Effective February 2017 Supersedes November 2011

# BUSSMANN SERIES

# **S505** 5 mm x 20 mm, Ferrule time-delay, ceramic tube fuses



### **Product features**

- Time-delay high breaking capacity
- Designed to IEC 60127-2
- 0.5 A to 12 A current ratings
- Ceramic tube, nickel plated brass end cap construction
- Halogen free, RoHS compliant, lead free
- Reference <u>S505SC data sheet (10132)</u> for available axial lead options

# Applications

Primary circuit protection:

- LED and general lighting
- LED/LCD televisions
- · Appliances and white goods
- Printers and peripherals
- Test equipment
- Power supplies

#### Agency information

- cURus Recognition file number: E19180, Guide JDYX2/JDYX8
- CSA file: 53787
- SEMKO file: 816547, 1119019
- VDE file: 40014091, 40024352, 40023140
- BSI file: KM55676
- IMQ file: CA03 00100, CA03 00529
- PSE: JET 1641-31003-1009, 1641-31003-1010, 1641-31003-1011, 1641-31003-1012, 1641-31003-2001, 1641-31003-2002
- CCC file: 2002010207011295, CQC
  11012061930
- KC-Mark file: SU5011-4012A, SU5011-5004A

#### Ordering

• Use ordering code (see page 4 for details)

#### **Packaging prefixes**

- BK- (100 parts in a cardboard carton)
- BK1- (1,000 parts in a bag)



# **Electrical characteristics**

| <u>I,</u>    | 1.51<br>min<br>minute | 2.11<br>max<br>minute | 2.751 <sub>n</sub><br>min<br>ms | max<br>s | 4I<br>min<br>ms | max<br>s | 10l<br>min<br>ms | max<br>ms |
|--------------|-----------------------|-----------------------|---------------------------------|----------|-----------------|----------|------------------|-----------|
| < 1 A        | 60                    | 30                    | 250                             | 80       | 50              | 5        | 5                | 150       |
| 1 A - 3.15 A | 60                    | 30                    | 750                             | 80       | 95              | 5        | 10               | 150       |
| 4 A - 6.3 A  | 60                    | 30                    | 750                             | 80       | 150             | 5        | 10               | 150       |
| 8 A - 12 A   | 30                    | 30                    | 750                             | 80       | 150             | 5        | 10               | 150       |

#### **Product specifications**

| Current<br>rating<br>(A) | Voltage<br>rating AC   | Interrupting<br>rating at rated AC<br>voltage <sup>1</sup> (50 Hz)<br>(A <sub>AC</sub> )   | Typical<br>DC cold<br>resistance² (Ω)   | Typical<br>pre-arcing <sup>3</sup><br>I²t (A²s)   | Typical<br>voltage drop⁴<br>(mV)  | IMQ  | VDE   | SEMKO  | cURus   | CCC/<br>CQC  | PSE-<br>JET  | CSA  | KC  | BSI   |
|--------------------------|--|--|---|---|---|--|---|--|---|--|--|--|---|---|
| 0.5                      | 250  | 1500   | 0.5070  | 0.188*  | 295   | Х  | Х   | Х  | Х   | X <sup>5</sup>   |  | Х  |   | Х   |
| 0.8                      | 250  | 1500   | 0.2370  | 0.632*  | 189   | Х  | Х   | Х  | Х   | X <sup>5</sup>   |  | Х  |   | Х   |
| 1.0                      | 250  | 1500   | 0.1401  | 1.28  | 152.5   | Х  | Х   | Х  | Х   | Х  | Х  | Х  | Х   | Х   |
| 1.25                     | 250  | 1500   | 0.1075  | 2.22  | 150   | Х  | Х   | Х  | Х   | Х  | Х  | Х  | Х   | Х   |
| 1.6                      | 250  | 1500   | 0.0700  | 6.78  | 125   | Х  | Х   | Х  | Х   | Х  | Х  | Х  | Х   | Х   |
| 2.0                      | 250  | 1500   | 0.0545  | 9.6   | 118.5   | Х  | Х   | Х  | Х   | Х  | Х  | Х  | Х   | Х   |
| 2.5                      | 250  | 1500   | 0.0395  | 16.6  | 115   | Х  | Х   | Х  | Х   | Х  | Х  | Х  | Х   | Х   |
| 3.15                     | 250  | 1500   | 0.0305  | 36.6  | 102.5   | Х  | Х   | Х  | Х   | Х  | Х  | Х  | Х   | Х   |
| 4.0                      | 250  | 1500   | 0.0185  | 38.45*  | 86.5  | Х  | Х   | Х  | Х   | Х  | Х  | Х  | Х   | Х   |
| 5.0                      | 250  | 1500   | 0.0131  | 71.30*  | 77.5  | Х  | Х   | Х  | Х   | Х  | Х  | Х  | Х   | Х   |
| 6.3                      | 250  | 1500   | 0.0102  | 111*  | 75  | Х  | Х   | Х  | Х   | Х  | Х  | Х  | Х   | Х   |
| 8.0                      | 250  | 1500   | 0.0077  | 228*  | 73  | Х  | Х   | Х  | Х   | X <sup>5</sup>   | Х  | Х  | Х   | Х   |
| 10                       | 250  | 1500   | 0.0061  | 397   | 72  | Х  | Х   | Х  | Х   | X <sup>5</sup>   | Х  | Х  | Х   | Х   |
| 12                       | 250  | 1000   | 0.0053  | 713.7*  | 77  |  | Х   |  | Х   |  |  |  |   |   |
|                          | rating        0.5        0.8        1.0        1.25        1.6        2.0        2.5        3.15        4.0        5.0        6.3        8.0        10 | rating      Voltage rating AC        0.5      250        0.8      250        1.0      250        1.25      250        1.6      250        2.0      250        1.6      250        2.0      250        3.15      250        4.0      250        5.0      250        6.3      250        8.0      250        10      250 | Current<br>rating<br>(A)      Voltage<br>value<br>rating AC      rating at rated AC<br>voltage' (50 Hz)        0.5      250      1500        0.8      250      1500        1.0      250      1500        1.25      250      1500        1.6      250      1500        2.0      250      1500        2.16      250      1500        2.5      250      1500        2.5      250      1500        3.15      250      1500        4.0      250      1500        5.0      250      1500        6.3      250      1500        8.0      250      1500        10      250      1500 | Current<br>rating<br>(A)Voltage<br>Voltage1 (50 Hz)Typical<br>pesistance2 (Ω)0.525015000.50700.825015000.23701.025015000.14011.2525015000.14011.625015000.07002.025015000.07002.1625015000.07002.025015000.03953.1525015000.03054.025015000.01855.025015000.01028.025015000.00771025015000.0061 | Current<br>rating<br>(A)      Voltage<br>rating AC      rating at rated AC<br>voltage' (50 Hz)<br>(A <sub>Ac</sub> )      Typical<br>DC cold<br>resistance² (Ω)      Typical<br>pre-arcing <sup>3</sup> 0.5      250      1500      0.5070      0.188*        0.8      250      1500      0.2370      0.632*        1.0      250      1500      0.1401      1.28        1.25      250      1500      0.0700      6.78        2.0      250      1500      0.0700      6.78        1.6      250      1500      0.0545      9.6        2.0      250      1500      0.0305      36.6        3.15      250      1500      0.0185      38.45*        5.0      250      1500      0.0131      71.30*        6.3      250      1500      0.0102      111*        8.0      250      1500      0.0077      228*        10      250      1500      0.0061      397 | Current<br>rating<br>(A)      Voltage<br>rating AC      rating at rated AC<br>voltage' (50 Hz)<br>(A <sub>Ac</sub> )      Typical<br>DC cold<br>resistance <sup>2</sup> (Ω)      Typical<br>pre-arcing<br>ht (A*s)      Typical<br>voltage drop*<br>(mV)        0.5      250      1500      0.5070      0.188*      295        0.8      250      1500      0.2370      0.632*      189        1.0      250      1500      0.1401      1.28      152.5        1.25      250      1500      0.1075      2.22      150        1.6      250      1500      0.0700      6.78      125        2.0      250      1500      0.0545      9.6      118.5        2.5      250      1500      0.0395      16.6      115        3.15      250      1500      0.0185      38.45*      86.5        5.0      250      1500      0.0131      71.30*      77.5        6.3      250      1500      0.0077      228*      73        10      250      1500      0.0061      397      72 | Current<br>rating<br>(A)      Voltage<br>voltage' (50 Hz)<br>voltage' (50 Hz)      Typical<br>pre-arcs)<br>resistance' (s)      Typical<br>pre-arcs)<br>resistance' (s)      Typical<br>pre-arcs)      Typical<br>voltage drop'<br>(mV)      Typical<br>poltage' (s)        0.5      250      1500      0.5070      0.188*      295      X        0.8      250      1500      0.2370      0.632*      189      X        1.0      250      1500      0.1401      1.28      152.5      X        1.25      250      1500      0.1075      2.22      150      X        1.6      250      1500      0.0700      6.78      125      X        2.0      250      1500      0.0545      9.6      118.5      X        2.16      250      1500      0.0395      16.6      115      X        3.15      250      1500      0.0185      38.45*      86.5      X        4.0      250      1500      0.0102      111*      75      X        6.3      250      1500      0.0077      228*      73      X | Current<br>rating<br>(A)      Voltage<br>voltage' (50 Hz)<br>voltage' (50 Hz)<br>voltage | Current<br>rating at rated AC<br>voltage' (50 Hz)<br>rating ACTypical<br>DC cold<br>resistance² (s)Typical<br>pre-arcing?Typical<br>voltage dropTypical<br>voltage drop <td>Current<br/>(A)Voltage<br/>rating ACrating at rated AC<br/>robtage' (50 Hz)Typical<br/>resistance² (c)Typical<br/>pre-arcing)Typical<br/>voltage drop'<br/>voltage drop'IMOVDESEMKOcURus0.525015000.50700.188*295XXXXX0.825015000.23700.632*189XXXXX1.025015000.14011.28152.5XXXXX1.2525015000.10752.22150XXXXX1.625015000.07006.78125XXXXX2.025015000.05459.6118.5XXXXX2.1525015000.039516.6115XXXXX2.1625015000.030536.6102.5XXXXX3.1525015000.018538.45*86.5XXXXX4.025015000.012111*75.5XXXXX5.025015000.0077228*73XXXXXX6.325015000.006139772XXXXXX</td> <td>Current<br/>(A)      voltage<br/>voltage' (50 Hz)      Typical<br/>Decide<br/>resistance<sup>2</sup> (2)      Typical<br/>pre-arcing<br/>(4 K<sup>3</sup>s)      Typical<br/>voltage droft      Typical<br/>voltage droft<!--</td--><td>Current<br/>(A)Voltage<br/>voltage (50 Hz)Typical<br/>DC cold<br/>DC cold<br/>PC existance2 (2)Typical<br/>pre-arcing<br/>PC (4x)Typical<br/>voltage drop<br/>(MX)Typical<br/>(MX)VDESEMKO<br/>cURusCCC/<br/>cURusSESE0.525015000.50700.188*295XXXXXX50.825015000.23700.632*189XXXXXX5X51.025015000.14011.28152.5XXXXXXXX1.2525015000.1752.22150XXXXXXXXX1.625015000.07006.78125XXX&lt;</td><td>rating<br/>rating Avoltage' (50 Hz)<br/>voltage' (50 Hz)voltage' (s)<br/>resistance' (s)voltage or<br/>voltage or<br>voltage or<br/>voltage or</br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></td><td>rating<br/>(A)voltage' (50 HZ)volta<br/>voltage' (50 HZ)volta<br/>voltage (50 HZ)volta<br/>voltage (50 HZ)volta<br/>voltage (50 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</td <td>Current<br/>(A)Voltage<br/>voltage (50 Hz)Typical<br/>DC cold<br/>DC cold<br/>PC existance2 (2)Typical<br/>pre-arcing<br/>PC (4x)Typical<br/>voltage drop<br/>(MX)Typical<br/>(MX)VDESEMKO<br/>cURusCCC/<br/>cURusSESE0.525015000.50700.188*295XXXXXX50.825015000.23700.632*189XXXXXX5X51.025015000.14011.28152.5XXXXXXXX1.2525015000.1752.22150XXXXXXXXX1.625015000.07006.78125XXX&lt;</td> <td>rating<br/>rating Avoltage' (50 Hz)<br/>voltage' (50 Hz)voltage' (s)<br/>resistance' (s)voltage or<br/>voltage or<br>voltage or<br/>voltage or</br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></td> <td>rating<br/>(A)voltage' (50 HZ)volta<br/>voltage' (50 HZ)volta<br/>voltage (50 HZ)volta<br/>voltage (50 HZ)volta<br/>voltage (50 HZ)volta<br/>voltage (50 HZ)volta<br/>voltage (50 HZ)volta<br>voltage (50 HZ)volta<br/>voltage (50 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1 Interrupting ratings 500 mA to 10 A measured at 70% to 80% PF on AC. 12 A measured at 100% PF on AC.

2 Typical DC cold resistance measured at <10% of rated current at an ambient temperature of 20° C (reference only)

Typical pre-arcing (I<sup>p</sup>t) measured at listed interrupting rating and voltage.
 \*= measured at 10 times rated current under DC.

4~ Typical voltage drop measured at 20° C at rated current.

5 CQC approval only

6 Part number definition: S505-xxx-R

S505= Product code and size xxx= Ampere rating

-R= Rohs compliant

# **Dimensions (mm)**



# Temperature derating curve



#### Time vs. current curve



### **Environmental data**

Operating temperature: - 55 °C to 125 °C (with derating)

#### **Ordering codes**

The ordering code is the part number replacing the "." with a "-" plus adding the packaging suffix.

#### **Packaging prefixes**

- BK- (100 parts in a cardboard carton)
- BK1- (1,000 parts in a bag)

Powerina Business Worldwide

| Ordering codes |  |  |  |  |  |  |
|----------------|--|--|--|--|--|--|
| -BK option     | -BK1 option  |  |  |  |  |  |
| BK-S505-500-R  | BK1-S505-500-R   |  |  |  |  |  |
| BK-S505-800-R  | BK1-S505-800-R   |  |  |  |  |  |
| BK-S505-1-R    | BK1-S505-1-R   |  |  |  |  |  |
| BK-S505-1-25-R | BK1-S505-1-25-R  |  |  |  |  |  |
| BK-S505-1-6-R  | BK1-S505-1-6-R   |  |  |  |  |  |
| BK-S505-2-R    | BK1-S505-2-R   |  |  |  |  |  |
| BK-S505-2-5-R  | BK1-S505-2-5-R   |  |  |  |  |  |
| BK-S505-3-15-R | BK1-S505-3-15-R  |  |  |  |  |  |
| BK-S505-4-R    | BK1-S505-4-R   |  |  |  |  |  |
| BK-S505-5-R    | BK1-S505-5-R   |  |  |  |  |  |
| BK-S505-6-3-R  | BK1-S505-6-3-R   |  |  |  |  |  |
| BK-S505-8-R    | BK1-S505-8-R   |  |  |  |  |  |
| BK-S505-10-R   | BK1-S505-10-R  |  |  |  |  |  |
| BK-S505-12-R   | BK1-S505-12-R  |  |  |  |  |  |
|                | -BK option        BK-S505-500-R        BK-S505-800-R        BK-S505-1-R        BK-S505-1-25-R        BK-S505-1-6-R        BK-S505-2-R        BK-S505-2-5-R        BK-S505-3-15-R        BK-S505-4-R        BK-S505-6-3-R        BK-S505-8-R        BK-S505-8-R        BK-S505-10-R |  |  |  |  |  |

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