



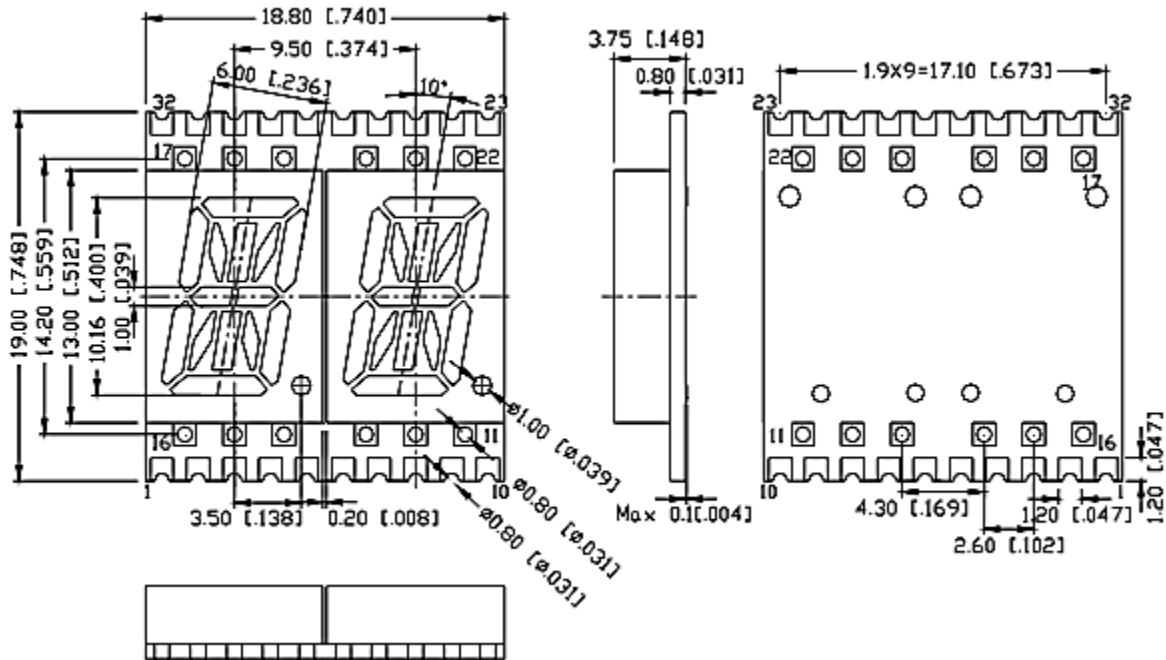
# American Opto Plus LED Corp.

## SMA4028E-C G/W

## SMC4028E-C G/W

### 0.4" Red Dual Digit Alphanumeric SMD Display

#### MECHANICAL DIMENSIONS



#### Notes:

1. Dimension in millimeter [inch], tolerance is  $\pm 0.25$  [0.10] and the angle is  $\pm 1\%$  unless otherwise noted.
2. Bending  $\leq$  Length \* 1%.

Chip Material	Emitted Color	Segment/Face	Description
AlGaInP	Red	White/Gray	Common Anode Common Cathode



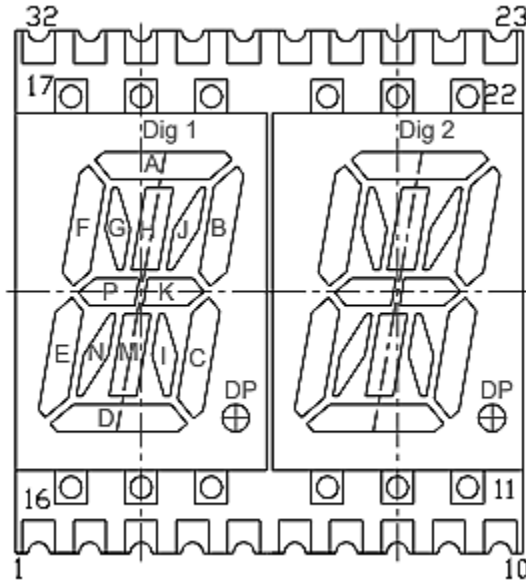
# American Opto Plus LED Corp.

