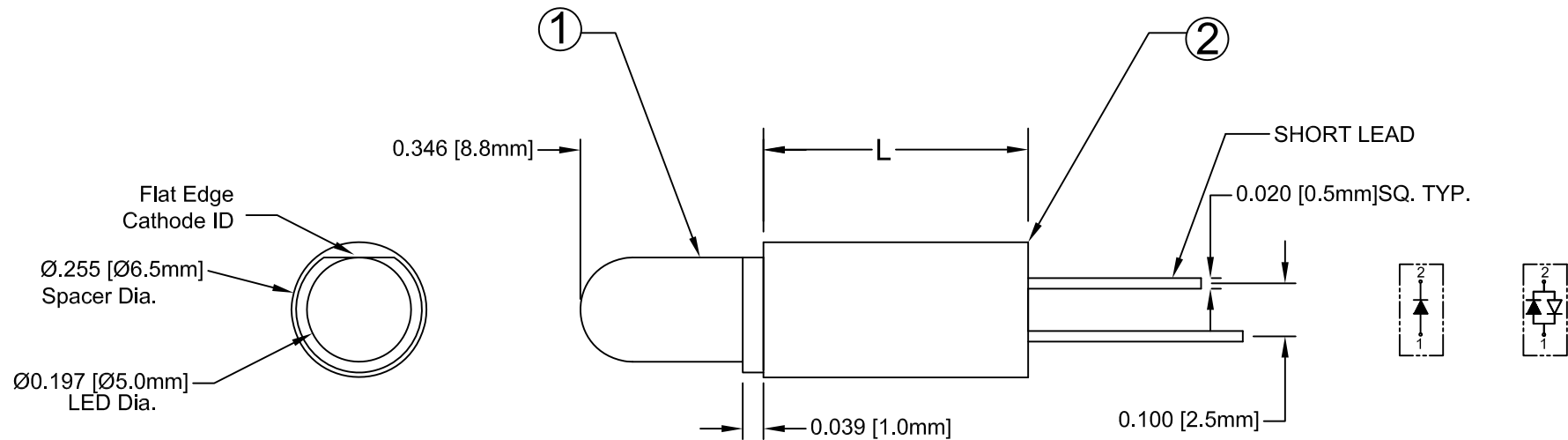
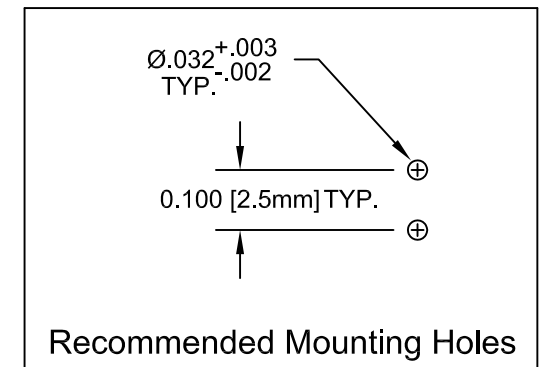


| ITEM | Q'TY | PART NUMBER | PART DESCRIPTION                        |
|------|------|-------------|-----------------------------------------|
| 1    | 1    | 5XX-F       | T-1 ¾ (5mm) Flange LED, See sheet 2 & 3 |
| 2    | 1    | ELM 3-XXX   | Extruded, Self-Retaining LED Spacer     |

| REV. | DESCRIPTION                          | DATE     | APPROVED |
|------|--------------------------------------|----------|----------|
| B    | Updated Drawing to Show Flanged LED. | 10/17/06 | M. C.    |
| C    | Changed Spacer from ELM3 to ELM8.    | 01/17/07 | M. C.    |
| D    | Added -F to Sheets 2 and 3.          | 01/04/08 | M. C.    |
| E    | Removed Tolerance Note.              | 09/03/08 | M. C.    |
| F    | Added Bi-Color LEDs on Sheet 3       | 02/09/11 | T. Y.    |
| G    | Added Tape & Reel Options            | 06/07/11 | T. Y.    |
| H    | Tape & Reel Design Update            | 11/21/11 | T. Y.    |
| J    | Corrected P/N Typo in BOM            | 09/25/13 | T. Y.    |



| BI-COLOR POLARITY |             |             |
|-------------------|-------------|-------------|
| LED P/N           | (1) Cathode | (2) Cathode |
| 5BC-F             | Green       | Red         |
| 5BC-Y/G-F         | Green       | Yellow      |



