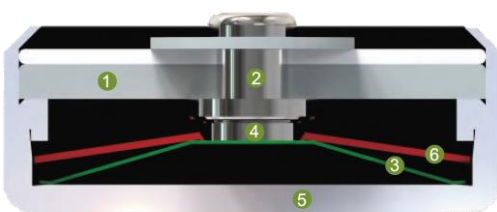


ST01 Series Thermal Protectors



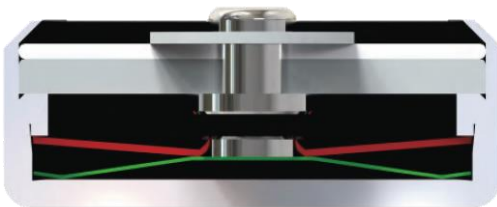
Main parts

- | | |
|------------------------------|-----------------------|
| 1) Ceramic cover plate | 4) movable contact |
| 2) stationary silver contact | 5) Conductive housing |
| 3) spring disc | 6) bimetal disc |



Construction

Stationary silver contact are riveted with ceramic cover plate. The movable contact are welded to the spring disc, which is in the shape of a cross, and the four feet are connected to the bottom of the housing. The inner hole of the bimetal disc is placed on the spring disc through the movable contact. The current pass through the stationary silver contact to the movable contact, and then connects the conductive housing through spring discs to form a loop.



Function

When the circuit is normal, the movable contact is in close contact with the stationary silver contact under the pre-pressure of the spring disc. When the rated operating temperature is reached, the bimetal disc is deformed by heat, snaps into its inverted position and pushes the spring disc downwards. The contact is abruptly opened and the temperature rise of the device to be protected is disrupted. After the circuit is disconnected, the ambient temperature begins to fall. When it reaches the defined reset temperature, the bimetal disc and the spring disc snaps back into its start position, the movable contact and the stationary silver contact will close again, and the circuit returns to the conduction state.

ST01-U1

NC or NO | reset automatically | with connector cables | insulation: Mylar-Nomex

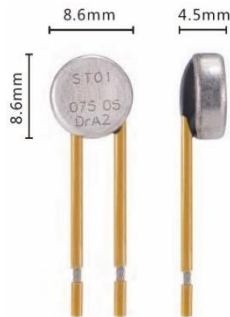


Nominal switching temp. (NST) in 5K	60°C...200°C
Tolerance (standard)	±5K
Reset temp. tolerance	≥35°C (≤ 80°C NST) -35K±15K (≥ 85°C ≤ 180°C NST) -65K±15K (≥ 185°C ≤ 200°C NST)
Thickness	4.3mm
Diameter	9.5mm
Length of the insulation cap	15.0mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I + II
Pressure resistance to the switch housing	300N
Standard connection	0.33 mm ² / AWG22
Insulation voltage	2.0kV
Recognized standards	UL/TUV/CQC/CB

Operating voltage range AC/DC	up until 500 V AC / 14 V DC
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	2.5A / 10,000
Max. current AC cos φ = 1.0 /cycles	6.3 A / 3,000
Rated current AC cos φ = 0.6 /cycles	7.5 A / 300
	1.6A / 10,000
Rated voltage DC	12.0 V
Max. switching current DC /cycles	40.0 A / 5,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 ... 60 Hz	100 m/s ²

ST01-U2

NC or NO | reset automatically | with connector cables | without isolation cap

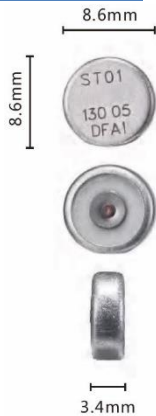


Nominal switching temp. (NST) in 5K	60°C...250°C
Tolerance (standard)	(60-200°C) ±5K (205-250°C) ±10K
Reset temp. tolerance	≥35°C (≤ 80°C NST) -35K±15K (≥ 85°C ≤ 180°C NST) -65K±15K (≥ 185°C ≤ 200°C NST) 120°C±15K (>200°C NST)
Thickness	4.5mm
Diameter	8.6mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I
Pressure resistance to the switch housing	200N
Standard connection	0.33 mm ² / AWG22
Insulation voltage	The housing is not isolated
Recognized standards	UL/TUV/CQC/CB