## SMA4028E-C G/W

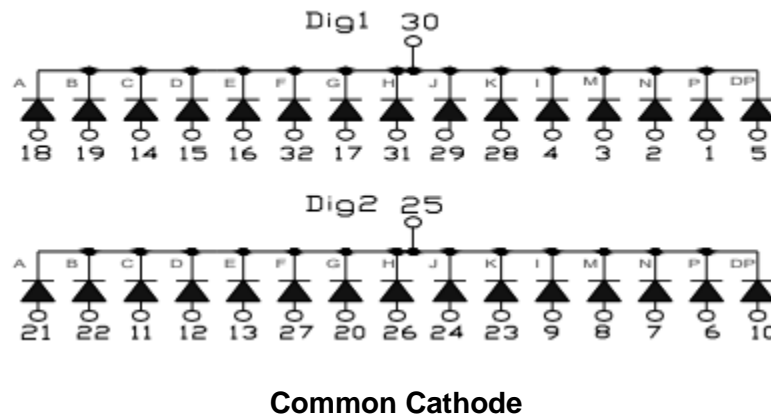
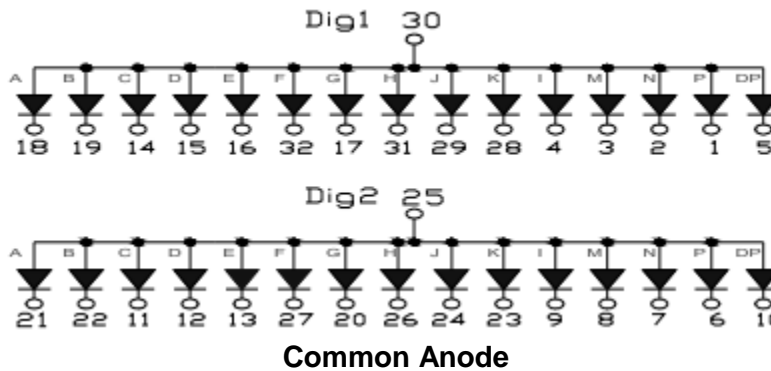
## SMC4028E-C G/W

### 0.4" Red Dual Digit Alphanumeric SMD Display

#### ALL LIGHT ON SEGMENTS FEATURE



#### INTERNAL CIRCUIT DIAGRAMS





**American Opto Plus LED Corp.**  
**SMA4028E-C G/W**  
**SMC4028E-C G/W**  
**0.4" Red Dual Digit Alphanumeric SMD Display**

**ABSOLUTE MAXIMUM RATING**

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation (Per Dice)	P <sub>D</sub>	70	mW
Continuous Forward Current (Per Dice)	I <sub>F</sub>	25	mA
Peak Current (Per Dice, duty cycle 1/10,1KHz)	I <sub>FP</sub>	90	mA
Derating Liner from 25°C(Per Dice)	ΔI <sub>F</sub> /ΔT	0.33	mA/°C
Reverse Voltage (Per Dice)	V <sub>R</sub>	5	V
Electrostatic discharge(HBM)	ESD	--	V
Operating Temp.	T <sub>OPR</sub>	-40 ~ +105	°C
Storage Temp.	T <sub>STG</sub>	-40 ~ +105	°C

**ELECTRO-OPTICAL CHARACTERISTICS**

(Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage (Per Segment)	V <sub>F</sub>	I <sub>F</sub> =20mA	--	2.0	2.8	V
Dominant Wavelength	λ <sub>d</sub>	I <sub>F</sub> =10mA	--	625	--	nm
Peak Wavelength	λ <sub>p</sub>		--	632	--	nm
Luminous Intensity Matching Ratio	I <sub>V-m</sub>		--	--	2:1	--
Luminous Intensity (Per Segment)	I <sub>V</sub>		--	6	--	mcd
Reverse Current	I <sub>r</sub>	V <sub>R</sub> =5V	--	--	100	μA



