

American Opto Plus LED Corp.
0.20" SMD Type LED Display
SMA203PG G/W
SMC203PG G/W

● **FEATURES**

- 0.20 inch (5.08 mm) Digit Height.
- SMD type.
- Low current operation.
- Gray face, White segment.
- RoHS compliant, Pb Free.

● **DESCRIPTION**

The SMA203PG G/W & SMC203PG G/W are 0.20 inch (5.08mm) height Triple 7-segment displays.

This device utilizes Pure Green LED chip which are made from InGaN on a Transparent GaN, substrate.

The display has Gray face, White segment.

● **DEVICE**

| PART NO | DESCRIPTION |
|--------------|----------------|
| SMA203PG G/W | Common Anode |
| SMC203PG G/W | Common Cathode |

RoHS Compliance



Pb free.





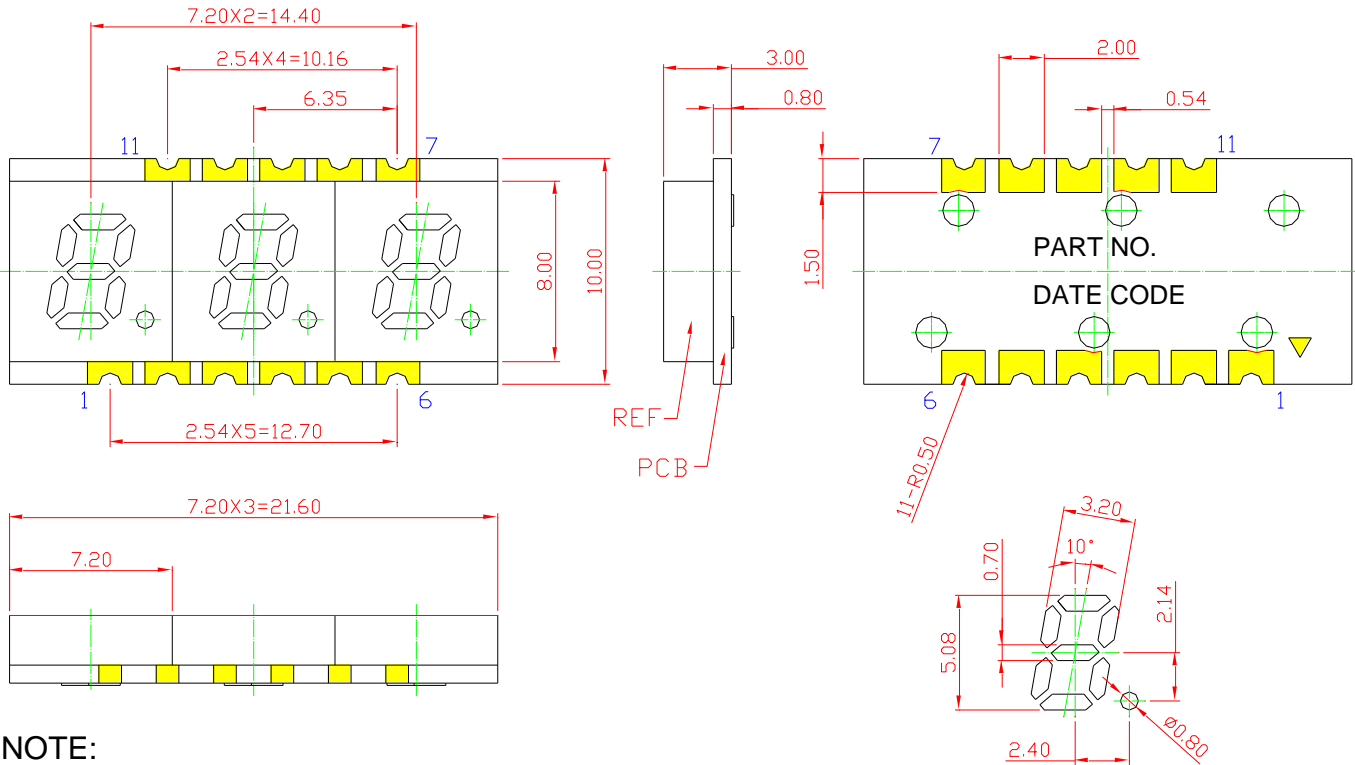
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● MECHANICAL DIMENSIONS



NOTE:
 Dimension in millimeters (inches),
 And tolerance are $\pm 0.25\text{mm}$ (.01") specified.