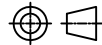
## ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

REVERSE VOLTAGE \_\_\_\_\_ 5V  
 REVERSE CURRENT ( VR=5V) \_\_\_\_\_ 100µA  
 OPERATING TEMPERATURE RANGE \_\_\_\_\_ -25°C ~ 85°C  
 STORAGE TEMPERATURE \_\_\_\_\_ -30°C ~ 100°C  
 LEAD SOLDERING TEMPERATURE (1/16" FROM BODY) \_\_\_\_\_ 260°C for 5 Seconds

|                                                      |                |                                                                                                                                  |                                                                          |  |
|------------------------------------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|--|
| STANDARD TOLERANCE<br>( UNLESS OTHERWISE SPECIFIED ) |                | <div><b>BIVAR</b><sup>®</sup></div> <div>4 THOMAS, IRVINE, CA. 92618</div> <div>TEL: (949) 951-8808    FAX: (949) 951-3974</div> |                                                                          |  |
| <u>DECIMALS</u>                                      | <u>ANGULAR</u> |                                                                                                                                  |                                                                          |  |
| .X     ± .1                                          | X°   ± 1°      |                                                                                                                                  |                                                                          |  |
| .XX   ± .02                                          |                |                                                                                                                                  |                                                                          |  |
| .XXX ± .010                                          |                |                                                                                                                                  |                                                                          |  |
|                                                      |                |                                             | TITLE: Extruded Vertical T-1 ¾ (5mm)<br>LED Standard Spacer Profile Assy |  |
| DESIGNED:<br><b>Sonny Dam</b>                        |                |                                                                                                                                  | REVISION:<br><b>J</b>                                                    |  |
| DATE:<br><b>05/05/06</b>                             |                | PART NO:<br><b>ELM3XXX5XX</b>                                                                                                    |                                                                          |  |
| CHECKED:<br><b>T. Yin</b>                            |                | CAGE CODE : 32559                                                                                                                |                                                                          |  |
| DATE:<br><b>05/05/06</b>                             |                | SHEET # 1 OF 4                                                                                                                   |                                                                          |  |
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| REV. | DESCRIPTION  | DATE | APPROVED |
|------|--------------|------|----------|
|      | See Sheet #1 |      |          |
|      |              |      |          |

