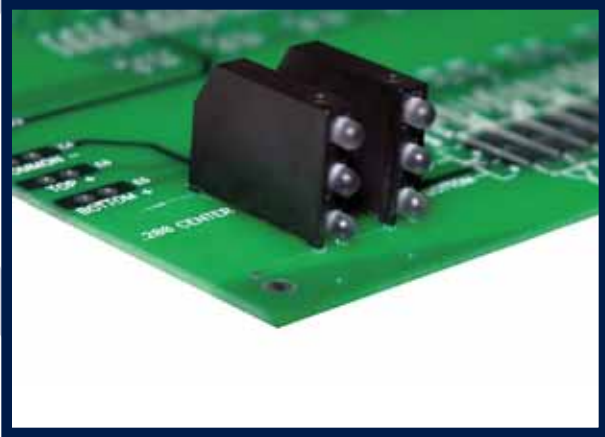




# 593 SERIES

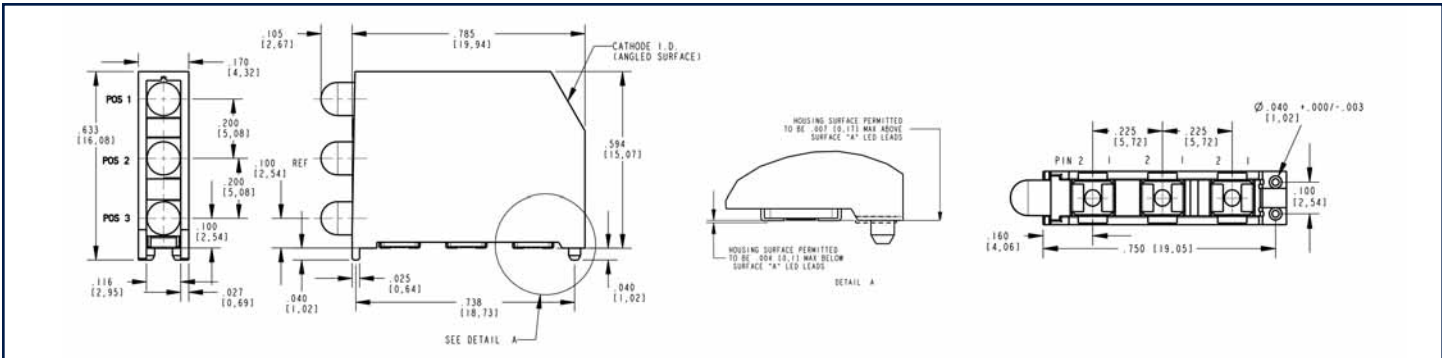
## 3mm Tri-level Prism® CBI® Surface Mount LED SINGLE COLOR



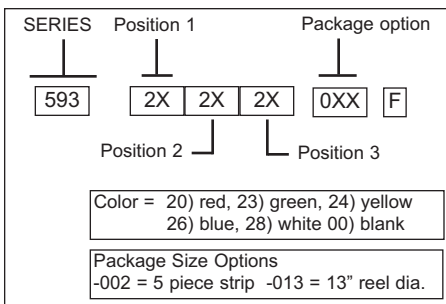
### FEATURES / BENEFITS

- ▲ 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

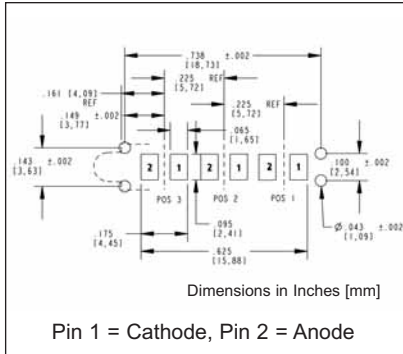
### SPECIFICATIONS



#### PART NUMBER CODE\*



PART NUMBER	COLOR COMBO
593-202020-0XXF	RED/RED/RED
593-232323-0XXF	GREEN/GREEN/GREEN
593-242424-0XXF	YELLOW/YELLOW/YELLOW
593-262626-0XXF	BLUE/BLUE/BLUE
593-282828-0XXF	WHITE/WHITE/WHITE



