

# ALUMINUM ELECTROLYTIC CAPACITORS

# UBY

High Temperature Range,  
For +125°C or 135°C Use



- Higher capacitance and higher ripple current than UBT and UBW.
- Ideal for automobile control circuits such as electric power steering and direct injection engine drive.
- Compliant to the RoHS directive (2011/65/EU, (EU)2015/863).
- AEC-Q200 compliant. Please contact us for details.



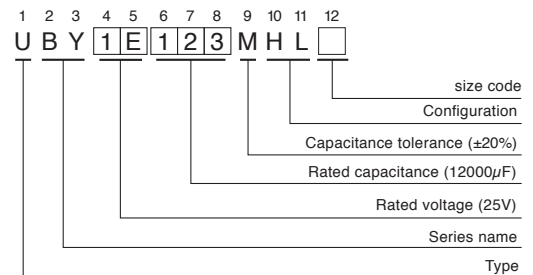
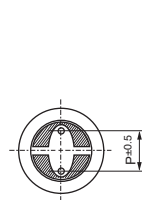
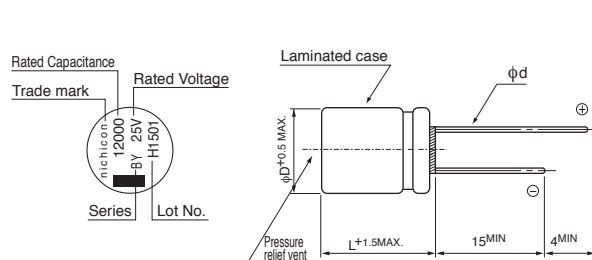
## Specifications

| Item                          | Performance Characteristics   |                   |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
|-------------------------------|---|-------------------|-------------|------|-----------|-------|-----------|-------|--------------|------------------------|-----------------|-----------|-------|-----------|--------------------|--|-------|---|-----------------|---|---|---|---|---|
| Category Temperature Range    | -40 to +135°C   |                   |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| Rated Voltage Range           | 25 to 100V  |                   |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| Rated Capacitance Range       | 160 to 12000μF  |                   |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| Capacitance Tolerance         | ±20% at 120Hz, 20°C   |                   |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| Leakage Current               | After 1 minute's application of rated voltage at 20°C, leakage current is not more than 0.03CV (μA)   |                   |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| Tangent of loss angle (tan δ) | <table border="1"> <tr> <td>Rated voltage (V)</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>80</td> <td>100</td> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.10</td> <td>0.08</td> <td>0.08</td> </tr> </table> <p>120Hz, 20°C<br/>For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.</p>  | Rated voltage (V) | 25          | 35   | 50        | 63    | 80        | 100   | tan δ (MAX.) | 0.14                   | 0.12            | 0.10      | 0.10  | 0.08      | 0.08               |  |       |   |                 |   |   |   |   |   |
| Rated voltage (V)             | 25  | 35                | 50          | 63   | 80        | 100   |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| tan δ (MAX.)                  | 0.14  | 0.12              | 0.10        | 0.10 | 0.08      | 0.08  |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| Stability at Low Temperature  | <table border="1"> <tr> <td colspan="2">Rated voltage (V)</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>80</td> <td>100</td> </tr> <tr> <td rowspan="2">Impedance ratio (MAX.)</td> <td>Z-25°C / Z+20°C</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C / Z+20°C</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> </table> <p>120Hz</p>   | Rated voltage (V) |             | 25   | 35        | 50    | 63        | 80    | 100          | Impedance ratio (MAX.) | Z-25°C / Z+20°C | 2         | 2     | 2         | 2                  | 2  | 2     | Z-40°C / Z+20°C                               | 4               | 4   | 4 | 4 | 4 | 4 |
| Rated voltage (V)             |   | 25                | 35          | 50   | 63        | 80    | 100       |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| Impedance ratio (MAX.)        | Z-25°C / Z+20°C   | 2                 | 2           | 2    | 2         | 2     | 2         |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
|                               | Z-40°C / Z+20°C   | 4                 | 4           | 4    | 4         | 4     | 4         |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| Endurance                     | <p>The specifications listed at right shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied for the time shown in right table at 125°C or 135°C, the peak voltage shall not exceed the rated voltage.</p> <table border="1"> <tr> <td>Rated voltage</td> <td>Temperature</td> <td>Time</td> </tr> <tr> <td rowspan="2">25 to 50V</td> <td>125°C</td> <td>3000hours</td> </tr> <tr> <td>135°C</td> <td>3000hours</td> </tr> <tr> <td rowspan="2">63 to 100V</td> <td>125°C</td> <td>3000hours</td> </tr> <tr> <td>135°C</td> <td>2000hours</td> </tr> </table> <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±30% of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>300% or less than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Less than or equal to the initial specified value</td> </tr> </table> | Rated voltage     | Temperature | Time | 25 to 50V | 125°C | 3000hours | 135°C | 3000hours    | 63 to 100V             | 125°C           | 3000hours | 135°C | 2000hours | Capacitance change | Within ±30% of the initial capacitance value | tan δ | 300% or less than the initial specified value | Leakage current | Less than or equal to the initial specified value |   |   |   |   |
| Rated voltage                 | Temperature   | Time              |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| 25 to 50V                     | 125°C   | 3000hours         |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
|                               | 135°C   | 3000hours         |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| 63 to 100V                    | 125°C   | 3000hours         |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
|                               | 135°C   | 2000hours         |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| Capacitance change            | Within ±30% of the initial capacitance value  |                   |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| tan δ                         | 300% or less than the initial specified value   |                   |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| Leakage current               | Less than or equal to the initial specified value   |                   |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| Shelf Life                    | After storing the capacitors under no load at 125°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above.   |                   |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |
| Marking                       | Black print on the case top.  |                   |             |      |           |       |           |       |              |                        |                 |           |       |           |                    |  |       |   |                 |   |   |   |   |   |

