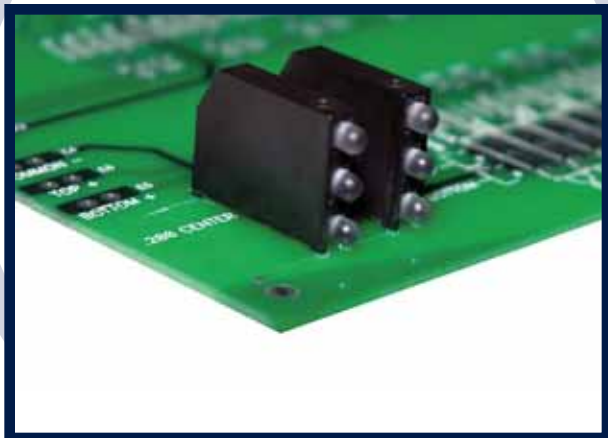




593 SERIES

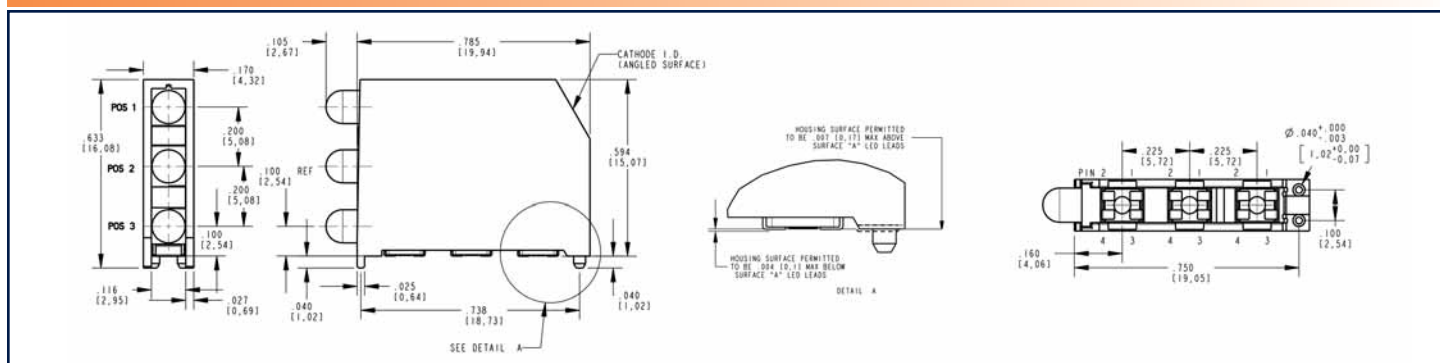
3mm Tri-level Prism® CBI® Surface Mount LED BI-COLOR



FEATURES / BENEFITS

- ▲ RoHS Compliant
- ▲ Incorporates latest LED technology, specifically designed for surface mounting
- ▲ Compatible with automatic placement equipment
- ▲ Compatible with surface mount reflow soldering processes
- ▲ Black housing enhances contrast ratio
- ▲ Housing material meet UL-94V-0 flammability ratings
- ▲ Patented Tri-level design provides increased indication without increased space
- ▲ Illumination areas compatible with industry standard 3mm through-hole Tri-level Circuit Board Indicators
- ▲ Packaged in moisture barrier bags for dry packaging per IPC/JEDEC J-STD-033, moisture sensitivity level 2
- ▲ Helps to eliminate mixed technology pc board processing

SPECIFICATIONS



PART NUMBER CODE*

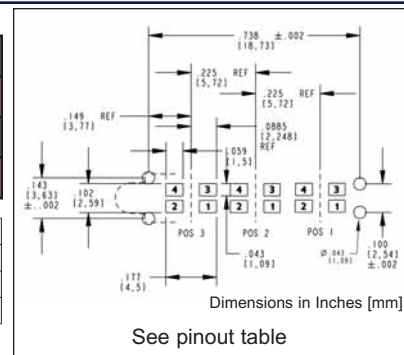
SERIES	Position 1	Package option
593	3X 3X 3X	0XX F
	Position 2	Position 3
	Color = 30) red / green, 31) yellow / green 32) red / yellow	
	Package Size Options -002 = 5 piece strip -013 = 13" reel dia.	

