

# PRODUCT SPECIFICATION

*Part Number*  
**PDC563SM-CxMW01**

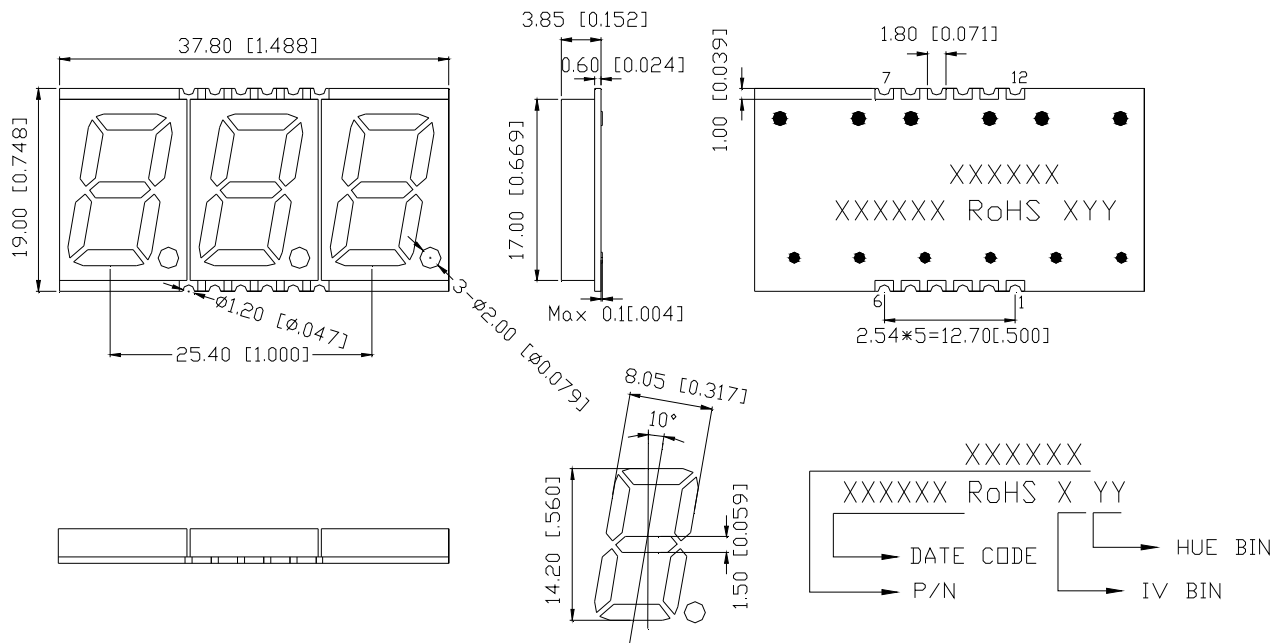
## Details

- 0.40" (10.16mm) SMD LED Display
- 3 Digit, 7 Segment
- Common Anode or Common Cathode
- Emitting Color: White
- InGaN chip technology

## Features

- Low power consumption
- RoHS Compliant
- Gray Face, White Segments or Black Face, White Segments
- Easy mounting on PCB or socket

## Mechanical Dimensions



### Notes:

1. Dimension in millimeter [inch], tolerance is  $\pm 0.25$  [0.010] and angle is  $\pm 1^\circ$  unless otherwise noted
2. Specifications subject to change without notice





**Device Selection Guide**

| Model Number    |                 | Chip     |                | Note                                                                  |
|-----------------|-----------------|----------|----------------|-----------------------------------------------------------------------|
| Common Anode    | Common Cathode  | Material | Emitting Color |                                                                       |
| PDC563SM-CAMW01 | PDC563SM-CCMW01 | InGaN    | White          | Add "-BW" to end of part number for Black Face, White Segment version |

**Absolute Maximum Ratings at Ta=25 °C**

| Parameter                                     | Symbol | Rating   | Unit  |
|-----------------------------------------------|--------|----------|-------|
| Power Dissipation per Dice                    | PD     | 114      | mW    |
| Derating Liner from 25°C per Dice             | --     | 0.4      | mA/°C |
| Continuous Forward Current Per Dice           | IF     | 30       | mA    |
| Peak Current Per Dice (duty cycle 1/10, 1KHz) | IFP    | 100      | mA    |
| Reverse Voltage Per Dice                      | VR     | 5        | V     |
| Electrostatic Discharge (HBM)                 | ESD    | 1500     | V     |
| Operating Temperature                         | Topr   | -40~+105 | °C    |
| Storage Temperature                           | Tstg   | -40~+105 | °C    |

