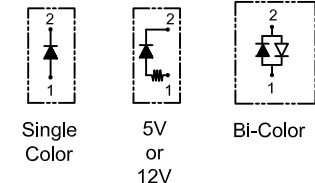
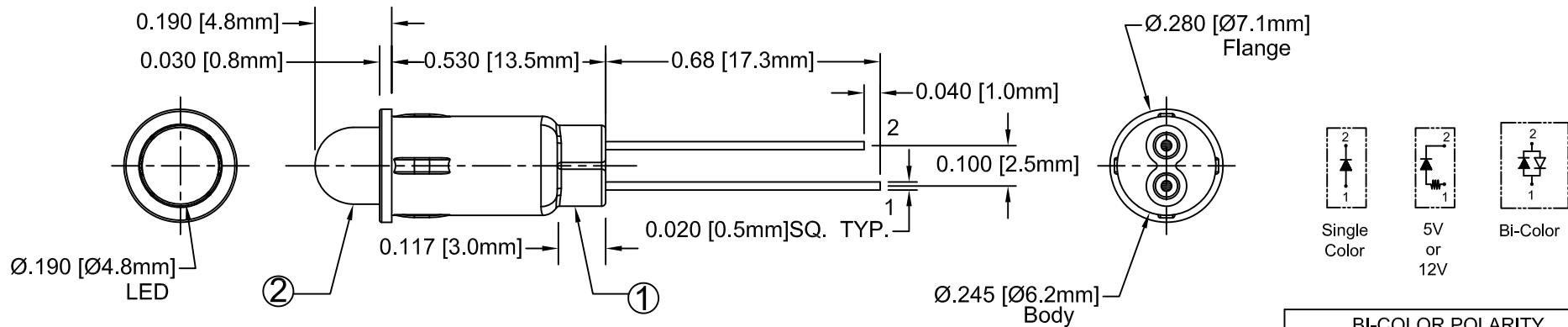
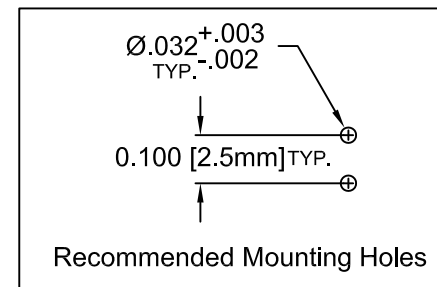
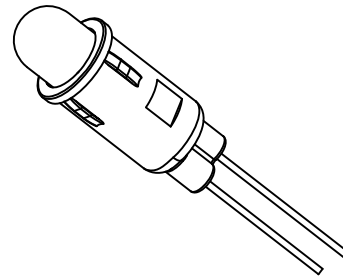
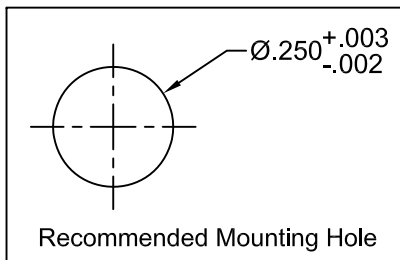


| ITEM | Q'TY | PART NUMBER | PART DESCRIPTION                                                                                     |
|------|------|-------------|------------------------------------------------------------------------------------------------------|
| 1    | 1    | PM5-XXX     | LED holder, Panel Mount, Press Fit (5mm)<br>PM5 (Standard LED), PM5-5V (5V LED), & PM5-12V (12V LED) |
| 2    | 1    | 5XX         | T1 ¾ (5mm) Non-Flange LED, See Following Pages                                                       |

| REV. | DESCRIPTION           | DATE     | APPROVED |
|------|-----------------------|----------|----------|
| A    | Engineering Release.  | 12/20/05 | M. C.    |
| B    | Added Bi-Color Specs. | 02/09/10 | T. Y.    |
| C    | Updated LED Offering. | 05/01/12 | T. Y.    |
| D    | Updated BOM item 1.   | 11/13/12 | T. Y.    |



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



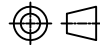
## ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

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><br>STD PANEL MOUNT INDICATORS                                             |                       |
| DESIGNED:<br><b>Sonny Dam</b>                        | DATE:<br><b>12/20/05</b> | <b>PART NO:</b><br>PM5XX                                                                | REVISION:<br><b>D</b> |
| CHECKED:<br><b>T. Yin</b>                            | DATE:<br><b>12/20/05</b> | <b>CAGE CODE :</b> 32559                                                                | <b>SHEET # 1 OF 4</b> |