The UBY series places emphasis on high ripple current, as a result the lifetime calculation is different than other series. Please contact Nichicon for details.

## Radial Lead Type

Type numbering system (Example : 25V 12000μF)



|    | (mm) |     |     |
|----|------|-----|-----|
| φD | 12.5 | 16  | 18  |
| P  | 5.0  | 7.5 | 7.5 |
| φd | 0.6※ | 0.8 | 0.8 |

※ In case L > 25 for the φ12.5 dia. unit, lead dia. φ d = 0.8mm.

## Frequency coefficient of rated ripple current

| Cap. (μF)     | Frequency |      |       |                |
|---------------|-----------|------|-------|----------------|
|               | 120Hz     | 1kHz | 10kHz | 100kHz or more |
| 160           | 0.40      | 0.75 | 0.90  | 1.00           |
| 220 to 620    | 0.50      | 0.85 | 0.94  | 1.00           |
| 680 to 2000   | 0.60      | 0.87 | 0.95  | 1.00           |
| 2200 to 4300  | 0.75      | 0.90 | 0.95  | 1.00           |
| 4700 to 12000 | 0.85      | 0.95 | 0.98  | 1.00           |

• Dimension table in next page.

## UBY

### ■ Dimensions

| Rated Voltage (V) (code) | Rated Capacitance (μF) | Case Size φD×L (mm) | tan δ | Leakage Current (μA) (at 20°C after 1 minute) | ESR (Ω) MAX.  |                | Rated Ripple (mArms) |                | Part Number  |
|--------------------------|------------------------|---------------------|-------|---|---------------|----------------|----------------------|----------------|--------------|
|                          |                        |                     |       |   | 20°C / 100kHz | -40°C / 100kHz | 125°C / 100kHz       | 135°C / 100kHz |              |
| 25 (1E)                  | 2000                   | 12.5×20             | 0.16  | 1500  | 0.042         | 0.48           | 2760                 | 1690           | UBY1E202MHL  |
|                          | 3000                   | 12.5×25             | 0.18  | 2250  | 0.033         | 0.30           | 3480                 | 2010           | UBY1E302MHL  |
|                          | 3300                   | 16×20               | 0.18  | 2475  | 0.031         | 0.27           | 3040                 | 1860           | UBY1E332MHL  |
|                          | 3600                   | 12.5×31.5           | 0.18  | 2700  | 0.028         | 0.24           | 4490                 | 2900           | UBY1E362MHL  |
|                          | 4300                   | 18×20               | 0.20  | 3225  | 0.030         | 0.22           | 3250                 | 1870           | UBY1E432MHL  |
|                          | 4700                   | 16×25               | 0.20  | 3525  | 0.026         | 0.22           | 4260                 | 2870           | UBY1E472MHL  |
|                          | 5100                   | 12.5×40             | 0.22  | 3825  | 0.024         | 0.19           | 5810                 | 3470           | UBY1E512MHL  |
|                          | 6200                   | 16×31.5             | 0.24  | 4650  | 0.023         | 0.18           | 5480                 | 3400           | UBY1E622MHL  |
|                          | 6200                   | 18×25               | 0.24  | 4650  | 0.025         | 0.19           | 4500                 | 2900           | UBY1E622MHL6 |
|                          | 7500                   | 16×35.5             | 0.26  | 5625  | 0.020         | 0.14           | 6070                 | 3630           | UBY1E752MHL  |
|                          | 8200                   | 18×31.5             | 0.28  | 6150  | 0.022         | 0.16           | 5600                 | 3470           | UBY1E822MHL  |
|                          | 9100                   | 16×40               | 0.30  | 6825  | 0.019         | 0.12           | 6810                 | 3930           | UBY1E912MHL  |
|                          | 10000                  | 18×35.5             | 0.32  | 7500  | 0.019         | 0.12           | 6280                 | 3750           | UBY1E103MHL  |
| 12000                    | 18×40                  | 0.36                | 9000  | 0.018   | 0.10          | 7070           | 4080                 | UBY1E123MHL    |              |
| 35 (1V)                  | 1300                   | 12.5×20             | 0.12  | 1365  | 0.042         | 0.48           | 2760                 | 1690           | UBY1V132MHL  |
|                          | 1800                   | 12.5×25             | 0.12  | 1890  | 0.033         | 0.30           | 3480                 | 2010           | UBY1V182MHL  |
|                          | 2200                   | 12.5×31.5           | 0.14  | 2310  | 0.028         | 0.24           | 4490                 | 2900           | UBY1V222MHL  |
|                          | 2200                   | 16×20               | 0.14  | 2310  | 0.031         | 0.27           | 3040                 | 1860           | UBY1V222MHL6 |
