

# Type 3188 85 °C Best Value, Screw Terminal, Aluminum

## 85 °C Long Life Screw Terminal Type



Type 3188 has twice the life of the 3186 and twice the ripple-current capability. While the standard encasement is by compression with the capacitor element captured on an aluminum peg in the can bottom and a phenolic peg in the top, rilled construction is available. With rilled construction the element is secured by rills, spoon shaped dimples in the side of the can. Rilled construction offers the industry's highest vibration and shock withstanding and excellent heat transfer. Besides increasing ripple-current handling, the rilled construction facilitates use in military and transportation applications.

### Highlights

- Rilled cans withstand high shock and vibration.
- 2 times the ripple-current capability
- High capacitance per can

### Specifications

| Temperature Range               | -40 °C to +85 °C   |        |        |         |         |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
|---------------------------------|--|--------|--------|---------|---------|-------|------|------|------|------|------|--|-------|--------|--------|---------|---------|------------|------|------|------|------|------|-------------|------|------|------|------|------|
| Rated Voltage Range             | 16 Vdc to 450 Vdc  |        |        |         |         |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
| Capacitance Range               | 270 µF to 1.0 F  |        |        |         |         |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
| Capacitance Tolerance           | -10% +75% ≤ 100 Vdc<br>-10% +50% ≥ 200 Vdc   |        |        |         |         |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
| Leakage Current                 | ≤ 6√CV µA (6 mA max.) at 5 minutes   |        |        |         |         |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
| Ripple Current Multipliers      | Ambient Temperature<br><table border="1"> <tr> <th>45 °C</th> <th>55 °C</th> <th>65 °C</th> <th>75 °C</th> <th>85 °C</th> </tr> <tr> <td>2.24</td> <td>2.00</td> <td>1.73</td> <td>1.41</td> <td>1.00</td> </tr> </table><br>Frequency<br><table border="1"> <tr> <th></th> <th>60 Hz</th> <th>120 Hz</th> <th>300 Hz</th> <th>1000 Hz</th> <th>≥10 kHz</th> </tr> <tr> <th>16 – 100 V</th> <td>0.90</td> <td>1.00</td> <td>1.15</td> <td>1.25</td> <td>1.30</td> </tr> <tr> <th>200 – 450 V</th> <td>0.90</td> <td>1.00</td> <td>1.25</td> <td>1.40</td> <td>1.50</td> </tr> </table> | 45 °C  | 55 °C  | 65 °C   | 75 °C   | 85 °C | 2.24 | 2.00 | 1.73 | 1.41 | 1.00 |  | 60 Hz | 120 Hz | 300 Hz | 1000 Hz | ≥10 kHz | 16 – 100 V | 0.90 | 1.00 | 1.15 | 1.25 | 1.30 | 200 – 450 V | 0.90 | 1.00 | 1.25 | 1.40 | 1.50 |
| 45 °C                           | 55 °C  | 65 °C  | 75 °C  | 85 °C   |         |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
| 2.24                            | 2.00   | 1.73   | 1.41   | 1.00    |         |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
|                                 | 60 Hz  | 120 Hz | 300 Hz | 1000 Hz | ≥10 kHz |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
| 16 – 100 V                      | 0.90   | 1.00   | 1.15   | 1.25    | 1.30    |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
| 200 – 450 V                     | 0.90   | 1.00   | 1.25   | 1.40    | 1.50    |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
| Low Temperature Characteristics | Impedance ratio: $Z_{-20^{\circ}\text{C}}/Z_{+25^{\circ}\text{C}}$<br>≤ 8 (16–50 Vdc)<br>≤ 4 (63–100 Vdc)<br>≤ 3 (150–450 Vdc)   |        |        |         |         |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
| Endurance Life Test             | 4,000 h @ full load at 85 °C<br>ΔCapacitance ±10%<br>ESR 200% of limit<br>DCL 100% of limit  |        |        |         |         |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
| Shelf Life Test                 | 500 h @ 85 °C<br>ΔCapacitance ±10%<br>ESR 175% of limit<br>DCL 100% of limit   |        |        |         |         |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |
| Vibration                       | 10 to 55 Hz, 0.06" & 10 g max for compression,<br>15 g max for rilled, 1.5 h ea. of 2 axes   |        |        |         |         |       |      |      |      |      |      |  |       |        |        |         |         |            |      |      |      |      |      |             |      |      |      |      |      |

### Regulatory Information

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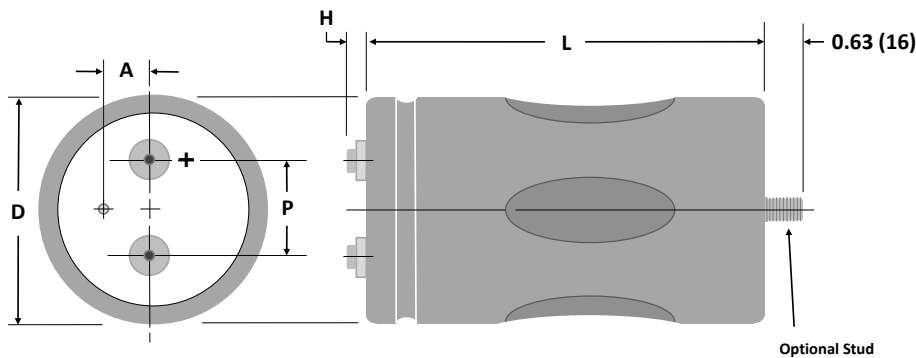
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### Part Numbering System

|             |           |  |   |                                      |   |  |   |
|-------------|-----------|--|---|--------------------------------------|---|--|---|
| <b>3188</b> | <b>GH</b> | <b>562</b>   | <b>T</b>  | <b>400</b>                           | <b>M</b>  | <b>P</b>   | <b>A1</b>   |
| Type        | Case Code | Capacitance<br>562=5600 µF<br>223=22000 µF<br>821=820 µF | Tolerance<br>M= ±20%<br>S= -10 +30%<br>T= -10 +50%<br>U= -10 +75% | Voltage<br>016=16 Vdc<br>450=450 Vdc | Terminal<br>A=high post<br>B=low post<br>D=high current<br>low post<br>K=high current<br>high post<br>M=M5 high post<br>J=M6 low post | Insulation<br>P=0.008" PVC<br>with mounting<br>clamp/bracket<br>R=0.008" PVC | Construction*<br>A1=compression<br>R1=rilled<br>S1=stud & compression<br>T1=stud & rilled |

\* Construction code is also a sequence number, e.g., A1, A2,---,A9, B1,B2,---, for customer specifications. Sequence number 1 in A1, R1, S1 and T1 denotes the standard catalog capacitor with no special requirements.

