

PRODUCT CHANGE NOTIFICATION PCN No: PCN-1039

Issue Date: 6/14/2024

Parts Affected	SMTL4-SBC	Old Rev.	A	New Rev.	С
	SMTL4-SBC-RY		A		В
	SMTL4-SBC-YG		A		В
	SMTL4-SRGB		A		В

Change Will Affect:

LED optical, electrical and mechanical characteristics.

Description of Change:

Changes are reflected as shown in the tables below.

Part Number	SMTL4-SBC-RY			
Revision	Rev A	Rev B		
LED Thickness	1.95mm	1.85mm		
LED Terminals Width	2.4mm	2.3mm		
Storage Temperature	- 40 - +100°C	- 40 - +85°C		
ESD	2000	N/A		

These changes have been reviewed and approved by Bivar management per Bivar Procedure: Engineering Change Order and Part Change Notification, SOP-040, SOP-ENG-045

Please contact Bivar Inc. at www.bivar.com/contact or speak to a Bivar representative for any questions or support requirements within 30 days of issue date.



PRODUCT CHANGE NOTIFICATION PCN No: PCN-1039

Issue Date: 6/14/2024

Part Number	SMTL4-SRGB			
Revision	Rev A	Rev B		
LED Terminals Width	2.4mm	2.3mm		
Storage Temperature	- 40 - +100°C	- 40 - +85°C		
Power Dissipation	Red, Green: 78mW Blue: 80mW	Red: 78mW Green, Blue: 100mW		
Continuous Forward Current	Red, Green: 30mA Blue: 25mA	Red: 30mA Green, Blue: 25mA		
Forward Voltage Typ/Max	Red: 1.9V, 2.6V Green: 3.3V, 4.5V Red: 3.3V, 4.3V	Red: 1.9V, 2.4V Green: 3.0V, 3.5V Red: 3.0V, 3.5V		
Dominant Wavelength (nm)	Red: 625	Red: 631		

These changes have been reviewed and approved by Bivar management per Bivar Procedure: Engineering Change Order and Part Change Notification, SOP-040, SOP-ENG-045

Please contact Bivar Inc. at www.bivar.com/contact or speak to a Bivar representative for any questions or support requirements within 30 days of issue date.



PRODUCT CHANGE NOTIFICATION PCN No: PCN-1039

Issue Date: 6/14/2024

Part Number	SMTL4-SBC		SMTL4-SBC-YG			
Revision	Rev A	Rev B	Rev A	Rev B		
LED Thickness	1.95mm	1.85mm	1.95mm	1.85mm		
LED Terminals Width	2.4mm	2.3mm	2.4mm	2.3mm		
Luminous Intensity Min/Typ/Max (mcd)	Red: 115/180/NA Green: 57/115/NA	Red: 115/180/225 Green: 45/72/90	Yellow: 115/180/NA Green: 57/115/NA	Yellow: 115/145/225 Green: 45/72/90		
	40000		10 10005	40.040		
Storage Temperature	- 40 - +100°C	- 40 - +85°C	- 40 - +100°C	- 40 - +85°C		

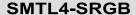
Effective Date of Change: June 14, 2024

Reason for Change: New chips are being used due to chip obsolescence.

These changes have been reviewed and approved by Bivar management per Bivar Procedure: Engineering Change Order and Part Change Notification, SOP-040, SOP-ENG-045

Please contact Bivar Inc. at www.bivar.com/contact or speak to a Bivar representative for any questions or support requirements within 30 days of issue date.





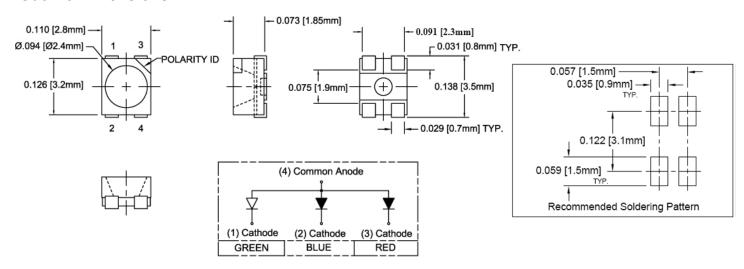
- Industry Standard PLCC4 Footprint
- ♦ 3 Super Bright Chips in One Low Profile Package
- High Luminous Intensity
- Wide Viewing Angle
- High Power Efficiency



Bivar SMTL4 Super Bright Tri-Color LED combines three chips in a single package and is offered in an industry standard PLCC4 footprint. The SMTL4 LED has a water clear lens for high luminous intensity and wide viewing angle making them ideal for outdoor illumination applications where higher ambient lighting conditions exist. The flexible three chip design allows for a wide variety of lighting options where the chips can be individually driven or mixed to create different color combinations. The robust package is ideal for harsh working environments and can be clustered in LED arrays for high luminous applications. Low power consumption and excellent long life reliability are suitable for battery powered equipment. Bivar SMTL4 LED is packaged in standard tape and reels for pick and place assemblies.

