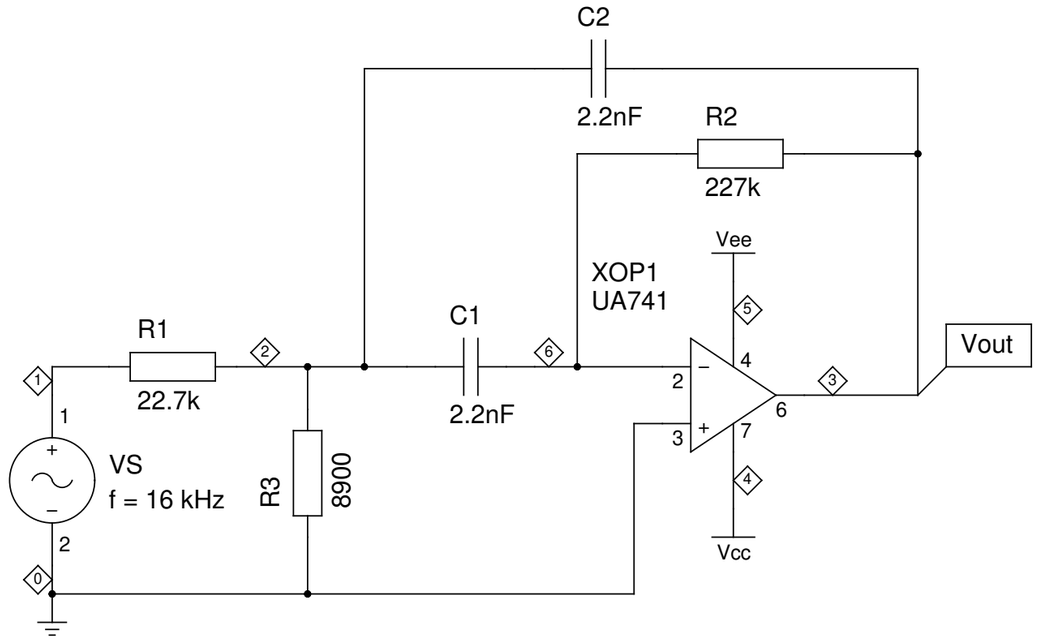
TITLE	OCTAVE_FILTER 2 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.014.00.02.03.sch		REVISION: 20240531	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 014: 2 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 2k)
R1 1 2 22.7k
R2 3 6 227K
R3 0 2 8900
C1 2 6 2.2nF
C2 3 2 2.2nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



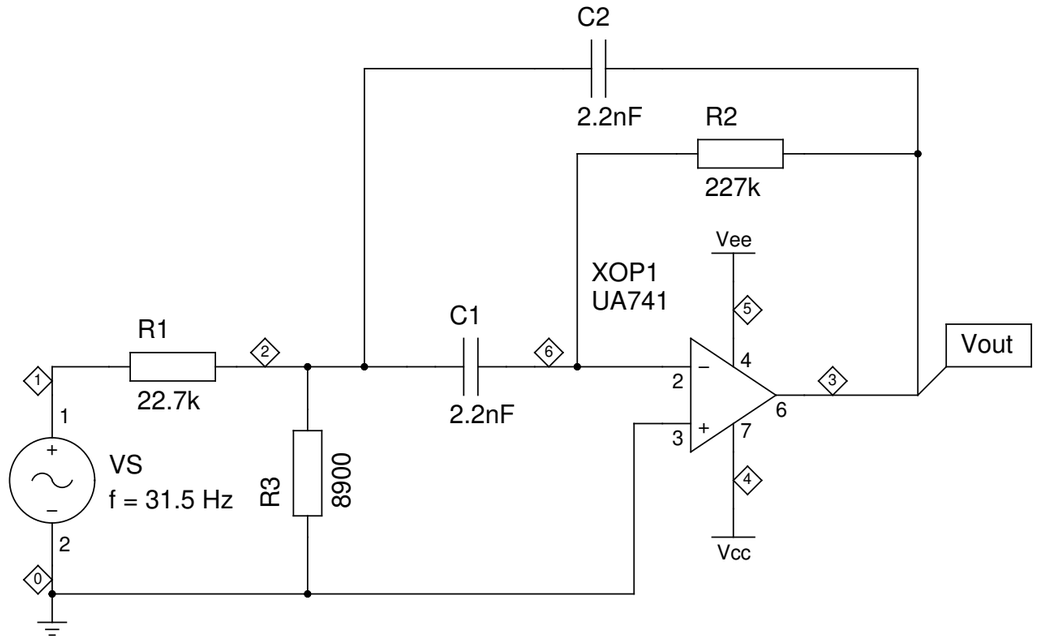
TITLE	OCTAVE_FILTER 2 kHz Band–pass Filter – Transient response (2 kHz) Schematic (DFS)		
FILE: gnucap/26.014.00.03.01.sch		REVISION: 20240601	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 014: 2 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 22.7k
R2 3 6 227K
R3 0 2 8900
C1 2 6 2.2nF
C2 3 2 2.2nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



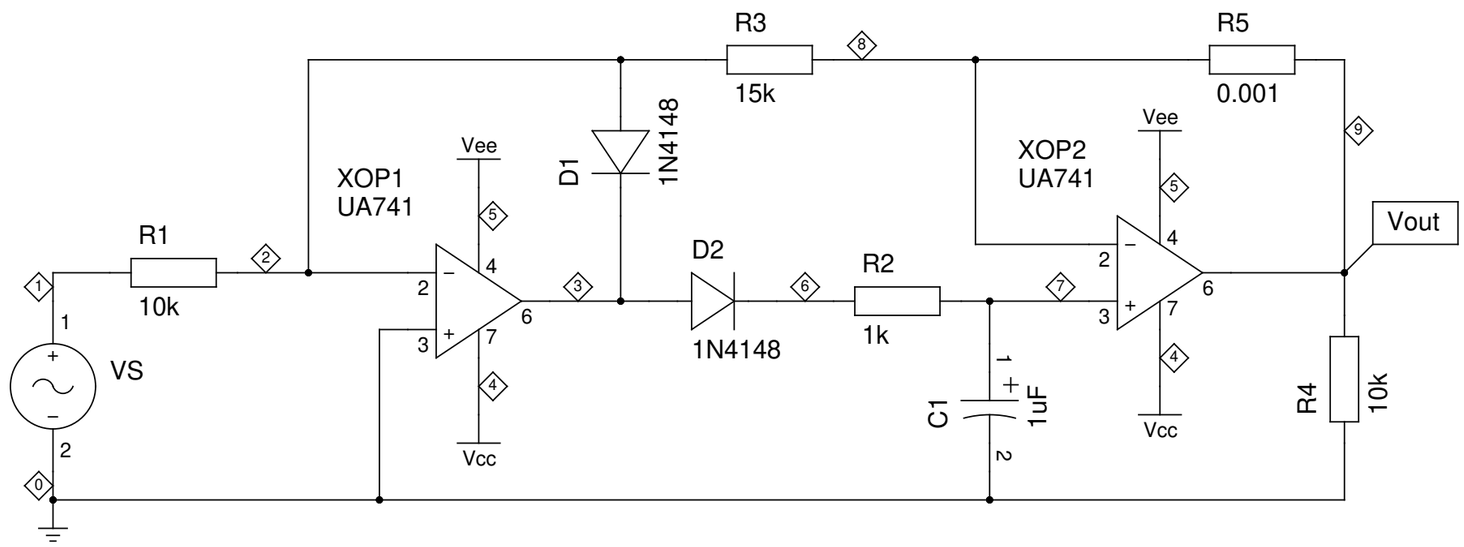
TITLE	OCTAVE_FILTER 2 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.014.00.03.02.sch		REVISION: 20240601	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 014: 2 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 22.7k
R2 3 6 227K
R3 0 2 8900
C1 2 6 2.2nF
C2 3 2 2.2nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



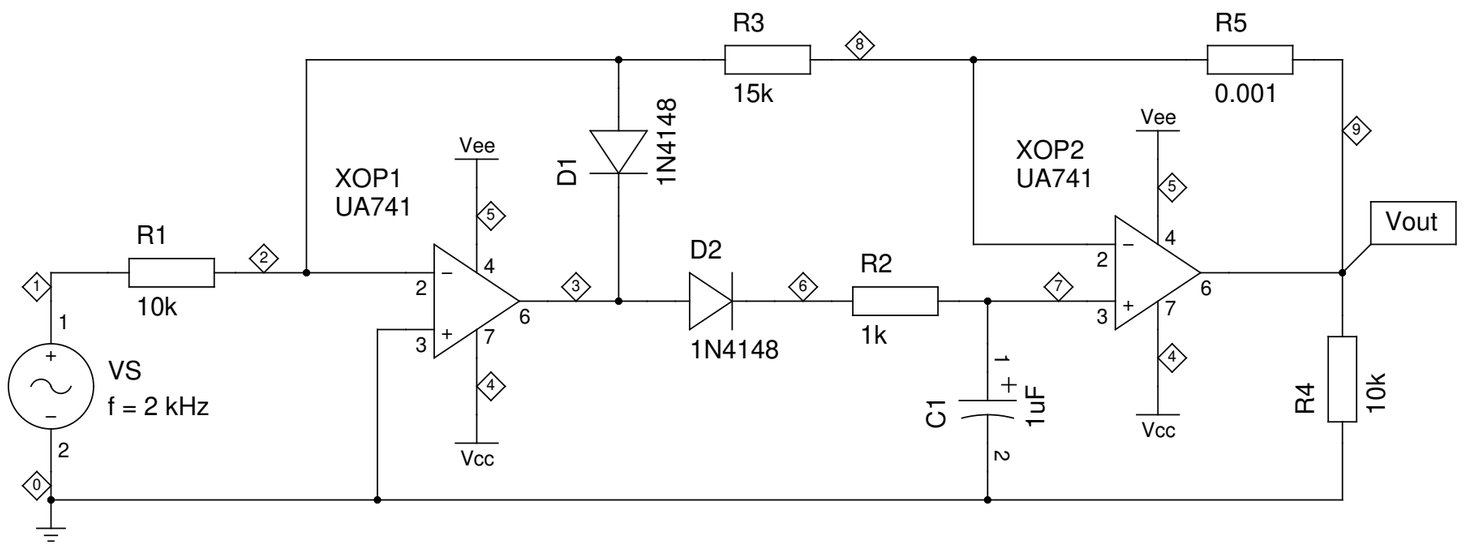
TITLE	OCTAVE_FILTER 2 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.014.00.03.03.sch		REVISION: 20240604	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 015: 2 KHZ DETECTOR – FREQUENCY RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e−14


VCC 4 0 15
VEE 5 0 −15

VS 1 0 AC 1 SIN(0 1 2k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3) VDB(9)

*     FROM     TO   STEP
.TRAN 0.00001  0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20            0.1    100k

.END
```



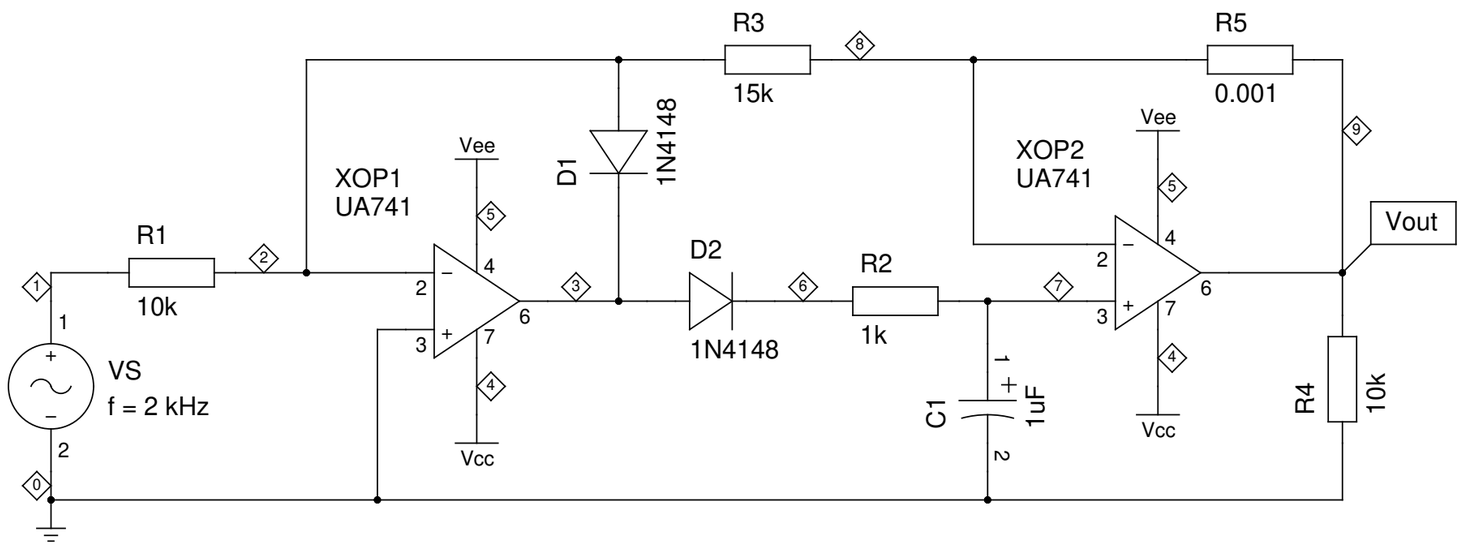
TITLE	OCTAVE_FILTER 2 kHz Detector – Frequency response Schematic (DFS)		
FILE: gnucap/26.015.00.00.01.sch		REVISION: 20240604	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 015: 2 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e−14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=−15 rise=0.01)

VS 1 0 AC 1 SIN(0 1 2k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(9) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



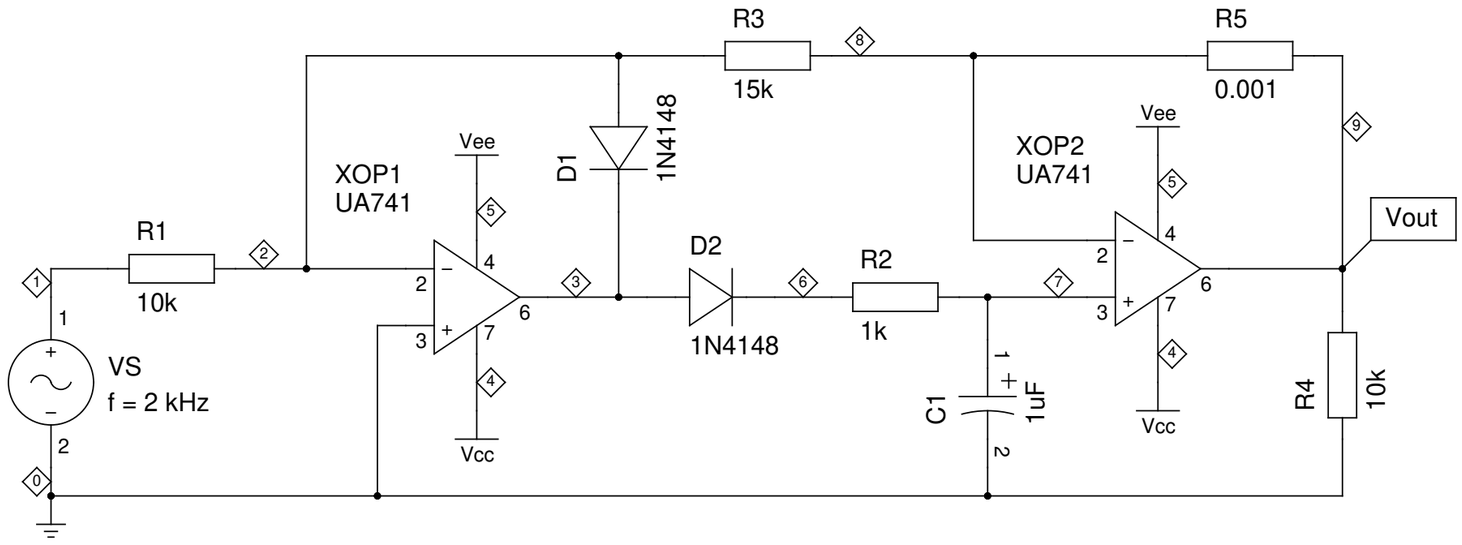
TITLE	OCTAVE_FILTER 2 kHz Detector – Transient response (2 kHz) Schematic (DFS)		
FILE: gnucap/26.015.00.01.01.sch		REVISION: 20240604	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 015: 2 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 2k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3) I(R4) I(R5) I(D1) I(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



TITLE	OCTAVE_FILTER 2 kHz Detector – Transient response (2 kHz) Schematic (DFS)		
FILE: gnucap/26.015.00.02.01.sch		REVISION: 20240604	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

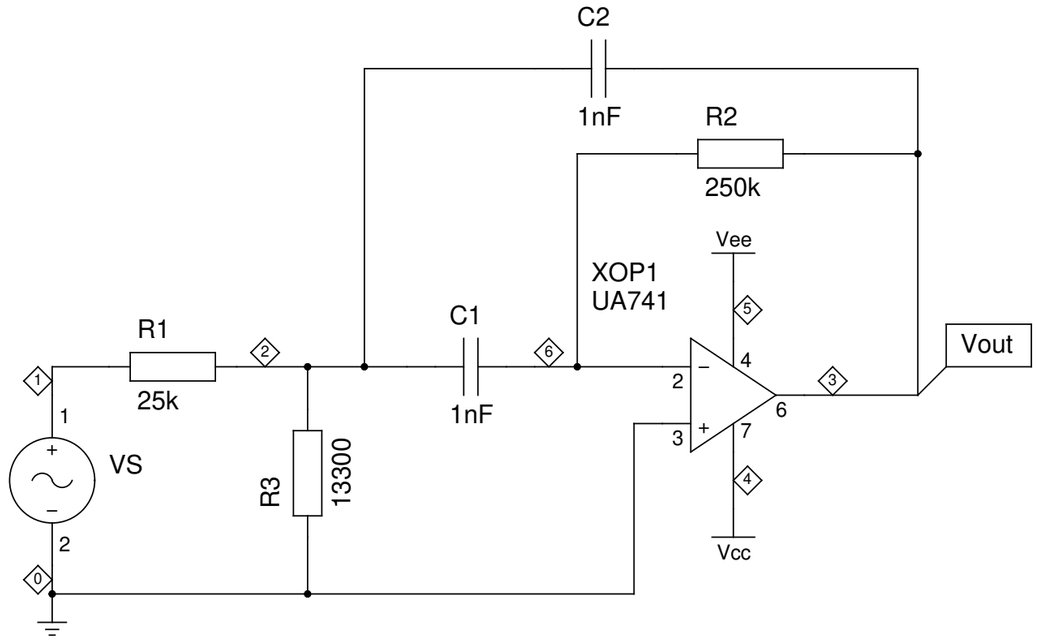
```
.TITLE OCTAVE FILTER – FUNCTION 016: 4 kHZ BAND–PASS FILTER – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1.41 4k)
R1 1 2 25k
R2 3 6 250K
R3 0 2 13300
C1 2 6 1nF
C2 3 2 1nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20          0.1    100k