Note: Custom color combinations available upon request. Check with factory for details.

PART NUMBER COLOR COMBO

593-303030-0XXF	RED/GREEN-RED/GREEN-RED/GREEN
593-313131-0XXF	YELLOW/GREEN-YELLOW/GREEN-YELLOW/GREEN
593-323232-0XXF	RED/YELLOW-RED/YELLOW-RED/YELLOW

Pin1	Red Cathode	Pin1	Yellow Cathode
Pin2	Red Anode	Pin2	Yellow Anode
Pin3	Green Anode	Pin3	Green Anode
Pin4	Green Cathode	Pin4	Green Cathode
Pin1	Red Cathode		
Pin2	Red Anode		
Pin3	Yellow Anode		
Pin4	Yellow Cathode		



Dialight Corporation

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MDEF593B001_A





593 SERIES

3mm Tri-level Prism® CBI®

Surface Mount LED

BI-COLOR

ABSOLUTE MAXIMUM RATINGS (TA= 25°C)

PARAMETER	30	31	32
COLOR	Red / Green	Yellow / Green	Red / Yellow
POWER DISSIPATION (derate linearly from 55°C mA°C)	95mW 0.75	95mW 0.75	95mW 0.75
FORWARD DC CURRENT	30mA	30mA	30mA
PEAK FORWARD CURRENT (µsec)	0.5 amp	0.5 amp	0.5 amp
OPERATING TEMPERATURE	-40°C To +100°C	-40°C To +100°C	-40°C To +100°C
STORAGE TEMPERATURE	-40°C To +100°C	-40°C To +100°C	-40°C To +100°C
SOLDERING TEMPERATURES IR REFLOW FOR LEAD FREE SOLDERING, RoHS	260°C (+0°C / -5°C) For 30 Seconds		

OPERATING CHARACTERISTICS (TA= 25°C)

PARAMETER	PART NO.	COLOR	MIN	TYP	MAX	UNITS	TEST COND.
Forward Voltage VF	30	red / green		2/2	2.5/2.5	V	IF=10mA
	31	yellow / green		2/2	2.5/2.5		
	32	red / yellow		2/2	2.5/2.5		
Reverse Voltage VR	30	red / green	12/12			V	IF=10µA
	31	yellow / green	12/12				
	32	red / yellow	12/12				
Dominant Wavelength Dom	30	red / green		628/570		nm	
	31	yellow / green		540/570			
	32	red / yellow		628/590			
Luminous Intensity IV	30	red / green		7/10		mcd	IF=20mA
	31	yellow / green		6/10			
	32	red / yellow		9/6			
Viewing Angle (2θ 1/2)	30	red / green		40/40		deg.	
	31	yellow / green		40/40			
	32	red / yellow		40/40			

DIALIGHT RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME IN ORDER TO SUPPLY THE BEST PRODUCT POSSIBLE.



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MDEF593B001_A

The technical drawing consists of two parts. The top part is a side view of a carrier tape with dimensions in millimeters and inches in parentheses: .157 [4.0], .079 [2.0], .0591 + .0039 [1.5 + .10] - .0000, .069 [1.75], 1.032 [26.20], 2.205 ± .011 [56.0 ± 0.3], 2.063 [52.40], .787 [20.0], and 0.0591 + .0039 [1.5 + .10] - .0000. An arrow indicates the 'Direction of feed'. The bottom part is a detailed view of the aluminum barrier bag, showing the placement of three LEDs (TOP LED, MIDDLE LED, BOTTOM LED) and their color dots. It also shows the 'MOISTURE SENSITIVITY LEVEL LABEL' (Level 2), a 'CAUTION' label, a 'RoHS COMPLIANT' label, and a 'P/N LABEL (P/N PER "BOM")' with fields for 'PART NO.' and 'QTY.'.

