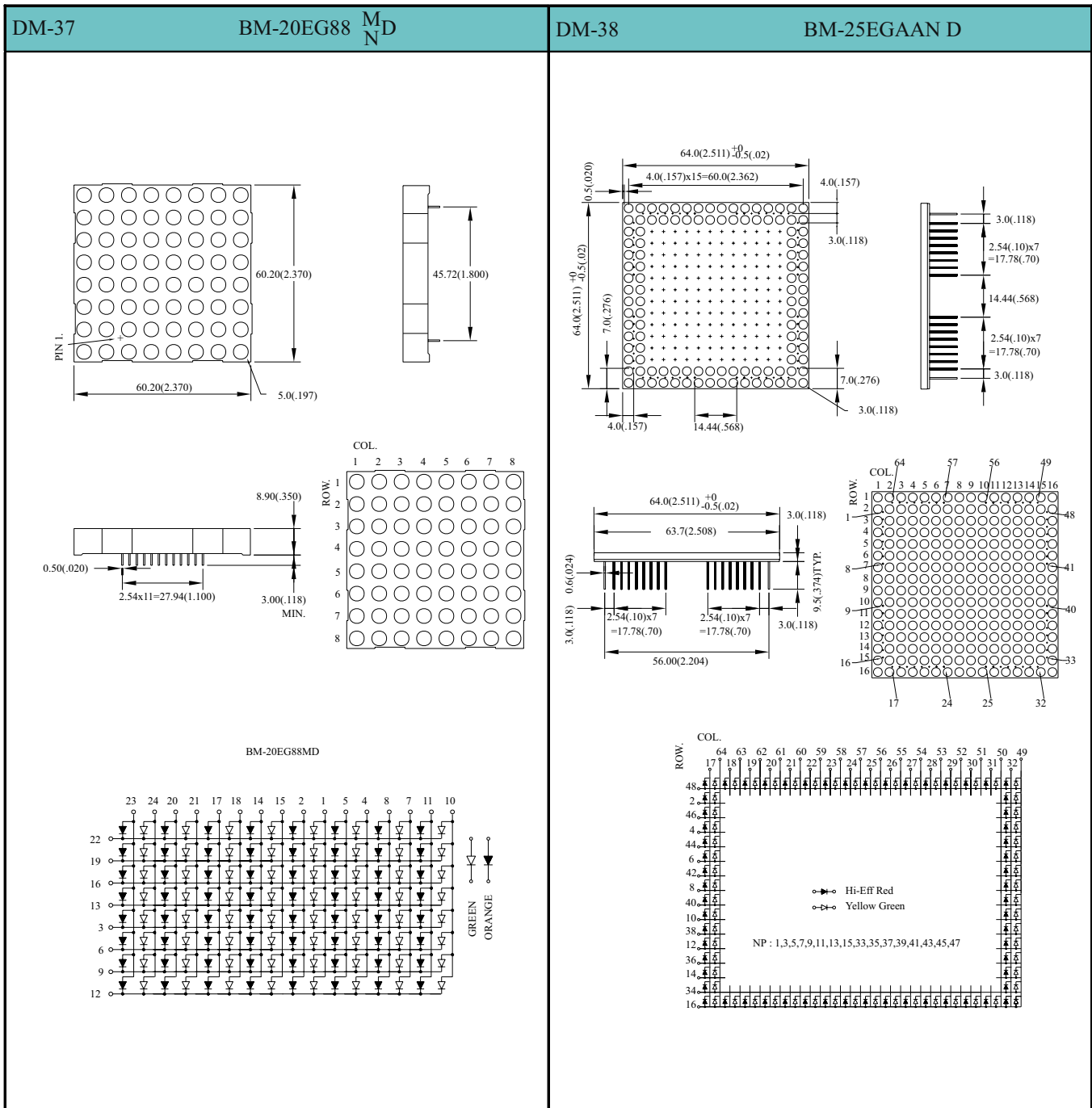


## Multi-Color 8x8 & 16x16 Dot Matrix Displays

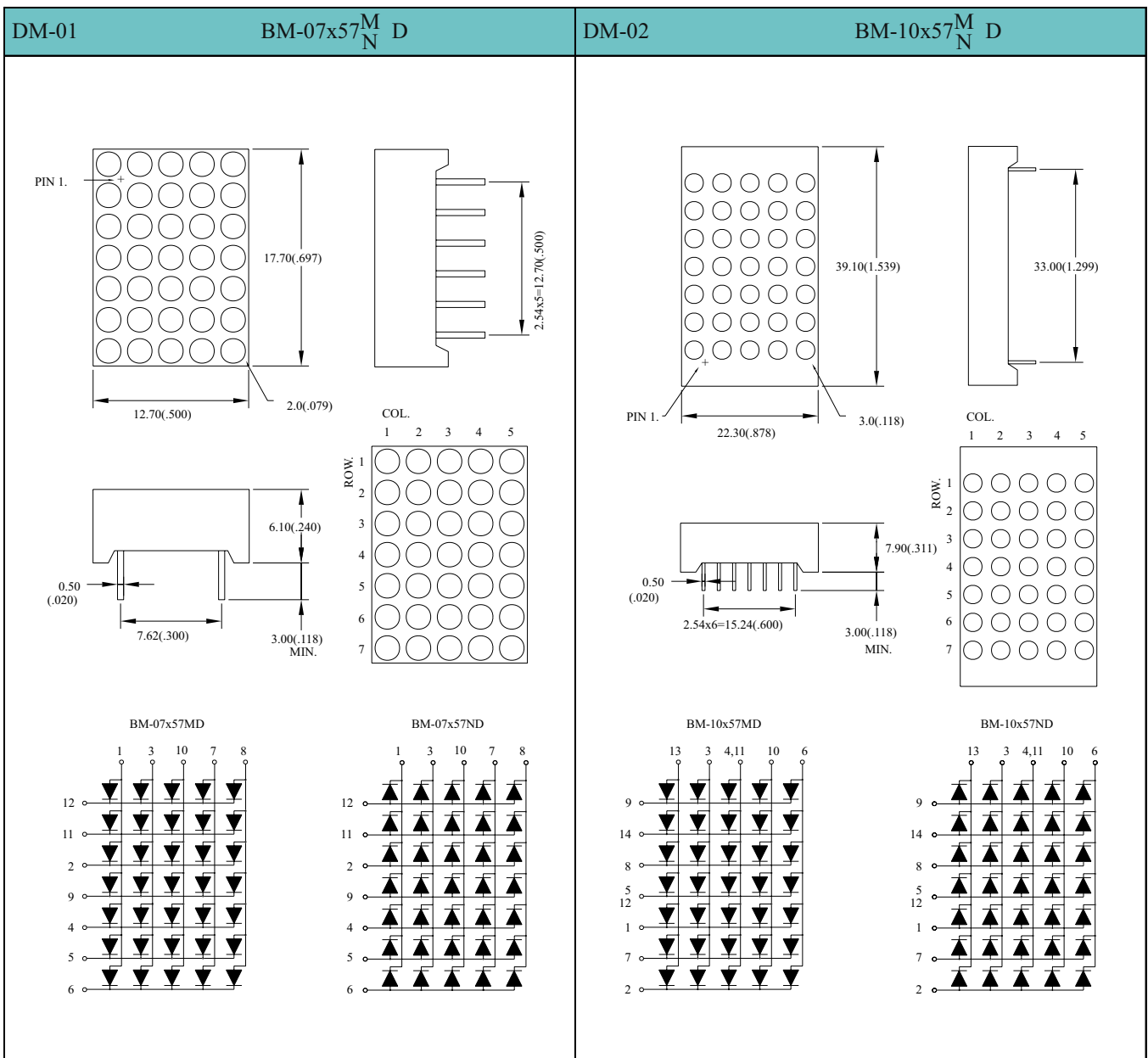
| Digit Size               | Part No.            |                       | Chip                   |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|--------------------------|---------------------|-----------------------|------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                          | Column Common Anode | Column Common Cathode | Material/Emitted Color | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                          |                     |                       |                        |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 2.30" High<br>$\phi$ 5.0 | BM-20EG88MD         | BM-20EG88ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 15.0                    | DM-37       |
|                          |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 15.0                    |             |
| 2.50" High<br>$\phi$ 3.0 |                     | BM-25EGAAND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 8.0                     | DM-38       |
|                          |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 8.0                     |             |



NOTES: 1.All Dimensions are in millimeters(inches).  
3.Specifications are subject to change without notice.

2.Tolerance is  $\pm 0.25\text{mm}(\pm 0.010")$ .  
4.NP:No Pin. 5.NC:No Connect.

| Digit Size            | Part No.            |                       | Chip                       |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|-----------------------|---------------------|-----------------------|----------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                       | Column Common Anode | Column Common Cathode | Material/Emitted Color     | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                       |                     |                       |                            |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 0.70" High $\phi$ 2.0 | BM-07257MD          | BM-07257ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 8.0                     | DM-01       |
|                       | BM-07457MD          | BM-07457ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 8.0                     |             |
|                       | BM-07657MD          | BM-07657ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 12.0                    |             |
|                       | BM-07J57MD          | BM-07J57ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30      | 150      | 2.0                           | 2.5  | 28.0                    |             |
|                       | BM-07K57MD          | BM-07K57ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30      | 150      | 2.1                           | 2.5  | 30.0                    |             |
| 1.20" High $\phi$ 3.0 | BM-10257MD          | BM-10257ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 8.0                     | DM-02       |
|                       | BM-10457MD          | BM-10457ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 8.0                     |             |
|                       | BM-10657MD          | BM-10657ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 12.0                    |             |
|                       | BM-10J57MD          | BM-10J57ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30      | 150      | 2.0                           | 2.5  | 28.0                    |             |
|                       | BM-10K57MD          | BM-10K57ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30      | 150      | 2.1                           | 2.5  | 30.0                    |             |

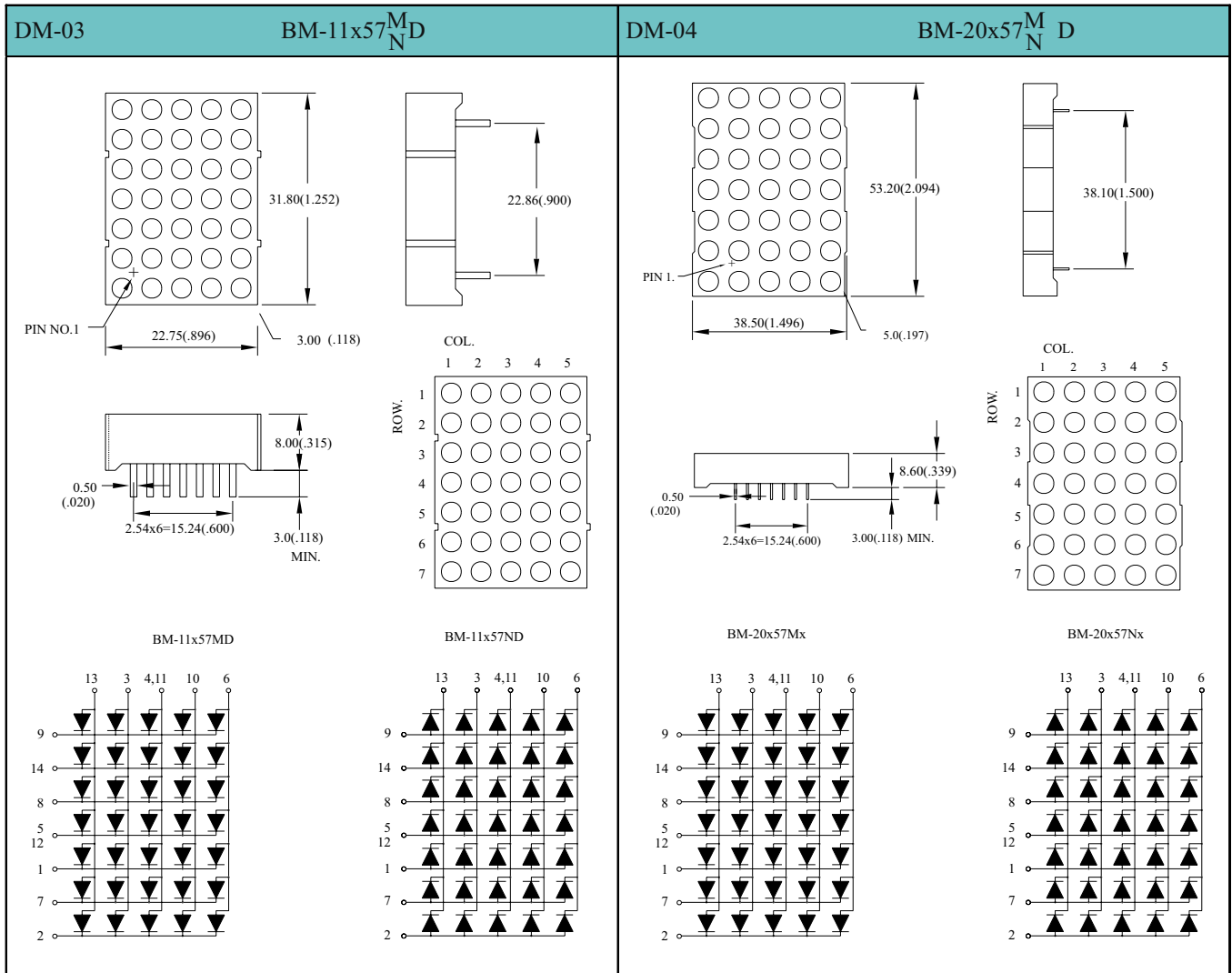


NOTES: 1.All Dimensions are in millimeters( inches).  
3.Specifications are subject to change without notice.

2.Tolerance is 0.25mm(.010").  
4.NP:No Pin. 5.NC:No Connect.

## SingleColor 5x7 Dot Matrix Displays

| Digit Size            | Part No.            |                       | Chip                       |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|-----------------------|---------------------|-----------------------|----------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                       | Column Common Anode | Column Common Cathode | Material/Emitted Color     | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                       |                     |                       |                            |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 1.40" High $\phi$ 3.0 | BM-11257MD          | BM-11257ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 9.0                     | DM-03       |
|                       | BM-11457MD          | BM-11457ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 9.0                     |             |
|                       | BM-11457MA          | BM-11457NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 16.0                    |             |
|                       | BM-11657MD          | BM-11657ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 14.0                    |             |
|                       | BM-11657MA          | BM-11657NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 18.0                    |             |
|                       | BM-11F57MD          | BM-11F57ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30      | 150      | 2.0                           | 2.5  | 20.0                    |             |
|                       | BM-11J57MD          | BM-11J57ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30      | 150      | 2.0                           | 2.5  | 28.0                    |             |
|                       | BM-11K57MD          | BM-11K57ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30      | 150      | 2.1                           | 2.5  | 30.0                    |             |
| 2.00" High $\phi$ 5.0 | BM-20257MD          | BM-20257ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 12.0                    | DM-04       |
|                       | BM-20457MD          | BM-20457ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 12.0                    |             |
|                       | BM-20457MA          | BM-20457NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 20.0                    |             |
|                       | BM-20657MD          | BM-20657ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 16.0                    |             |
|                       | BM-20657MA          | BM-20657NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 24.0                    |             |
|                       | BM-20F57MD          | BM-20F57ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30      | 150      | 2.0                           | 2.5  | 22.0                    |             |
|                       | BM-20J57MD          | BM-20J57ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30      | 150      | 2.0                           | 2.5  | 30.0                    |             |
|                       | BM-20K57MD          | BM-20K57ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30      | 150      | 2.1                           | 2.5  | 32.0                    |             |

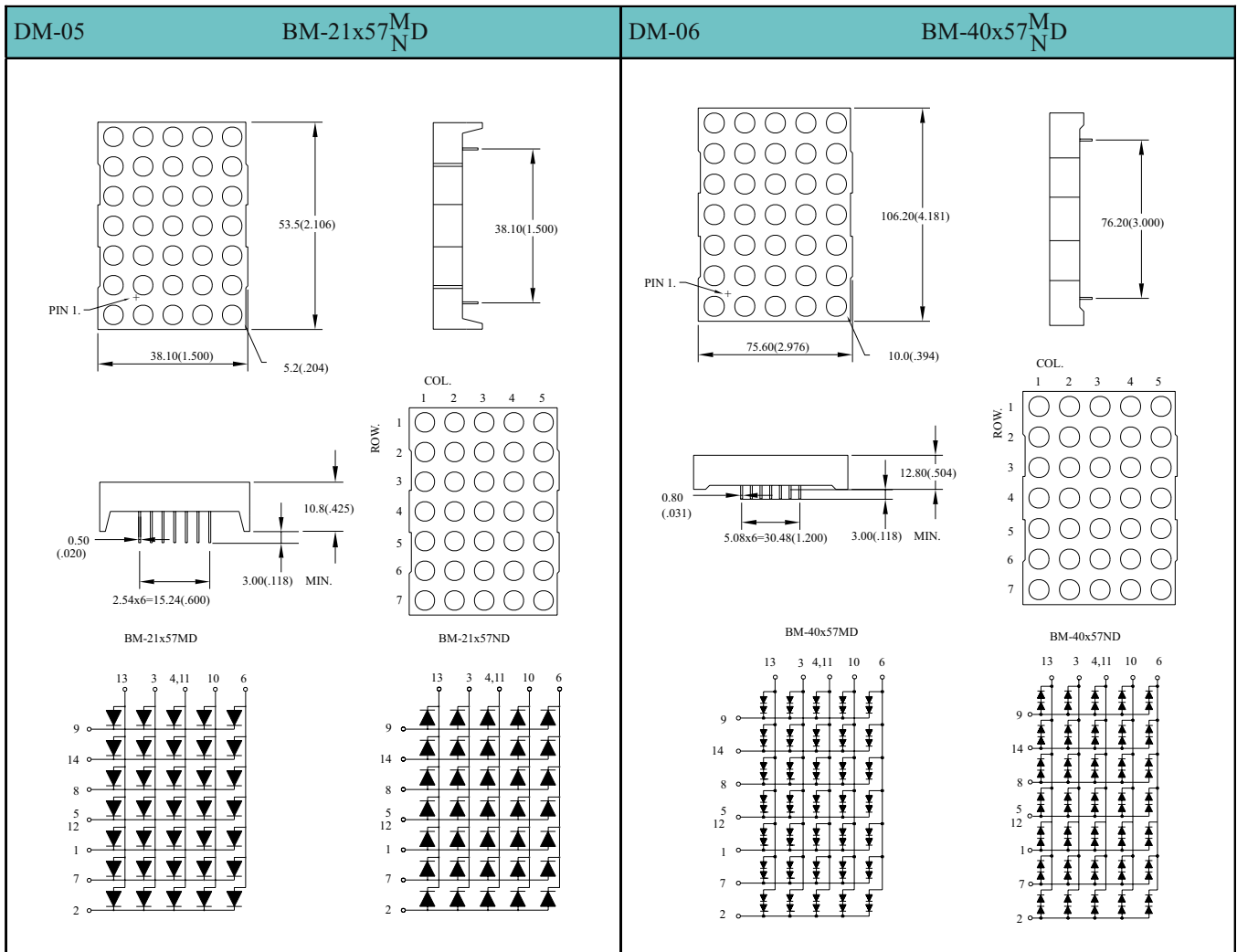


NOTES: 1.All Dimensions are in millimeters(inches).  
 3.Specifications are subject to change without notice.

2.Tolerance is  $\pm 0.25\text{mm}(\pm 0.010\text{'})$ .  
 4.NP:No Pin. 5.NC:No Connect.

## SingleColor 5x7 Dot Matrix Displays

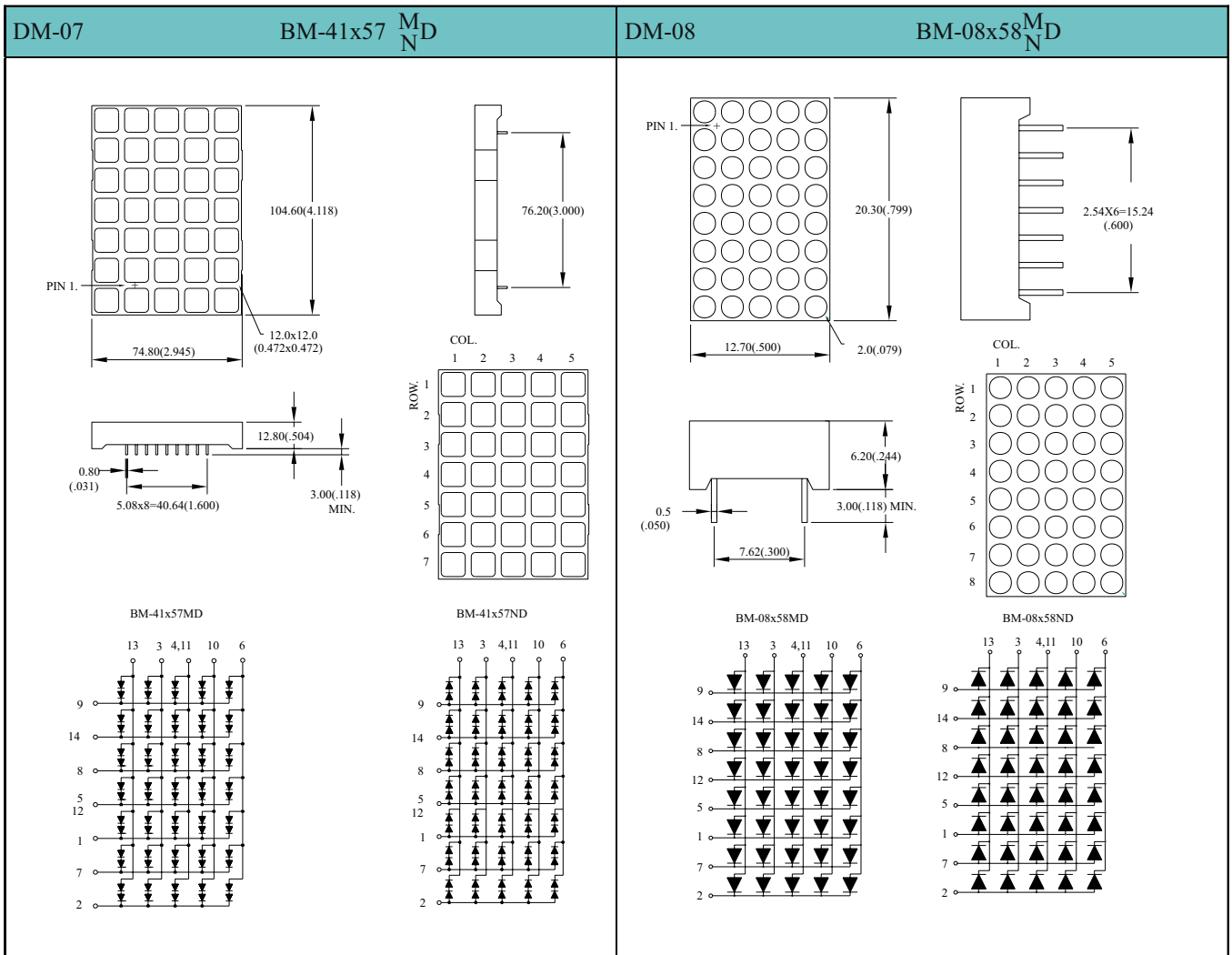
| Digit Size             | Part No.            |                       | Chip                       |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|------------------------|---------------------|-----------------------|----------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                        | Column Common Anode | Column Common Cathode | Material/Emitted Color     | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                        |                     |                       |                            |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 2.00" High $\phi$ 5.0  | BM-21257MD          | BM-21257ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 12.0                    | DM-05       |
|                        | BM-21457MD          | BM-21457ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 12.0                    |             |
|                        | BM-21457MA          | BM-21457NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 20.0                    |             |
|                        | BM-21657MD          | BM-21657ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 16.0                    |             |
|                        | BM-21657MA          | BM-21657NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 24.0                    |             |
|                        | BM-21F57MD          | BM-21F57ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30      | 150      | 2.0                           | 2.5  | 22.0                    |             |
|                        | BM-21J57MD          | BM-21J57ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30      | 150      | 2.0                           | 2.5  | 30.0                    |             |
|                        | BM-21K57MD          | BM-21K57ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30      | 150      | 2.1                           | 2.5  | 32.0                    |             |
| 4.00" High $\phi$ 10.0 | BM-40257MD          | BM-40257ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 160     | 30      | 150      | 4.2                           | 5.0  | 15.0                    | DM-06       |
|                        | BM-40457MD          | BM-40457ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 160     | 30      | 150      | 4.0                           | 5.0  | 15.0                    |             |
|                        | BM-40457MA          | BM-40457NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 160     | 30      | 150      | 4.0                           | 5.0  | 23.0                    |             |
|                        | BM-40657MD          | BM-40657ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 160     | 30      | 150      | 3.4                           | 5.0  | 20.0                    |             |
|                        | BM-40657MA          | BM-40657NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 160     | 30      | 150      | 3.4                           | 5.0  | 25.0                    |             |
|                        | BM-40F57MD          | BM-40F57ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 160     | 30      | 150      | 4.0                           | 5.0  | 20.0                    |             |
|                        | BM-40J57MD          | BM-40J57ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 160     | 30      | 150      | 4.0                           | 5.0  | 32.0                    |             |
|                        | BM-40K57MD          | BM-40K57ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 160     | 30      | 150      | 4.2                           | 5.0  | 35.0                    |             |



NOTES: 1.All Dimensions are in millimeters(inches).  
 2.Tolerance is  $\pm 0.25\text{mm}(.010\text{'})$ .  
 3.Specifications are subject to change without notice.  
 4.NP:No Pin. 5.NC:No Connect.

## SingleColor 5x7 & 5x8 Dot Matrix Displays

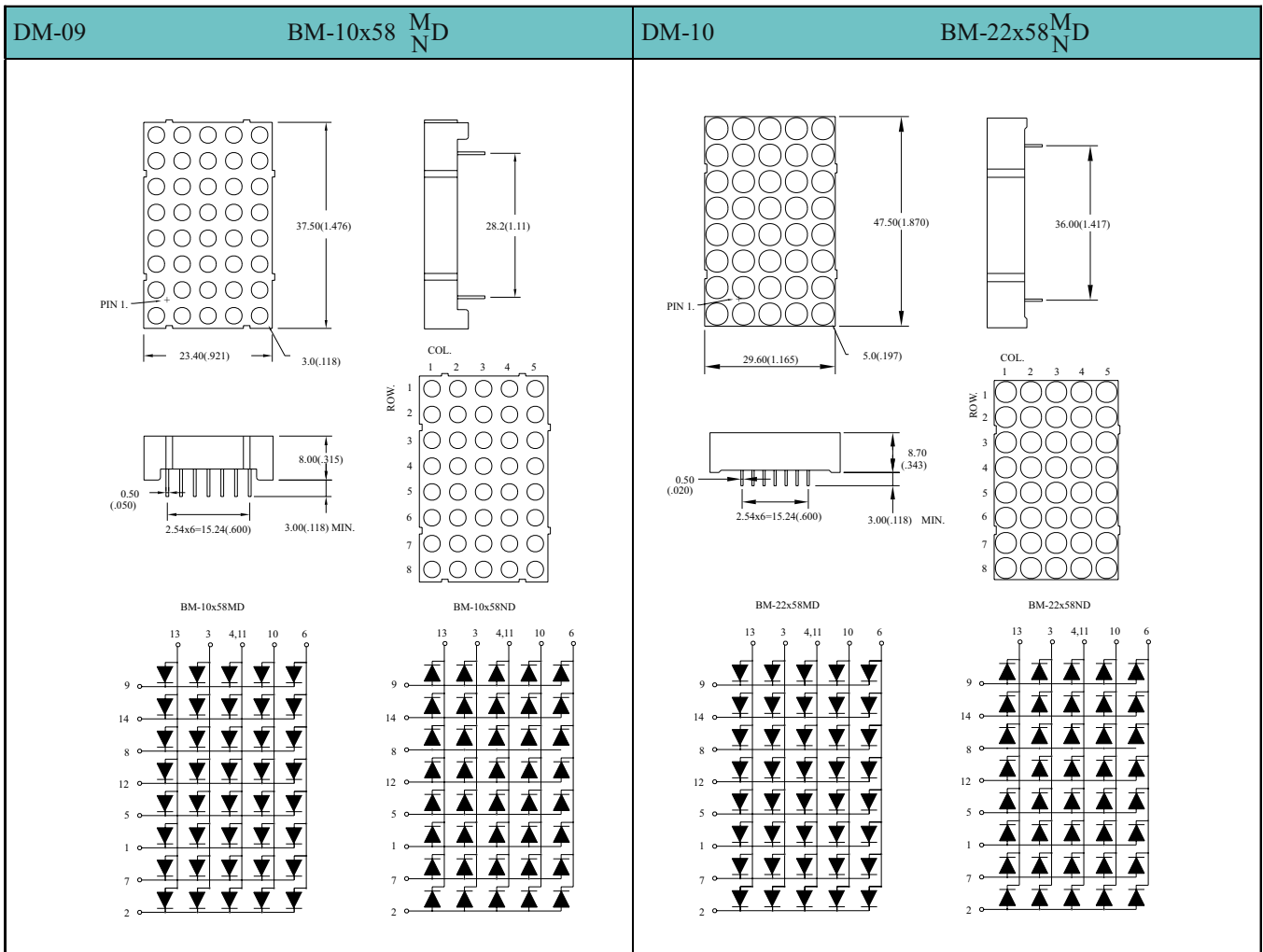
| Digit Size                 | Part No.            |                       | Chip                       |                                   | Absolute Maximum Ratings |         |            |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|----------------------------|---------------------|-----------------------|----------------------------|-----------------------------------|--------------------------|---------|------------|----------|-------------------------------|------|-------------------------|-------------|
|                            | Column Common Anode | Column Common Cathode | Material/Emitted Color     | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA)    | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                            |                     |                       |                            |                                   |                          |         |            |          | Typ.                          | Max. |                         |             |
| 4.00" High<br>12.0*12.0 mm | BM-41257MD          | BM-41257ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 160     | 30         | 150      | 4.2                           | 5.0  | 15.0                    | DM-07       |
|                            | BM-41457MD          | BM-41457ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 160     | 30         | 150      | 4.0                           | 5.0  | 15.0                    |             |
|                            | BM-41457MA          | BM-41457NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 160     | 30         | 150      | 4.0                           | 5.0  | 23.0                    |             |
|                            | BM-41657MD          | BM-41657ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 160     | 30         | 150      | 3.4                           | 5.0  | 20.0                    |             |
|                            | BM-41657MA          | BM-41657NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 160     | 30         | 150      | 3.4                           | 5.0  | 25.0                    |             |
|                            | BM-41F57MD          | BM-41F57ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 160     | 30         | 150      | 4.0                           | 5.0  | 20.0                    |             |
|                            | BM-41J57MD          | BM-41J57ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 160     | 30         | 150      | 4.0                           | 5.0  | 32.0                    |             |
|                            | BM-41K57MD          | BM-41K57ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 160     | 30         | 150      | 4.2                           | 5.0  | 35.0                    |             |
| 0.80" High<br>$\phi$ 2.0   | BM-08258MD          | BM-08258ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30         | 150      | 2.1                           | 2.5  | 8.0                     | DM-08       |
|                            | BM-08458MD          | BM-08458ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30         | 150      | 2.0                           | 2.5  | 8.0                     |             |
|                            | BM-08458MA          | BM-08458NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30         | 150      | 2.0                           | 2.5  | 12.0                    |             |
|                            | BM-08658MD          | BM-08658ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30         | 150      | 1.7                           | 2.5  | 12.0                    |             |
|                            | BM-08658MA          | BM-08658NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30 <td 150 | 1.7      | 2.5                           | 16.0 |                         |             |
|                            | BM-08F58MD          | BM-08F58ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30         | 150      | 2.0                           | 2.5  | 18.0                    |             |
|                            | BM-08J58MD          | BM-08J58ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30         | 150      | 2.0                           | 2.5  | 20.0                    |             |
|                            | BM-08K58MD          | BM-08K58ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30         | 150      | 2.1                           | 2.5  | 20.0                    |             |



NOTES: 1.All Dimensions are in millimeters(inches).  
 2.Tolerance is  $\pm 0.25\text{mm}(\pm 0.010\text{'})$ .  
 3.Specifications are subject to change without notice.  
 4.NP:No Pin. 5.NC:No Connect.

## SingleColor 5x8 Dot Matrix Displays

| Digit Size            | Part No.            |                       | Chip                       |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|-----------------------|---------------------|-----------------------|----------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                       | Column Common Anode | Column Common Cathode | Material/Emitted Color     | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                       |                     |                       |                            |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 1.50" High $\phi$ 3.0 | BM-10258MD          | BM-10258ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 9.0                     | DM-09       |
|                       | BM-10458MD          | BM-10458ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 9.0                     |             |
|                       | BM-10458MA          | BM-10458NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 9.0                     |             |
|                       | BM-10658MD          | BM-10658ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 13.0                    |             |
|                       | BM-10658MA          | BM-10658NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 17.0                    |             |
|                       | BM-10F58MD          | BM-10F58ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30      | 150      | 2.0                           | 2.5  | 20.0                    |             |
|                       | BM-10J58MD          | BM-10J58ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30      | 150      | 2.0                           | 2.5  | 22.0                    |             |
|                       | BM-10K58MD          | BM-10K58ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30      | 150      | 2.1                           | 2.5  | 22.0                    |             |
| 1.90" High $\phi$ 5.0 | BM-22258MD          | BM-22258ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 10.0                    | DM-10       |
|                       | BM-22458MD          | BM-22458ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 10.0                    |             |
|                       | BM-22458MA          | BM-22458NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 15.0                    |             |
|                       | BM-22658MD          | BM-22658ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 18.0                    |             |
|                       | BM-22658MA          | BM-22658NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 25.0                    |             |
|                       | BM-22F58MD          | BM-22F58ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30      | 150      | 2.0                           | 2.5  | 23.0                    |             |
|                       | BM-22J58MD          | BM-22J58ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30      | 150      | 2.0                           | 2.5  | 25.0                    |             |
|                       | BM-22K58MD          | BM-22K58ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30      | 150      | 2.1                           | 2.5  | 25.0                    |             |

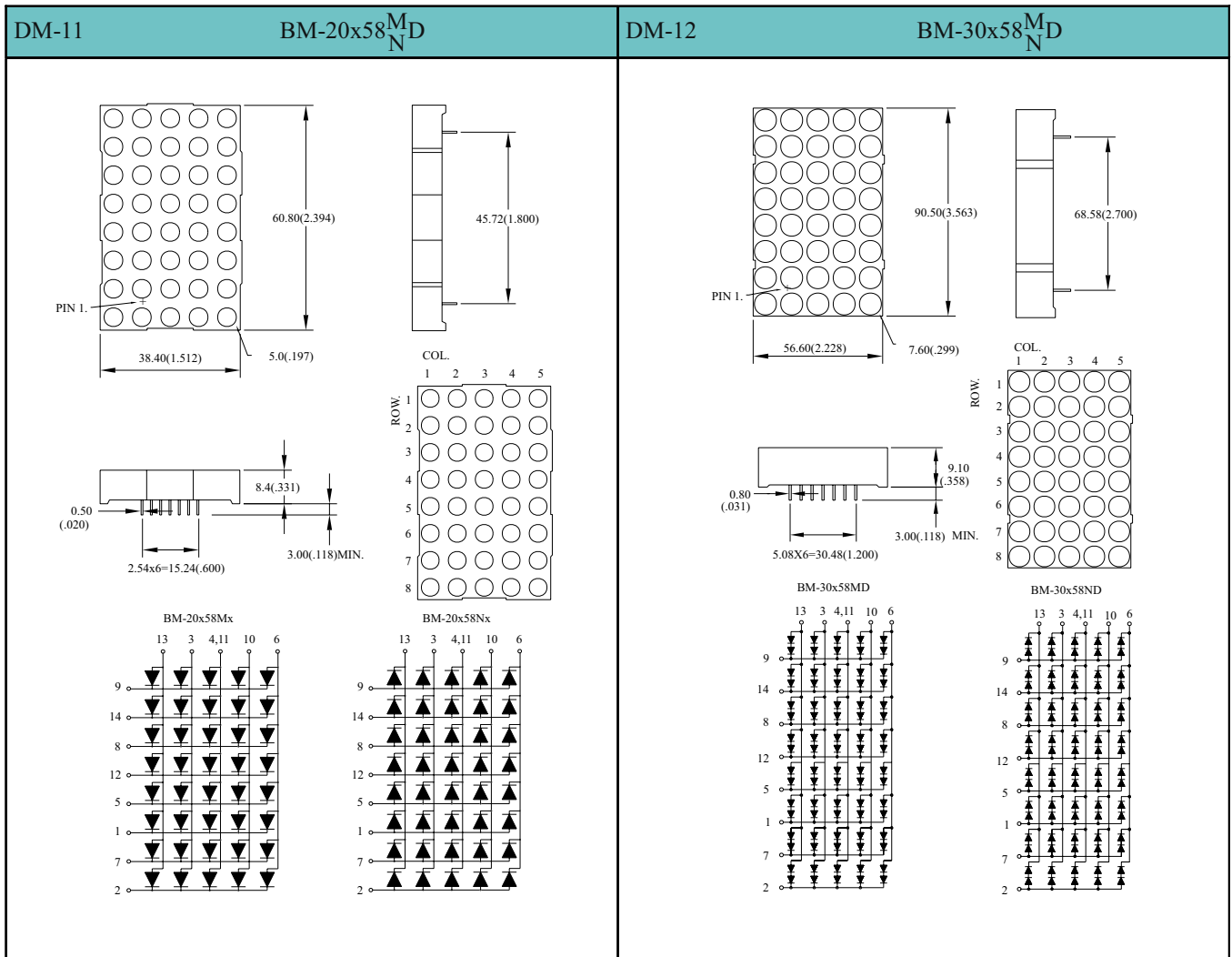


NOTES: 1.All Dimensions are in millimeters(inches).  
 3.Specifications are subject to change without notice.

2.Tolerance is 0.25mm(0.010").  
 4.NP:No Pin. 5.NC:No Connect.

## SingleColor 5x8 Dot Matrix Displays

| Digit Size            | Part No.            |                       | Chip                       |                                   | Absolute Maximum Ratings |         |            |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|-----------------------|---------------------|-----------------------|----------------------------|-----------------------------------|--------------------------|---------|------------|----------|-------------------------------|------|-------------------------|-------------|
|                       | Column Common Anode | Column Common Cathode | Material/Emitted Color     | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA)    | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                       |                     |                       |                            |                                   |                          |         |            |          | Typ.                          | Max. |                         |             |
| 2.30l High $\phi$ 5.0 | BM-20258MD          | BM-20258ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30         | 150      | 2.1                           | 2.5  | 10.0                    | DM-11       |
|                       | BM-20458MD          | BM-20458ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30         | 150      | 2.0                           | 2.5  | 10.0                    |             |
|                       | BM-20458MA          | BM-20458NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30         | 150      | 2.0                           | 2.5  | 15.0                    |             |
|                       | BM-20658MD          | BM-20658ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30         | 150      | 1.7                           | 2.5  | 18.0                    |             |
|                       | BM-20658MA          | BM-20658NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30         | 150      | 1.7                           | 2.5  | 25.0                    |             |
|                       | BM-20F58MD          | BM-20F58ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30         | 150      | 2.0                           | 2.5  | 23.0                    |             |
|                       | BM-20J58MD          | BM-20J58ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30         | 150      | 2.0                           | 2.5  | 25.0                    |             |
|                       | BM-20K58MD          | BM-20K58ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30         | 150      | 2.1                           | 2.5  | 25.0                    |             |
| 3.50l High $\phi$ 7.6 | BM-30258MD          | BM-30258ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 160     | 30         | 150      | 4.2                           | 5.0  | 12.0                    | DM-12       |
|                       | BM-30458MD          | BM-30458ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 160     | 30         | 150      | 4.0                           | 5.0  | 12.0                    |             |
|                       | BM-30458MA          | BM-30458NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 160     | 30         | 150      | 4.0                           | 5.0  | 16.0                    |             |
|                       | BM-30658MD          | BM-30658ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 160     | 30         | 150      | 3.4                           | 5.0  | 20.0                    |             |
|                       | BM-30658MA          | BM-30658NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 160     | 30 <td 150 | 3.4      | 5.0                           | 25.0 |                         |             |
|                       | BM-30F58MD          | BM-30F58ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 160     | 30         | 150      | 4.0                           | 5.0  | 25.0                    |             |
|                       | BM-30J58MD          | BM-30J58ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 160     | 30         | 150      | 4.0                           | 5.0  | 26.0                    |             |
|                       | BM-30K58MD          | BM-30K58ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 160     | 30         | 150      | 4.2                           | 5.0  | 26.0                    |             |

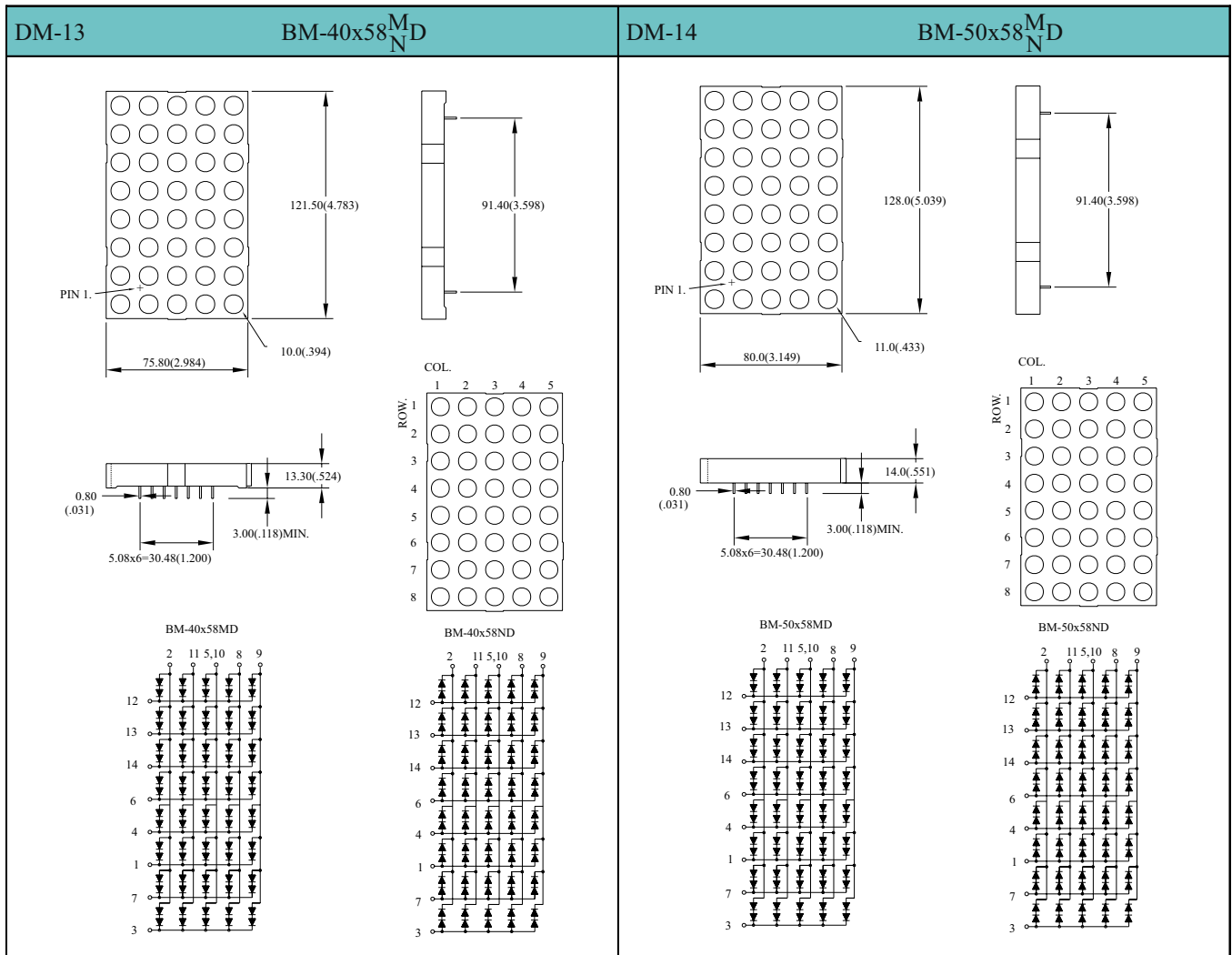


NOTES: 1.All Dimensions are in millimeters(inches).  
3.Specifications are subject to change without notice.

2.Tolerance is  $\pm$  0.25mm(.010l).  
4.NP:No Pin. 5.NC:No Connect.

## SingleColor 5x8 Dot Matrix Displays

| Digit Size             | Part No.            |                       | Chip                       |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|------------------------|---------------------|-----------------------|----------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                        | Column Common Anode | Column Common Cathode | Material/Emitted Color     | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                        |                     |                       |                            |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 4.78" High $\phi$ 10.0 | BM-40258MD          | BM-40258ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 160     | 30      | 150      | 4.2                           | 5.0  | 12.0                    | DM-13       |
|                        | BM-40458MD          | BM-40458ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 160     | 30      | 150      | 4.0                           | 5.0  | 12.0                    |             |
|                        | BM-40458MA          | BM-40458NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 160     | 30      | 150      | 4.0                           | 5.0  | 16.0                    |             |
|                        | BM-40658MD          | BM-40658ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 160     | 30      | 150      | 3.4                           | 5.0  | 20.0                    |             |
|                        | BM-40658MA          | BM-40658NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 160     | 30      | 150      | 3.4                           | 5.0  | 25.0                    |             |
|                        | BM-40F58MD          | BM-40F58ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 160     | 30      | 150      | 4.0                           | 5.0  | 25.0                    |             |
|                        | BM-40J58MD          | BM-40J58ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 160     | 30      | 150      | 4.0                           | 5.0  | 26.0                    |             |
|                        | BM-40K58MD          | BM-40K58ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 160     | 30      | 150      | 4.2                           | 5.0  | 26.0                    |             |
| 5.00" High $\phi$ 11.0 | BM-50258MD          | BM-50258ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 160     | 30      | 150      | 4.2                           | 5.0  | 12.0                    | DM-14       |
|                        | BM-50458MD          | BM-50458ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 160     | 30      | 150      | 4.0                           | 5.0  | 12.0                    |             |
|                        | BM-50458MA          | BM-50458NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 160     | 30      | 150      | 4.0                           | 5.0  | 16.0                    |             |
|                        | BM-50658MD          | BM-50658ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 160     | 30      | 150      | 3.4                           | 5.0  | 20.0                    |             |
|                        | BM-50658MA          | BM-50658NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 160     | 30      | 150      | 3.4                           | 5.0  | 25.0                    |             |
|                        | BM-50F58MD          | BM-50F58ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 160     | 30      | 150      | 4.0                           | 5.0  | 25.0                    |             |
|                        | BM-50J58MD          | BM-50J58ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 160     | 30      | 150      | 4.0                           | 5.0  | 26.0                    |             |
|                        | BM-50K58MD          | BM-50K58ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 160     | 30      | 150      | 4.2                           | 5.0  | 26.0                    |             |

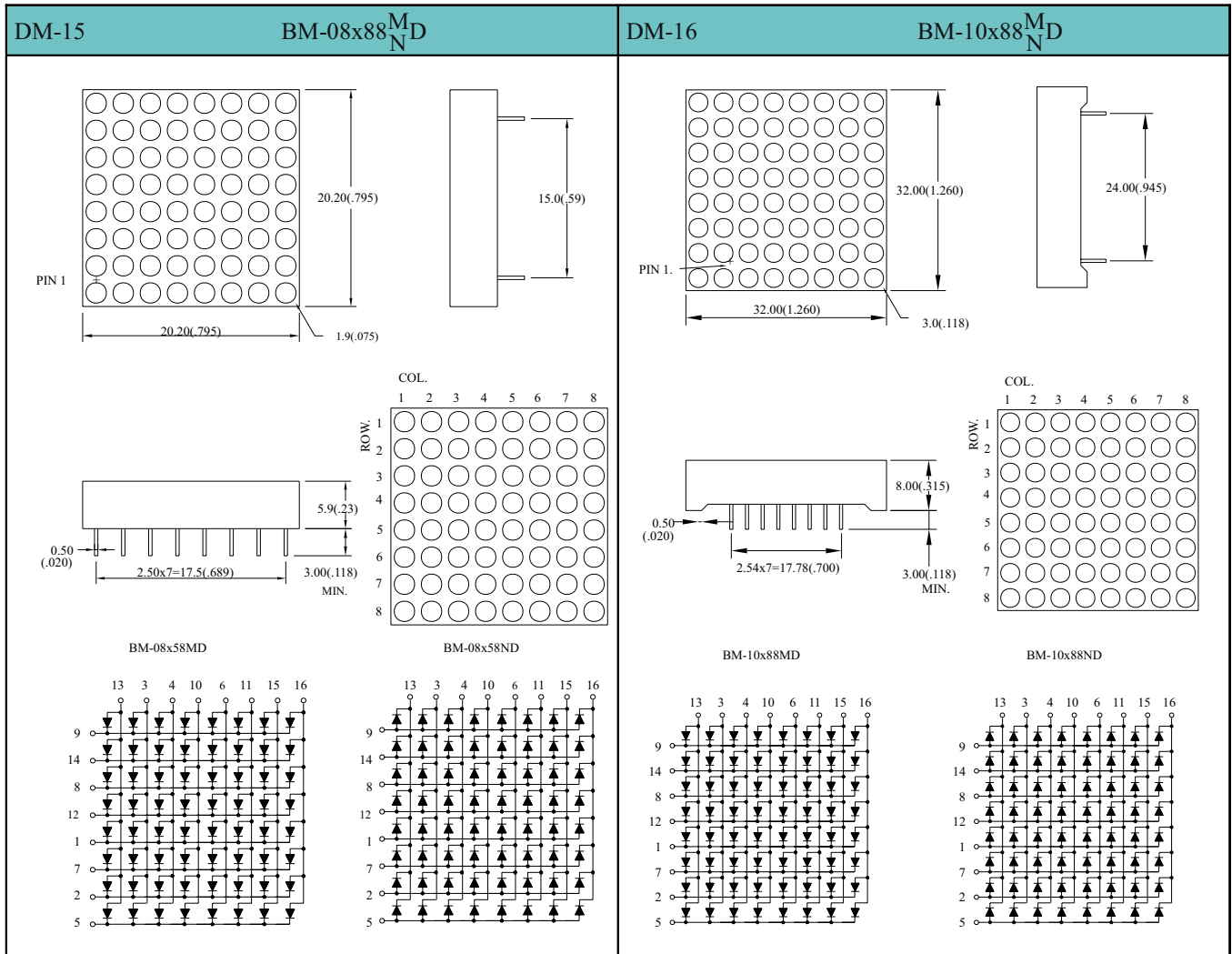


NOTES: 1.All Dimensions are in millimeters(inches).  
 2.Tolerance is 0.25mm(.010").  
 3.Specifications are subject to change without notice.  
 4.NP:No Pin. 5.NC:No Connect.



## SingleColor 8x8 Dot Matrix Displays

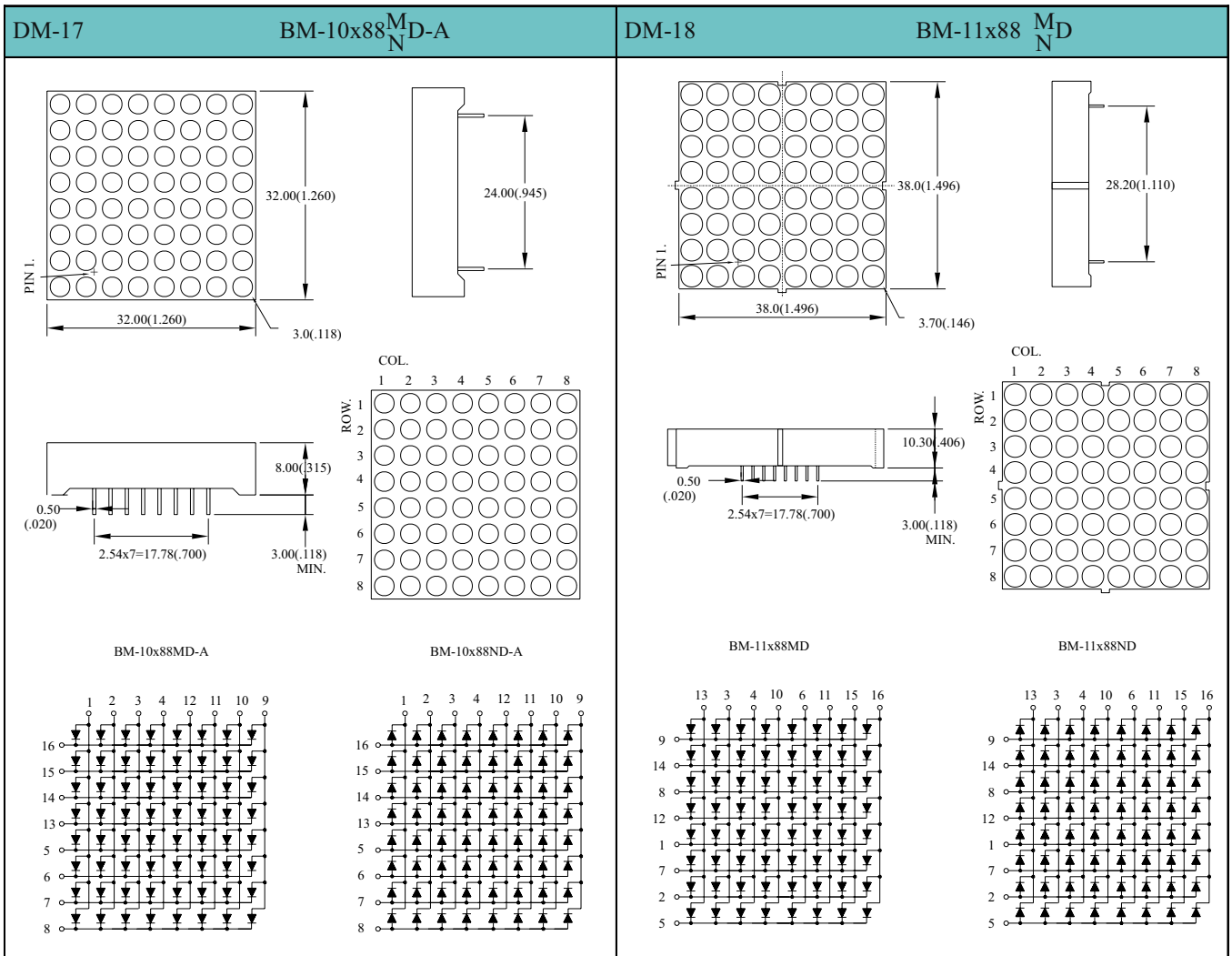
| Digit Size            | Part No.            |                       | Chip                       |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|-----------------------|---------------------|-----------------------|----------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                       | Column Common Anode | Column Common Cathode | Material/Emitted Color     | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                       |                     |                       |                            |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 0.80" High $\phi$ 1.9 | BM-08288MD          | BM-08288ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 8.0                     | DM-15       |
|                       | BM-08488MD          | BM-08488ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 8.0                     |             |
|                       | BM-08488MA          | BM-08488NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 12.0                    |             |
|                       | BM-08688MD          | BM-08688ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 12.0                    |             |
|                       | BM-08688MA          | BM-08688NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 16.0                    |             |
|                       | BM-08F88MD          | BM-08F88ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30      | 150      | 2.0                           | 2.5  | 18.0                    |             |
|                       | BM-08J88MD          | BM-08J88ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30      | 150      | 2.0                           | 2.5  | 20.0                    |             |
|                       | BM-08K88MD          | BM-08K88ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30      | 150      | 2.1                           | 2.5  | 20.0                    |             |
| 1.20" High $\phi$ 3.0 | BM-10288MD          | BM-10288ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 9.0                     | DM-16       |
|                       | BM-10488MD          | BM-10488ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 9.0                     |             |
|                       | BM-10488MA          | BM-10488NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 14.0                    |             |
|                       | BM-10688MD          | BM-10688ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 14.0                    |             |
|                       | BM-10688MA          | BM-10688NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 18.0                    |             |
|                       | BM-10F88MD          | BM-10F88ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30      | 150      | 2.0                           | 2.5  | 20.0                    |             |
|                       | BM-10J88MD          | BM-10J88ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30      | 150      | 2.0                           | 2.5  | 22.0                    |             |
|                       | BM-10K88MD          | BM-10K88ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30      | 150      | 2.1                           | 2.5  | 22.0                    |             |



NOTES: 1.All Dimensions are in millimeters(inches).  
 2.Tolerance is ± 0.25mm(.010").  
 3.Specifications are subject to change without notice.  
 4.NP:No Pin. 5.NC:No Connect.

## SingleColor 8x8 Dot Matrix Displays

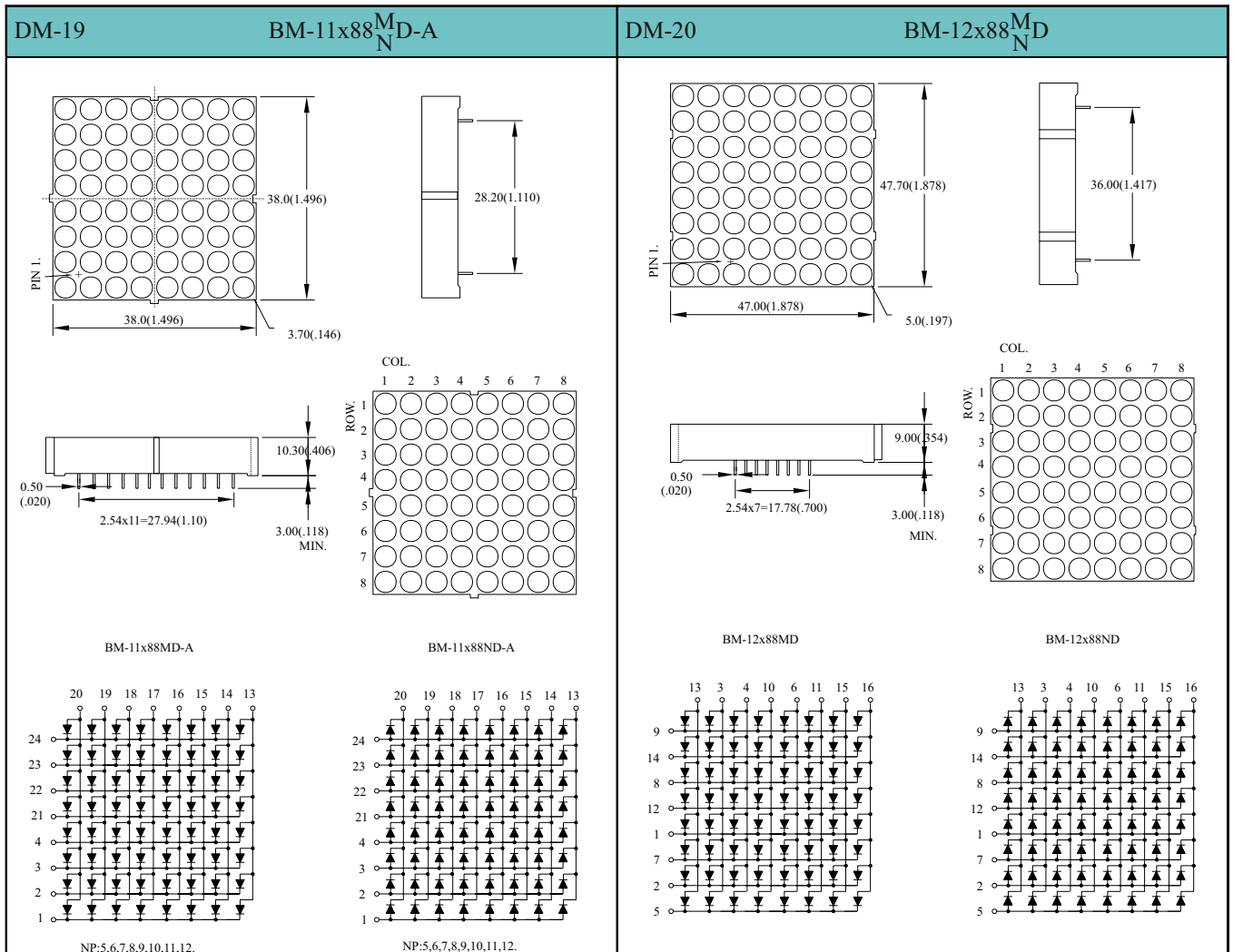
| Digit Size            | Part No.            |                       | Chip                       |                                   | Absolute Maximum Ratings |         |            |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|-----------------------|---------------------|-----------------------|----------------------------|-----------------------------------|--------------------------|---------|------------|----------|-------------------------------|------|-------------------------|-------------|
|                       | Column Common Anode | Column Common Cathode | Material/Emitted Color     | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA)    | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                       |                     |                       |                            |                                   |                          |         |            |          | Typ.                          | Max. |                         |             |
| 1.20" High $\phi$ 3.0 | BM-10288MD-A        | BM-10288ND-A          | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30         | 150      | 2.1                           | 2.5  | 9.0                     | DM-17       |
|                       | BM-10488MD-A        | BM-10488ND-A          | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30         | 150      | 2.0                           | 2.5  | 9.0                     |             |
|                       | BM-10488MA-A        | BM-10488NA-A          | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30         | 150      | 2.0                           | 2.5  | 14.0                    |             |
|                       | BM-10688MD-A        | BM-10688ND-A          | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30         | 150      | 1.7                           | 2.5  | 14.0                    |             |
|                       | BM-10688MA-A        | BM-10688NA-A          | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30         | 150      | 1.7                           | 2.5  | 18.0                    |             |
|                       | BM-10F88MD-A        | BM-10F88ND-A          | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30         | 150      | 2.0                           | 2.5  | 20.0                    |             |
|                       | BM-10J88MD-A        | BM-10J88ND-A          | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30         | 150      | 2.0                           | 2.5  | 22.0                    |             |
|                       | BM-10K88MD-A        | BM-10K88ND-A          | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30         | 150      | 2.1                           | 2.5  | 22.0                    |             |
| 1.50" High $\phi$ 3.7 | BM-11288MD          | BM-11288ND            | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30         | 150      | 2.1                           | 2.5  | 10.0                    | DM-18       |
|                       | BM-11488MD          | BM-11488ND            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30         | 150      | 2.0                           | 2.5  | 10.0                    |             |
|                       | BM-11488MA          | BM-11488NA            | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30         | 150      | 2.0                           | 2.5  | 15.0                    |             |
|                       | BM-11688MD          | BM-11688ND            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30         | 150      | 1.7                           | 2.5  | 15.0                    |             |
|                       | BM-11688MA          | BM-11688NA            | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30 <td 150 | 1.7      | 2.5                           | 19.0 |                         |             |
|                       | BM-11F88MD          | BM-11F88ND            | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30         | 150      | 2.0                           | 2.5  | 21.0                    |             |
|                       | BM-11J88MD          | BM-11J88ND            | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30         | 150      | 2.0                           | 2.5  | 23.0                    |             |
|                       | BM-11K88MD          | BM-11K88ND            | AlGaInP/GaAs/ Ultra Yellow | 592                               | 15                       | 80      | 30         | 150      | 2.1                           | 2.5  | 23.0                    |             |



NOTES: 1.All Dimensions are in millimeters(inches).  
 2.Tolerance is  $\pm 0.25\text{mm}(\pm 0.010")$ .  
 3.Specifications are subject to change without notice.  
 4.NP:No Pin. 5.NC:No Connect.

## SingleColor 8x8 Dot Matrix Displays

| Digit Size            | Part No.            |                            | Chip                       |                                   | Absolute Maximum Ratings |         |            |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|-----------------------|---------------------|----------------------------|----------------------------|-----------------------------------|--------------------------|---------|------------|----------|-------------------------------|------|-------------------------|-------------|
|                       | Column Common Anode | Column Common Cathode      | Material/Emitted Color     | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA)    | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                       |                     |                            |                            |                                   |                          |         |            |          | Typ.                          | Max. |                         |             |
| 1.50" High $\phi$ 3.7 | BM-11288MD-A        | BM-11288ND-A               | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30         | 150      | 2.1                           | 2.5  | 10.0                    | DM-19       |
|                       | BM-11488MD-A        | BM-11488ND-A               | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30         | 150      | 2.0                           | 2.5  | 10.0                    |             |
|                       | BM-11488MA-A        | BM-11488NA-A               | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30         | 150      | 2.0                           | 2.5  | 15.0                    |             |
|                       | BM-11688MD-A        | BM-11688ND-A               | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30         | 150      | 1.7                           | 2.5  | 15.0                    |             |
|                       | BM-11688MA-A        | BM-11688NA-A               | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30         | 150      | 1.7                           | 2.5  | 19.0                    |             |
|                       | BM-11F88MD-A        | BM-11F88ND-A               | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30         | 150      | 2.0                           | 2.5  | 21.0                    |             |
|                       | BM-11J88MD-A        | BM-11J88ND-A               | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30         | 150      | 2.0                           | 2.5  | 23.0                    |             |
| BM-11K88MD-A          | BM-11K88ND-A        | AlGaInP/GaAs/ Ultra Yellow | 592                        | 15                                | 80                       | 30      | 150        | 2.1      | 2.5                           | 23.0 |                         |             |
| 1.90" High $\phi$ 5.0 | BM-12288MD          | BM-12288ND                 | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30         | 150      | 2.1                           | 2.5  | 12.0                    | DM-20       |
|                       | BM-12488MD          | BM-12488ND                 | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30         | 150      | 2.0                           | 2.5  | 12.0                    |             |
|                       | BM-12488MA          | BM-12488NA                 | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30         | 150      | 2.0                           | 2.5  | 17.0                    |             |
|                       | BM-12688MD          | BM-12688ND                 | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30         | 150      | 1.7                           | 2.5  | 17.0                    |             |
|                       | BM-12688MA          | BM-12688NA                 | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30 <td 150 | 1.7      | 2.5                           | 21.0 |                         |             |
|                       | BM-12F88MD          | BM-12F88ND                 | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30         | 150      | 2.0                           | 2.5  | 23.0                    |             |
|                       | BM-12J88MD          | BM-12J88ND                 | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30         | 150      | 2.0                           | 2.5  | 25.0                    |             |
| BM-12K88MD            | BM-12K88ND          | AlGaInP/GaAs/ Ultra Yellow | 592                        | 15                                | 80                       | 30      | 150        | 2.1      | 2.5                           | 25.0 |                         |             |

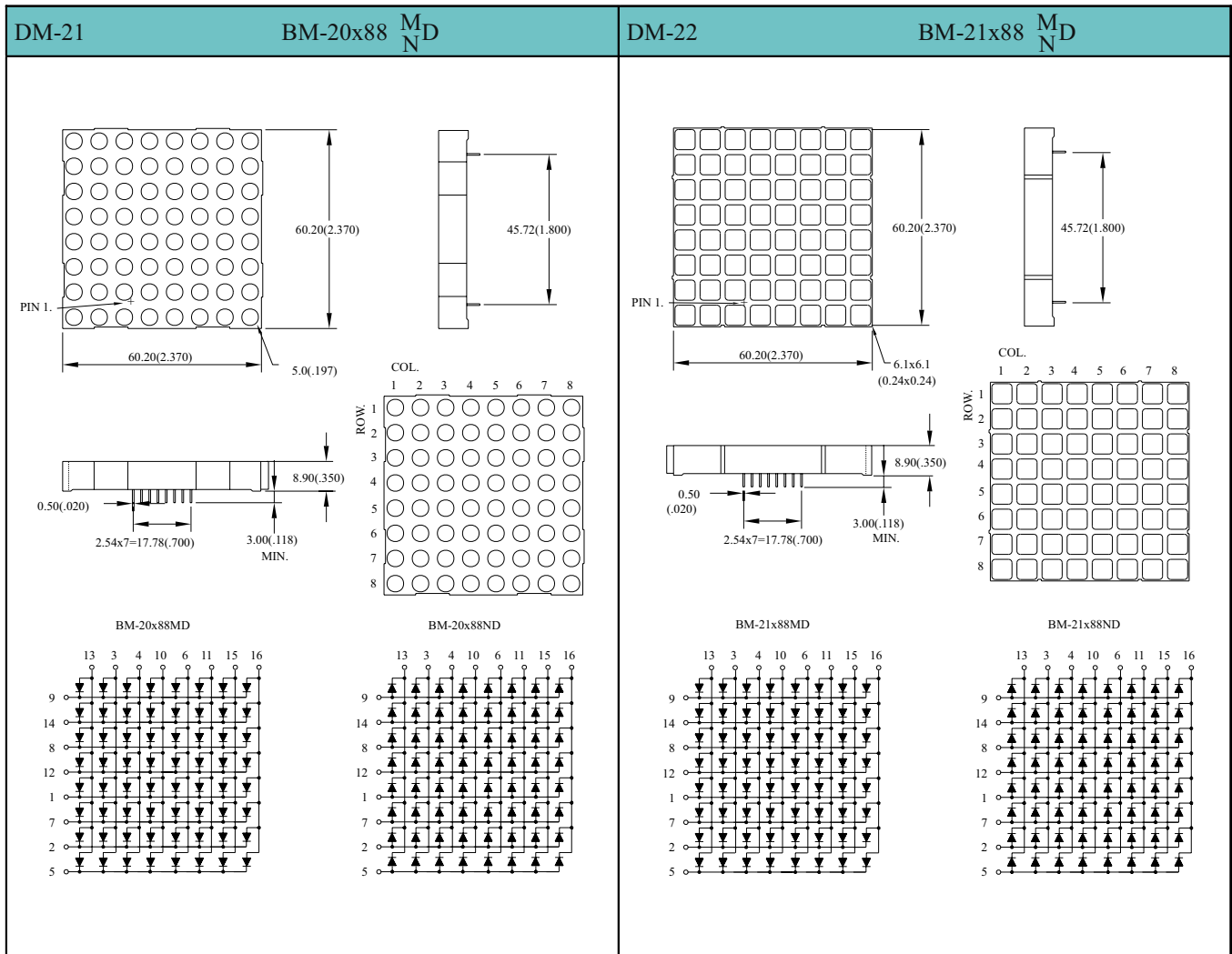


NOTES: 1.All Dimensions are in millimeters(inches).  
3.Specifications are subject to change without notice.

2.Tolerance is  $\pm 0.25\text{mm}(.010\text{'})$ .  
4.NP:No Pin. 5.NC:No Connect.

## SingleColor 8x8 Dot Matrix Displays

| Digit Size            | Part No.            |                            | Chip                       |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|-----------------------|---------------------|----------------------------|----------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                       | Column Common Anode | Column Common Cathode      | Material/Emitted Color     | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                       |                     |                            |                            |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 2.30" High $\phi$ 5.0 | BM-20288MD          | BM-20288ND                 | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 12.0                    | DM-21       |
|                       | BM-20488MD          | BM-20488ND                 | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 12.0                    |             |
|                       | BM-20488MA          | BM-20488NA                 | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 17.0                    |             |
|                       | BM-20688MD          | BM-20688ND                 | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 17.0                    |             |
|                       | BM-20688MA          | BM-20688NA                 | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 21.0                    |             |
|                       | BM-20F88MD          | BM-20F88ND                 | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30      | 150      | 2.0                           | 2.5  | 23.0                    |             |
|                       | BM-20J88MD          | BM-20J88ND                 | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30      | 150      | 2.0                           | 2.5  | 25.0                    |             |
| BM-20K88MD            | BM-20K88ND          | AlGaInP/GaAs/ Ultra Yellow | 592                        | 15                                | 80                       | 30      | 150     | 2.1      | 2.5                           | 25.0 |                         |             |
| 2.3" High 6.1x6.1     | BM-21288MD          | BM-21288ND                 | GaP/ GaP/ Yellow Green     | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 12.0                    | DM-22       |
|                       | BM-21488MD          | BM-21488ND                 | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 12.0                    |             |
|                       | BM-21488MA          | BM-21488NA                 | GaAsP/GaP/ Hi-Eff.Red      | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 17.0                    |             |
|                       | BM-21688MD          | BM-21688ND                 | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 17.0                    |             |
|                       | BM-21688MA          | BM-21688NA                 | GaAlAs/ SH/ Super Red      | 660                               | 20                       | 80      | 30      | 150      | 1.7                           | 2.5  | 21.0                    |             |
|                       | BM-21F88MD          | BM-21F88ND                 | GaAlAs/ DDH/ Super Red     | 660                               | 20                       | 80      | 30      | 150      | 2.0                           | 2.5  | 23.0                    |             |
|                       | BM-21J88MD          | BM-21J88ND                 | AlGaInP/GaAs/ Ultra Orange | 620                               | 17                       | 80      | 30      | 150      | 2.0                           | 2.5  | 25.0                    |             |
| BM-21K88MD            | BM-21K88ND          | AlGaInP/GaAs/ Ultra Yellow | 592                        | 15                                | 80                       | 30      | 150     | 2.1      | 2.5                           | 25.0 |                         |             |



NOTES: 1.All Dimensions are in millimeters(inches).  
 3.Specifications are subject to change without notice.

2.Tolerance is  $\pm 0.25\text{mm}(\pm 0.010")$ .  
 4.NP:No Pin. 5.NC:No Connect.

## Multi- Color 5x7 Dot Matrix Displays

| Digit Size                | Part No.            |                       | Chip                   |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|---------------------------|---------------------|-----------------------|------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                           | Column Common Anode | Column Common Cathode | Material/Emitted Color | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                           |                     |                       |                        |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 0.70" High<br>$\phi$ 1.90 | BM-07EG57MD         | BM-07EG57ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 8.0                     | DM-23       |
|                           |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 8.0                     |             |
| 1.20" High<br>$\phi$ 3.00 | BM-10EG57MD         | BM-10EG57ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 9.0                     | DM-24       |
|                           |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 9.0                     |             |

| DM-23                                | BM-07EG57 <sup>M</sup> <sub>N</sub> D | DM-24                                | BM-10EG57 <sup>M</sup> <sub>N</sub> D |
|--------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
|                                      |                                       |                                      |                                       |
|                                      |                                       |                                      |                                       |
|                                      |                                       |                                      |                                       |
|                                      |                                       |                                      |                                       |
| <p>Legend:  GREEN NP: 4.  ORANGE</p> |                                       | <p>Legend:  GREEN NC: 9.  ORANGE</p> |                                       |

NOTES: 1.All Dimensions are in millimeters(inches).  
3.Specifications are subject to change without notice.

2.Tolerance is  $\pm 0.25\text{mm}(\pm 0.010")$ .  
4.NP:No Pin. 5.NC:No Connect.

## Multi- Color 5x7 Dot Matrix Displays

| Digit Size                | Part No.            |                       | Chip                   |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|---------------------------|---------------------|-----------------------|------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                           | Column Common Anode | Column Common Cathode | Material/Emitted Color | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                           |                     |                       |                        |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 1.25" High<br>$\phi$ 3.00 | BM-11EG57MD         | BM-11EG57ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 9.0                     | DM-25       |
|                           |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 9.0                     |             |
| 1.25" High<br>$\phi$ 3.00 | BM-11EG57MD-A       | BM-11EG57ND-A         | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 9.0                     | DM-26       |
|                           |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 9.0                     |             |

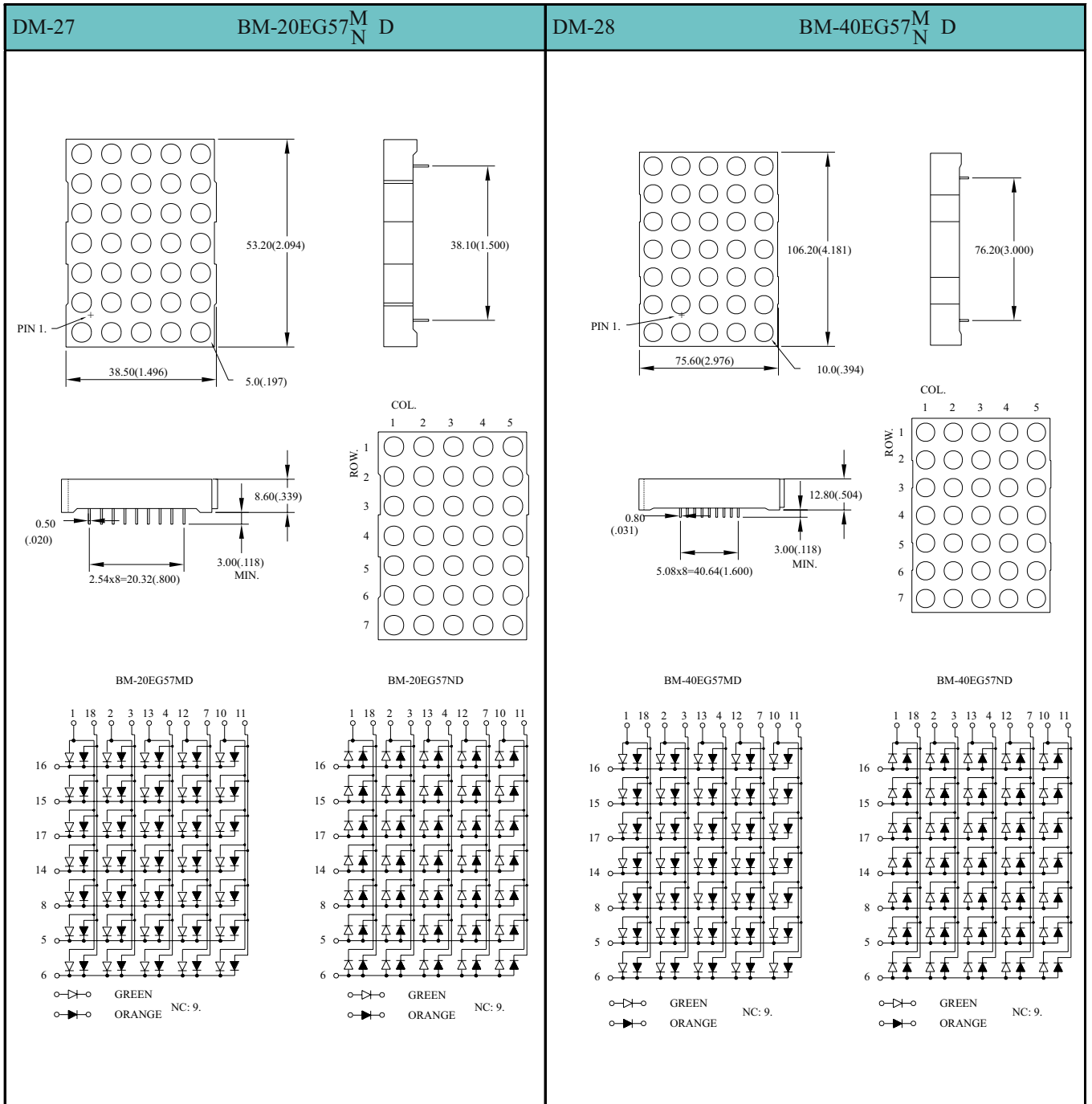
| DM-25 |  | BM-11EG57 <sup>M</sup> <sub>N</sub> D |  | DM-26 |  | BM-11EG57 <sup>M</sup> <sub>N</sub> D-A |  |
|-------|--|---------------------------------------|--|-------|--|---|--|
|       |  |                                       |  |       |  |   |  |
|       |  |                                       |  |       |  |   |  |
|       |  |                                       |  |       |  |   |  |

NOTES: 1.All Dimensions are in millimeters(inches).  
3.Specifications are subject to change without notice.

2.Tolerance is  $\pm 0.25\text{mm}(.010")$ .  
4.NP:No Pin. 5.NC:No Connect.

## Multi-Color 5x7 Dot Matrix Displays

| Digit Size                | Part No.            |                       | Chip                   |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|---------------------------|---------------------|-----------------------|------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                           | Column Common Anode | Column Common Cathode | Material/Emitted Color | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                           |                     |                       |                        |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 2.10" High<br>$\phi$ 5.00 | BM-20EG57MD         | BM-20EG57ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 12.0                    | DM-27       |
|                           |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 12.0                    |             |
| 4.00" High<br>$\phi$ 10.0 | BM-40EG57MD         | BM-40EG57ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 15.0                    | DM-28       |
|                           |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 15.0                    |             |

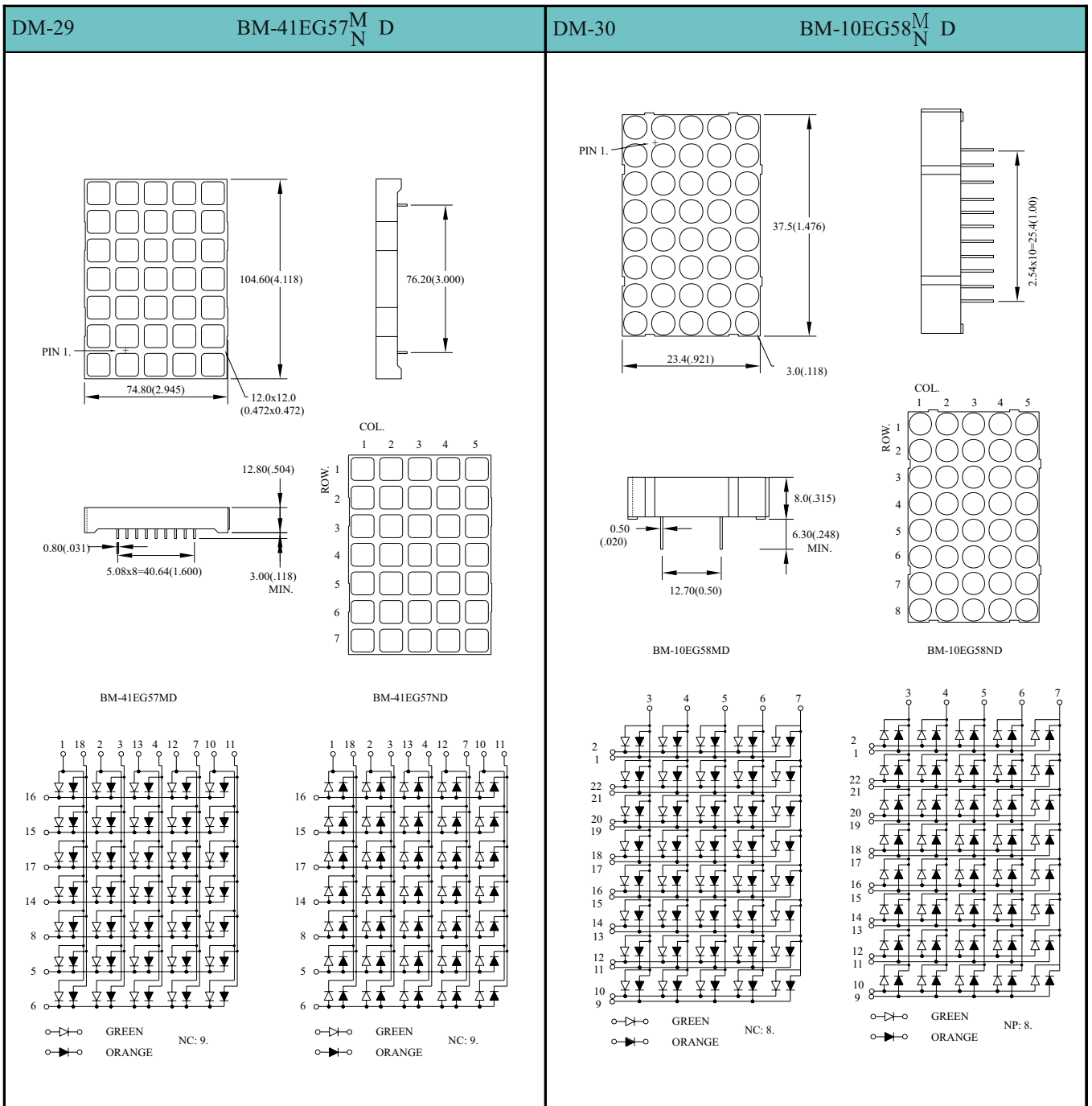


NOTES: 1.All Dimensions are in millimeters(inches).  
3.Specifications are subject to change without notice.

2.Tolerance is  $\pm 0.25\text{mm}(.010")$ .  
4.NP:No Pin. 5.NC:No Connect.

## Multi-Color 5x7 & 5x8 Dot Matrix Displays

| Digit Size               | Part No.            |                       | Chip                   |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|--------------------------|---------------------|-----------------------|------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                          | Column Common Anode | Column Common Cathode | Material/Emitted Color | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                          |                     |                       |                        |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 4.00" High<br>12x12      | BM-41EG57MD         | BM-41EG57ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 15.0                    | DM-29       |
|                          |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 15.0                    |             |
| 1.4" High<br>$\phi$ 3.00 | BM-10EG58MD         | BM-10EG58ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 9.0                     | DM-30       |
|                          |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 9.0                     |             |



NOTES: 1.All Dimensions are in millimeters(inches).  
 3.Specifications are subject to change without notice.

2.Tolerance is  $\pm 0.25\text{mm}(.010")$ .  
 4.NP:No Pin. 5.NC:No Connect.



## Multi-Color 5x8 Dot Matrix Displays

| Digit Size                | Part No.            |                       | Chip                   |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|---------------------------|---------------------|-----------------------|------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                           | Column Common Anode | Column Common Cathode | Material/Emitted Color | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                           |                     |                       |                        |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 2.40" High<br>$\phi$ 5.00 | BM-20EG58MD         | BM-20EG58ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 12.0                    | DM-31       |
|                           |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 12.0                    |             |
| 2.37" High<br>$\phi$ 5.00 | BM-21EG58MD         | BM-21EG58ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 12.0                    | DM-32       |
|                           |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 12.0                    |             |

| DM-31 BM-20EG58 <sup>M</sup> <sub>N</sub> D |  | DM-32 BM-21EG58 <sup>M</sup> <sub>N</sub> D |  |
|---|--|---|--|
|   |  |   |  |
|   |  |   |  |
|   |  |   |  |

NOTES: 1.All Dimensions are in millimeters(inches).  
3.Specifications are subject to change without notice.

2.Tolerance is  $\pm 0.25\text{mm}(.010")$ .  
4.NP:No Pin. 5.NC:No Connect.

## Multi-Color 5x8 Dot Matrix Displays

| Digit Size                | Part No.            |                       | Chip                   |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|---------------------------|---------------------|-----------------------|------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                           | Column Common Anode | Column Common Cathode | Material/Emitted Color | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                           |                     |                       |                        |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 1.90" High<br>$\phi$ 5.00 | BM-22EG58MD         | BM-22EG58ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 12.0                    | DM-33       |
|                           |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 12.0                    |             |
| 3.50" High<br>$\phi$ 7.60 | BM-30EG58MD         | BM-30EG58ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 15.0                    | DM-34       |
|                           |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 15.0                    |             |

| DM-33<br>BM-22EG58 <sup>M</sup> <sub>N</sub> D | DM-34<br>BM-30EG58 <sup>M</sup> <sub>N</sub> D |
|--|--|
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

NOTES: 1.All Dimensions are in millimeters(inches).  
 2.Tolerance is  $\pm 0.25\text{mm}(\pm 0.010\text{'})$ .  
 3.Specifications are subject to change without notice.  
 4.NP:No Pin. 5.NC:No Connect.

## Multi-Color 5x8 & 8x8 Dot Matrix Displays

| Digit Size             | Part No.            |                       | Chip                   |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data (At 10mA) |      |                         | Drawing No. |
|------------------------|---------------------|-----------------------|------------------------|-----------------------------------|--------------------------|---------|---------|----------|--------------------------------|------|-------------------------|-------------|
|                        | Column Common Anode | Column Common Cathode | Material/Emitted Color | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                         |      | Iv. Typ. Per.Seg. (mcd) |             |
|                        |                     |                       |                        |                                   |                          |         |         |          | Typ.                           | Max. |                         |             |
| 4.60" High $\phi$ 10.0 | BM-40EG58MD         | BM-40EG58ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                            | 2.5  | 15.0                    | DM-35       |
|                        |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                            | 2.5  | 15.0                    |             |
| 1.25" High $\phi$ 3.00 | BM-10EG88MD         | BM-10EG88ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                            | 2.5  | 10.0                    | DM-36       |
|                        |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                            | 2.5  | 10.0                    |             |

| DM-35 | BM-40EG58 <sup>M</sup> <sub>N</sub> D | DM-36 | BM-10EG88 <sup>M</sup> <sub>N</sub> D |
|-------|---------------------------------------|-------|---------------------------------------|
|       |                                       |       |                                       |
|       |                                       |       |                                       |
|       |                                       |       |                                       |

NOTES: 1.All Dimensions are in millimeters(inches).  
 3.Specifications are subject to change without notice.

2.Tolerance is  $\pm 0.25\text{mm}(\pm 0.010)$ .  
 4.NP:No Pin. 5.NC:No Connect.

## Multi-Color 8x8 & 16x16 Dot Matrix Displays

| Digit Size            | Part No.            |                       | Chip                   |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data(At 10mA) |      |                         | Drawing No. |
|-----------------------|---------------------|-----------------------|------------------------|-----------------------------------|--------------------------|---------|---------|----------|-------------------------------|------|-------------------------|-------------|
|                       | Column Common Anode | Column Common Cathode | Material/Emitted Color | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                        |      | Iv. Typ. Per.Seg. (mcd) |             |
|                       |                     |                       |                        |                                   |                          |         |         |          | Typ.                          | Max. |                         |             |
| 2.30" High $\phi$ 5.0 | BM-20EG88MD         | BM-20EG88ND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 15.0                    | DM-37       |
|                       |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 15.0                    |             |
| 2.50" High $\phi$ 3.0 |                     | BM-25EGAAND           | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                           | 2.5  | 8.0                     | DM-38       |
|                       |                     |                       | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                           | 2.5  | 8.0                     |             |

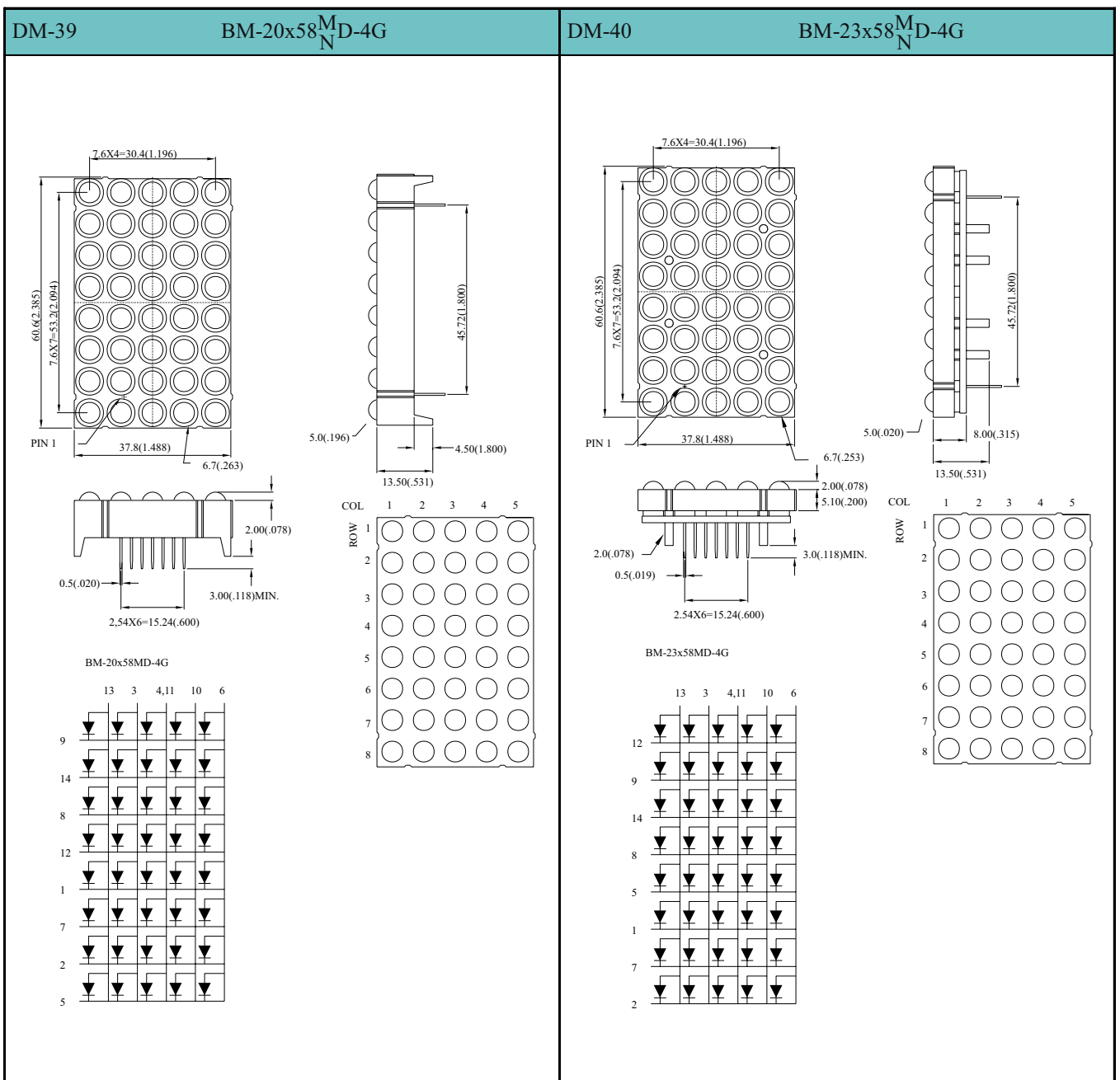
| DM-37<br>BM-20EG88 $\frac{M}{N}$ D             | DM-38<br>BM-25EGAAN D |
|--|-----------------------|
| <p style="text-align: center;">BM-20EG88MD</p> |                       |

NOTES: 1.All Dimensions are in millimeters(inches).  
3.Specifications are subject to change without notice.

2.Tolerance is  $\pm 0.25\text{mm}(\pm 0.010\text{'})$ .  
4.NP:No Pin. 5.NC:No Connect.

## Single-Color 5x8 Dot Matrix Displays

| Digit Size               | Part No.            |                       | Chip                   |                                   | Absolute Maximum Ratings |         |         |          | Electro-optical Data (At 10mA) |      |                         | Drawing No. |
|--------------------------|---------------------|-----------------------|------------------------|-----------------------------------|--------------------------|---------|---------|----------|--------------------------------|------|-------------------------|-------------|
|                          | Column Common Anode | Column Common Cathode | Material/Emitted Color | Peak Wave Length $\lambda_p$ (nm) | $\Delta \lambda$ (nm)    | Pd (mw) | If (mA) | Ifp (mA) | Vf (v)                         |      | Iv. Typ. Per.Seg. (mcd) |             |
|                          |                     |                       |                        |                                   |                          |         |         |          | Typ.                           | Max. |                         |             |
| 2.30" High<br>$\phi$ 5.0 | BM-20458MD-4G       | BM-20458ND-4G         | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                            | 2.5  | 200                     | DM-39       |
|                          | BM-20258MD-4G       | BM-20258ND-4G         | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                            | 2.5  | 200                     |             |
|                          | BM-20D58MD-4G       | BM-20D58ND-4G         | GaAlAs/DH / Super Red  | 660                               | 20                       | 80      | 30      | 150      | 1.7                            | 2.5  | 450                     |             |
|                          | BM-20F58MD-4G       | BM-20F58ND-4G         | GaAlAs/DDH /Super Red  | 660                               | 20                       | 80      | 30      | 150      | 2.0                            | 2.5  | 800                     |             |
| 2.50" High<br>$\phi$ 5.0 | BM-23458MD-4G       | BM-23458ND-4G         | GaAsP/GaP/ Hi-Eff.Red  | 635                               | 45                       | 80      | 30      | 150      | 2.0                            | 2.5  | 200                     | DM-40       |
|                          | BM-23258MD-4G       | BM-23258ND-4G         | GaP/ GaP/ Yellow Green | 568                               | 30                       | 80      | 30      | 150      | 2.1                            | 2.5  | 200                     |             |
|                          | BM-23D58MD-4G       | BM-23D58ND-4G         | GaAlAs/DH / Super Red  | 660                               | 20                       | 80      | 30      | 150      | 1.7                            | 2.5  | 450                     |             |
|                          | BM-23F58MD-4G       | BM-23F58ND-4G         | GaAlAs/DDH /Super Red  | 660                               | 20                       | 80      | 30      | 150      | 2.0                            | 2.5  | 800                     |             |



NOTES: 1.All Dimensions are in millimeters(inches).  
 2.Tolerance is  $\pm 0.25\text{mm}(.010")$ .  
 3.Specifications are subject to change without notice.  
 4.NP:No Pin. 5.NC:No Connect.