**Electrical and Optical Characteristics at Ta=25 °C**

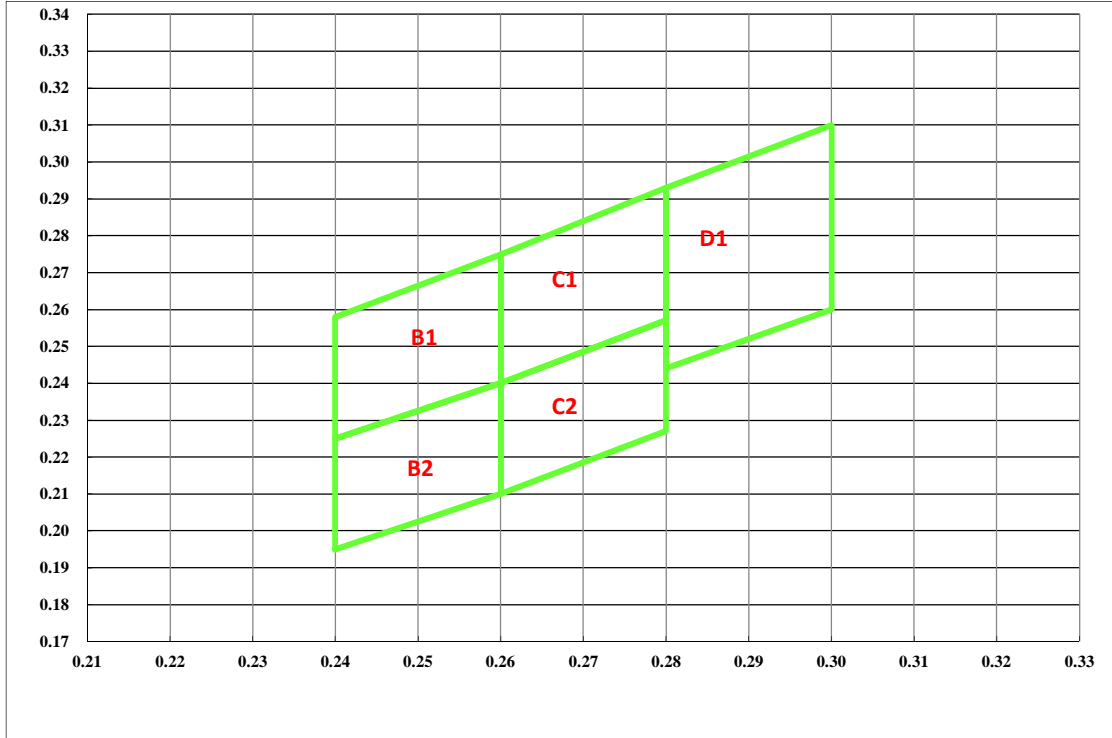
| Parameter                         | Symbol | Min. | Typ. | Max. | Unit | Condition |
|-----------------------------------|--------|------|------|------|------|-----------|
| Forward Voltage Per Segment       | VF     | --   | 3.2  | 3.8  | V    | IF=20mA   |
| Luminous Intensity Per Segment    | Iv     | --   | 80   | --   | mcd  | IF=10mA   |
| Chromaticity Coordinates          | X      | --   | 0.27 | --   | nm   | IF=10mA   |
|                                   | Y      | --   | 0.25 | --   | nm   | IF=10mA   |
| Reverse Current                   | IR     | --   | --   | 50   | µA   | VR=5V     |
| Luminous Intensity Matching Ratio | Iv-m   | --   | --   | 2:1  | --   | IF=10mA   |