ALUMINUM BARRIER BAG

POSITION 1
TOP LED
COLOR DOT

POSITION 2
MIDDLE LED
COLOR DOT

POSITION 3
BOTTOM LED
COLOR DOT

MOISTURE
SENSITIVITY
LEVEL LABEL

CAUTION
This bag contains
MOISTURE SENSITIVE
OPTO SEMICONDUCTORS

LEVEL 2

1. Shelf life in sealed bag: 24 months at <40°C and <90% relative humidity (RH).

2. After bag is opened, devices that will be subjected to infrared reflow, vapor-phase reflow, or equivalent processing must be:

a) Rinsed within 1 hour of factory conditions at 20-25°C/60% RH.

b) stored at < 30 ± RH.

3. Devices require baking, before mounting, if:

a) Humidity Indicator Card is = 300 when read at 23°C ± 5°C, or

b) 24 or 20 or 15 and met.

4. If baking is required, devices may be baked for 48 hours at 60°C ± 3°C and < 5% RH.

Seal date see bar code label

Date and time opened: _____

RoHS COMPLIANT

PART NO. QTY.

P/N LABEL (P/N PER "BOM")

RoHS COMPLIANT LABEL
SEE NOTE 6

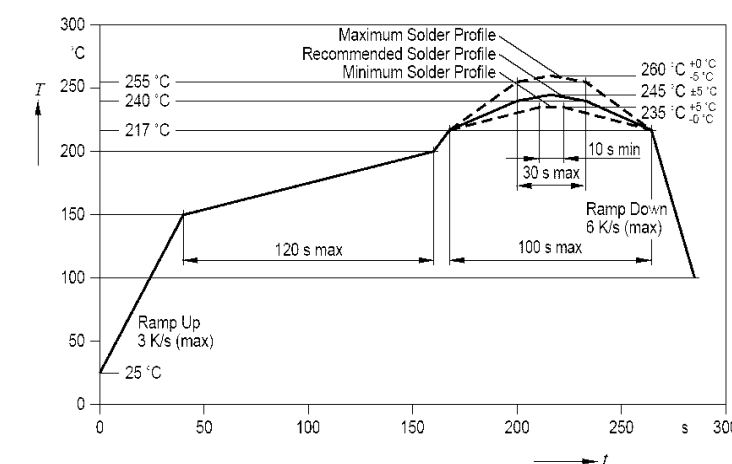
* 5 PCS. SAMPLE STRIP ON 56MM WIDE CARRIER TAPE
* STRIP PLACED IN ALUMINUM BARRIER BAG.
* LABEL TO INCLUDE P/N, QTY. PER BAG, MFG DATE, LED LOT NO., LED COLOR, LED BIN INTENSITY FOR BOTH LED'S

- 1- PRODUCT P/N WITH "F" SUFFIX ENDING IS RoHS COMPLIANT.
LED LEADS ARE PLATED TIN (Sn), NICKEL (Ni) UNDERPLATE
ON COPPER (Cu) LEADS.
- 2- STORAGE OF TAPED PARTS SHALL NOT EXCEED TWELVE (12)
MONTHS AFTER WHICH RE-PACKAGING IS REQUIRED.
- 3- FRONT AND REAR TERMINALS (OF EACH LED) OF THE
ASSEMBLY TO BE WITHIN .005 COPLANARITY.
- 4- MOISTURE SENSITIVITY LEVEL
A LABEL WILL BE PLACED ON THE BAG -
CHECK CHART FOR PROPER LEVEL
- 5- *** CAUTION ***
FOR PRODUCTS THAT ARE ESD SENSITIVE OBSERVE
PRECAUTIONS IN HANDLING ELECTROSTATIC SENSITIVE
DEVICES. FOR EYE SAFETY DO NOT STARE DIRECTLY INTO
THE LIGHT BEAM OF THESE LED DEVICES AT CLOSE RANGE.
- 6- THIS PRODUCT IS RoHS COMPLIANT. EACH BAG IS MARKED
WITH RoHS COMPLIANT LABEL (P/N PER BOM) OR
EQUIVALENT MARKINGS. LED MUST BE Pb FREE (RoHS COMPLIANT).
- 7- DIALIGHT PART NUMBERS:
593-XXXXXX-002F-1 PC PACKED IN A SAMPLE STRIP OF (5 PCS/STRIP)
593-XXXXXX-013F-1 PC PACKED IN A FULL 13" REEL (150 PCS/REEL)

