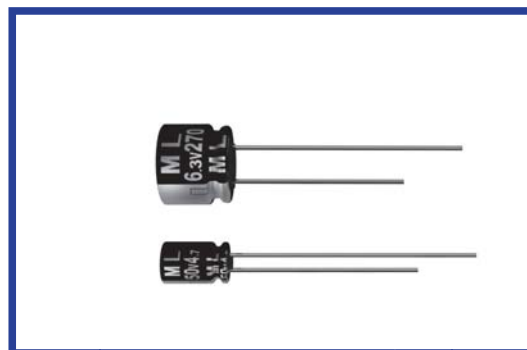


ML series

105°C 3000~5000時間品 高さ5mm~9mm  
105°C 3000~5000hours. 5mm~9mm Height



◆規格表/SPECIFICATIONS

| 項目 Item  | 特性 Characteristics  |                               |   |                     |                      |                              |  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |
|--|---|-------------------------------|---|---------------------|----------------------|------------------------------|--|-------|---------------|-------------------------|---|-------|------|------|------|------|--|-------------------|----|----|---|---|---|---|--|
| カテゴリ温度範囲<br>Category Temperature Range                                   | -40~+105°C  |                               |   |                     |                      |                              |  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |
| 定格電圧範囲<br>Rated Voltage Range  | 6.3~50Vdc   |                               |   |                     |                      |                              |  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |
| 静電容量許容差<br>Capacitance Tolerance   | ±20%(20°C, 120Hz)   |                               |   |                     |                      |                              |  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |
| 漏れ電流<br>Leakage Current (MAX)  | I=0.01CV又は3μAのいずれか大なる値以下(定格電圧印加2分後)<br>I=0.01CV or 3μA whichever is greater. (After 2 minutes application of rated voltage)<br>I=漏れ電流(μA) C=静電容量(μF) V=定格電圧(Vdc)<br>Leakage Current Capacitance Rated Voltage   |                               |   |                     |                      |                              |  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |
| 損失角の正接(tan δ)<br>Dissipation Factor (MAX)                                | <table border="1"> <tr> <td>定格電圧(Vdc)<br/>Rated Voltage</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>(20°C, 120Hz)</td> </tr> <tr> <td>tan δ</td> <td>0.40</td> <td>0.35</td> <td>0.30</td> <td>0.25</td> <td>0.20</td> <td>0.20</td> <td></td> </tr> </table>   | 定格電圧(Vdc)<br>Rated Voltage    | 6.3   | 10                  | 16                   | 25                           | 35   | 50    | (20°C, 120Hz) | tan δ                   | 0.40  | 0.35  | 0.30 | 0.25 | 0.20 | 0.20 |  |                   |    |    |   |   |   |   |  |
| 定格電圧(Vdc)<br>Rated Voltage   | 6.3   | 10                            | 16  | 25                  | 35                   | 50                           | (20°C, 120Hz)  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |
| tan δ  | 0.40  | 0.35                          | 0.30  | 0.25                | 0.20                 | 0.20                         |  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |
| 耐久性<br>Endurance   | <p>105°C中で右表の時間定格電圧(リップル重畳)印加後、下記項目を満足すること。<br/>After applying rated voltage with rated ripple current for specified time at 105°C, the capacitors shall meet the following requirements.</p> <table border="1"> <tr> <td>静電容量変化率<br/>Capacitance Change</td> <td>初期値の±30%以内<br/>Within ±30% of the initial value.</td> <td>ケースサイズ<br/>Case Size</td> <td>時間(hrs)<br/>Time(hrs)</td> </tr> <tr> <td>損失角の正接<br/>Dissipation Factor</td> <td>規格値の 300% 以下<br/>Not more than 300% of the specified value.</td> <td>L=5mm</td> <td>3000</td> </tr> <tr> <td>漏れ電流<br/>Leakage Current</td> <td>規格値以下<br/>Not more than the specified value.</td> <td>L≥7mm</td> <td>5000</td> </tr> </table> | 静電容量変化率<br>Capacitance Change | 初期値の±30%以内<br>Within ±30% of the initial value. | ケースサイズ<br>Case Size | 時間(hrs)<br>Time(hrs) | 損失角の正接<br>Dissipation Factor | 規格値の 300% 以下<br>Not more than 300% of the specified value. | L=5mm | 3000          | 漏れ電流<br>Leakage Current | 規格値以下<br>Not more than the specified value. | L≥7mm | 5000 |      |      |      |  |                   |    |    |   |   |   |   |  |
| 静電容量変化率<br>Capacitance Change  | 初期値の±30%以内<br>Within ±30% of the initial value.   | ケースサイズ<br>Case Size           | 時間(hrs)<br>Time(hrs)                            |                     |                      |                              |  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |
| 損失角の正接<br>Dissipation Factor   | 規格値の 300% 以下<br>Not more than 300% of the specified value.  | L=5mm                         | 3000  |                     |                      |                              |  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |
| 漏れ電流<br>Leakage Current  | 規格値以下<br>Not more than the specified value.   | L≥7mm                         | 5000  |                     |                      |                              |  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |
| 低温特性<br>Low Temperature Stability<br>(インピーダンス比)<br>Impedance Ratio (MAX) | <table border="1"> <tr> <td>定格電圧(Vdc)<br/>Rated Voltage</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>(120Hz)</td> </tr> <tr> <td>Z(-25°C)/Z(+20°C)</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td></td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>12</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td></td> </tr> </table>   | 定格電圧(Vdc)<br>Rated Voltage    | 6.3   | 10                  | 16                   | 25                           | 35   | 50    | (120Hz)       | Z(-25°C)/Z(+20°C)       | 6   | 4     | 4    | 3    | 2    | 2    |  | Z(-40°C)/Z(+20°C) | 12 | 10 | 8 | 6 | 4 | 4 |  |
| 定格電圧(Vdc)<br>Rated Voltage   | 6.3   | 10                            | 16  | 25                  | 35                   | 50                           | (120Hz)  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |
| Z(-25°C)/Z(+20°C)  | 6   | 4                             | 4   | 3                   | 2                    | 2                            |  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |
| Z(-40°C)/Z(+20°C)  | 12  | 10                            | 8   | 6                   | 4                    | 4                            |  |       |               |                         |   |       |      |      |      |      |  |                   |    |    |   |   |   |   |  |