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

#### Dialight Corporation

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MDEF593A001\_A



# 593 SERIES

## 3mm Tri-level Prism® CBI®

### Surface Mount LED

### SINGLE COLOR

#### ABSOLUTE MAXIMUM RATINGS (TA= 25°C)

PARAMETER	20	23	24	26	28
COLOR	Red	Green	Yellow	Blue	White
POWER DISSIPATION (derate linearly from 60°C mA°C)	95mW 0.75	95mW 0.75	95mW 0.75	90mW 0.44	80mW 0.60
FORWARD DC CURRENT	30mA	30mA	30mA	20mA	20mA
PEAK FORWARD CURRENT (µsec)	0.5 amp	0.5 amp	0.5 amp	0.2 amp	0.2 amp
OPERATING TEMPERATURE	-40°C To +100°C	-40°C To +100°C	-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	-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 V <sub>F</sub>	20	red		2.0	2.5	V	I <sub>F</sub> =10mA
	23	green		2.0	2.5		
	24	yellow		2.0	2.5		
	26	blue		3.5	4.2		I <sub>F</sub> =20mA
	28	white	2.9	3.5	3.9		
Reverse Voltage V <sub>R</sub>	20	red		12		V	I <sub>F</sub> =10µA
	23	green		12			
	24	yellow		12			
	26	blue		5			
	28	white		5			
Dominant Wavelength Dom	20	red	622	628	634	nm	I <sub>F</sub> =20mA
	23	green	564	570	576		
	24	yellow	580	587	595		
	26	blue	462	465	468		
	28	white		X .33 .33 .33 Y .33 .33 .33			
Luminous Intensity I <sub>v</sub>	20	red	4	6	8	mcd	I <sub>F</sub> =20mA
	23	green	7	11	16		
	24	yellow	7	11	15		
	26	blue	4	7	10		
	28	white	60	85	110		
Viewing Angle (2Ø 1/2)	20	red		40		deg.	
	23	green		40			
	24	yellow		40			
	26	blue		40			
	28	white		40			