ATTENTION:
OBSERVE PRECAUTIONS FOR
HANDLING ELECTROSTATIC
SENSITIVE DEVICES

The diagram shows a circular vacuum sealed bag containing several components. Three positions are marked for LED color dots: Position 1 (Top LED Color Dot), Position 2 (Middle LED Color Dot), and Position 3 (Bottom LED Color Dot). The bag also contains a carrier tape, a reel labeled 'REEL 13"', and a label. The label includes the following information:

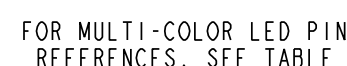
- * 13" REEL PER EIA STANDARD 481-2 ON 56MM WIDE CARRIER TAPE
- * QUANTITY = 150 Pcs/REEL IN VACUUM SEALED BAG
- * LABEL AND COLOR DOTS ON REEL AND ON BAG
- * LABEL TO INCLUDE P/N, QTY. PER BAG, MFG DATE
- * LED LOT No, LED COLOR, LED BIN INTENSITY FOR ALL LED'S
- * CORNER OF LABEL ON REEL INDICATES MOISTURE SENSITIVITY LEVEL
- * ALUMINUM BARRIER BAG INCLUDES MSL LABEL



HOUSING SURFACE PERMITTED
TO BE .007 [0,17] MAX ABOVE
SURFACE "A" LED LEADS

HOUSING SURFACE PERMITTED
- TO BE .004 [0,1] MAX BELOW
SURFACE "A" LED LEADS

DETAIL A
SCALE 10.000

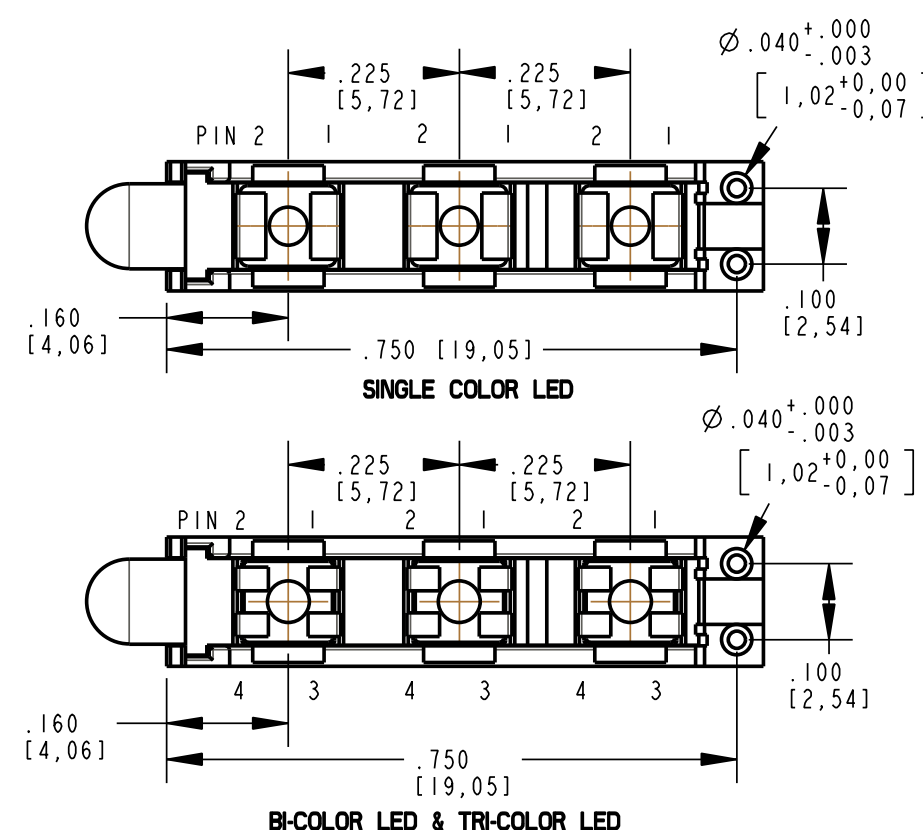
[illegible]

