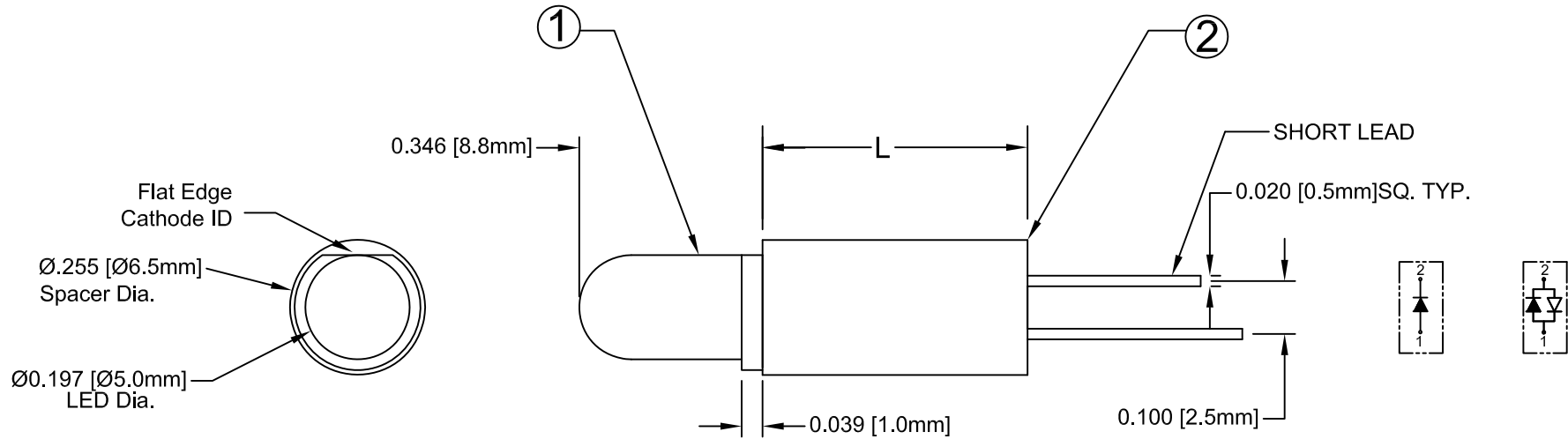
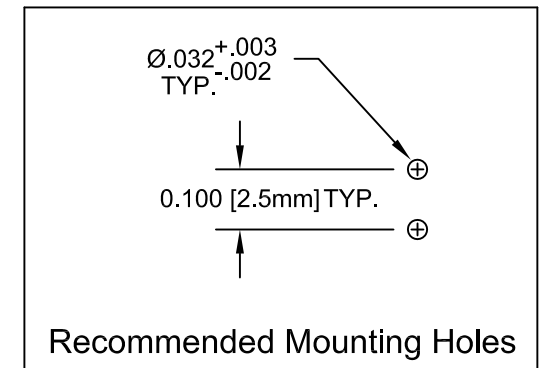


| ITEM | Q'TY | PART NUMBER | PART DESCRIPTION                        |
|------|------|-------------|-----------------------------------------|
| 1    | 1    | 5XX-F       | T-1 ¾ (5mm) Flange LED, See sheet 2 & 3 |
| 2    | 1    | ELM8XXX     | Extruded, Self-Retaining LED Spacer     |

| 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.    |



| 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 ) |                          | <b>BIVAR®</b><br>4 THOMAS, IRVINE, CA. 92618<br>TEL: (949) 951-8808 FAX: (949) 951-3974 |                       |
| DECIMALS                                             | ANGULAR                  |                                                                                         |                       |
| .X ± .1                                              | X° ± 1°                  |                                                                                         |                       |
| .XX ± .02                                            |                          |                                                                                         |                       |
| .XXX ± .010                                          |                          | <b>TITLE:</b> 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> | <b>PART NO:</b><br><b>ELM3XXX5XX</b>                                                    | REVISION:<br><b>H</b> |
| CHECKED:<br><b>T. Yin</b>                            | DATE:<br><b>05/05/06</b> | <b>CAGE CODE :</b> 32559                                                                | <b>SHEET # 1 OF 4</b> |
| CAD GENERATED DOCUMENT, DO NOT MEASURE DRAWING.      |                          |                                                                                         |                       |

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

| LED<br>Part No. | Chip       |                               |               | Lens Appearance | Absolute Maximum Ratings |            |            |                 | Electro-Optical Data @ 20mA |      |             | Viewing<br>Angle<br>(Deg) |
|-----------------|------------|-------------------------------|---------------|-----------------|--------------------------|------------|------------|-----------------|-----------------------------|------|-------------|---------------------------|
|                 | Material   | Peak Wave<br>Length<br>λp(nm) | Emitted Color |                 | Δλ<br>(nm)               | Pd<br>(mW) | If<br>(mA) | Peak If<br>(mA) | Vf<br>(V)                   |      | Iv<br>(mcd) |                           |
|                 |            |                               |               |                 |                          |            |            |                 | Typ.                        | Max. | Typ.        |                           |
| 5BWC-F          | GaN/SiC    | 430                           | BLUE          | WATER CLEAR     | 65                       | 150        | 25         | 70              | 4.0                         | 4.5  | 125         | 20                        |
| 5BWD-F          | GaN/SiC    | 430                           | BLUE          | DIFFUSED        | 65                       | 150        | 25         | 70              | 4.0                         | 4.5  | 30          | 45                        |
| 5BWT-F          | GaN/SiC    | 430                           | BLUE          | TINTED          | 65                       | 150        | 25         | 70              | 4.0                         | 4.5  | 125         | 20                        |
| 5PGC-F          | GaP/GaP    | 555                           | PURE GREEN    | WATER CLEAR     | 30                       | 80         | 30         | 150             | 2.2                         | 2.6  | 30          | 30                        |
| 5PGD-F          | GaP/GaP    | 555                           | PURE GREEN    | DIFFUSED        | 30                       | 80         | 30         | 150             | 2.2                         | 2.6  | 15          | 45                        |
| 5PGT-F          | GaP/GaP    | 555                           | PURE GREEN    | TINTED          | 30                       | 80         | 30         | 150             | 2.2                         | 2.6  | 30          | 30                        |
| 5GC-F           | GaP/GaP    | 565                           | GREEN         | WATER CLEAR     | 30                       | 80         | 30         | 150             | 2.2                         | 2.6  | 150         | 20                        |
| 5GD-F           | GaP/GaP    | 565                           | GREEN         | DIFFUSED        | 30                       | 80         | 30         | 150             | 2.2                         | 2.6  | 70          | 45                        |
| 5GT-F           | GaP/GaP    | 565                           | GREEN         | TINTED          | 30                       | 80         | 30         | 150             | 2.2                         | 2.6  | 150         | 20                        |
| 5YC-F           | GaAsP/GaP  | 585                           | YELLOW        | WATER CLEAR     | 35                       | 80         | 30         | 150             | 2.1                         | 2.6  | 140         | 20                        |
| 5YD-F           | GaAsP/GaP  | 585                           | YELLOW        | DIFFUSED        | 35                       | 80         | 30         | 150             | 2.1                         | 2.6  | 70          | 45                        |
| 5YT-F           | GaAsP/GaP  | 585                           | YELLOW        | TINTED          | 35                       | 80         | 30         | 150             | 2.1                         | 2.6  | 140         | 20                        |
| 5AC-F           | GaAsP/GaP  | 610                           | AMBER         | WATER CLEAR     | 35                       | 80         | 30         | 150             | 2.2                         | 2.6  | 70          | 20                        |
| 5AD-F           | GaAsP/GaP  | 610                           | AMBER         | DIFFUSED        | 35                       | 80         | 30         | 150             | 2.2                         | 2.6  | 45          | 45                        |
| 5AT-F           | GaAsP/GaP  | 610                           | AMBER         | TINTED          | 35                       | 80         | 30         | 150             | 2.2                         | 2.6  | 70          | 20                        |
| 5HC-F           | GaAsP/GaP  | 635                           | HE RED        | WATER CLEAR     | 45                       | 80         | 30         | 150             | 2.0                         | 2.6  | 150         | 20                        |
| 5HD-F           | GaAsP/GaP  | 635                           | HE RED        | DIFFUSED        | 45                       | 80         | 30         | 150             | 2.0                         | 2.6  | 80          | 45                        |
| 5HT-F           | GaAsP/GaP  | 653                           | HE RED        | TINTED          | 45                       | 80         | 30         | 150             | 2.0                         | 2.6  | 150         | 20                        |
| 5RC-F           | GaAsP/GaAs | 655                           | RED           | WATER CLEAR     | 40                       | 80         | 40         | 200             | 1.7                         | 2.0  | 15          | 20                        |
| 5RD-F           | GaAsP/GaAs | 655                           | RED           | DIFFUSED        | 40                       | 80         | 40         | 200             | 1.7                         | 2.0  | 5           | 45                        |
| 5RT-F           | GaAsP/GaAs | 655                           | RED           | TINTED          | 40                       | 80         | 40         | 200             | 1.7                         | 2.0  | 15          | 20                        |

|                                                                                                                          |                          |                                                                                                                                                                 |                       |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| STANDARD TOLERANCE<br>( UNLESS OTHERWISE SPECIFIED )<br><u>10% All Values</u><br><u>ANGULAR</u><br>$X^\circ \pm 1^\circ$ |                          | <br>4 THOMAS, IRVINE, CA. 92618<br>TEL: (949) 951-8808 FAX: (949) 951-3974 |                       |
|                                                                                                                          |                          |                                                                            |                       |
| DESIGNED:<br><b>Sonny Dam</b>                                                                                            | DATE:<br><b>05/05/06</b> | PART NO:<br><b>ELM3XXX5XX</b>                                                                                                                                   | REVISION:<br><b>H</b> |
| CHECKED:<br><b>T. Yin</b>                                                                                                | DATE:<br><b>05/05/06</b> | CAGE CODE : <b>32559</b>                                                                                                                                        | SHEET # <b>2 OF 4</b> |
| CAD GENERATED DOCUMENT, DO NOT MEASURE DRAWING.                                                                          |                          |                                                                                                                                                                 |                       |

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

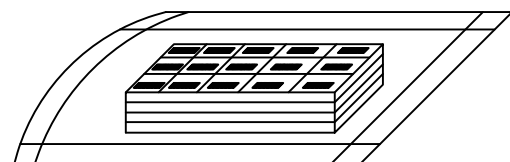
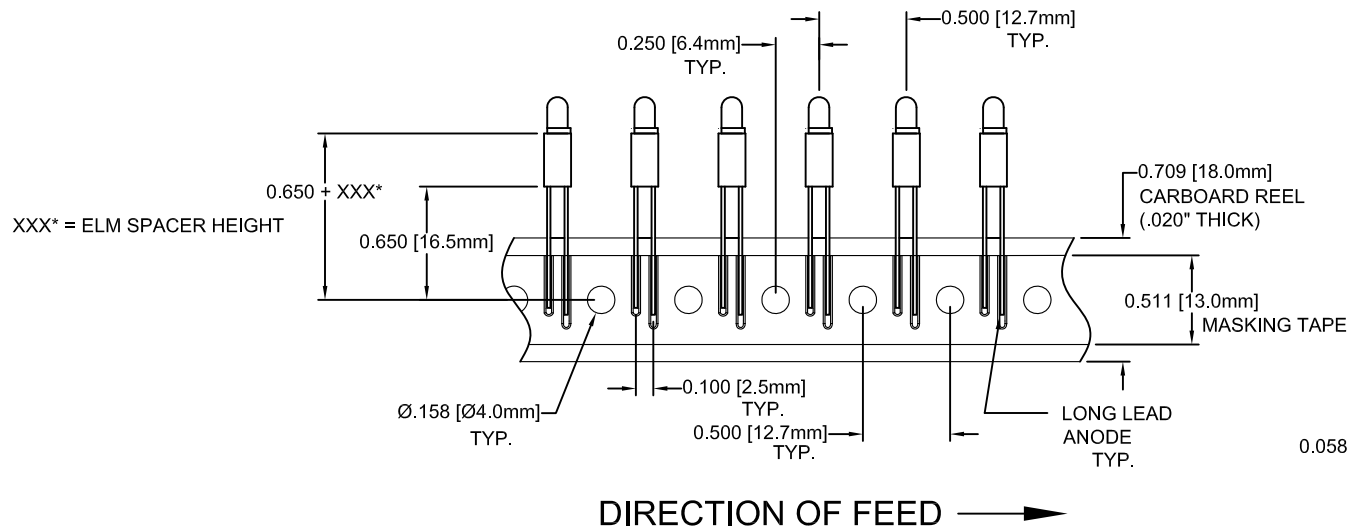
| LED<br>Part No. | Chip       |                               |               | Lens Appearance | Absolute Maximum Ratings |            |            |                 | Electro-Optical Data @ 2mA |      |             | Viewing<br>Angle<br>(Deg) |
|-----------------|------------|-------------------------------|---------------|-----------------|--------------------------|------------|------------|-----------------|----------------------------|------|-------------|---------------------------|
|                 | Material   | Peak Wave<br>Length<br>λp(nm) | Emitted Color |                 | Δλ<br>(nm)               | Pd<br>(mW) | If<br>(mA) | Peak If<br>(mA) | Vf<br>(V)                  |      | Iv<br>(mcd) |                           |
|                 |            |                               |               |                 |                          |            |            |                 | Typ.                       | Max. | Typ.        |                           |
| 5BWDL-F         | GaN/SiC    | 430                           | BLUE          | DIFFUSED        | 65                       | 90         | 5          | -               | 3.5                        | 4.0  | 6.0         | 45                        |
| 5PGDL-F         | GaP/GaP    | 555                           | PURE GREEN    | DIFFUSED        | 25                       | 10         | 5          | -               | 1.9                        | 2.2  | 1.0         | 45                        |
| 5GDL-F          | GaP/GaP    | 565                           | GREEN         | DIFFUSED        | 30                       | 10         | 5          | -               | 1.9                        | 2.2  | 3.0         | 45                        |
| 5YDL-F          | GaAsP/GaP  | 585                           | YELLOW        | DIFFUSED        | 35                       | 10         | 5          | -               | 1.9                        | 2.2  | 3.0         | 45                        |
| 5ADL-F          | GaAsP/GaP  | 610                           | AMBER         | DIFFUSED        | 35                       | 10         | 5          | -               | 1.9                        | 2.2  | 6.0         | 45                        |
| 5HDL-F          | GaAsP/GaP  | 635                           | HE RED        | DIFFUSED        | 45                       | 10         | 5          | -               | 1.8                        | 2.2  | 3.0         | 45                        |
| 5RDL-F          | GaAsP/GaAs | 660                           | SUPER RED     | DIFFUSED        | 40                       | 10         | 5          | -               | 1.9                        | 2.2  | 15.0        | 45                        |