| LED Assy. No.  | Chip      |                  |               | Lens Appearance | Electro-Optical Data @ 20mA |        |     |          | Viewing Angle<br>2 θ ½<br>(Deg) | LED P/N   |
|----------------|-----------|------------------|---------------|-----------------|-----------------------------|--------|-----|----------|---------------------------------|-----------|
|                | Material  | Peak Wave Length | Emitted Color |                 | If (mA)                     | Vf (V) |     | Iv (mcd) |                                 |           |
|                |           |                  |               |                 |                             | MAX    | TYP | MAX      | TYP                             |           |
| ELM3XXX5BWC    | GaN/SiC   | 430              | BLUE          | WATER CLEAR     | 25                          | 4      | 4.5 | 25       | 20                              | 5BWC-F    |
| ELM3XXX5BWD    | GaN/SiC   | 430              | BLUE          | DIFFUSED        | 25                          | 4      | 4.5 | 15       | 45                              | 5BWD-F    |
| ELM3XXX5BWT    | GaN/SiC   | 430              | BLUE          | TINTED          | 25                          | 4      | 4.5 | 30       | 20                              | 5BWT-F    |
| ELM3XXX5GC     | GaP/GaP   | 568              | GREEN         | WATER CLEAR     | 30                          | 2.1    | 2.8 | 40       | 35                              | 5GC-F     |
| ELM3XXX5GD     | GaP/GaP   | 568              | GREEN         | DIFFUSED        | 30                          | 2.1    | 2.8 | 25       | 45                              | 5GD-F     |
| ELM3XXX5GT     | GaP/GaP   | 568              | GREEN         | TINTED          | 30                          | 2.1    | 2.8 | 40       | 35                              | 5GT-F     |
| ELM3XXX5PGC    | GaP/GaP   | 555              | PURE GREEN    | WATER CLEAR     | 30                          | 2.2    | 2.8 | 10       | 35                              | 5PGC-F    |
| ELM3XXX5PGD    | GaP/GaP   | 555              | PURE GREEN    | DIFFUSED        | 30                          | 2.2    | 2.8 | 10       | 45                              | 5PGD-F    |
| ELM3XXX5PGT    | GaP/GaP   | 555              | PURE GREEN    | TINTED          | 30                          | 2.2    | 2.8 | 10       | 35                              | 5PGT-F    |
| ELM3XXX5YC     | GaAsP/GaP | 590              | YELLOW        | WATER CLEAR     | 30                          | 2      | 2.8 | 40       | 35                              | 5YC-F     |
| ELM3XXX5YD     | GaAsP/GaP | 590              | YELLOW        | DIFFUSED        | 30                          | 2      | 2.8 | 25       | 45                              | 5YD-F     |
| ELM3XXX5YT     | GaAsP/GaP | 590              | YELLOW        | TINTED          | 30                          | 2      | 2.8 | 40       | 35                              | 5YT-F     |
| ELM3XXX5AC     | GaAsP/GaP | 605              | AMBER         | WATER CLEAR     | 30                          | 2      | 2.8 | 40       | 35                              | 5AC-F     |
| ELM3XXX5AD     | GaAsP/GaP | 605              | AMBER         | DIFFUSED        | 30                          | 2      | 2.8 | 25       | 45                              | 5AD-F     |
| ELM3XXX5AT     | GaAsP/GaP | 605              | AMBER         | TINTED          | 30                          | 2      | 2.8 | 40       | 35                              | 5AT-F     |
| ELM3XXX5HC     | GaAsP/GaP | 625              | HE RED        | WATER CLEAR     | 30                          | 2      | 2.8 | 40       | 35                              | 5HC-F     |
| ELM3XXX5HD     | GaAsP/GaP | 625              | HE RED        | DIFFUSED        | 30                          | 2      | 2.8 | 25       | 45                              | 5HD-F     |
| ELM3XXX5HT     | GaAsP/GaP | 625              | HE RED        | TINTED          | 30                          | 2      | 2.8 | 40       | 35                              | 5HT-F     |
| ELM3XXX5RC     | GaP/GaP   | 700              | RED           | WATER CLEAR     | 20                          | 2.1    | 2.8 | 2        | 35                              | 5RC-F     |
| ELM3XXX5RD     | GaP/GaP   | 700              | RED           | DIFFUSED        | 20                          | 2.1    | 2.8 | 2        | 45                              | 5RD-F     |
| ELM3XXX5RT     | GaP/GaP   | 700              | RED           | TINTED          | 20                          | 2.1    | 2.8 | 2        | 35                              | 5RT-F     |
| ELM3XXX5BC     | GaAsP/GaP | 625              | RED           | WHITE DIFFUSED  | 30                          | 2.0    | 2.8 | 6        | 45                              | 5BC-F     |
|                | GaP/GaP   | 568              | GREEN         |                 | 30                          | 2.1    | 2.8 | 8        |                                 |           |
| ELM3XXX5BC-Y/G | GaAsP/GaP | 590              | YELLOW        | WHITE DIFFUSED  | 30                          | 2.0    | 2.8 | 5        | 45                              | 5BC-Y/G-F |
|                | GaP/GaP   | 568              | GREEN         |                 | 30                          | 2.1    | 2.8 | 8        |                                 |           |

|                                                                        |                          |                                                                                                                                                                   |                       |
|------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| STANDARD TOLERANCE<br>( UNLESS OTHERWISE SPECIFIED )<br>10% All Values |                          | <br>4 THOMAS, IRVINE, CA. 92618<br>TEL: (949) 951-8808 FAX: (949) 951-3974   |                       |
| ANGULAR<br>X° ± 1°                                                     |                          | <br>TITLE: Extruded Vertical T-1 ¾ (5mm)<br>LED Standard Spacer Profile Assy |                       |
| DESIGNED:<br><b>Sonny Dam</b>                                          | DATE:<br><b>05/05/06</b> | PART NO:<br><b>ELM3XXX5XX</b>                                                                                                                                     | REVISION:<br><b>J</b> |
| CHECKED:<br><b>T. Yin</b>                                              | DATE:<br><b>05/05/06</b> | CAGE CODE : 32559                                                                                                                                                 | SHEET # 2 OF 4        |
| CAD GENERATED DOCUMENT, DO NOT MEASURE DRAWING.                        |                          |                                                                                                                                                                   |                       |

| REV. | DESCRIPTION  | DATE | APPROVED |
|------|--------------|------|----------|
|      | See Sheet #1 |      |          |
|      |              |      |          |

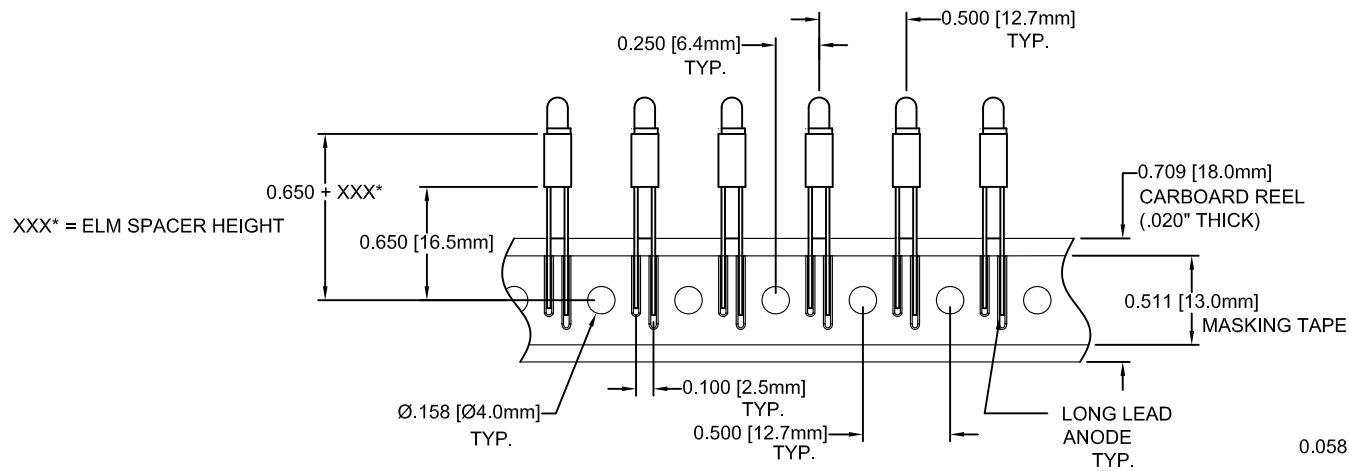
| LED Assy. No. | Peak Wave Length<br>$\lambda_p$ (nm) | Emitted Color | Lens Appearance | Max. Rating | Electro-Optical Data @ 2mA |     |             | Viewing Angle<br>2 $\theta$ ½<br>(Deg) | LED P/N |
|---------------|--------------------------------------|---------------|-----------------|-------------|----------------------------|-----|-------------|----------------------------------------|---------|
|               |                                      |               |                 | If<br>(mA)  | Vf<br>(V)                  |     | Iv<br>(mcd) |                                        |         |
|               |                                      |               |                 | MAX         | TYP                        | MAX | TYP         |                                        |         |
| ELM3XXX5BWDL  | 430                                  | BLUE          | DIFFUSED        | 7           | 3.8                        | 4.2 | 4           | 40                                     | 5BWDL-F |
| ELM3XXX5PGDL  | 555                                  | PURE GREEN    | DIFFUSED        | 7           | 2.1                        | 2.6 | 1           | 40                                     | 5PGDL-F |
| ELM3XXX5GDL   | 568                                  | GREEN         | DIFFUSED        | 7           | 2.1                        | 2.6 | 4           | 40                                     | 5GDL-F  |
| ELM3XXX5YDL   | 590                                  | YELLOW        | DIFFUSED        | 7           | 2.0                        | 2.6 | 4           | 40                                     | 5YDL-F  |
| ELM3XXX5ADL   | 605                                  | AMBER         | DIFFUSED        | 7           | 2.0                        | 2.6 | 4           | 40                                     | 5ADL-F  |
| ELM3XXX5HDL   | 625                                  | HE RED        | DIFFUSED        | 7           | 2.0                        | 2.6 | 5           | 40                                     | 5HDL-F  |
| ELM3XXX5SRDL  | 645                                  | SUPER RED     | DIFFUSED        | 7           | 1.7                        | 2.3 | 6           | 40                                     | 5SRDL-F |

