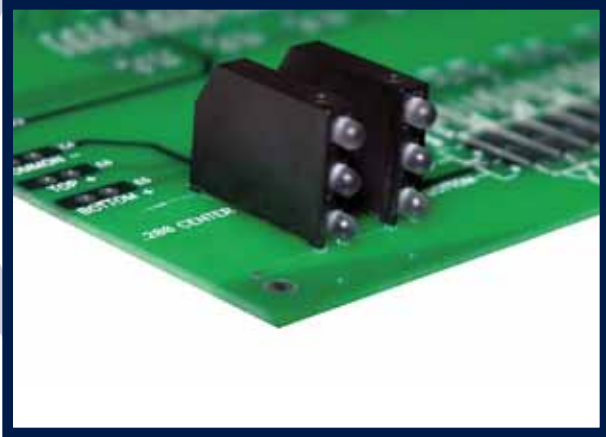




593 SERIES

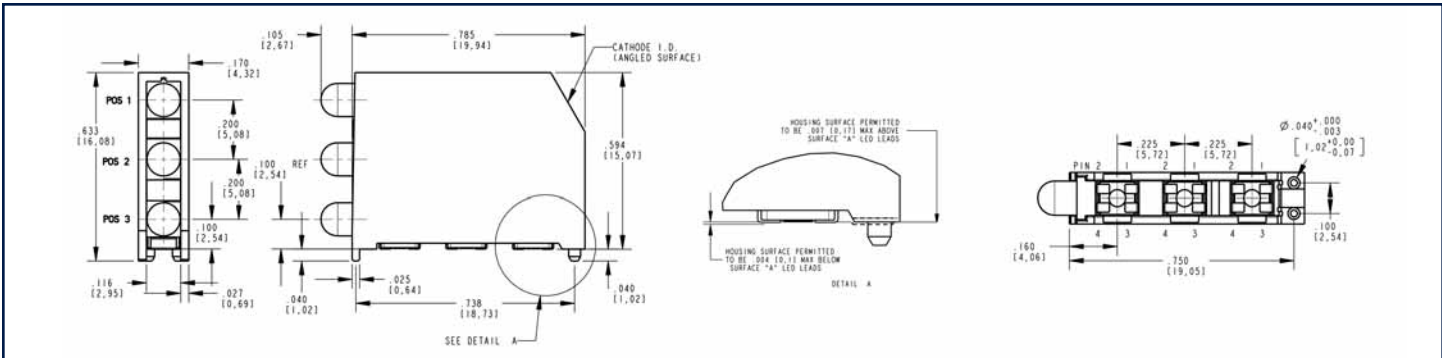
3mm Tri-level Prism® CBI® Surface Mount LED BI-COLOR



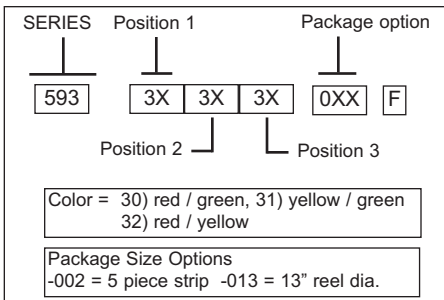
FEATURES / BENEFITS

- ▲ 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

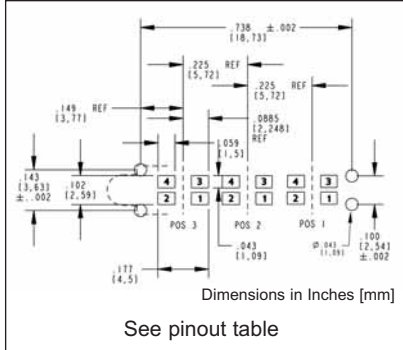


PART NUMBER CODE*



| 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 |



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

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 V _F | 30 | red / green | | 2/2 | 2.5/2.5 | V | I _F =10mA |
| | 31 | yellow / green | | 2/2 | 2.5/2.5 | | |
| | 32 | red / yellow | | 2/2 | 2.5/2.5 | | |
| Reverse Voltage V _R | 30 | red / green | 12/12 | | | V | I _F =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 I _v | 30 | red / green | | 7/10 | | mcd | I _F =20mA |
| | 31 | yellow / green | | 6/10 | | | |
| | 32 | red / yellow | | 9/6 | | | |
| Viewing Angle (2Ø 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.

