



American Opto Plus LED Corp.

0.27" Tri Color Quad Digit with Icon Display

SMA-V2512-3-GYE-BW

FEATURES

- 0.27 inch (6.80 mm) Digit Height.
- Semi-Epoxy type.
- Low current operation.
- Black face, White segment.
- RoHS compliant, Pb Free.

DESCRIPTION

This device is a 0.27 inch (6.80 mm) height digit with icon

For custom displays

This device utilizes Super Bright Yellow Green, Super Bright Yellow & Super Bright Red LED chip which are made from AlGaInP on a transparent GaAs, substrate

The display has Black face, White segment.

DEVICE

COLOR	DESCRIPTION
Super Bright Yellow Green & Super Bright Yellow & Super Bright Red	Common Anode

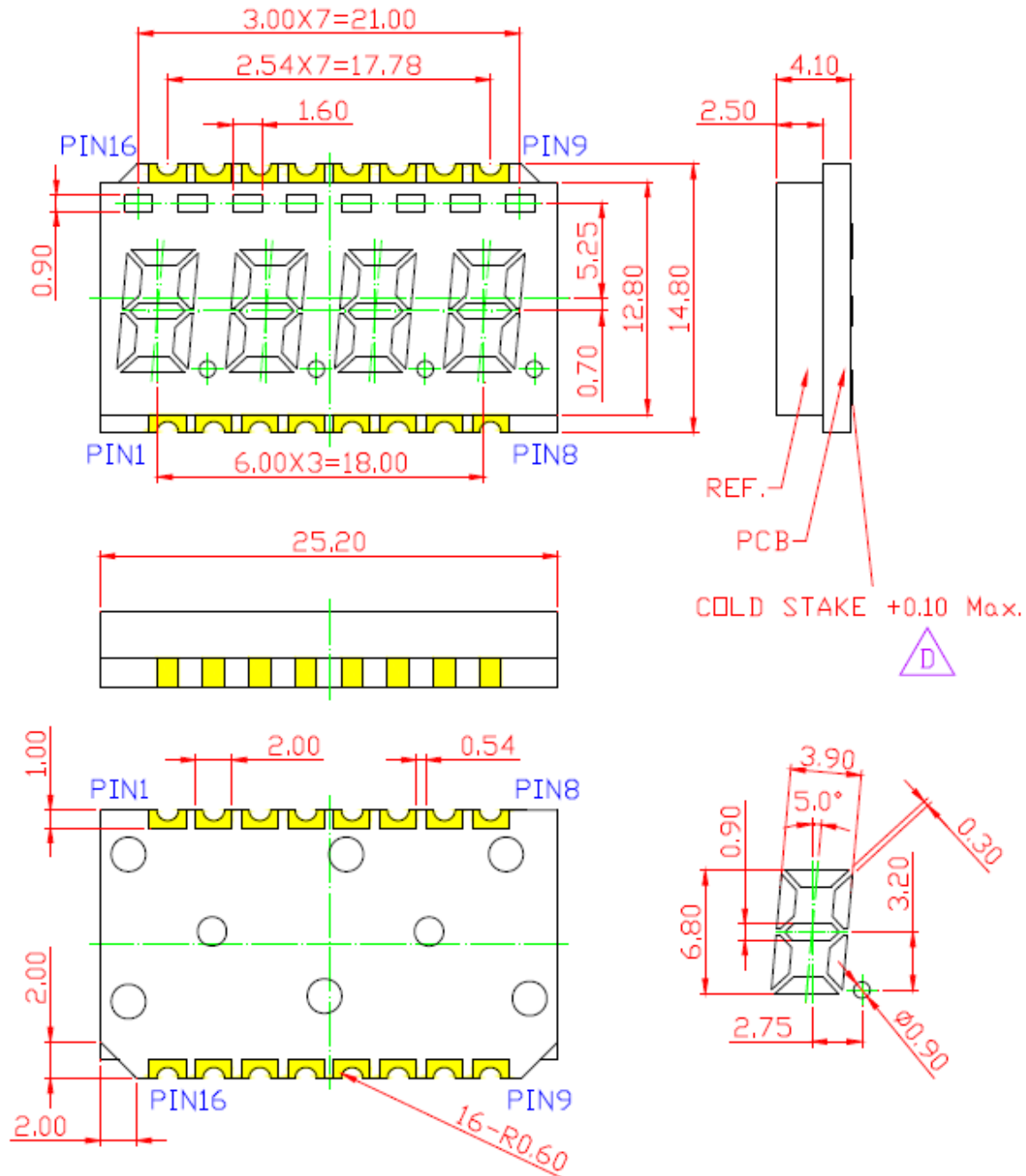


American Opto Plus LED Corp.

