

## Metallized Polyester Film Capacitor Related Document: IEC 60384-2

### MAIN APPLICATIONS:

Blocking, bypassing, filtering, timing, coupling and decoupling circuits, interference suppression in low voltage applications. High temperature operations.

### MARKING:

Manufacturer's logo/type/C-Value/rated voltage/tolerance/date of manufacture

### DIELECTRIC:

Polyester film

### ELECTRODES:

Vacuum deposited aluminum

### COATING:

Flame retardant plastic case (UL-class 94 V-0), green, epoxy resin sealed

### CONSTRUCTION:

Extended metallized film (refer to general information)

### LEADS:

Tinned wire

### IEC TEST CLASSIFICATION:

55/125/56, according to IEC 60068

### TEMPERATURE RANGE:

- 55°C to + 125°C

### CAPACITANCE RANGE:

1000pF to 15μF

### CAPACITANCE TOLERANCES:

± 20% (M), ± 10% (K), ± 5% (J)

### RATED VOLTAGES ( $U_R$ ):

63 VDC, 100 VDC, 250 VDC, 400 VDC, 630 VDC, 1000 VDC

### PERMISSIBLE AC VOLTAGES (RMS) UP TO 60Hz:

40 VAC, 63 VAC, 160 VAC, 200 VAC, 220 VAC, 220 VAC

### TEST VOLTAGE (ELECTRODE/ELECTRODE):

1.6 x  $U_R$  for 2 s

### INSULATION RESISTANCE:

Measured at 100 VDC (63 VDC series measured at 50 VDC) after one minute

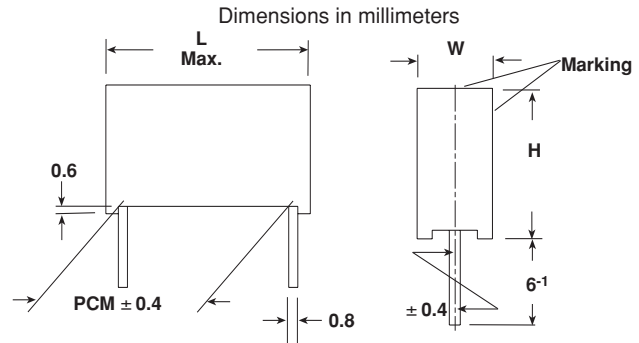
### MAXIMUM PULSE RISE TIME

| PCM<br>(mm) | Maximum Pulse Rise Time $d_v/d_t$ [V/μs] |         |         |         |         |          |
|-------------|------------------------------------------|---------|---------|---------|---------|----------|
|             | 63 VDC                                   | 100 VDC | 250 VDC | 400 VDC | 630 VDC | 1000 VDC |
| 10          | 6                                        | 9       | 18      | 26      | 35      | 130      |
| 15          | 4                                        | 5       | 10      | 16      | 33      | 65       |
| 22.5        | 2.5                                      | 3       | 6       | 9       | 19      | 34       |
| 27.5        | —                                        | 2.5     | 5       | 7       | 14      | 25       |

If the maximum pulse voltage is less than the rated voltage higher  $d_v/d_t$  values can be permitted.

### DISSIPATION FACTOR $\tan \delta$

| MEASURED AT | $C \leq 0.1\mu F$   | $0.1\mu F < C \leq 1.0\mu F$ | $C > 1.0\mu F$      |
|-------------|---------------------|------------------------------|---------------------|
| 1kHz        | $8 \times 10^{-3}$  | $8 \times 10^{-3}$           | $10 \times 10^{-3}$ |
| 10kHz       | $15 \times 10^{-3}$ | $15 \times 10^{-3}$          | —                   |
| 100kHz      | $25 \times 10^{-3}$ | —                            | —                   |
|             |                     | Maximum values               |                     |



### For $C \leq 0.33\mu F$ and $U_R > 100$ VDC:

30,000 MΩ minimum value (100,000 MΩ typical value)

### For $C \leq 0.33\mu F$ and $U_R \leq 100$ VDC:

15,000 MΩ minimum value (50,000 MΩ typical value)

### TIME CONSTANT:

Measured at 100 VDC (63 VDC series measured at 50 VDC) after one minute

### For $C > 0.33\mu F$ and $U_R > 100$ VDC:

10,000 s minimum value (40,000 s typical value)

### For $C > 0.33\mu F$ and $U_R \leq 100$ VDC:

5000 s minimum value (15,000 s typical value)

### CAPACITANCE DRIFT:

Up to + 40°C, ± 1.5% for a period of two years

### DERATING FOR DC AND AC. CATEGORY VOLTAGE $U_C$ :

At + 85°C:  $U_C = 1.0 U_R$

At + 100°C:  $U_C = 0.8 U_R$

At + 125°C:  $U_C = 0.5 U_R$  (maximum 1000 h)

### SELF INDUCTANCE:

~ 6 nH measured with 2mm long leads

### PULL TEST ON LEADS:

≥ 30 N in direction of leads according to IEC 60068-2-21

### RELIABILITY:

Operational life > 300,000 h

Failure rate < 2 FIT (40°C and  $0.5 \times U_R$ )

For further details, please refer to the general information provided in this catalog.

| CAPACITANCE   | CAPACITANCE CODE | VOLTAGE CODE 06<br>63 VDC/40 VAC |      |      |      | VOLTAGE CODE 01<br>100 VDC/63 VAC |      |      |      | VOLTAGE CODE 25<br>250 VDC/160 VAC |      |      |      |
|---------------|------------------|----------------------------------|------|------|------|-----------------------------------|------|------|------|------------------------------------|------|------|------|
|               |                  | W                                | H    | L    | PCM  | W                                 | H    | L    | PCM  | W                                  | H    | L    | PCM  |
| 1000 pF       | - 210            | —                                | —    | —    | —    | —                                 | —    | —    | —    | —                                  | —    | —    | —    |
| 1500 pF       | - 215            | —                                | —    | —    | —    | —                                 | —    | —    | —    | —                                  | —    | —    | —    |
| 2200 pF       | - 222            | —                                | —    | —    | —    | —                                 | —    | —    | —    | —                                  | —    | —    | —    |
| 3300 pF       | - 233            | —                                | —    | —    | —    | —                                 | —    | —    | —    | —                                  | —    | —    | —    |
| 4700 pF       | - 247            | —                                | —    | —    | —    | —                                 | —    | —    | —    | —                                  | —    | —    | —    |
| 6800 pF       | - 268            | —                                | —    | —    | —    | —                                 | —    | —    | —    | —                                  | —    | —    | —    |
| 0.01 $\mu$ F  | - 310            | —                                | —    | —    | —    | —                                 | —    | —    | —    | —                                  | —    | —    | —    |
| 0.015 $\mu$ F | - 315            | —                                | —    | —    | —    | —                                 | —    | —    | —    | —                                  | —    | —    | —    |
| 0.022 $\mu$ F | - 322            | —                                | —    | —    | —    | —                                 | —    | —    | —    | 3.5                                | 8.0  | 13.0 | 10   |
| 0.033 $\mu$ F | - 333            | —                                | —    | —    | —    | —                                 | —    | —    | —    | 3.5                                | 8.0  | 13.0 | 10   |
| 0.047 $\mu$ F | - 347            | —                                | —    | —    | —    | —                                 | —    | —    | —    | 3.5                                | 8.0  | 13.0 | 10   |
| 0.068 $\mu$ F | - 368            | —                                | —    | —    | —    | 3.5                               | 8.0  | 13.0 | 10   | 3.5                                | 8.0  | 13.0 | 10   |
| 0.10 $\mu$ F  | - 410            | —                                | —    | —    | —    | 3.5                               | 8.0  | 13.0 | 10   | 4.5                                | 9.5  | 13.0 | 10   |
| 0.15 $\mu$ F  | - 415            | —                                | —    | —    | —    | 3.5                               | 8.0  | 13.0 | 10   | 5.5                                | 10.5 | 13.0 | 10   |
| 0.22 $\mu$ F  | - 422            | 3.5                              | 8.0  | 13.0 | 10   | 3.5                               | 8.0  | 13.0 | 10   | 6.5                                | 11.5 | 13.0 | 10   |
| 0.33 $\mu$ F  | - 433            | 3.5                              | 8.0  | 13.0 | 10   | 4.0                               | 9.0  | 13.0 | 10   | 5.5                                | 10.5 | 18.0 | 15   |
| 0.47 $\mu$ F  | - 447            | 3.5                              | 8.0  | 13.0 | 10   | 4.5                               | 9.5  | 13.0 | 10   | 6.5                                | 12.5 | 18.0 | 15   |
| 0.68 $\mu$ F  | - 468            | 4.0                              | 9.0  | 13.0 | 10   | 5.5                               | 10.5 | 13.0 | 10   | 7.5                                | 13.5 | 18.0 | 15   |
| 1.0 $\mu$ F   | - 510            | 4.5                              | 9.5  | 13.0 | 10   | 5.5                               | 10.5 | 18.0 | 15   | 8.5                                | 14.5 | 18.0 | 15   |
| 1.5 $\mu$ F   | - 515            | 5.5                              | 10.5 | 13.0 | 10   | 6.5                               | 12.5 | 18.0 | 15   | 8.5                                | 16.5 | 26.5 | 22.5 |
| 2.2 $\mu$ F   | - 522            | 6.5                              | 11.5 | 13.0 | 10   | 6.5                               | 12.5 | 18.0 | 15   | 10.5                               | 18.5 | 26.5 | 22.5 |
| 3.3 $\mu$ F   | - 533            | 6.5                              | 12.5 | 18.0 | 15   | 8.5                               | 14.5 | 18.0 | 15   | 12.5                               | 20.0 | 26.5 | 22.5 |
| 4.7 $\mu$ F   | - 547            | 7.5                              | 13.5 | 18.0 | 15   | 7.5                               | 15.5 | 26.5 | 22.5 | 13.5                               | 23.5 | 31.5 | 27.5 |
| 6.8 $\mu$ F   | - 568            | 8.5                              | 14.5 | 18.0 | 15   | 8.5                               | 16.5 | 26.5 | 22.5 | —                                  | —    | —    | —    |
| 10.0 $\mu$ F  | - 610            | 8.5                              | 17.5 | 18.0 | 15   | 10.5                              | 18.5 | 26.5 | 22.5 | —                                  | —    | —    | —    |
| 15.0 $\mu$ F  | - 615            | 8.5                              | 16.5 | 26.5 | 22.5 | 11.5                              | 20.5 | 31.5 | 27.5 | —                                  | —    | —    | —    |

Further values upon request.

**RECOMMENDED PACKAGING**

| LETTER CODE | TYPE OF PACKAGING | HEIGHT (H)<br>(mm) | REEL DIAMETER<br>(mm) | ORDERING CODE EXAMPLES | PCM<br>10 | PCM<br>15 | PCM<br>22.5 - 27.5 |
|-------------|-------------------|--------------------|-----------------------|------------------------|-----------|-----------|--------------------|
| D           | AMMO              | 16.5               | S*                    | MKT 1820-422/065-D     | X         | X         | —                  |
| G           | AMMO              | 18.5               | S*                    | MKT 1820-422/065-G     | X         | X         | —                  |
| F           | REEL              | 16.5               | 350                   | MKT 1820-422/065-F     | X         | X         | —                  |
| W           | REEL              | 18.5               | 350                   | MKT 1820-422/065-W     | X         | X         | —                  |
| V           | REEL              | 18.5               | 500                   | MKT 1820-610/015-V     | —         | X         | X                  |
| G           | AMMO              | 18.5               | L*                    | MKT 1820-610/015-G     | —         | —         | X                  |
| —           | BULK              | —                  | —                     | MKT 1820-615/015       | X         | X         | X                  |

\*S = box size 55 x 210 x 340mm (W x H x L)

\*L = box size 60 x 360 x 510mm (W x H x L)



| CAPACITANCE   | CAPACITANCE CODE | VOLTAGE CODE 40<br>400 VDC/200 VAC |      |      |      | VOLTAGE CODE 63*<br>630 VDC/220 VAC |      |      |      | VOLTAGE CODE 10*<br>1000 VDC/220 VAC |      |      |      |
|---------------|------------------|------------------------------------|------|------|------|-------------------------------------|------|------|------|--------------------------------------|------|------|------|
|               |                  | W                                  | H    | L    | PCM  | W                                   | H    | L    | PCM  | W                                    | H    | L    | PCM  |
| 1000 pF       | - 210            | —                                  | —    | —    | —    | 3.5                                 | 8.0  | 13.0 | 10   | 4.0                                  | 9.0  | 13.0 | 10   |
| 1500 pF       | - 215            | —                                  | —    | —    | —    | 3.5                                 | 8.0  | 13.0 | 10   | 4.0                                  | 9.0  | 13.0 | 10   |
| 2200 pF       | - 222            | —                                  | —    | —    | —    | 3.5                                 | 8.0  | 13.0 | 10   | 4.0                                  | 9.0  | 13.0 | 10   |
| 3300 pF       | - 233            | —                                  | —    | —    | —    | 3.5                                 | 8.0  | 13.0 | 10   | 4.0                                  | 9.0  | 13.0 | 10   |
| 4700 pF       | - 247            | —                                  | —    | —    | —    | 3.5                                 | 8.0  | 13.0 | 10   | 5.5                                  | 10.5 | 13.0 | 10   |
| 6800 pF       | - 268            | —                                  | —    | —    | —    | 3.5                                 | 8.0  | 13.0 | 10   | 6.5                                  | 11.5 | 13.0 | 10   |
| 0.01 $\mu$ F  | - 310            | 3.5                                | 8.0  | 13.0 | 10   | 4.0                                 | 9.0  | 13.0 | 10   | 5.5                                  | 10.5 | 18.0 | 15   |
| 0.015 $\mu$ F | - 315            | 3.5                                | 8.0  | 13.0 | 10   | 4.5                                 | 9.5  | 13.0 | 10   | 6.5                                  | 12.5 | 18.0 | 15   |
| 0.022 $\mu$ F | - 322            | 3.5                                | 8.0  | 13.0 | 10   | 5.5                                 | 10.5 | 13.0 | 10   | 7.5                                  | 13.5 | 18.0 | 15   |
| 0.033 $\mu$ F | - 333            | 4.0                                | 9.0  | 13.0 | 10   | 5.5                                 | 10.5 | 18.0 | 15   | 6.5                                  | 14.5 | 26.5 | 22.5 |
| 0.047 $\mu$ F | - 347            | 4.5                                | 9.5  | 13.0 | 10   | 6.5                                 | 12.5 | 18.0 | 15   | 7.5                                  | 15.5 | 26.5 | 22.5 |
| 0.068 $\mu$ F | - 368            | 5.5                                | 10.5 | 13.0 | 10   | 7.5                                 | 13.5 | 18.0 | 15   | 8.5                                  | 16.5 | 26.5 | 22.5 |
| 0.10 $\mu$ F  | - 410            | 6.5                                | 11.5 | 13.0 | 10   | 6.5                                 | 14.5 | 26.5 | 22.5 | 10.5                                 | 18.5 | 26.5 | 22.5 |
| 0.15 $\mu$ F  | - 415            | 6.5                                | 12.5 | 18.0 | 15   | 7.5                                 | 15.5 | 26.5 | 22.5 | 11.5                                 | 20.5 | 31.5 | 27.5 |
| 0.22 $\mu$ F  | - 422            | 6.5                                | 12.5 | 18.0 | 15   | 8.5                                 | 16.5 | 26.5 | 22.5 | 13.5                                 | 23.5 | 31.5 | 27.5 |
| 0.33 $\mu$ F  | - 433            | 7.5                                | 13.5 | 18.0 | 15   | 11.5                                | 20.5 | 31.5 | 27.5 | 16.5                                 | 29.5 | 31.5 | 27.5 |
| 0.47 $\mu$ F  | - 447            | 8.5                                | 17.5 | 18.0 | 15   | 11.5                                | 20.5 | 31.5 | 27.5 | 20.0                                 | 35.0 | 31.5 | 27.5 |
| 0.68 $\mu$ F  | - 468            | 8.5                                | 16.5 | 26.5 | 22.5 | 13.5                                | 23.5 | 31.5 | 27.5 | —                                    | —    | —    | —    |
| 1.0 $\mu$ F   | - 510            | 10.5                               | 18.5 | 26.5 | 22.5 | 15.0                                | 24.5 | 31.5 | 27.5 | —                                    | —    | —    | —    |
| 1.5 $\mu$ F   | - 515            | 11.5                               | 20.5 | 31.5 | 27.5 | —                                   | —    | —    | —    | —                                    | —    | —    | —    |
| 2.2 $\mu$ F   | - 522            | 13.5                               | 23.5 | 31.5 | 27.5 | —                                   | —    | —    | —    | —                                    | —    | —    | —    |

Further C-values upon request.

\*Not suitable for mains applications.

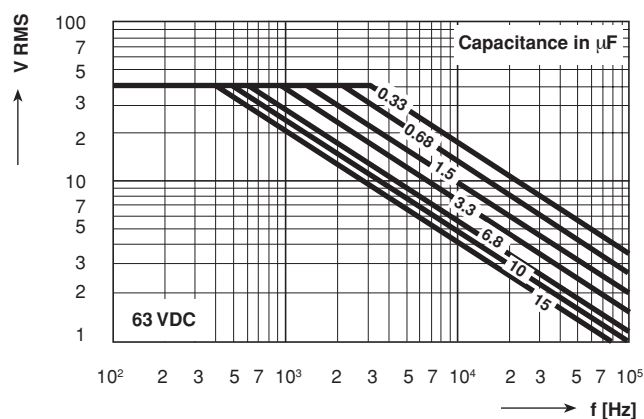
Please refer to X-capacitors in our catalog "RFI Suppression Components".

**RECOMMENDED PACKAGING**

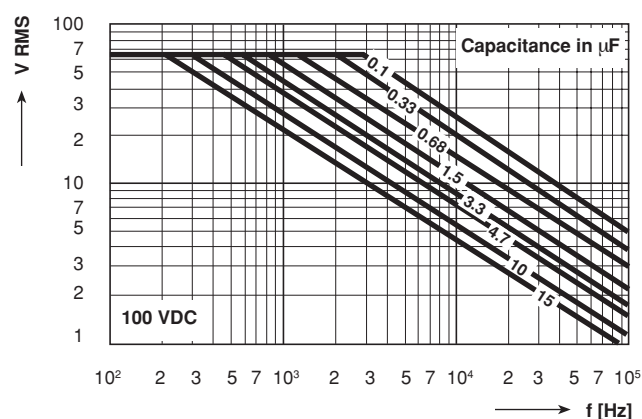
| LETTER CODE | TYPE OF PACKAGING | HEIGHT (H)<br>(mm) | REEL DIAMETER<br>(mm) | ORDERING CODE<br>EXAMPLES | PCM<br>10 | PCM<br>15 | PCM<br>22.5 - 27.5 |
|-------------|-------------------|--------------------|-----------------------|---------------------------|-----------|-----------|--------------------|
| D           | AMMO              | 16.5               | S*                    | MKT 1820-410/405-D        | X         | X         | —                  |
| G           | AMMO              | 18.5               | S*                    | MKT 1820-410/405-G        | X         | X         | —                  |
| F           | REEL              | 16.5               | 350                   | MKT 1820-410/405-F        | X         | X         | —                  |
| W           | REEL              | 18.5               | 350                   | MKT 1820-410/405-W        | X         | X         | —                  |
| V           | REEL              | 18.5               | 500                   | MKT 1820-422/635-V        | —         | X         | X                  |
| G           | AMMO              | 18.5               | L*                    | MKT 1820-422/635-G        | —         | —         | X                  |
| —           | BULK              | —                  | —                     | MKT 1820-515/405          | X         | X         | X                  |

\*S = box size 55 x 210 x 340mm (W x H x L)

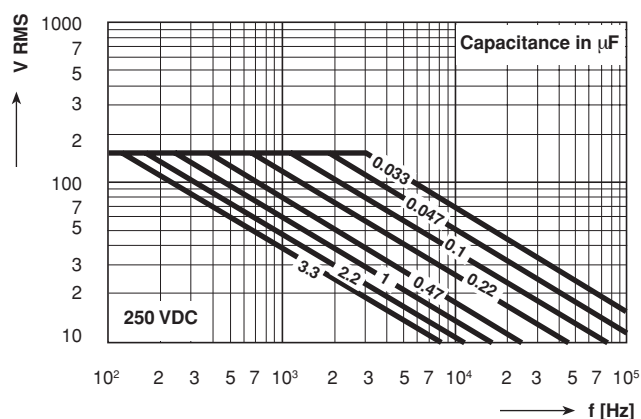
\*L = box size 60 x 360 x 510mm (W x H x L)



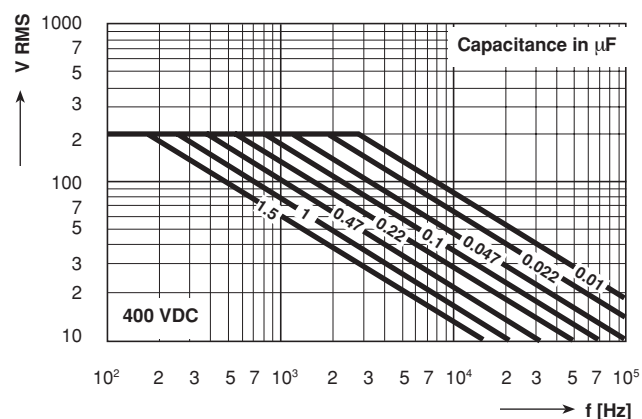
Permissible AC Voltage versus Frequency



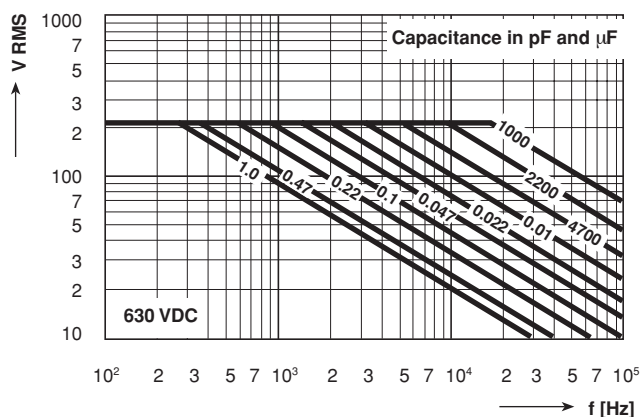
Permissible AC Voltage versus Frequency



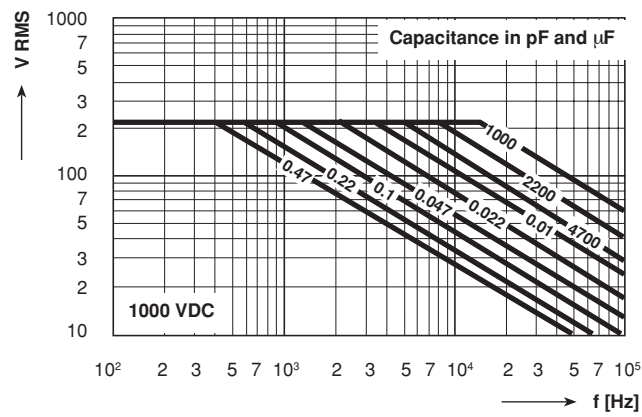
Permissible AC Voltage versus Frequency



Permissible AC Voltage versus Frequency



Permissible AC Voltage versus Frequency



Permissible AC Voltage versus Frequency



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)

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