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

Dialight Corporation

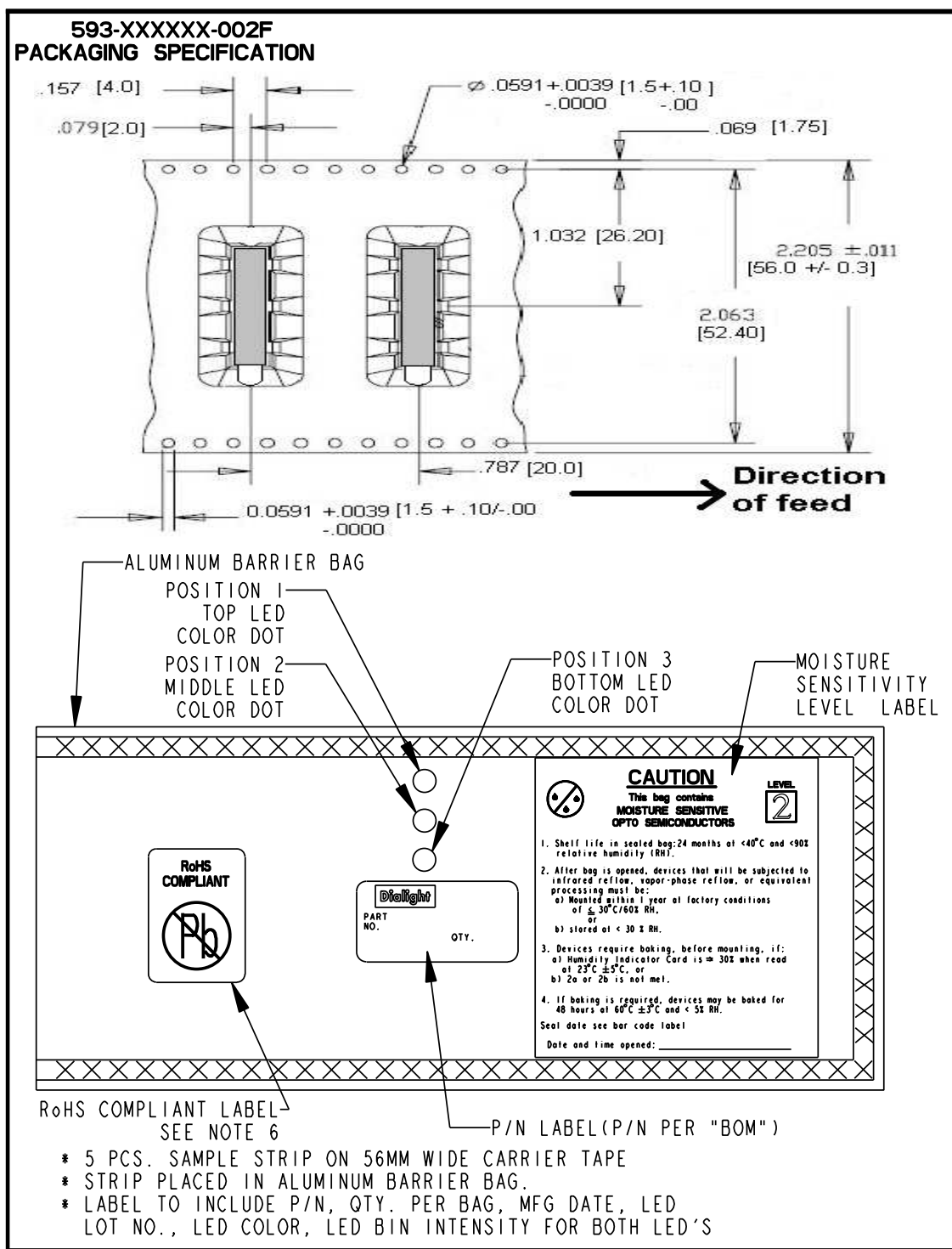
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REV	ECN NO	REVISIONS	DRN	CKD	APP	DATE
A		NEW RELEASE	OO	N.O.	MS	3-28-07
B		ADDED P/N'S 593-22221-002F, -013F, 593-272129-002F, -013F, 593-292929-002F, -013F, ADDED INTENSITY SPECS, ADDED PIN REFERENCES.			KLJ	



- NOTES:
- PRODUCT P/N WITH "F" SUFFIX ENDING IS ROHS COMPLIANT. LED LEADS ARE PLATED TIN (Sn), NICKEL (Ni) UNDERPLATE ON COPPER (Cu) LEADS.
  - STORAGE OF TAPED PARTS SHALL NOT EXCEED TWELVE (12) MONTHS AFTER WHICH RE-PACKAGING IS REQUIRED.
  - FRONT AND REAR TERMINALS (OF EACH LED) OF THE ASSEMBLY TO BE WITHIN .005 COPLANARITY.
  - MOISTURE SENSITIVITY LEVEL  
A LABEL WILL BE PLACED ON THE BAG - CHECK CHART FOR PROPER LEVEL
  - 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.
  - 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).
  - 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