0.27" Tri Color Quad Digit with Icon Display

SMA-V2512-3-GYE-BW

MECHANICAL DIMENSIONS



Notes:

1. All dimensions are in millimeters (inches); tolerances are ± 0.25 mm (0.01") specified

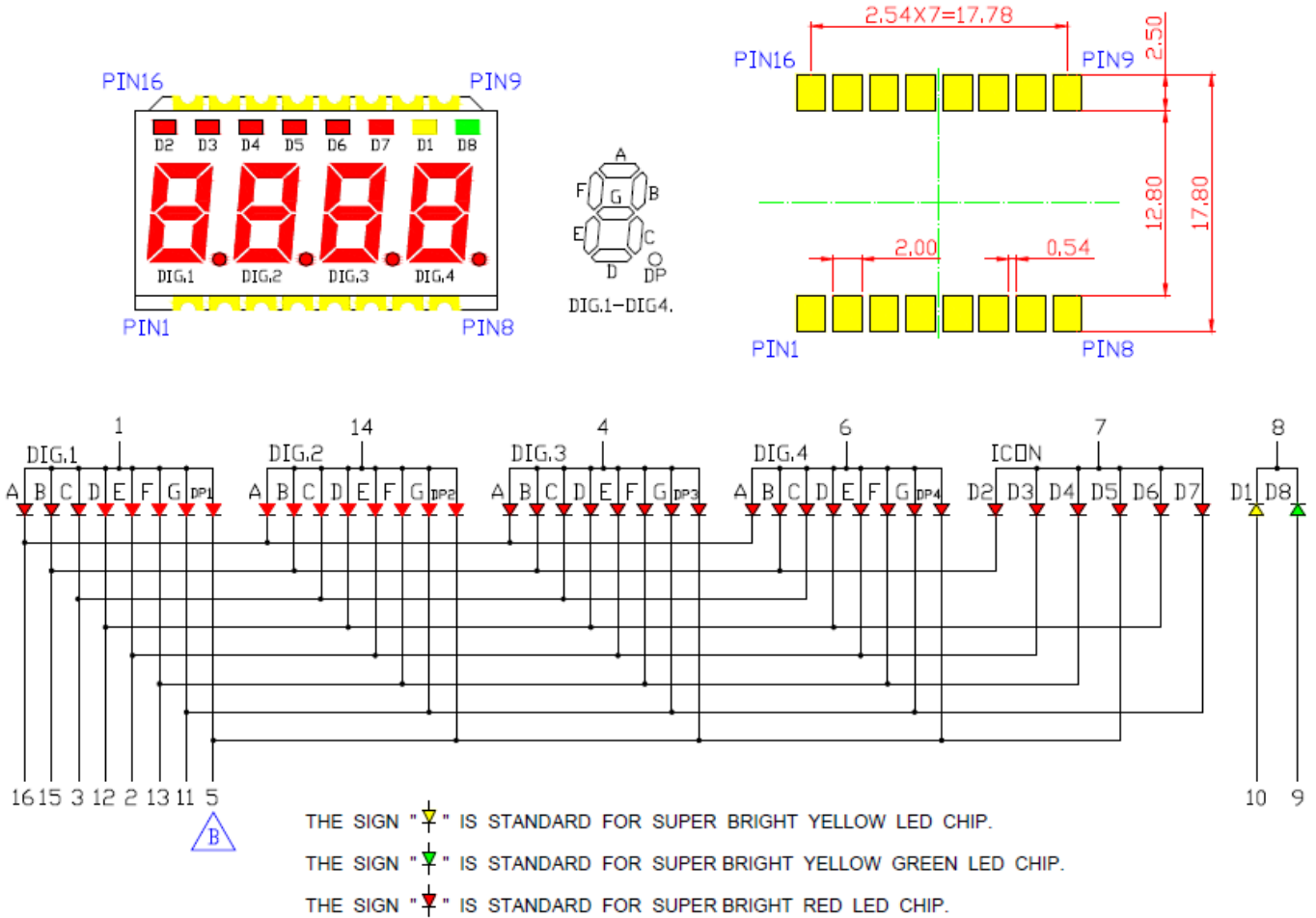


American Opto Plus LED Corp.