**Luminous General Iv Bin Grade (IF = 10mA)**

|           |           |           |           |            |            |            |            |          |          |          |           |
|-----------|-----------|-----------|-----------|------------|------------|------------|------------|----------|----------|----------|-----------|
| A         | B         | C         | D         | E          | F          | G          | H          | J        | K        | L        | M         |
| 0.155     | 0.249     | 0.399     | 0.640     | 1.025      | 1.641      | 2.627      | 4.204      | 6.727    | 10.764   | 17.224   | 27.559    |
| }         | }         | }         | }         | }          | }          | }          | }          | }        | }        | }        | }         |
| 0.248     | 0.398     | 0.639     | 1.024     | 1.640      | 2.626      | 4.203      | 6.726      | 10.763   | 17.223   | 27.558   | 44.095    |
| N         | P         | Q         | R         | S          | T          | U          | V          | W        | X        | Y        | 1         |
| 44.096    | 70.555    | 112.889   | 180.622   | 288.997    | 462.397    | 739.836    | 1183.738   | 1893.982 | 3030.372 | 4848.597 | 7757.756  |
| }         | }         | }         | }         | }          | }          | }          | }          | }        | }        | }        | }         |
| 70.554    | 112.888   | 180.622   | 288.996   | 462.396    | 739.835    | 1183.737   | 1893.981   | 3030.371 | 4848.596 | 7757.755 | 12412.409 |
| 2         | 3         | 4         | 5         | 6          | 7          | 8          | 9          |          |          |          |           |
| 4034.034  | 19859.858 | 31775.773 | 50841.238 | 81345.982  | 130153.573 | 208245.718 | 333193.149 |          |          |          |           |
| }         | }         | }         | }         | }          | }          | }          | }          |          |          |          |           |
| 19859.857 | 31775.772 | 50841.237 | 81345.981 | 130153.572 | 208245.717 | 333193.148 | 533109.039 |          |          |          |           |

Remark : Unit=mcd  
\*Tolerance: ±20%

*Color Rank Limits (IF = 10mA)*



| B1 |       |       |       |       |
|----|-------|-------|-------|-------|
| X  | 0.240 | 0.240 | 0.260 | 0.260 |
| Y  | 0.225 | 0.258 | 0.275 | 0.240 |

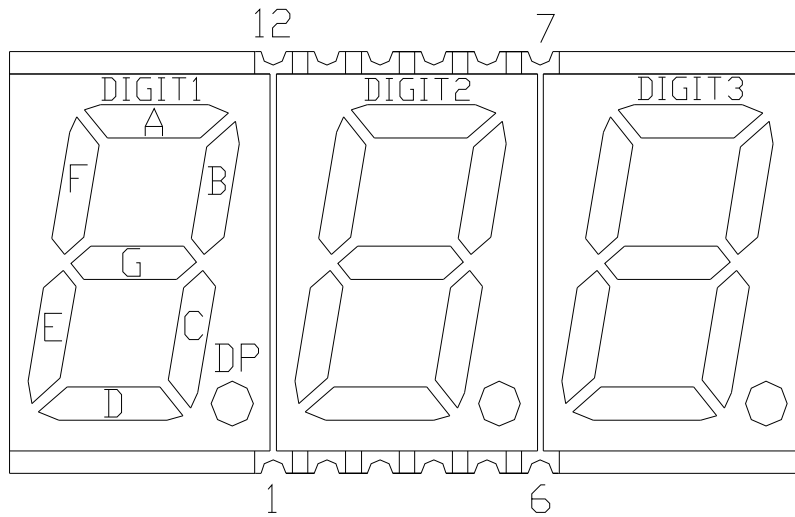
| B2 |       |       |       |       |
|----|-------|-------|-------|-------|
| X  | 0.240 | 0.240 | 0.260 | 0.260 |
| Y  | 0.195 | 0.225 | 0.240 | 0.210 |

| C1 |       |       |       |       |
|----|-------|-------|-------|-------|
| X  | 0.260 | 0.260 | 0.280 | 0.280 |
| Y  | 0.240 | 0.275 | 0.293 | 0.257 |

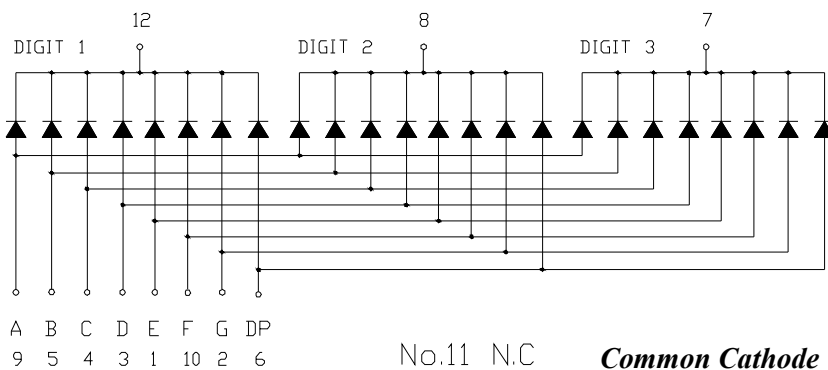
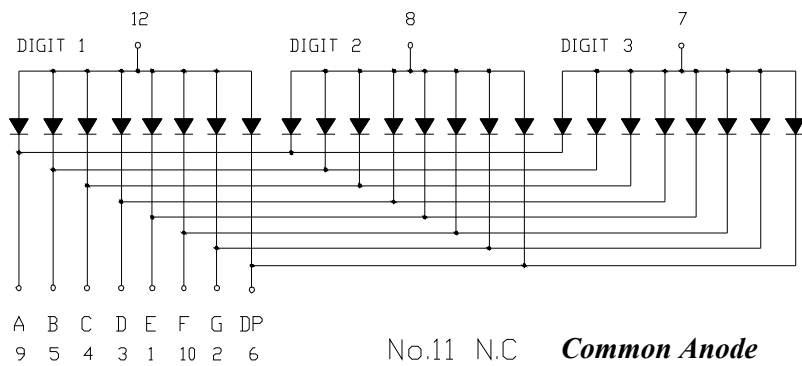
| C2 |       |       |       |       |
|----|-------|-------|-------|-------|
| X  | 0.260 | 0.260 | 0.280 | 0.280 |
| Y  | 0.210 | 0.240 | 0.257 | 0.227 |

| D1 |       |       |       |       |
|----|-------|-------|-------|-------|
| X  | 0.280 | 0.280 | 0.300 | 0.300 |
| Y  | 0.244 | 0.293 | 0.310 | 0.260 |

**All Light-On Segments Feature & Pad Position**



**Internal Circuit Diagram**



### Typical Electrical / Optical Characteristic Curves

- (Ta = 25°C Unless Otherwise Noted)

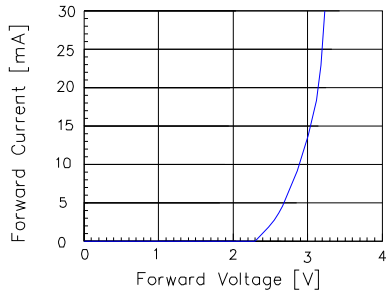


Fig 1. Forward Current vs. Forward Voltage

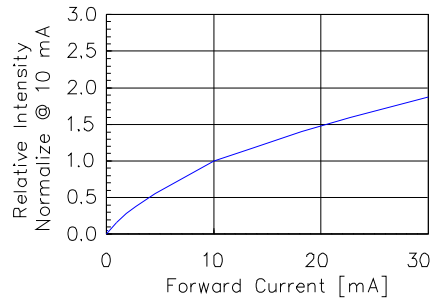


Fig 2. Relative Intensity vs. Forward Current

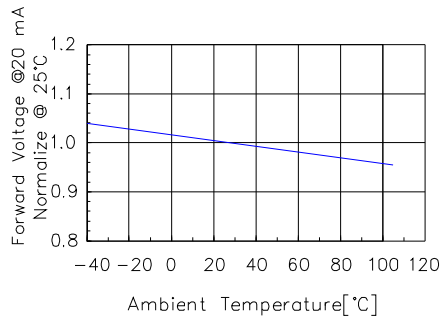


Fig 3. Forward Voltage vs. Temperature