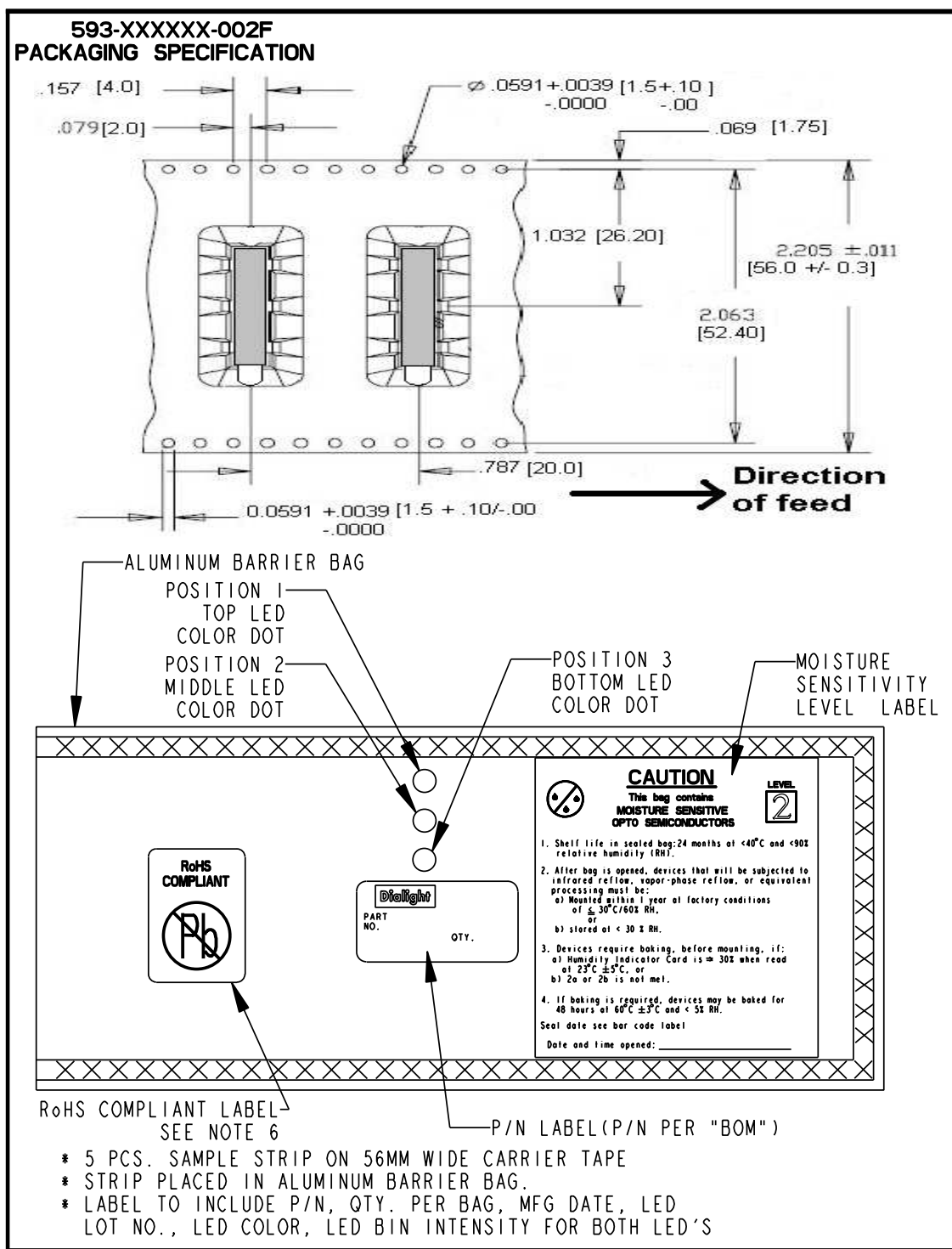


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| REV | ECN NO | REVISIONS | DRN | CKD | APP | DATE |
|-----|--------|---|-----|------|-----|---------|
| A | | NEW RELEASE | OO | N.O. | MS | 3-28-07 |
| B | | ADDED P/N'S 593-22221-002F, -013F, 593-272129-002F, -013F, 593-292929-002F, -013F, ADDED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

