

# Type AFK $-55^{\circ}\text{C}$ to $105^{\circ}\text{C}$

## SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., $105^{\circ}\text{C}$

### Low Impedance and Long-Life for Filtering, Bypassing and Power Supply Decoupling



Type AFK Capacitors are the best and by a wide margin. With 40% to 60% lower impedance, 30% to 50% smaller case size and more than twice the life compared to low-ESR type AFC, the Type AFK also excels at cold performance down to  $-55^{\circ}\text{C}$ . In addition, this terrific low-impedance performance, approaching low-ESR tantalum capacitors, is at a significant cost savings compared to tantalum. The vertical cylindrical cases facilitate automatic mounting and reflow soldering into the same footprint of like-rated tantalum capacitors except without the need for voltage derating.

#### Highlights

- + $105^{\circ}\text{C}$ , Up to 5000 Hour Load Life
- Capacitance Range:  $3.3\ \mu\text{F}$  to  $6800\ \mu\text{F}$
- Voltage Range: 6.3 Vdc to 100 Vdc

#### Specifications

**Operating Temperature:**  $-55^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$   
**Rated Voltage:** 6.3, 10, 16, 25, 35, 50, 63, 80 & 100 Vdc  
**Capacitance:**  $3.3\ \mu\text{F}$  to  $6800\ \mu\text{F}$   
**Capacitance Tolerance:**  $\pm 20\%$  @ 120 Hz and  $+20^{\circ}\text{C}$   
**Leakage Current:** 0.01 CV or  $3\ \mu\text{A}$  @  $+20^{\circ}\text{C}$ , after two minutes (whichever is greater)

**Ripple Current Multiplier:**

| Frequency | 50/60 Hz | 120 Hz | 1 kHz | 10 kHz | 100 kHz |
|-----------|----------|--------|-------|--------|---------|
|           | 0.70     | .075   | 0.90  | 0.95   | 1.00    |

**Dissipation Factor:**

| 6.3V | 10 V | 16 V | 25 V | 35 V | 50 V | 63 V | 80 V | 100 V |
|------|------|------|------|------|------|------|------|-------|
| 0.26 | 0.19 | 0.16 | 0.14 | 0.12 | 0.1  | 0.08 | 0.08 | 0.07  |

Add 0.02 per 1000  $\mu\text{F}$  for values greater than 1000

**Life Test:** 2000 h @  $105^{\circ}\text{C}$ , 4.0 — 10.0 mm dia.  
5000 h @  $105^{\circ}\text{C}$ , 12.5 — 18.0 mm dia.

$\Delta$  Capacitance  $\pm 30\%$

DF:  $\leq 200\%$  of limit

DCL:  $\leq 100\%$  of limit

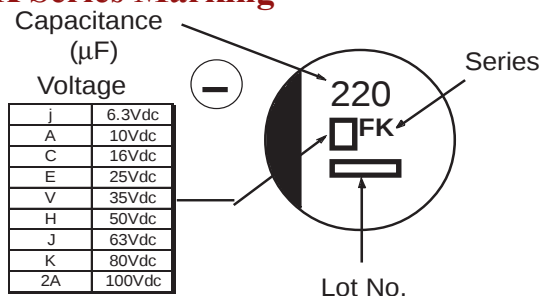
**Shelf Test:** 1000 h @  $105^{\circ}\text{C}$

$\Delta$  Capacitance  $\pm 30\%$

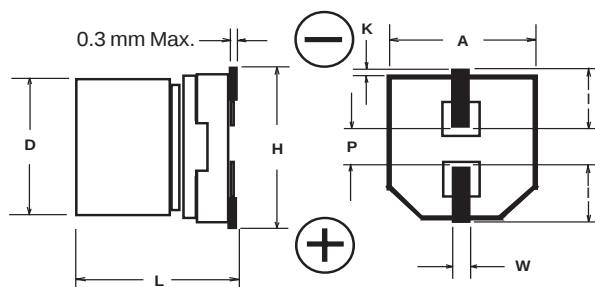
DF:  $\leq 200\%$  of limit

DCL:  $\leq 100\%$  of limit

#### AFK Series Marking



#### Outline Drawing



#### Case Dimensions

| Case Code | D $\pm 0.5$ | L              | A $\pm 0.2$ | H (max) | I (ref) | W              | P (ref) | K (mm)              |
|-----------|-------------|----------------|-------------|---------|---------|----------------|---------|---------------------|
| B         | 4.0         | $5.8 \pm 0.3$  | 4.3         | 5.5     | 1.8     | $0.65 \pm 0.1$ | 1.0     | $0.35 + 0.15/-0.20$ |
| C         | 5.0         | $5.8 \pm 0.3$  | 5.3         | 6.5     | 2.2     | $0.65 \pm 0.1$ | 1.5     | $0.35 + 0.15/-0.20$ |
| D         | 6.3         | $5.8 \pm 0.3$  | 6.6         | 7.8     | 2.6     | $0.65 \pm 0.1$ | 1.8     | $0.35 + 0.15/-0.20$ |
| X         | 6.3         | $7.9 \pm 0.3$  | 6.6         | 7.8     | 2.6     | $0.65 \pm 0.1$ | 1.8     | $0.35 + 0.15/-0.20$ |
| E         | 8.0         | $6.2 \pm 0.3$  | 8.3         | 9.5     | 3.4     | $0.65 \pm 0.1$ | 2.2     | $0.35 + 0.15/-0.20$ |
| F         | 8.0         | $10.2 \pm 0.3$ | 8.3         | 10.0    | 3.4     | $0.90 \pm 0.2$ | 3.1     | $0.70 \pm 0.20$     |
| G         | 10.0        | $10.2 \pm 0.3$ | 10.3        | 12.0    | 3.5     | $0.90 \pm 0.2$ | 4.6     | $0.70 \pm 0.20$     |
| H         | 12.5        | $13.5 \pm 0.5$ | 13.5        | 15.0    | 4.7     | $0.90 \pm 0.3$ | 4.4     | $0.70 \pm 0.30$     |
| P         | 16.0        | $16.5 \pm 0.5$ | 17.0        | 19.0    | 5.5     | $1.2 \pm 0.3$  | 6.7     | $0.70 \pm 0.30$     |
| R         | 18.0        | $16.5 \pm 0.5$ | 19.0        | 21.0    | 6.7     | $1.2 \pm 0.3$  | 6.7     | $0.70 \pm 0.30$     |