PIN 1 = CATHODE
PIN 2 = ANODE

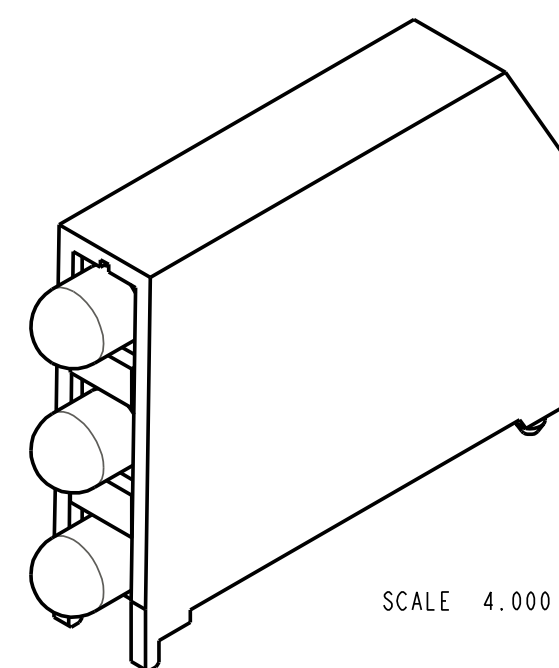
Technical drawing of a cathode lead (angled) showing dimensions and callouts. The drawing includes the following dimensions and features:

- Top horizontal dimension: .785 [19,94]
- Left vertical dimension: .105 [2,67]
- Left vertical dimension: .100 REF [2,54]
- Left vertical dimension: .040 [1,02]
- Bottom horizontal dimension: .025 [0,64]
- Bottom horizontal dimension: .738 [18,73]
- Right vertical dimension: .594 [15,07]
- Bottom right vertical dimension: .040 [1,02]
- Callout: CATHODE LEAD (ANGLED)
- Callout: SEE DETAIL A

SEE DETAIL A-



BI-COLOR LED & TRI-COLOR LED



SCALE 4 000

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SCALE: 1.000		DRAWING NUMBER		REV	
ALL DIM'S IN: INCHES (MM)		C-17270		B	
TOLERANCES: UNLESS OTHERWISE SPECIFIED		TITLE			
FRACTIONS: ±1/64		TRI-LEVEL PRISM			
DECIMALS (.XX): ±.01		MATERIAL			
DECIMALS (.XXX): ±.005		RoHS COMPLIANT			
DECIMALS (.XXXX): ±.0005		FINISH:			
ANGLES: ±1°		 1501 ROUTE 34 SOUTH FARMINGDALE, NJ 07727			
FSCM 833330		SHFFT 1 OF 2 FAMILY TARIF:			