.END
```



	OCTAVE_FILTER 2 kHz Detector – Transient response (2 kHz)		
TITLE	Schematic (DFS)		
FILE:	gnucap/26.015.00.03.01.sch	REVISION:	20240605
PAGE	01 OF 01	DRAWN BY:	Bert Timmerman

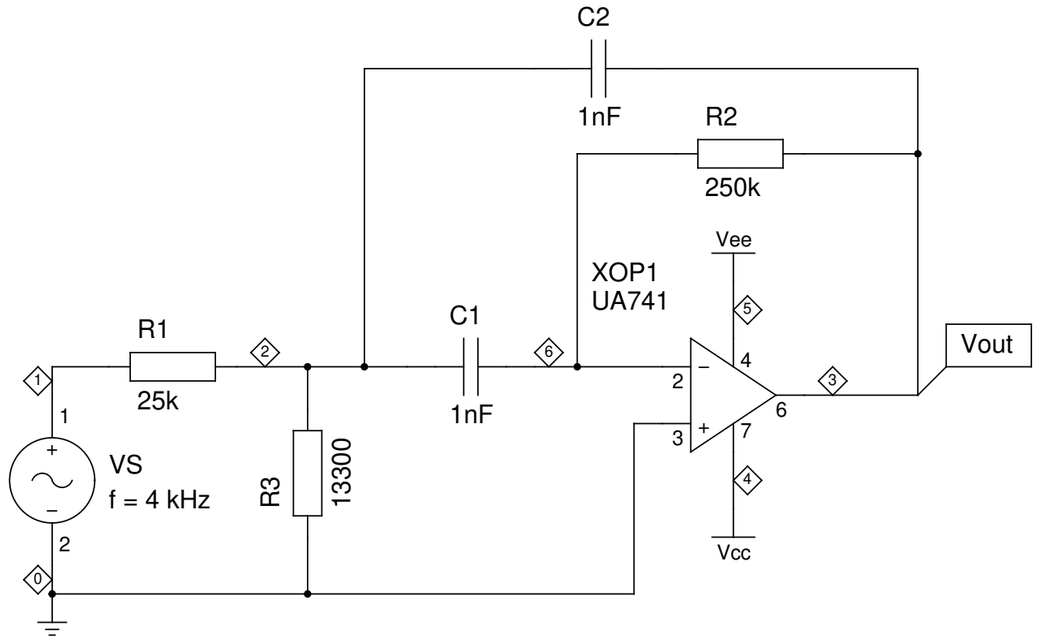
A3

```
.TITLE OCTAVE FILTER – FUNCTION 016: 4 kHZ BAND–PASS FILTER – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1.41 4k)
R1 1 2 25k
R2 3 6 250K
R3 0 2 13300
C1 2 6 1nF
C2 3 2 1nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```



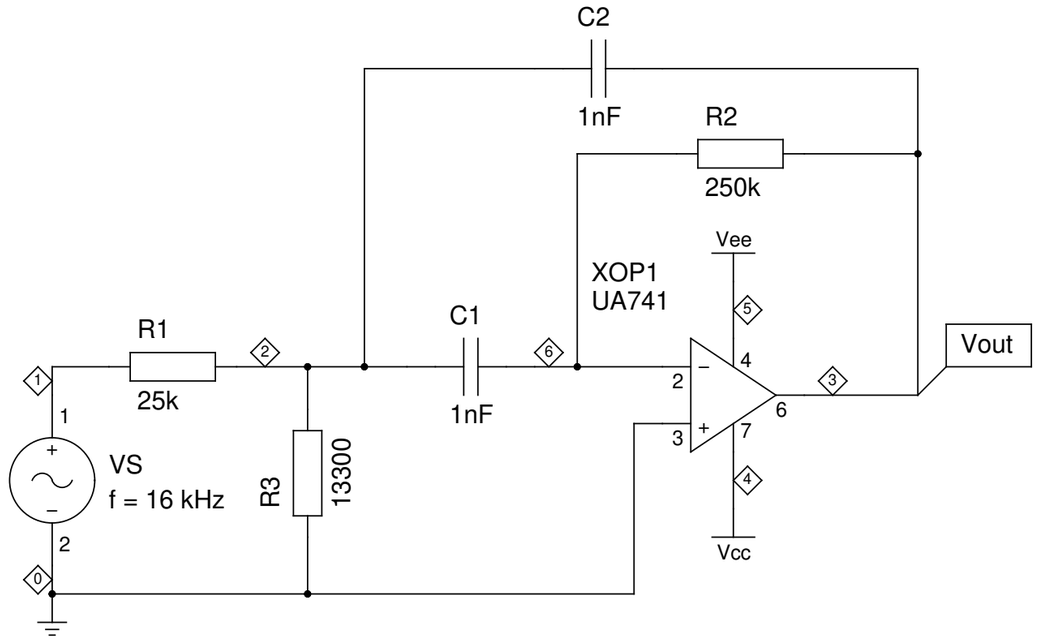
TITLE	OCTAVE_FILTER 4 kHz Band–pass Filter – Frequency response Schematic (DFS)		
FILE: gnucap/26.016.00.00.01.sch		REVISION: 20240605	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 016: 4 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 4k)
R1 1 2 25k
R2 3 6 250K
R3 0 2 13300
C1 2 6 1nF
C2 3 2 1nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO    STEP
.TRAN 0     0.05  0.00001 TRACE ALL