Part Number	Material	Emitted Color	Luminous Intensity Typ. mcd	Lens Color	Viewing Angle	
	AlGaInP	Red	180			
SMTL4-SRGB	InGaN	Green	1450	Water Clear	120°	
	InGaN	Blue	285			

Outline Dimensions



Outline Drawings Notes:
1. All dimensions are in inches [millimeters].

Standard tolerance: ±0.010" unless otherwise noted









Absolute Maximum Ratings

 $T_A = 25$ °C unless otherwise noted

Power Dissipation	Red - 78 mW Green, Blue - 100 mW
Continuous Forward Current	Red - 30 mA Green, Blue - 25 mA
Peak Forward Current ¹	100 mA
Reverse Voltage	5 V
Electrostatic Discharge Classification (HBM)	2000 V
Derating Linear From 25°C	0.4 mA/°C
Operating Temperature Range	-40 ~ +85°C
Storage Temperature Range	-40 ~ +85°C
Soldering Temperature ²	260°C

Notes: 1. 10% Duty Cycle, Pulse Width ≤ 0.1 msec.

2. Solder time less than 5 seconds at temperature extreme.

Handling: Reflow soldering must not be performed more than twice. Hand soldering must not be performed more than once.

Sensitive to static electricity or surge voltage. Proper handling required to avoid ESD damage and impair LED reliability.

Electrical Characteristics

 $T_A = 25$ °C & $I_F = 20$ mA unless otherwise noted

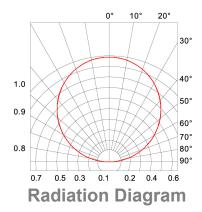
Emitting Color	_	ward ge (V) ¹	Recommend Forward Current (mA)	Reverse Current (μA) V _R =5V	Dominant Wavelength (nm) ²	Lumi Intensity	nous y (mcd)³	Viewing Angle 2 Θ ½ (deg)
	TYP	MAX	TYP	MAX	TYP	MIN	TYP	TYP
Red	1.9	2.4	20	10	631	115	180	
Green	3.0	3.5	20	10	525	1050	1450	120
Blue	3.0	3.5	20	10	470	115	285	

Notes: 1. Tolerance of Forward Voltage: ±0.05V.
2. Tolerance of Dominant Wavelength: ±2.5nm.

3. Tolerance of Luminous Intensity: ±15%.

Directivity Radiation

T_A = 25°C unless otherwise noted





Typical Electrical / Optical Characteristics Curves

 $T_A = 25$ °C unless otherwise noted

Relative Spectrum Emission I $_{\rm rel}$ = f (I), T $_{\rm A}$ = 25°C , I $_{\rm F}$ = 20 mA V(I) = Standard eye response curve

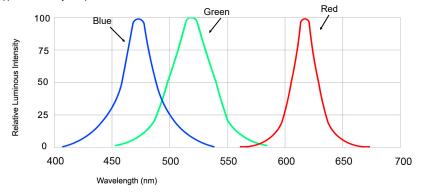


Fig.1 Relative Luminous Intensity vs. Wavelength

Relative Luminous Intensity I_V/I_V (20 mA) = f (I_F) T_A = 25°C

I_v (%)

Red, Green, Blue

Forward Current I_F (mA)

10

Fig.2 Relative Luminous Intensity vs. Forward Current

100

► I_F (mA)

Ambient Temperature vs. Allowable Forward Current

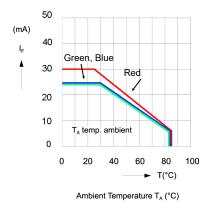
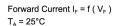
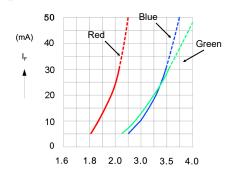


Fig.3 Forward Current vs. Ambient Temperature



1000

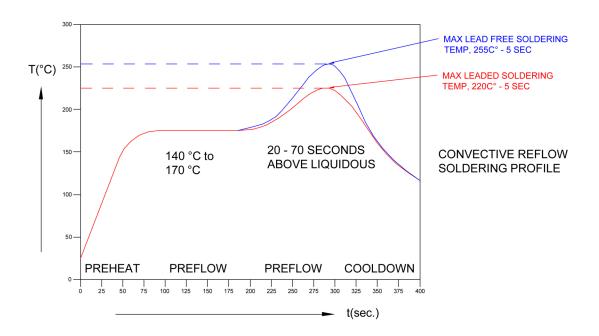


Forward Voltage (V)

Fig.4 Forward Current vs. Forward Voltage

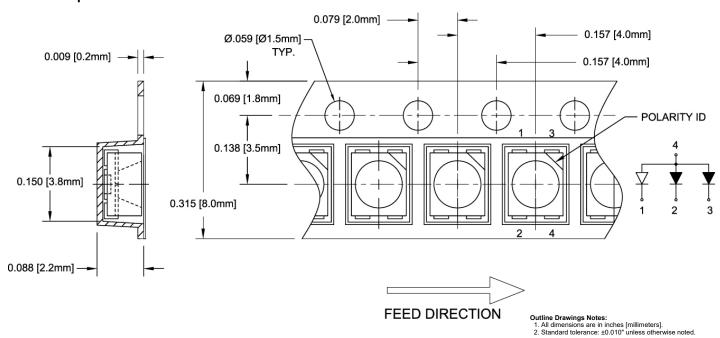


Recommended Soldering Conditions

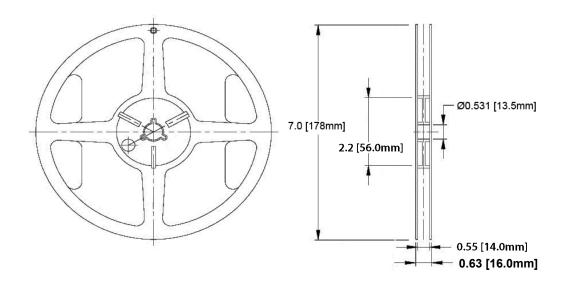


Tape and Reel Dimensions

Note: 2000 pcs/Reel







Outline Drawings Notes:

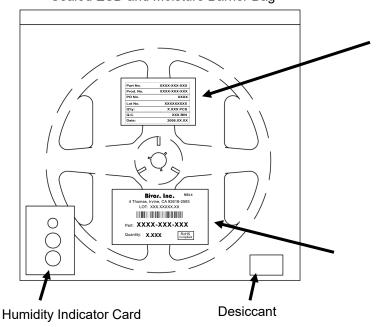
- 1. All dimensions are in inches [millimeters].
- 2. Standard tolerance unless otherwise noted: X.XXX ± 0.010"

X.X ± 0.1"

Packaging and Labeling Plan

Note: 1 Reel / Bag

Sealed ESD and Moisture Barrier Bag



Part No.	XXXX-XXX-XXX
Prod. No.	XXXX-XXX-XXX
PO No.	xxxx
Lot No.	XXXXXXXXX
Q'ty:	X.XXX PCS
Q.C.	XXX BIN
Date:	2008.XX.XX

Internal Quality Control Label

Bivar. Inc.

MSL4

4 Thomas, Irvine, CA 92618-2593 LOT: XXX.XXXXXXXX



Part: XXXX-XXX

Quantity: X.XXX

RoHS Compliant

Bivar Standard Packaging Label



REVISION HISTORY							
Rev	Rev Description Date Approved						
Α	Engineering Release	02/26/16	Jeffrey Chiang				
В	Updated Dimensions and Properties	05/23/24	Ricardo Pereyra				



SMTL4-SBC

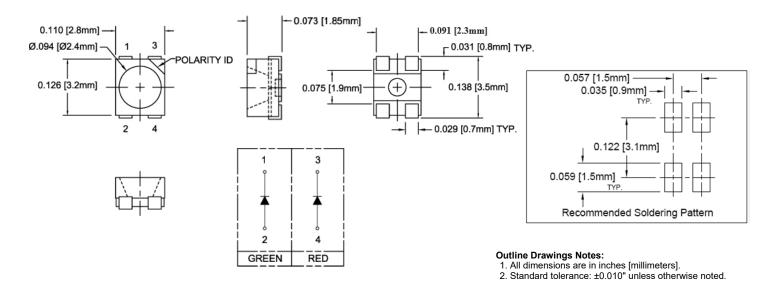
- ♦ Industry Standard PLCC4 Footprint
- ◆ 2 Super Bright Chips in One Low Profile Package
- High Luminous Intensity
- Wide Viewing Angle
- High Power Efficiency



Bivar SMTL4 Super Bright Bi-Color LED combines two chips in a single package and is offered in an industry standard PLCC4 footprint. The SMTL4 LED has a water clear lens for high luminous intensity and wide viewing angle making them ideal for outdoor illumination applications where higher ambient lighting conditions exist. The robust package is ideal for harsh working environments and can be clustered in LED arrays for maximum illumination. Low power consumption and excellent long life reliability are suitable for battery powered equipment. Bivar SMTL4 LED is packaged in standard tape and reels for pick and place assemblies.

Part Number	Material	Material Emitted Color Luminous Into		Lens Color	Viewing Angle
SMTL4 SDC	AlGalnP	Red	180	Water Clear	120°
SMTL4-SBC	AlGalnP	Green	72	vvalei Cleai	120

Outline Dimensions











Absolute Maximum Ratings

 $T_A = 25$ °C unless otherwise noted

Power Dissipation	72 mW
Continuous Forward Current	30 mA
Peak Forward Current ¹	100 mA
Reverse Voltage	5 V
Electrostatic Discharge Classification (HBM)	2000 V
Derating Linear From 25°C	0.4 mA/°C
Operating Temperature Range	-40 ~ +85°C
Storage Temperature Range	-40 ~ +85°C
Soldering Temperature ²	260°C

Notes: 1. 10% Duty Cycle, Pulse Width ≤ 0.1 msec.

2. Solder time less than 5 seconds at temperature extreme.

Handling: Reflow soldering must not be performed more than twice. Hand soldering must not be performed more than once.

Sensitive to static electricity or surge voltage. Proper handling required to avoid ESD damage and impair LED reliability.

