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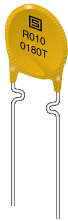
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Radial Leaded Fuse, PTC, 60 VDC



16.0 - 60.0VDC · 0.1 - 11 A



**Description**

- THT standard industry type
- Directly solderable on printed circuit boards

**Standards**

- UL 1434
- CSA C22.2 no. 0, TIL no. CA-3A

**Approvals**

- UL File Number: E172175

**Applications**

- Computer & Peripherals
- General electronics
- Automotive applications

**References**

[Packaging Details](#)

**Weblinks**

[pdf datasheet](#), [html-datasheet](#), [General Product Information](#), [Packaging details](#), [Approvals](#), [CE declaration of conformity](#), [RoHS](#), [CHINA-RoHS](#), [REACH](#), [Distributor-Stock-Check](#), [Detailed request for product](#)

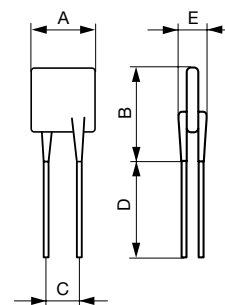
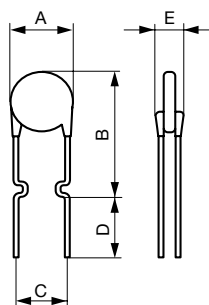
**Technical Data**

|                                 |                              |
|---------------------------------|------------------------------|
| V max                           | 16.0 - 60.0VDC               |
| I <sub>max</sub>                | 40 - 100A                    |
| I hold                          | 0.1 - 11 A                   |
| Attachment                      | PCB, THT                     |
| Allowable Operation Temperature | -40 °C to 85 °C              |
| Material: Terminals             | see variants                 |
| Weight                          | 0.35 g                       |
| Storage Conditions              | 0 °C to 40 °C, max. 70% r.h. |
| Product Marking                 | Type, I hold                 |

|                              |                                                                                             |
|------------------------------|---------------------------------------------------------------------------------------------|
| Soldering Methods            | Wave<br><a href="#">Soldering Profile</a>                                                   |
| Solderability                | 235 °C / 2 sec                                                                              |
| Resistance to Soldering Heat | 260 °C / 10 sec                                                                             |
| Passing Aging                | +85 °C, 1000 Hours -> +/- 5% Typical Resistance Change                                      |
| Humidity Aging               | +85 °C, 85% r.h., 1000 Hours -> +/- 5% Typical Resistance Change                            |
| Thermal Shock                | MIL-STD-202, Method 107 (+125 °C to -55 °C, 10 Cycles) -> +/- 15% Typical Resistance Change |
| Vibration                    | MIL-STD-883C, Method 2007.1, Test Condition A                                               |
| Resistance to Solvents       | MIL-STD-202, Methode 215                                                                    |
| Flammability                 | UL 94V-0                                                                                    |

Detailed information on product approvals, code requirements, usage instructions and detailed test conditions can be looked up in [General Product Information](#)