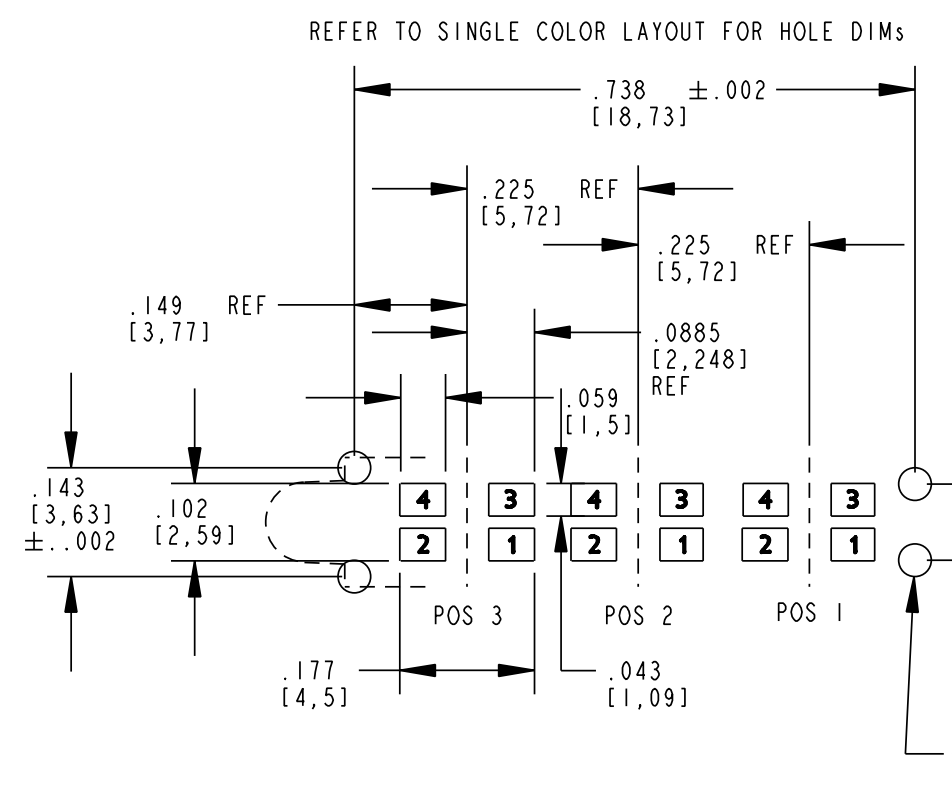
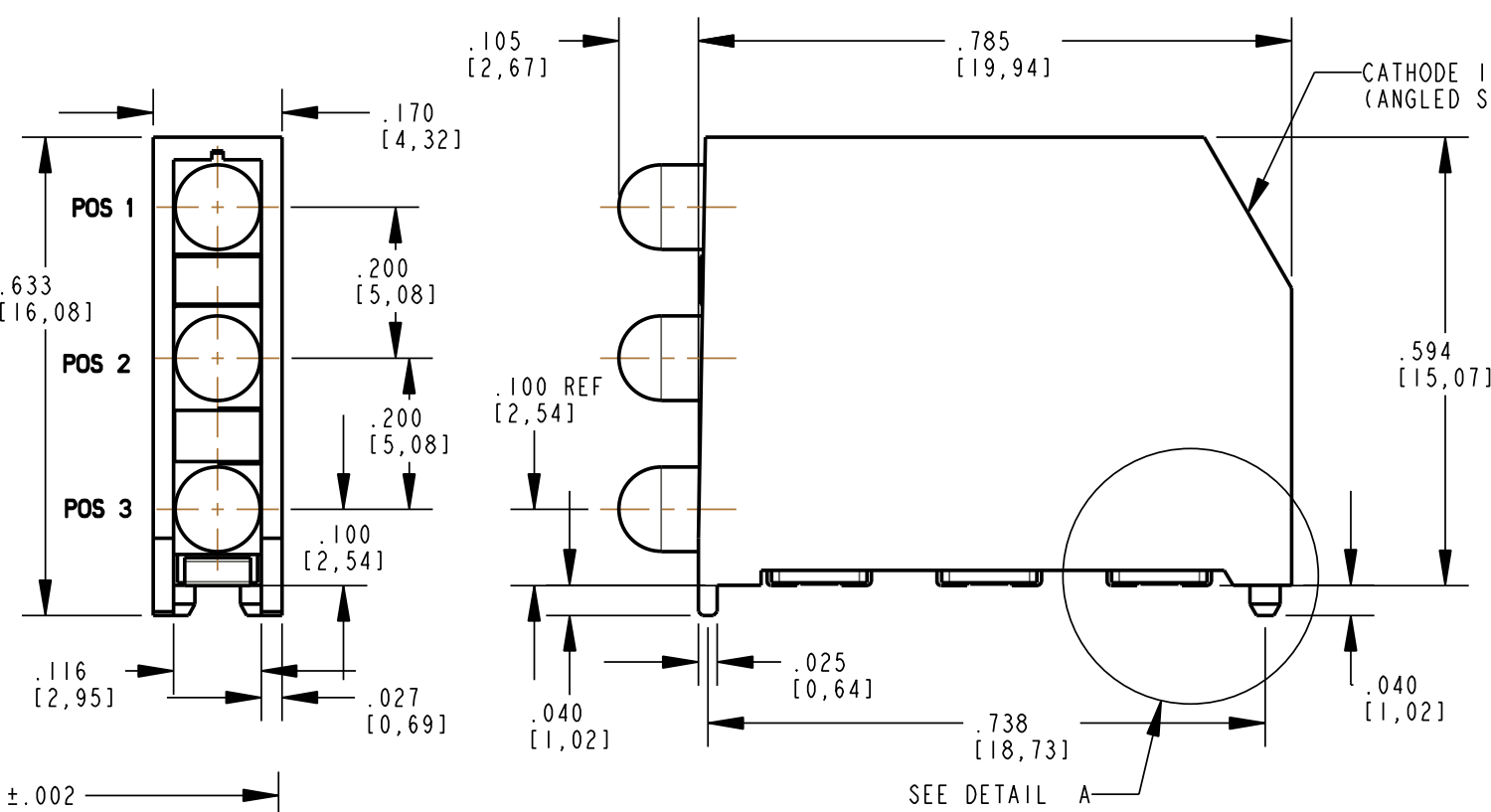
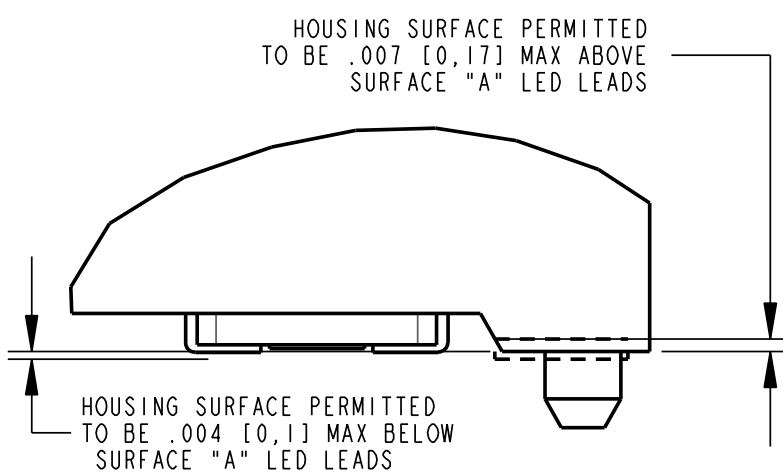
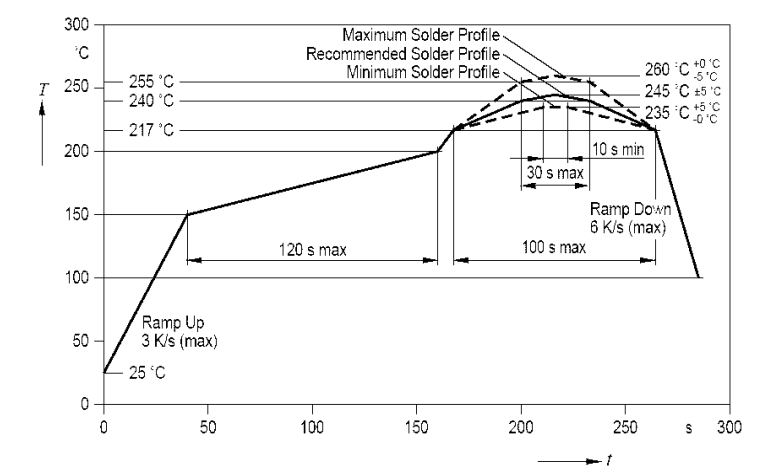
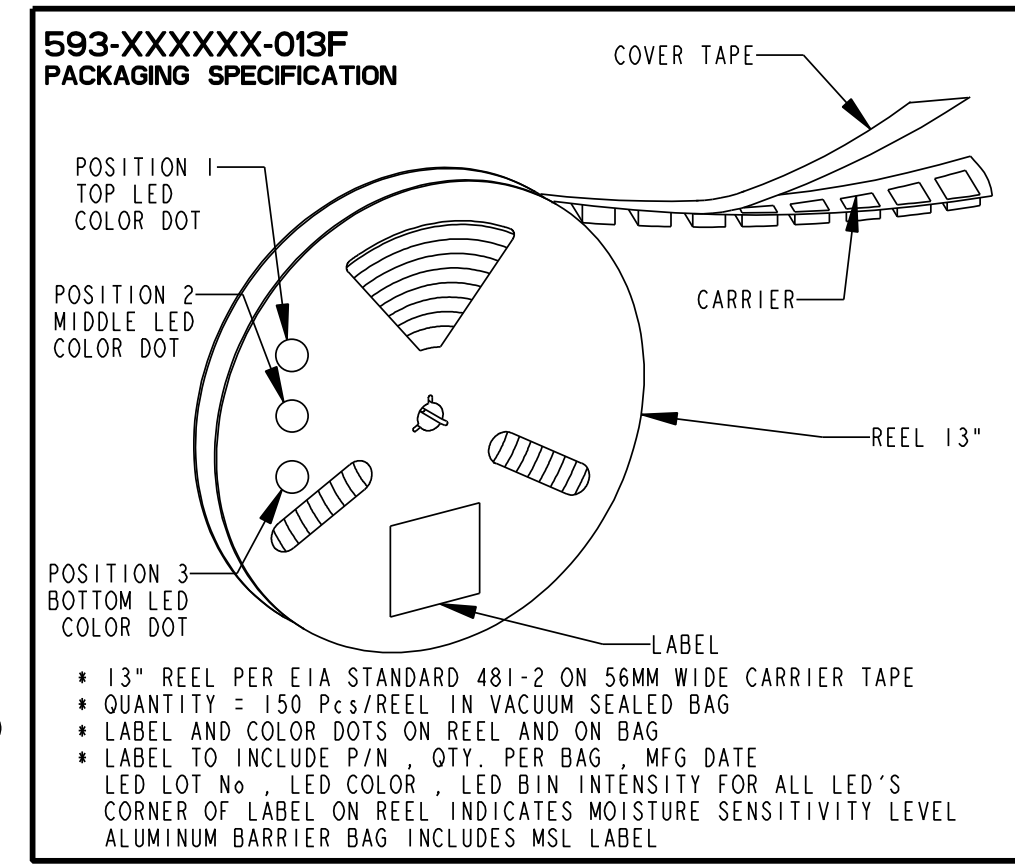