.END
```



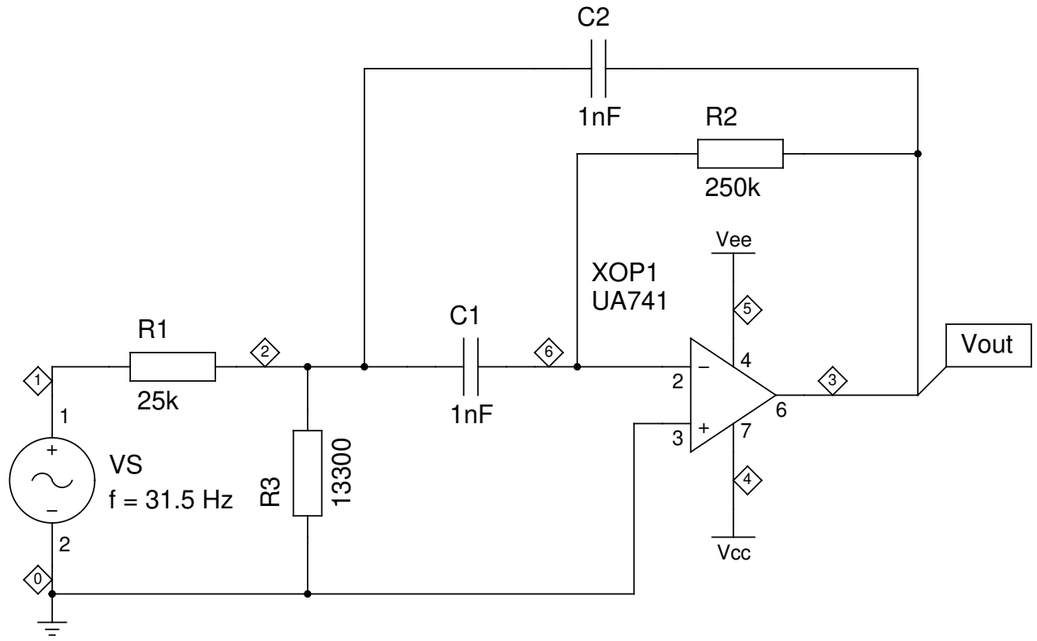
TITLE	OCTAVE_FILTER 4 kHz Band–pass Filter – Transient response (4 kHz) Schematic (DFS)		
FILE: gnucap/26.016.00.01.01.sch		REVISION: 20240605	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 016: 4 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 25k
R2 3 6 250K
R3 0 2 13300
C1 2 6 1nF
C2 3 2 1nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



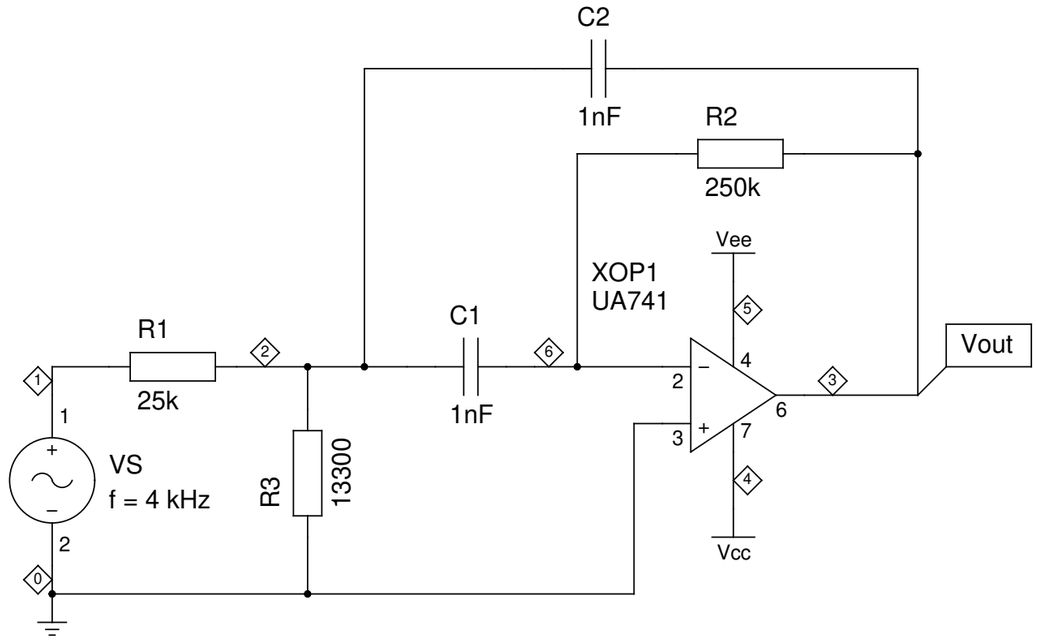
TITLE	OCTAVE_FILTER 4 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.016.00.01.02.sch		REVISION: 20240605	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 016: 4 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 25k
R2 3 6 250K
R3 0 2 13300
C1 2 6 1nF
C2 3 2 1nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



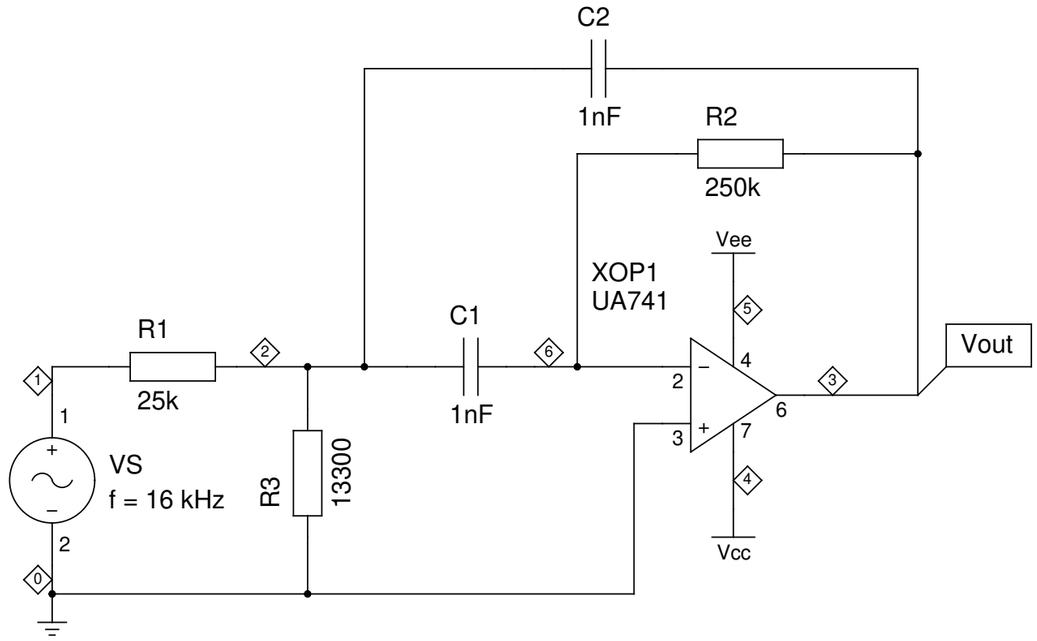
TITLE	OCTAVE_FILTER 4 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.016.00.01.03.sch		REVISION: 20240605	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 016: 4 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 4k)
R1 1 2 25k
R2 3 6 250K
R3 0 2 13300
C1 2 6 1nF
C2 3 2 1nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



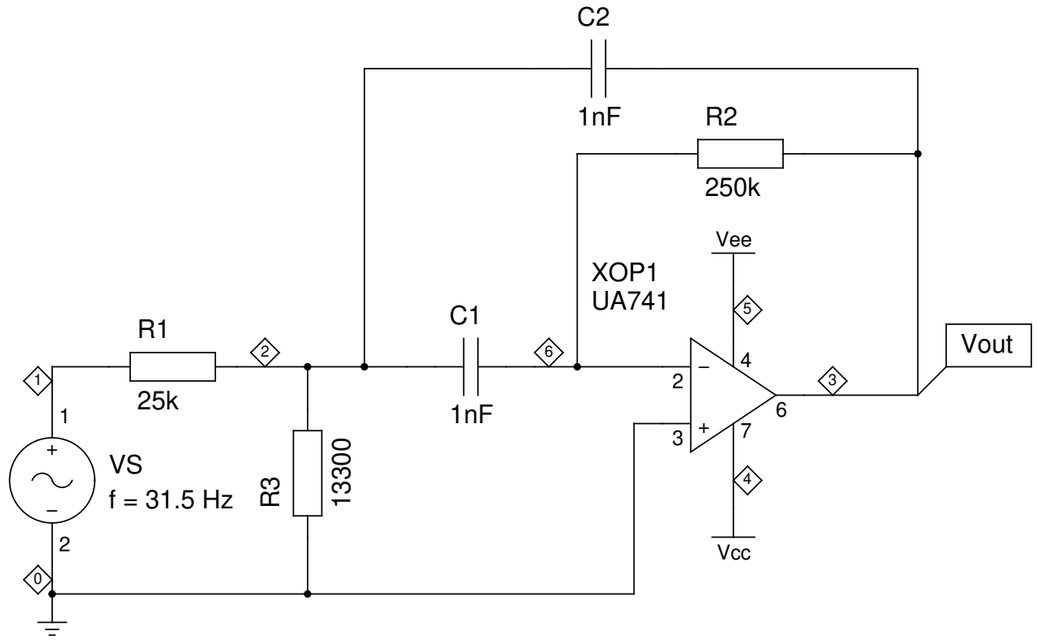
TITLE	OCTAVE_FILTER 4 kHz Band–pass Filter – Transient response (4 kHz) Schematic (DFS)		
FILE: gnucap/26.016.00.02.01.sch		REVISION: 20240605	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 016: 4 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 25k
R2 3 6 250K
R3 0 2 13300
C1 2 6 1nF
C2 3 2 1nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



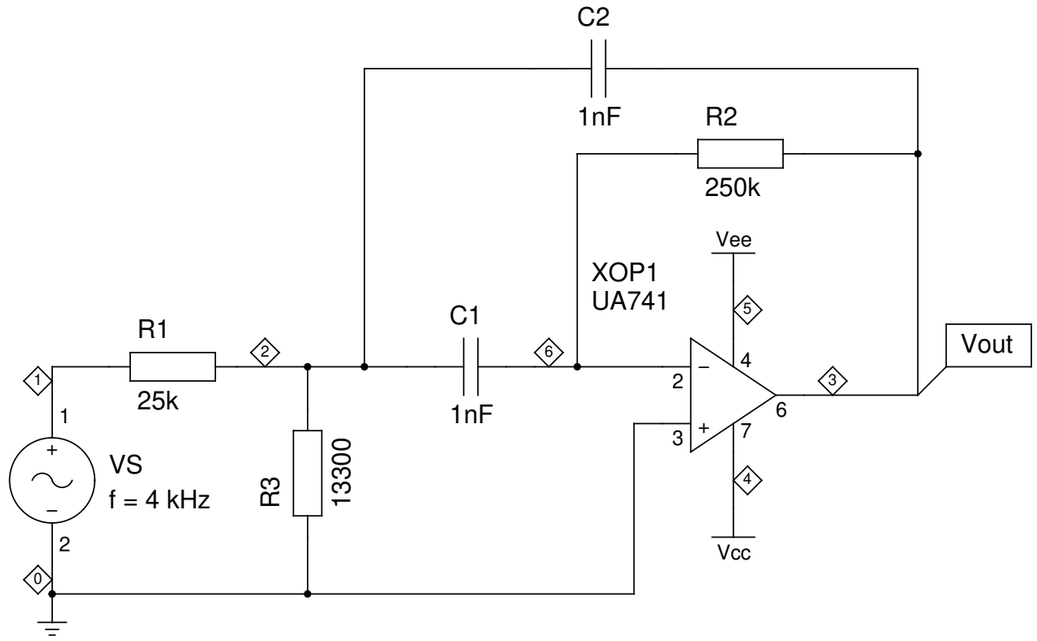
TITLE	OCTAVE_FILTER 4 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.016.00.02.02.sch		REVISION: 20240605	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 016: 4 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 25k
R2 3 6 250K
R3 0 2 13300
C1 2 6 1nF
C2 3 2 1nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



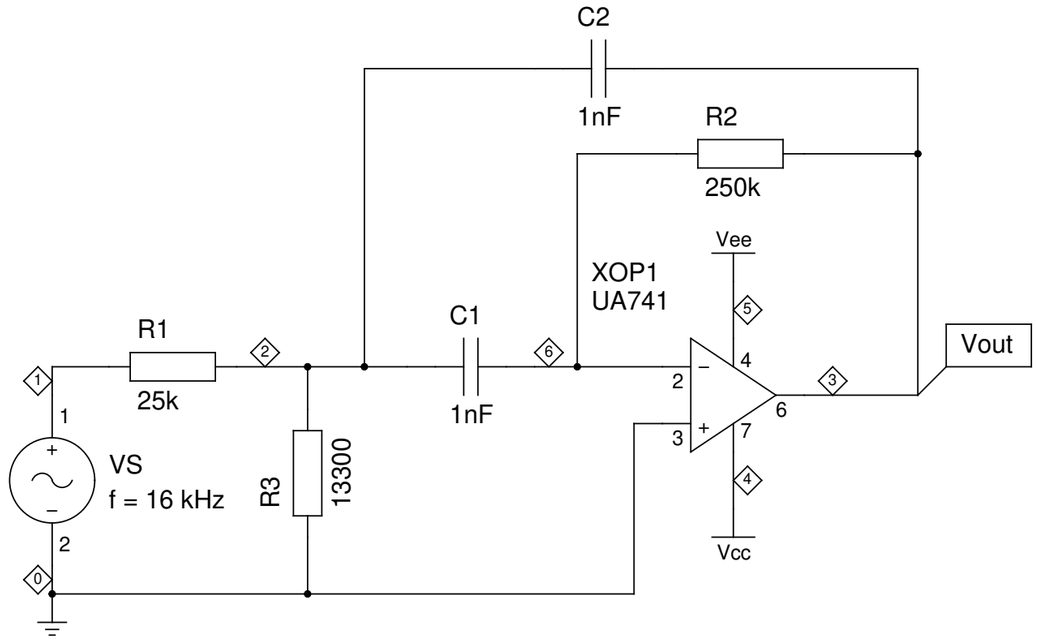
TITLE	OCTAVE_FILTER 4 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.016.00.02.03.sch		REVISION: 20240605	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 016: 4 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 4k)
R1 1 2 25k
R2 3 6 250K
R3 0 2 13300
C1 2 6 1nF
C2 3 2 1nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



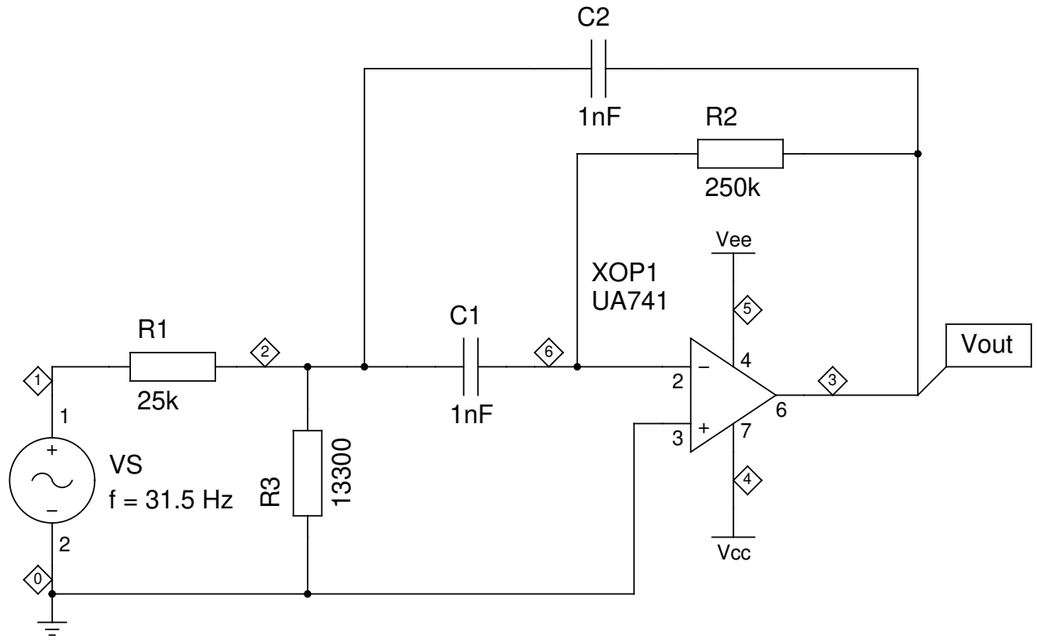
TITLE	OCTAVE_FILTER 4 kHz Band–pass Filter – Transient response (4 kHz) Schematic (DFS)		
FILE: gnucap/26.016.00.03.01.sch PAGE 01 OF 01		REVISION: 20240607 DRAWN BY: Bert Timmerman	A3

```
.TITLE OCTAVE FILTER – FUNCTION 016: 4 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 25k
R2 3 6 250K
R3 0 2 13300
C1 2 6 1nF
C2 3 2 1nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



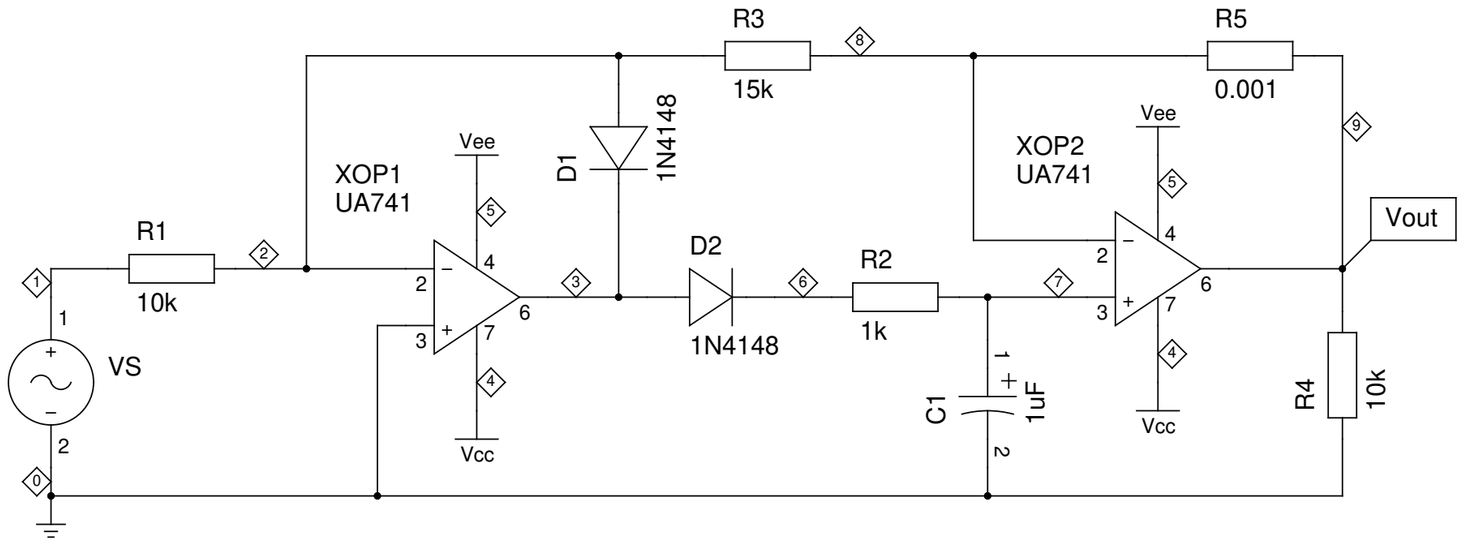
TITLE	OCTAVE_FILTER 4 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.016.00.03.02.sch		REVISION: 20240607	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 016: 4 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 25k
R2 3 6 250K
R3 0 2 13300
C1 2 6 1nF
C2 3 2 1nF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