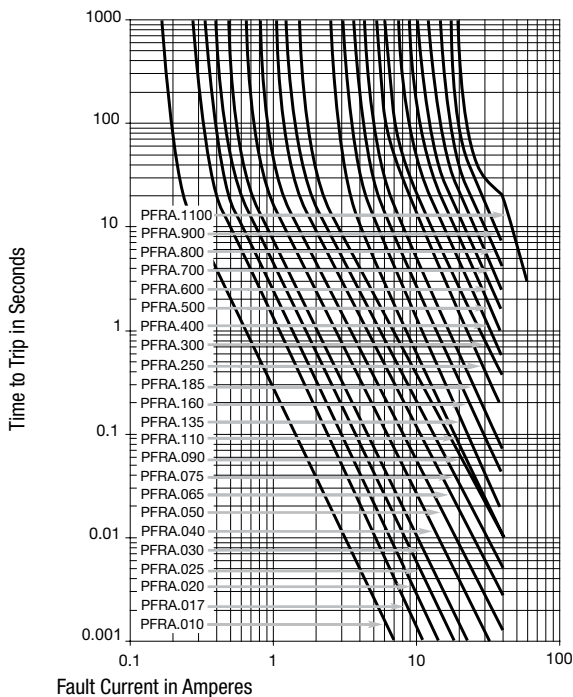
**Dimension**



PFRA.010 - PFRA.185

PFRA.250 - PFRA.1100

Time-Current-Curves



Letter heights and Fonts

| A max [mm] | Insert depth | C min [mm] | C max [mm] | D min [mm] | E max [mm] | Ø Lead [mm] | Terminal        | Order Number |
|------------|--------------|------------|------------|------------|------------|-------------|-----------------|--------------|
| 7.4        | 12.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | Tin-Pated NiCu  | PFRA.010     |
| 7.4        | 12.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | Tin-Pated NiCu  | PFRA.010.2   |
| 7.4        | 12.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | Tin-Plated CuFe | PFRA.017     |
| 7.4        | 12.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | Tin-Plated CuFe | PFRA.017.2   |
| 7.4        | 12.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | Tin-Plated CuFe | PFRA.020     |
| 7.4        | 12.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | Tin-Plated CuFe | PFRA.020.2   |
| 7.4        | 12.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | Tin-Plated CuFe | PFRA.025     |
| 7.4        | 12.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | Tin-Plated CuFe | PFRA.025.2   |
| 7.4        | 13.4         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | Tin-Plated CuFe | PFRA.030     |
| 7.4        | 13.4         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | Tin-Plated CuFe | PFRA.030.2   |
| 7.4        | 13.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | Tin-Plated CuFe | PFRA.040     |
| 7.4        | 13.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | Tin-Plated CuFe | PFRA.040.2   |
| 7.9        | 13.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | see variants    | PFRA.050     |
| 7.9        | 13.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | see variants    | PFRA.050.2   |
| 9.7        | 15.2         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | see variants    | PFRA.065     |
| 9.7        | 15.2         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | see variants    | PFRA.065.2   |
| 10.4       | 16           | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | see variants    | PFRA.075     |
| 10.4       | 16           | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | see variants    | PFRA.075.2   |
| 11.7       | 16.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | see variants    | PFRA.090     |
| 11.7       | 16.7         | 4.4        | 5.8        | 7.6        | 3.1        | 0.51        | see variants    | PFRA.090.2   |
| 8.9        | 14           | 4.4        | 5.8        | 7.6        | 3          | 0.51        | see variants    | PFRA.110     |
| 8.9        | 14           | 4.4        | 5.8        | 7.6        | 3          | 0.51        | see variants    | PFRA.110.2   |
| 8.9        | 18.9         | 4.4        | 5.8        | 7.6        | 3          | 0.51        | see variants    | PFRA.135     |
| 8.9        | 18.9         | 4.4        | 5.8        | 7.6        | 3          | 0.51        | see variants    | PFRA.135.2   |
| 10.2       | 16.8         | 4.4        | 5.8        | 7.6        | 3          | 0.51        | see variants    | PFRA.160     |
| 10.2       | 16.8         | 4.4        | 5.8        | 7.6        | 3          | 0.51        | see variants    | PFRA.160.2   |
| 12         | 18.4         | 4.4        | 5.8        | 7.6        | 3          | 0.51        | see variants    | PFRA.185     |
| 12         | 18.4         | 4.4        | 5.8        | 7.6        | 3          | 0.51        | see variants    | PFRA.185.2   |
| 12         | 18.3         | 4.4        | 5.8        | 7.6        | 3          | 0.81        | see variants    | PFRA.250     |

