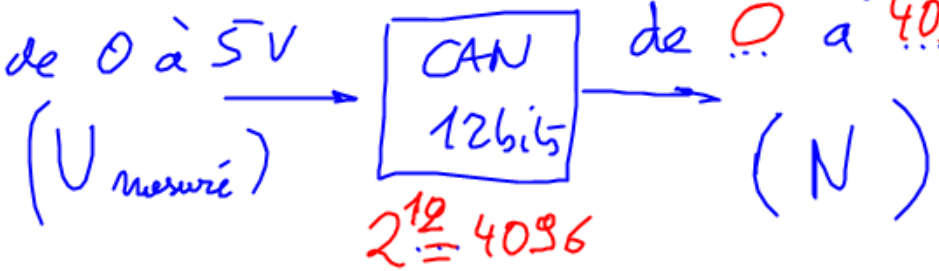
ex CAN 12 bits / 5 V



Calculer le quantum (V/bit)

$$q = \frac{5}{2^{12}-1} \simeq 1{,}22 \cdot 10^{-3} \text{ V/bit}$$

$$\simeq 1{,}22 \text{ mV/bit}$$

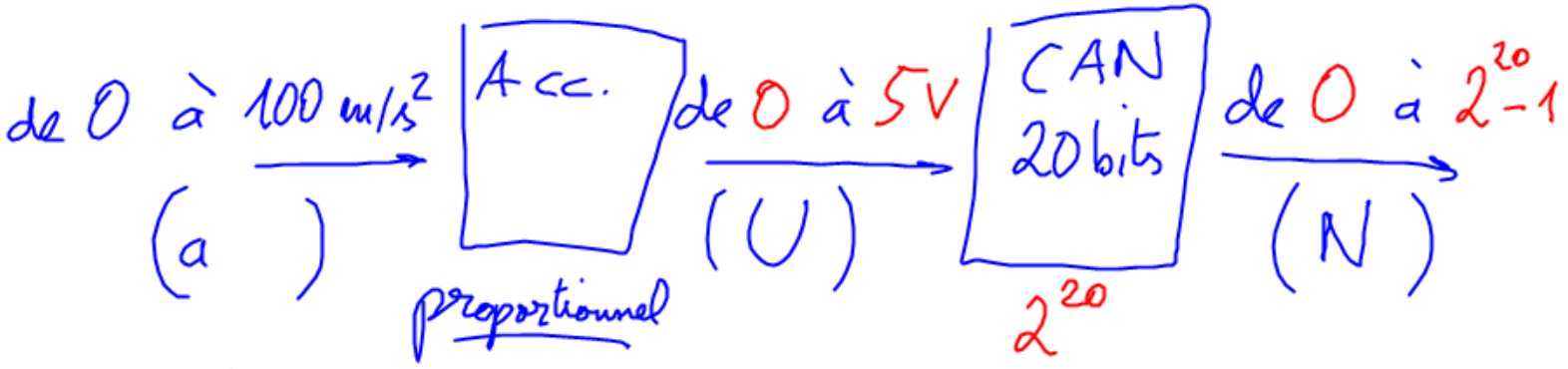
Calculer N si $U_{mesuré} = 2{,}92$ V

$$U_{mesuré} = q \cdot N \qquad N = \frac{U_{mesuré}}{q} \qquad N = \frac{2{,}92}{1{,}22 \cdot 10^{-3}} \simeq 2393 \text{ bits}$$

Calculer $U_{mesuré}$ si $N = 1222$

$$U_{mesuré} = 1{,}22 \cdot 10^{-3} \cdot 1222 \simeq 1{,}49 \text{ V}$$

ex Capteur sur CAN : l'accéléromètre



Calculer le quantum entre l'acc. et le nombre numérique ((m/s²)/bit)

$$q = \frac{a_{pleine\ éch.}}{2^n - 1} \qquad q = \frac{100}{2^{20}-1} \simeq 9{,}54.10^{-5}\ (m/s^2)/bit$$