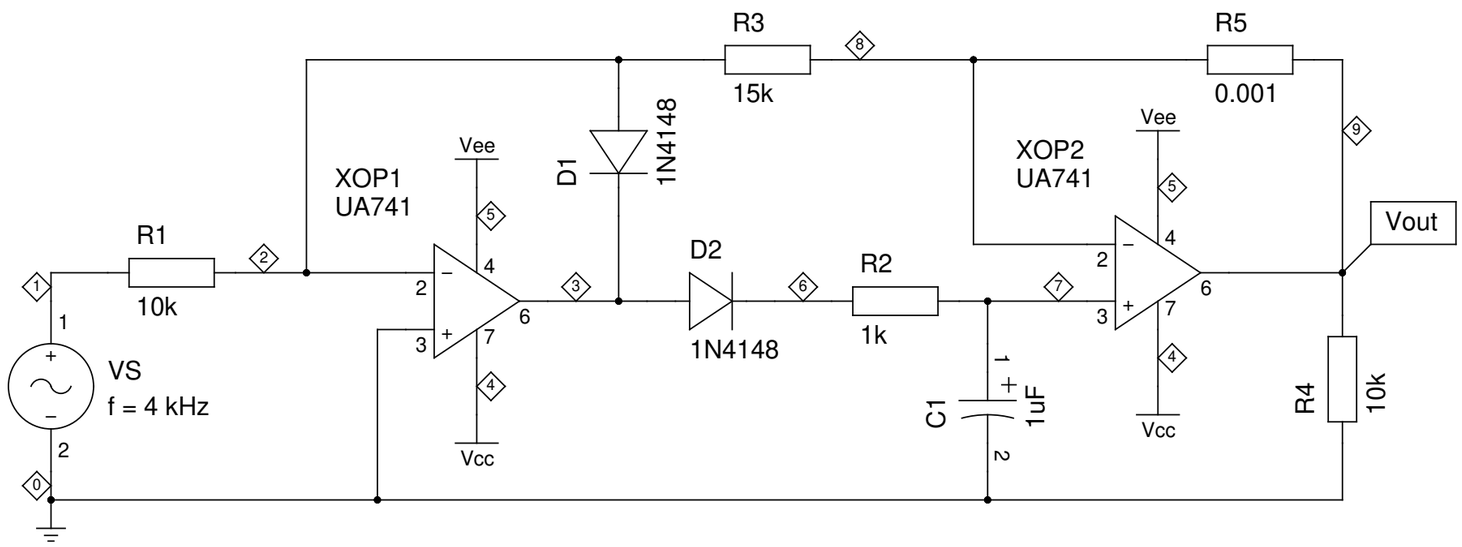
TITLE	OCTAVE_FILTER 4 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.016.00.03.03.sch		REVISION: 20240607	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 017: 4 KHZ DETECTOR – FREQUENCY RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1 4k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3) VDB(9)

*     FROM     TO   STEP
.TRAN 0.00001  0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20            0.1    100k

.END
```



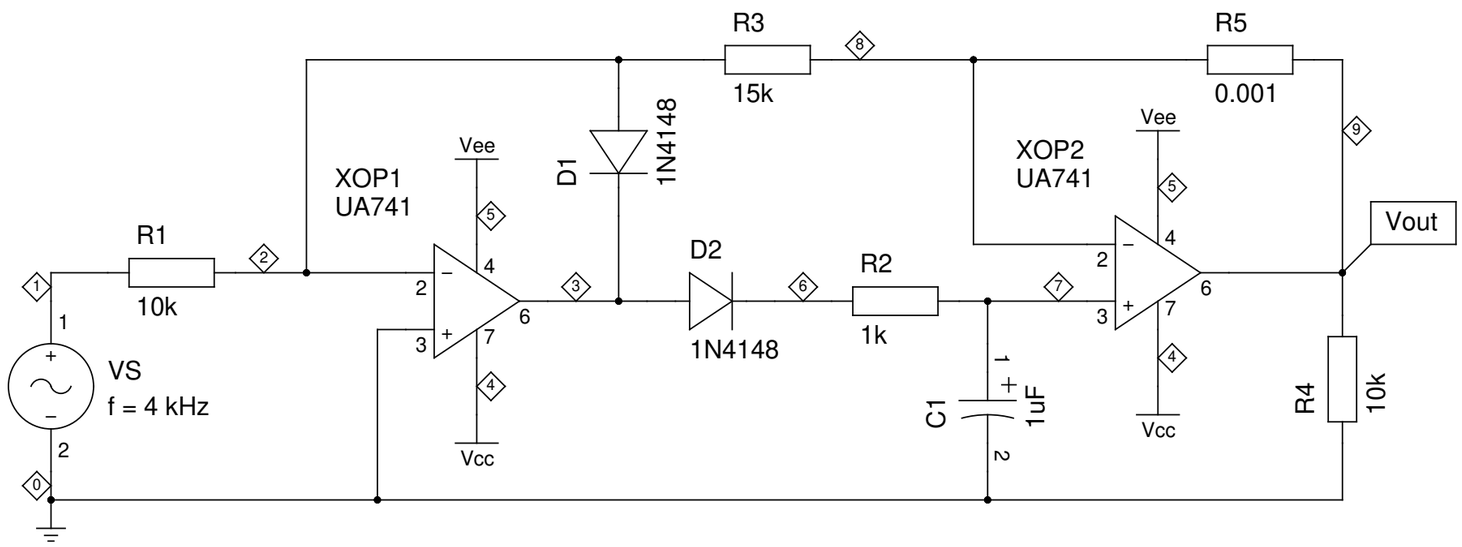
TITLE	OCTAVE_FILTER 4 kHz Detector – Frequency response Schematic (DFS)		
FILE: gnucap/26.017.00.00.01.sch		REVISION: 20240607	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 017: 4 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1 4k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(9) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



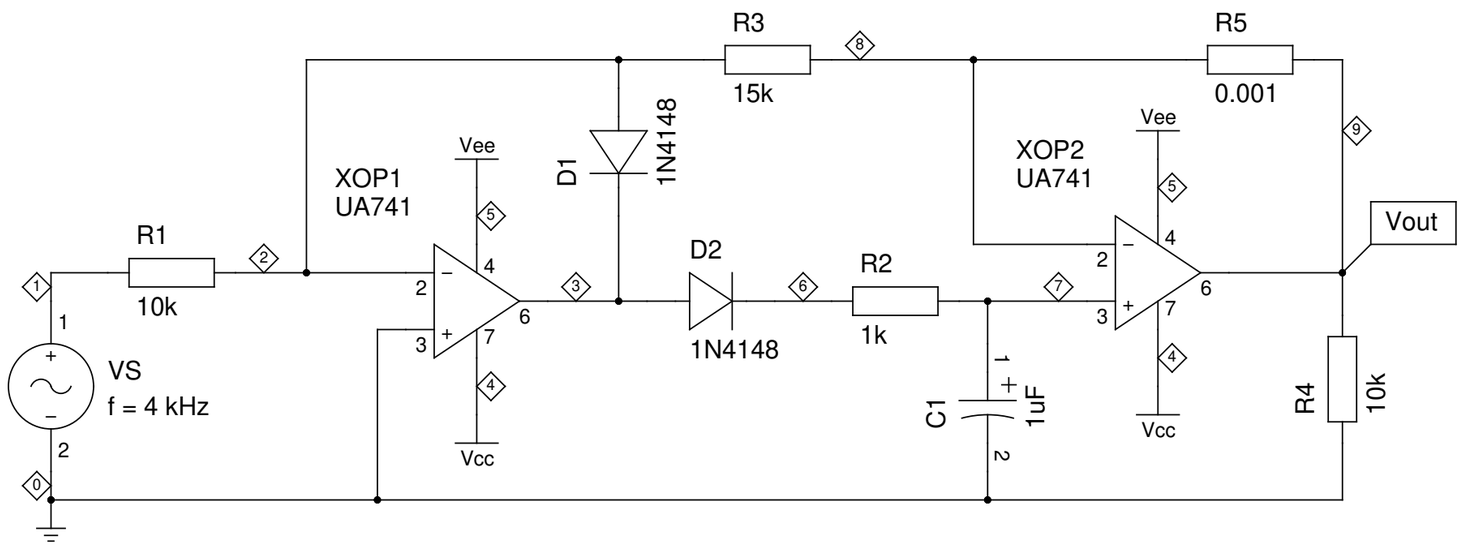
TITLE	OCTAVE_FILTER 4 kHz Detector – Transient response (4 kHz) Schematic (DFS)		
FILE: gnucap/26.017.00.01.01.sch		REVISION: 20240608	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 017: 4 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e−14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=−15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 4k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3) I(R4) I(R5) I(D1) I(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



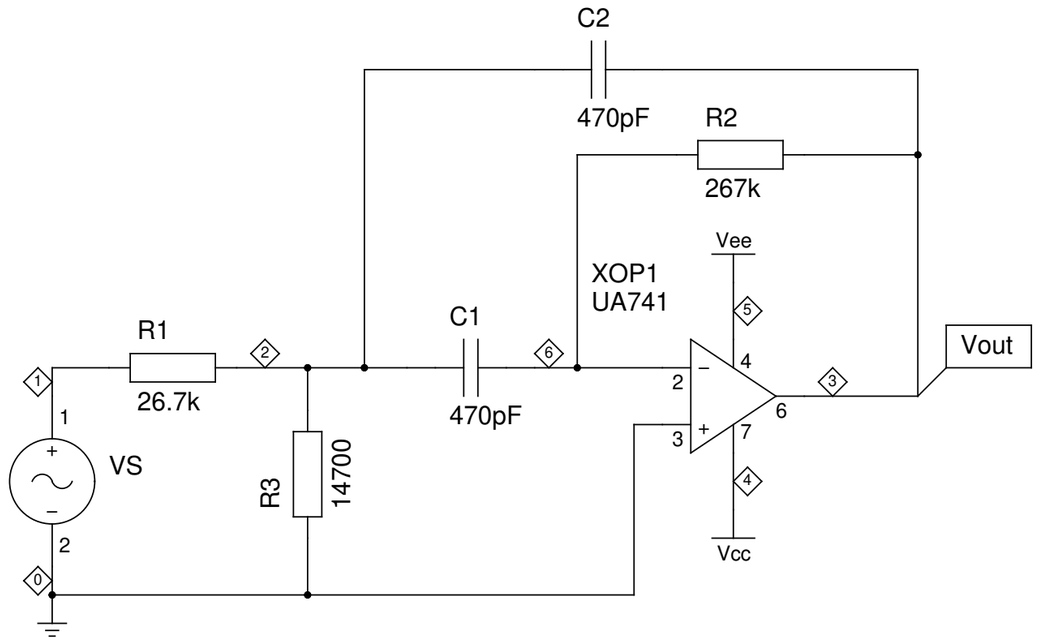
TITLE	OCTAVE_FILTER 4 kHz Detector – Transient response (4 kHz) Schematic (DFS)		
FILE: gnucap/26.017.00.02.01.sch		REVISION: 20240608	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 017: 4 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 4k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3) P(R4) P(R5) P(D1) P(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



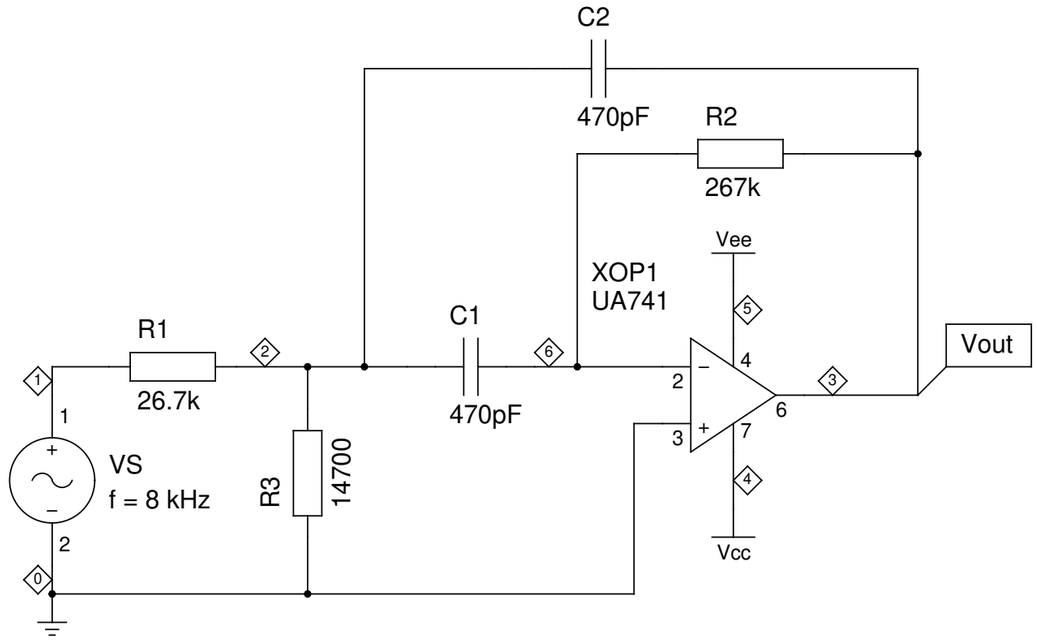
TITLE	OCTAVE_FILTER Octave Filter – Detector of the 4 kHz module (for simulation) Schematic (DFS)		
FILE: gnucap/26.017.00.03.01.sch		REVISION: 20240608	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 018: 8 kHZ BAND–PASS FILTER – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1.41 8k)
R1 1 2 26.7k
R2 3 6 267K
R3 0 2 14700
C1 2 6 470pF
C2 3 2 470pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```



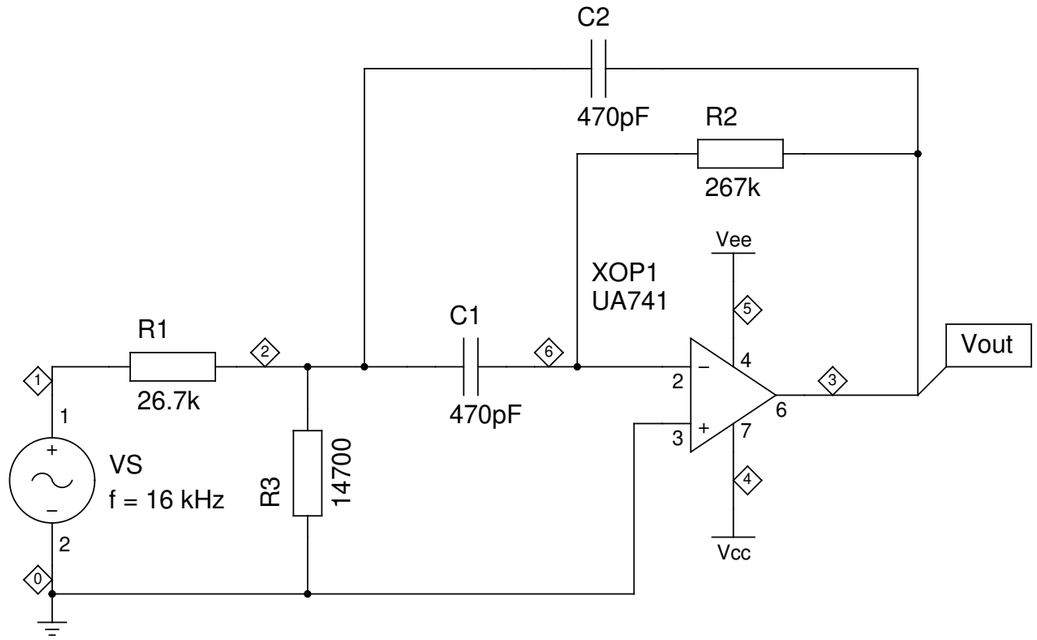
TITLE	OCTAVE_FILTER 8 kHz Band–pass Filter – Frequency response Schematic (DFS)		
FILE: gnucap/26.018.00.00.01.sch		REVISION: 20240608	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 018: 8 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 8k)
R1 1 2 26.7k
R2 3 6 267K
R3 0 2 14700
C1 2 6 470pF
C2 3 2 470pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO    STEP
.TRAN 0     0.05  0.00001 TRACE ALL

.END
```