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**LUMINOUS GENERAL LV BIN GRADE**

( $I_f = 10\text{mA}$ )

Bin	Min	Max	Unit
G	2.627	4.203	mcd
H	4.204	6.726	
J	6.727	10.763	

Notes: Tolerance:  $\pm 20\%$



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#### ELECTRICAL/OPTICAL CHARACTERISTICS CURVES

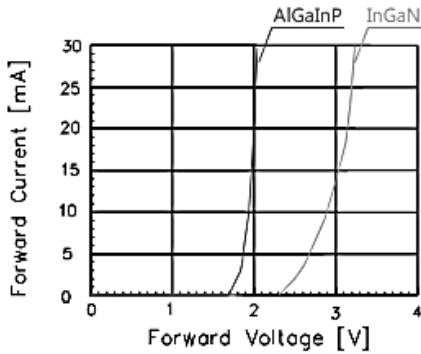


Fig 1. Forward Current vs. Forward Voltage

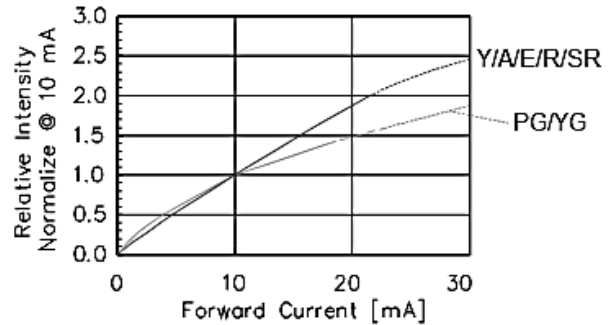


Fig 2. Relative Intensity vs. Forward Current

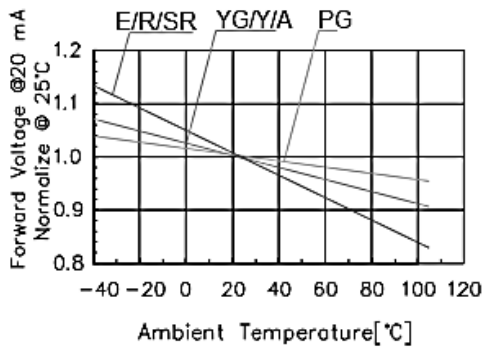


Fig 3. Forward Voltage vs. Temperature

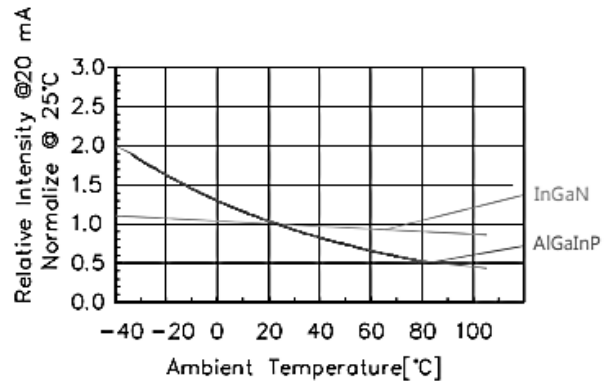


Fig 4. Relative Intensity vs. Temperature

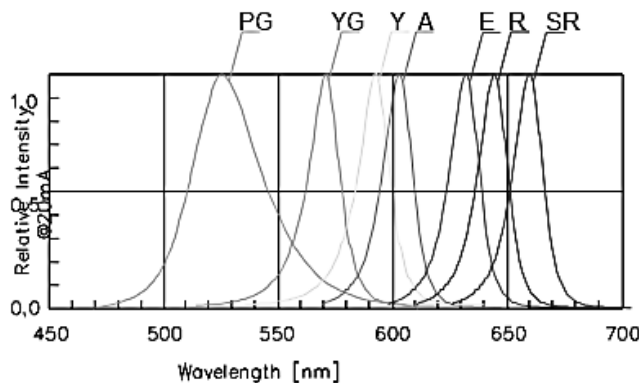