						MULTI-COLOR LED PIN REFERENCES				LUMINOUS INTENSITY I _v (mcd) @ I _r = 20mA TYP.			DOMINANT WAVELENGTH λ (nm) TYP.			FORWARD VOLTAGE V _F TYP.		
PART NUMBER	POSITION 1	POSITION 2	POSITION 3	MOISTURE LEVEL	PAD LAYOUT REFERENCE	PIN 1	PIN 2	PIN 3	PIN 4	POS 1	POS 2	POS 3	POS 1	POS 2	POS 3	POS 1	POS 2	POS 3
593-202020-002F 593-202020-013F	RED	RED	RED	2	FIG. 1	NOT APPLICABLE				6	6	6	628	628	628	2.0	2.0	2.0
593-202024-002F 593-202024-013F	RED	RED	YELLOW	2	FIG. 2	NOT APPLICABLE				6	6	11	628	628	587	2.0	2.0	2.0
593-212121-002F 593-212121-013F	AlGaAs RED	AlGaAs RED	AlGaAs RED	2	FIG. 1	NOT APPLICABLE				29	29	29	645	645	645	1.75	1.75	1.75
593-212130-002F 593-212130-013F	AlGaAs RED	AlGaAs RED	SUPER RED GREEN	2	FIG. 1 & FIG. 2	RED CATHODE	RED ANODE	GREEN ANODE	GREEN CATHODE	29	29	7 10	645	645	628 570	1.75	1.75	2.0
593-222221-002F 593-222221-013F	GREEN	GREEN	AlGaAs RED	2	FIG. 1	NOT APPLICABLE				16	16	29	570	570	645	2.0	2.0	1.75
593-222222-002F 593-222222-013F	GREEN	GREEN	GREEN	2	FIG. 1	NOT APPLICABLE				16	16	16	570	570	570	2.0	2.0	2.0
593-232323-002F 593-232323-013F	GREEN	GREEN	GREEN	2	FIG. 1	NOT APPLICABLE				11	11	11	570	570	570	2.0	2.0	2.0
593-242424-002F 593-242424-013F	YELLOW	YELLOW	YELLOW	2	FIG. 1	NOT APPLICABLE				11	11	11	587	587	587	2.0	2.0	2.0
593-262626-002F 593-262626-013F	BLUE	BLUE	BLUE	2	FIG. 1	NOT APPLICABLE				7	7	7	465	465	465	3.5	3.5	3.5
593-272129-002F 593-272129-013F	AlInGaP YELLOW	AlGaAs RED	InGaN GREEN	2	FIG. 1	NOT APPLICABLE				80	29	TBD	587	645	525	2.0	1.75	3.7
593-272727-002F 593-272727-013F	AlInGaP YELLOW	AlInGaP YELLOW	AlInGaP YELLOW	2	FIG. 1	NOT APPLICABLE				80	80	80	587	587	587	2.0	2.0	2.0
593-282828-002F 593-282828-013F	WHITE	WHITE	WHITE	2	FIG. 1	NOT APPLICABLE				85	85	85	X=0.33 Y=0.33	X=0.33 Y=0.33	X=0.33 Y=0.33	3.5	3.5	3.5
593-292929-002F 593-292929-013F	InGaN GREEN	InGaN GREEN	InGaN GREEN	2	FIG. 1	NOT APPLICABLE				TBD	TBD	TBD	525	525	525	3.7	3.7	3.7
593-303030-002F 593-303030-013F	SUPER RED GREEN	SUPER RED GREEN	SUPER RED GREEN	2	FIG. 2	RED CATHODE	RED ANODE	GREEN ANODE	GREEN CATHODE	7 10	7 10	7 10	628 570	628 570	628 570	2.0	2.0	2.0
593-313131-002F 593-313131-013F	YELLOW GREEN	YELLOW GREEN	YELLOW GREEN	2	FIG. 2	YELLOW CATHODE	YELLOW ANODE	GREEN ANODE	GREEN CATHODE	6 10	6 10	6 10	590 570	590 570	590 570	2.0	2.0	2.0
593-323232-002F 593-323232-013F	SUPER-RED YELLOW	SUPER-RED YELLOW	SUPER-RED YELLOW	2	FIG. 2	RED CATHODE	RED ANODE	YELLOW ANODE	YELLOW CATHODE	9 6	9 6	9 6	628 590	628 590	628 590	2.0	2.0	2.0
593-353535-002F 593-353535-013F	BLUE GREEN RED	BLUE GREEN RED	BLUE GREEN RED	2	FIG. 2	RED CATHODE	COMMON ANODE	GREEN CATHODE	BLUE CATHODE	TBD	TBD	TBD	466 570 645	466 570 645	466 570 645	3.5 2.0 1.75	3.5 2.0 1.75	3.5 2.0 1.75

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SCALE: 3.000	DRAWING NUMBER	REV
ALL DIM'S IN: INCHES (MM)	C-17270	B
TOLERANCES: UNLESS OTHERWISE SPECIFIED	TITLE TRI-LEVEL PRISM	
FRACTIONS: ±1/64 DECIMALS (.XX): ±.01 DECIMALS (.XXX): ±.005 DECIMALS (.XXXX): ±.0005 ANGLES: ±1°	MATERIAL ROHS COMPLIANT	
FINISH: -	Dialight 1501 ROUTE 34 SOUTH FARMINGDALE, NJ 07727	
FSCM 83330	SHEET 2 OF 2	FAMILY TABLE: