

Module Grove SEN23292P (CTN)

Remarques pour les PPE

Ce capteur de température compatible Grove délivre un signal analogique de 0 à 5 Vcc en fonction de la température mesurée.

Alimentation: 5 Vcc

Plage de mesure: -40 à +125 °C

Précision: 1,5 °C

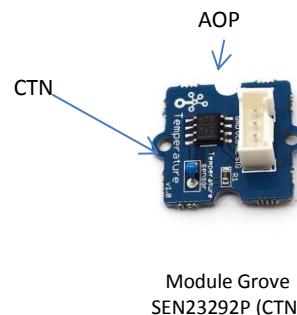
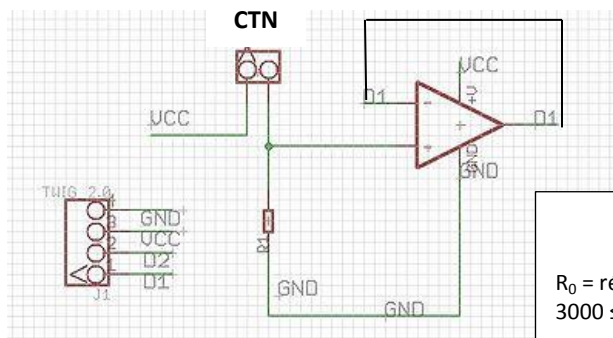
Dimensions: 20 x 20 x 13 mm

Schéma

R1 = 10kΩ

CI : LM358

CTN : TTC3A103 □34D



$$R(T) = R_0 \cdot e^{B(1/T - 1/T_0)}$$

R_0 = résistance à la température absolue $T_{0(K)}$!
3000 ≤ B ≤ 5000

Décodage du sigle CTN

| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | 15 | | 16 | |
|--|--|---|--|-----------|--|---|--|-----------------------|--|---|--|--|--|---|--|---------------------------------------|--|----|--|----------|--|----|--|----------------------|--|----|--|--------------------------|--|----|--|
| Product Type | | | | Body Size | | | | Definition of B Value | | | | Zero Power Resistance at 25°C (R ₂₅) | | | | Tolerance of R ₂₅ | | | | B Value | | | | Tolerance of B Value | | | | Optional Suffix | | | |
| TTC THINKING NTC Thermistor TTC Series | | | | 3 Φ3mm | | | | A B _{25/85} | | | | 102 1KΩ | | | | F ±1% | | | | 374 3740 | | | | 1 ±1% | | | | Y RoHS Compliant | | | |
| | | | | | | | | B B _{25/50} | | | | 103 10KΩ | | | | G ±2% | | | | 39D 3935 | | | | 2 ±2% | | | | A RoHS & HF Compliant | | | |
| | | | | | | | | 473 47KΩ | | | | H ±3% | | | | 395 3950 | | | | 39H 3975 | | | | 3 ±3% | | | | | | | |
| | | | | | | | | | | | | | | | | J ±5% | | | | 520 5200 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | K ±10% | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | Appearance | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | E Straight lead, pitch 2.54mm, Φ0.5mm | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | P Straight lead, pitch 5mm, Φ0.5mm | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | L Wider Kink, pitch 2.54mm, Φ0.5mm | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | Q Wider Kink, pitch 5mm, Φ0.5mm | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | F Outer Kink, pitch 2.54mm, Φ0.5mm | | | | | | | | | | | | | | | |

Paramètres CTN

| Part No. | Zero Power Resistance at 25°C | Tolerance of R ₂₅ | B Value |
|---------------|-------------------------------|------------------------------|---------|
| | R ₂₅ (KΩ) | (±%) | (K) |
| TTC3A103□34D* | 10 | | 3435 |

TTC3A102□39D*~ TTC3B434□507*

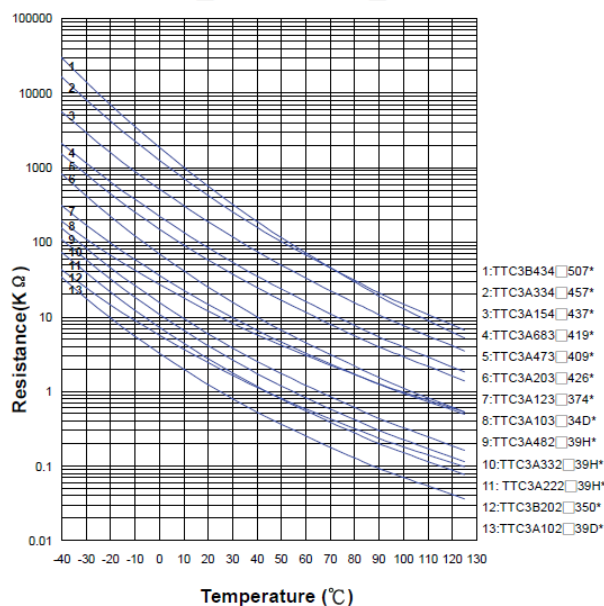
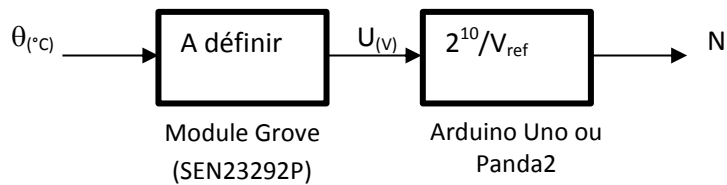


Schéma-blocs de la fonction « Acquérir »



Pour une Arduino Uno :

- $V_{ref}=5V$ ou $V_{ref}=1,1V$
- Exemple de programme : Project Seven – Temperature (A vérifier !)

Pour la carte Panda2 :

- $V_{ref} = 3,3V$
- Exemple de programme : Non

Simulation du module : Excel

Vérification courbe étalonnage avec un MX59HD : (PT100 ou PT1000)

Ressources documentaires :

Les capteurs en instrumentation industrielle Georges Asch Dunod (**disponible au CDI**)

Informations sur les thermistances

<http://fr.wikipedia.org/wiki/Thermistance>

Module Grove SEN23292P (CTN) :

http://www.seeedstudio.com/wiki/index.php?title=GROVE_-_Starter_Kit_v1.1b#Grove_-_Temperature_Sensor

Manuel d'utilisation du multimètre MX59HD

PT100, PT1000 :

http://fr.wikipedia.org/wiki/Thermom%C3%A8tre_%C3%A0_r%C3%A9sistance_de_platine

Exemple de programme pour une Arduino Uno

```
// Project Seven – temperature (Arduino Uno)
//

int a;
int del=1000; // duration between temperature readings
float ctemperature;
float ftemperature;
int B=3975;           // PB : B = 3435 !
float resistance;

void setup()
{
  Serial.begin(9600);
}

void loop()
{
  a=analogRead(0);
  resistance=(float)(1023-a)*10000/a;
  ctemperature=1/(log(resistance/10000)/B+1/298.15)-273.15;
  ftemperature=ctemperature*9/5+32;
  Serial.print(ctemperature);
  Serial.write(186);
  Serial.print("C ");
  Serial.print(ftemperature);
  Serial.write(186);
  Serial.println("F");
  delay(del);
}
```