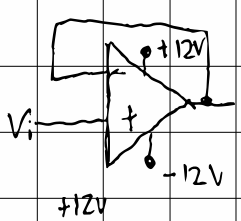
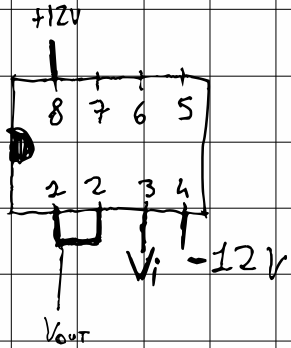
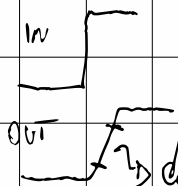
1: Misura dello slew rate LM358





• Scrivere produttore dell'integrato

Vi: ⌐ 3~(150÷300)mV



↳ dovrebbe fare misura T-RISE 10/90

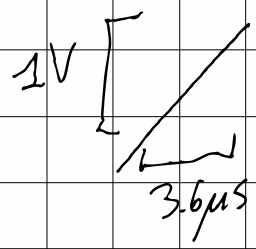
Provare: ⌐ } = 500mV } ≈ 1V ; f ≈ 50kHz

+15V
-15V

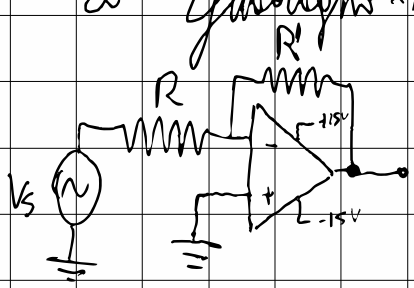
T-RISE: $\Delta y = 1V$

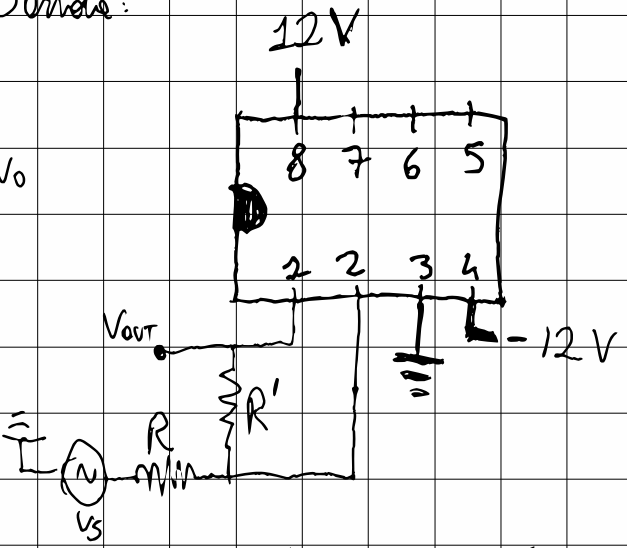
$\Delta x = [3.58\mu s; 3.6\mu s; 3.62\mu s; 3.66\mu s; 3.68\mu s]$

f ≃ 10KHz



2: Guadagno × Banda:





$V_{smax} \doteq 30mV$

Per avere dati bene esportati si scelgono amplificazioni distanti tra loro: $\left(A_v = -\frac{R'}{R}\right)$

A_v	$R'\ \Omega$	$R\ \Omega$
5	4.7 K	1K
15	15 K	
47	47K	
100	100K	

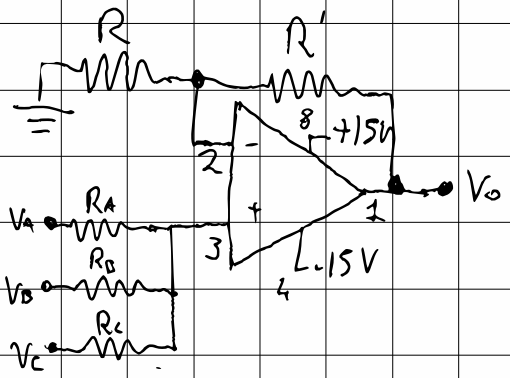
$V = [10, 40, 160, 630, 1.1K, 2K, 3.5K, 6K, 11K, 19K, 33K, 59K, 100K, 180K, 320K, 570K, 1M]$

Poco più preciso

Costruire nella Cartella un modo per variare A_v facilmente e prendere le misure cambiando A_v per ogni $[V_i]$

Nel G×BW il prodotto si esprime usando $A = \frac{V_o}{V_i}$ e NON $20 \log_{10} \frac{V_o}{V_i}$

3: Sommatore



$$V_o = \frac{1}{3}\left(1+\frac{R'}{R}\right)\left[V_A+V_B+V_C\right]$$

?