Fig 5. Relative Intensity vs. Wavelength

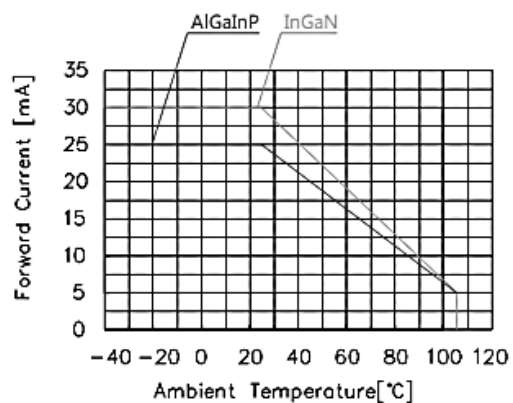


Fig 6. Forward current vs. Temperature



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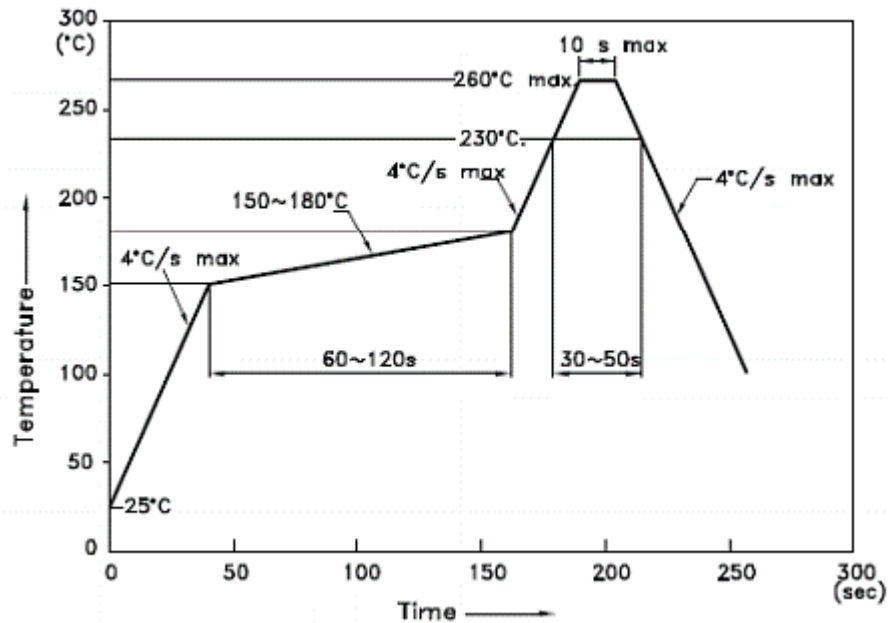
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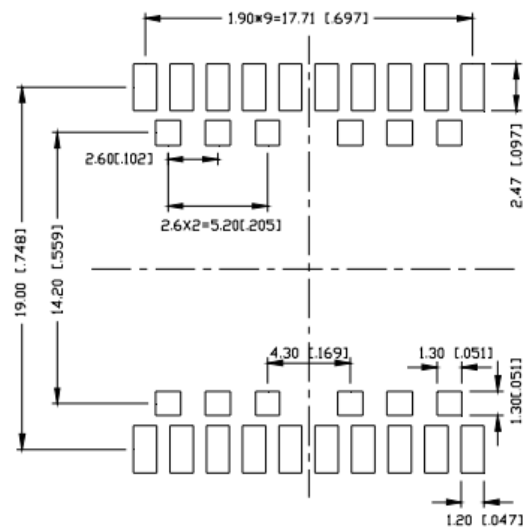
#### REFLOW SOLDERING CONDITION

#### IR Reflow Temperature/ Time



1. We recommend the reflow temperature is  $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$ .
2. The maximum soldering temperature should be limited to  $260^{\circ}\text{C}$ .
3. Do not cause any stress to the epoxy resin while it is exposed to the high temperature.
4. Number of reflow process shall be 2 times or less.