Electrical Characteristics

 $T_A = 25$ °C & $I_F = 20$ mA unless otherwise noted

Emitting Color			1g Voltage (V) ¹ Forward Current (μA)	Dominant Wavelength (nm) ²	Luminous Intensity (mcd) ³		Viewing Angle 2 Θ ½ (deg)	
	TYP	MAX	TYP	MAX	TYP	MIN	TYP	TYP
Red	1.9	2.4	20	10	631	115	180	120
Green	1.9	2.4	20	10	574	45	72	120

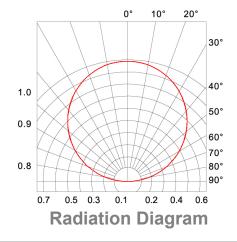
Notes: 1. Tolerance of Forward Voltage: ±0.05V.

2. Tolerance of Dominant Wavelength: ±2.5nm.

3. Tolerance of Luminous Intensity: ±15%.

Directivity Radiation

 $T_A = 25^{\circ}C$ unless otherwise noted





Typical Electrical / Optical Characteristics Curves

 $T_A = 25$ °C unless otherwise noted

Relative Spectrum Emission $I_{rel} = f(I)$, $T_A = 25$ °C , $I_F = 20$ mA V(I) = Standard eye response curve

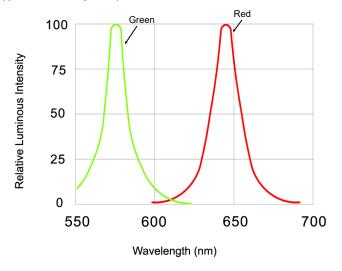


Fig.1 Relative Luminous Intensity vs. Wavelength

Forward Current $I_F = f (V_F)$ $T_A = 25$ °C

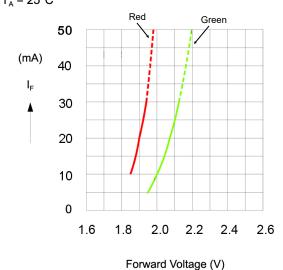


Fig.2 Forward Current vs. Forward Voltage

Relative Luminous Intensity I_V/I_V (20 mA) = f (I_F) $T_A = 25$ °C

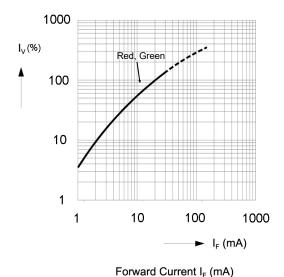
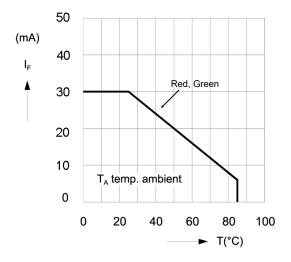


Fig.3 Relative Luminous Intensity vs. Forward Current

Ambient Temperature vs. Allowable Forward Current

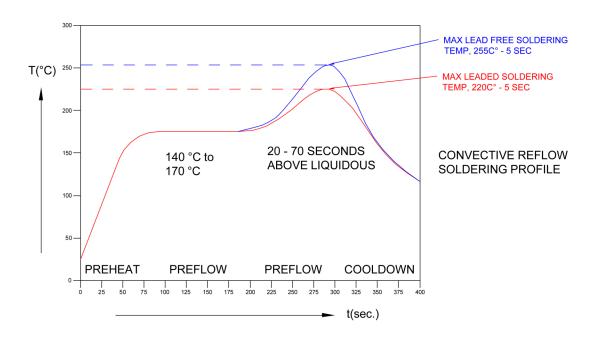


Ambient Temperature T_A (°C)

Fig.4 Forward Current vs. Ambient Temperature

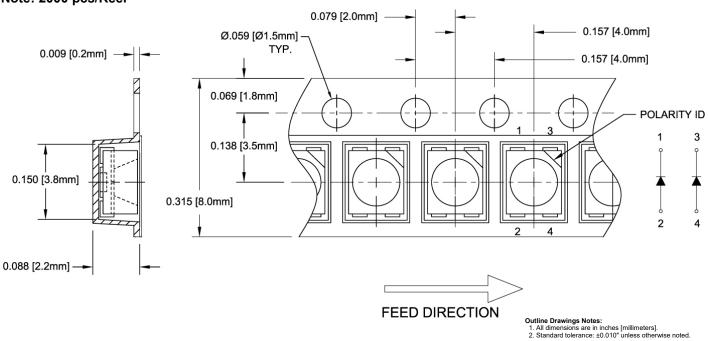


Recommended Soldering Conditions

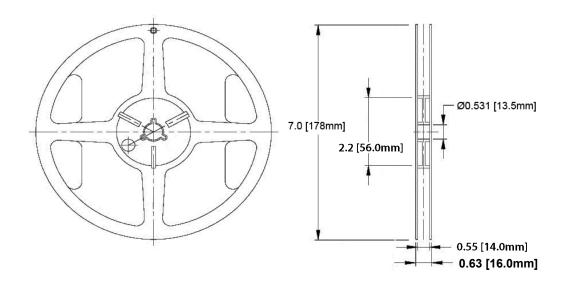


Tape and Reel Dimensions

Note: 2000 pcs/Reel







Outline Drawings Notes:

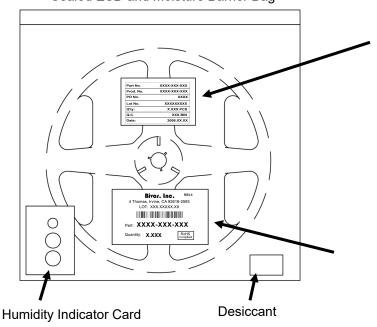
- 1. All dimensions are in inches [millimeters].
- 2. Standard tolerance unless otherwise noted: X.XXX ± 0.010"

X.X ± 0.1"

Packaging and Labeling Plan

Note: 1 Reel / Bag

Sealed ESD and Moisture Barrier Bag



Part No.	XXXX-XXX-XXX
Prod. No.	XXXX-XXX-XXX
PO No.	XXXX
Lot No.	XXXXXXXXX
Q'ty:	X.XXX PCS
Q.C.	XXX BIN
Date:	2008.XX.XX

Internal Quality Control Label

Bivar. Inc.

MSL4

4 Thomas, Irvine, CA 92618-2593 LOT: XXX.XXXXXXXX



Part: XXXX-XXX

Quantity: X.XXX

RoHS Compliant

Bivar Standard Packaging Label



	REVISION HISTORY							
Rev	Description	Date	Approved					
Α	Engineering Release	02/26/16	Jeffrey Chiang					
В	Updated Dimensions	04/22/24	Angelito Valdez					
С	Updated Dimensions and Properties	05/23/24	Ricardo Pereyra					





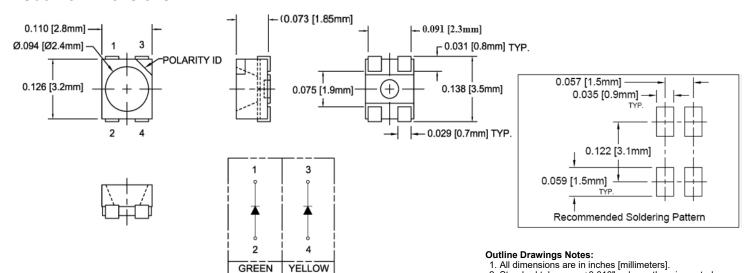
- Industry Standard PLCC4 Footprint
- ◆ 2 Super Bright Chips in One Low Profile Package
- High Luminous Intensity
- Wide Viewing Angle
- ♦ High Power Efficiency



Bivar SMTL4 Super Bright Bi-Color LED combines two chips in a single package and is offered in an industry standard PLCC4 footprint. The SMTL4 LED has a water clear lens for high luminous intensity and wide viewing angle making them ideal for outdoor illumination applications where higher ambient lighting conditions exist. The robust package is ideal for harsh working environments and can be clustered in LED arrays for maximum illumination. Low power consumption and excellent long life reliability are suitable for battery powered equipment. Bivar SMTL4 LED is packaged in standard tape and reels for pick and place assemblies.

Part Number	Material	Emitted Color	Luminous Intensity Typ. mcd	Lens Color	Viewing Angle
SMTL4-SBC-YG	AlGalnP	Yellow	145	Water Clear	120°
SW114-36C-1G	AlGalnP	Green	72	vvalei Cleai	120

Outline Dimensions





ATTENTION



2. Standard tolerance: ±0.010" unless otherwise noted.





Absolute Maximum Ratings

 $T_A = 25$ °C unless otherwise noted

Power Dissipation	72 mW
Continuous Forward Current	30 mA
Peak Forward Current ¹	100 mA
Reverse Voltage	5 V
Electrostatic Discharge Classification (HBM)	2000 V
Derating Linear From 25°C	0.4 mA/°C
Operating Temperature Range	-40 ~ +85°C
Storage Temperature Range	-40 ~ +85°C
Soldering Temperature ²	260°C

Notes: 1. 10% Duty Cycle, Pulse Width ≤ 0.1 msec.

2. Solder time less than 5 seconds at temperature extreme.

Handling: Reflow soldering must not be performed more than twice. Hand soldering must not be performed

more than once.

Sensitive to static electricity or surge voltage. Proper handling required to avoid ESD damage and impair LED reliability.

Electrical Characteristics

 $T_A = 25$ °C & $I_F = 20$ mA unless otherwise noted

Emitting Color			LAMMARA I CHERANT (IIA)	Dominant Wavelength (nm) ²	Luminous Intensity (mcd) ³		Viewing Angle 2 Θ ½ (deg)	
	TYP	MAX	TYP	MAX	TYP	MIN	TYP	TYP
Yellow	1.9	2.4	20	10	591	115	145	120
Green	1.9	2.4	20	10	574	45	72	120

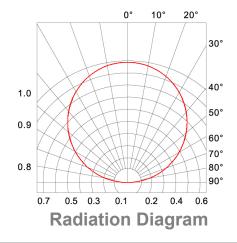
Notes: 1. Tolerance of Forward Voltage: ±0.05V.

2. Tolerance of Dominant Wavelength: ±2.5nm.

3. Tolerance of Luminous Intensity: ±15%.

Directivity Radiation

 $T_A = 25$ °C unless otherwise noted





Typical Electrical / Optical Characteristics Curves

 $T_A = 25$ °C unless otherwise noted

Relative Spectrum Emission $I_{rel} = f(I)$, $T_A = 25^{\circ}C$, $I_F = 20$ mA V(I) = Standard eye response curve

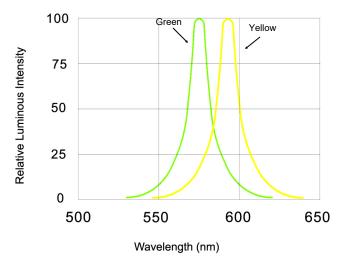


Fig.1 Relative Luminous Intensity vs. Wavelength

Forward Current $I_F = f(V_F)$ $T_A = 25$ °C

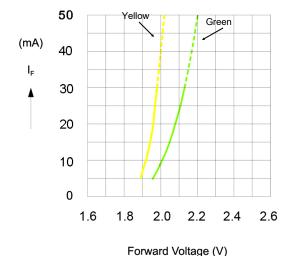


Fig.2 Forward Current vs. Forward Voltage

Relative Luminous Intensity I_v/I_v (20 mA) = f (I_F) $T_A = 25$ °C

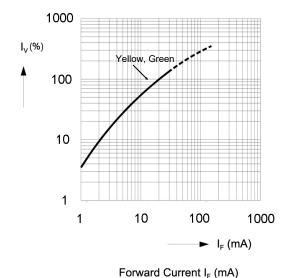
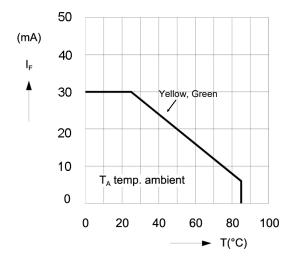


Fig.3 Relative Luminous Intensity vs. Forward Current

Ambient Temperature vs. Allowable Forward Current

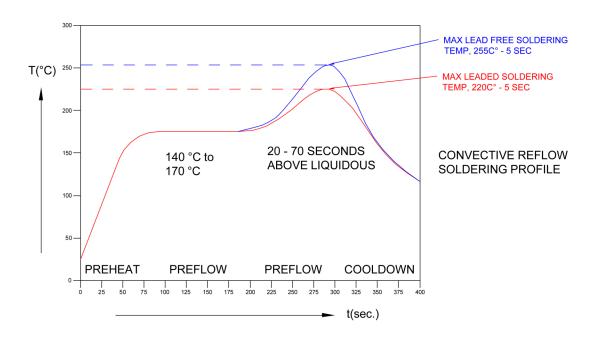


Ambient Temperature T_A (°C)

Fig.4 Forward Current vs. Ambient Temperature

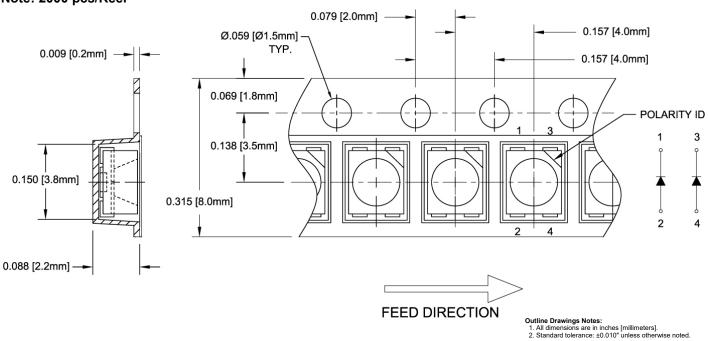


Recommended Soldering Conditions

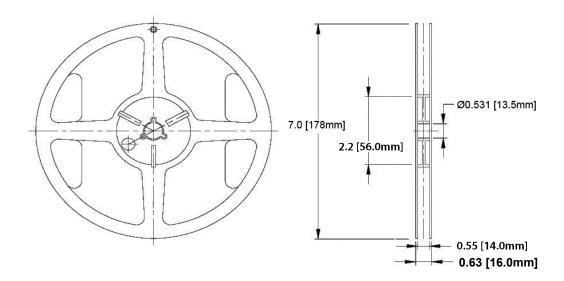


Tape and Reel Dimensions

Note: 2000 pcs/Reel







Outline Drawings Notes:

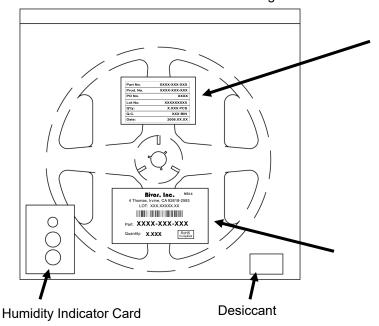
- 1. All dimensions are in inches [millimeters].
- 2. Standard tolerance unless otherwise noted: X.XXX ± 0.010"

X.X ± 0.1"

Packaging and Labeling Plan

Note: 1 Reel / Bag

Sealed ESD and Moisture Barrier Bag



Part No.	XXXX-XXX-XXX
Prod. No.	XXXX-XXX-XXX
PO No.	xxxx
Lot No.	XXXXXXXX
Q'ty:	X.XXX PCS
Q.C.	XXX BIN
Date:	2008.XX.XX

Internal Quality Control Label

Bivar. Inc.

