

## ST Series Inrush Current Limiters



### Description

Littelfuse inrush current limiters (power thermistors) are specially formulated and processed NTC thermistors suitable for suppressing high inrush currents in switching power supplies and other applications where the high initial starting currents are undesirable. Their unique design enables them to handle extremely high current and voltage levels. In a typical power supply application, the inrush current limiting power thermistor is used in series with the filter capacitors. Upon application of the initial voltage, the device, due to its relatively high resistance, limits the current flow to an acceptable level until the capacitors are charged. Thereafter, the device decreases in resistance substantially to a level where the voltage drop across it is negligible.

### Dimensions



Dimensions shown in inches.

| A             | B             | C              | D              |
|---------------|---------------|----------------|----------------|
| 0.310"<br>Max | 0.700"<br>Min | See Dim<br>"D" | See Dim<br>"T" |

### Part Numbering System



**Note:** Not all combinations of Part Number codes are available. Contact Littelfuse for details.

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### Specifications

| Part Number | Resistance Ohms @25°C | *Resistance Tol. ± % @ 25°C | I <sub>max</sub> Max. Steady State Current I <sub>MAX</sub> (A) | Nominal Resistance @ Max. Current, R <sub>I</sub> max (Ohms) | R <sub>I</sub> max Resis. @ Max. Current Ohms | Lead Diameter Nominal (Inch) |
|-------------|-----------------------|-----------------------------|---|--|---|------------------------------|
| ST0R713B    | 0.7                   | 25                          | 13  | 0.025  | 0.025   | 0.04                         |
| ST1R005B    | 1                     | 30                          | 5   | 0.040  | 0.09  | 0.024                        |
| ST1R020B    | 1                     | 15                          | 20  | 0.030  | 0.015   | 0.04                         |
| ST1R030B    | 1                     | 25                          | 30  | 0.050  | 0.015   | 0.04                         |
| ST1R508B    | 1.5                   | 20                          | 8   | 0.040  | 0.6   | 0.032                        |
| ST2R018B    | 2                     | 20                          | 18  | 0.135  | 0.03  | 0.04                         |
| ST2R503B    | 2.5                   | 20                          | 3   | 0.070  | 0.15  | 0.032                        |
| ST2R507B    | 2.5                   | 20                          | 7   | 0.070  | 0.05  | 0.032                        |
| ST2R509B    | 2.5                   | 20                          | 9   | 0.060  | 0.04  | 0.032                        |
| ST2R510B    | 2.5                   | 20                          | 10  | 0.200  | 0.04  | 0.04                         |
| ST10001B    | 10                    | 20                          | 1   | 0.090  | 0.65  | 0.024                        |
| ST10003B    | 10                    | 20                          | 3   | 0.015  | 0.2   | 0.032                        |
| ST10005B    | 10                    | 20                          | 5   | 0.015  | 0.2   | 0.04                         |
| ST10006B    | 10                    | 20                          | 6   | 0.600  | 0.15  | 0.04                         |
| ST10010B    | 10                    | 20                          | 10  | 0.030  | 0.1   | 0.04                         |
| ST12001B    | 12                    | 20                          | 1   | 0.150  | 1.19  | 0.032                        |
| ST15004C    | 15                    | 20                          | 4   | 0.050  | 0.25  | 0.032                        |
| ST16002D    | 16                    | 20                          | 2   | 0.040  | 0.47  | 0.032                        |
| ST20001C    | 20                    | 20                          | 0.3   | 0.110  | 1   | 0.024                        |
| ST20002B    | 20                    | 20                          | 1.75  | 0.400  | 0.6   | 0.032                        |
| ST25002C    | 25                    | 20                          | 2   | 0.100  | 0.64  | 0.032                        |
| ST20100B    | 200                   | 20                          | 0.1   | 0.170  | 6.3   | 0.018                        |

\*Resistance tolerances of ± 1%, 2%, and 5% are available upon request

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| Part Number | Resistance Ohms @25°C | *Resistance Tol. ± % @ 25°C | I <sub>max</sub> Max. Steady State Current I <sub>MAX</sub> (A) | Nominal Resistance @ Max. Current, R <sub>lmax</sub> (Ohms) | R <sub>lmax</sub> Resis. @ Max. Current Ohms | Temperature Coefficient (% / °C) @ 25°C | Lead Diameter Nominal (Inch) | Temperature Rating (°C) |
|-------------|-----------------------|-----------------------------|---|---|--|---|------------------------------|-------------------------|
| ST2R515B    | 0.7                   | 25                          | 13  | 0.500   | 0.025  | –                                       | 0.04                         | –                       |
| ST4R005B    | 1                     | 30                          | 5   | 0.250   | 0.09   | –                                       | 0.024                        | –                       |
| ST5R002B    | 1                     | 15                          | 20  | 0.470   | 0.015  | –                                       | 0.04                         | –                       |
| ST5R004B    | 1                     | 25                          | 30  | 1.000   | 0.015  | –                                       | 0.04                         | –                       |
| ST5R005B    | 1.5                   | 20                          | 8   | 0.600   | 0.6  | –                                       | 0.032                        | –                       |
| ST7R004B    | 2                     | 20                          | 18  | 1.075   | 0.03   | –                                       | 0.04                         | –                       |
| ST8R001B    | 2.5                   | 20                          | 3   | 0.740   | 0.15   | –                                       | 0.032                        | –                       |
| ST8R003B    | 2.5                   | 20                          | 7   | 1.485   | 0.05   | –                                       | 0.032                        | –                       |
| ST8R006B    | 2.5                   | 20                          | 9   | –   | 0.04   | -4.4                                    | 0.032                        | +300 (Max)              |
| ST30002B    | 10                    | 20                          | 1   | 0.280   | 0.65   | –                                       | 0.024                        | –                       |
| ST30003B    | 10                    | 20                          | 3   | 0.135   | 0.2  | –                                       | 0.032                        | –                       |
| ST33001B    | 10                    | 20                          | 5   | 0.650   | 0.2  | –                                       | 0.04                         | –                       |
| ST33001C    | 10                    | 20                          | 6   | 0.200   | 0.15   | –                                       | 0.04                         | –                       |
| ST33001D    | 10                    | 20                          | 10  | 0.200   | 0.1  | –                                       | 0.04                         | –                       |
| ST3R008B    | 12                    | 20                          | 1   | 0.150   | 1.19   | –                                       | 0.032                        | –                       |
| ST3R017B    | 15                    | 20                          | 4   | 0.100   | 0.25   | –                                       | 0.032                        | –                       |
| ST40002B    | 16                    | 20                          | 2   | 1.190   | 0.47   | –                                       | 0.032                        | –                       |
| ST5R006B    | 20                    | 20                          | 0.3   | 6.300   | 1  | –                                       | 0.024                        | –                       |
| ST5R007B    | 20                    | 20                          | 1.75  | 0.640   | 0.6  | –                                       | 0.032                        | –                       |
| ST5R014B    | 25                    | 20                          | 2   | 0.460   | 0.64   | –                                       | 0.032                        | –                       |
| ST5R008B    | 200                   | 20                          | 0.1   | 0.700   | 6.3  | –                                       | 0.018                        | –                       |

\* Resistance tolerances of ± 1%, 2%, and 5% are available upon request

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