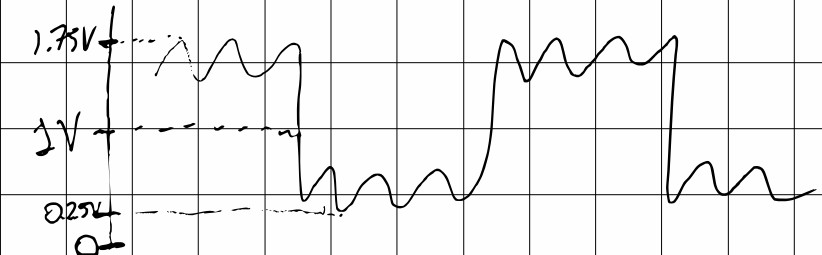
$R_A = R_B = R_C = 100\,K\Omega$

Se $R' = 2R \rightarrow V_o = V_A + V_B + V_C$

1) Misurare amplificazione a media frequenza $\sim 2KHz$ per ogni ingresso, mettendo a massa gli altri 2.
Le 3 amplificazioni devono essere uguali fra loro pari a quella di progetto.

2) C → ⎓; A, B sinusoidali (2 generatori) con $V_A \simeq V_B$
Stima della frequenza di taglio
Osservare i tagli e confrontare con le previsioni

3) A: ⎍ 0.5V 1KHz B: ∿ 0.25V 5KHz ; C: ⎓ 1V DC

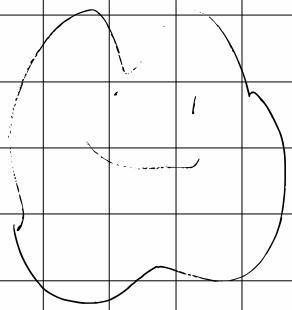


V V_{IN_1} V_{OUT_1} V_{IN_2} V_{OUT_2} V_{IN_3} V_{OUT_3} V_{IN_4} V_{OUT_4}

- Chiedere come riportare in tabella (Viene enorme)
- Come fare per i Coefficienti k_i reali per amplificazione alta

...

NON SMONTARE il sommatore



Misure resistori:

46.31 K

4.631 K

14.585 K

~~1001 K~~

GBW

$V_+ = 15V$

$V_- = -15V$

EG21DK

LM

358AN

Fairchild

SOLUZIONE:

$R = 2.1788 K\Omega$

$R' = 4.349 K\Omega$

$R_A = 100.20 K\Omega$

$R_B = 100.20 K\Omega$

$R_C = 100.21 K\Omega$

$R = 2.174 6 K\Omega$

$R' = 4.331 K\Omega$

Sommatore

B, C a massa → $V_{IN} = 0.788\ V$, $V_{OUT} = 0.788\ V$

A, C a massa → $V_{IN} = 0.788\ V$, $V_{OUT} = 0.788\ V$

A, B a massa → $V_{IN} = 0.788\ V$, $V_{OUT} = 0.788\ V$

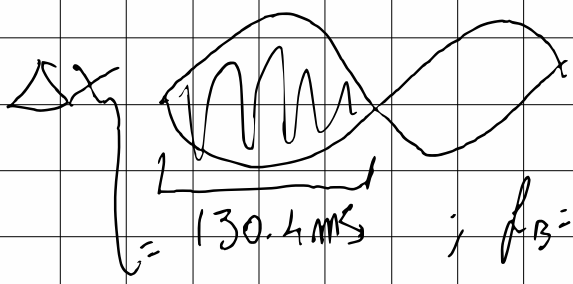
$V = 995\ Hz$

Battimenti

$f_1 = [994.9; 996.0; 995.7; 995.5; 995.7; 995.2; 996.3]\ Hz$

$f_2 = [1001, 1003, 1003, 1005, 999.8, 1004, 1002]$

$V_1 = 1.00V = V_2 = 1.00V$



$= 130.4\ ms$; $f_B = 7.6687\ Hz$

B: ~ 249 mV ; f = 5.1867 KHz

A: ~ 1.02 V ; f = 997.57 Hz

C ⊤ 1.001 V DC

$$\begin{cases} y = mx + c \rightarrow \left(x = \frac{y-c}{m}\right) \\ y = y_0 \end{cases}$$

$$x_c = \frac{6.\text{mean}() - 3 - c}{m}$$