

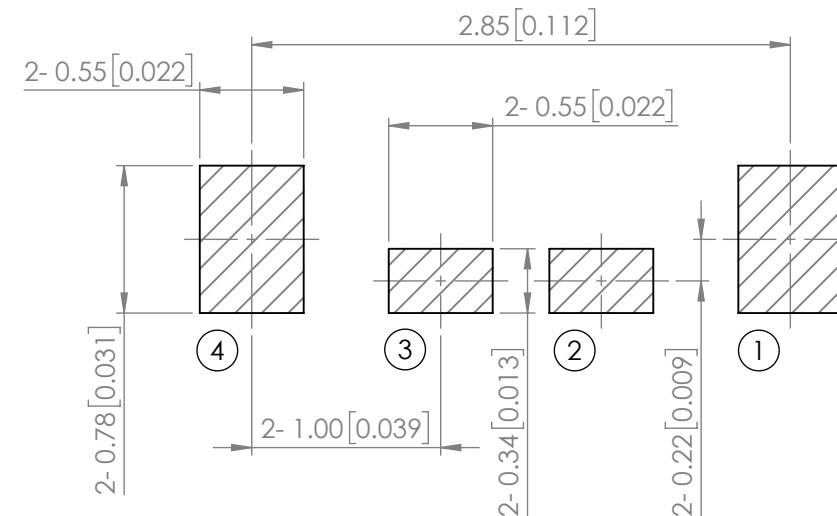
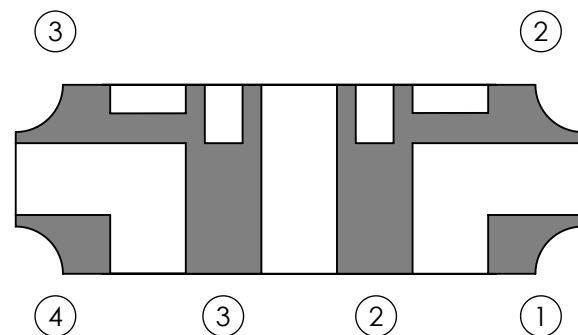
### PIN ASSIMENT

| PIN NO | SYMBOL | DEFINITION    |
|--------|--------|---------------|
| 1      | DIN    | DATA IN       |
| 2      | GND    | GROUND        |
| 3      | DOUT   | DATA OUT      |
| 4      | AVDD   | POWER VOLTAGE |

### ELECTRO-OPTICAL CHARACTERISTIC TA=25°C

| PARAMETER           | MIN                | TYP                | MAX | UNITS              | TEST COND |
|---------------------|--------------------|--------------------|-----|--------------------|-----------|
| SUPPLY VOLTAGE      | VDD                | -                  | 5   | -                  | V         |
| INPUT VOLTAGE(HIGH) | V <sub>IH</sub>    | 0.7V <sub>DD</sub> | -   | V <sub>DD</sub>    | V         |
| INPUT VOLTAGE(LOW)  | V <sub>IL</sub>    | 0                  | -   | 0.3V <sub>DD</sub> | V         |
| PEAK WAVELENGTH     | R                  | -                  | 630 | -                  | nm        |
|                     | G                  | -                  | 520 | -                  |           |
|                     | B                  | -                  | 470 | -                  |           |
| LUMINOUS INTENSITY  | R                  | -                  | 47  | -                  | mcd       |
|                     | G                  | -                  | 92  | -                  |           |
|                     | B                  | -                  | 38  | -                  |           |
| VIEWING ANGLE       | -                  | 130                | -   | 2x theta1/2        | -         |
| EMITTED COLOR       | RED / GREEN / BLUE |                    |     |                    |           |
| EPOXY LENS FINISH   | WATER CLEAR        |                    |     |                    |           |