FIG. 2 RECOMMENDED PAD LAYOUT - MULTI-COLOR LEADS

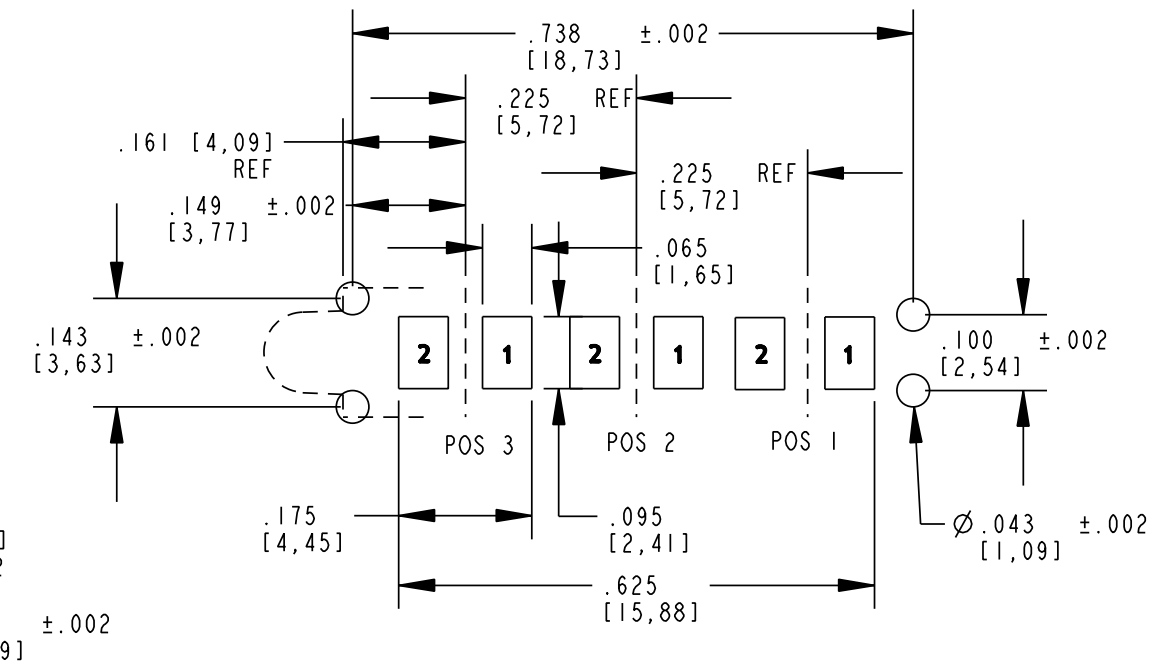
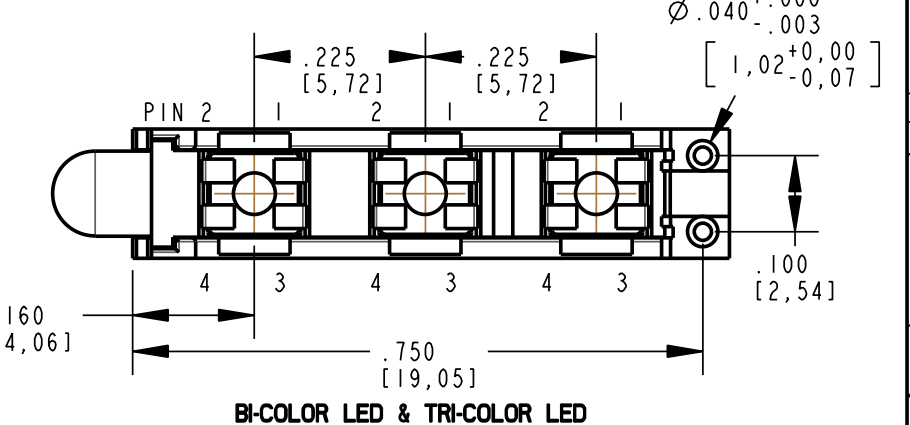
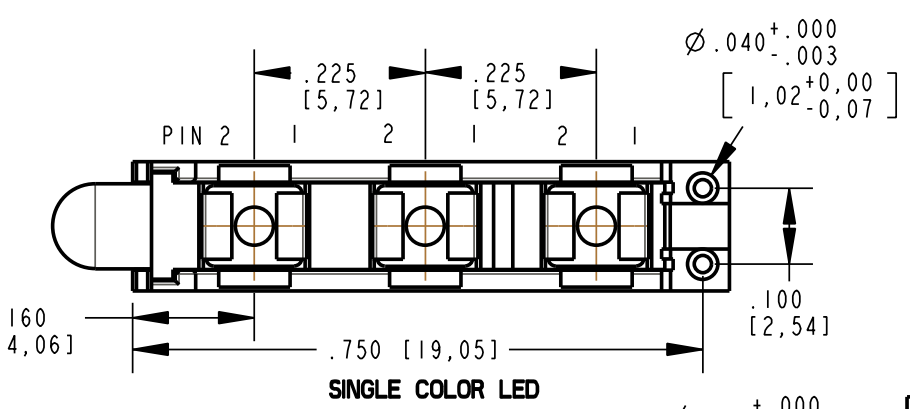
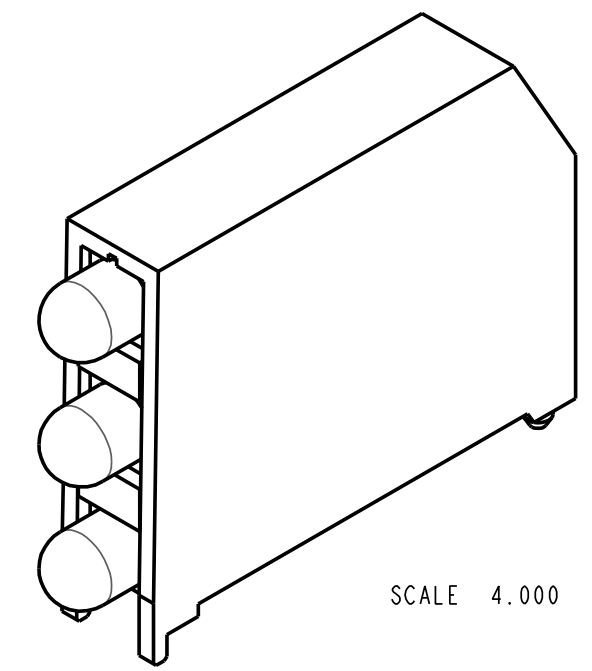