Operating voltage range AC/DC	up until 500 V AC / 14 V DC
(60 ... 200°C) Operating temperature products	
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	2.5A / 10,000
Max. current AC cos φ = 1.0 /cycles	6.3 A / 3,000
Rated current AC cos φ = 0.6 /cycles	7.5 A / 300
	1.6A / 10,000
Rated voltage DC	12.0 V
Max. switching current DC /cycles	40.0 A / 5,000
(205 ... 250°C) Operating temperature products	
Rated current AC cos φ = 1.0 /cycles	2.5 A / 1,000
Rated current AC cos φ = 0.6 /cycles	1.6 A / 1,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 ... 60 Hz	100 m/s ²

ST01-U3

NC or NO | reset automatically | without cables | without isolation cap



Nominal switching temp. (NST) in 5K	60°C...250°C
Tolerance (standard)	(60-200°C) ±5K (205-250°C) ±10K
Reset temp. tolerance	≥35°C (≤ 80°C NST) -35K±15K (≥ 85°C ≤ 180°C NST) -65K±15K (≥ 185°C ≤ 200°C NST) 120°C±15K (>200°C NST)
Thickness	3.4mm
Diameter	8.6mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I
Pressure resistance to the switch housing	200N
Standard connection	Without cables
Insulation voltage	The housing is not isolated
Recognized standards	UL/TUV/CQC/CB

Operating voltage range AC/DC	up until 500 V AC / 14 V DC
(60 ... 200°C) Operating temperature products	
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	2.5A / 10,000
Max. current AC cos φ = 1.0 /cycles	6.3 A / 3,000
Rated current AC cos φ = 0.6 /cycles	7.5 A / 300
	1.6A / 10,000
Rated voltage DC	12.0 V
Max. switching current DC /cycles	40.0 A / 5,000
(205 ... 250°C) Operating temperature products	
Rated current AC cos φ = 1.0 /cycles	2.5 A / 1,000
Rated current AC cos φ = 0.6 /cycles	1.6 A / 1,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 ... 60 Hz	100 m/s ²

ST01-U4

NC or NO | reset automatically | with connector cables | insulation: epoxy resin



Nominal switching temp. (NST) in 5K	60°C...150°C
Tolerance (standard)	±5K
Reset temp.	≥35°C (≤ 80°C NST)
tolerance	-35K±15K (≥ 85°C ≤ 150°C NST)
Thickness	5.4mm
Diameter	9.5mm
Length	16.0mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I + II
Pressure resistance to the switch housing	300N
Standard connection	0.33 mm ² / AWG22
Insulation voltage	1.5kV
Recognized standards	UL/TUV/CQC/CB

Operating voltage range AC/DC	up until 500 V AC / 14 V DC
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	2.5A / 10,000
Max. current AC cos φ = 1.0 /cycles	6.3 A / 3,000
Rated current AC cos φ = 0.6 /cycles	7.5 A / 300
	1.6A / 10,000
Rated voltage DC	12.0 V
Max. switching current DC /cycles	40.0 A / 5,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 ... 60 Hz	100 m/s ²

ST01-U5

NC or NO | reset automatically | with connector cables | insulation: PET cap



Nominal switching temp. (NST) in 5K	60°C...180°C
Tolerance (standard)	±5K
Reset temp.	≥35°C (≤ 80°C NST)
tolerance	-35K±15K (≥ 85°C ≤ 180°C NST)
Thickness	4.9mm
Diameter	9.0mm
Length of isolation cap	16.0mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I + II
Pressure resistance to the switch housing	300N
Standard connection	0.33 mm ² / AWG22
Insulation voltage	1.5kV
Recognized standards	UL/TUV/CQC/CB

Operating voltage range AC/DC	up until 500 V AC / 14 V DC
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	2.5A / 10,000
Max. current AC cos φ = 1.0 /cycles	6.3 A / 3,000
Rated current AC cos φ = 0.6 /cycles	7.5 A / 300
	1.6A / 10,000
Rated voltage DC	12.0 V
Max. switching current DC /cycles	40.0 A / 5,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 ... 60 Hz	100 m/s ²

ST01-U6

NC or NO | reset automatically | with connector cables | insulation: PBT housing for M4 screw

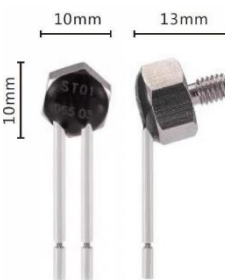


Nominal switching temp. (NST) in 5K	60°C...180°C
Tolerance (standard)	±5K
Reset temp.	≥35°C (≤ 80°C NST)
tolerance	-35K±15K (≥ 85°C ≤ 180°C NST)
Thickness	5.6mm
Diameter	9.8mm
Length	18.3mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I + II
Pressure resistance to the switch housing	300N
Standard connection	0.33 mm ² / AWG22
Insulation voltage	1.5kV
Recognized standards	UL/TUV/CQC/CB

Operating voltage range AC/DC	up until 500 V AC / 14 V DC
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	2.5A / 10,000
Max. current AC cos φ = 1.0 /cycles	6.3 A / 3,000
Rated current AC cos φ = 0.6 /cycles	7.5 A / 300
	1.6A / 10,000
Rated voltage DC	12.0 V
Max. switching current DC /cycles	40.0 A / 5,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 ... 60 Hz	100 m/s ²

ST01-U7

NC or NO | reset automatically | with connector cables | case material: M4x6mm brass housing

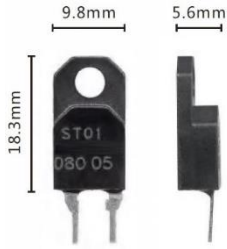


Nominal switching temp. (NST) in 5K	60°C...180°C
Tolerance (standard)	±5K
Reset temp.	≥35°C (≤ 80°C NST)
tolerance	-35K±15K (≥ 85°C ≤ 180°C NST)
Thickness + 6mm Screw	13.0mm
Diameter	10.0mm
Length	10.0mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I + II
Pressure resistance to the switch housing	300N
Standard connection	0.33 mm ² / AWG22
Insulation voltage	1.5kV
Recognized standards	UL/TUV/CQC/CB

Operating voltage range AC/DC	up until 500 V AC / 14 V DC
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	2.5A / 10,000
Max. current AC cos φ = 1.0 /cycles	6.3 A / 3,000
Rated current AC cos φ = 0.6 /cycles	7.5 A / 300
	1.6A / 10,000
Rated voltage DC	12.0 V
Max. switching current DC /cycles	40.0 A / 5,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 ... 60 Hz	100 m/s ²

ST01-U8

NC or NO | reset automatically | with pin pitch 5.08mm | insulation: PBT housing for M4 screw



Nominal switching temp. (NST) in 5K	60°C...180°C
Tolerance (standard)	±5K
Reset temp. tolerance	≥35°C (≤ 80°C NST) -35K±15K (≥ 85°C ≤ 180°C NST)
Thickness	5.6mm
Diameter	9.8mm
Length	18.3mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I + II
Pressure resistance to the switch housing	300N
Connection	11x0.4x0.76mm; pitch 5.08mm
Insulation voltage	1.5kV
Recognized standards	UL/TUV/CQC/CB

Operating voltage range AC/DC	up until 500 V AC / 14 V DC
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	2.5A / 10,000
Max. current AC cos φ = 1.0 /cycles	6.3 A / 3,000
Rated current AC cos φ = 0.6 /cycles	7.5 A / 300
	1.6A / 10,000
Rated voltage DC	12.0 V
Max. switching current DC /cycles	40.0 A / 5,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 ... 60 Hz	100 m/s ²

ST01-U9

NC or NO | reset automatically | with connector cables | insulation: round PBT housing

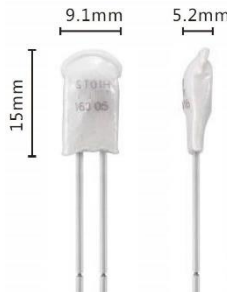


Nominal switching temp. (NST) in 5K	60°C...180°C
Tolerance (standard)	±5K
Reset temp. tolerance	≥35°C (≤ 80°C NST) -35K±15K (≥ 85°C ≤ 180°C NST)
Thickness	5.6mm
Diameter	9.2mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I + II
Pressure resistance to the switch housing	300N
Standard connection	0.33 mm ² / AWG22
Insulation voltage	1.5kV
Recognized standards	UL/TUV/CQC/CB