### Outline Drawing



### Stud Dimensions

| Case  | Stud   | P ± 0.039"    |
|-------|--------|---------------|
| Diam. | Thread | (±1.0 mm)     |
| 1.375 | M8     | 0.470" (12.0) |
| 1.750 | M8     | 0.470" (12.0) |
| 2.000 | M12    | 0.630" (16.0) |
| 2.500 | M12    | 0.630" (16.0) |
| 3.000 | M12    | 0.630" (16.0) |

### Can Dimensions Insulation Adders

|            | Diameter (D) |      | Length (L) |      | Standing Height (H) |      |
|------------|--------------|------|------------|------|---------------------|------|
|            | (in)         | (mm) | (in)       | (mm) | (in)                | (mm) |
| 0.008" PVC | 0.02         | 0.51 | 0.032      | 0.81 | 0.024               | 0.61 |

### Terminal Dimensions

| Terminal Style     | For Case<br>Diameters | Code | Post Diameter |      | H max |     | Thread | min Full Thread |      | Torque |      |
|--------------------|-----------------------|------|---------------|------|-------|-----|--------|-----------------|------|--------|------|
|                    |                       |      | in            | mm   | in    | mm  |        | in              | mm   | in-lb  | N-m  |
| Low Post           | 1 3/8 to 3            | B    | 0.314         | 8.0  | 0.094 | 2.4 | 10-32  | 0.218           | 5.5  | 25     | 2.82 |
| High Post          | 1 3/8 to 3            | A    | 0.314         | 8.0  | 0.281 | 7.1 | 10-32  | 0.375           | 9.5  | 25     | 2.82 |
| High Current, Low  | 2 1/2 & 3             | D    | 0.684         | 17.4 | 0.125 | 3.2 | ¼-28   | 0.344           | 8.7  | 50     | 5.65 |
| High Current, High | 2 1/2 & 3             | K    | 0.684         | 17.4 | 0.281 | 7.1 | ¼-28   | 0.469           | 11.9 | 60     | 6.78 |
| M5 High Post       | 1 3/8 to 2            | M    | 0.314         | 8.0  | 0.281 | 7.1 | M5     | 0.375           | 9.5  | 25     | 2.82 |
| M5 Post            | 2 1/2 & 3             | F    | 0.512         | 13.0 | 0.230 | 5.8 | M5     | 0.344           | 8.7  | 25     | 2.82 |
| M6 Low Post        | 2 1/2 & 3             | J    | 0.684         | 17.4 | 0.125 | 3.2 | M6     | 0.344           | 8.7  | 50     | 5.65 |

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### Case Dimensions, Uninsulated Bare Can