FIG. 1 RECOMMENDED PAD LAYOUT - SINGLE COLOR LEADS


PIN 1 = CATHODE  
PIN 2 = ANODE



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ALL DIM'S IN: INCHES (MM)	C-17270	B
TOLERANCES: UNLESS OTHERWISE SPECIFIED	TITLE TRI-LEVEL PRISM	
FRACTIONS: $\pm 1/64$	MATERIAL ROHS COMPLIANT	
DECIMALS (.XX): $\pm .01$	1501 ROUTE 34 SOUTH FARMINGDALE, NJ 07727	
DECIMALS (.XXX): $\pm .005$		
DECIMALS (.XXXX): $\pm .0005$	FSCM 83330	SHEET 1 OF 2 FAMILY TABLE:
ANGLES: $\pm 1^\circ$		



PART NUMBER	POSITION 1	POSITION 2	POSITION 3	MOISTURE LEVEL	PAD LAYOUT REFERENCE	MULTI-COLOR LED PIN REFERENCES				LUMINOUS INTENSITY I <sub>v</sub> (mcd) @ I <sub>r</sub> =20mA TYP.			DOMINANT WAVELENGTH d (nm) TYP.			FORWARD VOLTAGE TYP.		
						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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FRACTIONS: ±1/64 DECIMALS (.XX): ±.01 DECIMALS (.XXX): ±.005 DECIMALS (.XXXX): ±.0005 ANGLES: ±1°	MATERIAL ROHS COMPLIANT	
FINISH:	 1501 ROUTE 34 SOUTH FARMINGDALE, NJ 07727	
FSCM 83330	SHEET 2 OF 2	FAMILY TABLE: