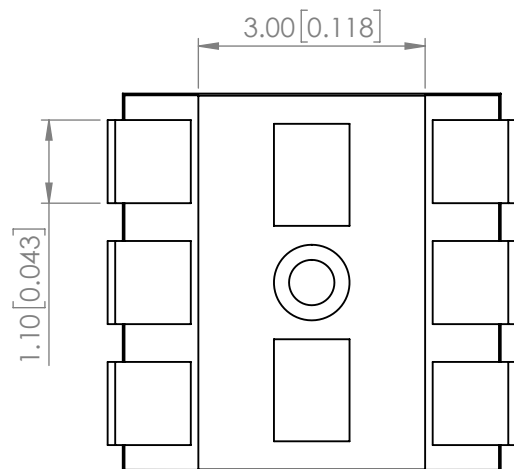
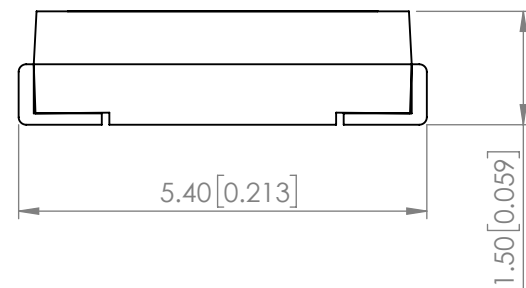
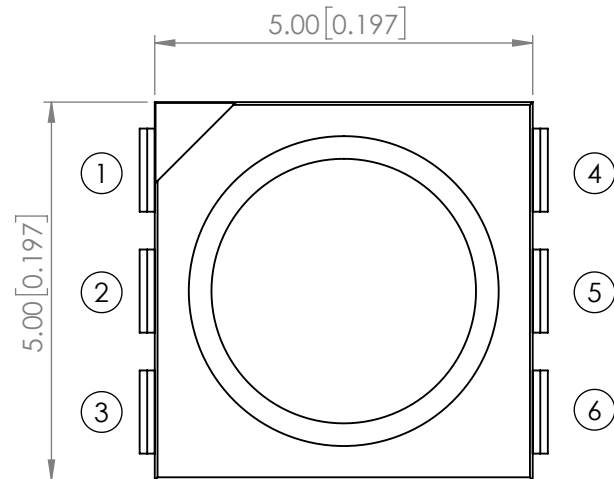
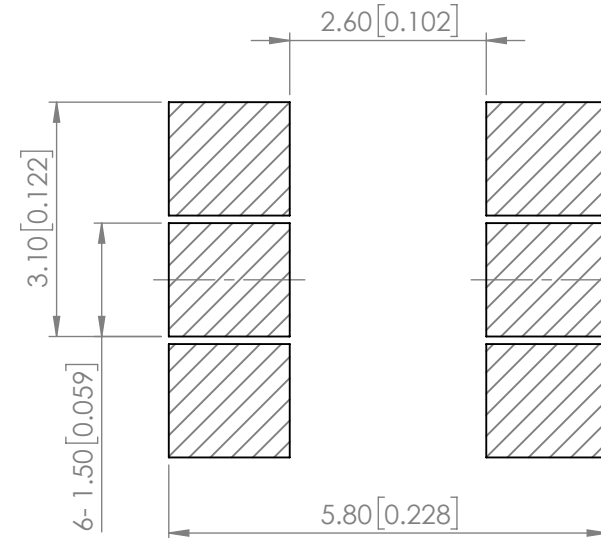


|                    |                                     |                  |            |             |
|--------------------|-------------------------------------|------------------|------------|-------------|
| <b>PART NUMBER</b> |                                     | SMD-LX5050RGB-TR | <b>REV</b> | A           |
| <b>REV</b>         | E.C.N. NUMBER AND REVISION COMMENTS |                  |            | <b>DATE</b> |
| A                  | ECN-Lumex201800183                  |                  |            | 11.27.18    |



**RECOMMENDED SOLDER PAD LAYOUT**



**PIN ASSIMENT**

| PIN | SYMBOL | DESCRIPTION   |
|-----|--------|---------------|
| 1   | VSS    | GROUND        |
| 2   | NA     | NA            |
| 3   | DIN    | SIGNAL INPUT  |
| 4   | DOUT   | SIGNAL OUTPUT |
| 5   | NA     | NA            |
| 6   | VDD    | POWER SUPPLY  |