◆呼称方法/PART NUMBER

□□□
ML
□□□□□
M
□□□
□□
D x L  
 定格電圧    シリーズ名    静電容量    静電容量許容差    副記号    リード加工記号    ケースサイズ  
 Rated Voltage    Series    Capacitance    Capacitance Tolerance    Option    Lead Forming    Case Size

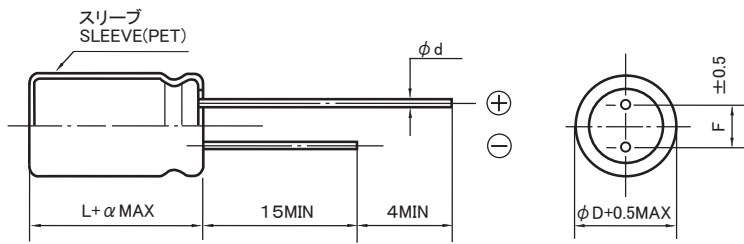
◆リップル電流補正係数/  
MULTIPLIER FOR RIPPLE CURRENT

| 周波数(Hz)<br>Frequency | 60(50) | 120  | 1k   | 10k  | 100k≤ |
|----------------------|--------|------|------|------|-------|
| 1μF                  | 0.50   | 1.00 | 1.20 | 1.30 | 1.50  |
| 2.2~6.8μF            | 0.65   | 1.00 | 1.20 | 1.30 | 1.50  |
| 10~82μF              | 0.80   | 1.00 | 1.20 | 1.30 | 1.50  |
| 100~1000μF           | 0.80   | 1.00 | 1.10 | 1.15 | 1.20  |

◆副記号/OPTION

EFC : PETスリーブ PET Sleeve

◆寸法図／DIMENSIONS



| $\phi D$ | 4                       | 5   | 6.3  | 8x5 | 8x7 | 8x7.5 | 8x9 | 10  |
|----------|-------------------------|-----|--|-----|-----|-------|-----|-----|
| $\phi d$ | 0.45                    |     |  |     |     |       |     | 0.6 |
| F        | 1.5                     | 2.0 | 2.5  | 3.5 |     | 5.0   |     |     |
| $\alpha$ | 35~100Vdc<br>160~450Vdc |     | L=7 : $\alpha = 1.0$<br>L=5 : $\alpha = 1.5$ |     | 1.5 | 1.0   | 2.0 |     |