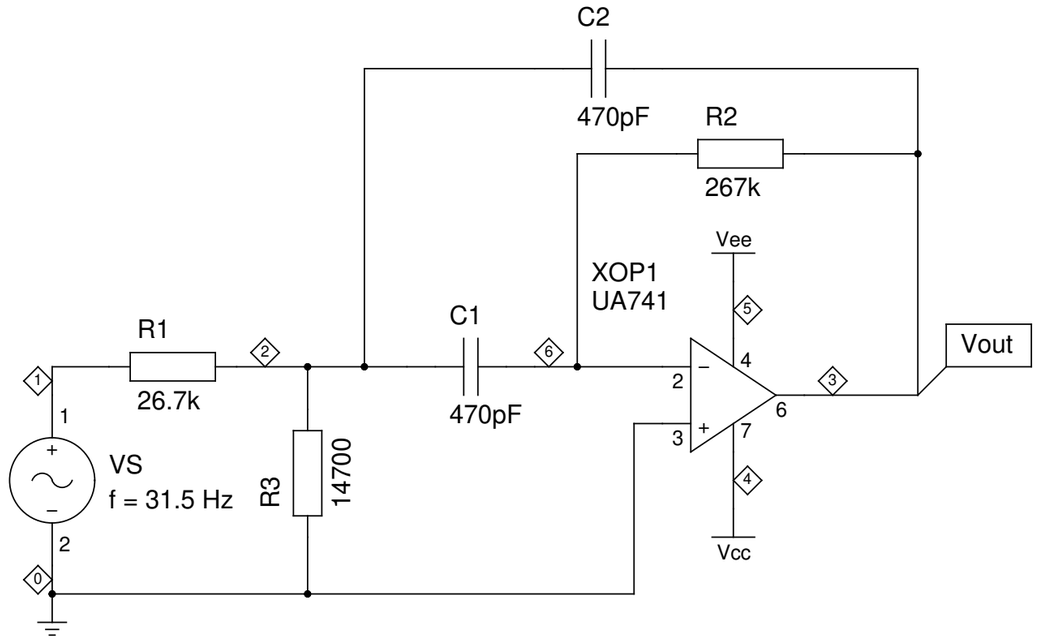
TITLE	OCTAVE_FILTER 8 kHz Band–pass Filter – Transient response (8 kHz) Schematic (DFS)		
FILE: gnucap/26.018.00.01.01.sch		REVISION: 20240608	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 018: 8 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 26.7k
R2 3 6 267K
R3 0 2 14700
C1 2 6 470pF
C2 3 2 470pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



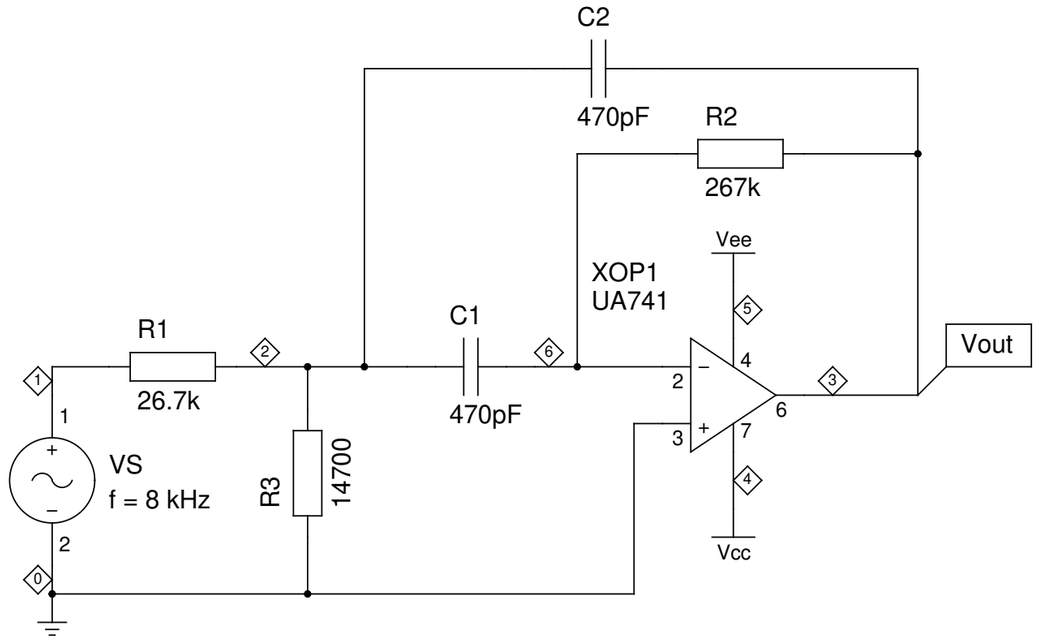
TITLE	OCTAVE_FILTER 8 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.018.00.01.02.sch		REVISION: 20240608	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 018: 8 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 26.7k
R2 3 6 267K
R3 0 2 14700
C1 2 6 470pF
C2 3 2 470pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



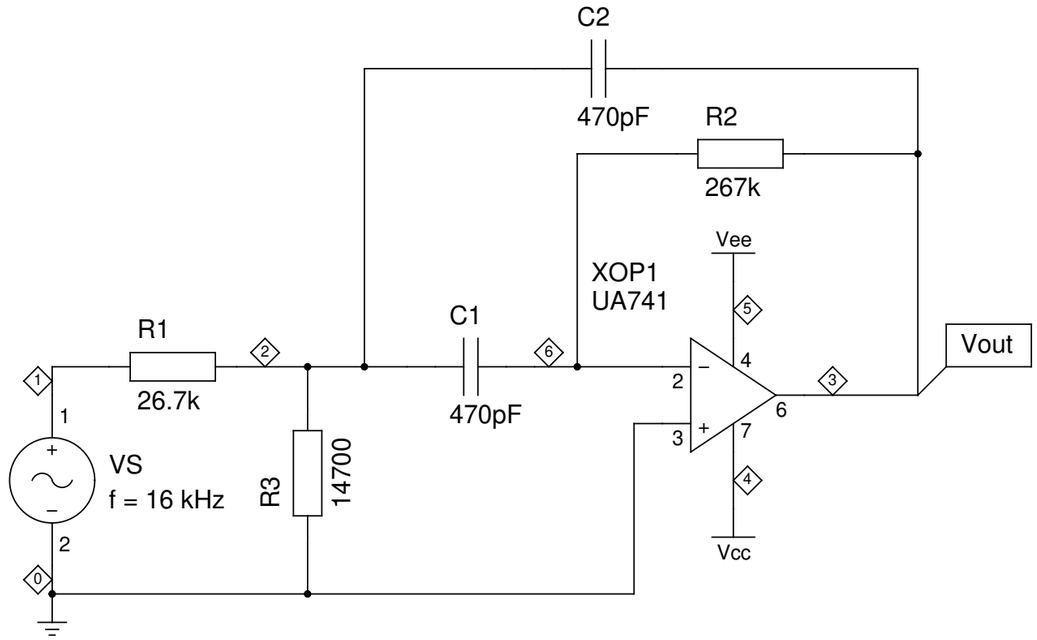
TITLE	OCTAVE_FILTER 8 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.018.00.01.03.sch		REVISION: 20240608	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 018: 8 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 8k)
R1 1 2 26.7k
R2 3 6 267K
R3 0 2 14700
C1 2 6 470pF
C2 3 2 470pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



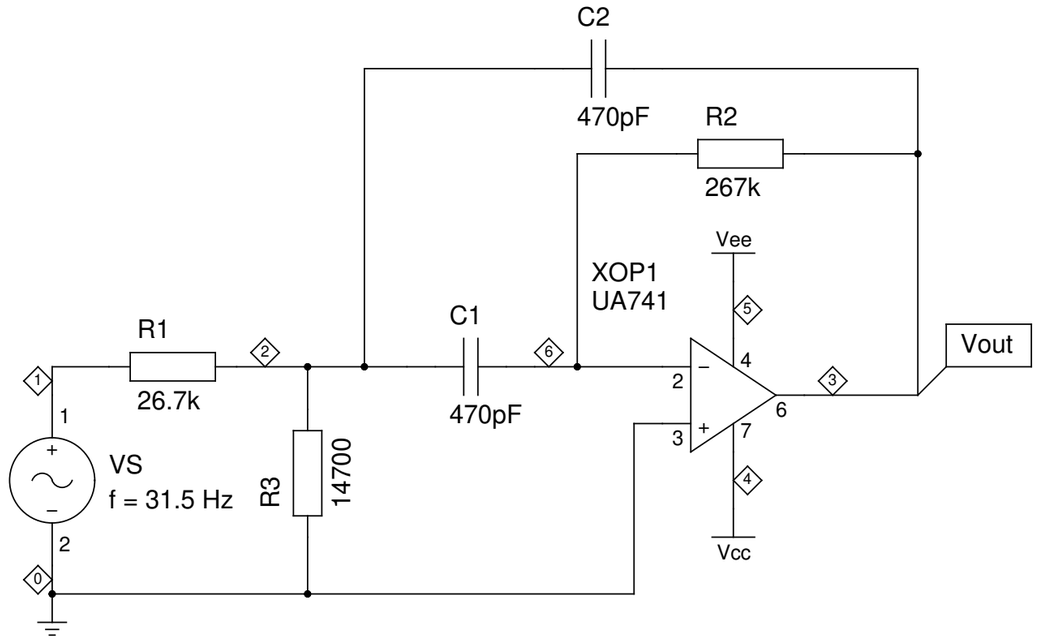
TITLE	OCTAVE_FILTER 8 kHz Band–pass Filter – Transient response (8 kHz) Schematic (DFS)		
FILE: gnucap/26.018.00.02.01.sch		REVISION: 20240608	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 018: 8 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 26.7k
R2 3 6 267K
R3 0 2 14700
C1 2 6 470pF
C2 3 2 470pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



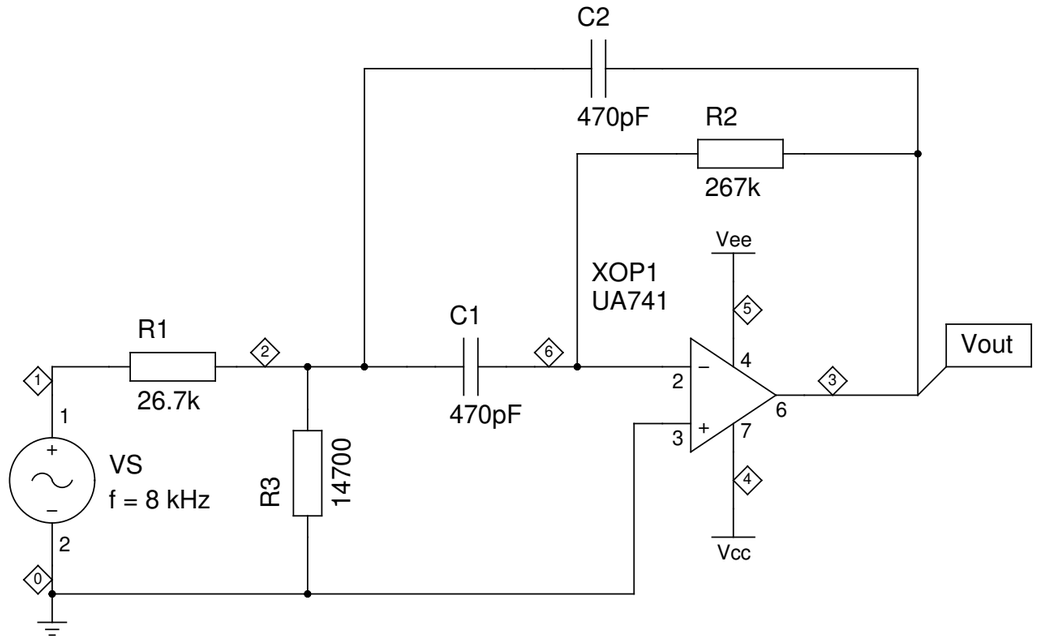
TITLE	OCTAVE_FILTER 8 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.018.00.02.02.sch		REVISION: 20240609	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 018: 8 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 26.7k
R2 3 6 267K
R3 0 2 14700
C1 2 6 470pF
C2 3 2 470pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



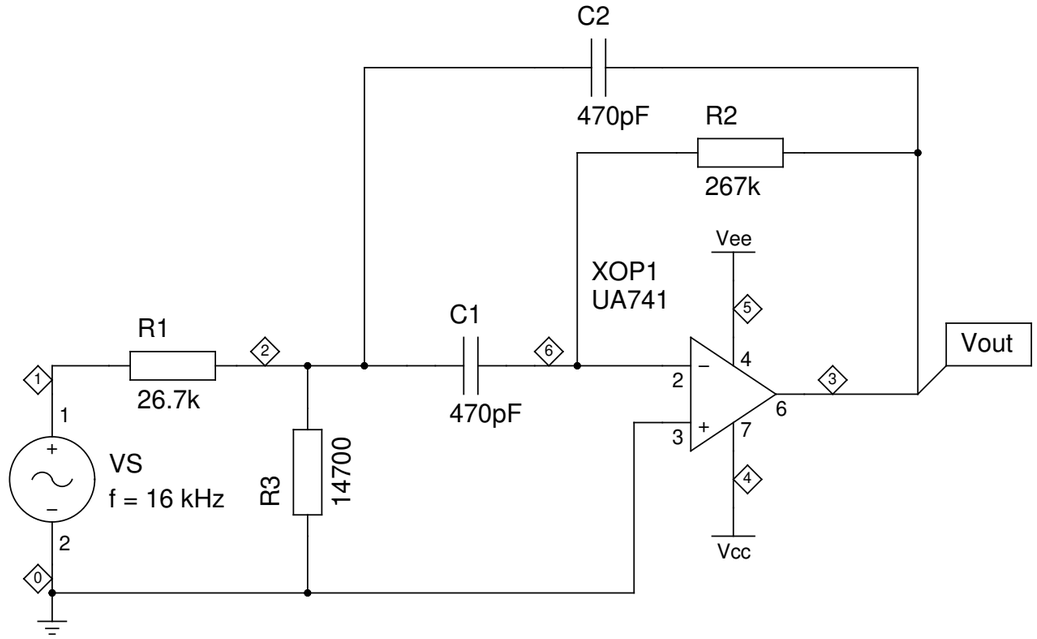
TITLE	OCTAVE_FILTER 8 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.018.00.02.03.sch		REVISION: 20240609	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 018: 8 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 8k)
R1 1 2 26.7k
R2 3 6 267K
R3 0 2 14700
C1 2 6 470pF
C2 3 2 470pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