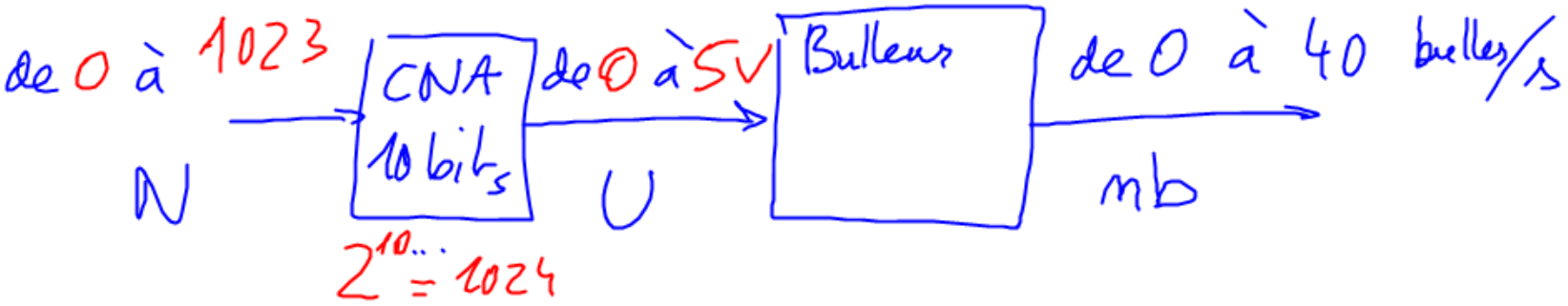
$m.s^{-2}.bit^{-1}$

Calculer l'acc. pour N = 803000 :

$$a = N.q \qquad a = 803000 . 9{,}54.10^{-5} \simeq 76{,}6\ m/s^2$$

Calculer N si l'accélération = 9,81 m/s² : $N = \frac{a}{q}$ $\quad N = \frac{9{,}81}{9{,}45.10^{-5}} \simeq 102830$

ex CNA sur bulleur



Calculer le quantum du CNA

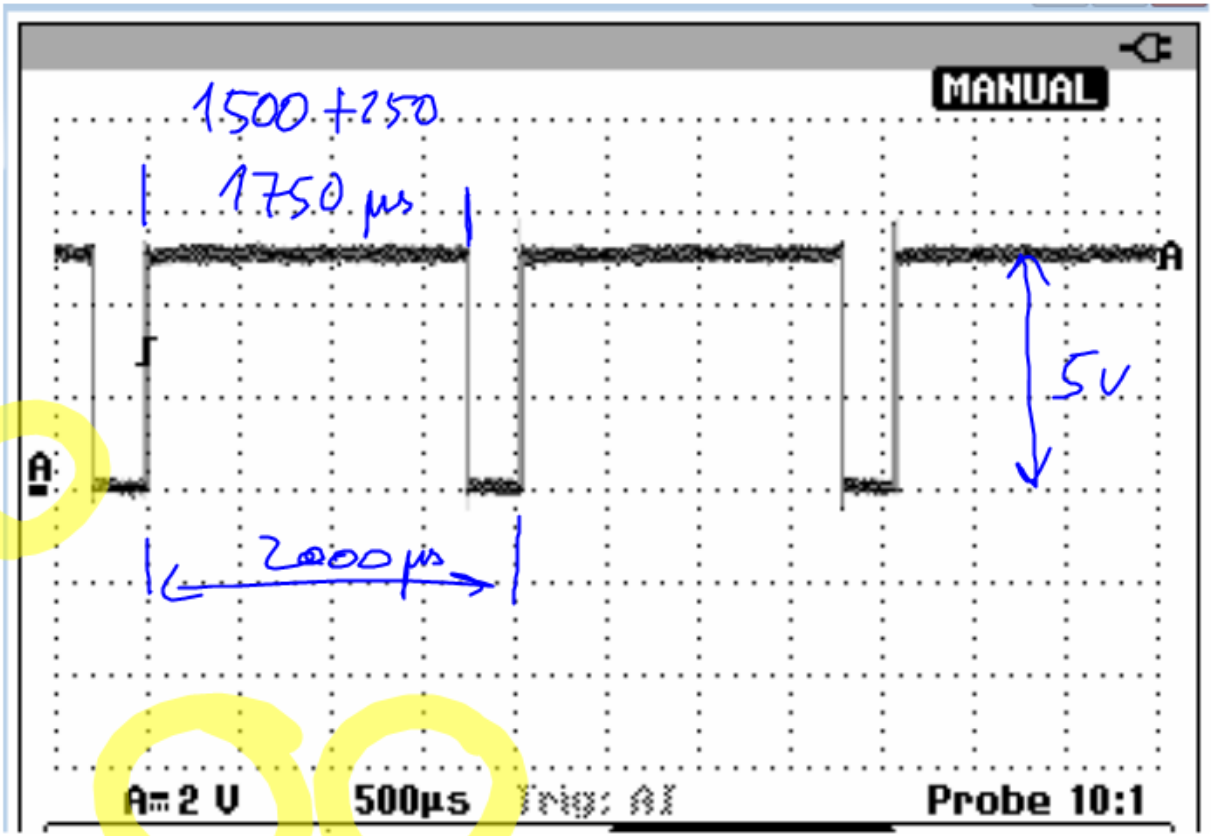
$$q = \frac{5}{1023} \simeq 4{,}89 \cdot 10^{-3} \text{ V/bit}$$