| Case Code | Diameter (D)    |            | Length (L)      |             | Pitch (P)       |             | Plug (A)   |        | Typical     |            | Optional Bracket Part No. |
|-----------|-----------------|------------|-----------------|-------------|-----------------|-------------|------------|--------|-------------|------------|---------------------------|
|           | ±0.031 (Inches) | ±0.79 (mm) | ±0.062 (Inches) | ±1.157 (mm) | ±0.014 (Inches) | ±0.356 (mm) | A (Inches) | A (mm) | Weight (oz) | Weight (g) |                           |
| <b>BA</b> | 1.375           | 34.9       | 2.125           | 54.0        | 0.500           | 12.7        | 0.390      | 9.9    | 2.53        | 72         | 115058-06                 |
| <b>BB</b> | 1.375           | 34.9       | 2.625           | 66.7        | 0.500           | 12.7        | 0.390      | 9.9    | 3.17        | 90         | 115058-06                 |
| <b>BC</b> | 1.375           | 34.9       | 3.125           | 79.4        | 0.500           | 12.7        | 0.390      | 9.9    | 3.70        | 105        | 115058-06                 |
| <b>BD</b> | 1.375           | 34.9       | 3.625           | 92.1        | 0.500           | 12.7        | 0.390      | 9.9    | 4.22        | 120        | 115058-06                 |
| <b>BE</b> | 1.375           | 34.9       | 4.125           | 104.8       | 0.500           | 12.7        | 0.390      | 9.9    | 4.75        | 135        | 115058-06                 |
| <b>BF</b> | 1.375           | 34.9       | 4.625           | 117.5       | 0.500           | 12.7        | 0.390      | 9.9    | 5.98        | 170        | 115058-06                 |
| <b>BG</b> | 1.375           | 34.9       | 5.125           | 130.2       | 0.500           | 12.7        | 0.390      | 9.9    | 7.74        | 220        | 115058-06                 |
| <b>BH</b> | 1.375           | 34.9       | 5.625           | 142.9       | 0.500           | 12.7        | 0.390      | 9.9    | 9.50        | 270        | 115058-06                 |
| <b>DA</b> | 1.75            | 44.5       | 2.125           | 54.0        | 0.750           | 19.1        | 0.453      | 11.5   | 5.63        | 160        | 115058-15                 |
| <b>DB</b> | 1.75            | 44.5       | 2.625           | 66.7        | 0.750           | 19.1        | 0.453      | 11.5   | 6.16        | 175        | 115058-15                 |
| <b>DC</b> | 1.75            | 44.5       | 3.125           | 79.4        | 0.750           | 19.1        | 0.453      | 11.5   | 6.34        | 180        | 115058-15                 |
| <b>DD</b> | 1.75            | 44.5       | 3.625           | 92.1        | 0.750           | 19.1        | 0.453      | 11.5   | 7.22        | 205        | 115058-15                 |
| <b>DE</b> | 1.75            | 44.5       | 4.125           | 104.8       | 0.750           | 19.1        | 0.453      | 11.5   | 7.74        | 220        | 115058-15                 |
| <b>DF</b> | 1.75            | 44.5       | 4.625           | 117.5       | 0.750           | 19.1        | 0.453      | 11.5   | 8.27        | 235        | 115058-15                 |
| <b>DG</b> | 1.75            | 44.5       | 5.125           | 130.2       | 0.750           | 19.1        | 0.453      | 11.5   | 8.80        | 250        | 115058-15                 |
| <b>DH</b> | 1.75            | 44.5       | 5.625           | 142.9       | 0.750           | 19.1        | 0.453      | 11.5   | 9.50        | 270        | 115058-15                 |
| <b>EA</b> | 2               | 50.8       | 2.125           | 54.0        | 0.875           | 22.2        | 0.500      | 12.7   | 5.98        | 170        | 115058-09                 |
| <b>EB</b> | 2               | 50.8       | 2.625           | 66.7        | 0.875           | 22.2        | 0.500      | 12.7   | 6.34        | 180        | 115058-09                 |
| <b>EC</b> | 2               | 50.8       | 3.125           | 79.4        | 0.875           | 22.2        | 0.500      | 12.7   | 6.69        | 190        | 115058-09                 |
| <b>ED</b> | 2               | 50.8       | 3.625           | 92.1        | 0.875           | 22.2        | 0.500      | 12.7   | 7.74        | 220        | 115058-09                 |
| <b>EE</b> | 2               | 50.8       | 4.125           | 104.8       | 0.875           | 22.2        | 0.500      | 12.7   | 8.98        | 255        | 115058-09                 |
| <b>EF</b> | 2               | 50.8       | 4.625           | 117.5       | 0.875           | 22.2        | 0.500      | 12.7   | 10.21       | 290        | 115058-09                 |
| <b>EG</b> | 2               | 50.8       | 5.125           | 130.2       | 0.875           | 22.2        | 0.500      | 12.7   | 11.26       | 320        | 115058-09                 |
| <b>EH</b> | 2               | 50.8       | 5.625           | 142.9       | 0.875           | 22.2        | 0.500      | 12.7   | 8.80        | 250        | 115058-09                 |
| <b>FB</b> | 2.5             | 63.5       | 2.625           | 66.7        | 1.125           | 28.6        | 0.625      | 15.9   | 10.56       | 300        | 115058-14                 |
| <b>FC</b> | 2.5             | 63.5       | 3.125           | 79.4        | 1.125           | 28.6        | 0.625      | 15.9   | 13.02       | 370        | 115058-14                 |
| <b>FD</b> | 2.5             | 63.5       | 3.625           | 92.1        | 1.125           | 28.6        | 0.625      | 15.9   | 14.08       | 400        | 115058-14                 |
| <b>FE</b> | 2.5             | 63.5       | 4.125           | 104.8       | 1.125           | 28.6        | 0.625      | 15.9   | 15.66       | 445        | 115058-14                 |
| <b>FF</b> | 2.5             | 63.5       | 4.625           | 117.5       | 1.125           | 28.6        | 0.625      | 15.9   | 21.12       | 600        | 115058-14                 |
| <b>FG</b> | 2.5             | 63.5       | 5.125           | 130.2       | 1.125           | 28.6        | 0.625      | 15.9   | 22.88       | 650        | 115058-14                 |
| <b>FH</b> | 2.5             | 63.5       | 5.625           | 142.9       | 1.125           | 28.6        | 0.625      | 15.9   | 21.12       | 600        | 115058-14                 |
| <b>GC</b> | 3               | 76.2       | 3.125           | 79.4        | 1.250           | 31.8        | 0.750      | 19.1   | 18.30       | 520        | 115058-11                 |
| <b>GD</b> | 3               | 76.2       | 3.625           | 92.1        | 1.250           | 31.8        | 0.750      | 19.1   | 20.06       | 570        | 115058-11                 |
| <b>GE</b> | 3               | 76.2       | 4.125           | 104.8       | 1.250           | 31.8        | 0.750      | 19.1   | 21.12       | 600        | 115058-11                 |
| <b>GF</b> | 3               | 76.2       | 4.625           | 117.5       | 1.250           | 31.8        | 0.750      | 19.1   | 25.34       | 720        | 115058-11                 |
| <b>GG</b> | 3               | 76.2       | 5.125           | 130.2       | 1.250           | 31.8        | 0.750      | 19.1   | 29.92       | 850        | 115058-11                 |
| <b>GH</b> | 3               | 76.2       | 5.625           | 142.9       | 1.250           | 31.8        | 0.750      | 19.1   | 34.14       | 970        | 115058-11                 |
| <b>GJ</b> | 3               | 76.2       | 5.875           | 149.2       | 1.250           | 31.8        | 0.750      | 19.1   | 36.96       | 1050       | 115058-11                 |
| <b>GN</b> | 3               | 76.2       | 8.625           | 219.1       | 1.250           | 31.8        | 0.750      | 19.1   | 51.39       | 1460       | 115058-11                 |