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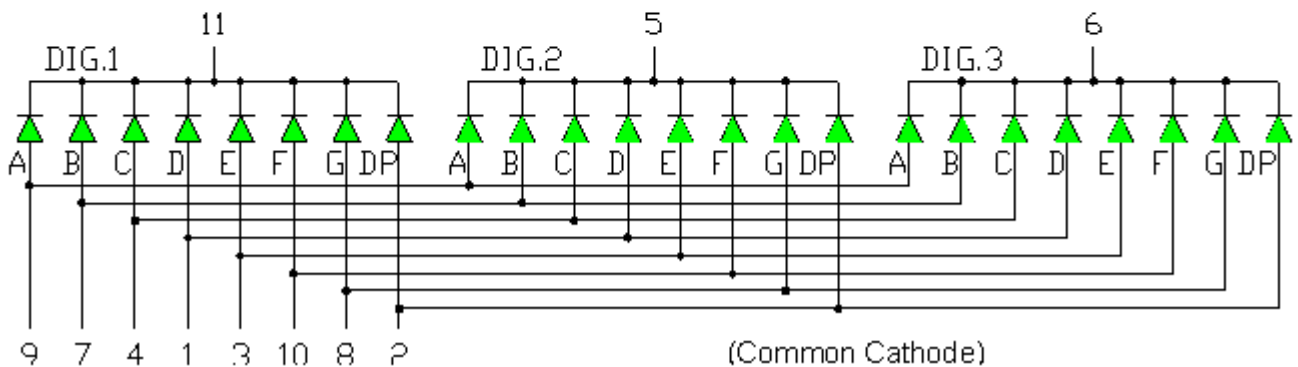
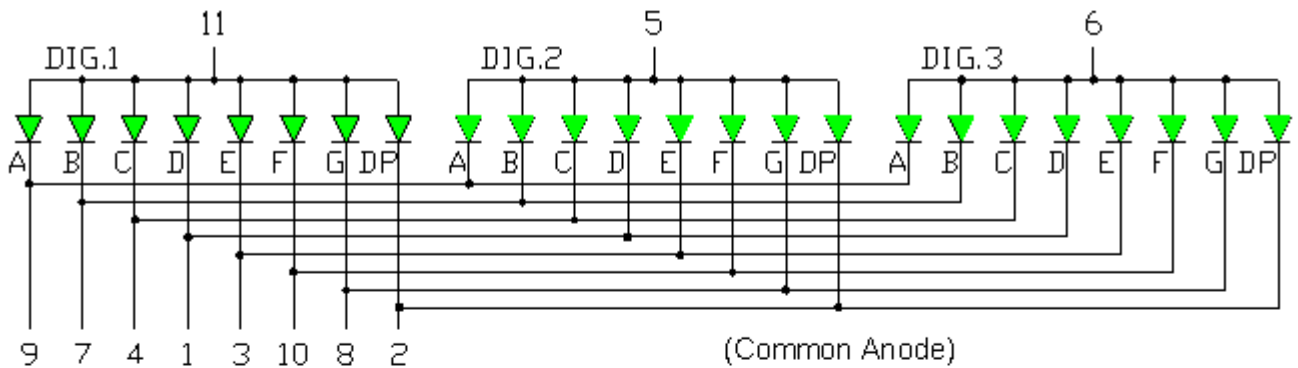
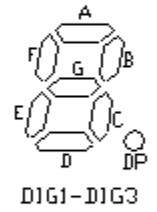
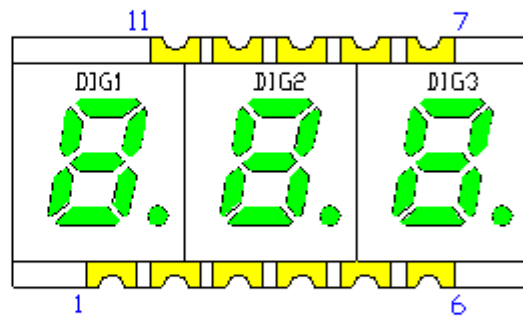
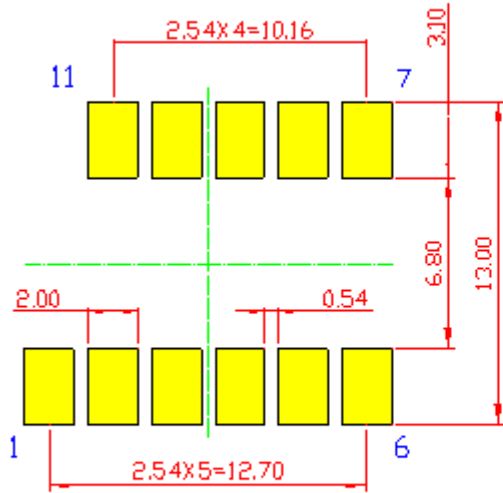
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● TYPICAL INTERNAL EQUIVALENT CIRCUIT