0.27" Tri Color Quad Digit with Icon Display

SMA-V2512-3-GYE-BW

TYPICAL INTERNAL EQUIVALENT CIRCUIT





American Opto Plus LED Corp.
0.27" Tri Color Quad Digit with Icon Display
SMA-V2512-3-GYE-BW

YG: SUPER BRIGHT YELLOW GREEN (AlGaInP/GaAs)

ABOSOLUTE MAXIMUM RATING AT Ta=25°C

	Symbol	Maximum Rating	Unit
Power dissipation	P _{AD}	70	mW
Derating liner from 25°C	-	0.28	mA / °C
Continuous forward current	I _{AF}	25	mA
Peak current (duty cycle 1/10, 1kHz)	I _{PF}	90	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

	Symbol	Condition	Min.	Type.	Max.	Unit
Forward voltage (Per Dice)	V _F	I _F = 20mA	-	2.1	2.6	V
Peak wavelength	λ _P		-	573	-	nm
Dominant wavelength	λ _D		-	571	-	nm
Luminous intensity	I _V		-	7	-	mcd
Spectral radiation bandwidth	Δλ		-	20	-	nm
Reverse current (Per Dice)	I _R	V _R = 5V	-	-	10	μA



American Opto Plus LED Corp.
0.27" Tri Color Quad Digit with Icon Display
SMA-V2512-3-GYE-BW

LY: SUPER BRIGHT YELLOW (AlGaInP/GaAs)

ABOSULTE MAXIMUM RATING AT Ta=25°C

	Symbol	Maximum Rating	Unit
Power dissipation	P _{AD}	70	mW
Derating liner from 25°C	-	0.28	mA / °C
Continuous forward current	I _{AF}	25	mA
Peak current (duty cycle 1/10, 1kHz)	I _{PF}	90	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

	Symbol	Condition	Min.	Type.	Max.	Unit
Forward voltage (Per Dice)	V _F	I _F =20mA	-	2.0	2.6	V
Peak wavelength	λ _P		-	593	-	nm
Dominant wavelength	λ _D		-	591	-	nm
Luminous intensity	I _V		-	10	-	mcd
Spectral radiation bandwidth	Δλ		-	20	-	nm
Reverse current (Per Dice)	I _R	V _R =5V	-	-	10	μA



American Opto Plus LED Corp.
0.27" Tri Color Quad Digit with Icon Display
SMA-V2512-3-GYE-BW

LE: SUPER BRIGHT RED (AlGaInP/GaAs)

ABSOLUTE MAXIMUM RATING AT Ta=25°C

	Symbol	Maximum Rating	Unit
Power dissipation	P_{AD}	70	mW
Derating liner from 25°C	-	0.28	mA / °C
Continuous forward current	I_{AF}	25	mA
Peak current (duty cycle 1/10, 1kHz)	I_{PF}	90	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

	Symbol	Condition	Min.	Type.	Max.	Unit
Forward voltage (Per Dice)	V_F	$I_F = 20mA$	-	2.0	2.6	V
Peak wavelength	λ_P		-	632	-	nm
Dominant wavelength	λ_D		-	624	-	nm
Luminous intensity	I_V		-	12	-	mcd
Spectral radiation bandwidth	$\Delta\lambda$		-	20	-	nm
Reverse current (Per Dice)	I_R	$V_R = 5V$	-	-	10	μA



American Opto Plus LED Corp.

0.27" Tri Color Quad Digit with Icon Display

SMA-V2512-3-GYE-BW

YG: SUPER BRIGHT YELLOW GREEN (AlGaInP/GaAs)

TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVE @ Ta=25°C

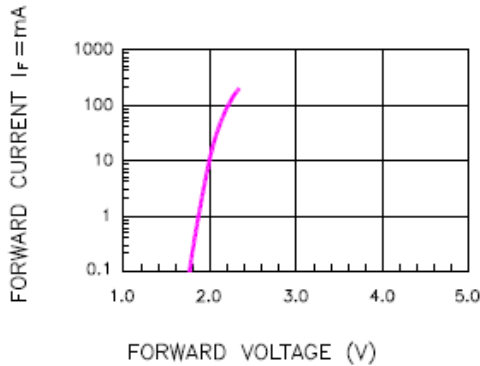


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

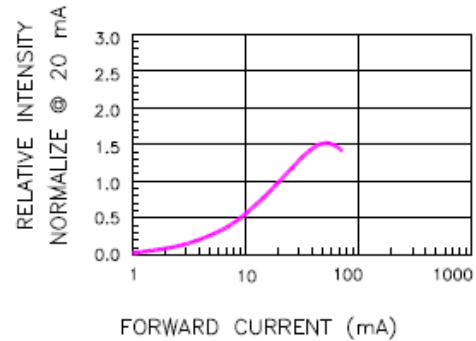


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

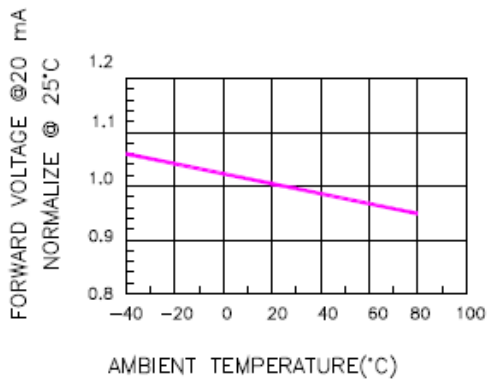


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

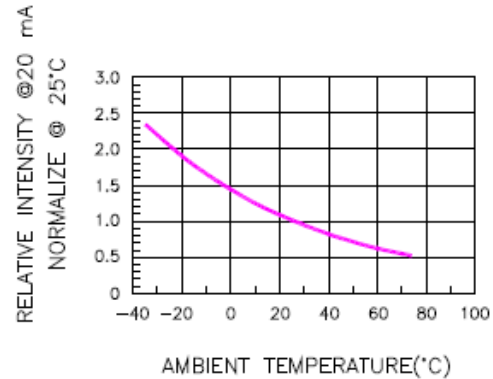


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

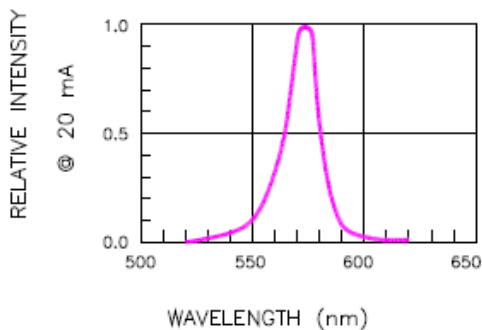


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

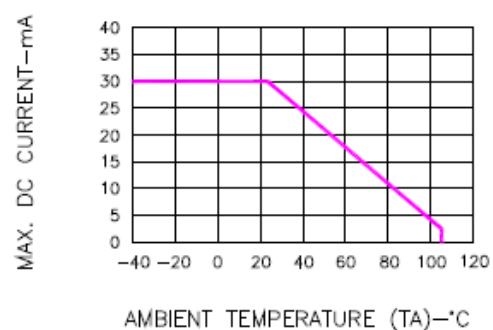


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



American Opto Plus LED Corp.

0.27" Tri Color Quad Digit with Icon Display

SMA-V2512-3-GYE-BW

LY: SUPER BRIGHT YELLOW (AlGaInP/GaAs)

TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVE @ Ta=25°C

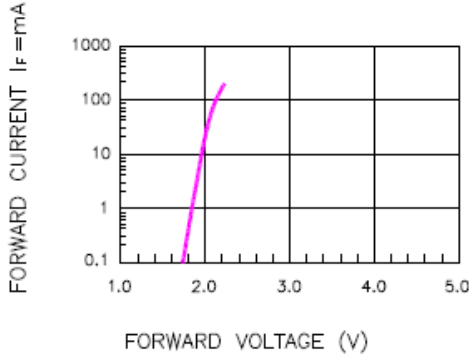


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

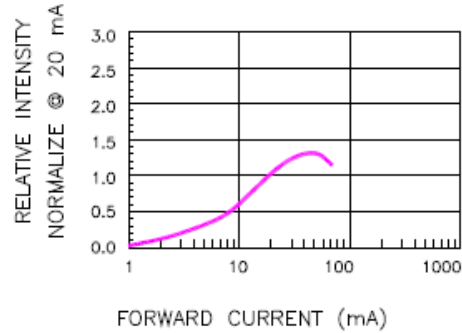


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

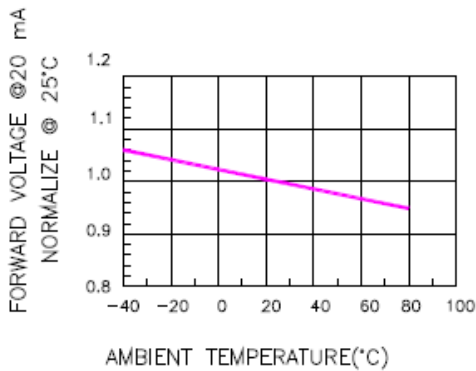


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

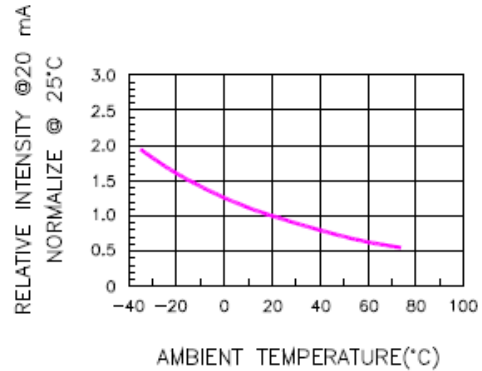


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

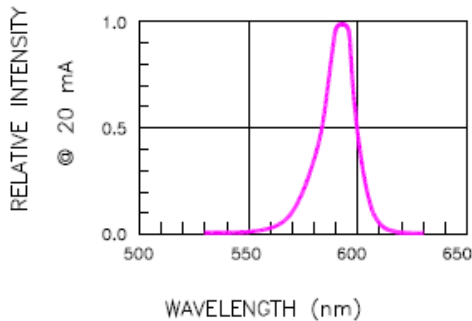


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

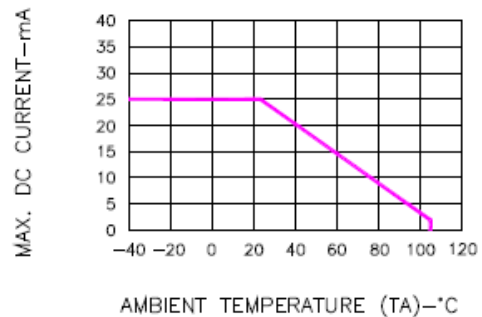


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



American Opto Plus LED Corp.

0.27" Tri Color Quad Digit with Icon Display

SMA-V2512-3-GYE-BW

LE: SUPER BRIGHT RED (AlGaInP/GaAs)

TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVE @ Ta=25°C

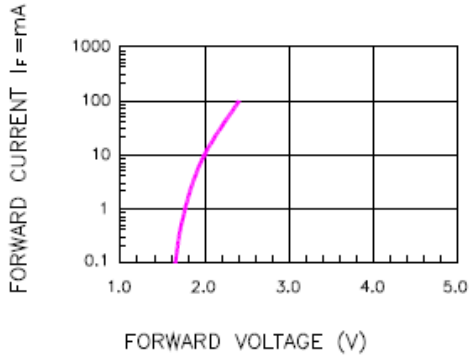


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

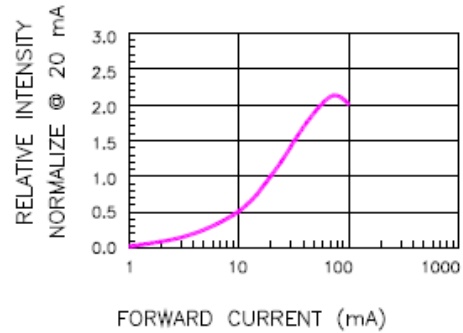


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

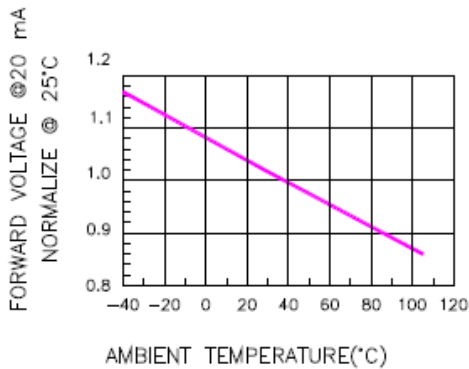


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

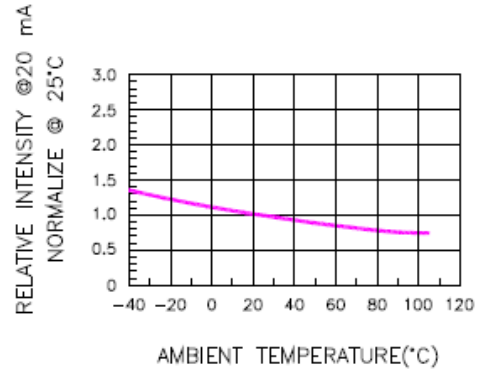


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

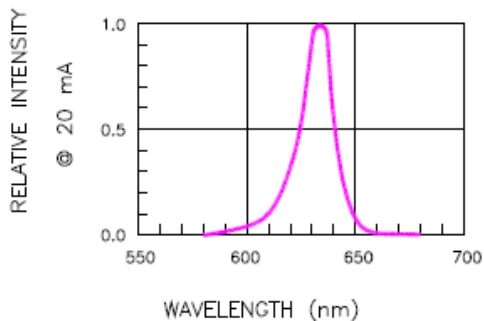


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

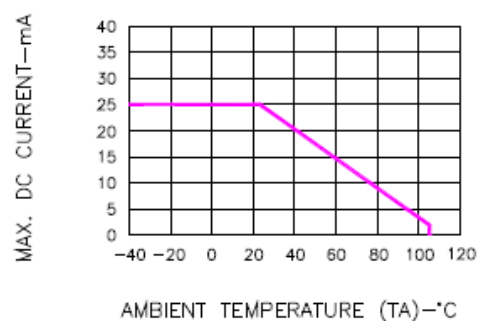


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE



American Opto Plus LED Corp.

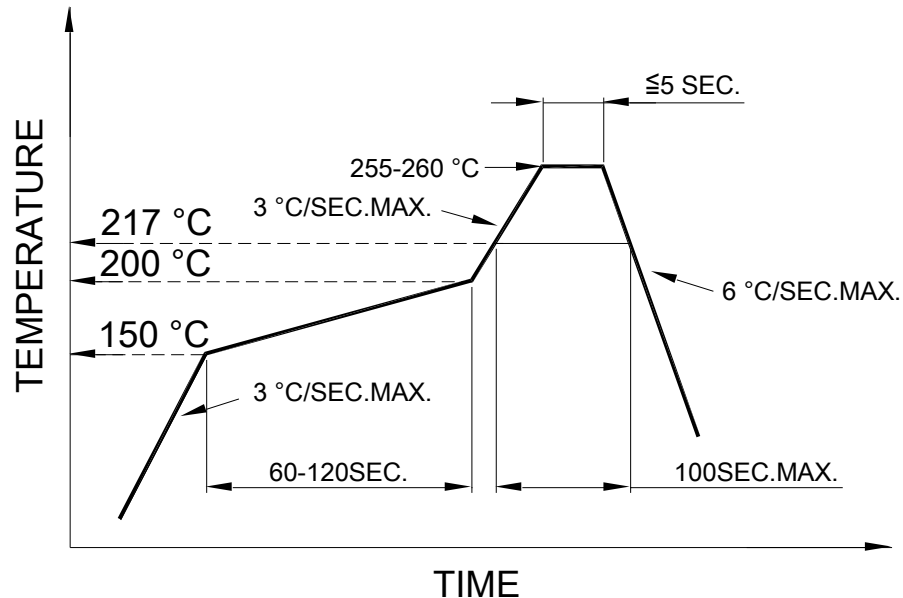
0.27" Tri Color Quad Digit with Icon Display

SMA-V2512-3-GYE-BW

RECOMMEND SOLDERING PROFILE

SMT Soldering Profile

Pb free reflow soldering Profile



Notes:

1. We recommend the reflow temperature 245°C ($\pm 5^\circ\text{C}$). The maximum soldering temperature should be limited to 260°C
2. Number of reflow process shall be 2 times or less
3. IR Reflow is allowed, and Vapor Phase Soldering or any soldering method are not recommend

SOLDERING IRON

Basic spec is ≤ 4 sec when 260°C. If temperature is higher, time should be shorter ($+10^\circ\text{C} \rightarrow 1$ 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

