

Tube numérique à quatre bits

Résumé

Ce projet vous apprendra comment utiliser le tube numérique à quatre bits pour l'affichage.

Matériaux

Arduino Uno x 1

Résistance 220 Ohm x 8

Planche à pain x 1

LED à 4 chiffres x 1

Fils DuPont (quelques pièces)

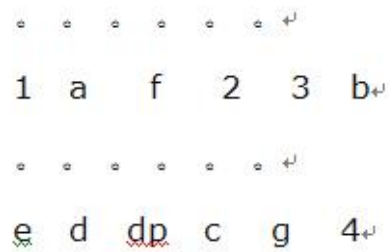
Description du produit



Les segments sont des diodes électroluminescentes et ils ont donc besoin d'une résistance en série pour éviter la combustion.

L'affichage numérique est largement utilisé dans les instruments, horloges, écrans et ainsi de suite.

Disposition des broches



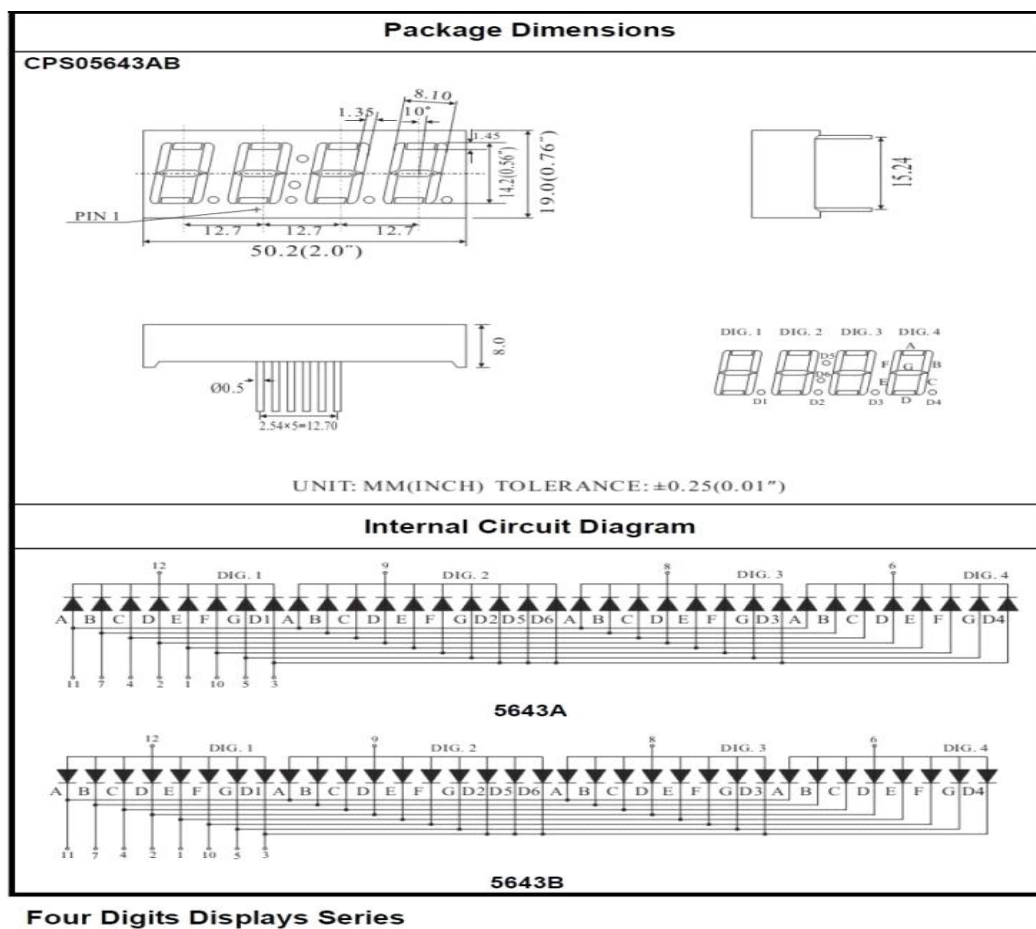
Paramètres de l'appareil

Type: anode commune

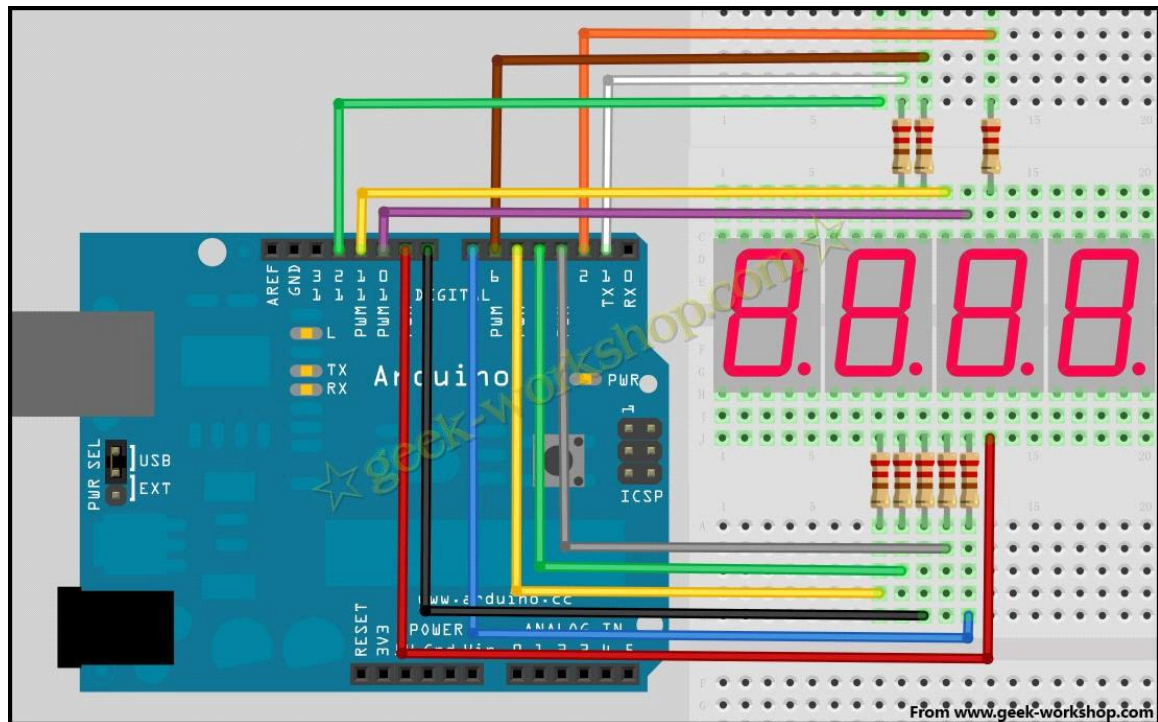
Taille: 30mm * 14mm * 7.2mm (L * W * T)

Couleur de la led : rouge

Disposition de l'appareil et Schéma



Schema du montage



Programmation

```
//display 1234
```

```
//Set cathode interface
```

```
int a = 1;
```

```
int b = 2;
```

```
int c = 3;
```

```
int d = 4;
```

```
int e = 5;
```

```
int f = 6;
```

```
int g = 7;
```

```
int dp = 8;
```

```
//Set anode interface