Recommended Soldering Pattern





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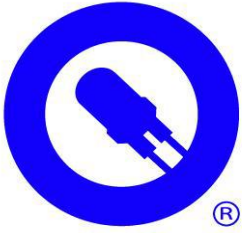
● **PG: PURE GREEN (InGaN/GaN)**

ABSOLUTE MAXIMUM RATING AT Ta=25°C

| Parameter | Symbol | Maximum Rating | Unit |
|--------------------------------------|------------------|----------------|---------|
| Power dissipation | P _{AD} | 120 | mW |
| Derating liner from 25°C | - | 0.3 | mA / °C |
| Continuous forward current | I _{AF} | 30 | mA |
| Peak current (duty cycle 1/10, 1kHz) | I _{PF} | 100 | mA |
| Reverse voltage | V _R | 5 | V |
| Operating temperature | T _{OPR} | -40 to +105 | °C |
| Storage temperature | T _{STG} | -40 to +105 | °C |

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

| Characteristic | Symbol | Condition | Min. | Type. | Max. | Unit |
|------------------------------|----------------|----------------------|------|-------|------|------|
| Forward Voltage, (Per Dice) | V _F | I _F =20mA | - | 3.2 | 4.0 | V |
| Reverse Current, (Per Dice) | I _R | V _R =8V | - | - | 10 | µA |
| Dominant Wavelength | λ _D | I _F =20mA | - | 525 | - | nm |
| Luminous Intensity | I _v | I _F =20mA | - | 50 | - | mcd |
| Spectral radiation bandwidth | Δλ | I _F =20mA | - | 30 | - | nm |



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● PG: PURE GREEN (InGaN/GaN) CURVE

Typical Electro-optical Characteristic Curves
(25 °C Free Air Temperature Unless Otherwise Specified)

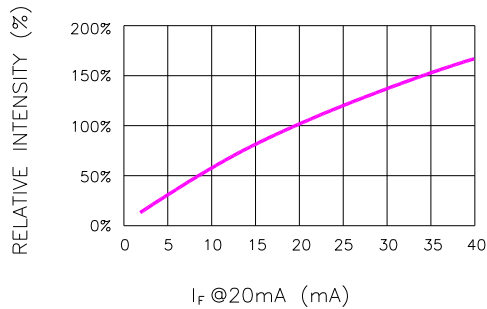


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

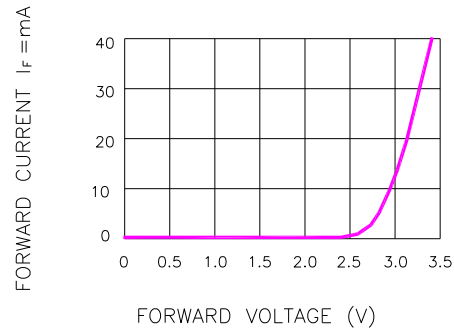


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

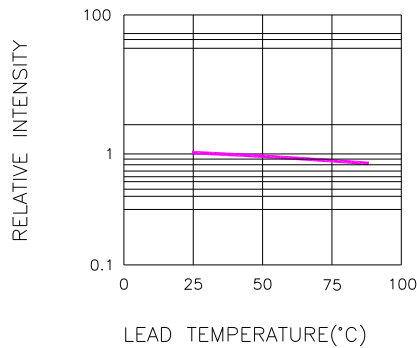


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

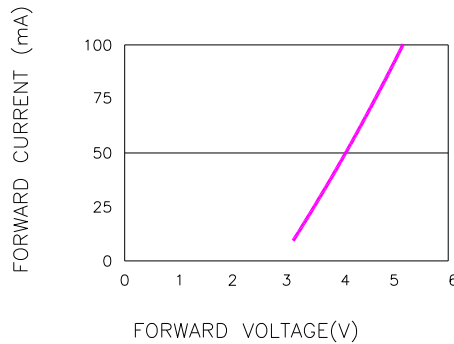


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD (100us TEST PULSE, 1% DUTY CYCLE)