### RECOMMENDED SOLDER PAD LAYOUT



### ABSOLUTE MAXIMUM RATINGS TA=25°C

| PARAMETER                         | MAX              | TYP | MAX | UNITS |
|-----------------------------------|------------------|-----|-----|-------|
| SUPPLY VOLTAGE (V <sub>DD</sub> ) | -                | -   | 5.5 | V     |
| STORAGE TEMPERATURE               | -40 TO +90       |     |     | °C    |
| OPERATING TEMPERATURE             | -20 TO +70       |     |     | °C    |
| SOLDERING TEMPERATURE             | 3 SEC. MAX @ 260 |     |     | °C    |

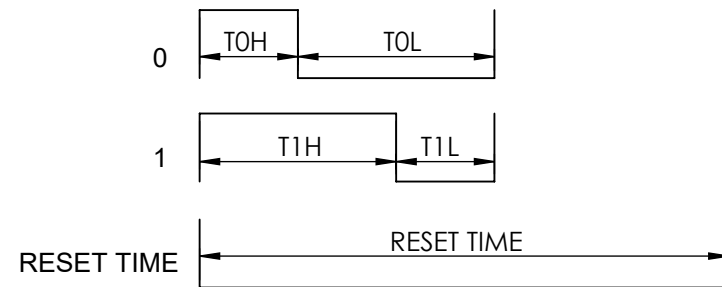
MOISTURE SENSITIVE DEVICE  
PER JEDEC LEVEL 5a STANDARDS

\*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= <sup>+DECIMAL PRECISION</sup>/<sub>-0.00</sub> MAX= <sup>+0.00</sup>/<sub>-DECIMAL PRECISION</sub>

**RECOMMENDED OPERATING CONDITION Ta=-20~70°C , VSS=0V**

| PARAMETER              |      | MIN | TYP | MAX | UNITS | TEST COND                    |
|------------------------|------|-----|-----|-----|-------|------------------------------|
| PROPAGATION DELAY TIME | TPLZ | -   | -   | 300 | ns    | DIN→DOUT<br>CL=15pF, RL=10KΩ |
| FALLING TIME           | TTHZ | -   | -   | 20  | us    | CL=300pF<br>OUTR/OUTG/OUTB   |
| INPUT CAPACITOR        | CI   | -   | -   | 15  | pf    |                              |

