



American Opto Plus LED Corp.
0.51" SMD Type LED Display
SMA513W G/W
SMC513W G/W

● **FEATURES**

- 0.51 inch (13.0 mm) Digit Height.
- SMD type.
- Low current operation.
- Gray face, White segment.
- RoHS compliant, Pb Free.

● **DESCRIPTION**

The SMA513W G/W & SMC513W G/W are 0.51 inch (13.0mm) height Triple 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
SMA513W G/W	Common Anode
SMC513W G/W	Common Cathode

RoHS Compliance



Pb free.





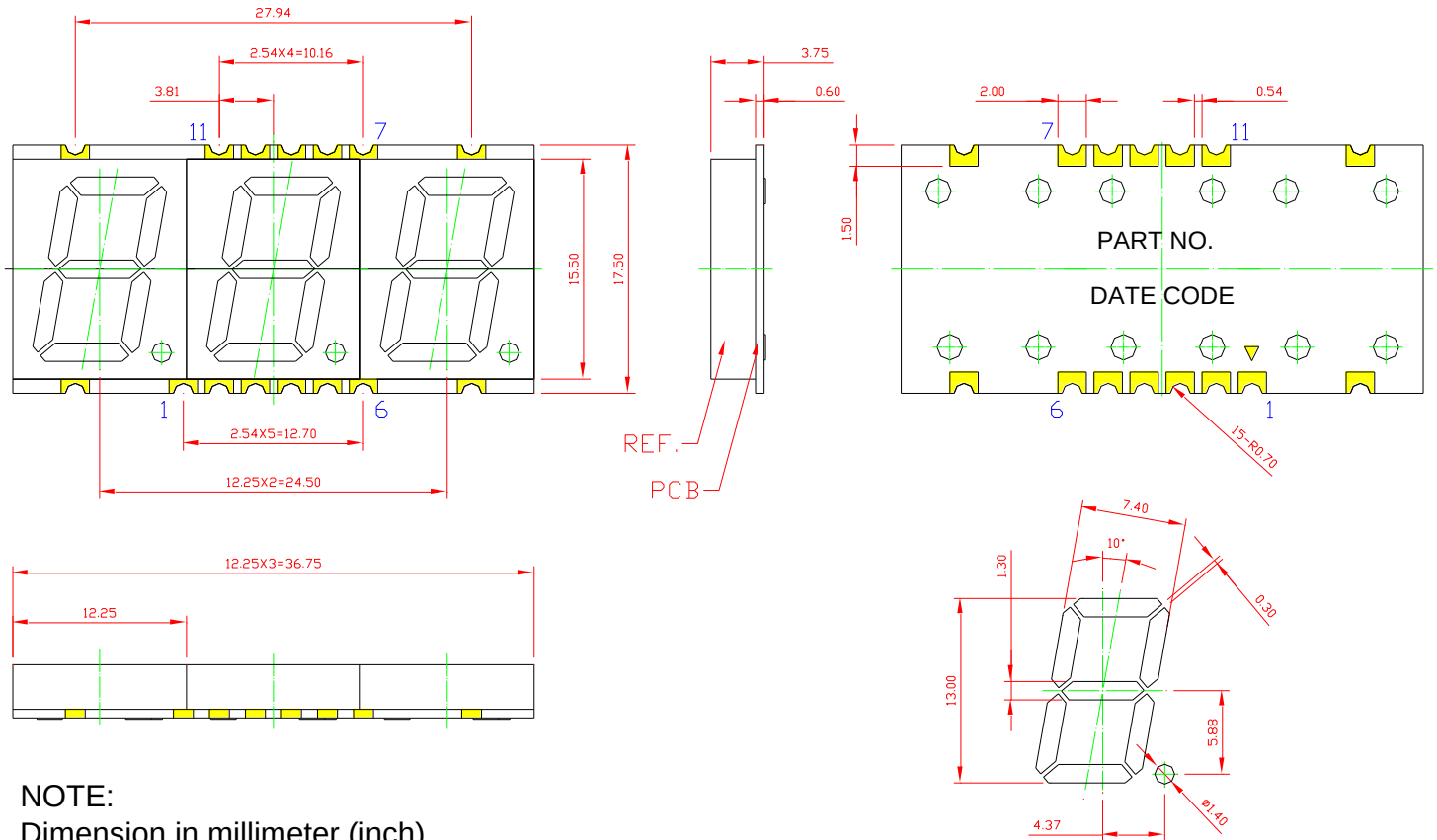
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MECHANICAL DIMENSIONS