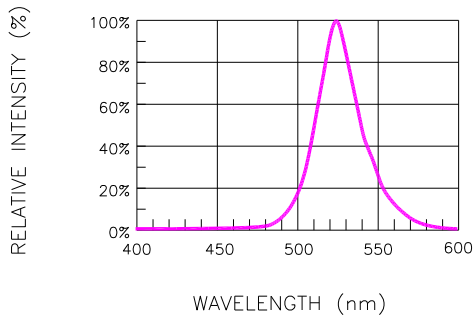


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

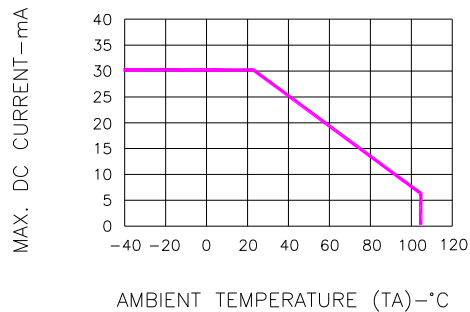


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

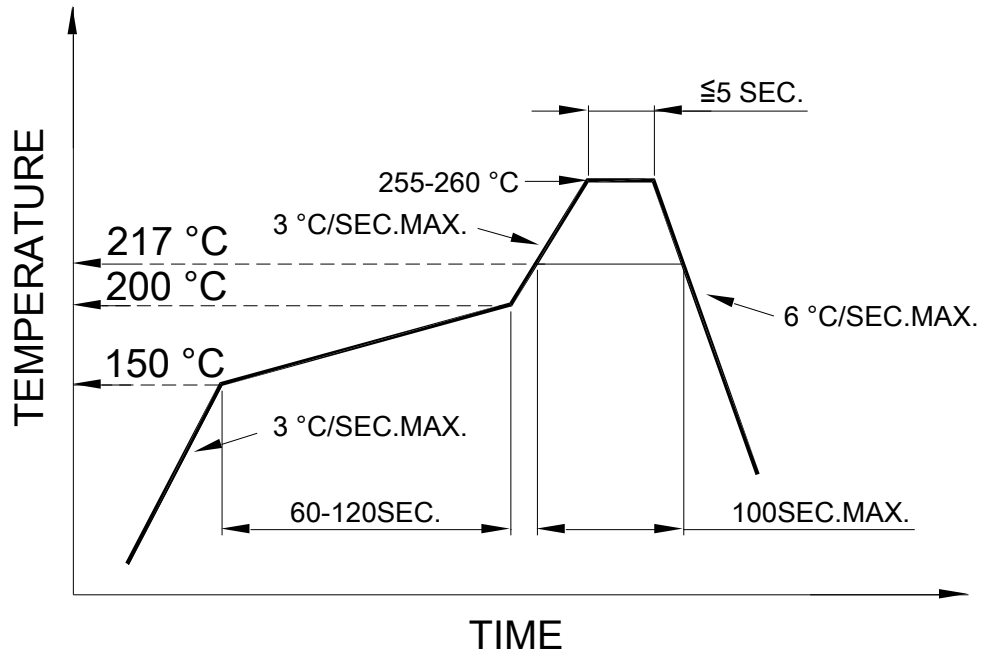


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● **RECOMMEND SOLDERING PROFILE**

SMT Soldering Profile

Pb free reflow soldering Profile



● **SOLDERING IRON**

Basic specification : ≤ 4 seconds when 260°C, If temperature is higher, time should be shorter (+10°C → 1 sec). Power dissipation of iron should be smaller than 15W, and temperature should be controllable. Surface temperature of the device should be under 230°C.

● **REWORK**

Customer must finish rework within ≤ 3 sec under 350°C.