# Type AFK -55 °C to 105 °C

## SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., 105 °C

### Ratings Table

| Cap<br>(µF)                    | Catalog<br>Part Number | Max.<br>DCL<br>2 min<br>(µA) | Max.<br>Dissipation<br>Factor<br>@120 Hz/20 °C | Max.<br>ESR<br>@100 kHz/20 °C<br>(Ω) | Impedance<br>@ 100 kHz/20 °C<br>(Ω) | Max.<br>Ripple Current<br>@ 100 kHz/105 °C<br>(mA) | Case<br>Code | Size<br>D x L<br>(mm) | Quantity<br>per Reel |
|--------------------------------|------------------------|------------------------------|------------------------------------------------|--------------------------------------|-------------------------------------|----------------------------------------------------|--------------|-----------------------|----------------------|
| <b>6.3 Vdc ( 8 Vdc Surge )</b> |                        |                              |                                                |                                      |                                     |                                                    |              |                       |                      |
| 22                             | AFK226M06B12T          | 3.0                          | 0.26                                           | 1.350                                | 1.350                               | 90                                                 | B            | 4 x 5.8               | 2000                 |
| 47                             | AFK476M06B12T          | 3.0                          | 0.26                                           | 1.350                                | 1.350                               | 90                                                 | B            | 4 x 5.8               | 2000                 |
| 47                             | AFK476M06C12T          | 3.0                          | 0.26                                           | 0.700                                | 0.700                               | 160                                                | C            | 5 x 5.8               | 1000                 |
| 100                            | AFK107M06C12T          | 6.3                          | 0.26                                           | 0.700                                | 0.700                               | 160                                                | C            | 5 x 5.8               | 1000                 |
| 100                            | AFK107M06D16T          | 6.3                          | 0.26                                           | 0.360                                | 0.360                               | 240                                                | D            | 6.3 x 5.8             | 1000                 |
| 220                            | AFK227M06D16T          | 13.9                         | 0.26                                           | 0.360                                | 0.360                               | 240                                                | D            | 6.3 x 5.8             | 1000                 |
| 330                            | AFK337M06X16T          | 20.8                         | 0.26                                           | 0.340                                | 0.340                               | 280                                                | X            | 6.3 x 7.7             | 900                  |
| 330                            | AFK337M06E16T          | 20.8                         | 0.26                                           | 0.260                                | 0.260                               | 300                                                | E            | 8 x 6.2               | 1000                 |
| 470                            | AFK477M06F24T          | 29.6                         | 0.26                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 1000                           | AFK108M06F24T          | 63.0                         | 0.26                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 1500                           | AFK158M06G24T          | 94.5                         | 0.26                                           | 0.080                                | 0.080                               | 850                                                | G            | 10 x 10.2             | 500                  |
| 3300                           | AFK338M06H32T          | 207.9                        | 0.30                                           | 0.060                                | 0.060                               | 1100                                               | H            | 12.5 x 13.5           | 200                  |
| 6800                           | AFK688M06P44T          | 428.4                        | 0.36                                           | 0.035                                | 0.035                               | 1800                                               | P            | 16 x 16.5             | 125                  |
| <b>10 Vdc ( 13 Vdc Surge )</b> |                        |                              |                                                |                                      |                                     |                                                    |              |                       |                      |
| 22                             | AFK226M10B12T          | 3.0                          | 0.19                                           | 1.350                                | 1.350                               | 90                                                 | B            | 4 x 5.8               | 2000                 |
| 33                             | AFK336M10B12T          | 3.3                          | 0.19                                           | 1.350                                | 1.350                               | 90                                                 | B            | 4 x 5.8               | 2000                 |
| 33                             | AFK336M10C12T          | 3.3                          | 0.19                                           | 0.700                                | 0.700                               | 160                                                | C            | 5 x 5.8               | 1000                 |
| 150                            | AFK157M10D16T          | 15.0                         | 0.19                                           | 0.360                                | 0.360                               | 240                                                | D            | 6.3 x 5.8             | 1000                 |
| 220                            | AFK227M10X16T          | 22.0                         | 0.19                                           | 0.340                                | 0.340                               | 280                                                | X            | 6.3 x 7.7             | 900                  |
| 220                            | AFK227M10E16T          | 22.0                         | 0.19                                           | 0.260                                | 0.260                               | 300                                                | E            | 8 x 6.2               | 1000                 |
| 330                            | AFK337M10F24T          | 33.0                         | 0.19                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 470                            | AFK477M10F24T          | 47.0                         | 0.19                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 680                            | AFK687M10F24T          | 68.0                         | 0.19                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 1000                           | AFK108M10G24T          | 100.0                        | 0.19                                           | 0.080                                | 0.080                               | 850                                                | G            | 10 x 10.2             | 500                  |
| 2200                           | AFK228M10H32T          | 220.0                        | 0.21                                           | 0.060                                | 0.060                               | 1100                                               | H            | 12.5 x 13.5           | 200                  |
| 4700                           | AFK478M10P44T          | 470.0                        | 0.25                                           | 0.035                                | 0.035                               | 1800                                               | P            | 16 x 16.5             | 125                  |
| 6800                           | AFK688M10R44T          | 680.0                        | 0.29                                           | 0.033                                | 0.033                               | 2060                                               | R            | 18 x 16.5             | 125                  |
| <b>16 Vdc ( 20 Vdc Surge )</b> |                        |                              |                                                |                                      |                                     |                                                    |              |                       |                      |
| 10                             | AFK106M16B12T          | 3.0                          | 0.16                                           | 1.350                                | 1.350                               | 90                                                 | B            | 4 x 5.8               | 2000                 |
| 22                             | AFK226M16B12T          | 3.5                          | 0.16                                           | 1.350                                | 1.350                               | 90                                                 | B            | 4 x 5.8               | 2000                 |
| 22                             | AFK226M16C12T          | 3.5                          | 0.16                                           | 0.700                                | 0.700                               | 160                                                | C            | 5 x 5.8               | 1000                 |
| 47                             | AFK476M16C12T          | 7.5                          | 0.16                                           | 0.700                                | 0.700                               | 160                                                | C            | 5 x 5.8               | 1000                 |
| 47                             | AFK476M16D16T          | 7.5                          | 0.16                                           | 0.360                                | 0.360                               | 240                                                | D            | 6.3 x 5.8             | 1000                 |
| 68                             | AFK686M16D16T          | 10.9                         | 0.19                                           | 0.360                                | 0.360                               | 240                                                | D            | 6.3 x 5.8             | 1000                 |
| 100                            | AFK107M16D16T          | 16.0                         | 0.16                                           | 0.360                                | 0.360                               | 240                                                | D            | 6.3 x 5.8             | 1000                 |
| 150                            | AFK157M16X16T          | 24.0                         | 0.16                                           | 0.340                                | 0.340                               | 280                                                | X            | 6.3 x 7.7             | 900                  |
| 220                            | AFK227M16X16T          | 35.2                         | 0.16                                           | 0.340                                | 0.340                               | 280                                                | X            | 6.3 x 7.7             | 900                  |
| 220                            | AFK227M16E16T          | 35.2                         | 0.16                                           | 0.260                                | 0.260                               | 300                                                | E            | 8 x 6.2               | 1000                 |
| 330                            | AFK337M16F24T          | 52.8                         | 0.16                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 470                            | AFK477M16F24T          | 75.2                         | 0.16                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 680                            | AFK687M16G24T          | 108.8                        | 0.16                                           | 0.080                                | 0.080                               | 850                                                | G            | 10 x 10.2             | 500                  |
| 1500                           | AFK158M16H32T          | 240.0                        | 0.16                                           | 0.060                                | 0.060                               | 1100                                               | H            | 12.5 x 13.5           | 200                  |
| 3300                           | AFK338M16P44T          | 528.0                        | 0.20                                           | 0.035                                | 0.035                               | 1800                                               | P            | 16 x 16.5             | 125                  |
| 4700                           | AFK478M16R44T          | 752.0                        | 0.22                                           | 0.033                                | 0.033                               | 2060                                               | R            | 18 x 16.5             | 125                  |

# Type AFK –55 °C to 105 °C

## SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., 105 °C

| Cap<br>(µF)                    | Catalog<br>Part Number | Max.<br>DCL<br>2 min<br>(µA) | Max.<br>Dissipation<br>Factor<br>@120 Hz/20 °C | Max.<br>ESR<br>@100 kHz/20 °C<br>(Ω) | Impedance<br>@ 100 kHz/20 °C<br>(Ω) | Max.<br>Ripple Current<br>@ 100 kHz/105 °C<br>(mA) | Case<br>Code | Size<br>D x L<br>(mm) | Quantity<br>per Reel |
|--------------------------------|------------------------|------------------------------|------------------------------------------------|--------------------------------------|-------------------------------------|----------------------------------------------------|--------------|-----------------------|----------------------|
| <b>25 Vdc ( 31 Vdc Surge )</b> |                        |                              |                                                |                                      |                                     |                                                    |              |                       |                      |
| 10                             | AFK106M25B12T          | 3.0                          | 0.14                                           | 1.350                                | 1.350                               | 90                                                 | B            | 4 x 5.8               | 2000                 |
| 22                             | AFK226M25C12T          | 5.5                          | 0.14                                           | 0.700                                | 0.700                               | 160                                                | C            | 5 x 5.8               | 1000                 |
| 33                             | AFK336M25C12T          | 8.3                          | 0.14                                           | 0.700                                | 0.700                               | 160                                                | C            | 5 x 5.8               | 1000                 |
| 33                             | AFK336M25D16T          | 8.3                          | 0.14                                           | 0.360                                | 0.360                               | 240                                                | D            | 6.3 x 5.8             | 1000                 |
| 47                             | AFK476M25D16T          | 11.8                         | 0.14                                           | 0.360                                | 0.360                               | 240                                                | D            | 6.3 x 5.8             | 1000                 |
| 68                             | AFK686M25D16T          | 17.0                         | 0.14                                           | 0.360                                | 0.360                               | 240                                                | D            | 6.3 x 5.8             | 1000                 |
| 100                            | AFK107M25X16T          | 25.0                         | 0.14                                           | 0.340                                | 0.340                               | 280                                                | X            | 6.3 x 7.7             | 900                  |
| 100                            | AFK107M25E16T          | 25.0                         | 0.14                                           | 0.260                                | 0.260                               | 300                                                | E            | 8 x 6.2               | 1000                 |
| 150                            | AFK157M25F24T          | 37.5                         | 0.14                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 220                            | AFK227M25F24T          | 55.0                         | 0.14                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 330                            | AFK337M25F24T          | 82.5                         | 0.14                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 470                            | AFK477M25G24T          | 117.5                        | 0.14                                           | 0.080                                | 0.080                               | 850                                                | G            | 10 x 10.2             | 500                  |
| 1000                           | AFK108M25H32T          | 250.0                        | 0.14                                           | 0.060                                | 0.060                               | 1100                                               | H            | 12.5 x 13.5           | 200                  |
| 1500                           | AFK158M25P44T          | 375.0                        | 0.14                                           | 0.035                                | 0.035                               | 1800                                               | P            | 16 x 16.5             | 125                  |
| 2200                           | AFK228M25P44T          | 550.0                        | 0.16                                           | 0.035                                | 0.035                               | 1800                                               | P            | 16 x 16.5             | 125                  |
| 3300                           | AFK338M25R44T          | 825.0                        | 0.18                                           | 0.033                                | 0.033                               | 2060                                               | R            | 18 x 16.5             | 125                  |
| <b>35 Vdc ( 44 Vdc Surge )</b> |                        |                              |                                                |                                      |                                     |                                                    |              |                       |                      |
| 4.7                            | AFK475M35B12T          | 3.0                          | 0.12                                           | 1.350                                | 1.350                               | 90                                                 | B            | 4 x 5.8               | 2000                 |
| 10                             | AFK106M35B12T          | 3.5                          | 0.12                                           | 1.350                                | 1.350                               | 90                                                 | B            | 4 x 5.8               | 2000                 |
| 10                             | AFK106M35C12T          | 3.5                          | 0.12                                           | 0.700                                | 0.700                               | 160                                                | C            | 5 x 5.8               | 1000                 |
| 22                             | AFK226M35C12T          | 7.7                          | 0.12                                           | 0.700                                | 0.700                               | 160                                                | C            | 5 x 5.8               | 1000                 |
| 33                             | AFK336M35D16T          | 11.6                         | 0.12                                           | 0.360                                | 0.360                               | 240                                                | D            | 6.3 x 5.8             | 1000                 |
| 47                             | AFK476M35D16T          | 16.5                         | 0.12                                           | 0.360                                | 0.360                               | 240                                                | D            | 6.3 x 5.8             | 1000                 |
| 68                             | AFK686M35X16T          | 23.8                         | 0.12                                           | 0.340                                | 0.340                               | 280                                                | X            | 6.3 x 7.7             | 900                  |
| 100                            | AFK107M35X16T          | 35.0                         | 0.12                                           | 0.340                                | 0.340                               | 280                                                | X            | 6.3 x 7.7             | 900                  |
| 100                            | AFK107M35F24T          | 35.0                         | 0.12                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 150                            | AFK157M35F24T          | 52.5                         | 0.12                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 220                            | AFK227M35F24T          | 77.0                         | 0.12                                           | 0.160                                | 0.160                               | 600                                                | F            | 8 x 10.2              | 500                  |
| 330                            | AFK337M35G24T          | 115.5                        | 0.12                                           | 0.080                                | 0.080                               | 850                                                | G            | 10 x 10.2             | 500                  |
| 470                            | AFK477M35H32T          | 164.5                        | 0.12                                           | 0.060                                | 0.060                               | 1100                                               | H            | 12.5 x 13.5           | 200                  |
| 680                            | AFK687M35H32T          | 238.0                        | 0.12                                           | 0.060                                | 0.060                               | 1100                                               | H            | 12.5 x 13.5           | 200                  |
| 1000                           | AFK108M35P44T          | 350.0                        | 0.12                                           | 0.035                                | 0.035                               | 1800                                               | P            | 16 x 16.5             | 125                  |
| 1500                           | AFK158M35P44T          | 525.0                        | 0.12                                           | 0.035                                | 0.035                               | 1800                                               | P            | 16 x 16.5             | 125                  |
| <b>50 Vdc ( 63 Vdc Surge )</b> |                        |                              |                                                |                                      |                                     |                                                    |              |                       |                      |
| 4.7                            | AFK475M50B12T          | 3.0                          | 0.10                                           | 2.900                                | 2.900                               | 60                                                 | B            | 4 x 5.8               | 2000                 |
| 10                             | AFK106M50C12T          | 5.0                          | 0.10                                           | 1.520                                | 1.520                               | 85                                                 | C            | 5 x 5.8               | 1000                 |
| 10                             | AFK106M50D16T          | 5.0                          | 0.10                                           | 0.880                                | 0.880                               | 165                                                | D            | 6.3 x 5.8             | 1000                 |
| 22                             | AFK226M50D16T          | 11.0                         | 0.10                                           | 0.880                                | 0.880                               | 165                                                | D            | 6.3 x 5.8             | 1000                 |
| 33                             | AFK336M50X16T          | 16.5                         | 0.10                                           | 0.680                                | 0.680                               | 195                                                | X            | 6.3 x 7.7             | 900                  |
| 33                             | AFK336M50E16T          | 16.5                         | 0.10                                           | 0.680                                | 0.680                               | 195                                                | E            | 8 x 6.2               | 1000                 |
| 47                             | AFK476M50X16T          | 23.5                         | 0.10                                           | 0.680                                | 0.680                               | 195                                                | X            | 6.3 x 7.7             | 900                  |
| 47                             | AFK476M50E16T          | 23.5                         | 0.10                                           | 0.680                                | 0.680                               | 195                                                | E            | 8 x 6.2               | 1000                 |
| 100                            | AFK107M50F24T          | 50.0                         | 0.10                                           | 0.340                                | 0.340                               | 350                                                | F            | 8 x 10.2              | 500                  |

# Type AFK -55 °C to 105 °C

## SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., 105 °C

| Cap<br>(µF)                      | Catalog<br>Part Number | Max.<br>DCL<br>2 min<br>(µA) | Max.<br>Dissipation<br>Factor<br>@120 Hz/20 °C | Max.<br>ESR<br>@100 kHz/20 °C<br>(Ω) | Impedance<br>@ 100 kHz/20 °C<br>(Ω) | Max.<br>Ripple Current<br>@ 100 kHz/105 °C<br>(mA) | Case<br>Code | Size<br>D x L<br>(mm) | Quantity<br>per Reel |
|----------------------------------|------------------------|------------------------------|------------------------------------------------|--------------------------------------|-------------------------------------|----------------------------------------------------|--------------|-----------------------|----------------------|
| <b>50 Vdc ( 63 Vdc Surge )</b>   |                        |                              |                                                |                                      |                                     |                                                    |              |                       |                      |
| 150                              | AFK157M50G24T          | 75.0                         | 0.10                                           | 0.180                                | 0.180                               | 670                                                | G            | 10 x 10.2             | 500                  |
| 220                              | AFK227M50G24T          | 110.0                        | 0.10                                           | 0.180                                | 0.180                               | 670                                                | G            | 10 x 10.2             | 500                  |
| 330                              | AFK337M50H32T          | 165.0                        | 0.10                                           | 0.120                                | 0.120                               | 900                                                | H            | 12.5 x 13.5           | 200                  |
| 390                              | AFK397M50H32T          | 195.0                        | 0.10                                           | 0.120                                | 0.120                               | 900                                                | H            | 12.5 x 13.6           | 200                  |
| 470                              | AFK477M50P44T          | 235.0                        | 0.10                                           | 0.073                                | 0.073                               | 1610                                               | P            | 16 x 16.5             | 125                  |
| 560                              | AFK567M50P44T          | 280.0                        | 0.10                                           | 0.073                                | 0.073                               | 1610                                               | P            | 16 x 16.5             | 125                  |
| 680                              | AFK687M50P44T          | 340.0                        | 0.10                                           | 0.073                                | 0.073                               | 1610                                               | P            | 16 x 16.5             | 125                  |
| 1000                             | AFK108M50P44T          | 500.0                        | 0.10                                           | 0.073                                | 0.073                               | 1610                                               | P            | 16 x 16.5             | 125                  |
| <b>63 Vdc ( 75 Vdc Surge )</b>   |                        |                              |                                                |                                      |                                     |                                                    |              |                       |                      |
| 4.7                              | AFK475M63C12T          | 3.0                          | 0.08                                           | 3.000                                | 3.000                               | 50                                                 | C            | 5 x 5.8               | 1000                 |
| 10                               | AFK106M63D16T          | 6.3                          | 0.08                                           | 1.500                                | 1.500                               | 80                                                 | D            | 6.3 x 5.8             | 1000                 |
| 22                               | AFK226M63X16T          | 13.9                         | 0.08                                           | 1.200                                | 1.200                               | 120                                                | X            | 6.3 x 7.7             | 900                  |
| 22                               | AFK226M63E16T          | 13.9                         | 0.08                                           | 1.200                                | 1.200                               | 120                                                | E            | 8 x 6.2               | 1000                 |
| 33                               | AFK336M63F24T          | 20.8                         | 0.08                                           | 0.650                                | 0.650                               | 250                                                | F            | 8 x 10.2              | 500                  |
| 47                               | AFK476M63F24T          | 29.6                         | 0.08                                           | 0.650                                | 0.650                               | 250                                                | F            | 8 x 10.2              | 500                  |
| 68                               | AFK686M63G24T          | 42.8                         | 0.08                                           | 0.350                                | 0.350                               | 400                                                | G            | 10 x 10.2             | 500                  |
| 100                              | AFK107M63G24T          | 63.0                         | 0.08                                           | 0.350                                | 0.350                               | 400                                                | G            | 10 x 10.2             | 500                  |
| 150                              | AFK157M63H32T          | 94.5                         | 0.08                                           | 0.160                                | 0.160                               | 800                                                | H            | 12.5 x 13.5           | 200                  |
| 220                              | AFK227M63H32T          | 138.6                        | 0.08                                           | 0.160                                | 0.160                               | 800                                                | H            | 12.5 x 13.5           | 200                  |
| 470                              | AFK477M63P44T          | 296.1                        | 0.08                                           | 0.082                                | 0.082                               | 1410                                               | P            | 16 x 16.5             | 125                  |
| 680                              | AFK687M63R44T          | 428.4                        | 0.08                                           | 0.080                                | 0.080                               | 1690                                               | R            | 18 x 16.5             | 125                  |
| <b>80 Vdc ( 100 Vdc Surge )</b>  |                        |                              |                                                |                                      |                                     |                                                    |              |                       |                      |
| 3.3                              | AFK335M80C12T          | 3.0                          | 0.08                                           | 5.00                                 | 5.00                                | 25                                                 | C            | 5 x 5.8               | 1000                 |
| 4.7                              | AFK475M80D16T          | 3.8                          | 0.08                                           | 3.00                                 | 3.00                                | 40                                                 | D            | 6.3 x 5.8             | 1000                 |
| 10.0                             | AFK106M80X16T          | 8.0                          | 0.08                                           | 2.40                                 | 2.40                                | 60                                                 | X            | 6.3 x 7.7             | 900                  |
| 10.0                             | AFK106M80E16T          | 8.0                          | 0.08                                           | 2.40                                 | 2.40                                | 60                                                 | E            | 8 x 6.2               | 1000                 |
| 22.0                             | AFK226M80F24T          | 17.6                         | 0.08                                           | 1.30                                 | 1.30                                | 130                                                | F            | 8 x 10.2              | 500                  |
| 33.0                             | AFK336M80F24T          | 26.4                         | 0.08                                           | 1.30                                 | 1.30                                | 130                                                | F            | 8 x 10.2              | 500                  |
| 47.0                             | AFK476M80G24T          | 37.6                         | 0.08                                           | 0.70                                 | 0.70                                | 200                                                | G            | 10 x 10.2             | 500                  |
| 68.0                             | AFK686M80H32T          | 54.4                         | 0.08                                           | 0.32                                 | 0.32                                | 500                                                | H            | 12.5 x 13.5           | 200                  |
| 100.0                            | AFK107M80H32T          | 80.0                         | 0.08                                           | 0.32                                 | 0.32                                | 500                                                | H            | 12.5 x 13.5           | 200                  |
| 150.0                            | AFK157M80H32T          | 120.0                        | 0.08                                           | 0.32                                 | 0.32                                | 500                                                | H            | 12.5 x 13.5           | 200                  |
| 330.0                            | AFK337M80P44T          | 264.0                        | 0.08                                           | 0.17                                 | 0.17                                | 793                                                | P            | 16 x 16.5             | 125                  |
| 470.0                            | AFK477M80R44T          | 376.0                        | 0.08                                           | 0.15                                 | 0.15                                | 917                                                | R            | 18 x 16.5             | 125                  |
| <b>100 Vdc ( 125 Vdc Surge )</b> |                        |                              |                                                |                                      |                                     |                                                    |              |                       |                      |
| 22.0                             | AFK226M2AF24T          | 22.0                         | 0.07                                           | 1.30                                 | 1.30                                | 130                                                | F            | 8 x 10.2              | 500                  |
| 33.0                             | AFK336M2AG24T          | 33.0                         | 0.07                                           | 0.70                                 | 0.70                                | 200                                                | G            | 10 x 10.2             | 500                  |
| 47.0                             | AFK476M2AH32T          | 47.0                         | 0.07                                           | 0.32                                 | 0.32                                | 500                                                | H            | 12.5 x 13.5           | 200                  |
| 68.0                             | AFK686M2AH32T          | 68.0                         | 0.07                                           | 0.32                                 | 0.32                                | 500                                                | H            | 12.5 x 13.5           | 200                  |
| 100.0                            | AFK107M2AP44T          | 100.0                        | 0.07                                           | 0.17                                 | 0.17                                | 793                                                | P            | 16 x 16.5             | 125                  |
| 150.0                            | AFK157M2AP44T          | 150.0                        | 0.07                                           | 0.17                                 | 0.17                                | 793                                                | P            | 16 x 16.5             | 125                  |
| 220.0                            | AFK227M2AR44T          | 220.0                        | 0.07                                           | 0.15                                 | 0.15                                | 917                                                | R            | 18 x 16.5             | 125                  |
| 330.0                            | AFK337M2AR44T          | 330.0                        | 0.07                                           | 0.15                                 | 0.15                                | 917                                                | R            | 18 x 16.5             | 125                  |

# Type AFK $-55^{\circ}\text{C}$ to $105^{\circ}\text{C}$

## SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., $105^{\circ}\text{C}$

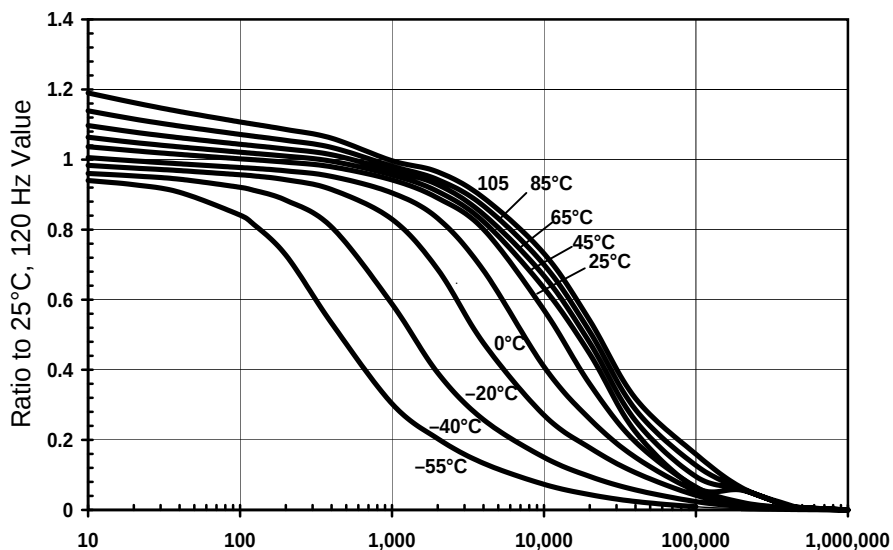
### Part Numbering System

| AFK                        | 106              | M            | 16           | B                 | 12T            | -F             |
|----------------------------|------------------|--------------|--------------|-------------------|----------------|----------------|
| Type                       | Capacitance      | Capacitance  | Voltage Code | Case Code         | Packaging Code | RoHS Compliant |
| 105 = 1.0 $\mu\text{F}$    | <b>Tolerance</b> | 06 = 6.3 Vdc | 35 = 35 Vdc  | 12 = Carrier tape |                |                |
| 106 = 10.0 $\mu\text{F}$   | M = $\pm 20\%$   | 10 = 10 Vdc  | 50 = 50 Vdc  | Width (mm)        |                |                |
| 107 = 100.0 $\mu\text{F}$  |                  | 16 = 16 Vdc  | 63 = 63 Vdc  | T = Tape & Reel   |                |                |
| 108 = 1000.0 $\mu\text{F}$ |                  | 25 = 25 Vdc  | 80 = 80 Vdc  | B = Bulk          |                |                |
|                            |                  |              | 2A = 100 Vdc |                   |                |                |

### Typical Performance Curves

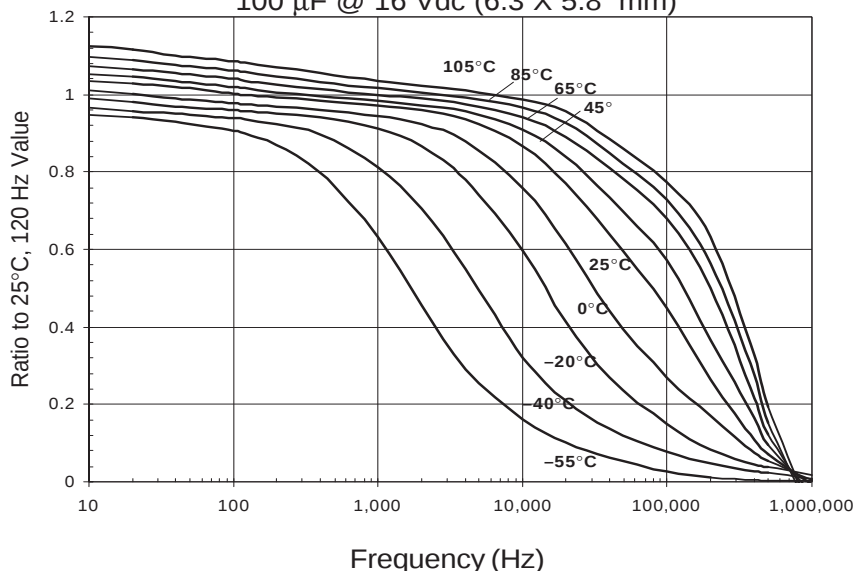
Capacitance vs. Temperature and Frequency

3300 $\mu\text{F}$ /6.3Vdc (12.5 x 13.5 mm)



Capacitance vs. Temperature & Frequency

100  $\mu\text{F}$  @ 16 Vdc (6.3 X 5.8 mm)



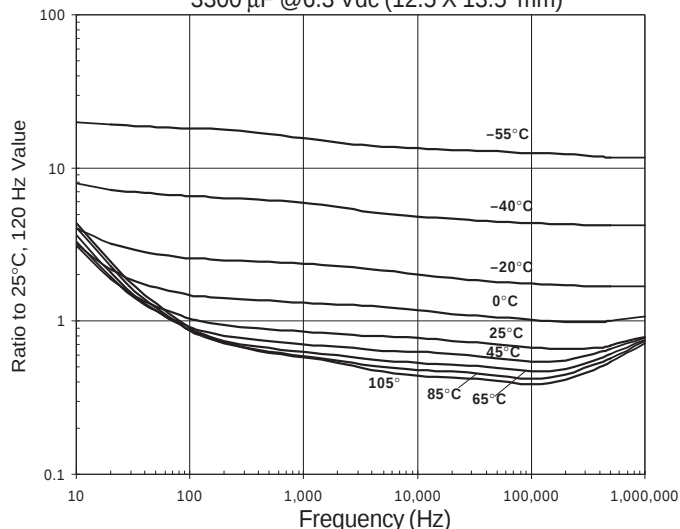
Frequency (Hz)

# Type AFK $-55^{\circ}\text{C}$ to $105^{\circ}\text{C}$

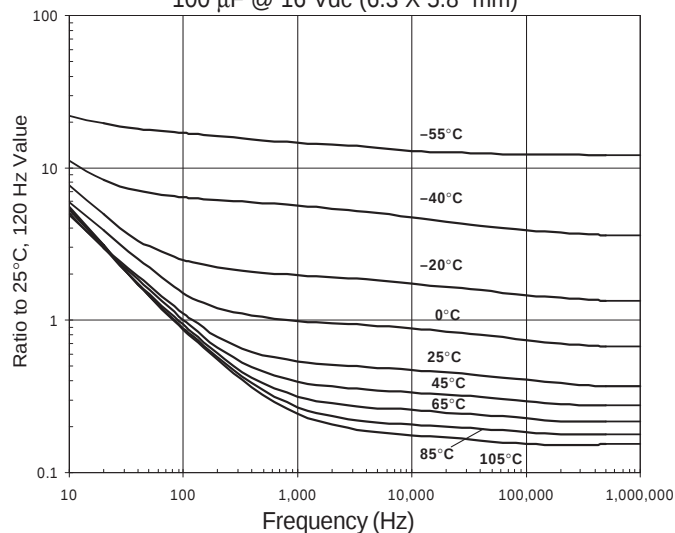
## SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., $105^{\circ}\text{C}$

### Typical Performance Curves

ESR vs. Temperature and Frequency  
3300  $\mu\text{F}$  @ 6.3 Vdc (12.5 X 13.5 mm)

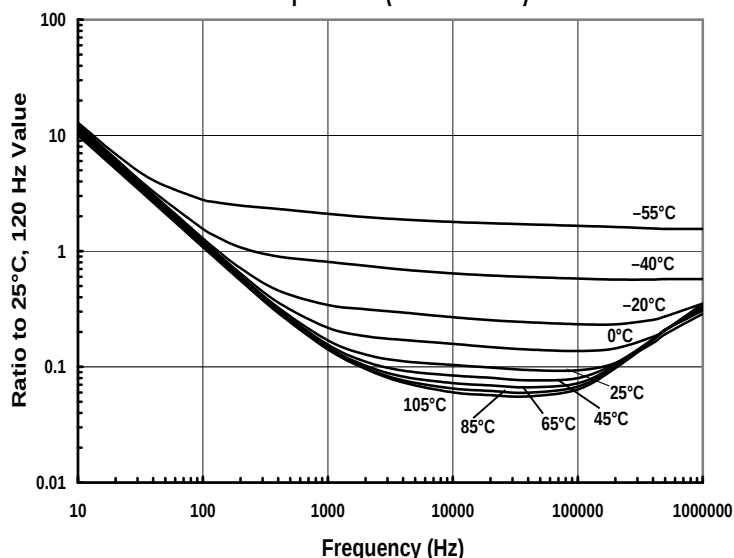


ESR vs. Temperature and Frequency  
100  $\mu\text{F}$  @ 16 Vdc (6.3 X 5.8 mm)



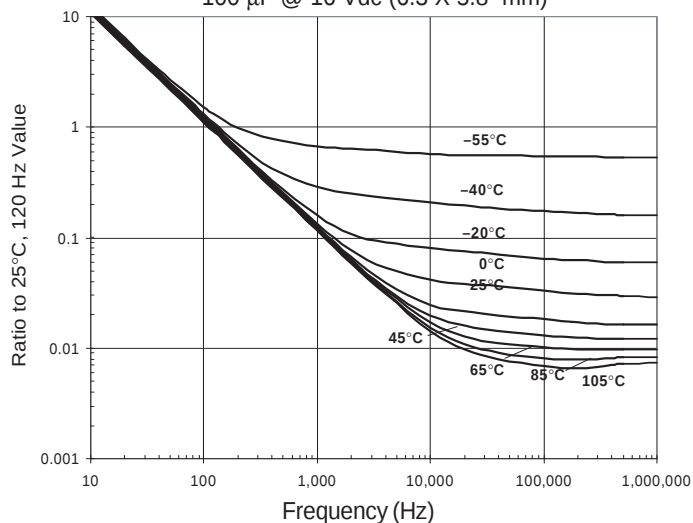
Impedance vs Temperature and Frequency

3300  $\mu\text{F}$  /6.3 V (12.5 x13.5mm)

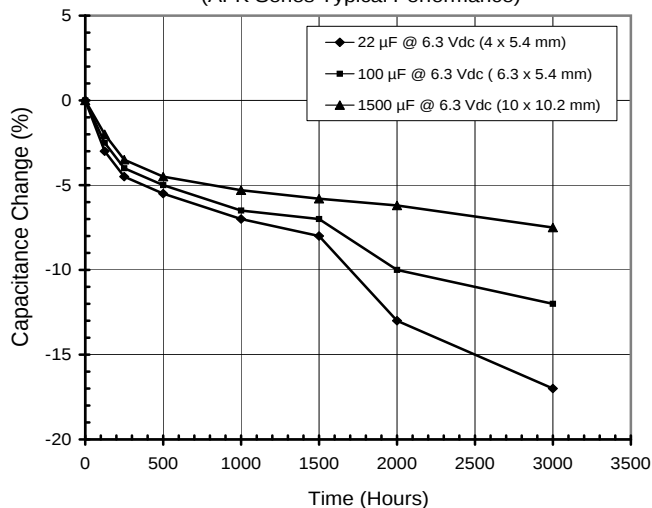


Impedance vs. Temperature and Frequency

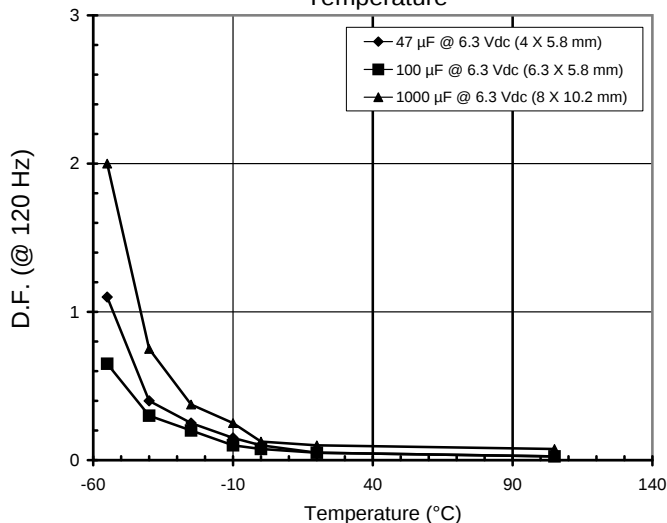
100  $\mu\text{F}$  @ 16 Vdc (6.3 X 5.8 mm)



Capacitance Change vs. Time  
(AFK Series Typical Performance)



Dissipation Factor vs.  
Temperature



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