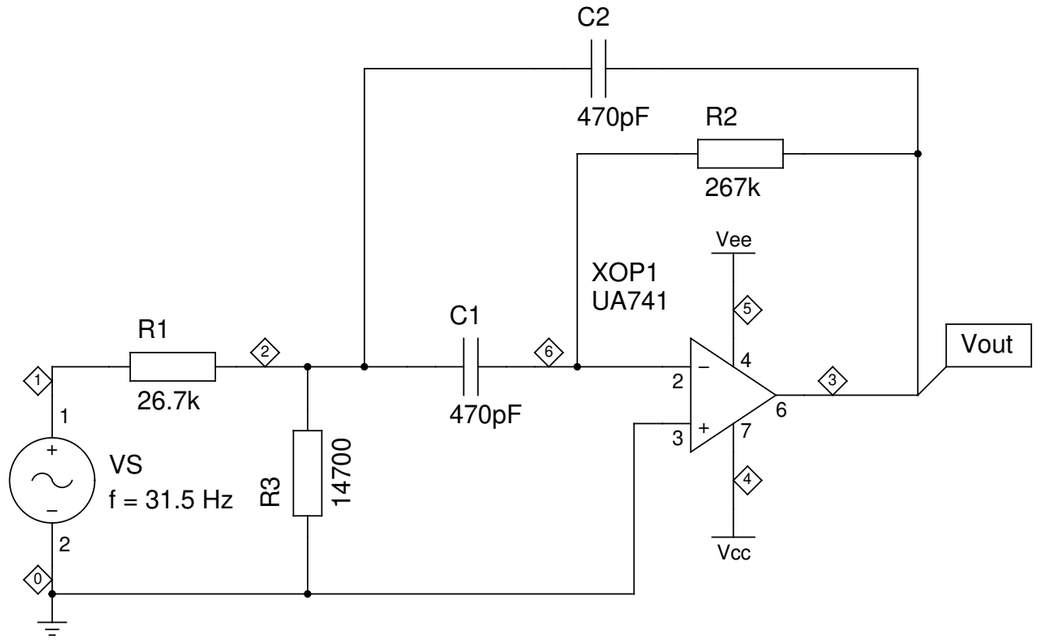
TITLE	OCTAVE_FILTER 8 kHz Band–pass Filter – Transient response (8 kHz) Schematic (DFS)		
FILE: gnucap/26.018.00.03.01.sch		REVISION: 20240609	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 018: 8 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 26.7k
R2 3 6 267K
R3 0 2 14700
C1 2 6 470pF
C2 3 2 470pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 8 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.018.00.03.02.sch		REVISION: 20240609	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 018: 8 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 26.7k
R2 3 6 267K
R3 0 2 14700
C1 2 6 470pF
C2 3 2 470pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 8 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.018.00.03.03.sch		REVISION: 20240609	A3
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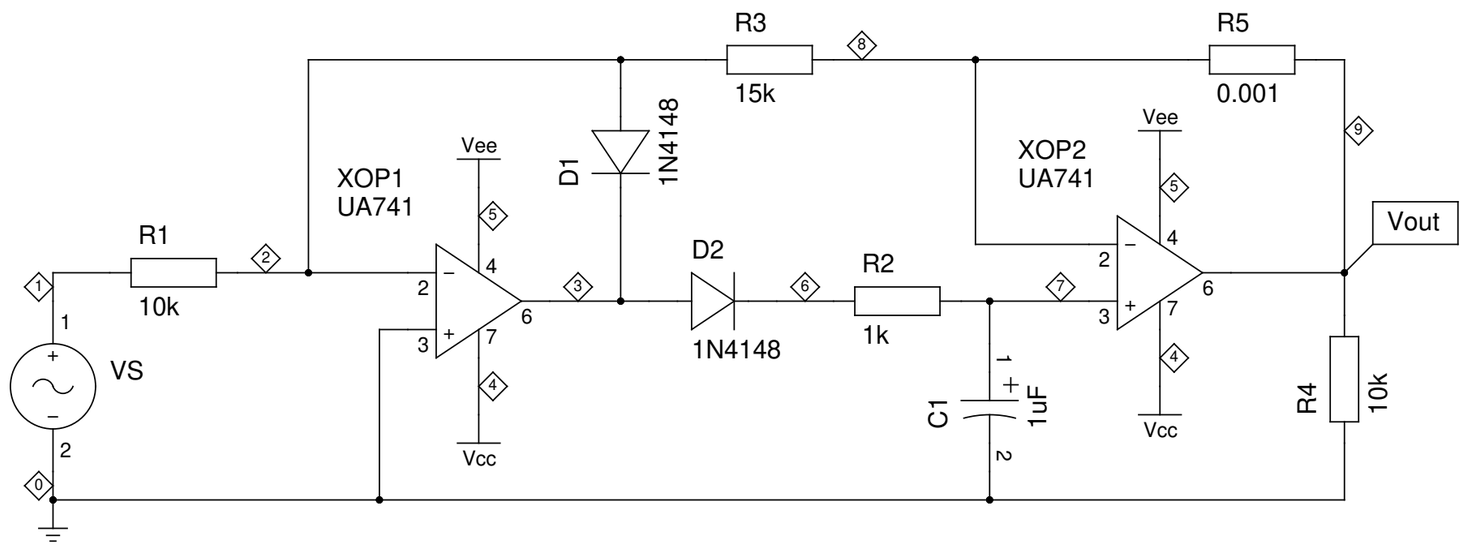
```
.TITLE OCTAVE FILTER – FUNCTION 019: 8 KHZ DETECTOR – FREQUENCY RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1 8k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3) VDB(9)

*     FROM     TO   STEP
.TRAN 0.00001  0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20            0.1    100k

.END
```



TITLE	OCTAVE_FILTER 8 kHz Detector – Frequency response Schematic (DFS)		
FILE:	gnucap/26.019.00.00.01.sch	REVISION:	20240609
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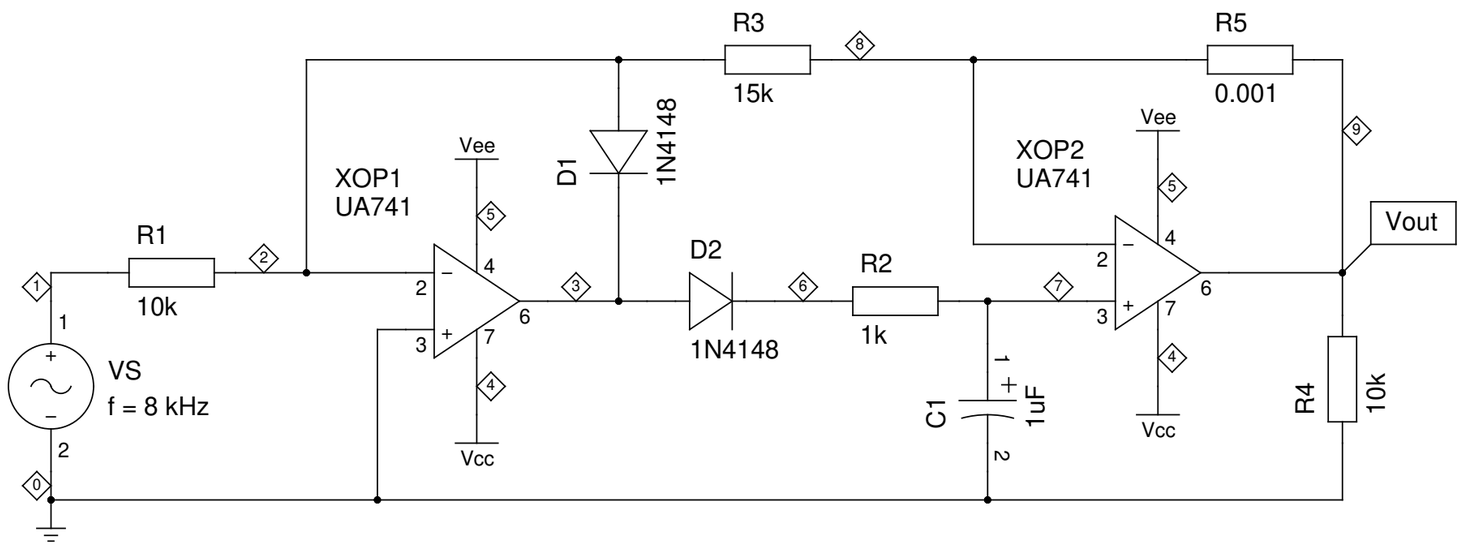
			A3

```
.TITLE OCTAVE FILTER – FUNCTION 019: 8 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1 8k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(9) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.02  0.00001

.END
```



TITLE	OCTAVE_FILTER 8 kHz Detector – Transient response (8 kHz) Schematic (DFS)		
FILE: gnucap/26.019.00.01.01.sch		REVISION: 20240609	A3
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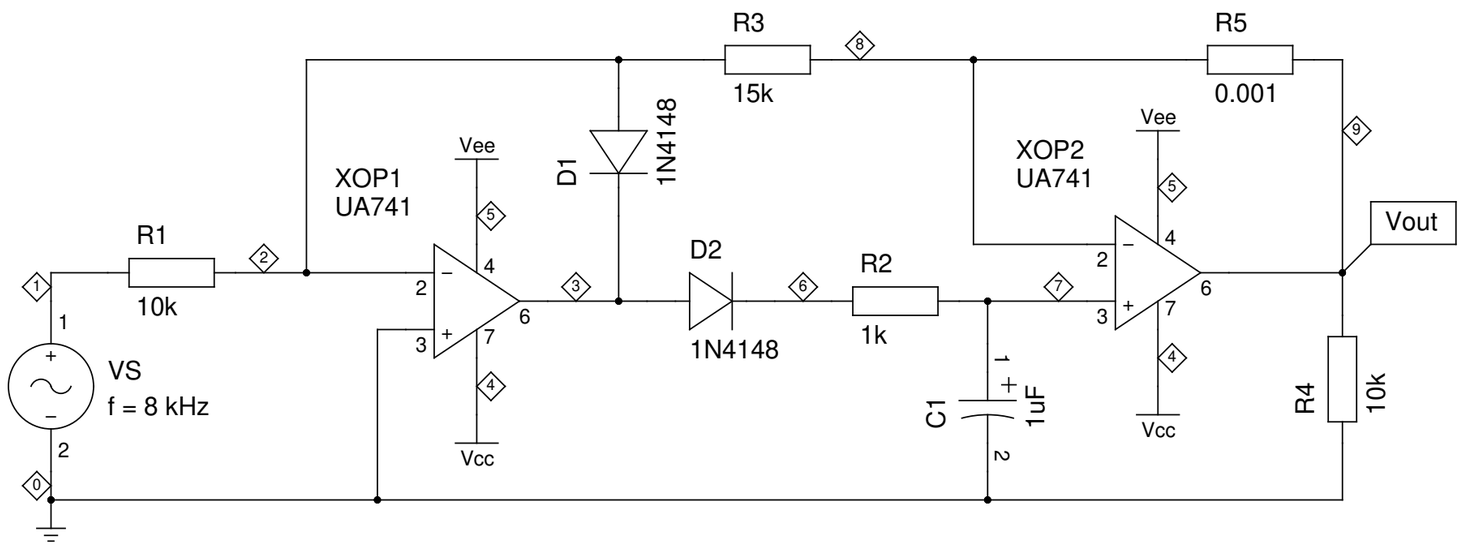
```
.TITLE OCTAVE FILTER – FUNCTION 019: 8 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e−14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=−15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 8k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3) I(R4) I(R5) I(D1) I(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



TITLE	OCTAVE_FILTER 8 kHz Detector – Transient response (8 kHz) Schematic (DFS)		
FILE: gnucap/26.019.00.02.01.sch		REVISION: 20240609	A3
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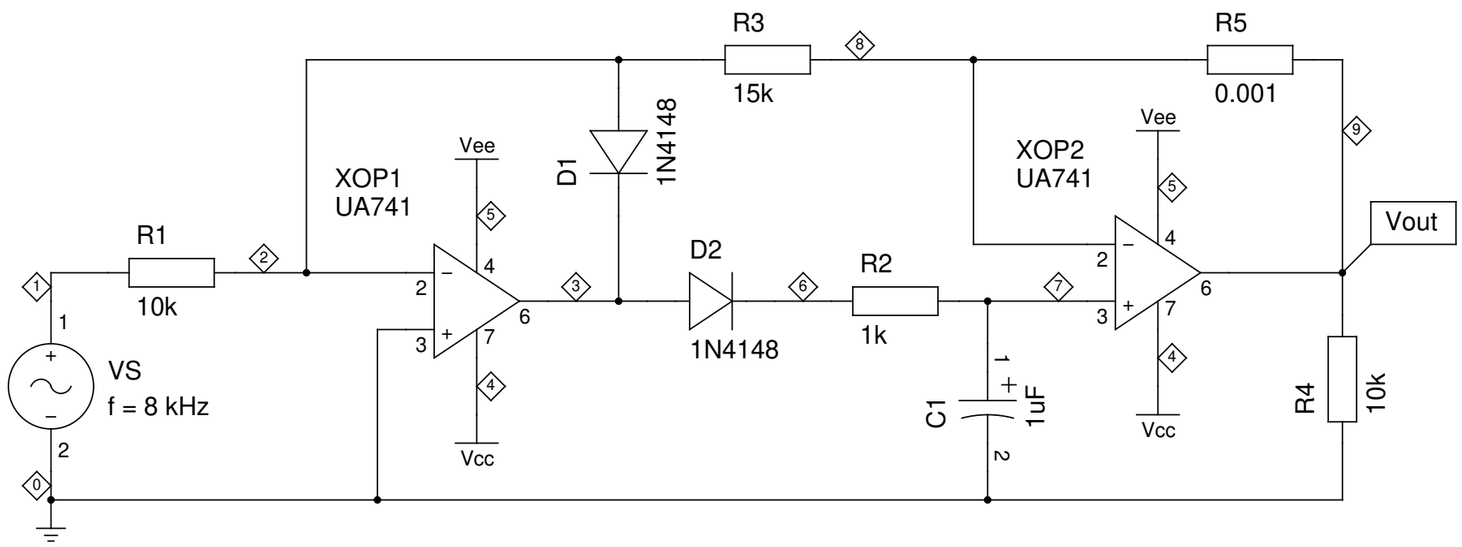
```
.TITLE OCTAVE FILTER – FUNCTION 019: 8 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 8k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3) P(R4) P(R5) P(D1) P(D2)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001