| LED<br>Part No. | Chip      |                               |               | Lens Appearance | Absolute Maximum Ratings |            |            |                 | Electro-Optical Data @ 10mA |      |             | Viewing<br>Angle<br>(Deg) |
|-----------------|-----------|-------------------------------|---------------|-----------------|--------------------------|------------|------------|-----------------|-----------------------------|------|-------------|---------------------------|
|                 | Material  | Peak Wave<br>Length<br>λp(nm) | Emitted Color |                 | Δλ<br>(nm)               | Pd<br>(mW) | If<br>(mA) | Peak If<br>(mA) | Vf<br>(V)                   |      | Iv<br>(mcd) |                           |
|                 |           |                               |               |                 |                          |            |            |                 | Typ.                        | Max. | Typ.        |                           |
| 5GD5V-F         | GaP/GaP   | 565                           | GREEN         | DIFFUSED        | -                        | -          | 8          | 12              | -                           | 5.0  | 25.0        | 45                        |
| 5YD5V-F         | GaAsP/GaP | 585                           | YELLOW        | DIFFUSED        | -                        | -          | 8          | 12              | -                           | 5.0  | 20.0        | 45                        |
| 5AD5V-F         | GaAsP/GaP | 610                           | AMBER         | DIFFUSED        | -                        | -          | 8          | 12              | -                           | 5.0  | 60.0        | 45                        |
| 5HD5V-F         | GaAsP/GaP | 635                           | HE RED        | DIFFUSED        | -                        | -          | 8          | 12              | -                           | 5.0  | 50.0        | 45                        |
| 5RD5V-F         | GaAsP/GaP | 655                           | RED           | DIFFUSED        | -                        | -          | 8          | 12              | -                           | 5.0  | 15.0        | 45                        |