◆標準品一覧表／STANDARD SIZE

Size  $\phi D \times L$ (mm), Rated Ripple Current (mA r.m.s./105°C, 120Hz)

| 定格電圧<br>(Vdc)<br>静電容量<br>( $\mu F$ ) | 6.3   |        | 10    |        | 16    |        | 25    |        | 35    |        | 50    |        |
|--------------------------------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
|                                      | Size  | Ripple | Size  | Ripple | Size  | Ripple | Size  | Ripple | Size  | Ripple | Size  | Ripple |
| 1                                    |       |        |       |        |       |        |       |        |       |        | 4x5   | 8      |
| 2.2                                  |       |        |       |        |       |        |       |        |       |        | 4x5   | 11     |
| 3.3                                  |       |        |       |        |       |        |       |        |       |        | 4x5   | 14     |
| 4.7                                  |       |        |       |        |       |        |       |        |       |        | 4x7   | 23     |
| 6.8                                  |       |        |       |        |       |        |       |        | 4x5   | 17     | 5x5   | 25     |
| 10                                   |       |        |       |        |       |        | 4x5   | 18     | 4x7   | 28     | 5x7   | 30     |
| 12                                   |       |        |       |        |       |        |       |        | 5x5   | 34     | 6.3x5 | 37     |
| 15                                   |       |        |       |        |       |        | 4x7   | 35     |       |        |       |        |
| 18                                   |       |        |       |        | 4x5   | 20     |       |        | 5x7   | 48     | 6.3x7 | 50     |
| 22                                   |       |        | 4x5   | 22     | 4x7   | 40     | 5x5   | 42     |       |        | 8x5   | 62     |
| 27                                   | 4x5   | 25     |       |        |       |        | 5x7   | 57     | 6.3x5 | 58     | 6.3x7 | 62     |
| 33                                   |       |        | 4x7   | 43     | 5x5   | 45     |       |        |       |        | 8x7   | 75     |
| 39                                   |       |        |       |        | 5x7   | 65     |       |        | 6.3x7 | 76     |       |        |
| 47                                   | 4x7   | 47     | 5x5   | 48     |       |        | 6.3x5 | 65     | 8x5   | 80     |       |        |
| 56                                   | 5x5   | 50     | 5x7   | 68     |       |        | 6.3x7 | 85     | 8x7   | 105    | 8x7.5 | 115    |
| 68                                   |       |        |       |        | 6.3x5 | 70     |       |        |       |        |       |        |
| 82                                   | 5x7   | 75     |       |        |       |        | 8x5   | 100    |       |        | 8x9   | 160    |
| 100                                  |       |        | 6.3x5 | 75     | 6.3x7 | 95     | 8x7   | 112    | 8x7.5 | 125    |       |        |
| 120                                  | 6.3x5 | 80     | 6.3x7 | 100    | 8x5   | 110    |       |        |       |        | 10x9  | 315    |
| 150                                  |       |        |       |        | 8x7   | 125    | 8x7.5 | 140    | 8x9   | 180    |       |        |
| 180                                  | 6.3x7 | 110    | 8x5   | 120    |       |        |       |        |       |        |       |        |
| 220                                  | 8x5   | 125    | 8x7   | 160    | 8x7.5 | 170    | 8x9   | 190    | 10x9  | 360    |       |        |
| 270                                  | 8x7   | 165    |       |        |       |        |       |        |       |        |       |        |
| 330                                  |       |        | 8x7.5 | 180    | 8x9   | 195    | 10x9  | 450    |       |        |       |        |
| 470                                  | 8x7.5 | 190    | 8x9   | 210    | 10x9  | 460    |       |        |       |        |       |        |
| 560                                  | 8x9   | 230    |       |        |       |        |       |        |       |        |       |        |
| 680                                  |       |        | 10x9  | 470    |       |        |       |        |       |        |       |        |
| 1000                                 | 10x9  | 480    |       |        |       |        |       |        |       |        |       |        |