1. Customer must finish rework within 3 sec under 350°C
2. The head of soldering iron cannot touch copper foil

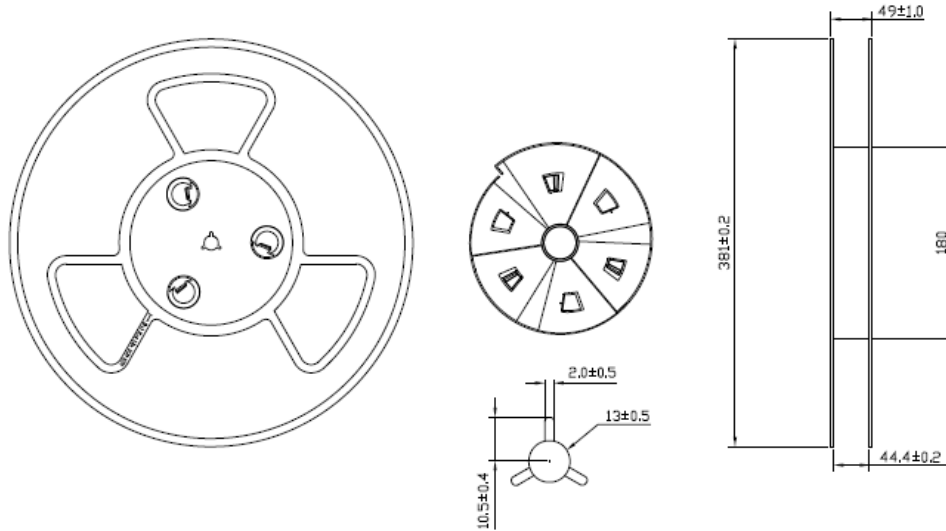


American Opto Plus LED Corp.

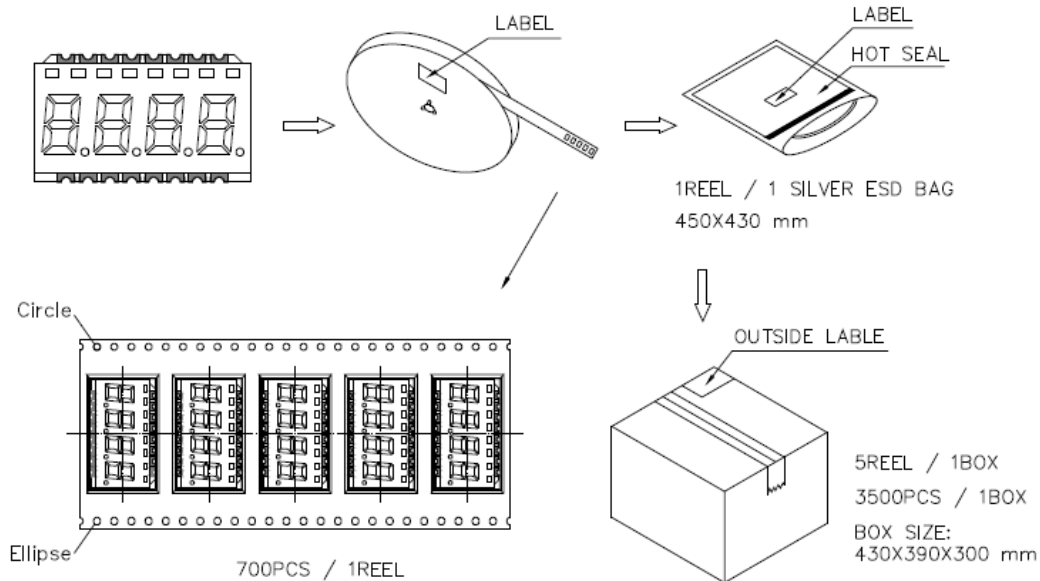
0.27" Tri Color Quad Digit with Icon Display

SMA-V2512-3-GYE-BW

REEL DIMENSIONS



PACKING & LABEL SPECIFICATIONS



STORAGED CONDITION

In factory original sealed bag package

TEMPERATURE CONDITION	HUMIDITY CONDITION
5°C ~ 30°C	Below 60%RH

After opened and not in factory original sealed bag package

TEMPERATURE CONDITION	HUMIDITY CONDITION	STORAGE TIME
5°C ~ 30°C	Below 60%RH	Within 4 weeks (MSL as level 2a)