| Assembly P/N | Peak Wave Length<br>λp(nm) | Emitted Color | Lens Appearance | Electro-Optical Data |           |     |             | Viewing Angle<br>2 θ½<br>(Deg) | LED P/N |
|--------------|----------------------------|---------------|-----------------|----------------------|-----------|-----|-------------|--------------------------------|---------|
|              |                            |               |                 | If<br>(mA)           | Vf<br>(V) |     | Iv<br>(mcd) |                                |         |
|              |                            |               |                 | MAX                  | TYP       | MAX | TYP         |                                |         |
| 5 Volt       |                            |               |                 | Data @ 5V            |           |     |             |                                |         |
| ELM3XXX5GD5V | GREEN                      | 568           | DIFFUSED        | -                    | -         | 5   | 25          | 40                             | 5GD5V-F |
| ELM3XXX5AD5V | AMBER                      | 605           | DIFFUSED        | -                    | -         | 5   | 25          | 40                             | 5AD5V-F |
| ELM3XXX5HD5V | HE RED                     | 625           | DIFFUSED        | -                    | -         | 5   | 30          | 40                             | 5HD5V-F |
| ELM3XXX5RD5V | RED                        | 700           | DIFFUSED        | -                    | -         | 5   | 1.5         | 40                             | 5RD5V-F |
| ELM3XXX5YD5V | YELLOW                     | 590           | DIFFUSED        | -                    | -         | 5   | 25          | 40                             | 5YD5V-F |

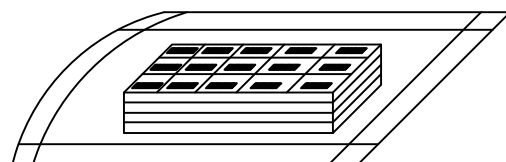
|                                                                        |                          |                                                                                                                                                                 |                       |
|------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| STANDARD TOLERANCE<br>( UNLESS OTHERWISE SPECIFIED )<br>10% All Values |                          | <br>4 THOMAS, IRVINE, CA. 92618<br>TEL: (949) 951-8808 FAX: (949) 951-3974 |                       |
|                                                                        |                          |                                                                                                                                                                 |                       |
| ANGULAR<br>X° ± 1°                                                     |                          |                                                                            |                       |
| DESIGNED:<br><b>Sonny Dam</b>                                          | DATE:<br><b>05/05/06</b> | PART NO:<br><b>ELM3XXX5XX</b>                                                                                                                                   | REVISION:<br><b>J</b> |
| CHECKED:<br><b>T. Yin</b>                                              | DATE:<br><b>05/05/06</b> | CAGE CODE : 32559                                                                                                                                               | SHEET # 3 OF 4        |
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TITLE: Extruded Vertical T-1¼ (5mm)  
LED Standard Spacer Profile Assy