```

```
int d4 = 9;
```

```
int d3 = 10;
```

```

    int d2 = 11;

    int d1 = 12;

    //Set variable

    long n = 1230;

    int x = 100;

    int del = 55; //Here to fine tune the clock

    void setup()

    {

        pinMode(d1, OUTPUT);

        pinMode(d2, OUTPUT);

        pinMode(d3, OUTPUT);

        pinMode(d4, OUTPUT);

        pinMode(a, OUTPUT);

        pinMode(b, OUTPUT);

        pinMode(c, OUTPUT);

        pinMode(d, OUTPUT);

        pinMode(e, OUTPUT);

        pinMode(f, OUTPUT);

        pinMode(g, OUTPUT);

        pinMode(dp, OUTPUT);

    }

    //////////////////////////////////////

    void loop()

    {

        Display(1, 1);

        delay(n);

        Display(2, 2);

```

Display(3, 3);

Display(4, 4);

}

////////////////////////////////////

void WeiXuan(unsigned char n)//

{

switch(n)

{

case 1:

digitalWrite(d1,HIGH);

digitalWrite(d2, LOW);

digitalWrite(d3, LOW);

digitalWrite(d4, LOW);

break;

case 2:

digitalWrite(d1, LOW);

digitalWrite(d2, HIGH);

digitalWrite(d3, LOW);

digitalWrite(d4, LOW);

break;

case 3:

digitalWrite(d1,LOW);