.END
```



TITLE	OCTAVE_FILTER 8 kHz Detector – Transient response (8 kHz) Schematic (DFS)		
FILE: gnucap/26.019.00.03.01.sch		REVISION: 20240609	A3
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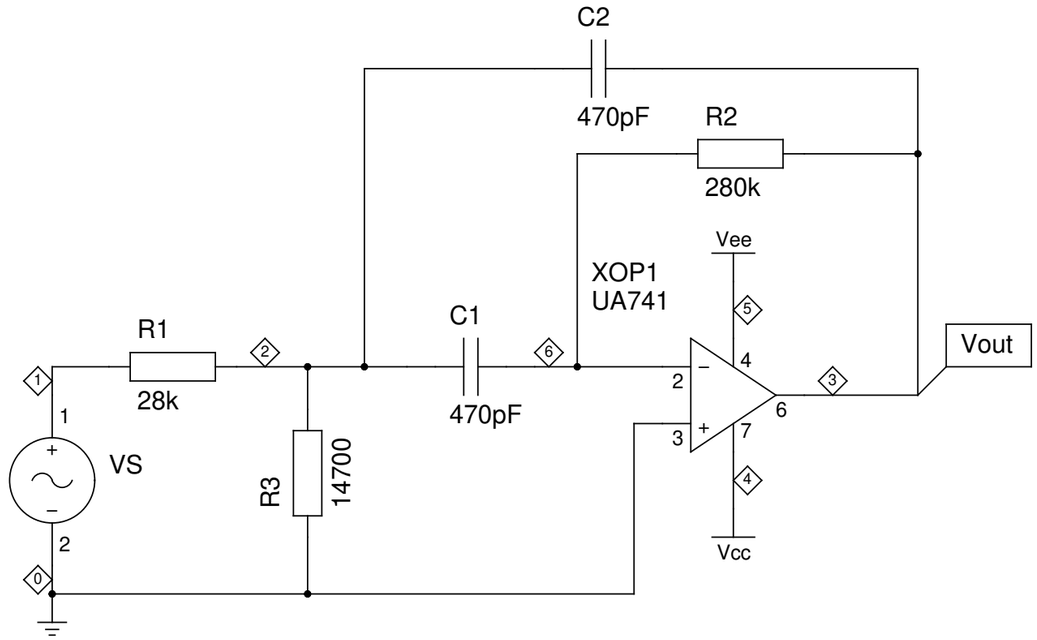
```
.TITLE OCTAVE FILTER – FUNCTION 020: 16 kHZ BAND–PASS FILTER – FREQUENCY RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 28k
R2 3 6 280K
R3 0 2 14700
C1 2 6 220pF
C2 3 2 220pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3)

*     FROM      TO   STEP
.TRAN 0.00001   0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```



TITLE	OCTAVE_FILTER 16 kHz Band–pass Filter – Frequency response Schematic (DFS)		
FILE: gnucap/26.020.00.00.01.sch		REVISION: 20240609	A3
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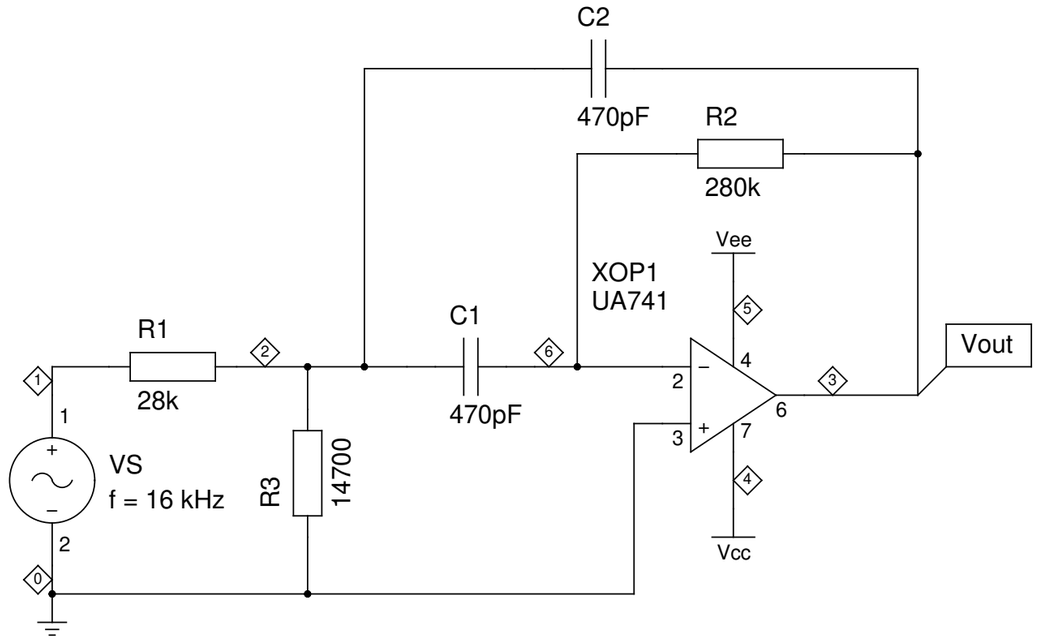
```
.TITLE OCTAVE FILTER – FUNCTION 020: 16 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 28k
R2 3 6 280K
R3 0 2 14700
C1 2 6 220pF
C2 3 2 220pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO    STEP
.TRAN 0     0.05  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 16 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.020.00.01.01.sch		REVISION: 20240609	A3
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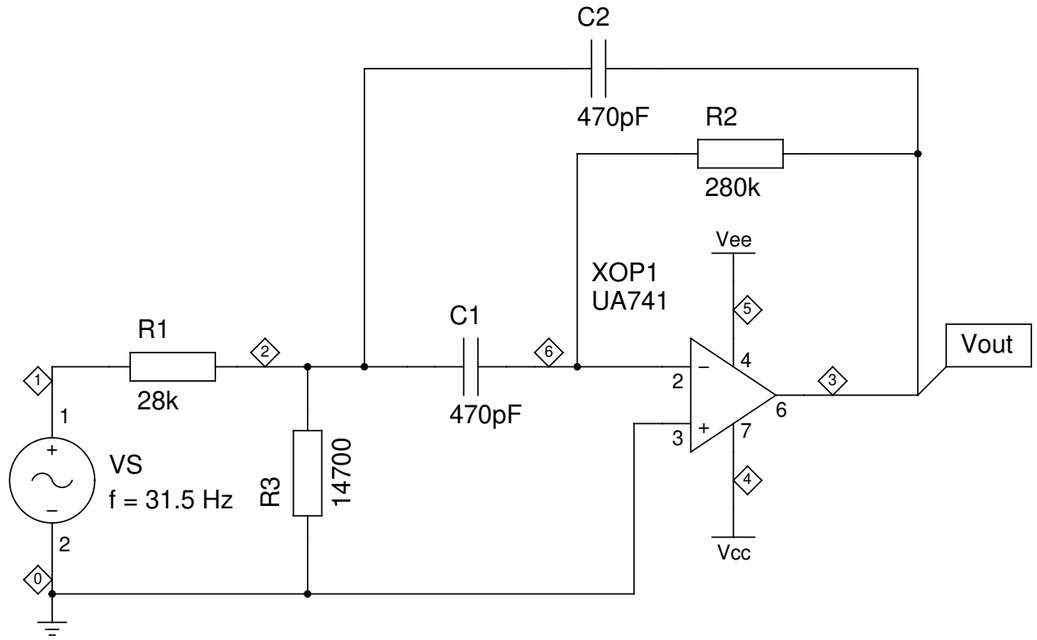
```
.TITLE OCTAVE FILTER – FUNCTION 020: 16 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 28k
R2 3 6 280K
R3 0 2 14700
C1 2 6 220pF
C2 3 2 220pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(4) V(5)

*     FROM  TO    STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 16 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.020.00.01.02.sch		REVISION: 20240609	A3
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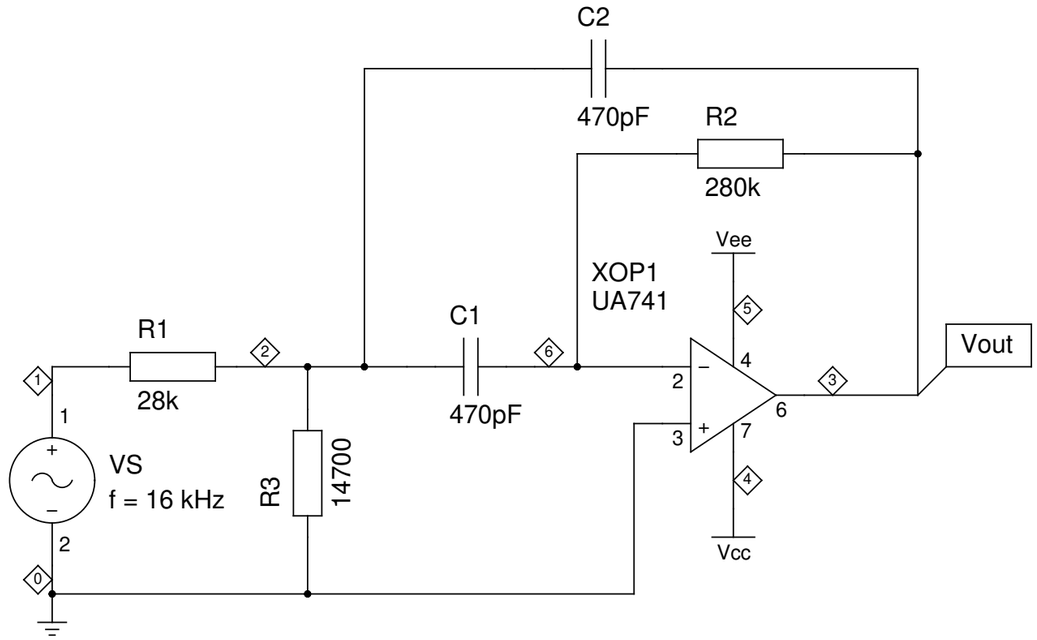
```
.TITLE OCTAVE FILTER – FUNCTION 020: 16 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 28k
R2 3 6 280K
R3 0 2 14700
C1 2 6 220pF
C2 3 2 220pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.01  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 16 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.020.00.02.01.sch		REVISION: 20240609	A3
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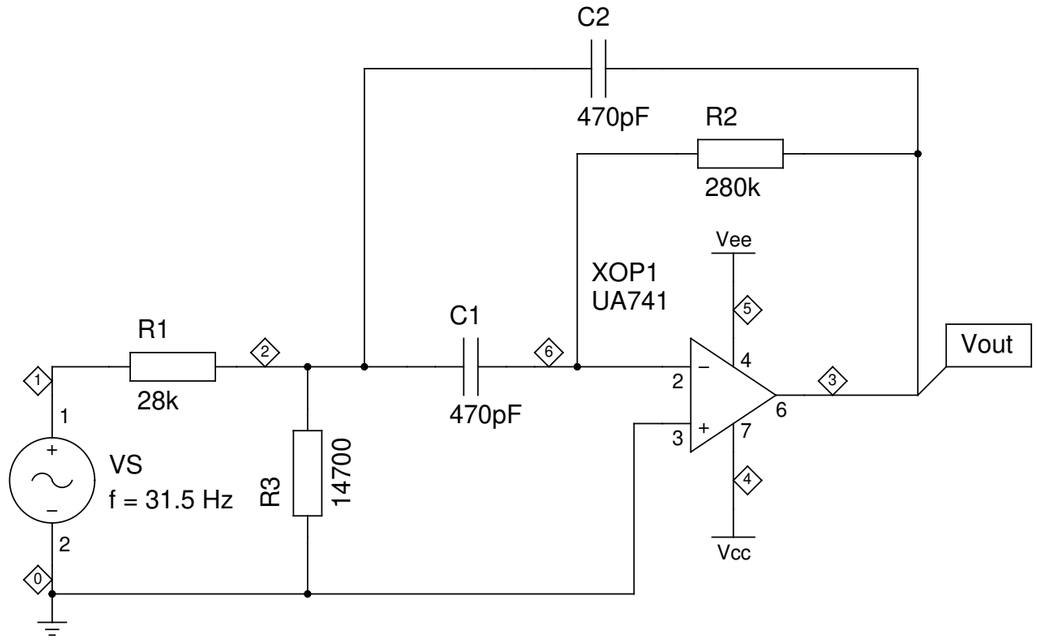
```
.TITLE OCTAVE FILTER – FUNCTION 020: 16 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 28k
R2 3 6 280K
R3 0 2 14700
C1 2 6 220pF
C2 3 2 220pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3)

*     FROM  TO   STEP
.TRAN 0     0.02  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 16 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.020.00.02.02.sch		REVISION: 20240609	A3
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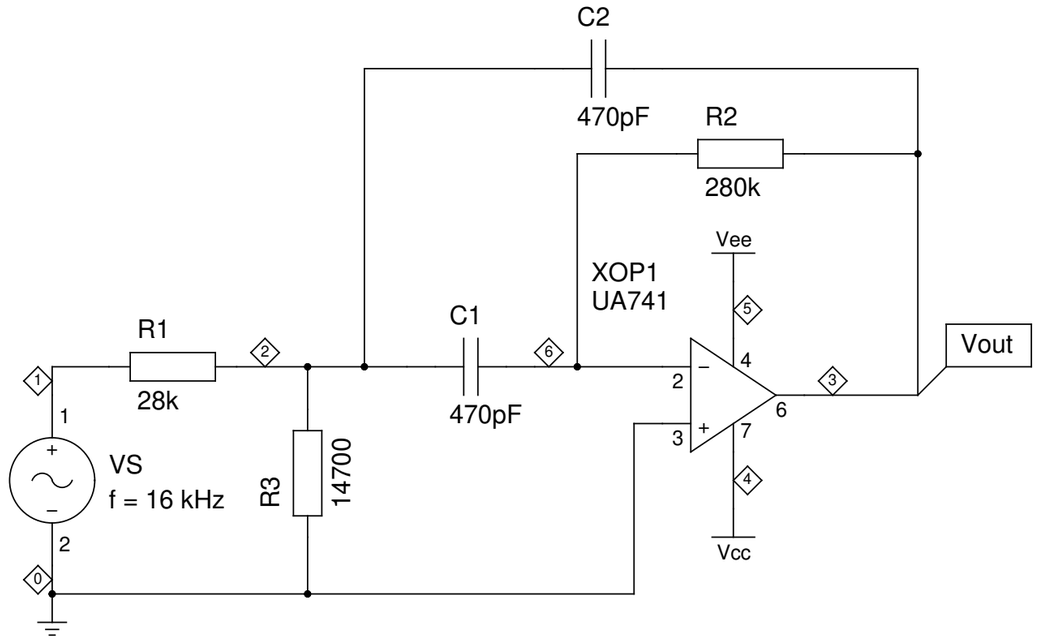
```
.TITLE OCTAVE FILTER – FUNCTION 020: 16 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
R1 1 2 28k
R2 3 6 280K
R3 0 2 14700
C1 2 6 220pF
C2 3 2 220pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.02  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 16 kHz Band–pass Filter – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.020.00.03.01.sch		REVISION: 20240609	A3
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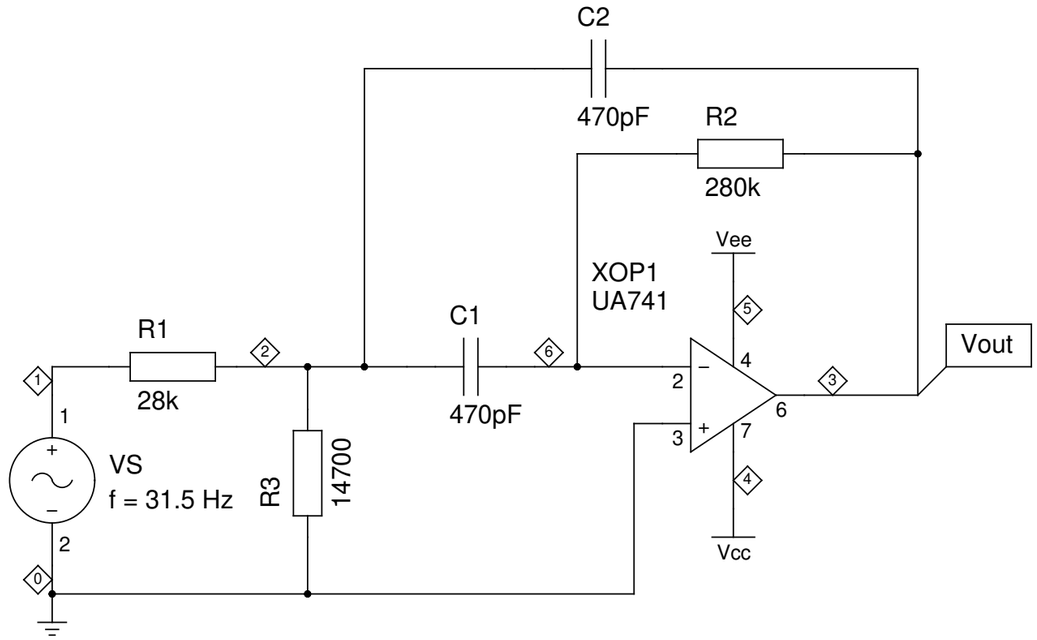
```
.TITLE OCTAVE FILTER – FUNCTION 020: 16 KHZ BAND–PASS FILTER – TRANSIENT RESPONSE

