

# ANTREX Electronics

## Electronic Components Sourcing Information

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### Product Reference Information

**Part Number:** 5SF 200-R  
**Manufacturer:** Bel Fuse Inc.  
**Package:** Bulk  
**Availability:** Please confirm with sales

**Product Page:**

<https://antrexco.com/product/details/bel-fuse-inc/5sf-200-r.html>

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### Quality & Trust

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Secure sourcing support for OEM / EMS projects

**Note:**

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

EOL-Last Buy Date is September 30, 2024

The replacement series is the 0651C(0651Cxxxx-xx)/0651P(0650Pxxxx-xx)

# Type 5SF / 5SFP

## Quick-acting Fuse Series (Low Breaking Capacity)

HF Pb 5SF/5SFP Series, 5x20mm Glass Tube Quick-acting Fuse

RoHS Compliant

### Description

5x20mm quick-acting, low breaking capacity, glass tube body cartridge fuse designed, approved and complied with IEC 60127-2, standard sheet 2.

### Features

- Meet IEC standard 60127-2, sheet 2
- Wide operating temperature range
- Bulk and Tape & Reel packing available
- Full compliance with EU Directive 2011/65/EU and amending directive 2015/863
- Halogen Free
- Lead Free

### Applications

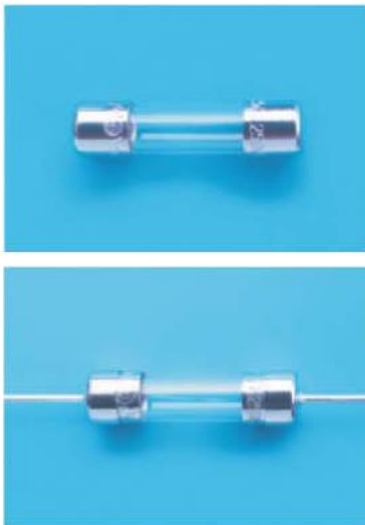
Provide individual protection for components or internal circuits.

- Power supplies
- Battery charger
- Monitor
- Adapter

LEAD FREE =   
HALOGEN FREE = 

### Physical Specifications

|           |                                                                                                                                                                 |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Materials | Body : Glass                                                                                                                                                    |
|           | Cap : Nickel Plated Brass Caps                                                                                                                                  |
|           | Leads : Matte Tin Plated Copper                                                                                                                                 |
| Marking   | On Fuse :                                                                                                                                                       |
|           | "bel", "F", "Current Rating", "L", "250V",                                                                                                                      |
|           | "Appropriate Safety Logos", "✓" ( RoHS compliant )                                                                                                              |
|           | On Label :                                                                                                                                                      |
|           | "bel", "5SF" or "5SFP", "F", "Current Rating", "L", "Voltage Rating", "Interrupting Rating", "Appropriate Safety Logos" and "✓", "RoHS" (China RoHS compliant). |



### Electrical Characteristics (IEC-127-2 STANDARD SHEET 2)

| Rated Current | 1.5 In |      | 2.1 In |     | 2.75 In |     | 4 In |     | 10 In |
|---------------|--------|------|--------|-----|---------|-----|------|-----|-------|
|               | MIN    | MAX  | MIN    | MAX | MIN     | MAX | MIN  | MAX | MAX   |
| 500mA to 6.3A | 1      | 30   | 50     | 2   | 10      | 300 | 20   |     |       |
| 8A to 10A     | 1      | 30   | 50     | 2   | 10      | 400 | 40   |     |       |
|               | hr.    | min. | ms     | sec | ms      | ms  | ms   |     |       |

In clause 9.2, the test voltage for 5SFP ratings from 1A to 6.3A is 63VDC.

### Safety Agency Approvals

| Safety Agency                                                                       | Safety Agency Certificate             | Ampere Rating / Voltage Rating | Ampere Range / Volt @ I.R. ability*                  |
|-------------------------------------------------------------------------------------|---------------------------------------|--------------------------------|------------------------------------------------------|
|  | SE-S-2002382                          | 500mA-10A /250V AC             | 500mA-6.3A/250V AC@35A or 10 In whichever is greater |
|  | 40000509                              |                                |                                                      |
|  | E20624                                |                                | 500mA-10A/250V AC@35A or 10 In whichever is greater  |
|  | LR39772                               |                                |                                                      |
|  | Self-declaration No: 2020970207000128 |                                | 500mA-6.3A/250V AC@35A or 10 In whichever is greater |
| *I.R.= Interrupting Rating = Short Circuit Rating(Amps)                             |                                       |                                |                                                      |

# Type 5SF / 5SFP

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## Environmental Specifications

|                           |                                                                                                  |
|---------------------------|--------------------------------------------------------------------------------------------------|
| Shock Resistance          | MIL-STD-202G, Method 213B, Test Condition 1 (100 G's peak for 6 milliseconds; Sawtooth waveform) |
| Vibration Resistance      | MIL-STD-202G, Method 201A (10-55 Hz, 0.06 inch, total excursion).                                |
| Salt Spray Resistance     | MIL-STD-202G, Method 101E, Test Condition B (48 hrs).                                            |
| Insulation Resistance     | MIL-STD-202G, Method 302, Test Condition B (After Opening) 100,000 ohms minimum.                 |
| Solderability             | MIL-STD-202G, Method 208H                                                                        |
| Resistance to solder Heat | MIL-STD-202G, Method 210F, Test Condition B (260+/-5°C, 10+/-1 sec)                              |
| Thermal Shock             | MIL-STD-202G, Method 107G, Test Condition B (-65°C to +125°C).                                   |
| Operating Temperature     | -55°C to +125°C                                                                                  |
| Terminal Strength         | IEC-68-2-21                                                                                      |

## Electrical Specifications

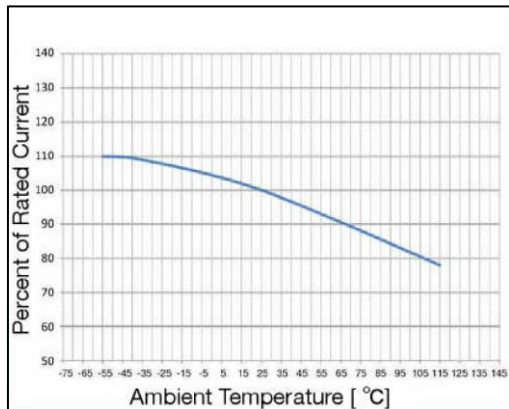
| Catalog Number | Ampere Rating | Typical Cold Resistance (ohms) | Volt-drop @100%In (Volt) max. | Voltage and Interrupting Ratings                                                        | Melting I <sup>2</sup> T <10 mSec (A <sup>2</sup> Sec) | Melting I <sup>2</sup> T @10 In (A <sup>2</sup> Sec) | Maximum Power Dissipation (W) | Agency Approvals                                                                     |                                                                                      |                                                                                      |                                                                                      |                                                                                      |
|----------------|---------------|--------------------------------|-------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|                |               |                                |                               |                                                                                         |                                                        |                                                      |                               |  |  |  |  |  |
| 5SF(P) 500-R   | 500mA         | 0.31                           | 0.27                          | See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings | 0.40                                                   | 0.40                                                 | 0.80                          | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    |
| 5SF(P) 630-R   | 630mA         | 0.152                          | 0.13                          |                                                                                         | 0.64                                                   | 0.65                                                 | 0.28                          | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    |
| 5SF(P) 800-R   | 800mA         | 0.112                          | 0.13                          |                                                                                         | 1.0                                                    | 1.0                                                  | 0.32                          | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    |
| 5SF(P) 1-R     | 1A            | 0.088                          | 0.13                          |                                                                                         | 1.6                                                    | 1.7                                                  | 0.40                          | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    |
| 5SF(P) 1.25-R  | 1.25A         | 0.065                          | 0.12                          |                                                                                         | 2.5                                                    | 2.7                                                  | 0.45                          | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    |
| 5SF(P) 1.6-R   | 1.6A          | 0.050                          | 0.11                          |                                                                                         | 4.0                                                    | 4.4                                                  | 0.75                          | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    |
| 5SF(P) 2-R     | 2A            | 0.034                          | 0.10                          |                                                                                         | 6                                                      | 7                                                    | 0.65                          | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    |
| 5SF(P) 2.5-R   | 2.5A          | 0.026                          | 0.10                          |                                                                                         | 10                                                     | 11                                                   | 0.85                          | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    |
| 5SF(P) 3.15-R  | 3.15A         | 0.022                          | 0.10                          |                                                                                         | 16                                                     | 18                                                   | 1.20                          | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    |
| 5SF(P) 4-R     | 4A            | 0.017                          | 0.10                          |                                                                                         | 26                                                     | 30                                                   | 1.43                          | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    |
| 5SF(P) 5-R     | 5A            | 0.013                          | 0.10                          |                                                                                         | 41                                                     | 48                                                   | 1.89                          | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    |
| 5SF(P) 6.3-R   | 6.3A          | 0.010                          | 0.10                          |                                                                                         | 65                                                     | 74                                                   | 2.50                          | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    | Y                                                                                    |
| 5SF(P) 8-R     | 8A            | 0.007                          | 0.08                          |                                                                                         | 103                                                    | 119                                                  | 3.30                          | Y                                                                                    | Y                                                                                    |                                                                                      |                                                                                      |                                                                                      |
| 5SF(P) 10-R    | 10A           | 0.006                          | 0.08                          |                                                                                         | 163                                                    | 192                                                  | 4.00                          | Y                                                                                    | Y                                                                                    |                                                                                      |                                                                                      |                                                                                      |

Consult manufacturer for other ratings

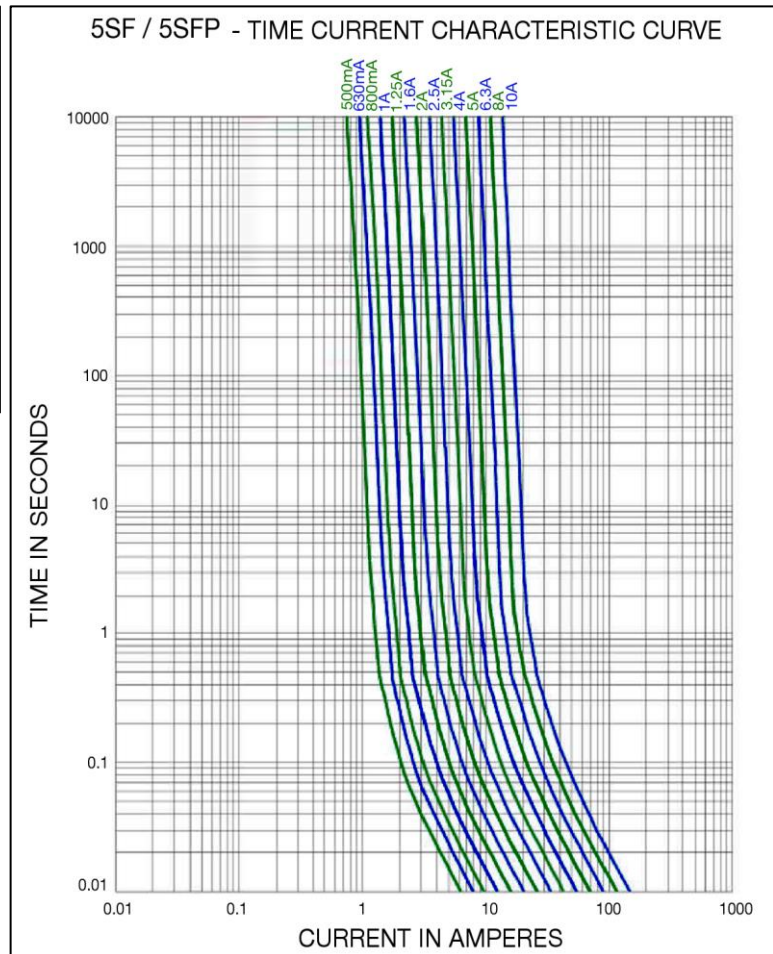
## Type 5SF / 5SFP

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## Temperature Derating Curve

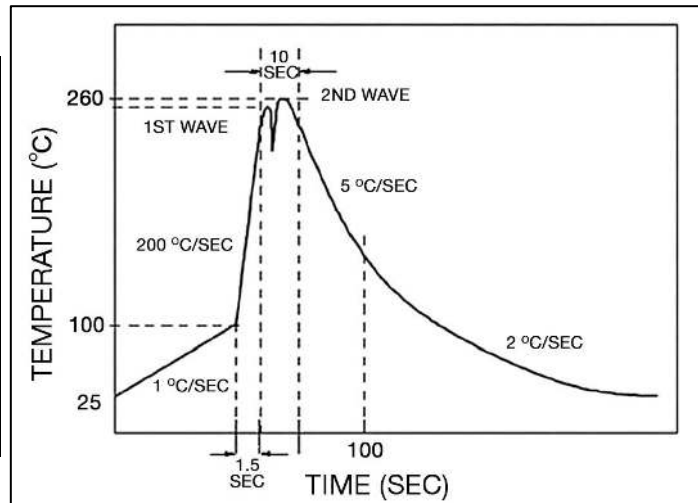


## Average Time Current Curve



## Soldering Parameters

| Lead-free Wave Soldering Profile                   |                                              |
|----------------------------------------------------|----------------------------------------------|
| Wave Soldering Parameter                           |                                              |
| Average ramp-up rate                               | 200°C / second                               |
| Heating rate during preheat                        | typical 1 - 2°C / second<br>Max 4°C / second |
| Final preheat temperature                          | within 125°C of soldering temperature        |
| Peak temperature T <sub>p</sub>                    | 260°C                                        |
| Time within +0°C / -5°C of actual peak temperature | 10 seconds                                   |
| Ramp-down rate                                     | 5°C / second max.                            |



# Type 5SF / 5SFP

Fuse FGNO Explanation  
0651 R [XXXX] -XX  
[XXXX]=Ampere Rating; XX=See Ordering Information as below

| Fraction | Decimal | Milliamps | Bel FGNO[XXXX] |
|----------|---------|-----------|----------------|
| 1/2      | .500    | 500       | 0500           |
|          | .630    | 630       | 0630           |
| 8/10     | .800    | 800       | 0800           |

| Fraction | Decimal | Amps | Bel FGNO[XXXX] |
|----------|---------|------|----------------|
|          | 1.0     | 1    | 1000           |
| 1-1/4    | 1.25    | 1.25 | 1250           |
|          | 1.60    | 1.6  | 1600           |
|          | 2.0     | 2    | 2000           |
| 2-1/2    | 2.5     | 2.5  | 2500           |
|          | 3.15    | 3.15 | 3150           |
|          | 4.0     | 4    | 4000           |
|          | 5.0     | 5    | 5000           |
|          | 6.3     | 6.3  | 6300           |
|          | 8.0     | 8    | 8000           |
|          |         | 10   | 9100           |

## Mechanical Dimensions



\*Ratings 6.3A and less have 0.032"±0.002" diameter lead;  
\*Ratings 8A and above have 0.039"±0.002" diameter lead.

## Ordering Information

0651 R XXXX - X X

FUSE TYPE  
0651RXXXX-1X = 5SF/5SFP Series

R = RoHS Compliant

AMPERE RATING  
Refer to fuse FGNO explanation table

SAFETY STANDARD CODE  
1 = IEC, 250V, 500mA - 10A

QUANTITY & PACKAGING CODE  
1 = Cartridge version, 1K / box  
3 = Pigtail version, Bulk, 500 / box  
6 = Pigtail version, Tape and Reel, 1500 / reel

## Packaging

| Packaging Option    | Packaging Specification | Quantity | Packaging Code | Inside Tape Spacing |
|---------------------|-------------------------|----------|----------------|---------------------|
| Bulk                | N/A                     | 1000     | 11             | N/A                 |
| Bulk (Pigtail Type) | N/A                     | 500      | 13             | N/A                 |
| Tape & Reel         | EIA-296-F               | 1500     | 16             | 10mm Pitch and 63mm |