NOTE:

Dimension in millimeter (inch),
and tolerance is ± 0.25 (.01) specified.



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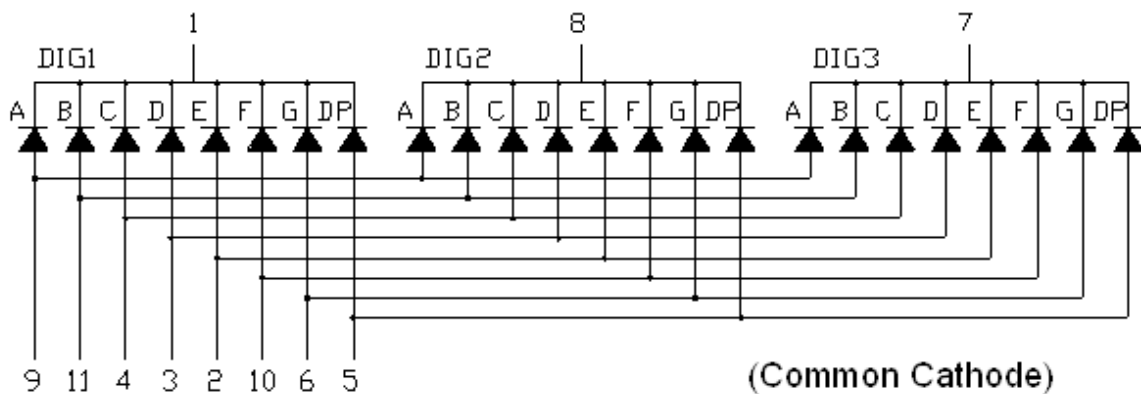
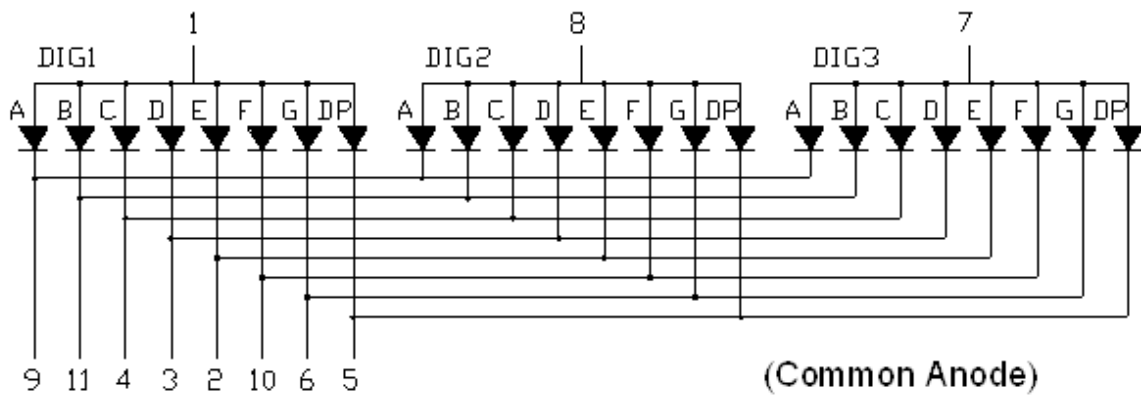
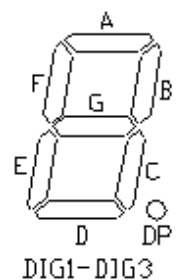
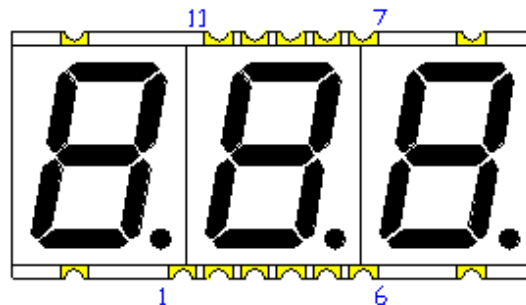
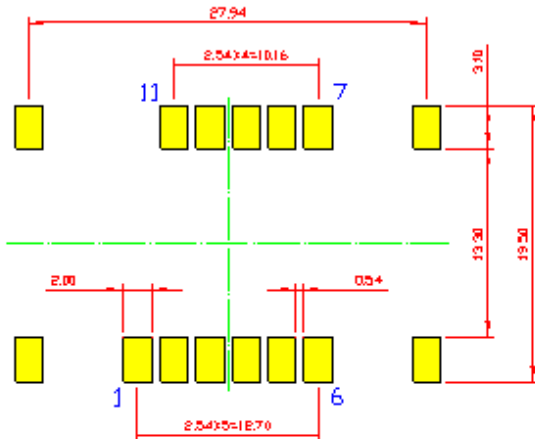
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● TYPICAL INTERNAL EQUIVALENT CIRCUIT

