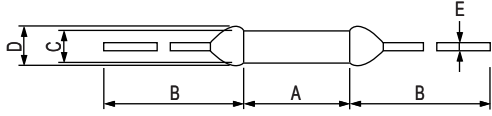


12 SERIES



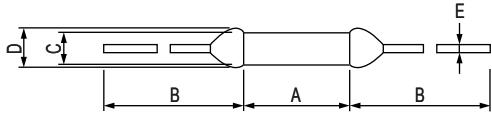
Dimensions(mm)	(A)	(B)	(C)	(D)	(E)
Regular	9.0±0.5	38±3	2.5±0.1	3.0 or below	0.6±0.05
Long	9.0±0.5	68±3	2.5±0.1	3.0 or below	0.6±0.05

Type No.	Rated Functioning Temperature (°C)	Cut-off Temperature (°C)	Holding Temperature (°C)	Maximum Temperature Limit (°C)	Electrical Ratings		PSE	UL	CSA	VDE	TÜV	BEAB	CCC				
					Ampere (A)	Voltage (V)											
120	76	73.5±2.5	50	200	AC	1.5	250	●	●	●	●	●	●	●			
						2	125	—	●	●	●	●	●	●	●		
121	102	98±2	76	200	AC	2	250	●	●	●	●	●	●	●			
122	115	112±3	89	200	AC	2	250	●	●	●	●	●	●	●			
123	130	126±2	102	200	AC	2	250	●	●	●	●	●	●	●			
			90					DC	5	50	—	●	—	—	—	—	—
124	133	130±2	108	200	AC	2	250	●	●	●	●	●	●	●			
125	150	145±2	123	200	AC	2	250	●	●	●	●	●	●	●			
126	169	164.5±2.5	142	200	AC	2	250	●	●	●	●	—	—	●			
127	187	184±3	163	200	AC	2	250	●	●	●	●	●	●	●			
128	139	135±3	113	200	AC	2	250	●	●	●	●	●	●	●			
			95					DC	5.5	50	—	●	—	—	—	—	—
12B	65	62±3	55	200	AC	2	250	●	●	●	●	●	●	●			
12N	98	94±3	72	200	AC	1.5	250	●	●	●	—	—	—	●			
			67					AC	2	125	—	●	●	—	—	—	●
			AC								5	50	—	●	●	—	—
								DC	5	50			—	●	●	—	—

●=Approved — =Not approved

UL:E50082, CSA:LR40743, VDE:Ref.No.923000-1171-0012, TÜV:R50036521, BEAB:CAL0136

21 SERIES



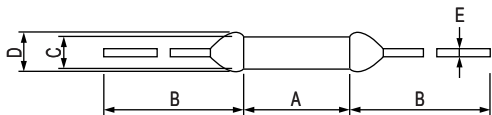
Dimensions(mm)	(A)	(B)	(C)	(D)	(E)
Regular	10.0±0.5	37±3	3.0±0.2	3.3 or below	1.0±0.05
Long	10.0±0.5	67±3	3.0±0.2	3.3 or below	1.0±0.05

Type No.	Rated Functioning Temperature (°C)	Cut-off Temperature (°C)	Holding Temperature (°C)	Maximum Temperature Limit (°C)	Electrical Ratings		PSE	UL	CSA	VDE	TÜV	BEAB	CCC	
					Ampere (A)	Voltage (V)								
211	102	98±3	76	200	AC	5	125	●	●	●	—	—	—	●
213	130	126±3	102	200	AC	7	125	●	●	●	—	—	—	●
215	150	145±2	123	200	AC	7	125	●	●	●	—	—	—	●

●=Approved — =Not approved

UL:E50082 CSA:LR40743

22 SERIES



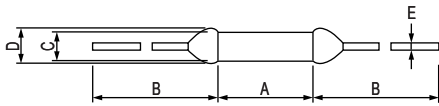
Dimensions(mm)	(A)	(B)	(C)	(D)	(E)
Regular	11.5±0.5	37±3	3.3±0.2	3.6 or below	1.0±0.05
Long	11.5±0.5	67±3	3.3±0.2	3.6 or below	1.0±0.05

Type No.	Rated Functioning Temperature (°C)	Cut-off Temperature (°C)	Holding Temperature (°C)	Maximum Temperature Limit (°C)	Electrical Ratings		PSE	UL	CSA	VDE	TÜV	BEAB	CCC	
					Ampere (A)	Voltage (V)								
221R	102	98±3	83	200	AC	4	250	●	●	●	●	●	●	●
			79					5	125	—	●	●	●	●
222R	115	112±3	92	200	AC	5	250	●	●	●	●	●	●	●
			83					7	125	—	●	●	●	●
223R	130	126±3	102	200	AC	5	250	●	●	●	●	●	●	●
			7					125	—	●	●	●	●	●
224R	133	130±3	110	200	AC	5	250	●	●	●	●	●	●	●
			103					7	125	—	●	●	●	●
225R	150	146±3	123	200	AC	5	250	●	●	●	●	●	●	●
			7					125	—	●	●	●	●	●
227R	187	184±3	160	200	AC	5	250	●	●	●	●	●	●	●
			155					7	125	—	●	●	●	●
228R	139	135±3	116	200	AC	5	250	●	●	●	●	●	●	●
			110					7	125	—	●	●	●	●

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UL:E50082, CSA:LR40743, VDE:Ref.No.923000-1171-0002, TÜV:R50036522, BEAB:CAL0136

32 SERIES



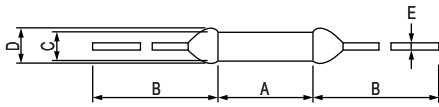
Dimensions(mm)	(A)	(B)	(C)	(D)	(E)
Regular	6.0±0.5	39±3	2.0±0.1	2.3 or below	0.53±0.02
Long	6.0±0.5	69±3	2.0±0.1	2.3 or below	0.53±0.02

Type No.	Rated Functioning Temperature (°C)	Cut-off Temperature (°C)	Holding Temperature (°C)	Maximum Temperature Limit (°C)	Electrical Ratings		PSE	UL	CSA	VDE	TÜV	BEAB	CCC
					Ampere (A)	Voltage (V)							
320	76	73.5±2.5	50	200	1	250	●	●	●	●	●	●	●
					2	125	—	●	●	●	●	●	●
321	102	98±2	76	200	1	250	●	●	●	●	●	●	●
					2	125	—	●	●	●	●	●	●
322	115	112±3	89	200	1	250	●	●	●	●	●	●	●
					2	125	—	●	●	●	●	●	●
323	130	126±2	102	200	1	250	●	●	●	●	●	●	●
					2	125	—	●	●	●	●	●	●
324	133	130±2	108	200	1	250	●	●	●	●	●	●	●
					2	125	—	●	●	●	●	●	●
325	150	145±2	123	200	1	250	●	●	●	●	●	●	●
					2	125	—	●	●	●	●	●	●
326	169	164.5±2.5	142	200	1	250	●	●	—	●	●	—	●
					2	125	—	●	—	●	●	—	●
328	139	135±3	113	200	1	250	●	●	●	●	●	●	●
					2	125	—	●	●	●	●	●	●

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UL:E50082 CSA:LR40743 VDE:Ref.No.923000-1171-0003 TÜV:R50036523 BEAB:CAL0136

44 SERIES



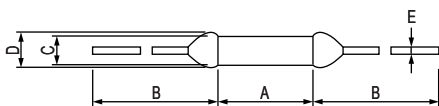
Dimensions(mm)	(A)	(B)	(C)	(D)	(E)
Regular	6.0±0.5	39±3	1.65±0.1	2.0 or below	0.53±0.02
Long	6.0±0.5	69±3	1.65±0.1	2.0 or below	0.53±0.02