- POSITION 3 LED
- POSITION 2 LED
- POSITION 1 LED

ATTENTION:
 OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

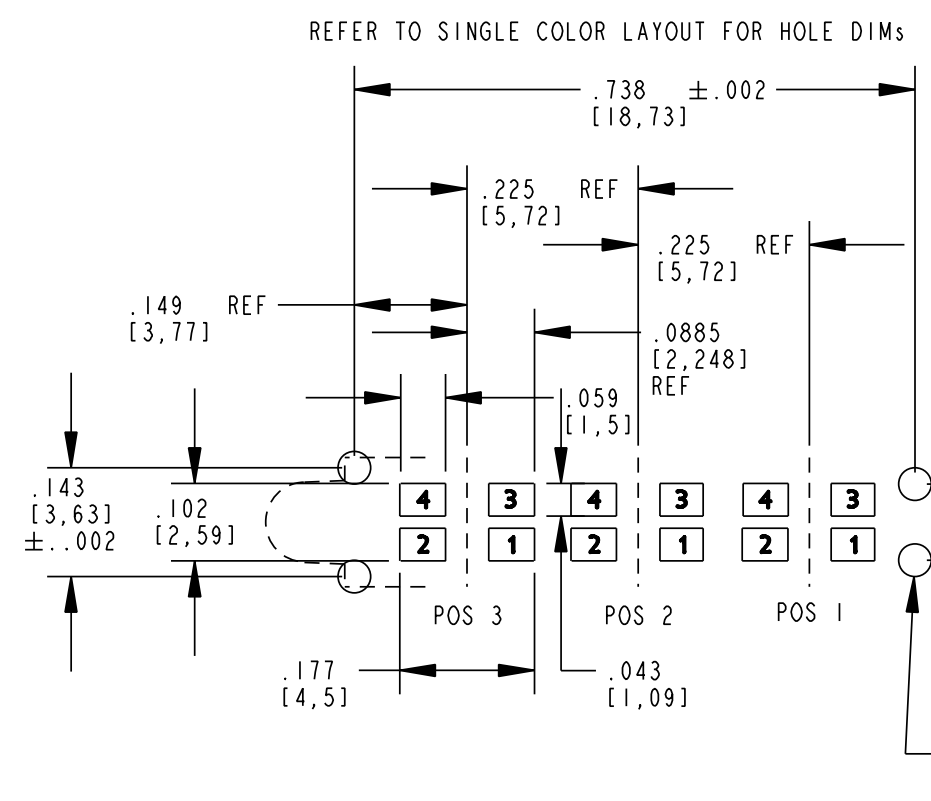
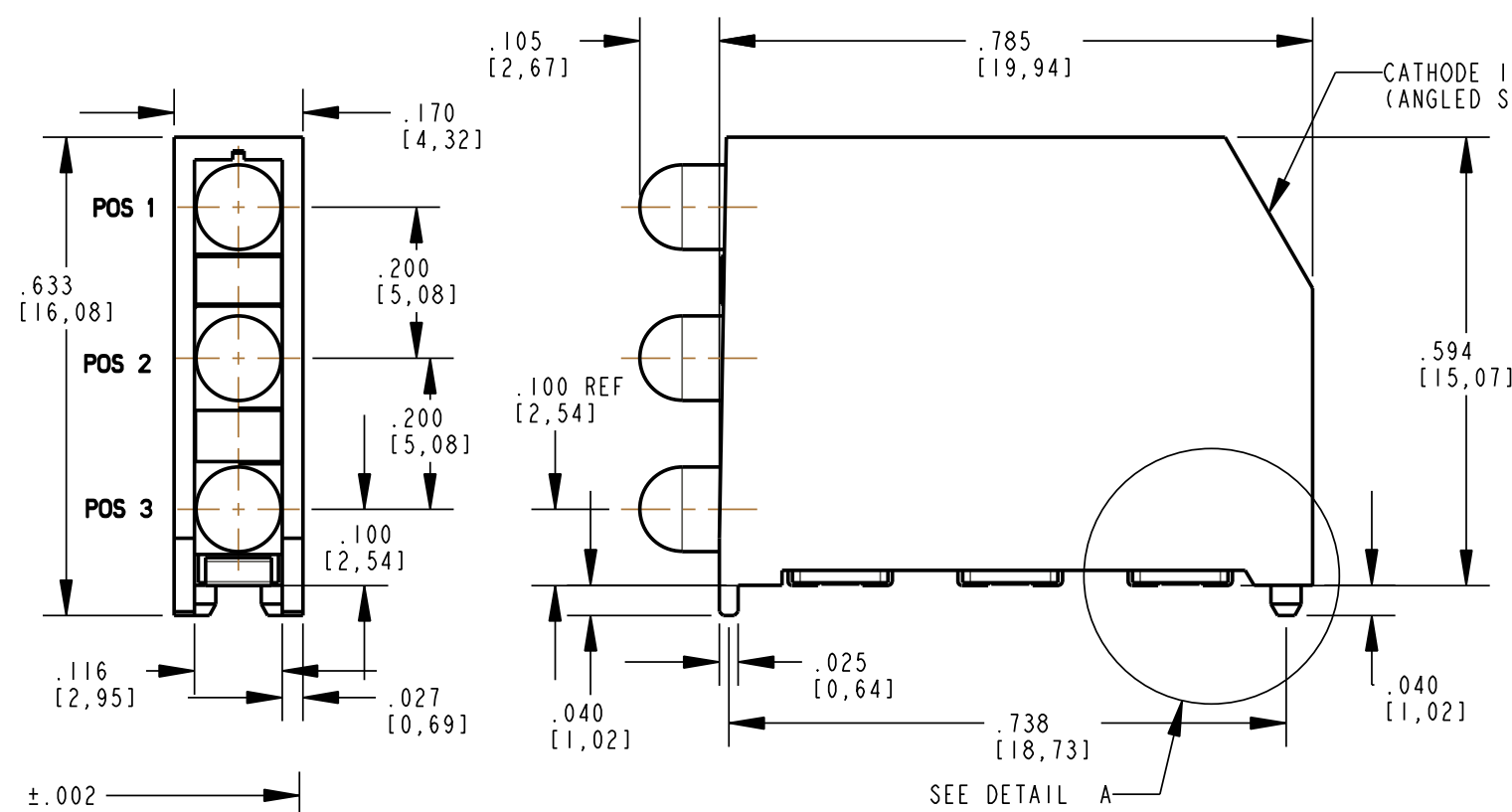
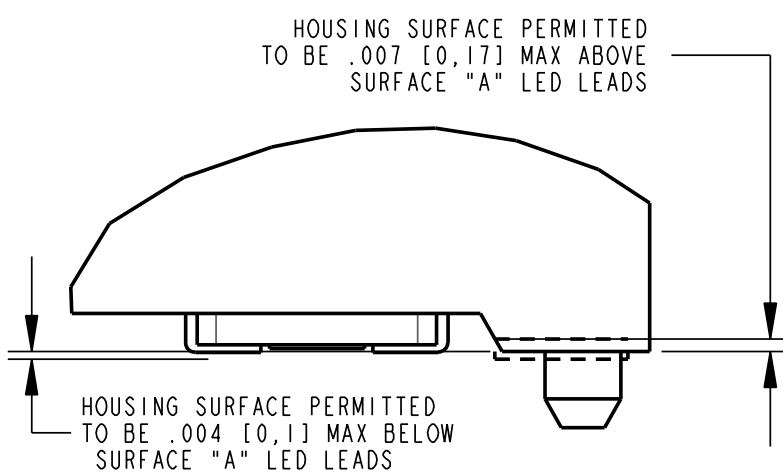
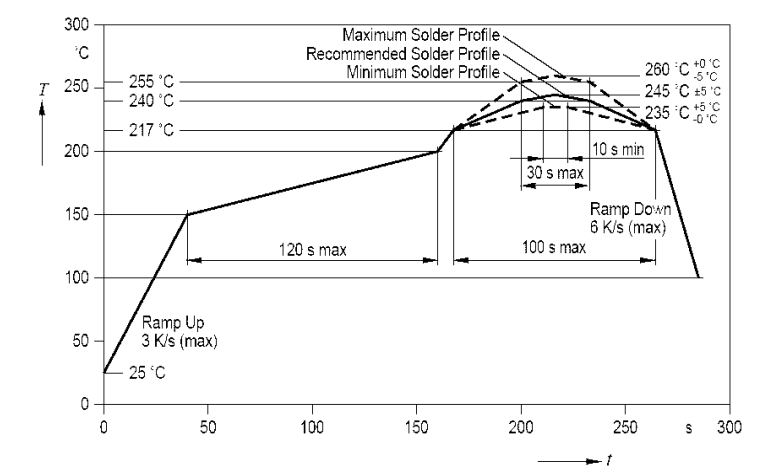
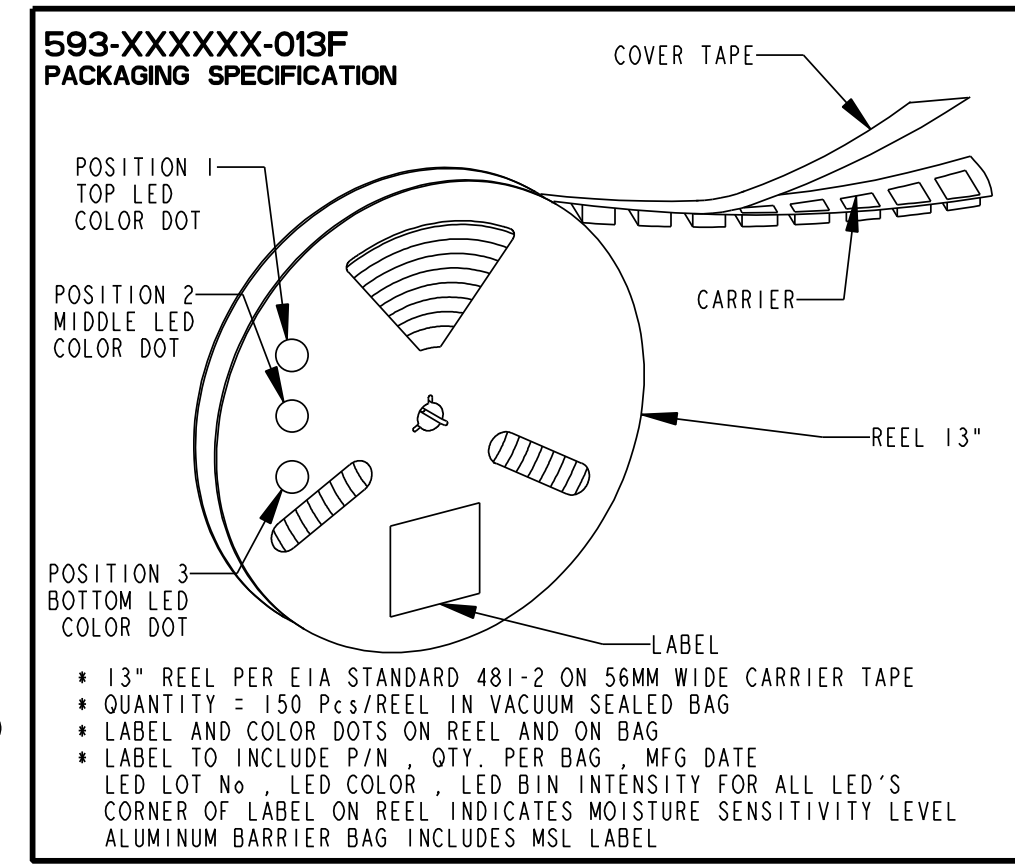


