

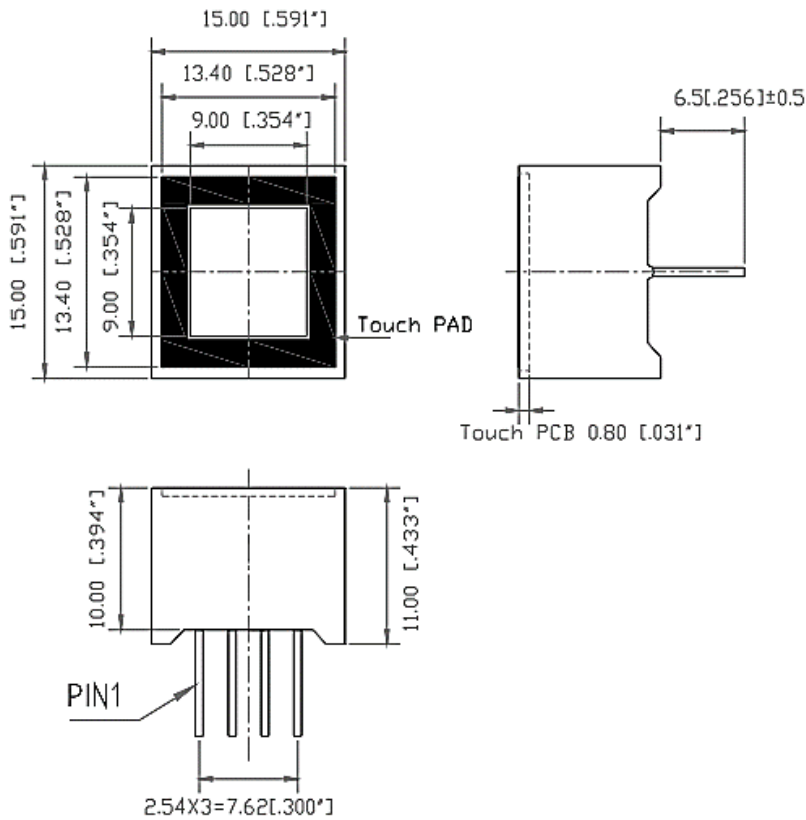


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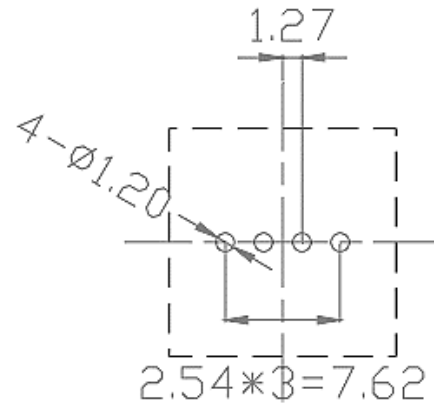
CTD-IC591PG-W/W

15.0 x 15.0 x 11.0 mm Pure Green Touch LED Display w/ Touch Drive IC

MECHANICAL DIMENSIONS



RECOMMENDED PCB LAYOUT



Notes:

1. All pins are 0.60[.024]±0.1[.004]
2. Dimension in millimeter [inch], tolerance is ±0.25 [.010] and angle is ±1° unless otherwise noted.

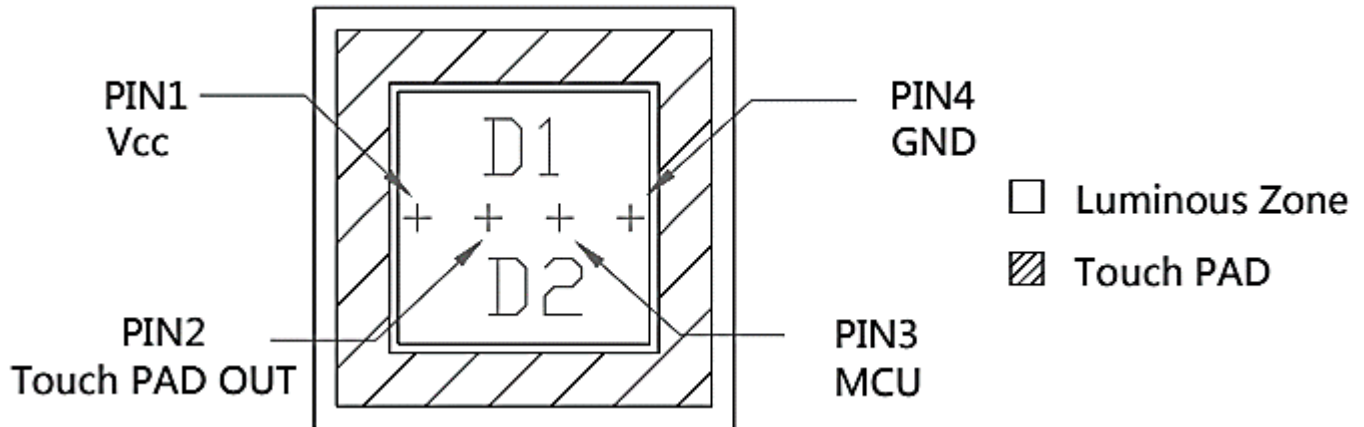
| Chip Material | Color | |
|---------------|------------|--------------|
| | Emitter | Face/Segment |
| InGaN | Pure Green | White/ White |



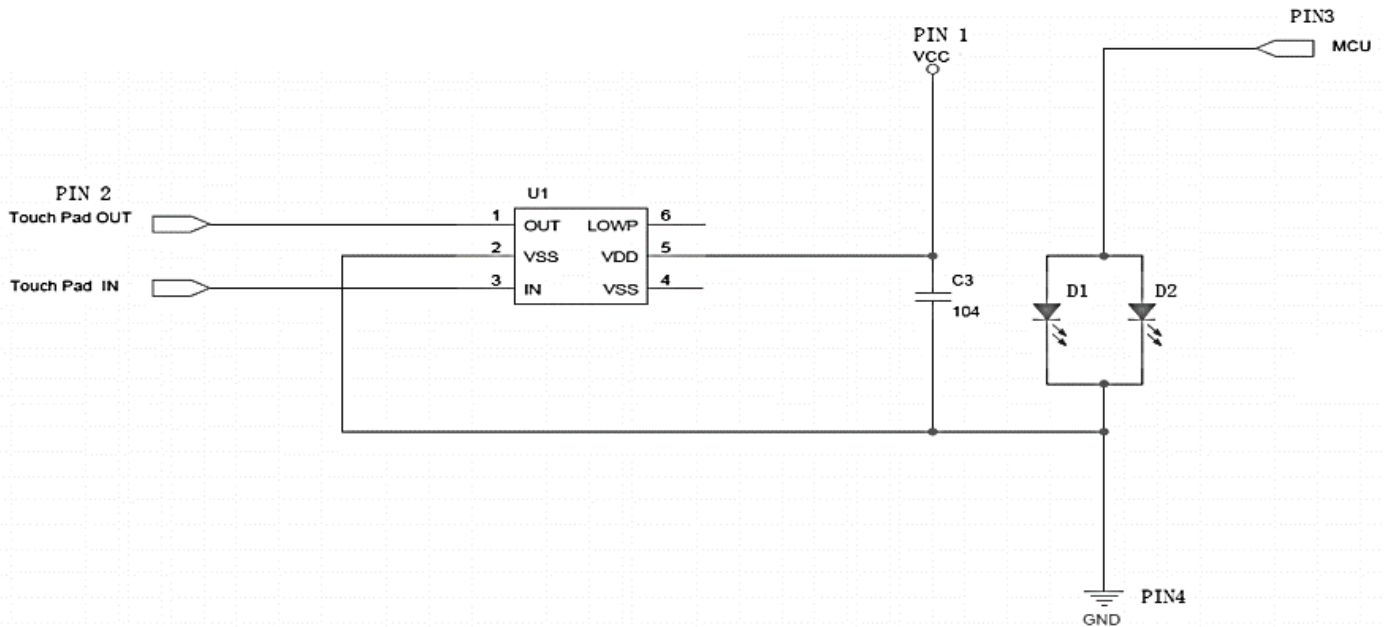
American Opto Plus LED Corp. CTD-IC591PG-W/W

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ALL LIGHT ON SEGMENTS FEATURE & PIN POSITION



INTERNAL CIRCUIT DIAGRAMS





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TOUCH IC ELECTRO-OPTICAL CHARACTERISTICS

(Ta=25°C)

| Parameter | Symbol | Condition | Min. | Typ. | Max. | Unit |
|------------------------------|--------|------------------|--------|------|--------|------|
| Supply Voltage | VDD | -- | 2.0 | -- | 5.5 | V |
| High Level Input Voltage | VIH | @VDD=5V | 0.7VDD | -- | VDD | V |
| Low Level Input Voltage | VIL | | 0 | -- | 0.3VDD | V |
| Operating Current | IDD1 | @VDD=5V, no load | -- | 16 | -- | μA |
| | | VDD=3V, no load | -- | 3.5 | -- | |
| Operating Current (SLRT=VDD) | IDD2 | @VDD=5V, no load | -- | 10.5 | -- | μA |
| | | @VDD=3V, no load | -- | 2.5 | -- | |
| Low Level Output Current | IOL | VDD=3V, VOL=1V | -- | 30 | -- | mA |
| High Level Output Current | IOH | VDD=3V, VOH=2V | -- | 8 | -- | mA |



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ABSOLUTE MAXIMUM RATING

(Ta=25°C)

| Parameter | Symbol | Rating | Unit |
|---|--------|------------|-------|
| | | Pure Green | |
| 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 | 1000 | V |
| Operating Temp. | Topr | -35 ~ +85 | °C |
| Storage Temp. | Tstg | -35 ~ +85 | °C |
| Hand Soldering Temperature | Tsol | 350 | °C |

ELECTRO-OPTICAL CHARACTERISTICS

(Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|---------------------|-------------|------|------|------|---------|------------|
| Luminous Intensity | IV | -- | 612 | -- | mcd | IF = 20 mA |
| Forward Voltage | VF | -- | 3.2 | 3.8 | V | IF = 20 mA |
| Dominant Wavelength | λD | -- | 525 | -- | nm | IF = 20 mA |
| Reverse Current | IR | | - | 50 | μA | VR = 5V |



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LUMINOUS GENERAL Iv BIN GRADE

(If = 20mA)

| | | | | | | | | | | | |
|-----------|-----------|-----------|-----------|------------|------------|------------|------------|----------|----------|----------|-----------|
| 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 | | | | |

1. Unit = mcd
2. Tolerance: ±20%

COLOR RANK LIMITS

(If = 20mA)

| | | | | |
|-------|-------|-------|-------|-------|
| 0 | 1 | 2 | 3 | 4 |
| 522.0 | 524.0 | 526.0 | 528.0 | 530.0 |
| } | } | } | } | } |
| 523.9 | 525.9 | 527.9 | 529.9 | 532.0 |

1. Unit = nm
2. Tolerance: ±1



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ELECTRICAL/OPTICAL CHARACTERISTICS CURVES (Ta=25°C)