Type No.	Rated Functioning Temperature (°C)	Cut-off Temperature (°C)	Holding Temperature (°C)	Maximum Temperature Limit (°C)	Electrical Ratings		PSE	UL	CSA	VDE	TÜV	BEAB	CCC	
					Ampere (A)	Voltage (V)								
441	102	98±2	76	200	AC	0.5	250	●	●	●	●	●	●	●
						1	125	—	●	●	●	—	●	●
					DC	2.5	50	—	●	●	—	●	—	—
						2.5	50	—	●	●	—	●	—	—
442	115	112±3	99	200	AC	1	250	●	●	●	●	●	●	●
						1.5	125	—	●	●	●	—	●	●
					DC	3.5	50	—	●	●	—	●	—	—
						3.5	50	—	●	●	—	●	—	—
443	130	126±2	111	200	AC	1	250	●	●	●	●	●	●	●
						1.5	125	—	●	●	●	—	●	●
					DC	3.5	50	—	●	●	—	●	—	—
						3.5	50	—	●	●	—	●	—	—
444	133	130±2	114	200	AC	1	250	●	●	●	●	●	●	●
						1.5	125	—	●	●	●	—	●	●
					DC	3	50	—	●	●	—	●	—	—
						3	50	—	●	●	—	●	—	—
445	150	145±2	123	200	AC	0.5	250	●	●	●	—	●	●	●
						1	125	—	●	●	●	—	●	●
					DC	4	50	—	●	●	—	●	—	—
						4	50	—	●	●	—	●	—	—
447	187	184±3	162	200	AC	1	250	●	●	●	—	●	—	●
						1.5	125	—	●	●	—	●	—	—
					DC	4	50	—	●	●	—	●	—	—
						4	50	—	●	●	—	●	—	—
448	139	135±3	119	200	AC	1	250	●	●	●	—	●	●	●
						1.5	125	—	●	●	●	—	●	●
					DC	4	50	—	●	●	—	●	—	—
						4	50	—	●	●	—	●	—	—

●=Approved —=Not approved

UL:E50082 CSA:LR40743 VDE:Ref.No.923000-1171-0004 TÜV:R50036524 BEAB:CAL0135

6 SERIES



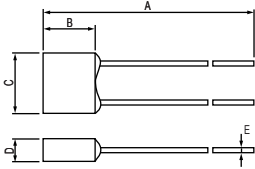
Dimensions(mm)	(A)	(B)	(C)	(D)	(E)
Regular	4.5±0.5	40±3	1.4±0.1	1.6 or below	0.53±0.02

Type No.	Rated Functioning Temperature (°C)	Cut-off Temperature (°C)	Holding Temperature (°C)	Maximum Temperature Limit (°C)	Electrical Ratings		PSE	UL	C-UL	VDE	CCC		
					Ampere (A)	Voltage (V)							
62	115	112±3	86	200	AC	0.5	250	●	●	●	●	●	
						0.8	125	—	●	●	●	●	
63	130	126±2	98	200	AC	0.5	250	●	●	●	●	●	
						0.8	125	—	●	●	●	●	
					DC	2.5	50	—	●	●	—	●	—
						2.5	50	—	●	●	—	●	—
64	133	130±2	102	200	AC	0.5	250	●	●	●	●	●	
						0.8	125	—	●	●	●	●	
65	150	145±2	114	200	AC	0.3	250	●	●	●	●	●	
						0.8	125	—	●	●	●	●	
					DC	2.5	50	—	●	●	—	●	—
						2.5	50	—	●	●	—	●	—

●=Approved —=Not approved

UL:E50082, C-UL:E50082, VDE:Ref.No.923000-1171-0006

X SERIES



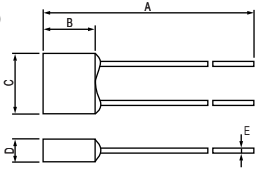
Dimensions(mm)	(A)	(B)	(C)	(D)	(E)
Regular	55±3	8.5±0.5	6.6±0.5	2.5±0.3	0.7±0.05
Long	70±3	8.5±0.5	6.6±0.5	2.5±0.3	0.7±0.05

Type No.	Rated Functioning Temperature (°C)	Cut-off Temperature (°C)	Holding Temperature (°C)	Maximum Temperature Limit (°C)	Electrical Ratings		PSE	UL	CSA	VDE	TÜV	BEAB	CCC
					Ampere (A)	Voltage (V)							
X21	102	98±2	76	200	3	250	●	●	●	●	●	—	●
					3	250	●	●	●	●	●	—	●
X22	115	112±3	89	200	5	125	—	●	●	●	●	—	●
					5	125	—	●	●	●	●	—	●
X23	130	126±2	102	200	3	250	●	●	●	●	●	—	●
					5	125	—	●	●	●	●	—	●
X24	133	130±2	108	200	3	250	●	●	●	●	●	—	●
					5	125	—	●	●	●	●	—	●
X25	150	145±2	123	200	2.5	250	●	●	●	●	●	—	●
					5	125	—	●	●	●	●	—	●

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UL:E50082, CSA:LR57404, VDE:Ref.No.923000-1171-0013, TÜV:R50036525

U2 SERIES



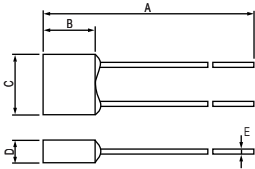
Dimensions(mm)	(A)	(B)	(C)	(D)	(E)
Regular	55±3	5.7±0.5	6.6±0.5	2.5±0.3	0.53±0.02
Long	70±3	5.7±0.5	6.6±0.5	2.5±0.3	0.53±0.02

Type No.	Rated Functioning Temperature (°C)	Cut-off Temperature (°C)	Holding Temperature (°C)	Maximum Temperature Limit (°C)	Electrical Ratings		PSE	UL	CSA	VDE	TÜV	BEAB	CCC
					Ampere (A)	Voltage (V)							
U21	102	98±2	76	200	2	250	●	●	●	●	●	●	●
U22	115	112±3	89	200	2.5	250	●	●	●	●	●	●	●
U23	130	126±2	102	200	2.5	250	●	●	●	●	●	●	●
U24	133	130±2	108	200	2.5	250	●	●	●	●	●	●	●
U25	150	145±2	123	200	2.5	250	●	●	●	●	●	●	●
U26	169	165±3	142	200	2.5	250	●	●	●	●	●	—	●
U28	139	135±3	113	200	2.5	250	●	●	●	●	●	●	●

●=Approved —=Not approved

UL:E50082, CSA:LR57404, VDE:Ref.No.923000-1171-0011, TÜV:50036526, BEAB:CAL0134

S SERIES



Dimensions(mm)	(A)	(B)	(C)	(D)	(E)
Regular	55±3	4.0±0.5	5.2±0.5	2.2±0.3	0.53±0.02
Long	70±3	4.0±0.5	5.2±0.5	2.2±0.3	0.53±0.02

Type No.	Rated Functioning Temperature (°C)	Cut-off Temperature (°C)	Holding Temperature (°C)	Maximum Temperature Limit (°C)	Electrical Ratings		PSE	UL	CSA	VDE	TÜV	BEAB	CCC
					Ampere (A)	Voltage (V)							
S1	102	98±2	76	200	1	250	●	●	●	●	●	●	●
					1.5	125	—	●	●	●	●	●	●
S2	115	112±3	89	200	1	250	●	●	●	●	●	●	●
					1.5	125	—	●	●	●	●	●	●
S3	130	126±2	102	200	1	250	●	●	●	●	●	●	●
					1.5	125	—	●	●	●	●	●	●
S4	133	130±3	108	200	1	250	●	●	●	●	●	●	●
					1.5	125	—	●	●	●	●	●	●
S5	150	145±2	123	200	1	250	●	●	●	●	●	●	●
					1.5	125	—	●	●	●	●	●	●

●=Approved —=Not approved

UL:E50082, CSA:LR57404, VDE:Ref.No.923000-1171-0010, TÜV:R50036527, BEAB:CAL0134

THE EXPLANATION OF TECHNICAL TERMS

● Cut-off(Fusing-off) Temperature

The temperature that the Thermal Cutoff opens (fuses off) while passing 0.1 amp or less while in a controlled oil bath rising 1°C per minute. The Cut-off Temperature is to be used by the engineer for design purposes and is the actual fusing off point of the Thermal Cutoff. The Cut-off Temperature is not the Rated Functioning Temperature.