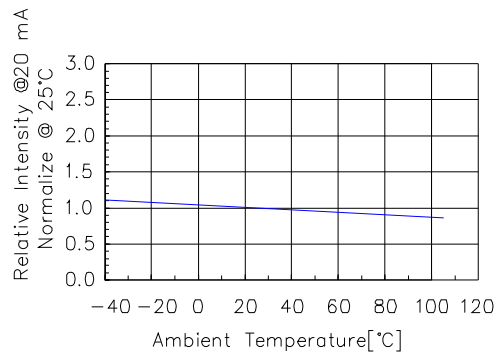


Fig 4. Relative Intensity vs. Temperature

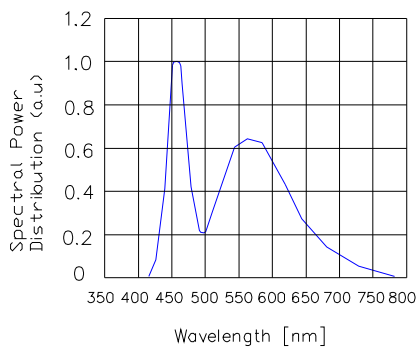


Fig 5. Spectral Power Distribution vs. Wavelength

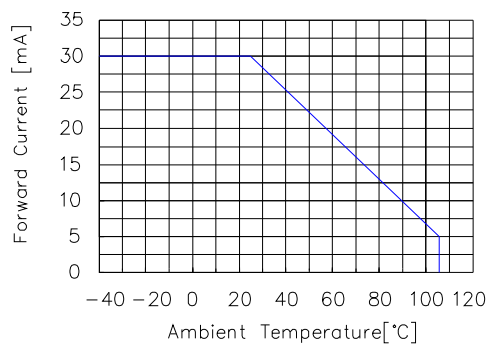
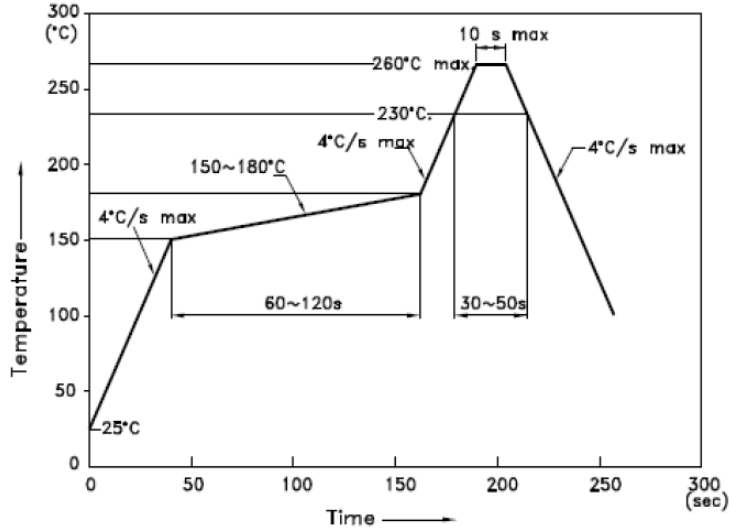


Fig 6. Forward current vs. Temperature

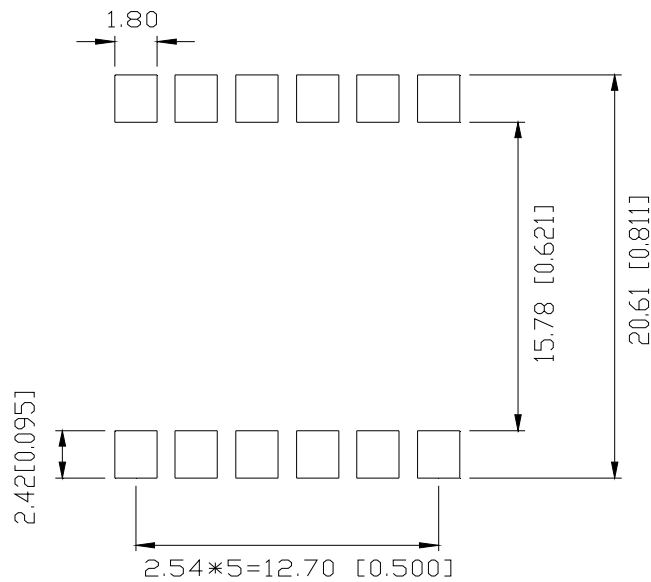
### SMT Reflow Soldering Instructions



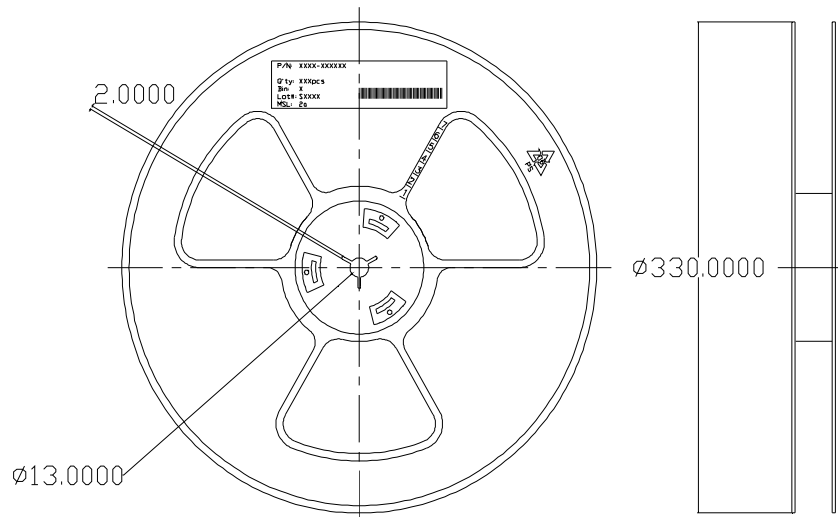
**NOTES:**

1. We recommend the reflow temperature 245°C(+/-5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

### Soldering Pad Size



### Reel Specifications



### Package and Label Specifications