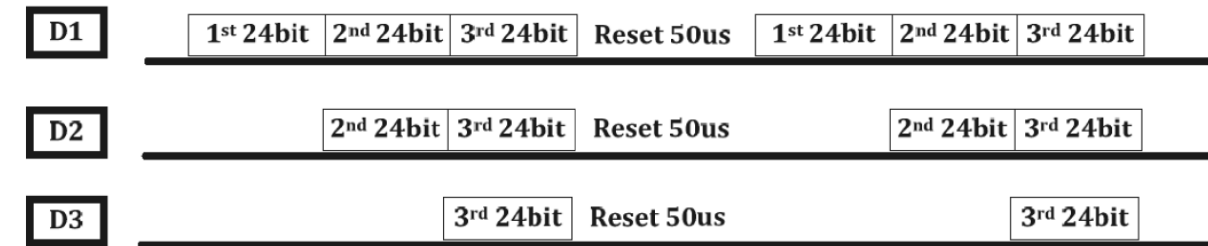
**TIMING WAVE FORM**



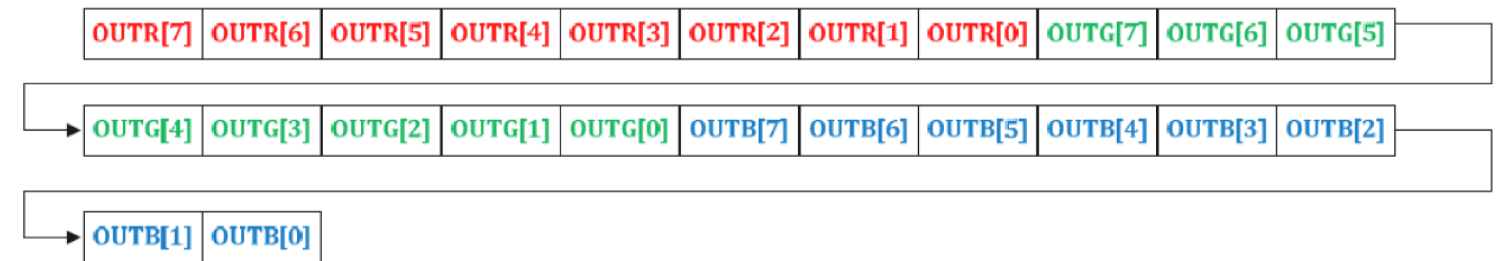
**HIGH SPEED MODE**

| ITEM | DESCRIPTION             | TYP.  | ALLOWANCE |
|------|-------------------------|-------|-----------|
| T0H  | 0 CODE, HIGH-LEVEL TIME | 300ns | ±80ns     |
| T0L  | 0 CODE, LOW-LEVEL TIME  | 900ns | ±80ns     |
| T1H  | 1 CODE, HIGH-LEVEL TIME | 900ns | ±80ns     |
| T1L  | 1 CODE, LOW-LEVEL TIME  | 300ns | ±80ns     |
| RES  | RESET TIME              | >50us | -         |