● Rated Functioning Temperature

This rating is measured according to IEC Standards and states that the Thermal Cut-off will operate within +0, -10 °C of the Rated Functioning Temperature (under no load). METI's Standard is ±7°C. ELCUT Thermal Cutoffs are rated to satisfy both IEC and METI requirements.

(METI:Japanese Ministry of Economy, Trade and Industry)

● Holding Temperature

Thermal Cutoff's body temperature which the Thermal Cutoff does not open while passing the Maximum Rated Current for 168 hours. Holding Temperature is a rating for UL, CSA and TÜV.

Holding temperature is not declared for VDE, BEAB and CCC.

● Maximum Temperature Limit

The Maximum Temperature which does not cause re-closing of Thermal Cutoff when exposed for ten minutes.

CAUTIONS

These materials describe the cautions for using thermal cutoffs. If these cautions are not strictly observed, thermal cutoffs may function at temperatures lower than the functioning temperatures shown in the catalog, or they may not function at all even if they exceed the functioning temperatures indicated in the catalog. Problems resulting from improper use of thermal cutoffs are the responsibility of the user, and not of Uchihashi Estec.

1. The electrical ratings and rated functioning temperatures of thermal cutoffs are prescribed. Use thermal cutoffs within the rating ranges.
2. Install thermal cutoffs so that their temperatures do not continuously exceed Maximum use temperatures shown in Table 1.

Table 1

(unit:°C)

Thermal cutoff rated functioning temperatures	Maximum allowable normal temperatures							
	Series	32·X·U2·S		22		12·44		6
	Rated Voltage	AC250V·AC125V	AC250V	AC125V	AC250V·AC125V	AC50V·DC50V	AC250V·AC125V	AC50V·DC50V
65	—	—	—	—	45	—	—	—
76	50	—	—	—	50	—	—	—
98	—	—	—	—	72	59	—	—
102	76	76	76	76	76	61	—	—
115	89	89	83	83	89	71	86	—
130	102	102	102	102	102	82	98	78
133	108	108	103	103	108	86	102	—
139	113	113	110	110	113	90	—	—
150	120	120	120	120	120	96	114	91
169	120	—	—	—	120	—	—	—
187	130	130	130	130	130	104	—	—

3. Do not use thermal cutoffs in special conditions, where the use of ordinary electrical equipment such as consumer electronics and electronic office equipment is not appropriate. For example, the use in liquids, in organic solvent, in environments of corrosive gases (mainly sulfurous acid gas and nitrogen oxide gas), in high or low pressure, in high humidity, in flammable atmosphere shall be prohibited. Under such conditions, thermal cutoffs may function at temperatures lower than the functioning temperatures or they may not function even if they exceed the functioning temperatures because of hermetically damaged epoxy resin caused by its deterioration.
4. Thermal cutoffs are developed under the assumption that they will be used in ordinary electrical equipment such as consumer electronics and electronic office equipment. Do not use them in aeronautical equipment, life-support equipment and other machinery for medical purposes, equipment used for engine control in transportation machinery, or in nuclear power equipment.
5. To have thermal cutoffs function as they should, users must select the thermal cutoffs suited to each piece of equipment, and properly choose the positions and methods for installation. Users themselves should decide which type to install in each kind of equipment, and should avail themselves of not only information offered by Uchihashi Estec, but also their own tests, to confirm that their selections are the best. Such tests should involve the preparation of an adequate number of final products for testing, as well as repeated testing under both normal usage conditions and abnormal conditions.
6. Care must be taken, when designing, for the fact that self-temperature rise by energizing will cause thermal cutoffs to function under less ambient temperature.
7. Long-term exposure under high-temperature environment may cause thermal cutoffs to fuse off improperly due to thermal deterioration. Therefore, using thermal cutoffs at as low temperature as possible will be recommended. Maximum use temperature is the temperature at which we make sure improper fusing off after specified time do not occur.

When used in special conditions described in above item 3. or 4., please consult a sales person of Uchihashi Estec.

The detail on this catalog are based on specifications as of May 2007.

Uchihashi Estec Co.,Ltd.

● Head Quarters

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