Calculer U_{moyen} pour $N = 920$

$$U_{moy} = q \cdot N \qquad U_{moy} = 4{,}89 \cdot 10^{-3} \cdot 920 \simeq 4{,}5 \text{ V}$$

Calculer N pour $U_{moy} = 1{,}2$ V

$$N = \frac{U_{moy}}{q} \qquad N = \frac{1{,}2}{4{,}89 \cdot 10^{-3}} \simeq 245$$



rapport cyclique

$$\frac{t_{on}}{T} = \frac{1750}{2000} \simeq 87,5\%$$

$$U_{moy} = \frac{1750}{2000} \cdot 5 \simeq 4,38\ V$$

$N_{pour\ CNA\ 8bits} =$

N → [CNA 8b] → 4,38

$$q = \frac{5}{2^8 - 1} \simeq 19,6 \cdot 10^{-3}\ V/bit$$

$U_{moy} = q \cdot N \quad N = \frac{U_{moy}}{q}$ $\quad N = \frac{4,38}{19,6 \cdot 10^{-3}} \simeq 223$

CNA | Arduino 1.8.12

Fichier Édition Croquis Outils Aide

CNA §

```
int pinCNA = 3;
int pinCAN = A0;
int valCAN = 0; //10bits
int valCNA = 0; //8bits

void setup() {
  Serial.begin(9600);
pinMode(pinCNA, OUTPUT);
}
void loop() {
valCAN = analogRead(pinCAN);
valCNA = valCAN / 4; // de 0
analogWrite(pinCNA, valCNA);
Serial.println(valCNA);
}
```

Téléversement terminé

```
Le croquis utilise 2254 octets
Les variables globales utilise
```

14

Arduino Uno sur COM19

COM19

Envoyer

```
54
54
54
54
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54
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54
54
54
54
54
54
54
54
```

Défilement automatique Afficher l'horodatage Pas de fin de ligne 9600 baud Effacer la sortie

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FRA 11:48 18/03/2025

CNA | Arduino 1.8.12

Fichier Édition Croquis Outils Aide

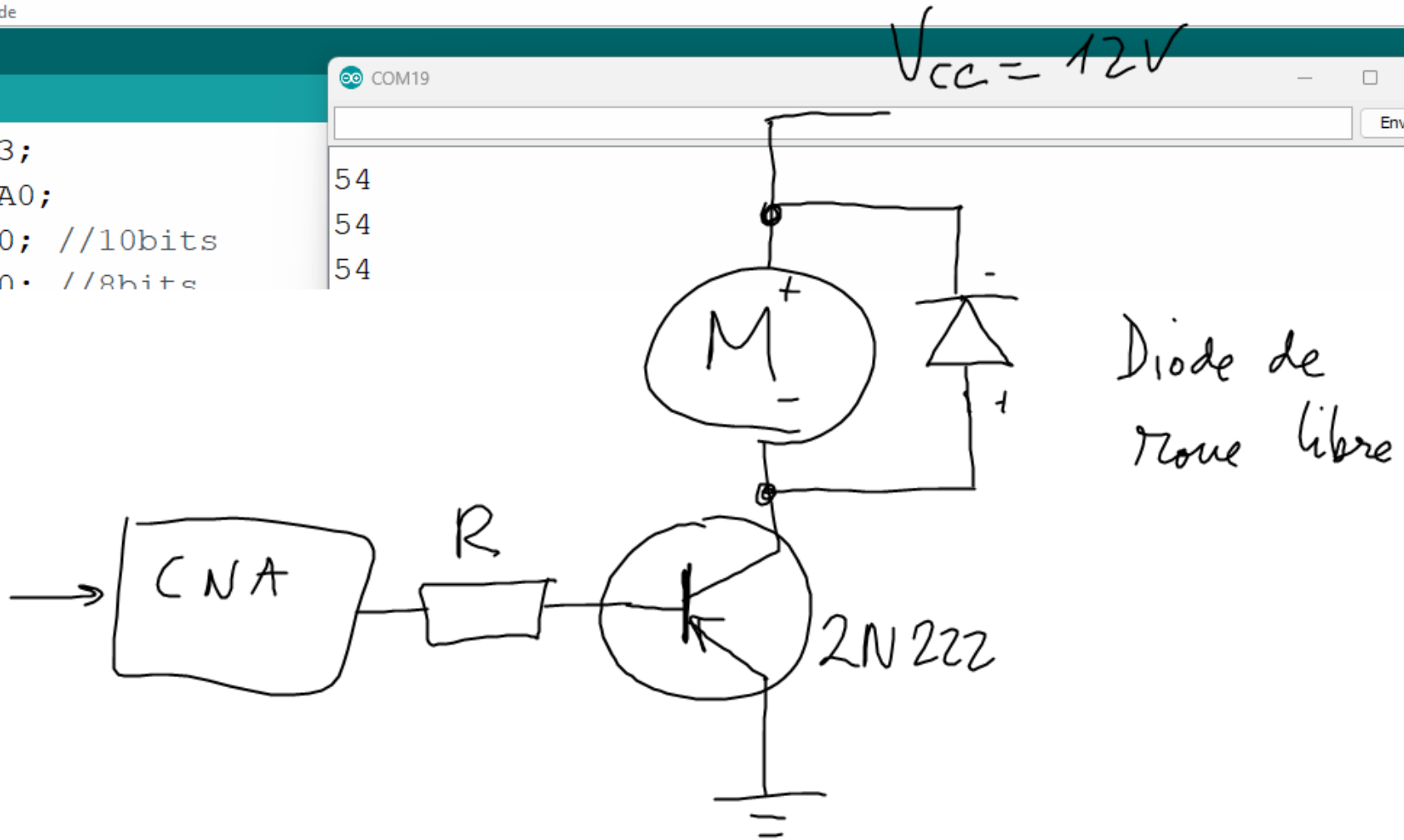
CNA §

```
int pinCNA = 3;
int pinCAN = A0;
int valCAN = 0; //10bits
int valCNA = 0; //8bits
```