Recommended
Soldering Pattern





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● **W: SUPER BRIGHT WHITE (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	V _F	I _F =5mA	-	3.2	4.0	V
Reverse current	I _R	V _R =8V	-	-	10	μA
Chromaticity coordinate	X	I _F =5mA	-	0.29	-	-
	Y	I _F =5mA	-	0.29	-	-
Luminous intensity	I _V	I _F =5mA	-	30	-	mcd
Spectral radiation bandwidth	Δλ	I _F =5mA	-	30	-	nm



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● W: SUPER BRIGHT WHITE (InGaN/GaN) CURVE

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

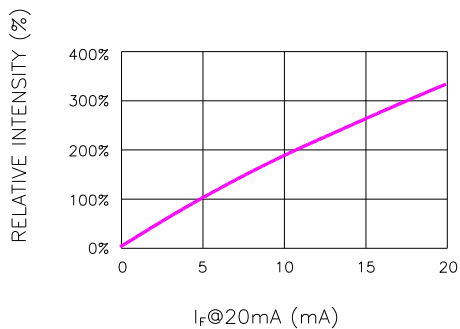


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

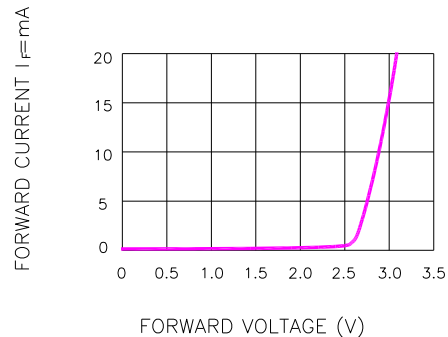


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

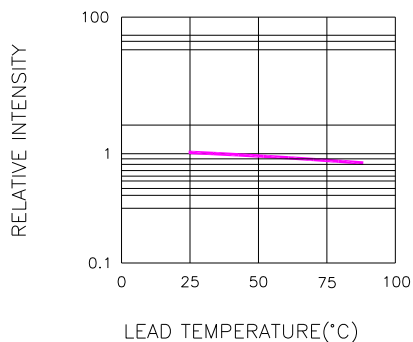


Fig.3 RELATIVE INTENSITY VS. LEAD TEMPERATURE
(PULSED 20 mA; 300us
PULSE, 10ms PERIOD)