|                          | 2700                   | 12.5×35.5           | 0.14  | 2835  | 0.025         | 0.21           | 5140                 | 3190           | UBY1V272MHL  |
|                          | 2700                   | 18×20               | 0.14  | 2835  | 0.030         | 0.22           | 3250                 | 1870           | UBY1V272MHL6 |
|                          | 3000                   | 16×25               | 0.16  | 3150  | 0.026         | 0.22           | 4260                 | 2870           | UBY1V302MHL  |
|                          | 3300                   | 12.5×40             | 0.16  | 3465  | 0.024         | 0.19           | 5810                 | 3470           | UBY1V332MHL  |
|                          | 3900                   | 16×31.5             | 0.16  | 4095  | 0.023         | 0.18           | 5480                 | 3400           | UBY1V392MHL  |
|                          | 3900                   | 18×25               | 0.16  | 4095  | 0.025         | 0.19           | 4500                 | 2900           | UBY1V392MHL6 |
|                          | 4700                   | 16×35.5             | 0.18  | 4935  | 0.020         | 0.14           | 6070                 | 3630           | UBY1V472MHL  |
|                          | 5100                   | 18×31.5             | 0.20  | 5355  | 0.022         | 0.16           | 5600                 | 3470           | UBY1V512MHL  |
|                          | 5600                   | 16×40               | 0.20  | 5880  | 0.019         | 0.12           | 6810                 | 3930           | UBY1V562MHL  |
|                          | 6200                   | 18×35.5             | 0.22  | 6510  | 0.019         | 0.12           | 6280                 | 3750           | UBY1V622MHL  |
|                          | 7500                   | 18×40               | 0.24  | 7875  | 0.018         | 0.10           | 7070                 | 4080           | UBY1V752MHL  |
| 50 (1H)                  | 620                    | 12.5×20             | 0.10  | 930   | 0.056         | 0.52           | 2400                 | 1470           | UBY1H621MHL  |
|                          | 820                    | 12.5×25             | 0.10  | 1230  | 0.044         | 0.35           | 3350                 | 2260           | UBY1H821MHL  |
|                          | 1000                   | 16×20               | 0.10  | 1500  | 0.039         | 0.30           | 2960                 | 1870           | UBY1H102MHL  |
|                          | 1100                   | 12.5×31.5           | 0.10  | 1650  | 0.037         | 0.26           | 4220                 | 2520           | UBY1H112MHL  |
|                          | 1300                   | 12.5×35.5           | 0.10  | 1950  | 0.033         | 0.23           | 4810                 | 2780           | UBY1H132MHL  |
|                          | 1300                   | 16×25               | 0.10  | 1950  | 0.033         | 0.22           | 4040                 | 2500           | UBY1H132MHL6 |
|                          | 1300                   | 18×20               | 0.10  | 1950  | 0.038         | 0.20           | 3130                 | 2110           | UBY1H132MHL3 |
|                          | 1600                   | 12.5×40             | 0.10  | 2400  | 0.032         | 0.20           | 5240                 | 3020           | UBY1H162MHL  |
|                          | 1800                   | 16×31.5             | 0.10  | 2700  | 0.029         | 0.19           | 5130                 | 2960           | UBY1H182MHL  |
|                          | 1800                   | 18×25               | 0.10  | 2700  | 0.032         | 0.19           | 4230                 | 2530           | UBY1H182MHL6 |
|                          | 2200                   | 16×35.5             | 0.12  | 3300  | 0.025         | 0.14           | 5480                 | 3160           | UBY1H222MHL  |
|                          | 2400                   | 18×31.5             | 0.12  | 3600  | 0.025         | 0.16           | 5240                 | 3020           | UBY1H242MHL  |
|                          | 2700                   | 16×40               | 0.12  | 4050  | 0.022         | 0.13           | 5930                 | 3420           | UBY1H272MHL  |
|                          | 3000                   | 18×35.5             | 0.14  | 4500  | 0.022         | 0.12           | 5870                 | 3390           | UBY1H302MHL  |
|                          | 3600                   | 18×40               | 0.14  | 5400  | 0.020         | 0.10           | 6420                 | 3700           | UBY1H362MHL  |