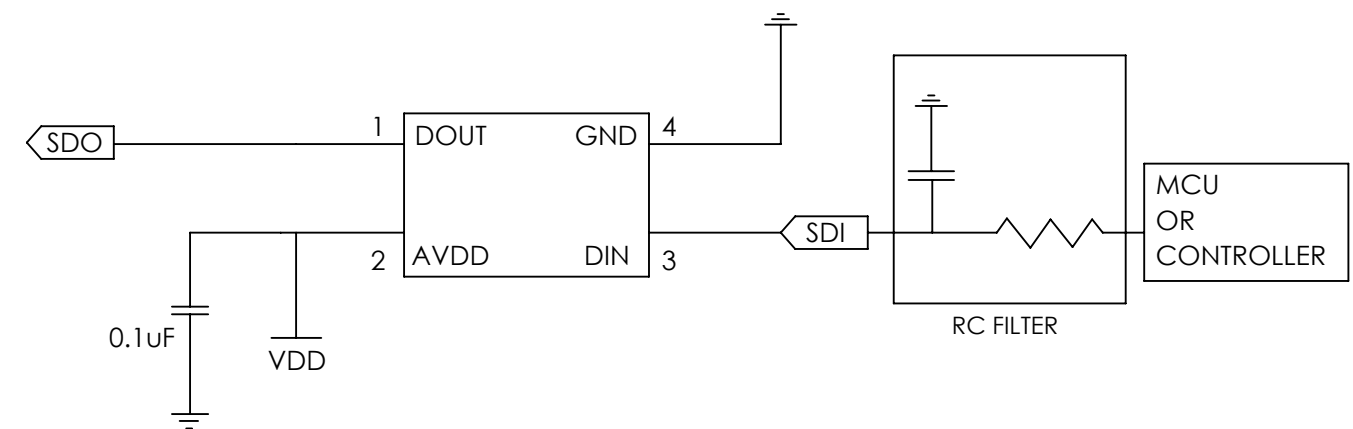
**DATA COMMUNICATION**



**SINGLE DATA IN 24BIT FOR RGB**

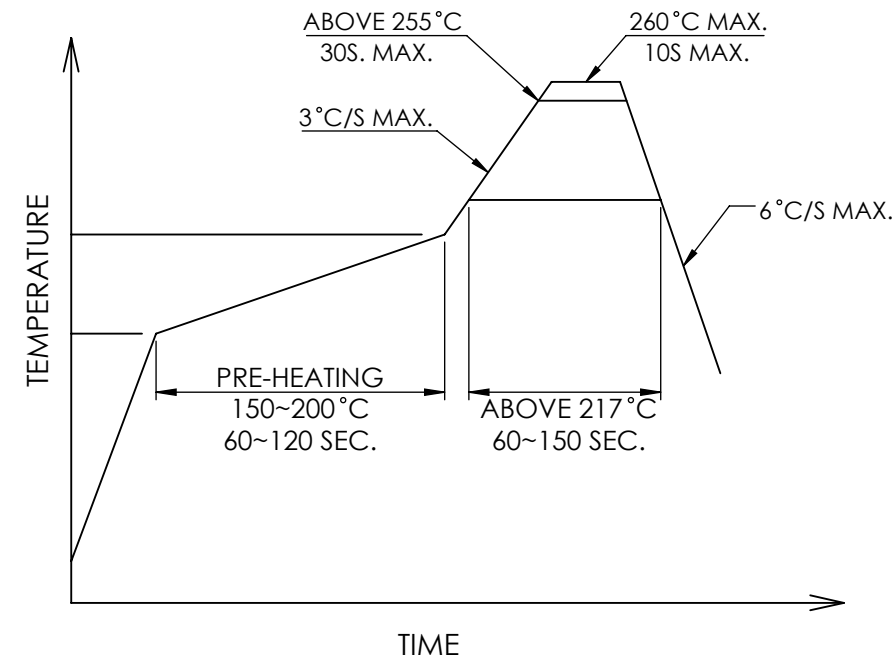


**5V APPLICATION CIRCUIT**

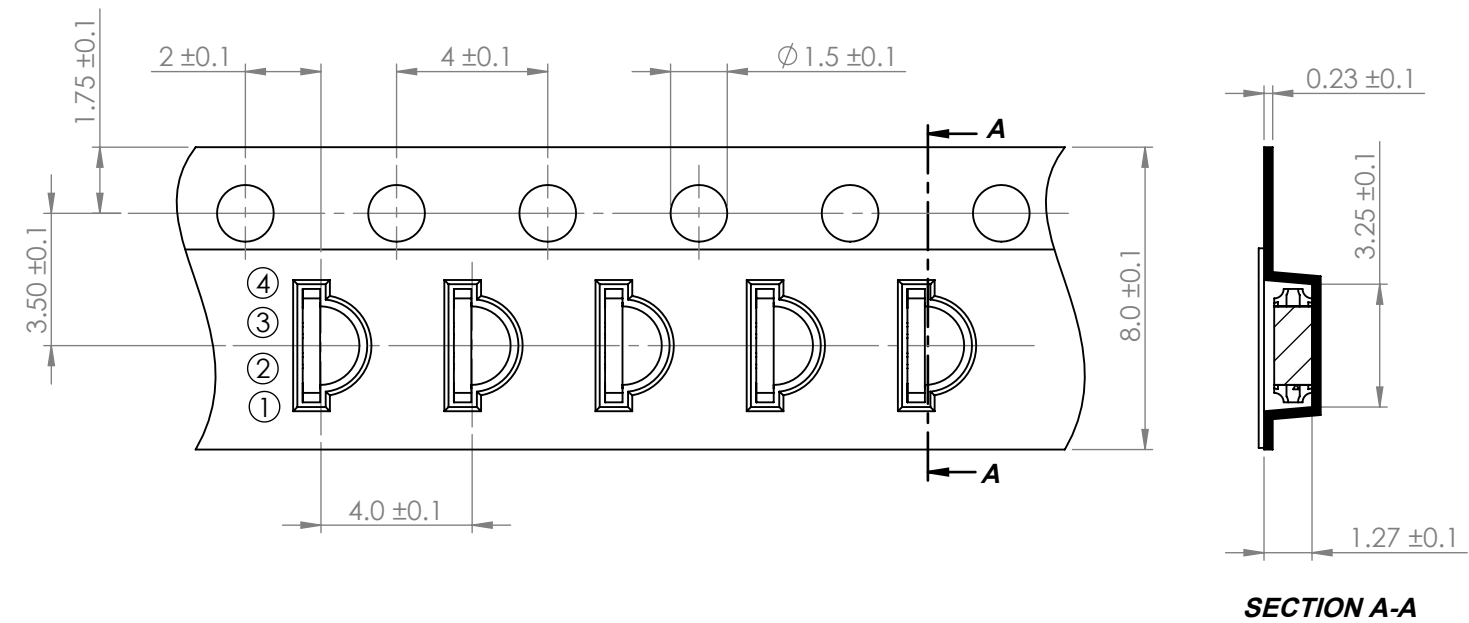


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**PROFILE**




**CARRIER TAPE DIMENSION**



NOTE:  
1. 2000 PCS/REEL

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|   |  |                          |                        |
|---|--|--------------------------|------------------------|
|  <p>425 N. GARY AVE.<br/>CAROL STREAM, IL 60188<br/>PHONE : 800-278-5666<br/>FAX : 630-315-2150<br/>WEB : WWW.LUMEX.COM</p> | <p>3.0(L)*1.0(W)*1.5(H)mm, SURFACE MOUNT SIDE VIEW LED, RGB FULL COLOR, 3-CHANNELs LED DRIVER WITH 8 bit PWM LINEAR CONTROL, WATER CLEAR LENS, TAPE &amp; REEL.</p>  | <p>DATE : 2019.03.04</p> | <p>DRAWN BY : C.C.</p> |
|   | <p><b>**THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE.**</b></p>  | <p>PAGE : 3 OF 4</p>     | <p>CHKD BY : E.C.</p>  |
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|   | <p>UNIT : mm [INCH]</p>  | <p>UNIT : mm [INCH]</p>  | <p>⑩</p>               |

**EXAMPLE OF USING STM32F030C8T6 TO DISPLAY RED, GREEN AND BLUE IN SEQUENCE**

```

/*****/
uint32_t color;
void Display_One_Dot(uint32_t color);
void Send_Hi(void);
void Send_Lo(void);
void Init_GPIOs(void);
void main(void)
{
  Init_GPIOs();