.INCLUDE UA741.subckt


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 31.5)
R1 1 2 28k
R2 3 6 280K
R3 0 2 14700
C1 2 6 220pF
C2 3 2 220pF
XOP1 0 6 0 4 5 3 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3)

*     FROM  TO   STEP
.TRAN 0     0.1  0.00001 TRACE ALL

.END
```



TITLE	OCTAVE_FILTER 16 kHz Band–pass Filter – Transient response (31.5 Hz) Schematic (DFS)		
FILE: gnucap/26.020.00.03.02.sch		REVISION: 20240609	A3
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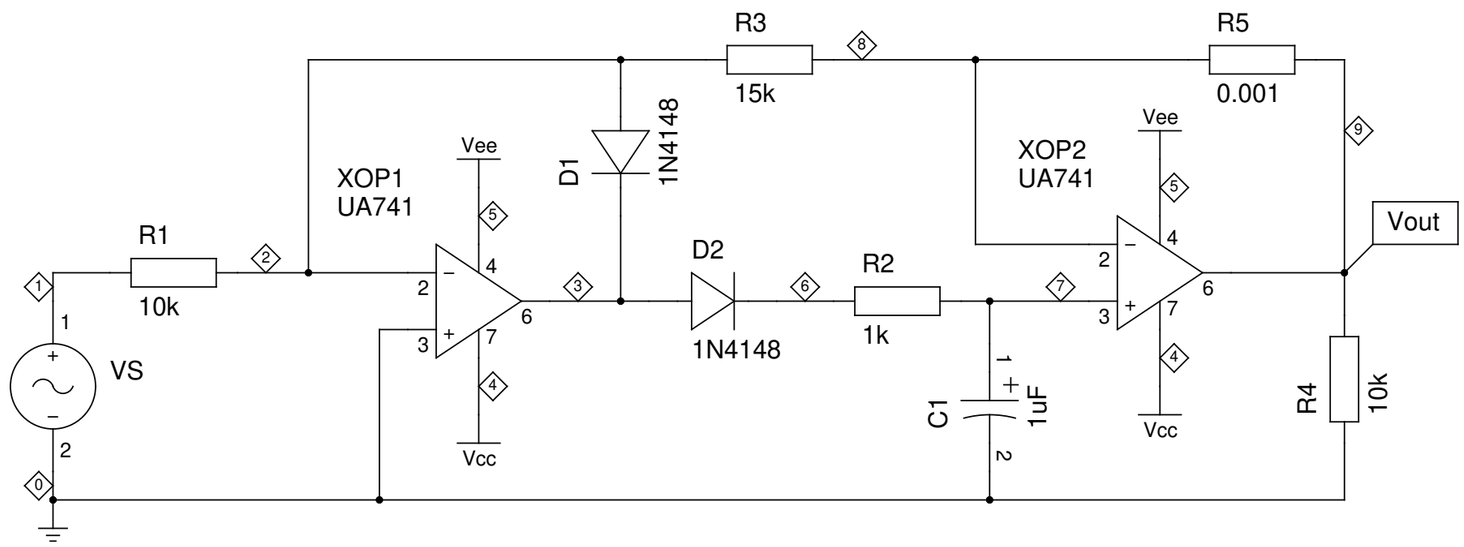
```
.TITLE OCTAVE FILTER – FUNCTION 0121 16 KHZ DETECTOR – FREQUENCY RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 15
VEE 5 0 –15

VS 1 0 AC 1 SIN(0 1 16k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT AC VDB(3) VDB(9)

*     FROM     TO   STEP
.TRAN 0.00001  0.2  0.0001

*       #STEPS/DECADE FROM   TO
.AC DEC 20           0.1    100k

.END
```



TITLE	OCTAVE_FILTER 16 kHz Detector – Frequency response Schematic (DFS)		
FILE: gnucap/26.021.00.00.01.sch		REVISION: 2020609	A3
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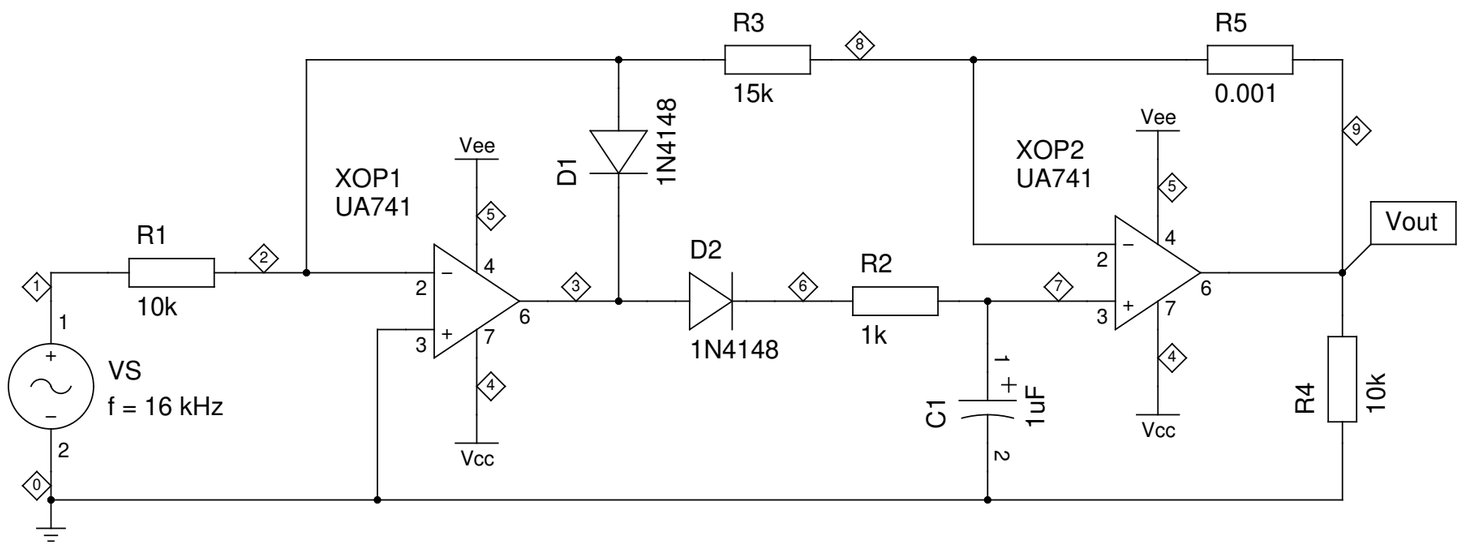
```
.TITLE OCTAVE FILTER – FUNCTION 021: 16 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1 16k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN V(1) V(3) V(9) V(4) V(5)

*     FROM  TO   STEP
.TRAN 0     0.02  0.00001

.END
```



TITLE	OCTAVE_FILTER 16 kHz Detector – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.021.00.01.01.sch		REVISION: 20240609	A3
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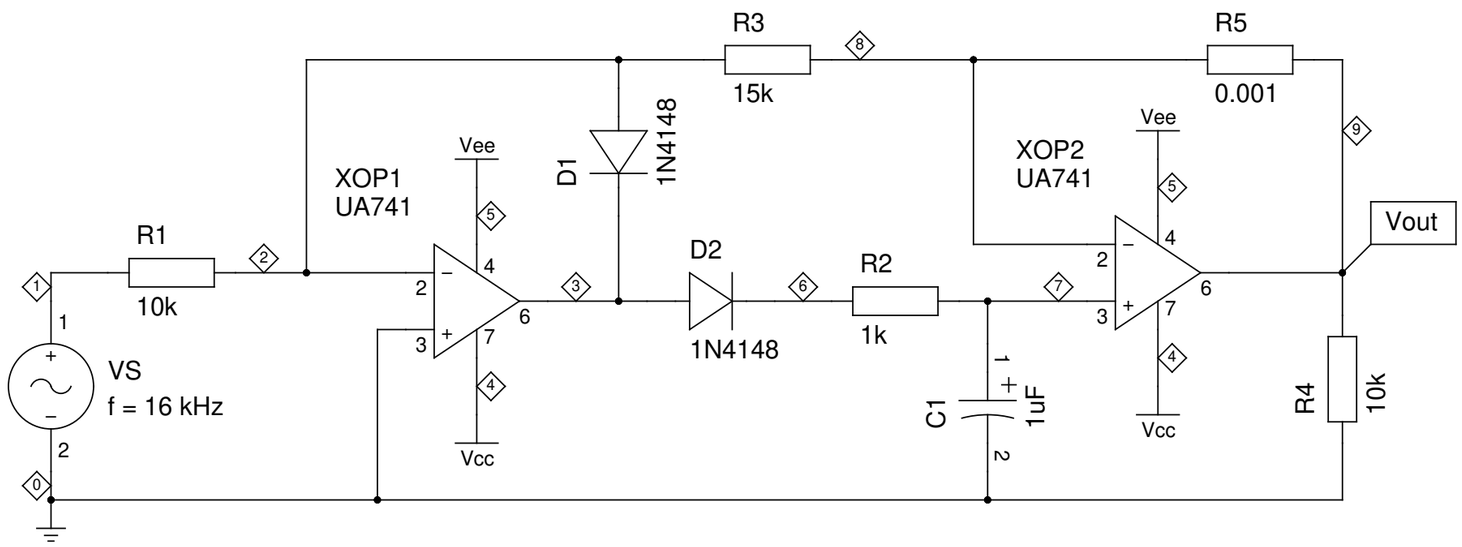
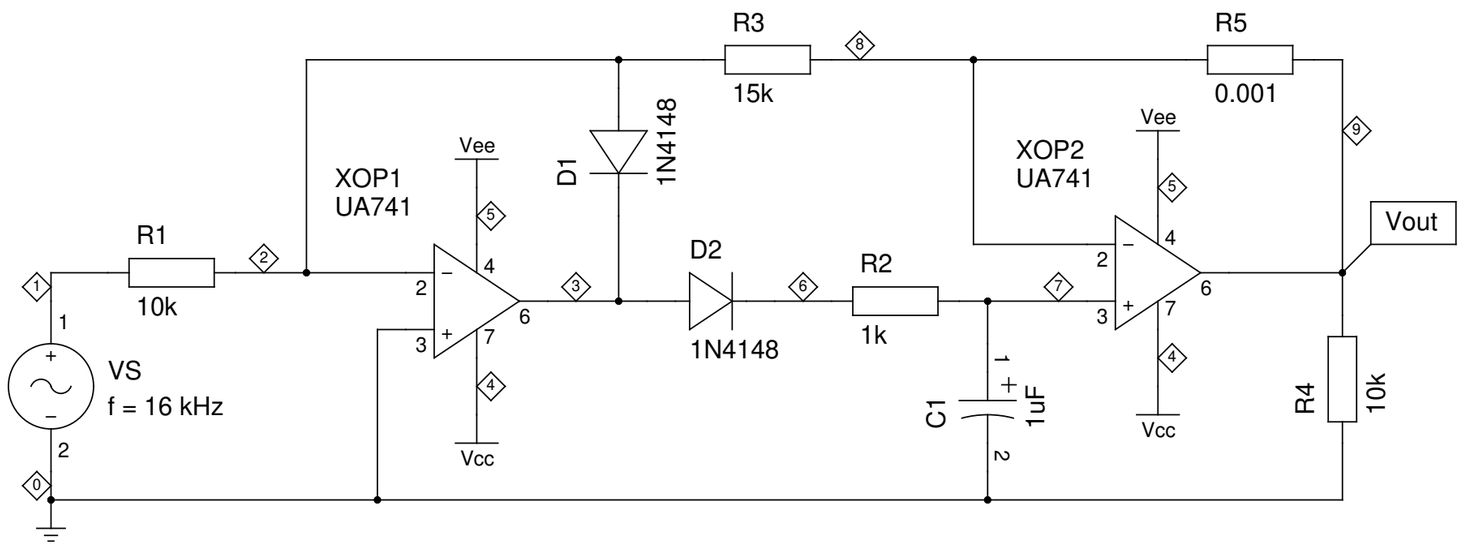
```
.TITLE OCTAVE FILTER – FUNCTION 021: 16 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e–14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=–15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN I(R1) I(R2) I(R3) I(R4) I(R5) I(D1) I(D2)

*     FROM  TO   STEP
.TRAN 0     0.02  0.00001

.END
```



TITLE	OCTAVE_FILTER 16 kHz Detector – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.021.00.02.01.sch		REVISION: 20240609	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	

```
.TITLE OCTAVE FILTER – FUNCTION 021: 16 KHZ DETECTOR – TRANSIENT RESPONSE

.INCLUDE UA741.subckt

.MODEL 1N4148 D IS=2e−14


VCC 4 0 pulse(iv=0 pv=15 rise=0.01)
VEE 5 0 pulse(iv=0 pv=−15 rise=0.01)

VS 1 0 AC 1 SIN(0 1.41 16k)
C1 0 7 1uF
D1 2 3 1N4148
D2 3 6 1N4148
R1 1 2 10000
R2 6 7 1000
R3 8 2 15000
R4 0 9 10000
R5 8 9 .001
XOP1 0 2 0 4 5 3 UA741
XOP2 7 8 0 4 5 9 UA741


.PRINT OP Iter(0) V(3)

.PRINT TRAN P(R1) P(R2) P(R3) P(R4) P(R5) P(D1) P(D2)

*     FROM  TO   STEP
.TRAN 0     0.02  0.00001

.END
```



TITLE	OCTAVE_FILTER 16 kHz Detector – Transient response (16 kHz) Schematic (DFS)		
FILE: gnucap/26.021.00.03.01.sch		REVISION: 20240609	A3
PAGE 01	OF 01	DRAWN BY: Bert Timmerman	