digitalWrite(d2, LOW);

```
        digitalWrite(d3, HIGH);
        digitalWrite(d4, LOW);
        break;
    case 4:
        digitalWrite(d1, LOW);
        digitalWrite(d2, LOW);
        digitalWrite(d3, LOW);
        digitalWrite(d4, HIGH);
        break;
    default :
        digitalWrite(d1, LOW);
        digitalWrite(d2, LOW);
        digitalWrite(d3, LOW);
        digitalWrite(d4, LOW);
        break;
    }
}

void Num_0()
{
    digitalWrite(a, LOW);
    digitalWrite(b, LOW);
    digitalWrite(c, LOW);
    digitalWrite(d, LOW);
    digitalWrite(e, LOW);
    digitalWrite(f, LOW);
    digitalWrite(g, HIGH);
    digitalWrite(dp,HIGH);
}
```

```
}  
  
void Num_1()  
{  
    digitalWrite(a, HIGH);  
    digitalWrite(b, LOW);  
    digitalWrite(c, LOW);  
    digitalWrite(d, HIGH);  
    digitalWrite(e, HIGH);  
    digitalWrite(f, HIGH);  
    digitalWrite(g, HIGH);  
    digitalWrite(dp,HIGH);  
}
```

```
void Num_2()  
{  
    digitalWrite(a, LOW);  
    digitalWrite(b, LOW);  
    digitalWrite(c, HIGH);  
    digitalWrite(d, LOW);  
    digitalWrite(e, LOW);  
    digitalWrite(f, HIGH);  
    digitalWrite(g, LOW);  
    digitalWrite(dp,HIGH);  
}
```

```
void Num_3()  
{  
    digitalWrite(a, LOW);  
    digitalWrite(b, LOW);
```



```
digitalWrite(c, LOW);  
digitalWrite(d, LOW);  
digitalWrite(e, HIGH);  
digitalWrite(f, HIGH);  
digitalWrite(g, LOW);  
digitalWrite(dp,HIGH);  
}
```

```
void Num_4()  
{  
    digitalWrite(a, HIGH);  
    digitalWrite(b, LOW);  
    digitalWrite(c, LOW);  
    digitalWrite(d, HIGH);  
    digitalWrite(e, HIGH);  
    digitalWrite(f, LOW);  
    digitalWrite(g, LOW);  
    digitalWrite(dp,HIGH);  
}
```

```
void Num_5()  
{  
    digitalWrite(a, LOW);  
    digitalWrite(b, HIGH);  
    digitalWrite(c, LOW);  
    digitalWrite(d, LOW);  
    digitalWrite(e, HIGH);  
    digitalWrite(f, LOW);  
    digitalWrite(g, LOW);  
}
```

```
    digitalWrite(dp,HIGH);
}

void Num_6()
{
    digitalWrite(a, LOW);
    digitalWrite(b, HIGH);
    digitalWrite(c, LOW);
    digitalWrite(d, LOW);
    digitalWrite(e, LOW);
    digitalWrite(f, LOW);
    digitalWrite(g, LOW);
    digitalWrite(dp,HIGH);
}

void Num_7()
{
    digitalWrite(a, LOW);
    digitalWrite(b, LOW);
    digitalWrite(c, LOW);
    digitalWrite(d, HIGH);
    digitalWrite(e, HIGH);
    digitalWrite(f, HIGH);
    digitalWrite(g, HIGH);
    digitalWrite(dp,HIGH);
}

void Num_8()
{
    digitalWrite(a, LOW);
```

```
digitalWrite(b, LOW);  
digitalWrite(c, LOW);  
digitalWrite(d, LOW);  
digitalWrite(e, LOW);  
digitalWrite(f, LOW);  
digitalWrite(g, LOW);  
digitalWrite(dp,HIGH);  
}  
  
void Num_9()  
{  
    digitalWrite(a, LOW);  
    digitalWrite(b, LOW);  
    digitalWrite(c, LOW);  
    digitalWrite(d, LOW);  
    digitalWrite(e, HIGH);  
    digitalWrite(f, LOW);  
    digitalWrite(g, LOW);  
    digitalWrite(dp,HIGH);  
}  
  
void Clear() // Clear the screen  
{  
    digitalWrite(a, HIGH);  
    digitalWrite(b, HIGH);  
    digitalWrite(c, HIGH);  
    digitalWrite(d, HIGH);  
    digitalWrite(e, HIGH);  
    digitalWrite(f, HIGH);
```

```
digitalWrite(g, HIGH);  
digitalWrite(dp,HIGH);  
}  
void pickNumber(unsigned char n)//Choose the number of  
{  
    switch(n)  
    {  
        case 0:Num_0();  
        break;  
        case 1:Num_1();  
        break;  
        case 2:Num_2();  
        break;  
        case 3:Num_3();  
        break;  
        case 4:Num_4();  
        break;  
        case 5:Num_5();  
        break;  
        case 6:Num_6();  
        break;  
        case 7:Num_7();  
        break;  
        case 8:Num_8();  
        break;  
        case 9:Num_9();  
        break;  
    }
```

```

    default:Clear();
    break;
}
}

void Display(unsigned char x, unsigned char Number)//Show that x is the
coordinate, Number is the number
{
    WeiXuan(x);
    pickNumber(Number);
    delay(1);
    Clear() ; //Vanishing
}

```

Resultat