  while (1)
  {
    color = 0xFF0000;
    Display_One_Dot(color);
    delay_ms(1000);
    color = 0x00FF00;
    Display_One_Dot(color);
    delay_ms(1000);
    color = 0x0000FF;
    Display_One_Dot(color);
    delay_ms(1000);
  }
}
/*****/
void Display_One_Dot(uint32_t color)
{
  uint8_t j=0;
  uint32_t x,y;
  y = color;
  for (j=0;j<24;j++)
  {
    x = (y & 0x800000);
    if (x>0)
      Send_Hi();
    else
      Send_Lo();
    y = y << 1;
  }
}


```

```

/*****/
void Send_Lo(void)
{
  GPIO_SetBits(GPIOB,GPIO_Pin_8);
  GPIO_ResetBits(GPIOB,GPIO_Pin_8);
  GPIO_ResetBits(GPIOB,GPIO_Pin_8);
  GPIO_ResetBits(GPIOB,GPIO_Pin_8);
}
/*****/
void Send_Hi(void)
{
  GPIO_SetBits(GPIOB,GPIO_Pin_8);
  GPIO_SetBits(GPIOB,GPIO_Pin_8);
  GPIO_SetBits(GPIOB,GPIO_Pin_8);
  GPIO_ResetBits(GPIOB,GPIO_Pin_8);
}
/*****/
void Init_GPIOs(void)
{
  GPIO_InitTypeDef GPIO_InitStructure;
  RCC_AHBPeriphClockCmd(RCC_AHBPeriph_GPIOB,ENABLE);
  GPIO_InitStructure.GPIO_Pin = GPIO_Pin_8 ;
  GPIO_InitStructure.GPIO_Mode = GPIO_Mode_OUT;
  GPIO_InitStructure.GPIO_OType = GPIO_OType_PP;
  GPIO_InitStructure.GPIO_PuPd = GPIO_PuPd_UP;
  GPIO_InitStructure.GPIO_Speed = GPIO_Speed_50MHz;
  GPIO_Init(GPIOB, &GPIO_InitStructure);
}

```

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|   |  |                   |                 |   |
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