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).  
 If there is no size code in the part number, please add size code "1" and then add the appropriate code.

## UBY

### ■ Dimensions

| Rated Voltage (V) (code) | Rated Capacitance (μF) | Case Size φD×L (mm) | tan δ | Leakage Current (μA) (at 20°C after 1 minute) | ESR (Ω) MAX.  |                | Rated Ripple (mArms) |                | Part Number  |
|--------------------------|------------------------|---------------------|-------|---|---------------|----------------|----------------------|----------------|--------------|
|                          |                        |                     |       |   | 20°C / 100kHz | -40°C / 100kHz | 125°C / 100kHz       | 135°C / 100kHz |              |
| 63 (1J)                  | 390                    | 12.5×20             | 0.10  | 737.1   | 0.074         | 0.56           | 1640                 | 1420           | UBY1J391MHL  |
|                          | 560                    | 12.5×25             | 0.10  | 1058.4  | 0.054         | 0.39           | 2520                 | 2050           | UBY1J561MHL  |
|                          | 750                    | 12.5×31.5           | 0.10  | 1417.5  | 0.042         | 0.30           | 3110                 | 2630           | UBY1J751MHL  |
|                          | 750                    | 16×20               | 0.10  | 1417.5  | 0.053         | 0.34           | 2140                 | 1910           | UBY1J751MHL6 |
|                          | 950                    | 12.5×35.5           | 0.10  | 1795.5  | 0.038         | 0.25           | 3760                 | 2970           | UBY1J951MHL  |
|                          | 950                    | 18×20               | 0.10  | 1795.5  | 0.048         | 0.26           | 2350                 | 2100           | UBY1J951MHL6 |
|                          | 1000                   | 16×25               | 0.10  | 1890  | 0.038         | 0.23           | 2940                 | 2680           | UBY1J102MHL  |
|                          | 1100                   | 12.5×40             | 0.10  | 2079  | 0.031         | 0.22           | 4610                 | 3260           | UBY1J112MHL  |
|                          | 1300                   | 16×31.5             | 0.10  | 2457  | 0.034         | 0.20           | 3860                 | 3050           | UBY1J132MHL  |
|                          | 1300                   | 18×25               | 0.10  | 2457  | 0.035         | 0.19           | 3080                 | 2810           | UBY1J132MHL6 |
|                          | 1700                   | 16×35.5             | 0.10  | 3213  | 0.027         | 0.15           | 4590                 | 3420           | UBY1J172MHL  |
|                          | 1800                   | 18×31.5             | 0.10  | 3402  | 0.028         | 0.15           | 4080                 | 3220           | UBY1J182MHL  |
|                          | 2000                   | 16×40               | 0.12  | 3780  | 0.025         | 0.14           | 5190                 | 3670           | UBY1J202MHL  |
|                          | 2200                   | 18×35.5             | 0.12  | 4158  | 0.023         | 0.12           | 5220                 | 3690           | UBY1J222MHL  |
|                          | 2500                   | 18×40               | 0.12  | 4725  | 0.021         | 0.11           | 5660                 | 3820           | UBY1J252MHL  |
| 80 (1K)                  | 270                    | 12.5×20             | 0.08  | 648   | 0.074         | 0.56           | 1640                 | 1420           | UBY1K271MHL  |
|                          | 390                    | 12.5×25             | 0.08  | 936   | 0.054         | 0.39           | 2520                 | 2050           | UBY1K391MHL  |
|                          | 470                    | 16×20               | 0.08  | 1128  | 0.053         | 0.34           | 2140                 | 1910           | UBY1K471MHL  |
|                          | 510                    | 12.5×31.5           | 0.08  | 1224  | 0.042         | 0.30           | 3110                 | 2630           | UBY1K511MHL  |
|                          | 620                    | 12.5×35.5           | 0.08  | 1488  | 0.038         | 0.25           | 3760                 | 2970           | UBY1K621MHL  |
|                          | 620                    | 18×20               | 0.08  | 1488  | 0.048         | 0.26           | 2350                 | 2100           | UBY1K621MHL6 |
|                          | 680                    | 16×25               | 0.08  | 1632  | 0.038         | 0.23           | 2940                 | 2680           | UBY1K681MHL  |
|                          | 750                    | 12.5×40             | 0.08  | 1800  | 0.031         | 0.22           | 4610                 | 3260           | UBY1K751MHL  |
|                          | 820                    | 16×31.5             | 0.08  | 1968  | 0.034         | 0.20           | 3860                 | 3050           | UBY1K821MHL  |
|                          | 820                    | 18×25               | 0.08  | 1968  | 0.035         | 0.19           | 3080                 | 2810           | UBY1K821MHL6 |
|                          | 1000                   | 16×35.5             | 0.08  | 2400  | 0.027         | 0.15           | 4590                 | 3420           | UBY1K102MHL  |
|                          | 1100                   | 18×31.5             | 0.08  | 2640  | 0.028         | 0.15           | 4080                 | 3220           | UBY1K112MHL  |
|                          | 1300                   | 16×40               | 0.08  | 3120  | 0.025         | 0.14           | 5190                 | 3670           | UBY1K132MHL  |
|                          | 1300                   | 18×35.5             | 0.08  | 3120  | 0.023         | 0.12           | 5220                 | 3690           | UBY1K132MHL6 |
|                          | 1600                   | 18×40               | 0.08  | 3840  | 0.021         | 0.11           | 5660                 | 3820           | UBY1K162MHL  |
| 100 (2A)                 | 160                    | 12.5×20             | 0.08  | 480   | 0.074         | 0.56           | 1640                 | 1420           | UBY2A161MHL  |
|                          | 220                    | 12.5×25             | 0.08  | 660   | 0.054         | 0.39           | 2520                 | 2050           | UBY2A221MHL  |
|                          | 270                    | 16×20               | 0.08  | 810   | 0.053         | 0.34           | 2140                 | 1910           | UBY2A271MHL  |
|                          | 300                    | 12.5×31.5           | 0.08  | 900   | 0.042         | 0.30           | 3110                 | 2630           | UBY2A301MHL  |
|                          | 360                    | 12.5×35.5           | 0.08  | 1080  | 0.038         | 0.25           | 3760                 | 2970           | UBY2A361MHL  |
|                          | 360                    | 18×20               | 0.08  | 1080  | 0.048         | 0.26           | 2350                 | 2100           | UBY2A361MHL6 |
|                          | 390                    | 16×25               | 0.08  | 1170  | 0.038         | 0.23           | 2940                 | 2680           | UBY2A391MHL  |
|                          | 430                    | 12.5×40             | 0.08  | 1290  | 0.031         | 0.22           | 4610                 | 3260           | UBY2A431MHL  |
|                          | 470                    | 16×31.5             | 0.08  | 1410  | 0.034         | 0.20           | 3860                 | 3050           | UBY2A471MHL  |
|                          | 510                    | 18×25               | 0.08  | 1530  | 0.035         | 0.19           | 3080                 | 2810           | UBY2A511MHL  |
|                          | 560                    | 16×35.5             | 0.08  | 1680  | 0.027         | 0.15           | 4590                 | 3420           | UBY2A561MHL  |
|                          | 680                    | 18×31.5             | 0.08  | 2040  | 0.028         | 0.15           | 4080                 | 3220           | UBY2A681MHL  |
|                          | 750                    | 16×40               | 0.08  | 2250  | 0.025         | 0.14           | 5190                 | 3670           | UBY2A751MHL  |
|                          | 820                    | 18×35.5             | 0.08  | 2460  | 0.023         | 0.12           | 5220                 | 3690           | UBY2A821MHL  |
|                          | 950                    | 18×40               | 0.08  | 2850  | 0.021         | 0.11           | 5660                 | 3820           | UBY2A951MHL  |

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).  
 If there is no size code in the part number, please add size code "1" and then add the appropriate code.

Please refer to page 18, 19 about the formed or taped product spec.  
 Please refer to page 4 for the minimum order quantity.