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| LED Assy.No. | Chip      |                  |               | Lens Appearance | Electro-Optical Data @20mA |        |     |          | Viewing Angle<br>2 θ 1/2<br>(Deg) | LED P/N |
|--------------|-----------|------------------|---------------|-----------------|----------------------------|--------|-----|----------|-----------------------------------|---------|
|              | Material  | Peak Wave Length | Emitted Color |                 | If (mA)                    | Vf (V) |     | Iv (mcd) |                                   |         |
|              |           |                  |               |                 | MAX                        | TYP    | MAX | TYP      |                                   |         |
| PM5BWC       | GaN/SiC   | 430              | BLUE          | WATER CLEAR     | 25                         | 4      | 4.5 | 25       | 20                                | 5BWC    |
| PM5BWD       | GaN/SiC   | 430              | BLUE          | DIFFUSED        | 25                         | 4      | 4.5 | 15       | 45                                | 5BWD    |
| PM5BWT       | GaN/SiC   | 430              | BLUE          | TINTED          | 25                         | 4      | 4.5 | 30       | 20                                | 5BWT    |
| PM5GC        | GaP/GaP   | 568              | GREEN         | WATER CLEAR     | 30                         | 2.1    | 2.8 | 40       | 35                                | 5GC     |
| PM5GD        | GaP/GaP   | 568              | GREEN         | DIFFUSED        | 30                         | 2.1    | 2.8 | 25       | 45                                | 5GD     |
| PM5GT        | GaP/GaP   | 568              | GREEN         | TINTED          | 30                         | 2.1    | 2.8 | 40       | 35                                | 5GT     |
| PM5PGC       | GaP/GaP   | 555              | PURE GREEN    | WATER CLEAR     | 30                         | 2.2    | 2.8 | 10       | 35                                | 5PGC    |
| PM5PGD       | GaP/GaP   | 555              | PURE GREEN    | DIFFUSED        | 30                         | 2.2    | 2.8 | 10       | 45                                | 5PGD    |
| PM5PGT       | GaP/GaP   | 555              | PURE GREEN    | TINTED          | 30                         | 2.2    | 2.8 | 10       | 35                                | 5PGT    |
| PM5YC        | GaAsp/GaP | 590              | YELLOW        | WATER CLEAR     | 30                         | 2      | 2.8 | 40       | 35                                | 5YC     |
| PM5YD        | GaAsp/GaP | 590              | YELLOW        | DIFFUSED        | 30                         | 2      | 2.8 | 25       | 45                                | 5YD     |
| PM5YT        | GaAsp/GaP | 590              | YELLOW        | TINTED          | 30                         | 2      | 2.8 | 40       | 35                                | 5YT     |
| PM5AC        | GaAsp/GaP | 605              | AMBER         | WATER CLEAR     | 30                         | 2      | 2.8 | 40       | 35                                | 5AC     |
| PM5AD        | GaAsp/GaP | 605              | AMBER         | DIFFUSED        | 30                         | 2      | 2.8 | 25       | 45                                | 5AD     |
| PM5AT        | GaAsp/GaP | 605              | AMBER         | TINTED          | 30                         | 2      | 2.8 | 40       | 35                                | 5AT     |
| PM5HC        | GaAsp/GaP | 625              | HE RED        | WATER CLEAR     | 30                         | 2      | 2.8 | 40       | 35                                | 5HC     |
| PM5HD        | GaAsp/GaP | 625              | HE RED        | DIFFUSED        | 30                         | 2      | 2.8 | 25       | 45                                | 5HD     |
| PM5HT        | GaAsp/GaP | 625              | HE RED        | TINTED          | 30                         | 2      | 2.8 | 40       | 35                                | 5HT     |
| PM5RC        | GaP/GaP   | 700              | RED           | WATER CLEAR     | 20                         | 2.1    | 2.8 | 2        | 35                                | 5RC     |
| PM5RD        | GaP/GaP   | 700              | RED           | DIFFUSED        | 20                         | 2.1    | 2.8 | 2        | 45                                | 5RD     |
| PM5RT        | GaP/GaP   | 700              | RED           | TINTED          | 20                         | 2.1    | 2.8 | 2        | 35                                | 5RT     |
| PM5BC-A/G    | GaAsp/GaP | 605              | AMBER         | WHITE DIFFUSED  | 30                         | 2      | 2.8 | 6        | 45                                | 5BC-A/G |
|              | GaP/GaP   | 568              | GREEN         |                 | 30                         | 2.1    | 2.8 | 6        |                                   |         |
| PM5BC        | GaAsp/GaP | 625              | RED           | WHITE DIFFUSED  | 30                         | 2      | 2.8 | 6        | 45                                | 5BD     |
|              | GaP/GaP   | 568              | GREEN         |                 | 30                         | 2.1    | 2.8 | 8        |                                   |         |
| PM5BC-R/Y    | GaAsp/GaP | 625              | RED           | WHITE DIFFUSED  | 30                         | 2      | 2.8 | 6        | 45                                | 5BC-R/Y |
|              | GaP/GaP   | 590              | YELLOW        |                 | 30                         | 2      | 2.8 | 5        |                                   |         |
| PM5BC-Y/G    | GaAsp/GaP | 590              | YELLOW        | WHITE DIFFUSED  | 30                         | 2      | 2.8 | 5        | 45                                | 5BC-Y/G |
|              | GaP/GaP   | 568              | GREEN         |                 | 30                         | 2.1    | 2.8 | 8        |                                   |         |

|                                                                                       |                |                                                                                                                                                                                              |                |
|---------------------------------------------------------------------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| STANDARD TOLERANCE<br>( UNLESS OTHERWISE SPECIFIED )                                  |                | <br><b>BIVAR</b> <sup>®</sup><br>4 THOMAS, IRVINE, CA. 92618<br>TEL: (949) 951-8808 FAX: (949) 951-3974 |                |
| <u>DECIMALS</u><br>X° ± 1°                                                            | <u>ANGULAR</u> |                                                                                                                                                                                              |                |
|  |                | <b>TITLE:</b><br>STD PANEL MOUNT INDICATORS                                                                                                                                                  |                |
| DESIGNED:                                                                             | DATE:          | PART NO:                                                                                                                                                                                     | REVISION:      |
| Sonny Dam                                                                             | 12/20/05       | PM5XX                                                                                                                                                                                        | D              |
| CHECKED:                                                                              | DATE:          | CAGE CODE : 32559                                                                                                                                                                            | SHEET # 2 OF 4 |
| T. Yin                                                                                | 12/20/05       | CAD GENERATED DOCUMENT, DO NOT MEASURE DRAWING.                                                                                                                                              |                |

|      |             |      |          |
|------|-------------|------|----------|
| REV. | DESCRIPTION | DATE | APPROVED |
|      | See Page 1  |      |          |

| LED Assy.No. | Chip        |                  |               | Lens Appearance | Electro-Optical Data @20mA |        |     |          | Viewing Angle<br>2 θ 1/2<br>(Deg) | LED P/N   |
|--------------|-------------|------------------|---------------|-----------------|----------------------------|--------|-----|----------|-----------------------------------|-----------|
|              | Material    | Peak Wave Length | Emitted Color |                 | If (mA)                    | Vf (V) |     | Iv (mcd) |                                   |           |
|              |             |                  |               |                 | MAX                        | TYP    | MAX | TYP      |                                   |           |
| PM5UBWC      | InGaN/SiC   | 468              | BLUE          | WATER CLEAR     | 76                         | 3.7    | 4.5 | 2500     | 15                                | 5BWC2.515 |
| PM5SGC       | GaP/GaP     | 568              | GREEN         | WATER CLEAR     | 30                         | 2.1    | 2.8 | 60       | 35                                | 5SGC      |
| PM5SGD       | GaP/GaP     | 568              | GREEN         | DIFFUSED        | 30                         | 2.1    | 2.8 | 50       | 40                                | 5SGD      |
| PM5SGT       | GaP/GaP     | 568              | GREEN         | TINTED          | 30                         | 2.1    | 2.8 | 60       | 35                                | 5SGT      |
| PM5SYC       | GaAsP/GaP   | 590              | YELLOW        | WATER CLEAR     | 30                         | 2      | 2.8 | 600      | 35                                | 5SYC      |
| PM5SYD       | GaAsP/GaP   | 590              | YELLOW        | DIFFUSED        | 30                         | 2      | 2.8 | 150      | 40                                | 5SYD      |
| PM5SYT       | GaAsP/GaP   | 590              | YELLOW        | TINTED          | 30                         | 2      | 2.8 | 600      | 35                                | 5SYT      |
| PM5SRC       | GaAlAs/GaAs | 645              | SUPER RED     | WATER CLEAR     | 30                         | 1.7    | 2.4 | 60       | 35                                | 5SRC      |
| PM5SRD       | GaAlAs/GaAs | 645              | SUPER RED     | DIFFUSED        | 30                         | 1.7    | 2.4 | 40       | 40                                | 5SRD      |
| PM5SRT       | GaAlAs/GaAs | 645              | SUPER RED     | TINTED          | 30                         | 1.7    | 2.4 | 60       | 35                                | 5SRT      |
| PM5UGC       | AlGaInP     | 570              | GREEN         | WATER CLEAR     | 30                         | 2.1    | 2.4 | 600      | 35                                | 5UGC      |
| PMTSUGC      | AlGaInP     | 570              | GREEN         | WATER CLEAR     | 30                         | 2.1    | 2.4 | 300      | 35                                | 5SUGC     |
| PM5UYC       | AlGaInP     | 590              | YELLOW        | WATER CLEAR     | 30                         | 2      | 2.4 | 1000     | 30                                | 5UYC      |
| PM5SUYC      | AlGaInP     | 590              | YELLOW        | WATER CLEAR     | 30                         | 2      | 2.4 | 700      | 35                                | 5SUYC     |
| PM5UOC       | AlGaInP     | 590              | YELLOW        | WATER CLEAR     | 30                         | 2      | 2.4 | 500      | 35                                | 5UUYC     |
| PM5UOC       | AlGaInP     | 625              | ORANGE        | WATER CLEAR     | 30                         | 1.8    | 2.4 | 1400     | 35                                | 5UOC      |
| PM5SUOC      | AlGaInP     | 625              | ORANGE        | WATER CLEAR     | 30                         | 1.8    | 2.4 | 1300     | 35                                | 5SUOC     |
| PM5URC       | GaAlAs/GaAs | 645              | RED           | WATER CLEAR     | 30                         | 1.7    | 2.4 | 400      | 30                                | 5URC      |
| PM5SURC      | AlGaInP     | 640              | RED           | WATER CLEAR     | 30                         | 1.8    | 2.4 | 500      | 35                                | 5SURC     |
| PM5UWC       | InGaN/SiC   | 6500K            | WHITE         | WATER CLEAR     | 100                        | 3.5    | 4.2 | 2700     | 30                                | 5WC2.730  |

|                                                                         |                          |                                                                                       |  |                                                                                                                                                                 |  |
|-------------------------------------------------------------------------|--------------------------|---------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| STANDARD TOLERANCE<br>( UNLESS OTHERWISE SPECIFIED )<br><u>DECIMALS</u> |                          | ANGULAR<br>$X^{\circ} \pm 1^{\circ}$                                                  |  | <br>4 THOMAS, IRVINE, CA. 92618<br>TEL: (949) 951-8808 FAX: (949) 951-3974 |  |
|                                                                         |                          |  |  | TITLE:<br>STD PANEL MOUNT INDICATORS                                                                                                                            |  |
| DESIGNED:<br><b>Sonny Dam</b>                                           | DATE:<br><b>12/20/05</b> | PART NO:<br><b>PM5XX</b>                                                              |  | REVISION:<br><b>D</b>                                                                                                                                           |  |
| CHECKED:<br><b>T. Yin</b>                                               | DATE:<br><b>12/20/05</b> | CAGE CODE : <b>32559</b>                                                              |  | SHEET # 3 OF 4                                                                                                                                                  |  |
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| 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         |                                        |         |
| PM5BWDL       | 430                                  | BLUE          | DIFFUSED        | 7           | 3.8                        | 4.2 | 4           | 45                                     | 5BWDL   |
| PM5PGDL       | 555                                  | PURE GREEN    | DIFFUSED        | 7           | 2.1                        | 2.6 | 1           | 45                                     | 5PGDL   |
| PM5GDL        | 568                                  | GREEN         | DIFFUSED        | 7           | 2.1                        | 2.6 | 5           | 45                                     | 5GDL    |
| PM5YDL        | 590                                  | YELLOW        | DIFFUSED        | 7           | 2.0                        | 2.6 | 4           | 45                                     | 5YDL    |
| PM5ADL        | 605                                  | AMBER         | DIFFUSED        | 7           | 2.0                        | 2.6 | 4           | 45                                     | 5ADL    |
| PM5HDL        | 625                                  | HE RED        | DIFFUSED        | 7           | 2.0                        | 2.6 | 5           | 45                                     | 5HDL    |
| PM5SRDL       | 645                                  | SUPER RED     | DIFFUSED        | 7           | 1.7                        | 2.3 | 6           | 45                                     | 5SRDL   |

| Assembly P/N | Peak Wave Length<br>λp(nm) | Emitted Color | Lens Appearance | Electro-Optical Data |           |     |             | Viewing Angle<br>2 θ 1/2<br>(Deg) | LED P/N |
|--------------|----------------------------|---------------|-----------------|----------------------|-----------|-----|-------------|-----------------------------------|---------|
|              |                            |               |                 | If<br>(mA)           | Vf<br>(V) |     | Iv<br>(mcd) |                                   |         |
|              |                            |               |                 | MAX                  | TYP       | MAX | TYP         |                                   |         |
| 5 Volt       |                            |               |                 | Data @ 5V            |           |     |             |                                   |         |
| PM5BWD5V     | 430                        | BLUE          | DIFFUSED        | -                    | -         | 5   | 15          | 40                                | 5BWD5V  |
| PM5GC5V      | 568                        | GREEN         | WATER CLEAR     | -                    | -         | 5   | 40          | 40                                | 5GC5V   |
| PM5GD5V      | 568                        | GREEN         | DIFFUSED        | -                    | -         | 5   | 25          | 40                                | 5GD5V   |
| PM5GT5V      | 568                        | GREEN         | TINTED          | -                    | -         | 5   | 40          | 40                                | 5GT5V   |
| PM5AD5V      | 605                        | AMBER         | DIFFUSED        | -                    | -         | 5   | 25          | 40                                | 5AD5V   |
| PM5HD5V      | 625                        | HE RED        | DIFFUSED        | -                    | -         | 5   | 30          | 40                                | 5HD5V   |
| PM5RD5V      | 700                        | RED           | DIFFUSED        | -                    | -         | 5   | 1.5         | 40                                | 5RD5V   |
| PM5YD5V      | 590                        | YELLOW        | DIFFUSED        | -                    | -         | 5   | 25          | 40                                | 5YD5V   |
| 12 Volt      |                            |               |                 | Data @ 12V           |           |     |             |                                   |         |
| PM5GC12V     | 568                        | GREEN         | WATER CLEAR     | -                    | -         | 12  | 40          | 35                                | 5GC12V  |
| PM5GD12V     | 568                        | GREEN         | DIFFUSED        | -                    | -         | 12  | 25          | 40                                | 5GD12V  |
| PM5HC12V     | 625                        | HE RED        | WATER CLEAR     | -                    | -         | 12  | 50          | 35                                | 5HC12V  |
| PM5HD12V     | 625                        | HE RED        | DIFFUSED        | -                    | -         | 12  | 30          | 40                                | 5HD12V  |
| PM5RC12V     | 700                        | RED           | WATER CLEAR     | -                    | -         | 12  | 2           | 35                                | 5RC12V  |
| PM5RD12V     | 700                        | RED           | DIFFUSED        | -                    | -         | 12  | 1.5         | 40                                | 5RD12V  |
| PM5YC12V     | 590                        | YELLOW        | WATER CLEAR     | -                    | -         | 12  | 25          | 35                                | 5YC12V  |
| PM5YD12V     | 590                        | YELLOW        | DIFFUSED        | -                    | -         | 12  | 20          | 40                                | 5YD12V  |

|                                                                         |                          |                                                                                                                                                                                              |                       |
|-------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| STANDARD TOLERANCE<br>( UNLESS OTHERWISE SPECIFIED )<br><u>DECIMALS</u> |                          | <br><b>BIVAR</b> <sup>®</sup><br>4 THOMAS, IRVINE, CA. 92618<br>TEL: (949) 951-8808 FAX: (949) 951-3974 |                       |
| <u>ANGULAR</u><br>X° ± 1°                                               |                          |                                                                                                         |                       |
| DESIGNED:<br><b>Sonny Dam</b>                                           | DATE:<br><b>12/20/05</b> | TITLE:<br>STD PANEL MOUNT INDICATORS                                                                                                                                                         |                       |
| CHECKED:<br><b>T. Yin</b>                                               | DATE:<br><b>12/20/05</b> | PART NO:<br><b>PM5XX</b>                                                                                                                                                                     | REVISION:<br><b>D</b> |
| CAGE CODE : 32559                                                       |                          | SHEET # 4 OF 4                                                                                                                                                                               |                       |
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