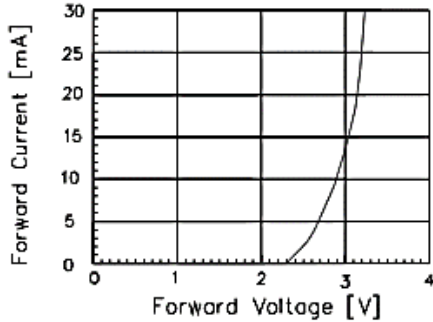


Fig 1. Forward Current vs. Forward Voltage

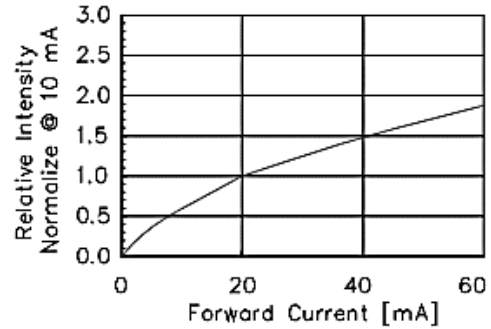


Fig 2. Relative Intensity vs. Forward Current

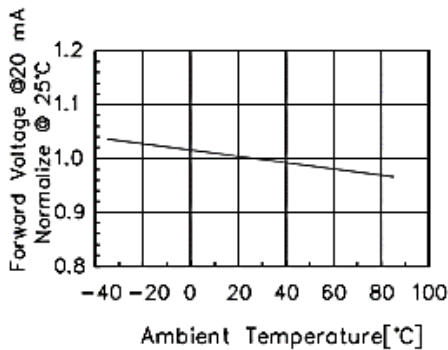


Fig 3. Forward Voltage vs. Temperature

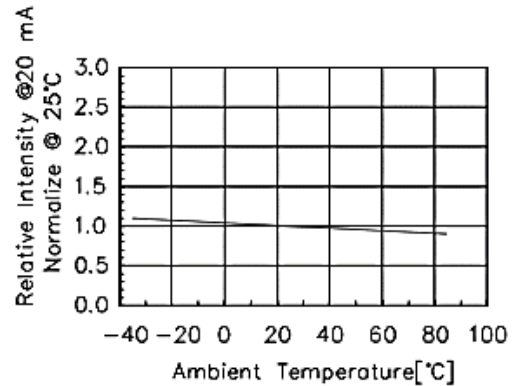


Fig 4. Relative Intensity vs. Temperature

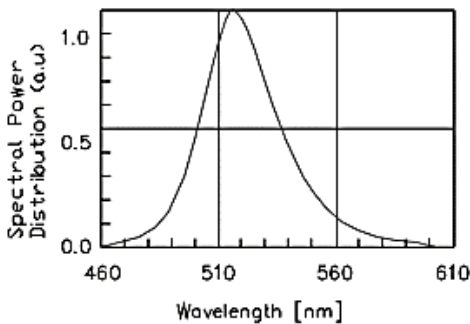


Fig 5. Spectral Power Distribution vs. Wavelength

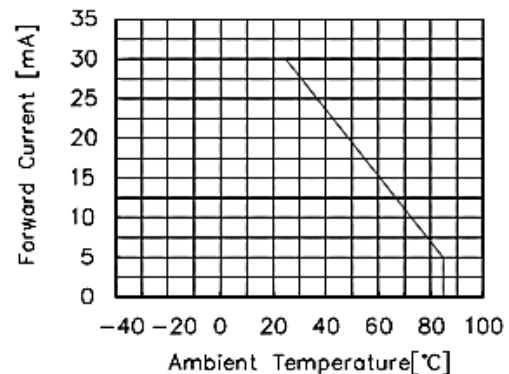


Fig 6. Forward current vs. Temperature



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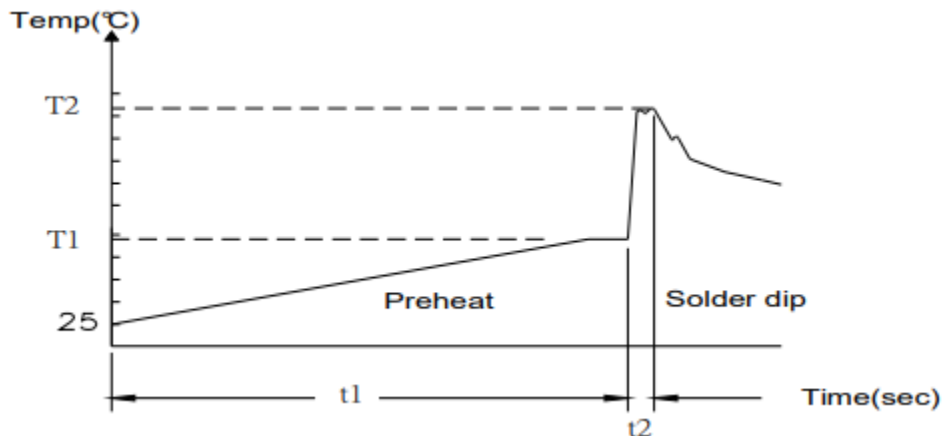
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SOLDERING CONDITIONS

1. Wave Soldering Profile

Distance: 1.6mm min (From Seating Plane)

| Item | Condition | | Note |
|------------|----------------|-------------|---|
| Preheat | Temperature T1 | 80 – 120 °C | PWB Temperature (Soldering Side Surface) |
| | Time t1 | 60 – 180sec | |
| Solder Dip | Temperature T2 | 230 – 260°C | Bath Temperature |
| | Time t2 | 2 – 4 sec | Solder Tank Passage Time |



2. Hand Soldering (Iron Condition)

Soldering Iron: 30W Max

Temperature 350°C Max

Soldering Time: 3 Seconds Max (One Time)

Distance: 1.6mm min (From Seating Plane)

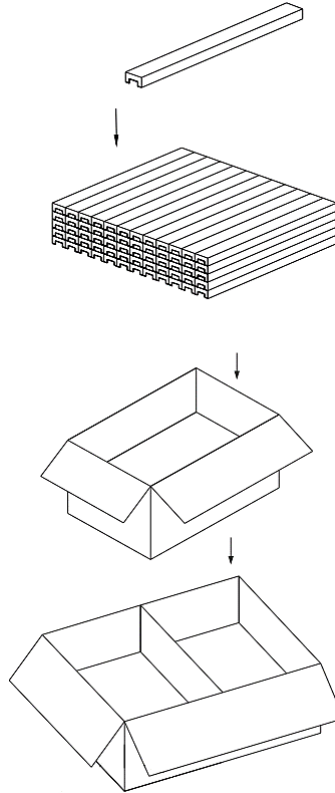


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PACKAGE SPECIFICATION



| Package | Size | Unit | Amount | Unit | Amount | Unit | Note |
|-----------|----------------|------|--------|-----------|--------|------|-----------|
| TUBE | L300*W190*H20 | mm | 1 | TUBE | 10 | Pcs | -- |
| Inner Box | L305*W205*H240 | mm | 187 | TUBE | 1870 | Pcs | 17*11=187 |
| Outer Box | L430*W330*H270 | mm | 2 | Inner Box | 3740 | Pcs | -- |

STORAGE METHOD

1. Product cannot be placed on the location of direct sunlight.
2. Product storage environment: Temp. -35°C~85°C, RH 45%~85%.
3. After unpacking the product be use within 1 year.
4. After unpacking, do not take anything up in order to avoid PIN shifting.