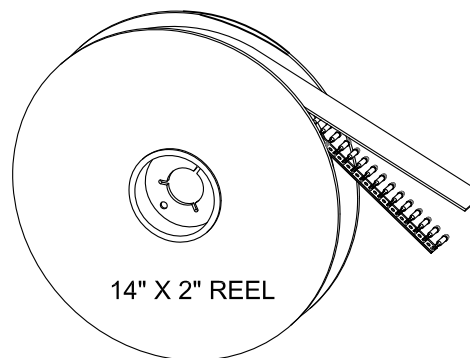
| REV. | DESCRIPTION  | DATE | APPROVED |
|------|--------------|------|----------|
|      | SEE SHEET #1 |      |          |
|      |              |      |          |
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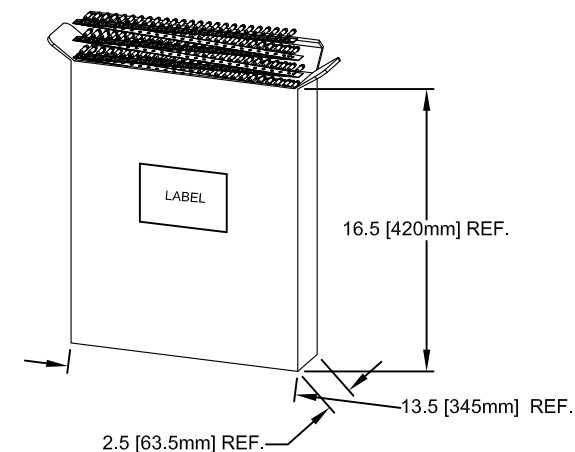
DIRECTION OF FEED →



STANDARD PACKAGING TRAY



TAPE & REEL  
1,000 pcs / reel



AMMO PACK  
2,000 pcs / box

NOTE:

1. STANDARD PART NUMBERS ARE PACKAGED IN LOOSE PIECES USING PACKAGING TRAYS
2. ADD "T" SUFFIX TO PART NUMBER FOR TAPE AND REEL PACKAGING OPTION (1,000 PCS/REEL)
3. ADD "A" SUFFIX TO PART NUMBER FOR AMMO PACK OPTION (2,000 PCS/BOX)
4. TAPE AND REEL PACKAGING COMPLY TO EIA-468-C

|                                                      |                          |                                                                                                          |  |
|------------------------------------------------------|--------------------------|----------------------------------------------------------------------------------------------------------|--|
| STANDARD TOLERANCE<br>( UNLESS OTHERWISE SPECIFIED ) |                          | <b>BIVAR®</b><br>4 THOMAS, IRVINE, CA. 92618<br>TEL: (949) 951-8808 FAX: (949) 951-3974                  |  |
| DECIMALS                                             | ANGULAR                  |                                                                                                          |  |
| .X ± .1                                              | X° ± 1°                  | <b>TITLE:</b> Extruded Vertical T1 3/4 (5mm)<br>LED Standard Spacer Profile Assy                         |  |
| .XX ± .02                                            |                          |                                                                                                          |  |
| .XXX ± .010                                          |                          | <b>PART NO:</b> ELM3XXX5XX<br><b>REVISION:</b> J                                                         |  |
| DESIGNED:<br><b>Sonny Dam</b>                        | DATE:<br><b>05/05/06</b> |                                                                                                          |  |
| CHECKED:<br><b>T. Yin</b>                            | DATE:<br><b>05/05/06</b> | <b>CAGE CODE :</b> 32559 <b>SHEET #</b> 4 <b>OF</b> 4<br>CAD GENERATED DOCUMENT, DO NOT MEASURE DRAWING. |  |