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### Ratings

| Capacitance (µF)                 | Catalog Part Number | ESR max 120 Hz, 25°C (mΩ) | Ripple max 120 Hz, 85 °C compress (A) | rilled(A) | Case Size DxDL (in) |
|----------------------------------|---------------------|---------------------------|---------------------------------------|-----------|---------------------|
| <b>16 Volts (20 Volts Surge)</b> |                     |                           |                                       |           |                     |
| 22000                            | 3188BA223U016APA1   | 10.0                      | 10.5                                  | 12.00     | 1.375 X 2.125       |
| 39000                            | 3188BC393U016APA1   | 7.0                       | 15.2                                  | 17.00     | 1.375 X 3.125       |
| 56000                            | 3188BE563U016APA1   | 6.0                       | 18.9                                  | 21.00     | 1.375 X 4.125       |
| 82000                            | 3188EC823U016APA1   | 6.0                       | 21.4                                  | 24.00     | 2.00 X 3.125        |
| 120000                           | 3188EE124U016APA1   | 6.0                       | 26.5                                  | 30.00     | 2.00 X 4.125        |
| 150000                           | 3188EG154U016APA1   | 4.0                       | 27.0                                  | 30.00     | 2.00 X 5.125        |
| 150000                           | 3188EH154U016APA1   | 4.0                       | 27.3                                  | 30.00     | 2.00 X 5.625        |
| 220000                           | 3188FE224U016DPA1   | 3.0                       | 38.9                                  | 44.00     | 2.50 X 4.125        |
| 270000                           | 3188FF274U016DPA1   | 3.0                       | 42.5                                  | 48.00     | 2.50 X 4.625        |
| 330000                           | 3188FH334U016DPA1   | 3.0                       | 45.0                                  | 50.00     | 2.50 X 5.625        |
| 330000                           | 3188GE334U016DPA1   | 3.0                       | 43.9                                  | 50.00     | 3.00 X 4.125        |
| 390000                           | 3188GF394U016DPA1   | 3.0                       | 44.2                                  | 50.00     | 3.00 X 4.625        |
| 470000                           | 3188GH474U016DPA1   | 2.0                       | 44.6                                  | 50.00     | 3.00 X 5.625        |
| 820000                           | 3188GN824U016DPA1   | 2.0                       | 46.3                                  | 50.00     | 3.00 X 8.625        |
| 1000000                          | 3188GN105U016DPA1   | 2.0                       | 46.3                                  | 50.00     | 3.00 X 8.625        |
| <b>25 Volts (30 Volts Surge)</b> |                     |                           |                                       |           |                     |
| 12000                            | 3188BA123U025APA1   | 32.0                      | 6.0                                   | 6.80      | 1.375 X 2.125       |
| 22000                            | 3188BC223U025APA1   | 22.0                      | 8.6                                   | 9.60      | 1.375 X 3.125       |
| 33000                            | 3188BE333U025APA1   | 17.0                      | 10.8                                  | 12.00     | 1.375 X 4.125       |
| 56000                            | 3188EC563U025APA1   | 7.0                       | 18.8                                  | 21.00     | 2.00 X 3.125        |
| 82000                            | 3188EE823U025APA1   | 5.0                       | 24.8                                  | 28.00     | 2.00 X 4.125        |
| 100000                           | 3188EG104U025APA1   | 5.0                       | 27.0                                  | 30.00     | 2.00 X 5.125        |
| 120000                           | 3188EH124U025APA1   | 4.0                       | 27.3                                  | 30.00     | 2.00 X 5.625        |
| 120000                           | 3188FE124U025DPA1   | 5.0                       | 31.0                                  | 35.00     | 2.50 X 4.125        |
| 150000                           | 3188FF154U025DPA1   | 4.0                       | 33.6                                  | 38.00     | 2.50 X 4.625        |
| 180000                           | 3188FH184U025DPA1   | 4.0                       | 36.9                                  | 41.00     | 2.50 X 5.625        |
| 180000                           | 3188GE184U025DPA1   | 4.0                       | 36.8                                  | 42.00     | 3.00 X 4.125        |
| 220000                           | 3188GF224U025DPA1   | 4.0                       | 40.7                                  | 46.00     | 3.00 X 4.625        |
| 270000                           | 3188GH274U025DPA1   | 4.0                       | 43.8                                  | 49.00     | 3.00 X 5.625        |
| 470000                           | 3188GN474U025DPA1   | 3.0                       | 46.3                                  | 50.00     | 3.00 X 8.625        |
| <b>40 Volts (50 Volts Surge)</b> |                     |                           |                                       |           |                     |
| 8200                             | 3188BA822U040APA1   | 39.0                      | 5.4                                   | 6.10      | 1.375 X 2.125       |
| 12000                            | 3188BC123U040APA1   | 27.0                      | 7.8                                   | 8.70      | 1.375 X 3.125       |
| 18000                            | 3188BE183U040APA1   | 20.0                      | 9.9                                   | 11.00     | 1.375 X 4.125       |
| 27000                            | 3188EC273U040APA1   | 9.0                       | 17.0                                  | 19.00     | 2.00 X 3.125        |
| 47000                            | 3188EE473U040APA1   | 6.0                       | 22.1                                  | 25.00     | 2.00 X 4.125        |
| 56000                            | 3188EG563U040APA1   | 5.0                       | 27.0                                  | 30.00     | 2.00 X 5.125        |
| 68000                            | 3188EH683U040APA1   | 5.0                       | 27.3                                  | 30.00     | 2.00 X 5.625        |
| 68000                            | 3188FE683U040DPA1   | 5.0                       | 28.3                                  | 32.00     | 2.50 X 4.125        |
| 82000                            | 3188FF823U040DPA1   | 5.0                       | 31.0                                  | 35.00     | 2.50 X 4.625        |
| 100000                           | 3188FH104U040DPA1   | 5.0                       | 34.2                                  | 38.00     | 2.50 X 5.625        |
| 100000                           | 3188GE104U040DPA1   | 5.0                       | 33.3                                  | 38.00     | 3.00 X 4.125        |
| 120000                           | 3188GF124U040DPA1   | 4.0                       | 37.2                                  | 42.00     | 3.00 X 4.625        |
| 150000                           | 3188GH154U040DPA1   | 4.0                       | 41.1                                  | 46.00     | 3.00 X 5.625        |
| 270000                           | 3188GN274U040DPA1   | 3.0                       | 46.3                                  | 50.00     | 3.00 X 8.625        |

| Capacitance (µF)                 | Catalog Part Number | ESR max 120 Hz, 25°C (mΩ) | Ripple max 120 Hz, 85 °C compress (A) | rilled(A) | Case Size DxDL (in) |
|----------------------------------|---------------------|---------------------------|---------------------------------------|-----------|---------------------|
| <b>50 Volts (63 Volts Surge)</b> |                     |                           |                                       |           |                     |
| 6800                             | 3188BA682U050APA1   | 42.0                      | 5.2                                   | 5.90      | 1.375 X 2.125       |
| 10000                            | 3188BC103U050APA1   | 28.0                      | 7.5                                   | 8.40      | 1.375 X 3.125       |
| 15000                            | 3188BE153U050APA1   | 21.0                      | 9.9                                   | 11.00     | 1.375 X 4.125       |
| 27000                            | 3188EC273U050APA1   | 15.0                      | 12.5                                  | 14.00     | 2.00 X 3.125        |
| 39000                            | 3188EE393U050APA1   | 11.0                      | 16.8                                  | 19.00     | 2.00 X 4.125        |
| 47000                            | 3188EG473U050APA1   | 10.0                      | 18.9                                  | 21.00     | 2.00 X 5.125        |
| 56000                            | 3188EH563U050APA1   | 9.0                       | 21.8                                  | 24.00     | 2.00 X 5.625        |
| 56000                            | 3188FE563U050APA1   | 8.0                       | 23.0                                  | 26.00     | 2.50 X 4.125        |
| 68000                            | 3188FF683U050APA1   | 7.0                       | 25.7                                  | 29.00     | 2.50 X 4.625        |
| 82000                            | 3188FH823U050DPA1   | 6.0                       | 30.6                                  | 34.00     | 2.50 X 5.625        |
| 82000                            | 3188GE823U050DPA1   | 6.0                       | 28.1                                  | 32.00     | 3.00 X 4.125        |
| 100000                           | 3188GF104U050DPA1   | 6.0                       | 31.9                                  | 36.00     | 3.00 X 4.625        |
| 120000                           | 3188GH124U050DPA1   | 5.0                       | 34.8                                  | 39.00     | 3.00 X 5.625        |
| 220000                           | 3188GN224U050DPA1   | 4.0                       | 46.3                                  | 50.00     | 3.00 X 8.625        |
| <b>63 Volts (75 Volts Surge)</b> |                     |                           |                                       |           |                     |
| 4700                             | 3188BA472U063APA1   | 42.0                      | 5.2                                   | 5.90      | 1.375 X 2.125       |
| 6800                             | 3188BC682U063APA1   | 29.0                      | 7.5                                   | 8.40      | 1.375 X 3.125       |
| 10000                            | 3188BE103U063APA1   | 21.0                      | 9.9                                   | 11.00     | 1.375 X 4.125       |
| 18000                            | 3188EC183U063APA1   | 15.0                      | 12.5                                  | 14.00     | 2.00 X 3.125        |
| 27000                            | 3188EE273U063APA1   | 11.0                      | 16.8                                  | 19.00     | 2.00 X 4.125        |
| 33000                            | 3188EG333U063APA1   | 9.0                       | 20.7                                  | 23.00     | 2.00 X 5.125        |
| 39000                            | 3188EH393U063APA1   | 9.0                       | 22.7                                  | 25.00     | 2.00 X 5.625        |
| 39000                            | 3188FE393U063APA1   | 8.0                       | 23.0                                  | 26.00     | 2.50 X 4.125        |
| 47000                            | 3188FF473U063APA1   | 7.0                       | 24.8                                  | 28.00     | 2.50 X 4.625        |
| 56000                            | 3188FH563U063DPA1   | 7.0                       | 27.9                                  | 31.00     | 2.50 X 5.625        |
| 56000                            | 3188GE563U063DPA1   | 7.0                       | 28.1                                  | 32.00     | 3.00 X 4.125        |
| 68000                            | 3188GF683U063DPA1   | 6.0                       | 31.9                                  | 36.00     | 3.00 X 4.625        |
| 82000                            | 3188GH823U063DPA1   | 5.0                       | 34.8                                  | 39.00     | 3.00 X 5.625        |
| 150000                           | 3188GN154U063DPA1   | 4.0                       | 46.3                                  | 50.00     | 3.00 X 8.625        |
| <b>75 Volts (95 Volts Surge)</b> |                     |                           |                                       |           |                     |
| 2700                             | 3188BA272U075APA1   | 46.0                      | 5.0                                   | 5.70      | 1.375 X 2.125       |
| 4700                             | 3188BC472U075APA1   | 30.0                      | 7.3                                   | 8.20      | 1.375 X 3.125       |
| 6800                             | 3188BE682U075APA1   | 22.0                      | 9.0                                   | 10.00     | 1.375 X 4.125       |
| 12000                            | 3188EC123U075APA1   | 16.0                      | 12.5                                  | 14.00     | 2.00 X 3.125        |
| 18000                            | 3188EE183U075APA1   | 12.0                      | 15.9                                  | 18.00     | 2.00 X 4.125        |
| 22000                            | 3188EG223U075APA1   | 10.0                      | 19.8                                  | 22.00     | 2.00 X 5.125        |
| 27000                            | 3188EH273U075APA1   | 9.0                       | 21.8                                  | 24.00     | 2.00 X 5.625        |
| 27000                            | 3188FE273U075APA1   | 8.0                       | 22.1                                  | 25.00     | 2.50 X 4.125        |
| 33000                            | 3188FF333U075APA1   | 7.0                       | 24.8                                  | 28.00     | 2.50 X 4.625        |
| 39000                            | 3188FH393U075DPA1   | 6.0                       | 29.7                                  | 33.00     | 2.50 X 5.625        |
| 39000                            | 3188GE393U075DPA1   | 6.0                       | 28.9                                  | 33.00     | 3.00 X 4.125        |
| 47000                            | 3188GF473U075DPA1   | 6.0                       | 31.0                                  | 35.00     | 3.00 X 4.625        |
| 56000                            | 3188GH563U075DPA1   | 5.0                       | 36.6                                  | 41.00     | 3.00 X 5.625        |
| 100000                           | 3188GN104U075DPA1   | 4.0                       | 46.3                                  | 50.00     | 3.00 X 8.625        |

# Type 3188 85 °C Best Value, Screw Terminal, Aluminum

## 85 °C Long Life Screw Terminal Type

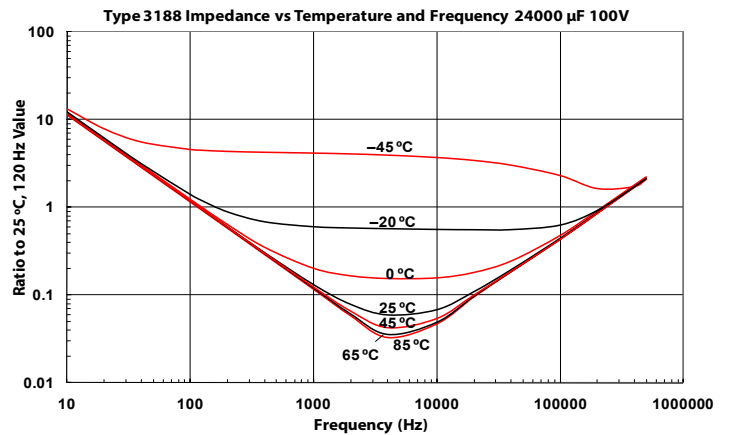
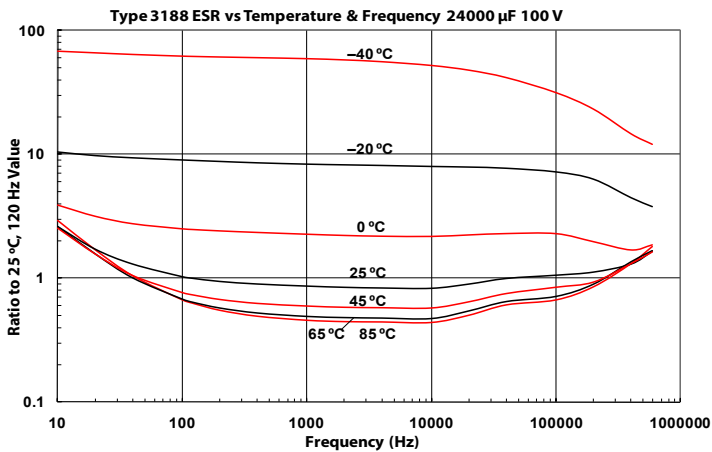
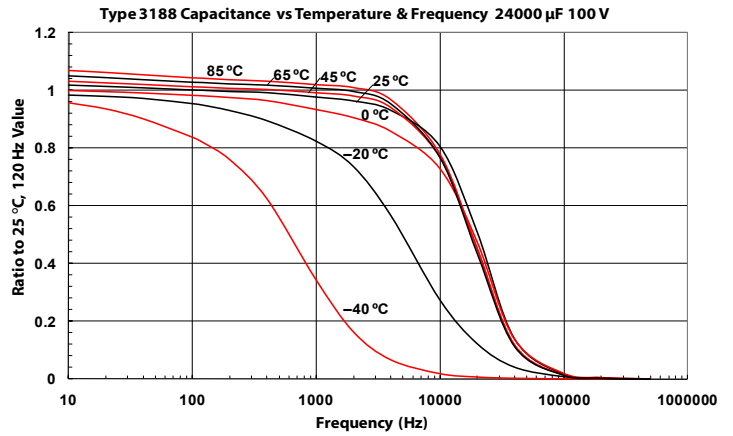
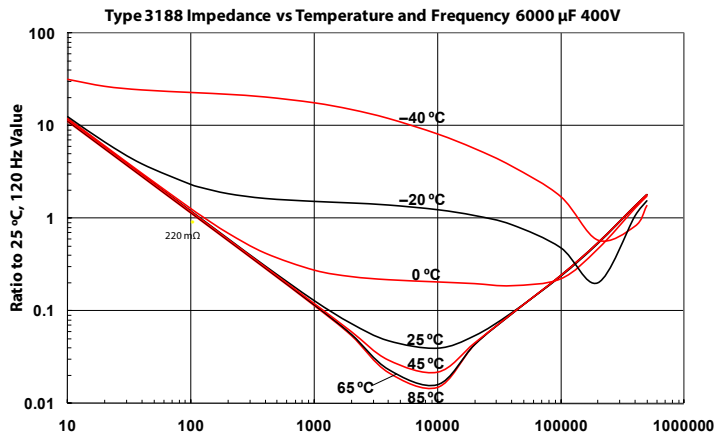
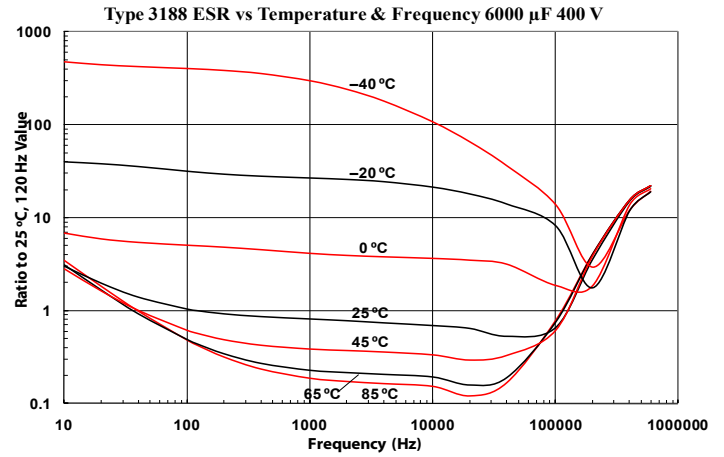
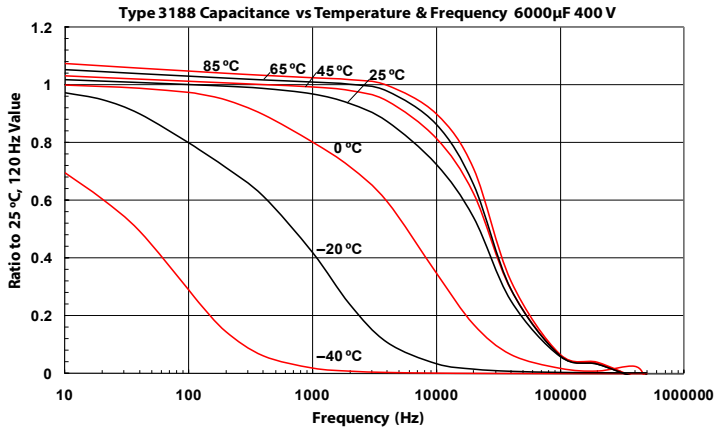
| Capacitance (μF)                   | Catalog Part Number | ESR max 120 Hz, 25°C (mΩ) | Ripple max 120 Hz, 85 °C compress(A) | rilled (A) | Case Size DxL (in) |
|------------------------------------|---------------------|---------------------------|--------------------------------------|------------|--------------------|
| <b>100 Volts (125 Volts Surge)</b> |                     |                           |                                      |            |                    |
| 1800                               | 3188BA182U100APA1   | 79.0                      | 3.5                                  | 4.00       | 1.375 X 2.125      |
| 2700                               | 3188BC272U100APA1   | 51.0                      | 5.3                                  | 5.90       | 1.375 X 3.125      |
| 4700                               | 3188BE472U100APA1   | 32.0                      | 8.0                                  | 8.90       | 1.375 X 4.125      |
| 6800                               | 3188EC682U100APA1   | 64.0                      | 6.1                                  | 6.80       | 2.00 X 3.125       |
| 10000                              | 3188EE103U100APA1   | 38.0                      | 8.9                                  | 10.00      | 2.00 X 4.125       |
| 12000                              | 3188EG123U100APA1   | 34.0                      | 9.9                                  | 11.00      | 2.00 X 5.125       |
| 15000                              | 3188EH153U100APA1   | 28.0                      | 11.8                                 | 13.00      | 2.00 X 5.625       |
| 18000                              | 3188FE183U100APA1   | 18.0                      | 15.0                                 | 17.00      | 2.50 X 4.125       |
| 22000                              | 3188FF223U100APA1   | 14.0                      | 17.7                                 | 20.00      | 2.50 X 4.625       |
| 22000                              | 3188FH223U100APA1   | 25.0                      | 13.5                                 | 15.00      | 2.50 X 5.625       |
| 27000                              | 3188GE273U100APA1   | 13.0                      | 19.3                                 | 22.00      | 3.00 X 4.125       |
| 27000                              | 3188GF273U100APA1   | 20.0                      | 19.5                                 | 18.00      | 3.00 X 4.625       |
| 39000                              | 3188GH393U100APA1   | 16.0                      | 16.1                                 | 21.00      | 3.00 X 5.625       |
| 56000                              | 3188GN563U100APA1   | 14.0                      | 23.1                                 | 25.00      | 3.00 X 8.625       |
| <b>200 Volts (250 Volts Surge)</b> |                     |                           |                                      |            |                    |
| 680                                | 3188BA681T200APA1   | 130.0                     | 2.5                                  | 2.90       | 1.375 X 2.125      |
| 1200                               | 3188BC122T200APA1   | 76.0                      | 3.7                                  | 4.10       | 1.375 X 3.125      |