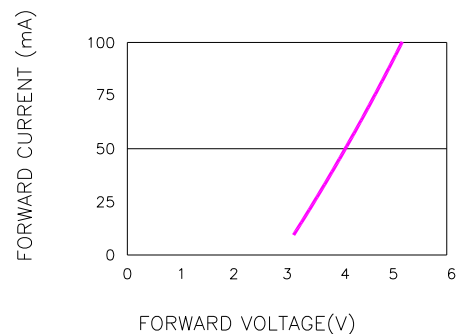


Fig.4 PEAK FORWARD VOLTAGE
VS. FORWARD (100us TEST PULSE,
1% DUTY CYCLE)

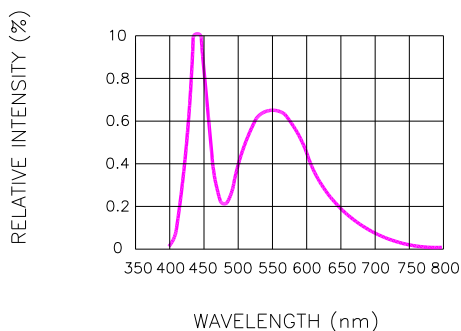


Fig.4 RELATIVE INTENSITY VS. WAVELENGTH

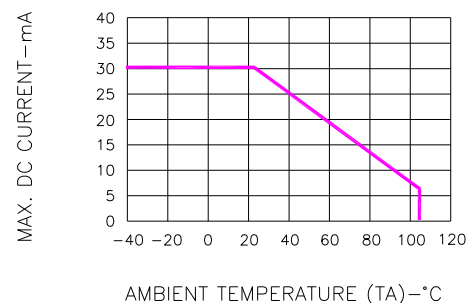


Fig.7 MAX. ALLOWABLE DC CURRENT
VS. AMBIENT TEMPERATURE

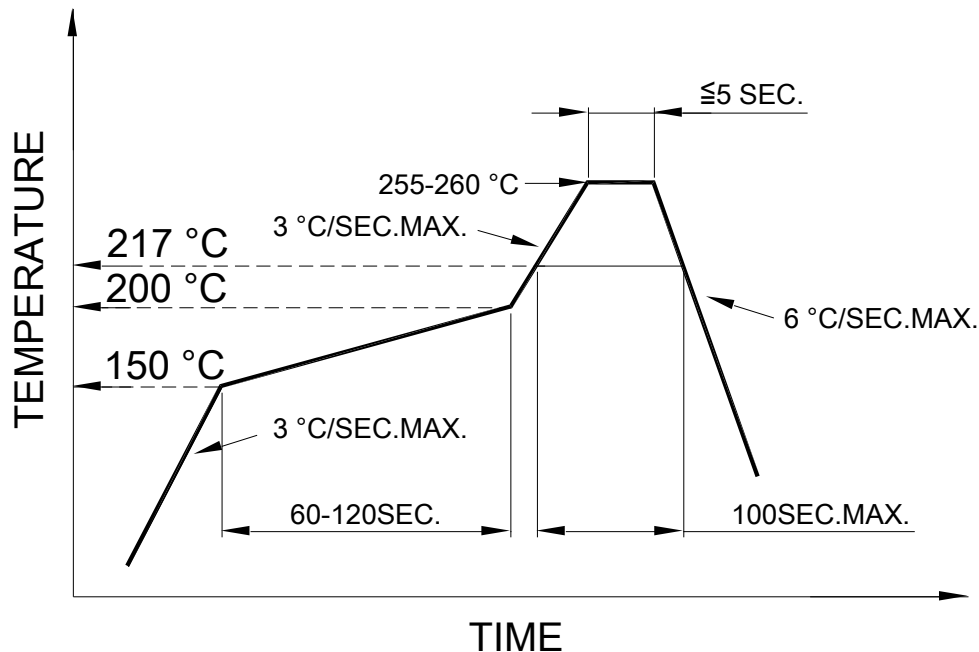


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● **RECOMMEND SOLDERING PROFILE**

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.