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

| PARAMETER           |     | MIN         | TYP | MAX    | UNITS       | TEST COND |
|---------------------|-----|-------------|-----|--------|-------------|-----------|
| SUPPLY VOLTAGE      | VDD | -           | 5   | -      | V           | -         |
| INPUT VOLTAGE(HIGH) | VIH | 3.3         | -   | -      | V           | DIN, SET  |
| INPUT VOLTAGE(LOW)  | VIL | -           | -   | 0.3VDD | V           | DIN, SET  |
| DOMINANT WAVELENGTH | R   | -           | 625 | -      | nm          | If=5mA    |
|                     | G   | -           | 530 | -      |             |           |
|                     | B   | -           | 470 | -      |             |           |
| LUMINOUS INTENSITY  | R   | -           | 185 | -      | mcd         | If=5mA    |
|                     | G   | -           | 590 | -      |             |           |
|                     | B   | -           | 150 | -      |             |           |
| VIEWING ANGLE       |     | -           | 120 | -      | 2x theta1/2 | If=5mA    |
| EPOXY LENS FINISH   |     | WATER CLEAR |     |        |             |           |

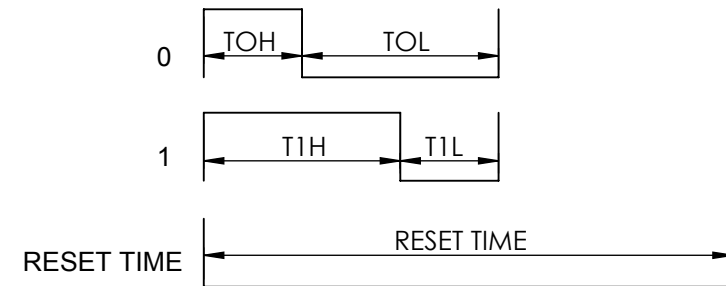
**ABSOLUTE MAXIMUM RATINGS TA=25°C**

| PARAMETER             |     | MIN              | TYP | MAX | UNITS |
|-----------------------|-----|------------------|-----|-----|-------|
| SUPPLY VOLTAGE        | VDD | 4.2              | -   | 5.5 | V     |
| STORAGE TEMPERATURE   |     | -40 TO +90       |     |     | °C    |
| OPERATING TEMPERATURE |     | -25 TO +85       |     |     | °C    |
| SOLDERING TEMPERATURE |     | 3 SEC. MAX. @260 |     |     | °C    |

**MOISTURE SENSITIVE DEVICE  
PER JEDEC LEVEL 3 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>

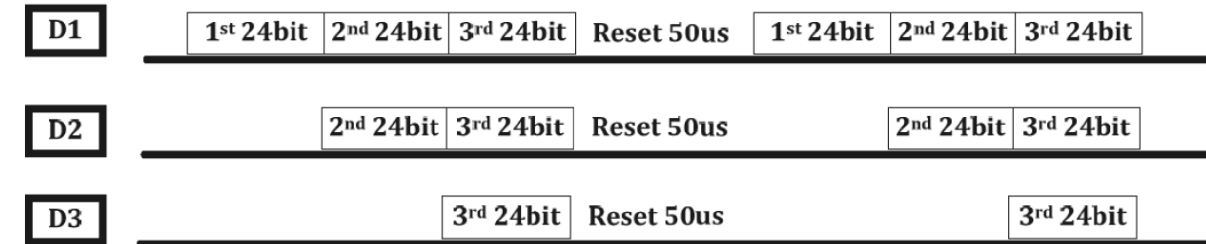
### TIMING WAVE FORM



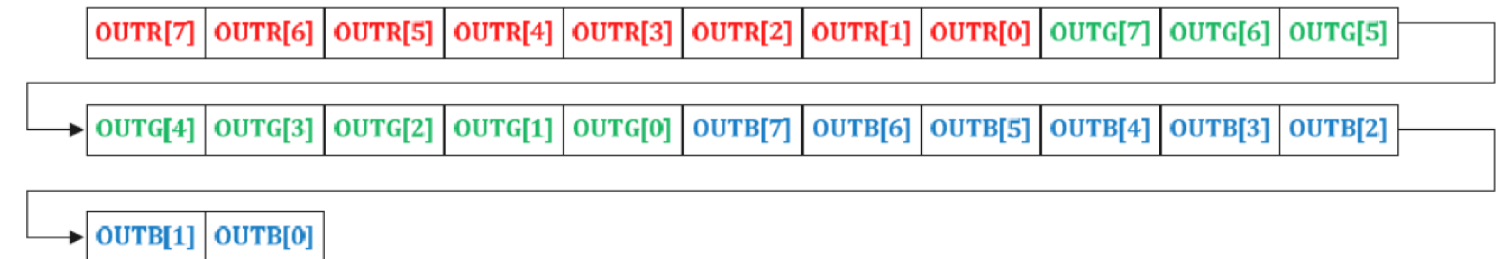
### DATA TRANSFER TIME ( $T_H+T_L=1.2\mu s \pm 600ns$ )

| ITEM | DESCRIPTION               | TYP.       | ALLOWANCE  |
|------|---------------------------|------------|------------|
| T0H  | 0 CODE, HIGH VOLTAGE TIME | 0.3us      | $\pm 80ns$ |
| T1H  | 1 CODE, HIGH VOLTAGE TIME | 0.9us      | $\pm 80ns$ |
| T0L  | 0 CODE, LOW VOLTAGE TIME  | 0.9us      | $\pm 80ns$ |
| T1L  | 1 CODE, LOW VOLTAGE TIME  | 0.3us      | $\pm 80ns$ |
| RES  | LOW VOLTAGE TIME          | ABOVE 50us | -          |

