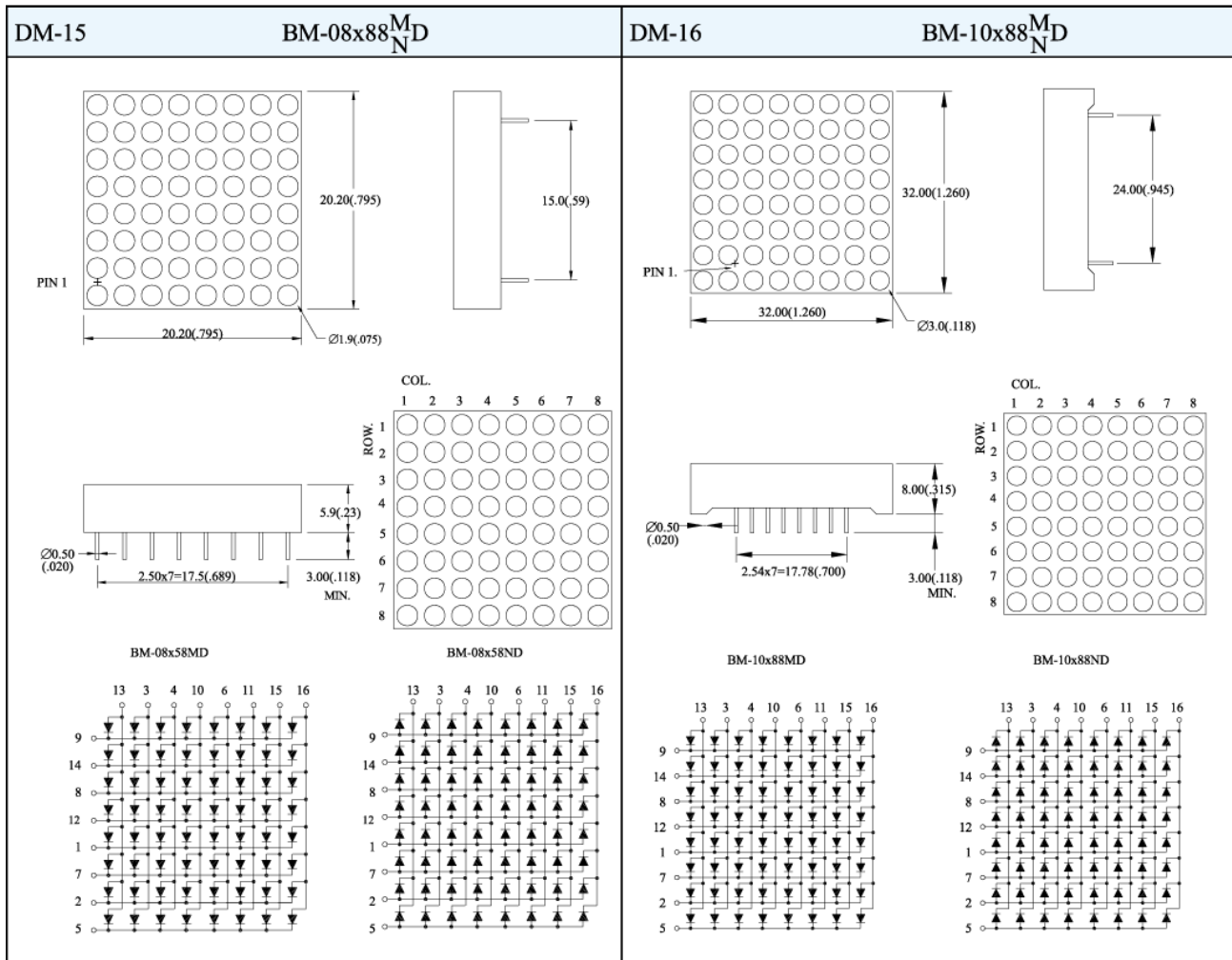




# LED Dot Matrix Display BM Series

## Single Color, 8 x 8 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).

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.

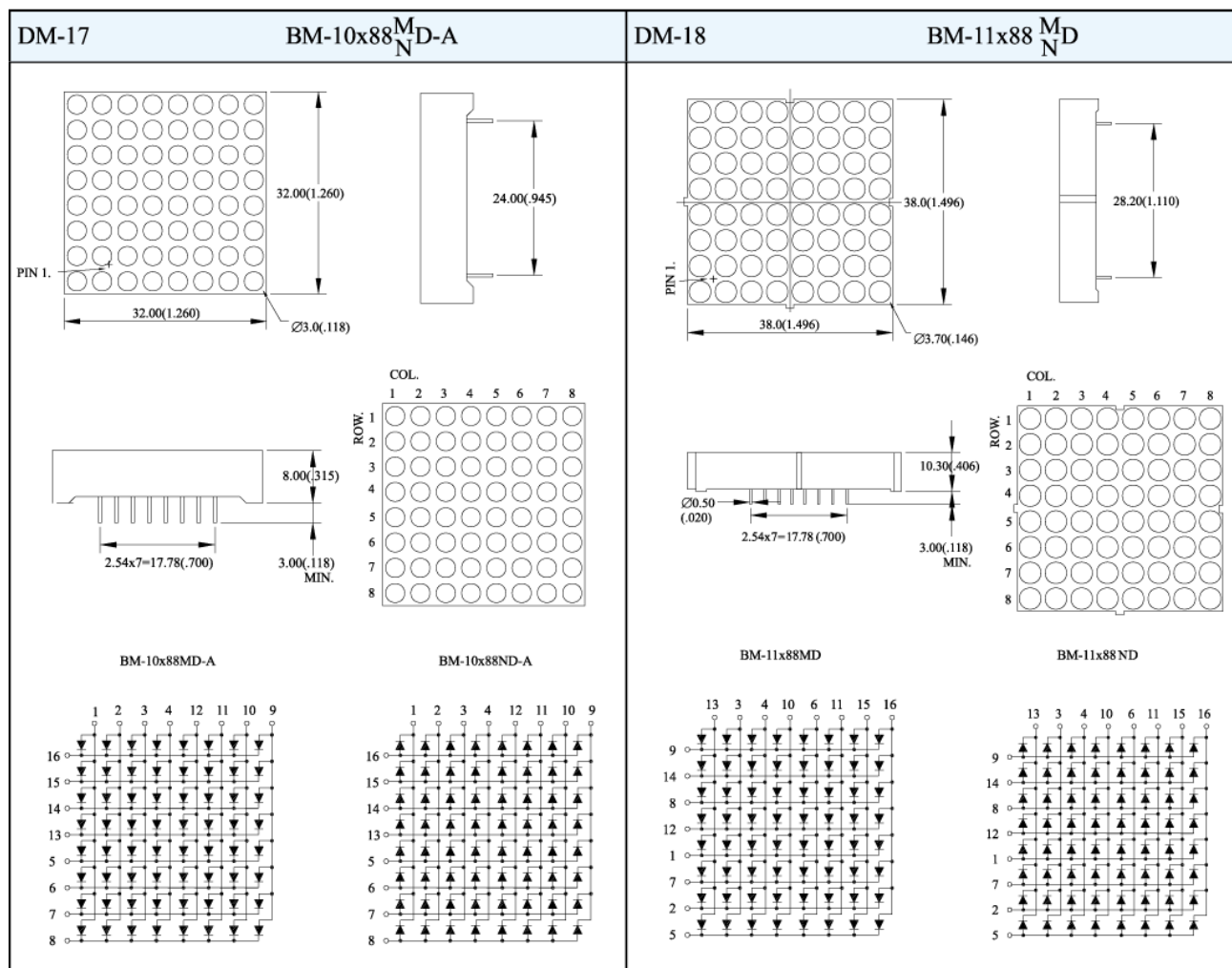
**AMERICAN BRIGHT**



# LED Dot Matrix Display BM Series

Single Color, 8 x 8 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      | 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).

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.

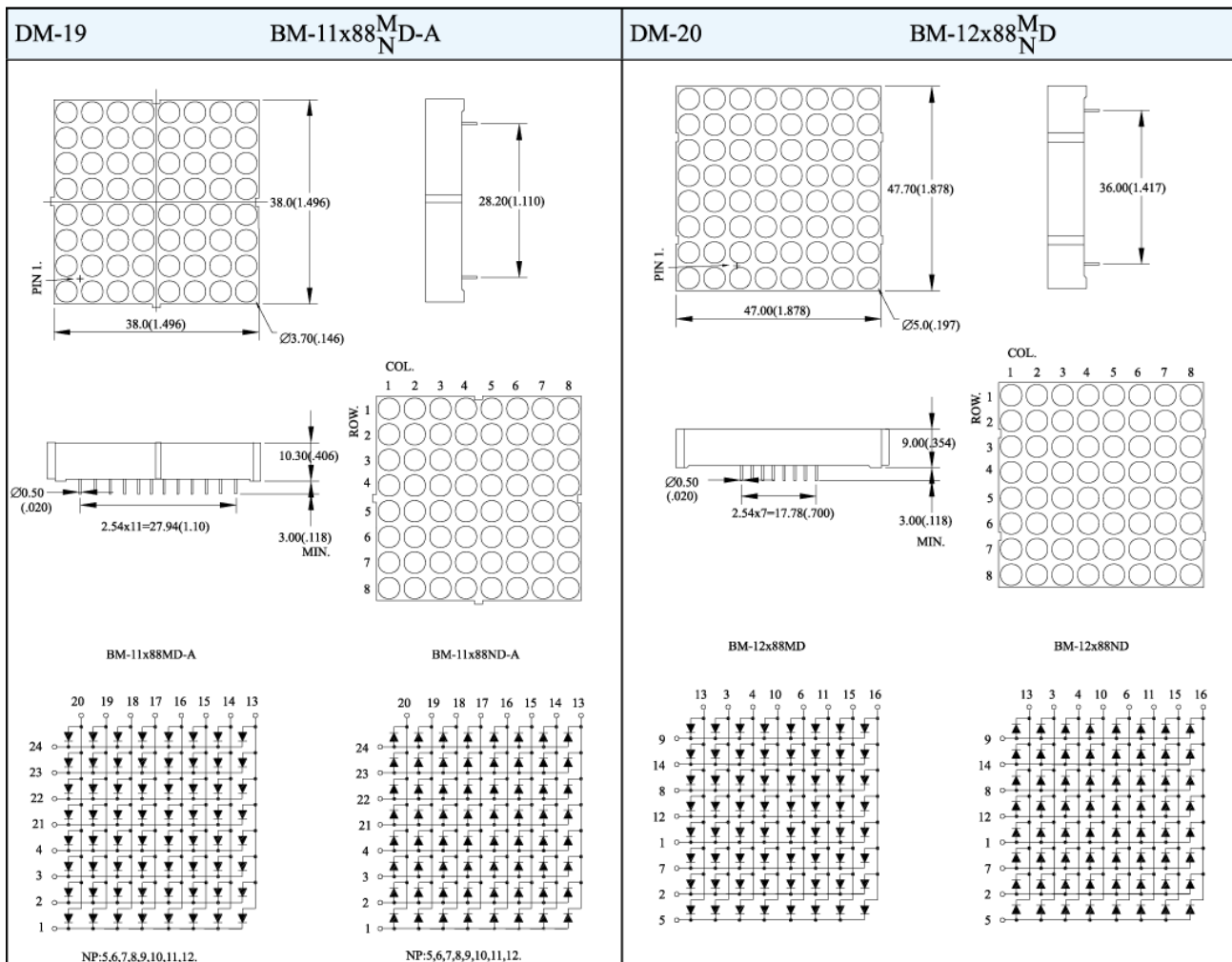
AMERICAN BRIGHT



# LED Dot Matrix Display BM Series

Single Color, 8 x 8 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      | 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  $\pm 0.25\text{mm}(.010")$ .

4.NP:No Pin. 5.NC:No Connect.

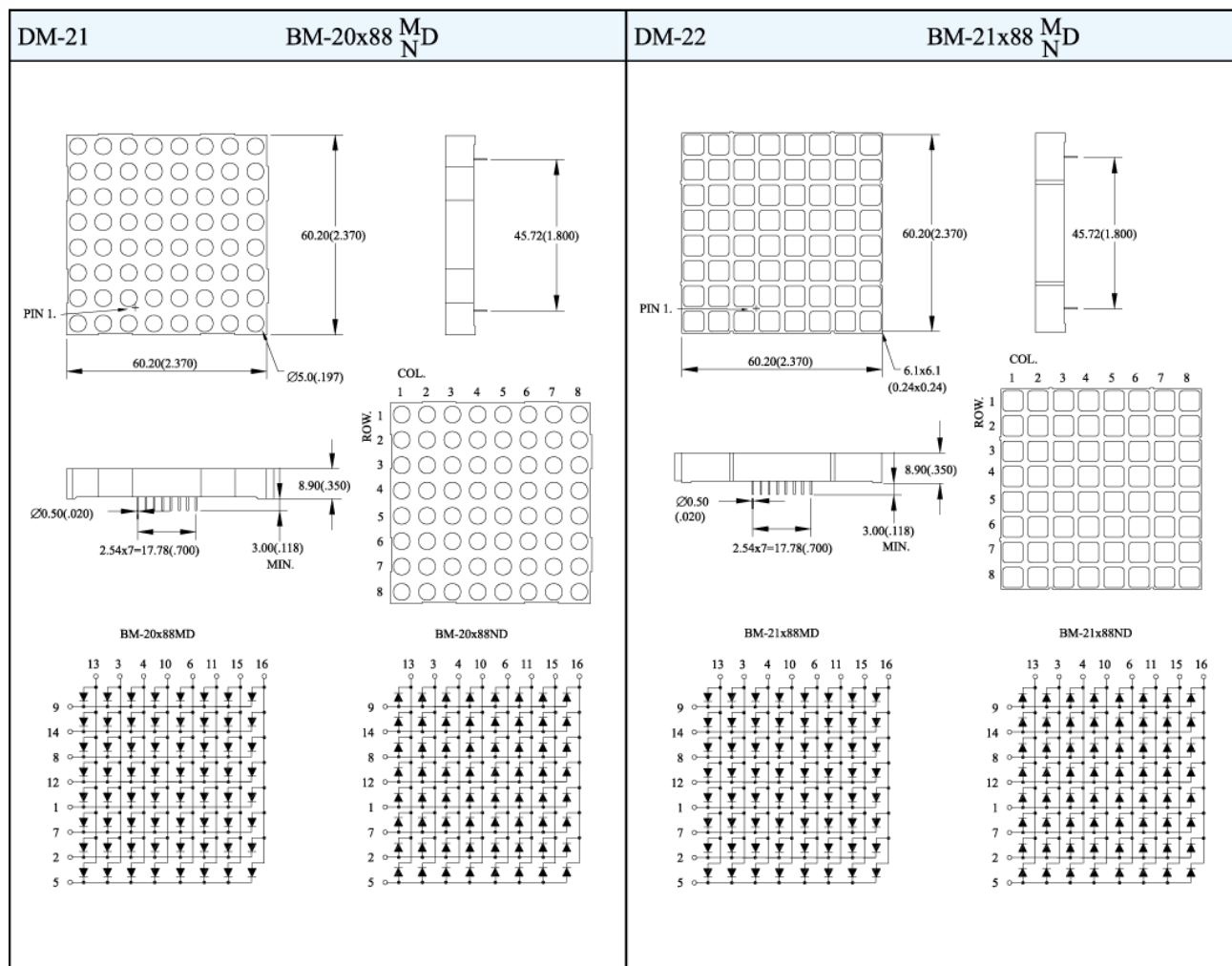
AMERICAN BRIGHT



# LED Dot Matrix Display BM Series

Single Color, 8 x 8 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(0.039 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.

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