| 1800                               | 3188BE182T200APA1   | 53.0                      | 6.2                                  | 6.90       | 1.375 X 4.125      |
| 2700                               | 3188EC272T200APA1   | 76.0                      | 5.5                                  | 6.20       | 2.00 X 3.125       |
| 3900                               | 3188EE392T200APA1   | 51.0                      | 7.5                                  | 8.50       | 2.00 X 4.125       |
| 4700                               | 3188EG472T200APA1   | 36.0                      | 9.9                                  | 11.00      | 2.00 X 5.125       |
| 5600                               | 3188EH562T200APA1   | 20.0                      | 13.6                                 | 15.00      | 2.00 X 5.625       |
| 6800                               | 3188FE682T200APA1   | 24.0                      | 12.4                                 | 14.00      | 2.50 X 4.125       |
| 8200                               | 3188FF822T200APA1   | 21.0                      | 14.2                                 | 16.00      | 2.50 X 4.625       |
| 10000                              | 3188FH103T200APA1   | 17.0                      | 18.0                                 | 20.00      | 2.50 X 5.625       |
| 10000                              | 3188GE103T200APA1   | 25.0                      | 14.0                                 | 16.00      | 3.00 X 4.125       |
| 12000                              | 3188GF123T200APA1   | 22.0                      | 15.9                                 | 18.00      | 3.00 X 4.625       |
| 15000                              | 3188GH153T200APA1   | 19.0                      | 18.8                                 | 21.00      | 3.00 X 5.625       |
| 22000                              | 3188GN223T200APA1   | 15.0                      | 23.1                                 | 25.00      | 3.00 X 8.625       |
| <b>250 Volts (300 Volts Surge)</b> |                     |                           |                                      |            |                    |
| 470                                | 3188BA471T250APA1   | 130.0                     | 2.5                                  | 2.90       | 1.375 X 2.125      |
| 820                                | 3188BC821T250APA1   | 86.0                      | 4.2                                  | 4.70       | 1.375 X 3.125      |
| 1200                               | 3188BE122T250APA1   | 54.0                      | 6.1                                  | 6.80       | 1.375 X 4.125      |
| 1800                               | 3188EC182T250APA1   | 76.0                      | 6.2                                  | 6.90       | 2.00 X 3.125       |
| 2700                               | 3188EE272T250APA1   | 52.0                      | 7.4                                  | 8.40       | 2.00 X 4.125       |
| 3300                               | 3188EG332T250APA1   | 22.0                      | 12.6                                 | 14.00      | 2.00 X 5.125       |
| 3900                               | 3188EH392T250APA1   | 19.0                      | 14.5                                 | 16.00      | 2.00 X 5.625       |
| 4700                               | 3188FE472T250APA1   | 25.0                      | 12.4                                 | 14.00      | 2.50 X 4.125       |
| 5600                               | 3188FF562T250APA1   | 20.0                      | 14.2                                 | 16.00      | 2.50 X 4.625       |

| Capacitance (μF)                   | Catalog Part Number | ESR max 120 Hz, 25°C (mΩ) | Ripple max 120 Hz, 85 °C compress (A) | rilled (A) | Case Size DxL (in) |
|------------------------------------|---------------------|---------------------------|---------------------------------------|------------|--------------------|
| <b>250 Volts (300 Volts Surge)</b> |                     |                           |                                       |            |                    |
| 6800                               | 3188FH682T250APA1   | 17.0                      | 16.2                                  | 18.00      | 2.50 X 5.625       |
| 6800                               | 3188GE682T250APA1   | 17.0                      | 15.8                                  | 18.00      | 3.00 X 4.125       |
| 8200                               | 3188GF822T250APA1   | 24.0                      | 14.2                                  | 16.00      | 3.00 X 4.625       |
| 10000                              | 3188GH103T250APA1   | 18.0                      | 18.8                                  | 21.00      | 3.00 X 5.625       |
| 12000                              | 3188GN123T250APA1   | 16.0                      | 23.1                                  | 25.00      | 3.00 X 8.625       |
| <b>350 Volts (400 Volts Surge)</b> |                     |                           |                                       |            |                    |
| 330                                | 3188BA331T350APA1   | 290.0                     | 1.7                                   | 1.90       | 1.375 X 2.125      |
| 560                                | 3188BC561T350APA1   | 191.0                     | 2.6                                   | 2.90       | 1.375 X 3.125      |
| 820                                | 3188BE821T350APA1   | 129.0                     | 3.8                                   | 4.20       | 1.375 X 4.125      |
| 1200                               | 3188EC122T350APA1   | 122.0                     | 4.5                                   | 5.00       | 2.00 X 3.125       |
| 1800                               | 3188EE182T350APA1   | 74.0                      | 6.5                                   | 7.30       | 2.00 X 4.125       |
| 2200                               | 3188EG222T350APA1   | 49.0                      | 8.2                                   | 9.10       | 2.00 X 5.125       |
| 2700                               | 3188EH272T350APA1   | 39.0                      | 9.0                                   | 10.00      | 2.00 X 5.625       |
| 2700                               | 3188FE272T350APA1   | 47.0                      | 8.9                                   | 10.00      | 2.50 X 4.125       |
| 3300                               | 3188FF332T350APA1   | 39.0                      | 10.6                                  | 12.00      | 2.50 X 4.625       |
| 3900                               | 3188FH392T350APA1   | 34.0                      | 11.7                                  | 13.00      | 2.50 X 5.625       |
| 3900                               | 3188GE392T350APA1   | 34.0                      | 11.4                                  | 13.00      | 3.00 X 4.125       |
| 4700                               | 3188GF472T350APA1   | 34.0                      | 12.4                                  | 14.00      | 3.00 X 4.625       |
| 5600                               | 3188GH562T350APA1   | 28.0                      | 14.3                                  | 16.00      | 3.00 X 5.625       |
| 10000                              | 3188GN103T350APA1   | 18.0                      | 23.1                                  | 25.00      | 3.00 X 8.625       |
| <b>400 Volts (450 Volts Surge)</b> |                     |                           |                                       |            |                    |
| 270                                | 3188BA271T400APA1   | 333.0                     | 1.5                                   | 1.70       | 1.375 X 2.125      |
| 470                                | 3188BC471T400APA1   | 224.0                     | 2.6                                   | 2.90       | 1.375 X 3.125      |
| 680                                | 3188BE681T400APA1   | 134.0                     | 3.7                                   | 4.10       | 1.375 X 4.125      |
| 1000                               | 3188EC102T400APA1   | 127.0                     | 4.3                                   | 4.80       | 2.00 X 3.125       |
| 1500                               | 3188EE152T400APA1   | 63.0                      | 6.9                                   | 7.80       | 2.00 X 4.125       |
| 1800                               | 3188EG182T400APA1   | 53.0                      | 7.9                                   | 8.80       | 2.00 X 5.125       |
| 2200                               | 3188EH222T400APA1   | 45.0                      | 8.9                                   | 9.80       | 2.00 X 5.625       |
| 2200                               | 3188FE222T400APA1   | 45.0                      | 8.7                                   | 9.80       | 2.50 X 4.125       |
| 2700                               | 3188FF272T400APA1   | 47.0                      | 9.5                                   | 10.70      | 2.50 X 4.625       |
| 3300                               | 3188FH332T400APA1   | 35.0                      | 11.7                                  | 13.00      | 2.50 X 5.625       |
| 3300                               | 3188GE332T400APA1   | 35.0                      | 11.4                                  | 13.00      | 3.00 X 4.125       |
| 3900                               | 3188GF392T400APA1   | 37.0                      | 11.5                                  | 13.00      | 3.00 X 4.625       |
| 4700                               | 3188GH472T400APA1   | 31.0                      | 13.4                                  | 15.00      | 3.00 X 5.625       |
| 8200                               | 3188GN822T400APA1   | 24.0                      | 20.4                                  | 22.00      | 3.00 X 8.625       |
| <b>450 Volts (525 Volts Surge)</b> |                     |                           |                                       |            |                    |
| 1000                               | 3188EE102T450APA1   | 102.0                     | 4.9                                   | 5.50       | 2.00 X 4.125       |
| 1500                               | 3188EG152T450APA1   | 70.0                      | 6.7                                   | 7.40       | 2.00 X 5.125       |
| 2200                               | 3188FF222T450APA1   | 46.0                      | 9.3                                   | 10.50      | 2.50 X 4.625       |
| 3300                               | 3188GF332T450APA1   | 34.0                      | 12.2                                  | 13.80      | 3.00 X 4.625       |
| 3900                               | 3188GH392T450APA1   | 22.0                      | 17.1                                  | 19.10      | 3.00 X 5.625       |

# Type 3188 85 °C Best Value, Screw Terminal, Aluminum

## 85 °C Long Life Screw Terminal Type

### Typical Performance Curves



# Type 3188 85 °C Best Value, Screw Terminal, Aluminum

## 85 °C Long Life Screw Terminal Type

### Typical Performance Curves