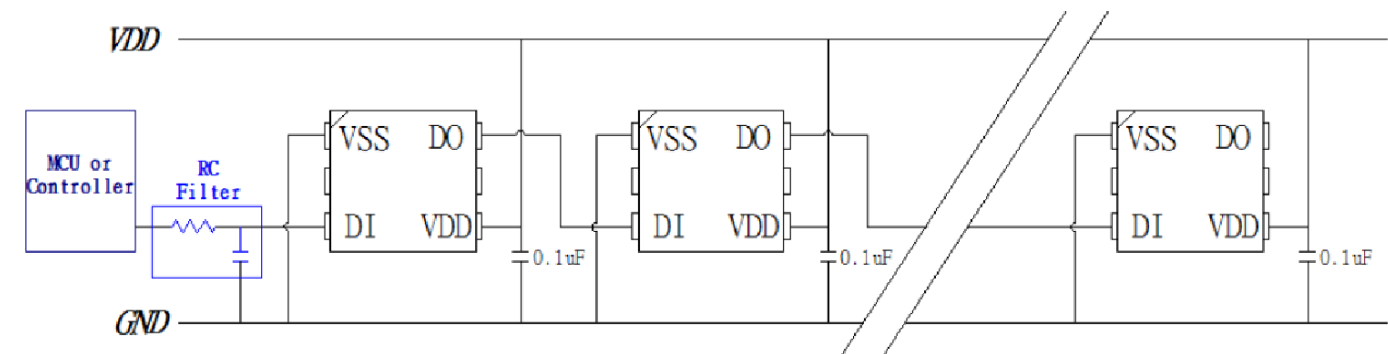
### DATA COMMUNICATION



### SINGLE DATA IN 24BIT FOR RGB



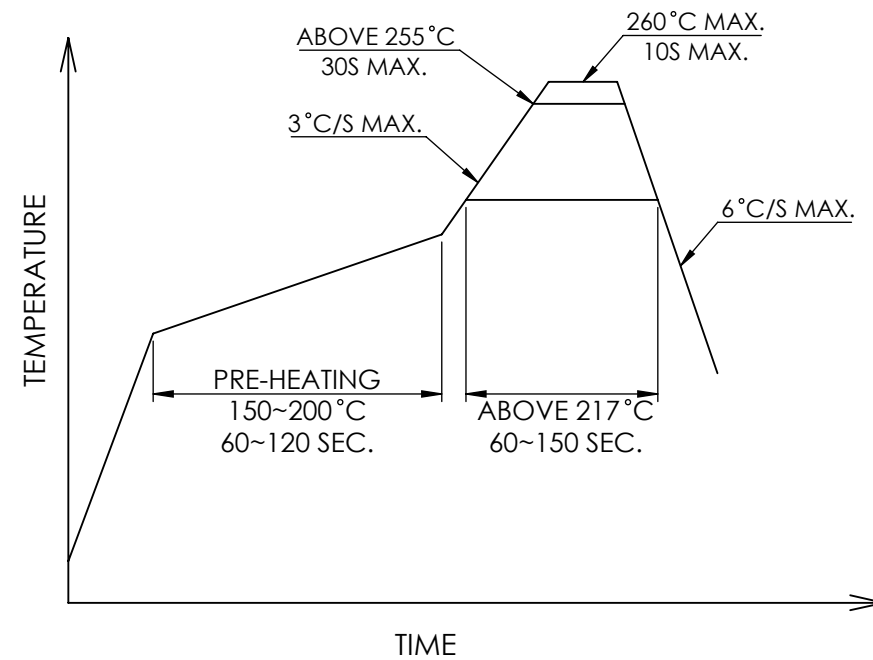
### 5V APPLICATION CIRCUIT



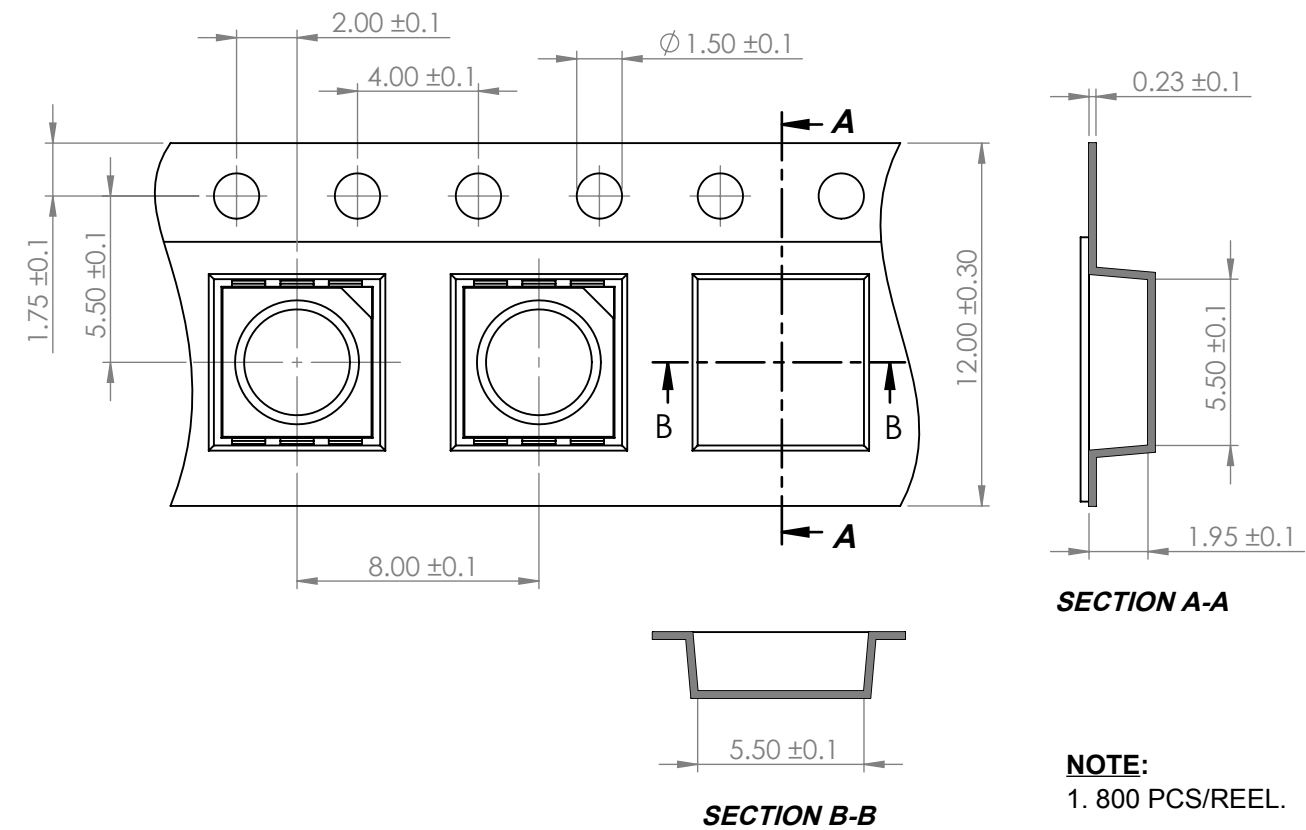
\*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X= $\pm 1$  ( $\pm 0.039$ ), X.X= $\pm 0.5$  ( $\pm 0.020$ ), X.XX= $\pm 0.25$  ( $\pm 0.010$ ), X.XXX= $\pm 0.127$  ( $\pm 0.005$ ). LEAD SIZE= $\pm 0.05$  ( $\pm 0.002$ ), LEAD LENGTH= $\pm 0.75$  ( $\pm 0.030$ ). MIN=  $\frac{+DECIMAL PRECISION}{-0.00}$  MAX=  $\frac{+0.00}{-DECIMAL PRECISION}$

|  |  |                   |                 |    |
|--|--|-------------------|-----------------|----|
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|  | **THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE.**  | PAGE : 2 OF 4     | CHKD BY : E.C.  |    |
|  | CONFIDENTIAL INFORMATION   | SCALE : NTF       | APRVD BY : G.Y. |    |
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**PROFILE**



**CARRIER TAPE DIMENSION**




**SECTION A-A**

**SECTION B-B**

**NOTE:**  
1. 800 PCS/REEL.

\*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>

|   |  |                   |                 |  |
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|   | **THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE.**  | PAGE : 3 OF 4     | CHKD BY : E.C.  |  |
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**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);
}

```

\*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>



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5.0(L)\*5.0(W)\*1.5(H)mm, SURFACE MOUNT LED, RGB FULL COLOR, 3-CHANNELs LED DRIVER WITH 8 bit PWM LINEAR CONTROL, WATER CLEAR LENS,TAPE & REEL

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DATE : 2018.10.23

DRAWN BY : C.C.

PAGE : 4 OF 4

CHKD BY : E.C.

SCALE : NTF

APRVD BY : G.Y.

UNIT : mm [INCH]

(Pb)

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