Operating voltage range AC/DC	up until 500 V AC / 14 V DC
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	2.5A / 10,000
Max. current AC cos φ = 1.0 /cycles	6.3 A / 3,000
Rated current AC cos φ = 0.6 /cycles	7.5 A / 300
	1.6A / 10,000
Rated voltage DC	12.0 V
Max. switching current DC /cycles	40.0 A / 5,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 ... 60 Hz	100 m/s ²

ST01H-U1

NC | PTC self-hold type | with connector cables | insulation: Mylar-Nomex



Nominal switching temp. (NST) in 5K	60°C...180°C
Tolerance (standard)	±5K
Reset temp.	≥35°C
Thickness	5.2mm
Diameter	9.1mm
Length of the insulation cap	15.0mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I + II
Pressure resistance to the switch housing	300N
Standard connection	0.33 mm ² / AWG22
Insulation voltage	2.0kV
Recognized standards	UL/TUV/CQC/CB

Operating voltage range AC/DC	100V ... 250 V
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	2.5A / 1,000
Max. current AC cos φ = 1.0 /cycles	6.3 A / 1,000
Rated current AC cos φ = 0.6 /cycles	1.6A / 1,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 ... 60 Hz	100 m/s ²

ST01HT

NC | reset automatically | with connector cables | insulation: Teflon shrink cap

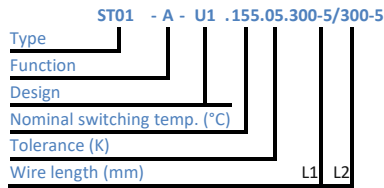
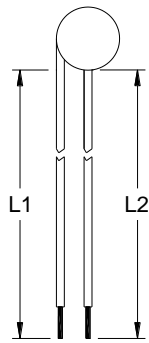


Nominal switching temp. (NST) in 5K	205...250°C
Tolerance (standard)	±10K
Reset temp.	120°C ± 15K
Thickness	4.9mm
Diameter	9.1mm
Length of the insulation cap	20.0mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I + II
Pressure resistance to the switch housing	300N
Standard connection	0.33 mm ² / AWG22
Insulation voltage	2.0kV
Recognized standards	UL/TUV/CQC/CB

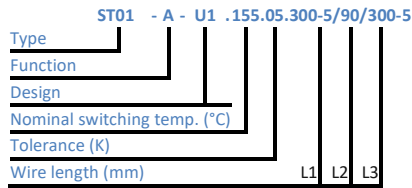
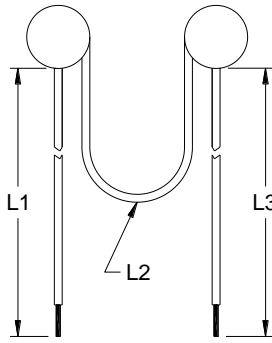
Operating voltage range AC/DC	up until 500 V AC / 14 V DC
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	2.5A / 1,000
Rated current AC cos φ = 0.6 /cycles	1.6A / 1,000
Rated voltage DC	12.0 V
Max. switching current DC /cycles	2.5 A / 6,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 ... 60 Hz	100 m/s ²

Order Code System

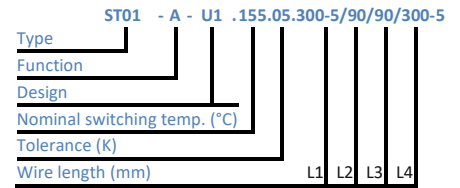
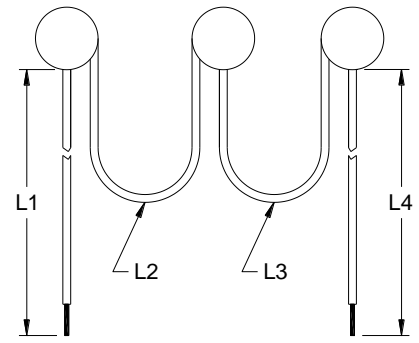
ST01 Single



ST01 Twin



ST01 Triple



Standard connection wires

Isolation material	Max. Temp.	Max. operating voltage	Size	UL-Style
XLPE	150°C	300V	AWG 22	3398
			AWG 24	
PFA	250°C	600V	AWG 22	10362
			AWG 24	

Up to 150°C, white XLPE wires in AWG 22 used as standard. (UL3398)
 Above 150°C, yellow PFA wire in AWG 22 used as standard. (UL10362)
 Other wires are available on request.

Available switching & reset temperatures

Switching °C	Reset °C
60 ± 5K	≥35
65 ± 5K	≥35
70 ± 5K	≥35
75 ± 5K	≥35
80 ± 5K	≥35
85 ± 5K	50 ± 15K
90 ± 5K	55 ± 15K
95 ± 5K	60 ± 15K
100 ± 5K	65 ± 15K
105 ± 5K	70 ± 15K
110 ± 5K	75 ± 15K
115 ± 5K	80 ± 15K
120 ± 5K	85 ± 15K
125 ± 5K	90 ± 15K
130 ± 5K	95 ± 15K
135 ± 5K	100 ± 15K
140 ± 5K	105 ± 15K
145 ± 5K	110 ± 15K
150 ± 5K	115 ± 15K
155 ± 5K	120 ± 15K

Switching °C	Reset °C
160 ± 5K	125 ± 15K
165 ± 5K	130 ± 15K
170 ± 5K	135 ± 15K
175 ± 5K	140 ± 15K
180 ± 5K	145 ± 15K
185 ± 5K	120 ± 15K
190 ± 5K	125 ± 15K
195 ± 5K	130 ± 15K
200 ± 5K	135 ± 15K
205 ± 10K	120 ± 15K
210 ± 10K	120 ± 15K
215 ± 10K	120 ± 15K
220 ± 10K	120 ± 15K
225 ± 10K	120 ± 15K
230 ± 10K	120 ± 15K
235 ± 10K	120 ± 15K
240 ± 10K	120 ± 15K
245 ± 10K	120 ± 15K
250 ± 10K	120 ± 15K

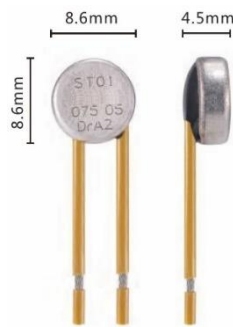
Designs & Dimensions

ST01 U1



60°C ... 200°C

ST01 U2



60°C ... 250°C

ST01 U3



60°C ... 250°C

ST01 U4



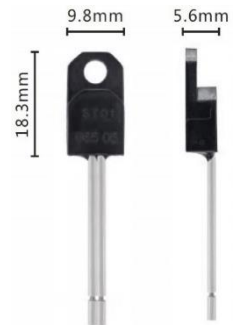
60°C ... 150°C

ST01 U5



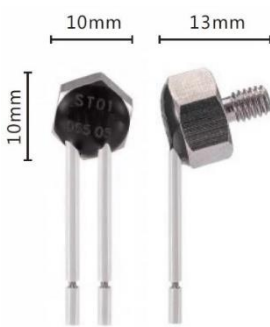
60°C ... 180°C

ST01 U6



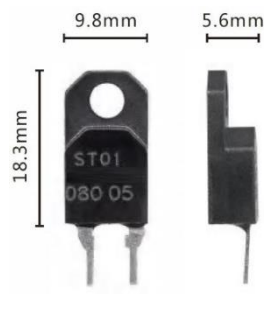
60°C ... 180°C

ST01 U7



60°C ... 180°C

ST01 U8



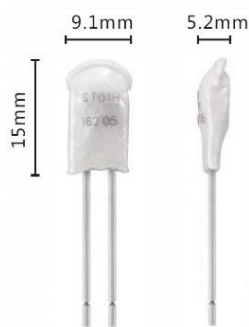
60°C ... 180°C

ST01 U9



60°C ... 180°C

ST01H



60°C ... 180°C

ST01HT



205°C ... 250°C

ST01 Triple



60°C ... 250°C

Errors and omissions excepted