

**American Opto Plus LED Corp.**  
**0.40" SMD Type LED Display**  
**SMA402W-20 G/W**  
**SMC402W-20 G/W**

● **FEATURES**

- 0.40 inch (10.0 mm) Digit Height.
- SMD type.
- Low current operation.
- Gray face, White segment.
- RoHS compliant, Pb Free.

● **DESCRIPTION**

The SMA402W-20 G/W & SMC402W-20 G/W are 0.40 inch (10.0mm) height Single 7-segment displays.

This device utilizes Super Bright White LED chip which are made from InGaN On a transparent GaN, substrate.

The display has Gray face, White segment.

● **DEVICE**

PART NO	DESCRIPTION
SMA402W-20 G/W	Common Anode
SMC402W-20 G/W	Common Cathode

**RoHS Compliance**



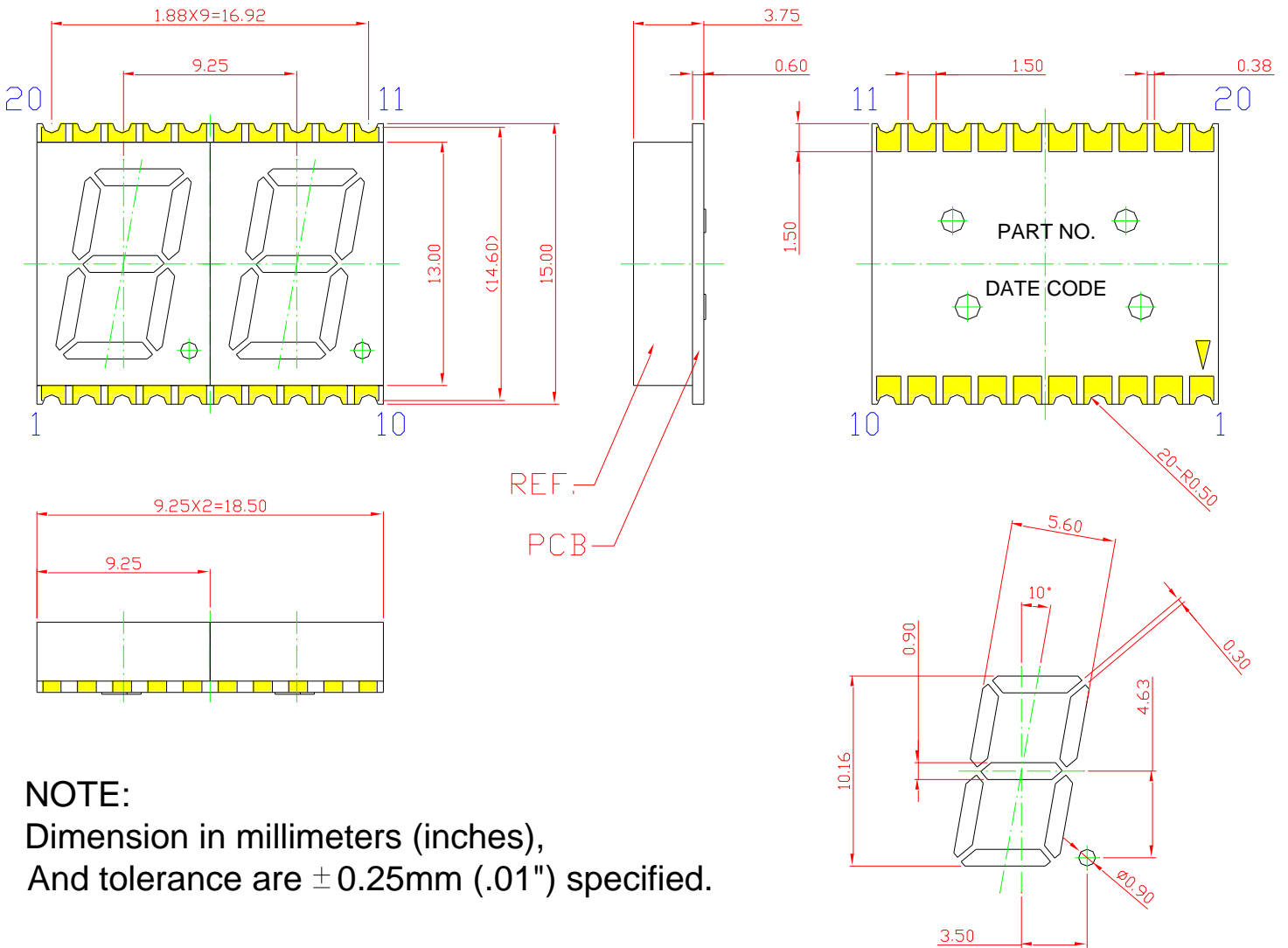
**Pb free.**





**American Opto Plus LED Corp.**  
**0.40" SMD Type LED Display**  
**SMA402W-20 G/W**  
**SMC402W-20 G/W**

● **MECHANICAL DIMENSIONS**



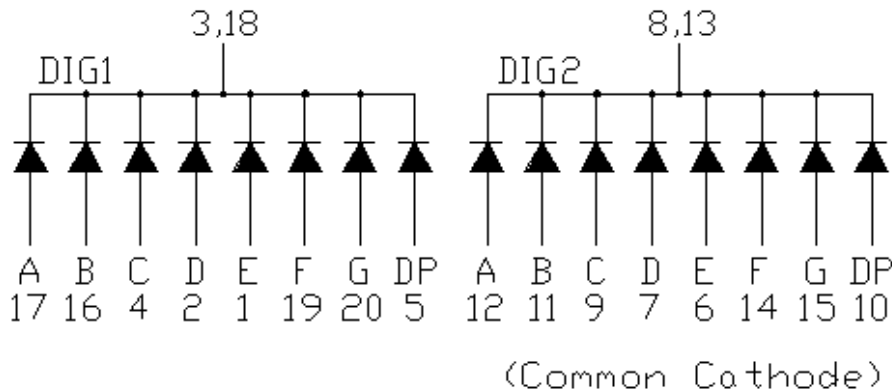
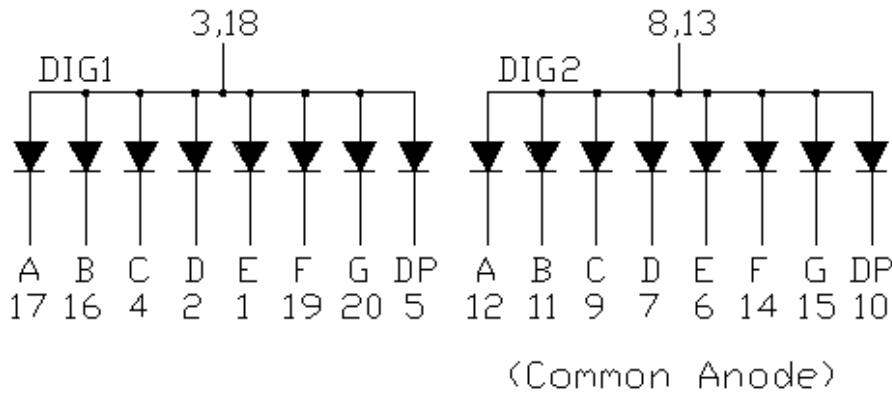
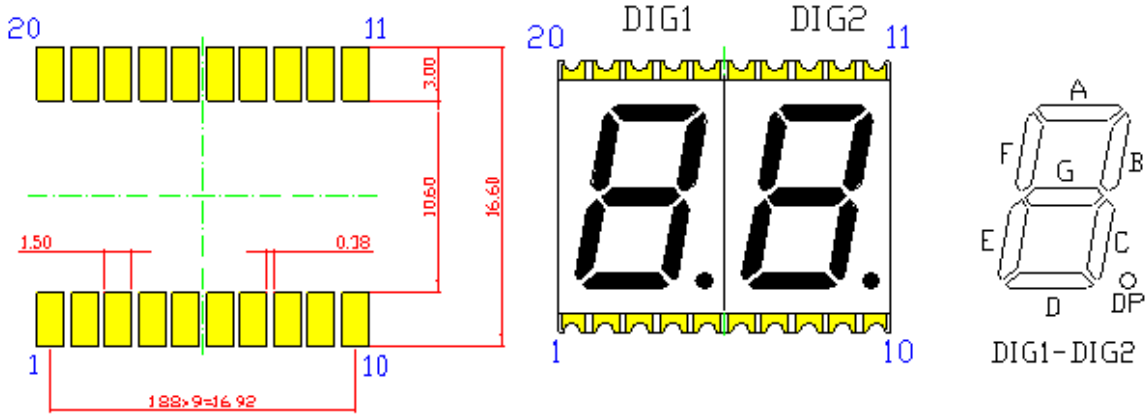
**NOTE:**  
 Dimension in millimeters (inches),  
 And tolerance are  $\pm 0.25\text{mm}$  (.01") specified.