MSL4

4 Thomas, Irvine, CA 92618-2593 LOT: XXX.XXXXXXXX



Part: XXXX-XXX

Quantity: X.XXX

RoHS Compliant

Bivar Standard Packaging Label



REVISION HISTORY						
Rev	Description	Date	Approved			
Α	Engineering Release	02/26/16	Jeffrey Chiang			
В	Updated Dimensions and Properties	05/24/24	Ricardo Pereyra			



SMTL4-SBC-RY

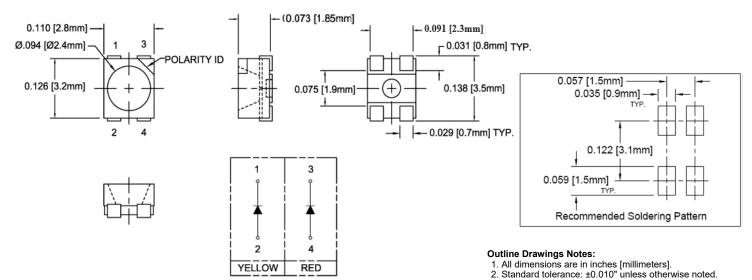
- Industry Standard PLCC4 Footprint
- ◆ 2 Super Bright Chips in One Low Profile Package
- High Luminous Intensity
- Wide Viewing Angle
- High Power Efficiency



Bivar SMTL4 Super Bright Bi-Color LED combines two chips in a single package and is offered in an industry standard PLCC4 footprint. The SMTL4 LED has a water clear lens for high luminous intensity and wide viewing angle making them ideal for outdoor illumination applications where higher ambient lighting conditions exist. The robust package is ideal for harsh working environments and can be clustered in LED arrays for maximum illumination. Low power consumption and excellent long life reliability are suitable for battery powered equipment. Bivar SMTL4 LED is packaged in standard tape and reels for pick and place assemblies.

Part Number	Material	Emitted Color	Luminous Intensity Typ. mcd	Lens Color	Viewing Angle
SMTL4-SBC-RY	AlGalnP	Red	180	Water Clear	120°
SWIL4-SBC-RT	AlGalnP	Yellow	180	vvater Clear	120

Outline Dimensions











Absolute Maximum Ratings

 $T_A = 25$ °C unless otherwise noted

Power Dissipation	72 mW
Continuous Forward Current	30 mA
Peak Forward Current ¹	100 mA
Reverse Voltage	5 V
Derating Linear From 25°C	0.4 mA/°C
Operating Temperature Range	-40 ~ +85°C
Storage Temperature Range	-40 ~ +85°C
Soldering Temperature ²	260°C

Notes: 1. 10% Duty Cycle, Pulse Width ≤ 0.1 msec.

2. Solder time less than 5 seconds at temperature extreme.

Handling: Reflow soldering must not be performed more than twice. Hand soldering must not be performed more than once.

Sensitive to static electricity or surge voltage. Proper handling required to avoid ESD damage and impair LED reliability.

Electrical Characteristics

 $T_A = 25$ °C & $I_F = 20$ mA unless otherwise noted

Emitting Color			LOWNORD CHECKET IN	Dominant Wavelength (nm) ²	Luminous Intensity (mcd) ³		Viewing Angle 2 Θ ½ (deg)	
	TYP	MAX	TYP	MAX	TYP	MIN	TYP	TYP
Red	1.9	2.4	20	10	631	115	180	120
Yellow	1.9	2.4	20	10	591	115	180	120

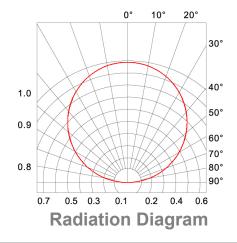
Notes: 1. Tolerance of Forward Voltage: ±0.05V.

2. Tolerance of Dominant Wavelength: ±2.5nm.

3. Tolerance of Luminous Intensity: ±15%.

Directivity Radiation

 $T_A = 25$ °C unless otherwise noted





Typical Electrical / Optical Characteristics Curves

 $T_A = 25$ °C unless otherwise noted

Relative Spectrum Emission $I_{rel} = f(I)$, $T_A = 25^{\circ}C$, $I_F = 20$ mA V(I) = Standard eye response curve

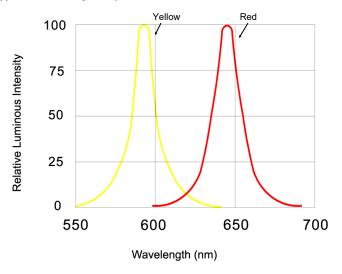


Fig.1 Relative Luminous Intensity vs. Wavelength

Forward Current $I_F = f(V_F)$ $T_A = 25$ °C

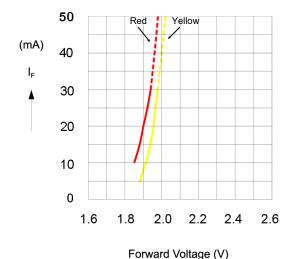


Fig.2 Forward Current vs. Forward Voltage

Relative Luminous Intensity I_V/I_V (20 mA) = f (I_F) $T_A = 25$ °C

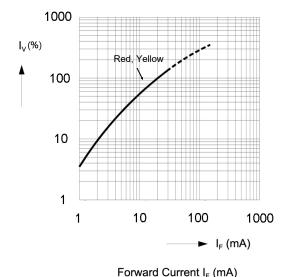
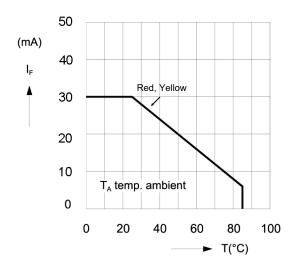


Fig.3 Relative Luminous Intensity vs. Forward Current

Ambient Temperature vs. Allowable Forward Current

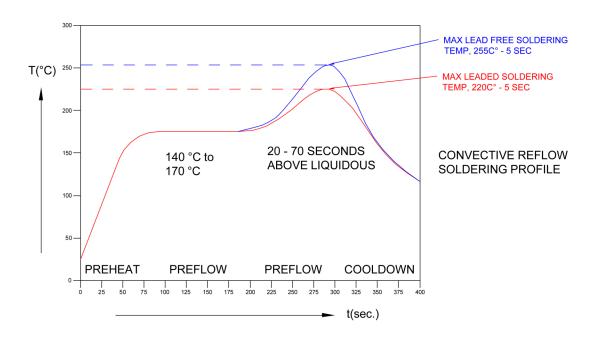


Ambient Temperature T_A (°C)

Fig.4 Forward Current vs. Ambient Temperature

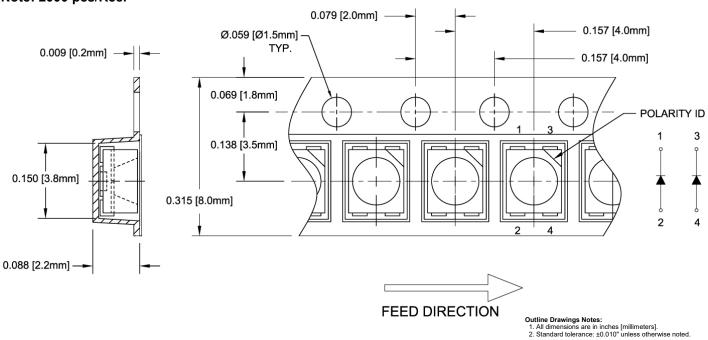


Recommended Soldering Conditions

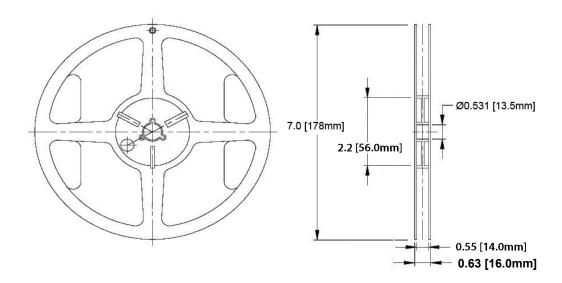


Tape and Reel Dimensions

Note: 2000 pcs/Reel







Outline Drawings Notes:

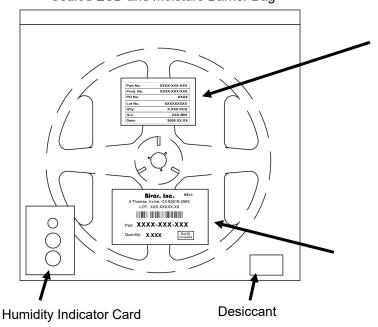
- 1. All dimensions are in inches [millimeters].
- 2. Standard tolerance unless otherwise noted: X.XXX ± 0.010"

X.X ± 0.1"

Packaging and Labeling Plan

Note: 1 Reel / Bag

Sealed ESD and Moisture Barrier Bag



Part No.	XXXX-XXX-XXX
Prod. No.	XXXX-XXX-XXX
PO No.	xxxx
Lot No.	XXXXXXXX
Q'ty:	X.XXX PCS
Q.C.	XXX BIN
Date:	2008.XX.XX

Internal Quality Control Label

Bivar. Inc.

MSL4

4 Thomas, Irvine, CA 92618-2593 LOT: XXX.XXXXXXXX



Part: XXXX-XXX

Quantity: X.XXX

RoHS Compliant

Bivar Standard Packaging Label



	REVISION HISTORY						
Rev	Description	Date	Approved				
Α	Engineering Release	02/26/16	Jeffrey Chiang				
В	Updated Dimensions and Properties	05/24/24	Ricardo Pereyra				