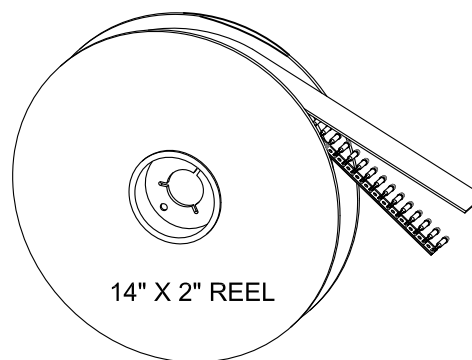
| LED<br>Part No. | Chip      |                               |               | Lens Appearance | Absolute Maximum Ratings |            |            |                 | Electro-Optical Data @ 10mA |      |             | Viewing<br>Angle<br>(Deg) |
|-----------------|-----------|-------------------------------|---------------|-----------------|--------------------------|------------|------------|-----------------|-----------------------------|------|-------------|---------------------------|
|                 | Material  | Peak Wave<br>Length<br>λp(nm) | Emitted Color |                 | Δλ<br>(nm)               | Pd<br>(mW) | If<br>(mA) | Peak If<br>(mA) | Vf<br>(V)                   |      | Iv<br>(mcd) |                           |
|                 |           |                               |               |                 |                          |            |            |                 | Typ.                        | Max. | Typ.        |                           |
| 5BC-F           | GaAsP/GaP | 625                           | RED           | DIFFUSED        | -                        | 80         | 20         | 150             | 2.0                         | 2.8  | 8.0         | 45                        |
|                 | GaP/GaP   | 568                           | GREEN         | DIFFUSED        | -                        | 80         | 20         | 150             | 2.1                         | 2.8  | 8.0         | 45                        |
| 5BC-Y/G-F       | GaAsP/GaP | 590                           | YELLOW        | DIFFUSED        | -                        | 85         | 20         | 150             | 2.0                         | 2.8  | 6.0         | 45                        |
|                 | GaP/GaP   | 568                           | GREEN         | DIFFUSED        | -                        | 80         | 20         | 150             | 2.1                         | 2.8  | 8.0         | 45                        |

|                                                                               |  |                                                                                       |  |                                                                                                                                                                 |  |
|-------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| STANDARD TOLERANCE<br>( UNLESS OTHERWISE SPECIFIED )<br><u>10% All Values</u> |  | ANGULAR<br>X° ± 1°                                                                    |  | <br>4 THOMAS, IRVINE, CA. 92618<br>TEL: (949) 951-8808 FAX: (949) 951-3974 |  |
|                                                                               |  |  |  | TITLE: Extruded Vertical T-1¾ (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>                                                                                                                                   |  |
| CHECKED:<br><b>T. Yin</b>                                                     |  | DATE:<br><b>05/05/06</b>                                                              |  | REVISION:<br><b>H</b>                                                                                                                                           |  |
|                                                                               |  |                                                                                       |  | CAGE CODE : 32559                                                                                                                                               |  |
|                                                                               |  |                                                                                       |  | SHEET # 3 OF 4                                                                                                                                                  |  |
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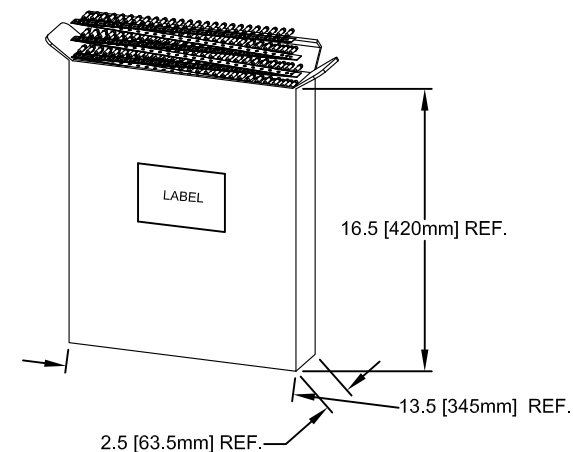
| REV. | DESCRIPTION  | DATE | APPROVED |
|------|--------------|------|----------|
|      | SEE SHEET #1 |      |          |
|      |              |      |          |
|      |              |      |          |
|      |              |      |          |
|      |              |      |          |
|      |              |      |          |



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> H                                        |                       |
| 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 OF 4 |
| CAD GENERATED DOCUMENT, DO NOT MEASURE DRAWING.      |                          |                                                                                         |                       |

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- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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## JONHON

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(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

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