COM19

Envoyer

```
54
54
54
```



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Lycée Stanislas | 2N2222 pdf, 2N2222 Télécharge | 2N2222 MCC | Alldatasheet - 2N222
file:///C:/Users/DELL_XPS13/Downloads/2N2222.PDF
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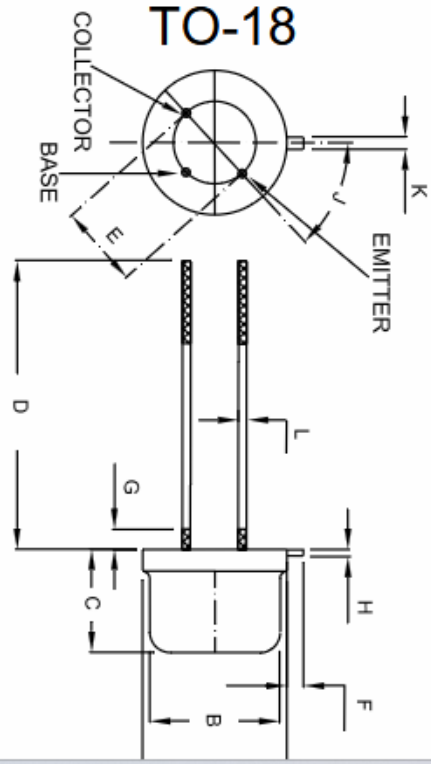
1 sur 3 | Zoom automatique

Features

- High current (max.800mA)
- Low voltage (max.40V)
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)

NPN Switching Transistors



Maximum Ratings

Symbol	Rating	Rating	Unit
V_{CEO}	Collector-Emitter Voltage 2N2222 2N2222A	 30 40	V
V_{CBO}	Collector-Base Voltage 2N2222 2N2222A	 60 75	V
V_{EBO}	Emitter-Base Voltage 2N2222 2N2222A	 5.0 6.0	V
I_C	Collector Current (DC)	800	mA
I_{CM}	Peak Collector Current	800	mA
I_{BM}	Peak Base Current	200	mA
T_J	Operating Junction Temperature	-55 to +150	°C
T_{STG}	Storage Temperature	-55 to +150	°C

Thermal Characteristics

Symbol	Rating	Max	Unit
P_{tot}	Total power Dissipation $T_A \leqq 25℃$ $T_C \leqq 25℃$	 500 1.2	 mW W
R_{JC}	Thermal Resistance, Junction to Case	146	K/W
R_{JA}	Thermal Resistance, Junction to Ambient	350	K/W

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
OFF CHARACTERISTICS				
	Collector cut-off current (V_CB=50Vdc, I_E=0) 2N2222			

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