

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

## SMT Aluminum Electrolytic Capacitors - Low Impedance, $105^{\circ}\text{C}$

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



Type AFC Capacitors are the choice for high-frequency filtering. At 100 kHz, most ratings can handle more than twice the ripple current of type AHA. With solid performance at temperatures down to  $-55^{\circ}\text{C}$ , Type AFC has more than 90% capacitance retention at  $-20^{\circ}\text{C}$  and 1 kHz. With low impedance to beyond 100 kHz, it is ideal for higher power DC/DC converters. The vertical cylindrical cases make for easy automatic mounting and reflow soldering, and offer big savings and higher capacitance compared to tantalum capacitors.

#### Highlights

- $+105^{\circ}\text{C}$ , Up to 1000 Hour Load Life
- Capacitance Range:  $1\ \mu\text{F}$  to  $1500\ \mu\text{F}$
- Voltage Range: 6.3 Vdc to 50 Vdc

#### Specifications

**Operating Temperature:**  $-55^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$

**Rated Voltage:** 6.3, 10, 16, 25 & 50 Vdc

**Capacitance:**  $1.0\ \mu\text{F}$  to  $1500\ \mu\text{F}$

**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)

**Dissipation Factor:** See ratings table

**Ripple Current Multiplier:** Frequency

|          |        |       |        |         |
|----------|--------|-------|--------|---------|
| 50/60 Hz | 120 Hz | 1 kHz | 10 kHz | 100 kHz |
| 0.70     | .0.75  | 0.90  | 0.95   | 1.00    |

**Load Life:** 1000 h @  $+105^{\circ}\text{C}$

$\Delta$  Capacitance  $\pm 20\%$

DF:  $\leq 200\%$  of limit

DCL:  $\leq 100\%$  of limit

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

$\Delta$  Capacitance  $\pm 20\%$

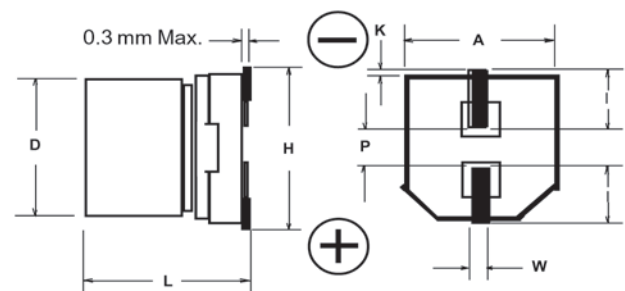
DF:  $\leq 200\%$  of limit

DCL:  $\leq 100\%$  of limit

#### AFC Series Marking



#### Outline Drawing



#### Case Dimensions

| Case Code | Dimensions in (mm) |              |             |         |         |                |         |                    |
|-----------|--------------------|--------------|-------------|---------|---------|----------------|---------|--------------------|
|           | D $\pm 0.5$        | L            | A $\pm 0.2$ | H (max) | I (ref) | W              | P (ref) | K                  |
| B         | 4.0                | 5.4 $+1,-2$  | 4.3         | 5.5     | 1.8     | 0.65 $\pm 0.1$ | 1.0     | 0.35 $+0.15/-0.20$ |
| C         | 5.0                | 5.4 $+1,-2$  | 5.3         | 6.5     | 2.2     | 0.65 $\pm 0.1$ | 1.5     | 0.35 $+0.15/-0.20$ |
| D         | 6.3                | 5.4 $+1,-2$  | 6.6         | 7.8     | 2.4     | 0.65 $\pm 0.1$ | 1.8     | 0.35 $+0.15/-0.20$ |
| E         | 8.0                | 6.2 $\pm 3$  | 8.3         | 9.5     | 3.4     | 0.65 $\pm 0.1$ | 2.2     | 0.35 $+0.15/-0.20$ |
| F         | 8.0                | 10.2 $\pm 3$ | 8.3         | 10.0    | 3.4     | 0.90 $\pm 0.2$ | 3.2     | 0.70 $\pm 0.20$    |
| G         | 10.0               | 10.2 $\pm 3$ | 10.3        | 12.0    | 3.5     | 0.90 $\pm 0.2$ | 4.6     | 0.70 $\pm 0.20$    |

# Type AFC -55 °C to 105 °C

## SMT Aluminum Electrolytic Capacitors - Low Impedance, 105 °C

### Ratings Table

| Cap<br>(µF)                  | Catalog Part<br>Number | Max.<br>DCL<br>2 min<br>(mA) | Max.<br>Dissipation<br>Factor @<br>120 Hz<br>20 °C | Max.<br>ESR @<br>120 Hz20 °C<br>(Ω) | Impedance<br>@ 100 kHz<br>20 °C<br>(Ω) | Max.<br>Ripple Current<br>@ 105 °C<br>100 kHz<br>(mA) | Case<br>Code | Size (mm)<br>D x L | Quantity<br>per Reel |
|------------------------------|------------------------|------------------------------|--|-------------------------------------|--|---|--------------|--------------------|----------------------|
| <b>6.3 Vdc (8 Vdc Surge)</b> |                        |                              |  |                                     |  |   |              |                    |                      |
| 22.0                         | AFC226M06B12T          | 3.0                          | 0.26   | 19.60                               | 3.00                                   | 60  | B            | 4 x 5.4            | 2000                 |
| 47.0                         | AFC476M06C12T          | 3.0                          | 0.26   | 9.20                                | 1.80                                   | 95  | C            | 5 x 5.4            | 1000                 |
| 100.0                        | AFC107M06D16T          | 6.3                          | 0.26   | 4.30                                | 1.00                                   | 140   | D            | 6.3 x 5.4          | 1000                 |
| 220.0                        | AFC227M06E16T          | 13.9                         | 0.26   | 2.00                                | 0.40                                   | 230   | E            | 8 x 6.2            | 1000                 |
| 330.0                        | AFC337M06F24T          | 20.8                         | 0.26   | 1.30                                | 0.30                                   | 450   | F            | 8 x 10.2           | 500                  |
| 1000.0                       | AFC108M06G24T          | 63.0                         | 0.26   | 0.43                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| 1500.0                       | AFC158M06G24T          | 94.5                         | 0.26   | 0.29                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| <b>10 Vdc (13 Vdc Surge)</b> |                        |                              |  |                                     |  |   |              |                    |                      |
| 33.0                         | AFC336M10C12T          | 3.3                          | 0.19   | 9.60                                | 1.80                                   | 95  | C            | 5 x 5.4            | 1000                 |
| 100.0                        | AFC107M10E16T          | 10.0                         | 0.19   | 3.20                                | 0.40                                   | 230   | E            | 8 x 6.2            | 1000                 |
| 150.0                        | AFC157M10E16T          | 15.0                         | 0.19   | 2.10                                | 0.40                                   | 230   | E            | 8 x 6.2            | 1000                 |
| 220.0                        | AFC227M10F24T          | 22.0                         | 0.19   | 1.40                                | 0.30                                   | 450   | F            | 8 x 10.2           | 500                  |
| 470.0                        | AFC477M10G24T          | 47.0                         | 0.19   | 0.67                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| 1000.0                       | AFC108M10G24T          | 100.0                        | 0.22   | 0.36                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| <b>16 Vdc (20 Vdc Surge)</b> |                        |                              |  |                                     |  |   |              |                    |                      |
| 10.0                         | AFC106M16B12T          | 3.0                          | 0.16   | 26.50                               | 3.00                                   | 60  | B            | 4 x 5.4            | 2000                 |
| 22.0                         | AFC226M16C12T          | 3.5                          | 0.16   | 12.10                               | 1.80                                   | 95  | C            | 5 x 5.4            | 1000                 |
| 47.0                         | AFC476M16D16T          | 7.5                          | 0.16   | 5.70                                | 1.00                                   | 140   | D            | 6.3 x 5.4          | 1000                 |
| 68.0                         | AFC686M16E16T          | 10.9                         | 0.16   | 3.90                                | 0.40                                   | 230   | E            | 8 x 6.2            | 1000                 |
| 100.0                        | AFC107M16E16T          | 16.0                         | 0.16   | 2.70                                | 0.40                                   | 230   | E            | 8 x 6.2            | 1000                 |
| 220.0                        | AFC227M16G24T          | 35.2                         | 0.16   | 1.20                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| 330.0                        | AFC337M16G24T          | 52.8                         | 0.16   | 0.80                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| 470.0                        | AFC477M16G24T          | 75.2                         | 0.16   | 0.60                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| 680.0                        | AFC687M16G24T          | 108.8                        | 0.16   | 0.40                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| <b>25 Vdc (31 Vdc Surge)</b> |                        |                              |  |                                     |  |   |              |                    |                      |
| 6.8                          | AFC685M25B12T          | 3.0                          | 0.14   | 34.10                               | 3.00                                   | 60  | B            | 4 x 5.4            | 2000                 |
| 22.0                         | AFC226M25D16T          | 5.5                          | 0.14   | 10.60                               | 1.00                                   | 140   | D            | 6.3 x 5.4          | 1000                 |
| 33.0                         | AFC336M25D16T          | 8.3                          | 0.14   | 7.00                                | 1.00                                   | 140   | D            | 6.3 x 5.4          | 1000                 |
| 47.0                         | AFC476M25E16T          | 11.8                         | 0.14   | 4.90                                | 0.40                                   | 230   | E            | 8 x 6.2            | 1000                 |
| 68.0                         | AFC686M25F24T          | 17.0                         | 0.14   | 3.40                                | 0.30                                   | 450   | F            | 8 x 10.2           | 500                  |
| 100.0                        | AFC107M25F24T          | 25.0                         | 0.14   | 2.30                                | 0.30                                   | 450   | F            | 8 x 10.2           | 500                  |
| 220.0                        | AFC227M25G24T          | 55.0                         | 0.14   | 1.10                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| 330.0                        | AFC337M25G24T          | 82.5                         | 0.14   | 0.70                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| 470.0                        | AFC477M25G24T          | 117.5                        | 0.14   | 0.50                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| <b>35 Vdc (44 Vdc Surge)</b> |                        |                              |  |                                     |  |   |              |                    |                      |
| 1.0                          | AFC105M35B12T          | 3.0                          | 0.12   | 199.00                              | 3.00                                   | 60  | B            | 4 x 5.4            | 2000                 |
| 2.2                          | AFC225M35B12T          | 3.0                          | 0.12   | 90.40                               | 3.00                                   | 60  | B            | 4 x 5.4            | 2000                 |
| 3.3                          | AFC335M35B12T          | 3.0                          | 0.12   | 60.30                               | 3.00                                   | 60  | B            | 4 x 5.4            | 2000                 |
| 4.7                          | AFC475M35B12T          | 3.0                          | 0.12   | 42.40                               | 3.00                                   | 60  | B            | 4 x 5.4            | 2000                 |
| 6.8                          | AFC685M35C12T          | 3.0                          | 0.12   | 29.30                               | 1.80                                   | 95  | C            | 5 x 5.4            | 1000                 |
| 10.0                         | AFC106M35C12T          | 3.5                          | 0.12   | 19.90                               | 1.80                                   | 95  | C            | 5 x 5.4            | 1000                 |
| 22.0                         | AFC226M35D16T          | 7.7                          | 0.12   | 9.10                                | 1.00                                   | 140   | D            | 6.3 x 5.4          | 1000                 |
| 33.0                         | AFC336M35E16T          | 11.6                         | 0.12   | 6.00                                | 0.40                                   | 230   | E            | 8 x 6.2            | 1000                 |
| 47.0                         | AFC476M35E16T          | 16.5                         | 0.12   | 4.20                                | 0.40                                   | 230   | E            | 8 x 6.2            | 1000                 |
| 100.0                        | AFC107M35G24T          | 35.0                         | 0.12   | 2.00                                | 0.20                                   | 670   | G            | 10 x 10.2          | 500                  |
| 220.0                        | AFC227M35G24T          | 77.0                         | 0.12   | 0.90                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| 330.0                        | AFC337M35G24T          | 115.5                        | 0.12   | 0.60                                | 0.15                                   | 670   | G            | 10 x 10.2          | 500                  |
| <b>50 Vdc (63 Vdc Surge)</b> |                        |                              |  |                                     |  |   |              |                    |                      |
| 1.0                          | AFC105M50B12T          | 3.0                          | 0.12   | 199.00                              | 5.00                                   | 30  | B            | 4 x 5.4            | 2000                 |
| 2.2                          | AFC225M50B12T          | 3.0                          | 0.12   | 90.50                               | 5.00                                   | 30  | B            | 4 x 5.4            | 2000                 |
| 3.3                          | AFC335M50B12T          | 3.0                          | 0.12   | 60.30                               | 5.00                                   | 30  | B            | 4 x 5.4            | 2000                 |
| 4.7                          | AFC475M50C12T          | 3.0                          | 0.12   | 42.40                               | 3.00                                   | 50  | C            | 5 x 5.4            | 1000                 |
| 10.0                         | AFC106M50D16T          | 5.0                          | 0.12   | 19.90                               | 2.00                                   | 70  | D            | 6.3 x 5.4          | 1000                 |
| 22.0                         | AFC226M50E16T          | 11.0                         | 0.12   | 9.10                                | 0.70                                   | 120   | E            | 8 x 6.2            | 1000                 |
| 33.0                         | AFC336M50F24T          | 16.5                         | 0.12   | 6.00                                | 0.60                                   | 300   | F            | 8 x 10.2           | 500                  |
| 47.0                         | AFC476M50G24T          | 23.5                         | 0.12   | 4.20                                | 0.30                                   | 500   | G            | 10 x 10.2          | 500                  |
| 100.0                        | AFC107M50G24T          | 50.0                         | 0.12   | 2.00                                | 0.30                                   | 500   | G            | 10 x 10.2          | 500                  |
| 220.0                        | AFC227M50G24T          | 110.0                        | 0.12   | 0.90                                | 0.30                                   | 500   | G            | 10 x 10.2          | 500                  |

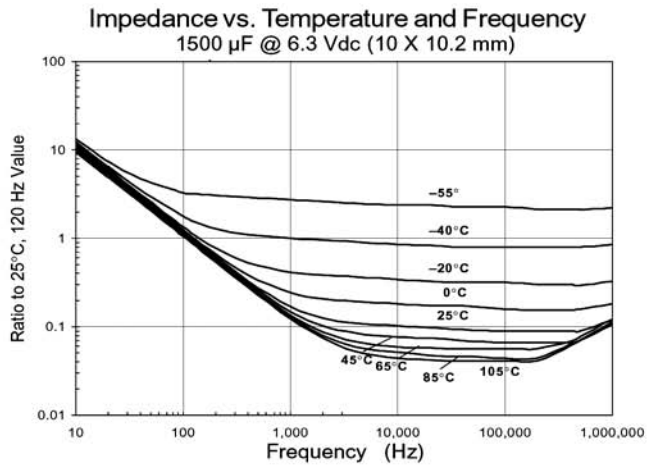
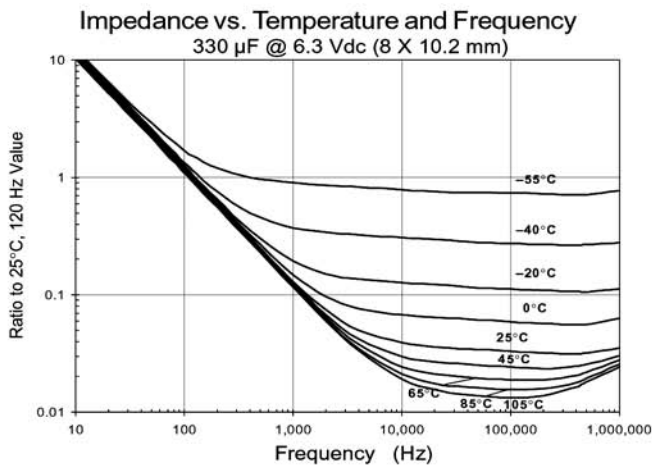
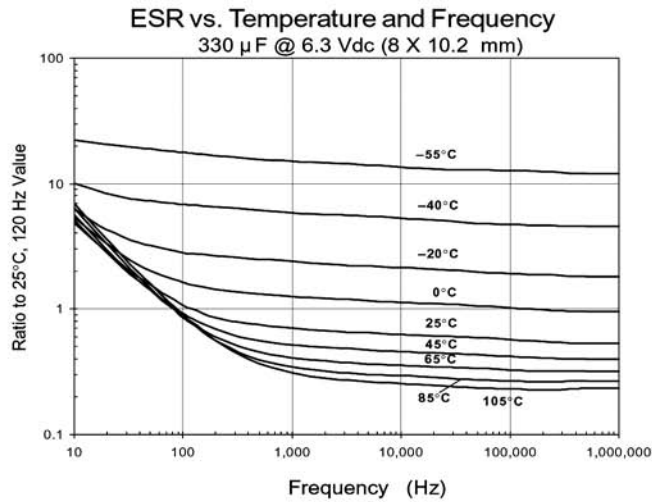
### Part Numbering System

|             |                    |                    |                |             |                   |                  |
|-------------|--------------------|--------------------|----------------|-------------|-------------------|------------------|
| <b>AFC</b>  | <b>106</b>         | <b>M</b>           | <b>16</b>      | <b>B</b>    | <b>12T</b>        | <b>-F</b>        |
| <b>I</b>    | <b>I</b>           | <b>I</b>           | <b>I</b>       | <b>I</b>    | <b>I</b>          | <b>I</b>         |
| <b>Type</b> | <b>Capacitance</b> | <b>Capacitance</b> | <b>Voltage</b> | <b>Case</b> | <b>Packaging</b>  | <b>RoHS</b>      |
|             | 105 = 1.0 µF       | Tolerance          | 06 = 6.3 Vdc   | 25 = 25 Vdc |                   | <b>Compliant</b> |
|             | 106 = 10.0 µF      | M = ±20%           | 10 = 10 Vdc    | 35 = 35 Vdc | 12 = Carrier tape |                  |
|             | 107 = 100.0 µF     |                    | 16 = 16 Vdc    | 50 = 50 Vdc | Width (mm)        |                  |
|             | 108 = 1000 µF      |                    |                |             | T = Tape & Reel   |                  |
|             |                    |                    |                |             | B = bulk          |                  |

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## SMT Aluminum Electrolytic Capacitors - Low Impedance, $105^{\circ}\text{C}$

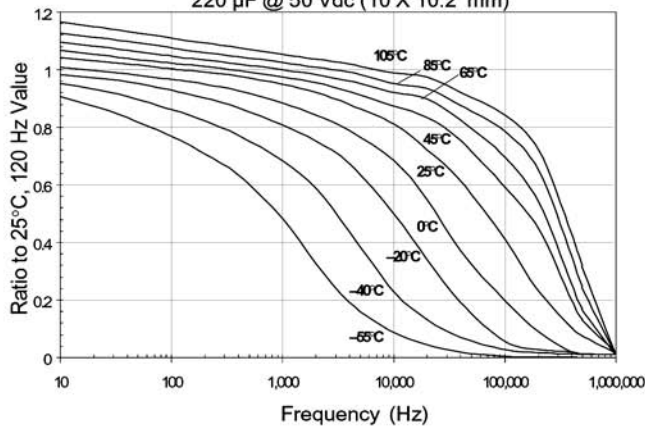
### Typical Performance Curves



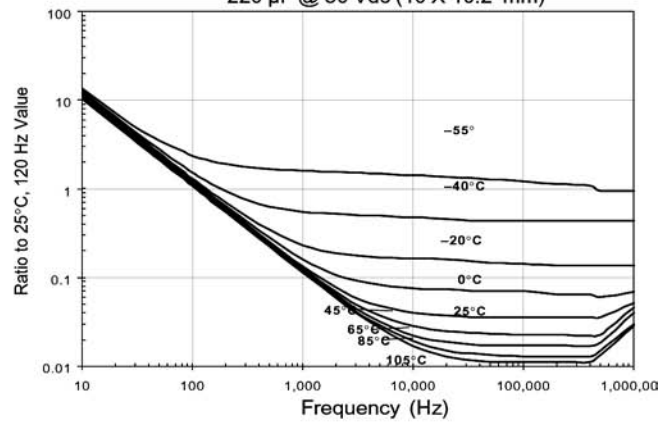
# Type AFC $-55\text{ }^{\circ}\text{C}$ to $105\text{ }^{\circ}\text{C}$

## SMT Aluminum Electrolytic Capacitors - Low Impedance, $105\text{ }^{\circ}\text{C}$

Capacitance vs. Temperature & Frequency  
220  $\mu\text{F}$  @ 50 Vdc (10 X 10.2 mm)



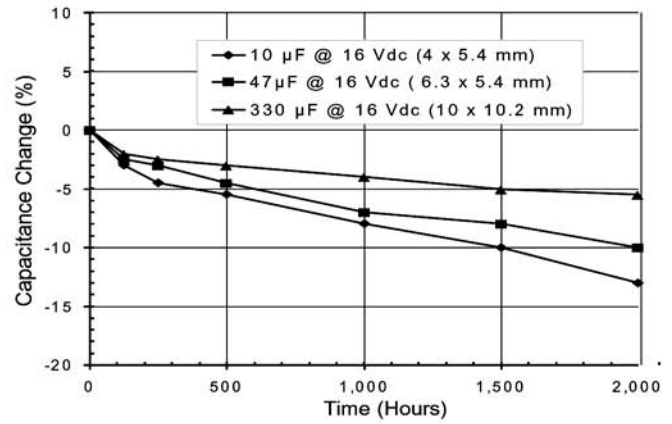
Impedance vs. Temperature and Frequency  
220  $\mu\text{F}$  @ 50 Vdc (10 X 10.2 mm)



ESR vs. Temperature and Frequency  
220  $\mu\text{F}$  @ 50 Vdc (10 X 10.2 mm)



Capacitance Change vs Time





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.