**American Opto Plus LED Corp.**  
**0.40" SMD Type LED Display**  
**SMA402W-20 G/W**  
**SMC402W-20 G/W**

● **TYPICAL INTERNAL EQUIVALENT CIRCUIT**

**Recommended  
Soldering Pattern**





**American Opto Plus LED Corp.**  
**0.40" SMD Type LED Display**  
**SMA402W-20 G/W**  
**SMC402W-20 G/W**

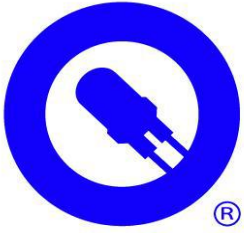
● **SUPER BRIGHT WHITE (InGaN/GaN)**

ABSOLUTE MAXIMUM RATING AT  $T_a=25^{\circ}\text{C}$

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  $T_a=25^{\circ}\text{C}$

Characteristic	Symbol	Condition	Min.	Type.	Max.	Unit
Forward voltage	$V_F$	$I_F=5\text{mA}$	-	3.2	4.0	V
Reverse current	$I_R$	$V_R=8\text{V}$	-	-	10	$\mu\text{A}$
Chromaticity coordinate	X	$I_F=5\text{mA}$	-	0.29	-	-
	Y	$I_F=5\text{mA}$	-	0.29	-	-
Luminous intensity	$I_v$	$I_F=5\text{mA}$	-	35	-	mcd
Spectral radiation bandwidth	$\Delta\lambda$	$I_F=5\text{mA}$	-	30	-	nm



# American Opto Plus LED Corp.

## 0.40" SMD Type LED Display

### SMA402W-20 G/W

### SMC402W-20 G/W

#### ● SUPER BRIGHT WHITE (InGaN/GaN) CURVE

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

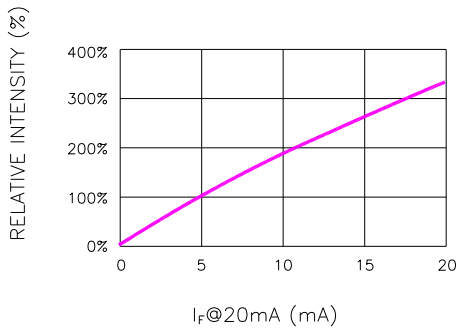


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

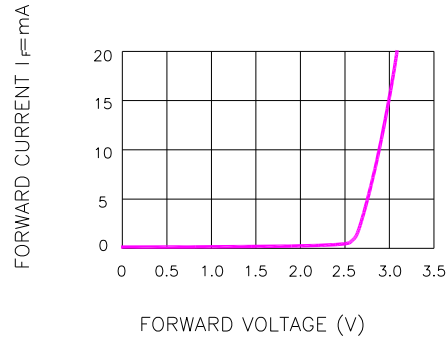


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

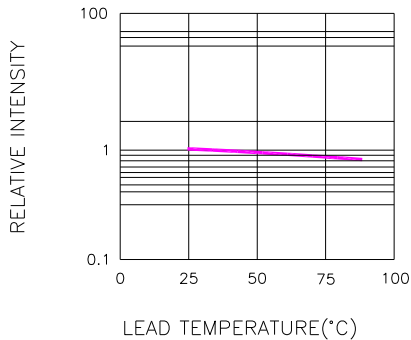


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE  
(PULSED 20 mA; 300us PULSE, 10ms PERIOD)