FIG. 2 RECOMMENDED PAD LAYOUT - MULTI-COLOR LEADS

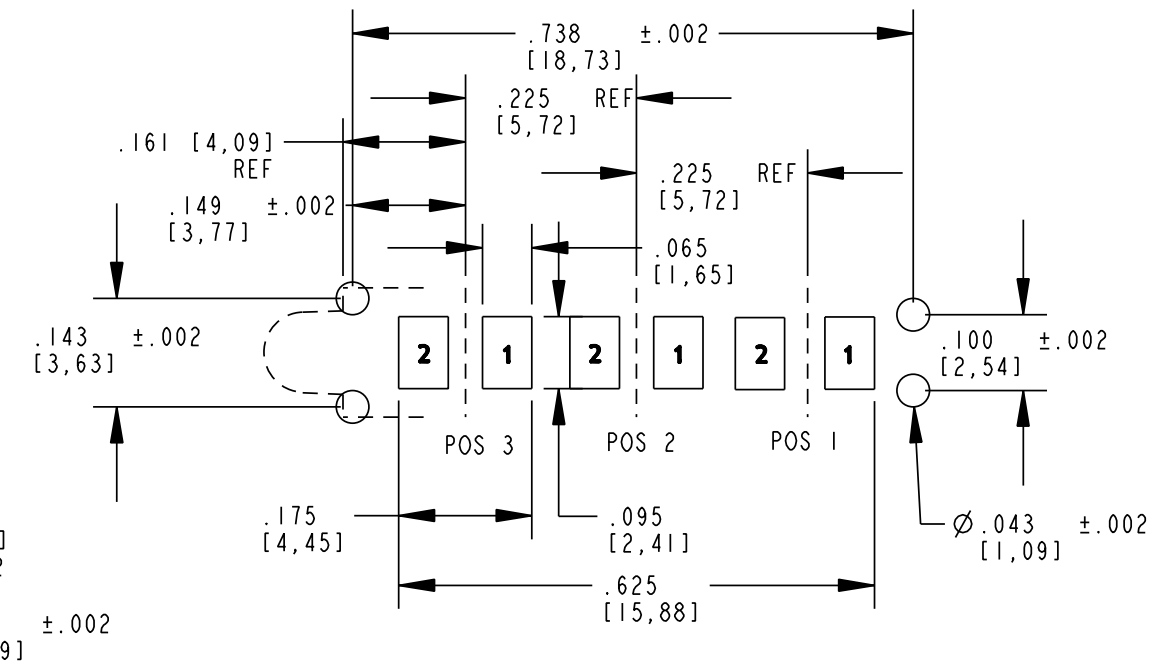
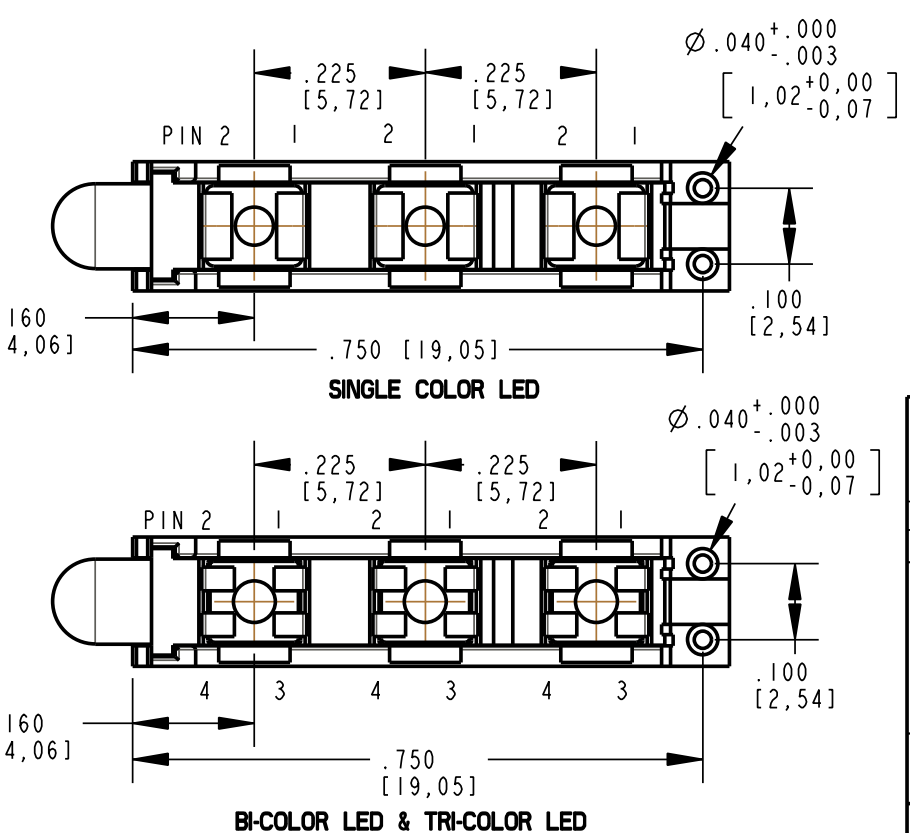
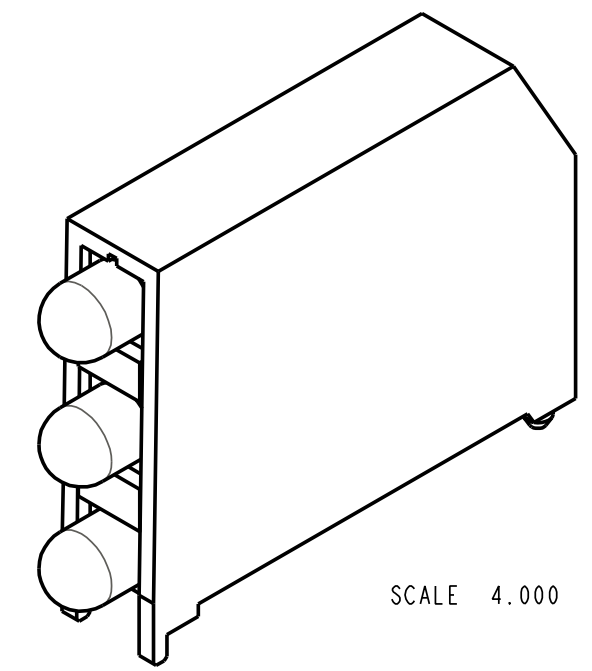


FIG. 1 RECOMMENDED PAD LAYOUT - SINGLE COLOR LEADS



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| SCALE: 1.000 | DRAWING NUMBER | REV |
| ALL DIM'S IN: INCHES (MM) | C-17270 | B |
| TOLERANCES: UNLESS OTHERWISE SPECIFIED | TITLE | TRI-LEVEL PRISM |
| FRACTIONS: ±1/64 | MATERIAL | RoHS COMPLIANT |
| DECIMALS (.XX): ±.01 | Dialight | |
| DECIMALS (.XXX): ±.005 | 1501 ROUTE 34 SOUTH FARMINGDALE, NJ 07727 | |
| DECIMALS (.XXXX): ±.0005 | FSCM 83330 | |
| ANGLES: ±1° | SHEET 1 OF 2 FAMILY TABLE: | |



| PART NUMBER | POSITION 1 | POSITION 2 | POSITION 3 | MOISTURE LEVEL | PAD LAYOUT REFERENCE | MULTI-COLOR LED PIN REFERENCES | | | | LUMINOUS INTENSITY I _v (mcd) @ I _r =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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| 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: |