| A max [mm] | Insert depth | C min [mm] | C max [mm] | D min [mm] | E max [mm] | Ø Lead [mm] | Terminal     | Order Number |
|------------|--------------|------------|------------|------------|------------|-------------|--------------|--------------|
| 12         | 18.3         | 4.4        | 5.8        | 7.6        | 3          | 0.81        | see variants | PFRA.250.2   |
| 12         | 18.3         | 4.4        | 5.8        | 7.6        | 3          | 0.81        | see variants | PFRA.300     |
| 12         | 18.3         | 4.4        | 5.8        | 7.6        | 3          | 0.81        | see variants | PFRA.300.2   |
| 14.4       | 24.8         | 4.4        | 5.8        | 7.6        | 3          | 0.81        | see variants | PFRA.400     |
| 14.4       | 24.8         | 4.4        | 5.8        | 7.6        | 3          | 0.81        | see variants | PFRA.400.2   |
| 17.4       | 24.9         | 9.5        | 10.9       | 7.6        | 3          | 0.81        | see variants | PFRA.500     |
| 19.3       | 31.9         | 9.5        | 10.9       | 7.6        | 3          | 0.81        | see variants | PFRA.600     |
| 22.1       | 29.8         | 9.5        | 10.9       | 7.6        | 3          | 0.81        | see variants | PFRA.700     |
| 24.2       | 32.9         | 9.5        | 10.9       | 7.6        | 3          | 0.81        | see variants | PFRA.800     |
| 24.2       | 32.9         | 9.5        | 10.9       | 7.6        | 3          | 0.81        | see variants | PFRA.900     |
| 24.2       | 32.9         | 9.5        | 10.9       | 7.6        | 3          | 0.81        | see variants | PFRA.1100    |

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### Thermal Derating Chart Ihold [A]

| -40 °C | -20 °C | 0 °C | 23 °C | 40 °C | 50 °C | 60 °C | 70 °C | 85 °C | Order Number |
|--------|--------|------|-------|-------|-------|-------|-------|-------|--------------|
| 0.16   | 0.14   | 0.12 | 0.1   | 0.08  | 0.07  | 0.06  | 0.05  | 0.04  | PFRA.010     |
| 0.16   | 0.14   | 0.12 | 0.1   | 0.08  | 0.07  | 0.06  | 0.05  | 0.04  | PFRA.010.2   |
| 0.26   | 0.23   | 0.2  | 0.17  | 0.14  | 0.12  | 0.11  | 0.09  | 0.07  | PFRA.017     |
| 0.26   | 0.23   | 0.2  | 0.17  | 0.14  | 0.12  | 0.11  | 0.09  | 0.07  | PFRA.017.2   |
| 0.31   | 0.27   | 0.24 | 0.2   | 0.16  | 0.14  | 0.13  | 0.11  | 0.08  | PFRA.020     |
| 0.31   | 0.27   | 0.24 | 0.2   | 0.16  | 0.14  | 0.13  | 0.11  | 0.08  | PFRA.020.2   |
| 0.39   | 0.34   | 0.3  | 0.25  | 0.2   | 0.18  | 0.16  | 0.14  | 0.1   | PFRA.025     |
| 0.39   | 0.34   | 0.3  | 0.25  | 0.2   | 0.18  | 0.16  | 0.14  | 0.1   | PFRA.025.2   |
| 0.47   | 0.41   | 0.36 | 0.3   | 0.24  | 0.22  | 0.19  | 0.16  | 0.12  | PFRA.030     |
| 0.47   | 0.41   | 0.36 | 0.3   | 0.24  | 0.22  | 0.19  | 0.16  | 0.12  | PFRA.030.2   |
| 0.62   | 0.54   | 0.48 | 0.4   | 0.32  | 0.29  | 0.25  | 0.22  | 0.16  | PFRA.040     |
| 0.62   | 0.54   | 0.48 | 0.4   | 0.32  | 0.29  | 0.25  | 0.22  | 0.16  | PFRA.040.2   |
| 0.78   | 0.68   | 0.6  | 0.5   | 0.41  | 0.36  | 0.32  | 0.27  | 0.2   | PFRA.050     |
| 0.78   | 0.68   | 0.6  | 0.5   | 0.41  | 0.36  | 0.32  | 0.27  | 0.2   | PFRA.050.2   |
| 1.01   | 0.88   | 0.77 | 0.65  | 0.53  | 0.47  | 0.41  | 0.35  | 0.26  | PFRA.065     |
| 1.01   | 0.88   | 0.77 | 0.65  | 0.53  | 0.47  | 0.41  | 0.35  | 0.26  | PFRA.065.2   |
| 1.16   | 1.02   | 0.89 | 0.75  | 0.61  | 0.54  | 0.47  | 0.41  | 0.3   | PFRA.075     |
| 1.16   | 1.02   | 0.89 | 0.75  | 0.61  | 0.54  | 0.47  | 0.41  | 0.3   | PFRA.075.2   |
| 1.4    | 1.22   | 1.07 | 0.9   | 0.73  | 0.65  | 0.57  | 0.49  | 0.36  | PFRA.090     |
| 1.4    | 1.22   | 1.07 | 0.9   | 0.73  | 0.65  | 0.57  | 0.49  | 0.36  | PFRA.090.2   |
| 1.6    | 1.43   | 1.27 | 1.1   | 0.91  | 0.85  | 0.75  | 0.67  | 0.57  | PFRA.110     |
| 1.6    | 1.43   | 1.27 | -     | 0.91  | 0.85  | 0.75  | 0.67  | 0.57  | PFRA.110.2   |
| 1.96   | 1.76   | 1.55 | 1.35  | 1.12  | 1.04  | 0.92  | 0.82  | 0.7   | PFRA.135     |
| 1.96   | 1.76   | 1.55 | 1.35  | 1.12  | 1.04  | 0.92  | 0.82  | 0.7   | PFRA.135.2   |
| 2.32   | 2.08   | 1.84 | 1.6   | 1.33  | 1.32  | 1.09  | 0.98  | 0.83  | PFRA.160     |
| 2.32   | 2.08   | 1.84 | 1.6   | 1.33  | 1.32  | 1.09  | 0.98  | 0.83  | PFRA.160.2   |
| 2.68   | 2.41   | 2.13 | 1.85  | 1.54  | 1.42  | 1.26  | 1.13  | 0.96  | PFRA.185     |
| 2.68   | 2.41   | 2.13 | 1.85  | 1.54  | 1.42  | 1.26  | 1.13  | 0.96  | PFRA.185.2   |
| 3.63   | 3.25   | 2.88 | 2.5   | 2.08  | 1.93  | 1.7   | 1.53  | 1.3   | PFRA.250     |
| 3.63   | 3.25   | 2.88 | 2.5   | 2.08  | 1.93  | 1.7   | 1.53  | 1.3   | PFRA.250.2   |
| 4.35   | 3.9    | 3.45 | 3     | 2.49  | 2.31  | 2.04  | 1.83  | 1.56  | PFRA.300     |
| 4.35   | 3.9    | 3.45 | 3     | 2.49  | 2.31  | 2.04  | 1.83  | 1.56  | PFRA.300.2   |
| 5.8    | 5.2    | 4.6  | 4     | 3.32  | 3.08  | 2.72  | 2.44  | 2.08  | PFRA.400     |
| 5.8    | 5.2    | 4.6  | 4     | 3.32  | 3.08  | 2.72  | 2.44  | 2.08  | PFRA.400.2   |
| 7.25   | 6.5    | 5.75 | 5     | 4.15  | 3.85  | 3.4   | 3.05  | 2.6   | PFRA.500     |
| 8.7    | 7.8    | 6.9  | 6     | 4.98  | 4.62  | 4.08  | 3.66  | 3.12  | PFRA.600     |
| 10.1   | 9.1    | 8.05 | 7     | 5.81  | 5.39  | 4.76  | 4.27  | 3.64  | PFRA.700     |
| 11.6   | 10.4   | 9.2  | 8     | 6.64  | 6.16  | 5.44  | 4.88  | 4.16  | PFRA.800     |

| -40 °C | -20 °C | 0 °C | 23 °C | 40 °C | 50 °C | 60 °C | 70 °C | 85 °C | Order Number |
|--------|--------|------|-------|-------|-------|-------|-------|-------|--------------|
| 13     | 11.7   | 10.3 | 9     | 7.47  | 6.93  | 6.12  | 5.49  | 4.68  | PFRA.900     |
| 16.1   | 14.6   | 13.1 | 11    | 9.4   | 8.8   | 7.8   | 6.9   | 5.2   | PFRA.1100    |

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### Electrical Characteristics at 23 °C

| V max [VDC] | I max [A] | I hold [A] | I trip [A] | R initial min [Ω] | R initial max [Ω] | R 1hour max [Ω] | Max Time to trip [A] | Max Time to Trip [s] | Tripped Power Dissipation [W] | Order Number |
|-------------|-----------|------------|------------|-------------------|-------------------|-----------------|----------------------|----------------------|-------------------------------|--------------|
| 60.0        | 40        | 0.1        | 0.2        | 2.5               | 4.5               | 7.5             | 0.5                  | 4                    | 0.38                          | PFRA.010     |
| 60.0        | 40        | 0.1        | 0.2        | 2.5               | 4.5               | 7.5             | 0.5                  | 4                    | 0.38                          | PFRA.010.2   |
| 60.0        | 40        | 0.17       | 0.34       | 2                 | 3.2               | 8               | 0.85                 | 3                    | 0.48                          | PFRA.017     |
| 60.0        | 40        | 0.17       | 0.34       | 2                 | 3.2               | 8               | 0.85                 | 3                    | 0.48                          | PFRA.017.2   |
| 60.0        | 40        | 0.2        | 0.4        | 1.5               | 2.84              | 4.4             | 1                    | 2.2                  | 0.40                          | PFRA.020     |
| 60.0        | 40        | 0.2        | 0.4        | 1.5               | 2.84              | 4.4             | 1                    | 2.2                  | 0.40                          | PFRA.020.2   |
| 60.0        | 40        | 0.25       | 0.5        | 1                 | 1.95              | 3               | 1.25                 | 2.5                  | 0.45                          | PFRA.025     |
| 60.0        | 40        | 0.25       | 0.5        | 1                 | 1.95              | 3               | 1.25                 | 2.5                  | 0.45                          | PFRA.025.2   |
| 60.0        | 40        | 0.3        | 0.6        | 0.76              | 1.36              | 2.1             | 1.5                  | 3                    | 0.50                          | PFRA.030     |
| 60.0        | 40        | 0.3        | 0.6        | 0.76              | 1.36              | 2.1             | 1.5                  | 3                    | 0.50                          | PFRA.030.2   |
| 60.0        | 40        | 0.4        | 0.8        | 0.52              | 0.86              | 1.29            | 2                    | 3.8                  | 0.55                          | PFRA.040     |
| 60.0        | 40        | 0.4        | 0.8        | 0.52              | 0.86              | 1.29            | 2                    | 3.8                  | 0.55                          | PFRA.040.2   |
| 60.0        | 40        | 0.5        | 1          | 0.41              | 0.77              | 1.17            | 2.5                  | 4                    | 0.75                          | PFRA.050     |
| 60.0        | 40        | 0.5        | 1          | 0.41              | 0.77              | 1.17            | 2.5                  | 4                    | 0.75                          | PFRA.050.2   |
| 60.0        | 40        | 0.65       | 1.3        | 0.27              | 0.48              | 0.72            | 3.25                 | 5.3                  | 0.90                          | PFRA.065     |
| 60.0        | 40        | 0.65       | 1.3        | 0.27              | 0.48              | 0.72            | 3.25                 | 5.3                  | 0.90                          | PFRA.065.2   |
| 60.0        | 40        | 0.75       | 1.5        | 0.18              | 0.4               | 0.6             | 3.75                 | 6.3                  | 0.90                          | PFRA.075     |
| 60.0        | 40        | 0.75       | 1.5        | 0.18              | 0.4               | 0.6             | 3.75                 | 6.3                  | 0.90                          | PFRA.075.2   |
| 60.0        | 40        | 0.9        | 1.8        | 0.14              | 0.31              | 0.47            | 4.5                  | 7.2                  | 1.00                          | PFRA.090     |
| 60.0        | 40        | 0.9        | 1.8        | 0.14              | 0.31              | 0.47            | 4.5                  | 7.2                  | 1.00                          | PFRA.090.2   |
| 30.0        | 40        | 1.1        | 2.2        | 0.1               | 0.18              | 0.27            | 5.5                  | 6.6                  | 0.70                          | PFRA.110     |
| 30.0        | 40        | -          | 2.2        | 0.1               | 0.18              | 0.27            | 5.5                  | 6.6                  | 0.70                          | PFRA.110.2   |
| 30.0        | 40        | 1.35       | 2.7        | 0.065             | 0.115             | 0.17            | 6.75                 | 7.3                  | 0.80                          | PFRA.135     |
| 30.0        | 40        | 1.35       | 2.7        | 0.065             | 0.115             | 0.17            | 6.75                 | 7.3                  | 0.80                          | PFRA.135.2   |
| 30.0        | 40        | 1.6        | 3.2        | 0.055             | 0.105             | 0.15            | 8                    | 8                    | 0.90                          | PFRA.160     |
| 30.0        | 40        | 1.6        | 3.2        | 0.055             | 0.105             | 0.15            | 8                    | 8                    | 0.90                          | PFRA.160.2   |
| 30.0        | 40        | 1.85       | 3.7        | 0.04              | 0.07              | 0.11            | 9.25                 | 8.7                  | 1.00                          | PFRA.185     |
| 30.0        | 40        | 1.85       | 3.7        | 0.04              | 0.07              | 0.11            | 9.25                 | 8.7                  | 1.00                          | PFRA.185.2   |
| 30.0        | 40        | 2.5        | 5          | 0.025             | 0.048             | 0.07            | 12.5                 | 10.3                 | 1.20                          | PFRA.250     |
| 30.0        | 40        | 2.5        | 5          | 0.025             | 0.048             | 0.07            | 12.5                 | 10.3                 | 1.20                          | PFRA.250.2   |
| 30.0        | 40        | 3          | 6          | 0.02              | 0.05              | 0.08            | 15                   | 10.8                 | 2.00                          | PFRA.300     |
| 30.0        | 40        | 3          | 6          | 0.02              | 0.05              | 0.08            | 15                   | 10.8                 | 2.00                          | PFRA.300.2   |
| 30.0        | 40        | 4          | 8          | 0.01              | 0.03              | 0.05            | 20                   | 12.7                 | 2.50                          | PFRA.400     |
| 30.0        | 40        | 4          | 8          | 0.01              | 0.03              | 0.05            | 20                   | 12.7                 | 2.50                          | PFRA.400.2   |
| 30.0        | 40        | 5          | 10         | 0.01              | 0.03              | 0.05            | 25                   | 14.5                 | 3.00                          | PFRA.500     |
| 30.0        | 40        | 6          | 12         | 0.005             | 0.02              | 0.04            | 30                   | 16                   | 3.50                          | PFRA.600     |
| 30.0        | 40        | 7          | 14         | 0.005             | 0.02              | 0.03            | 35                   | 17.5                 | 3.80                          | PFRA.700     |
| 30.0        | 40        | 8          | 16         | 0.005             | 0.02              | 0.03            | 40                   | 18.8                 | 4.00                          | PFRA.800     |
| 30.0        | 40        | 9          | 18         | 0.005             | 0.01              | 0.02            | 45                   | 20                   | 4.20                          | PFRA.900     |
| 16.0        | 100       | 11         | 22         | 0.003             | 0.01              | 0.01            | 40                   | 20                   | 4.50                          | PFRA.1100    |

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|                       |                         |                              |
|-----------------------|-------------------------|------------------------------|
| <b>Packaging Unit</b> | PFRA.xxxx               | Bulk (500 pcs.)              |
|                       | PFRA.010.2 - PFRA.160.2 | Taped 34 cm Reel (3000 pcs.) |
|                       | PFRA.185.2 - PFRA.400.2 | Taped 34 cm Reel (1500 pcs.) |

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