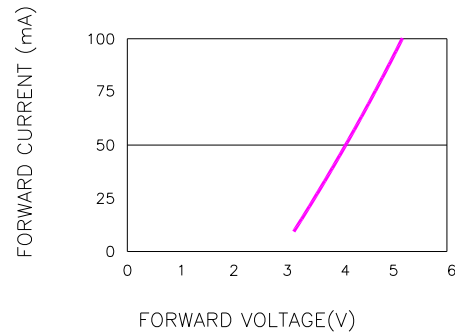


Fig.4 PEAK FORWARD VOLTAGE VS. FORWARD (100us TEST PULSE, 1% DUTY CYCLE)

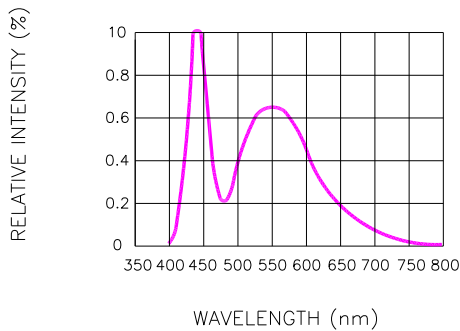


Fig.4 RELATIVE INTENSITY VS. WAVELENGTH

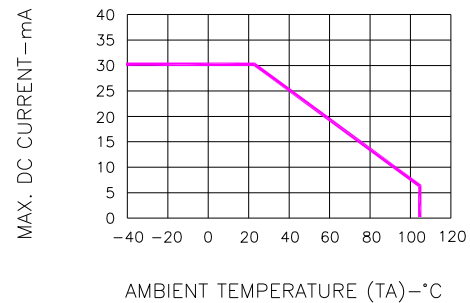


Fig.7 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

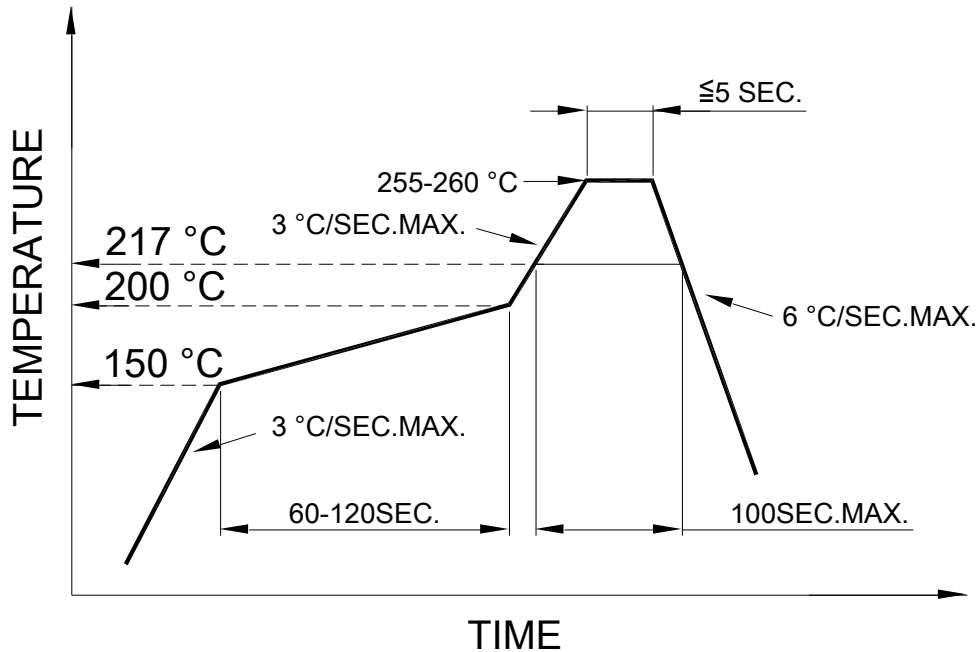


**American Opto Plus LED Corp.**  
**0.40" SMD Type LED Display**  
**SMA402W-20 G/W**  
**SMC402W-20 G/W**

● **RECOMMEND SOLDERING PROFILE**

SMT Soldering Profile

Pb free reflow soldering Profile



● **SOLDERING IRON**

Basic specification :  $\leq 4$  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  $\leq 3$  sec under 350°C.