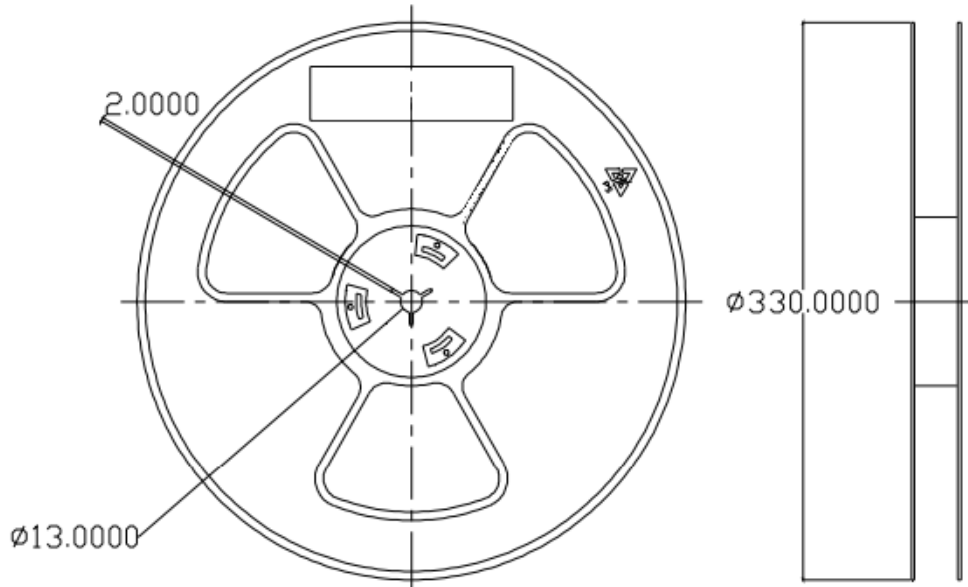
#### RECOMMENDED PCB LAYOUT



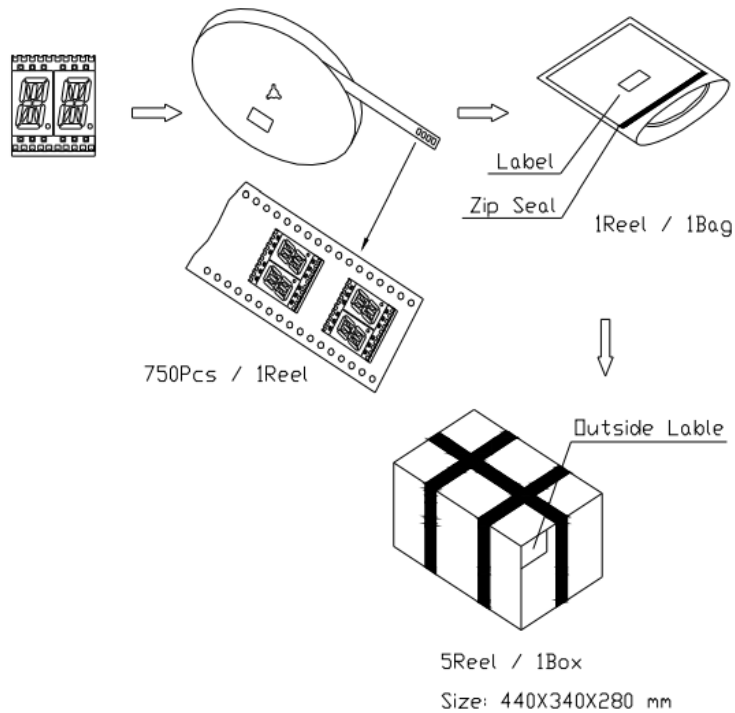


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**REEL DIMENSION**



**PACKING & LABEL DIMENSIONS**



Note: specifications are subject to change without notice.  
Please contact us for the updated information.