SPECIFICATIONS	User Part No.;	Approved	Checked	Drawn
Application;	Part No.;	課長 '20.5.27 仁木	中 20.5.27 野崎	福 20.5.27 元
——	102AT-2-A			

1. Scope
This specification defines rating, dimensions, electric properties, mechanical properties and climatic properties for the following part.

2. Part No.

102AT-2-A

3. Rating and Characteristic

3.1 Zero-power resistance	R_{25} 1.000 kohm (at 25 deg. C)
3.2 Tolerance on zero-power resistance	R_{25} +/- 1 %
3.3 B-value	$B_{25/85}$ 3 100 K (The B-value is calculated from R_{25} and R_{85})
3.4 Tolerance on B-value	$B_{25/85}$ +/- 1 %
3.5 Thermal time constant	Approx. 15 s (in still air)
3.6 Dissipation factor	Approx. 2.0 mW/deg. C (in still air)
3.7 Rated maximum power dissipation	Approx. 10 mW (at 25 deg. C) (Including self-heat of approx. 5 deg. C)
4. Operating temperature range	-50 deg. C ~ 90 deg. C
5. Storage temperature range	-10 deg. C ~ 40 deg. C

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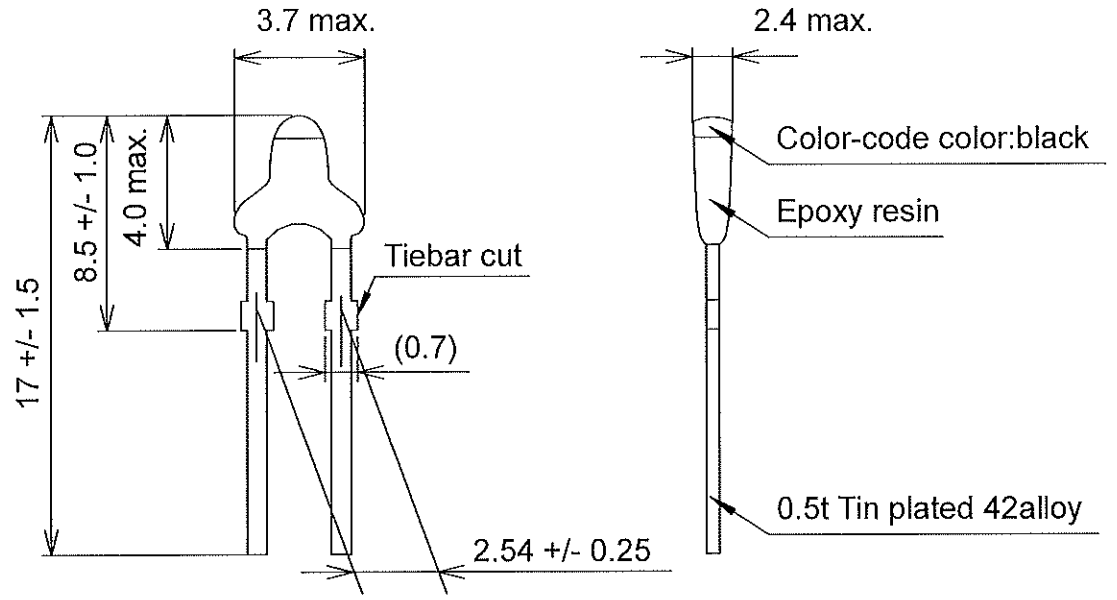
6. Dimensions

Unit: mm

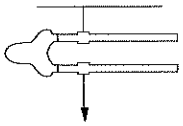


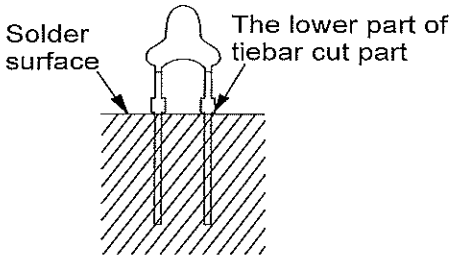
7. Properties

7.1 Electric properties

Item	Test Conditions	Criteria
7.1.1 Insulation resistance	Measured at DC 500 V between the coated area and lead-wire.	Over 100 M ohm.
7.1.2 Voltage proof	Voltage proof shall be more than AC 1 000 V 1 min. , when applied the voltage between the coated area and lead-wire.	Limited current is under 1 mA or more. No visible damage.

7.2 Mechanical properties

Item	Test Conditions	Criteria
7.2.1 Tensile of terminations	After a weight of 2 N is applied to the wire termination for 10 s +/- 1 s.  2 N (10 s)	Variation of R25 and B25/85 after test shall be within +/- 1 % of those of the initial values. No visible damage. Exclude bending of a lead wire.
7.2.2 Free fall	After three times of natural fall to a maple board from 1 m high.	

Item	Test Conditions	Criteria
7.2.3 Solderability	Terminals of the test samples shall be one time immersed into solder bath at 245 deg. C +/- 5 deg. C for 2 s ~ 3 s. Solder : Sn-3.0Ag-0.5Cu Flux : rosin 25 %, ethyl alcohol 75 %	Soldered area, more than 90 %.
7.2.4 Resistance to soldering heat	Terminals of the test samples shall be one time immersed into solder bath at 260 deg. C +/- 5 deg. C for 10 s +/- 1 s.  	Variation of R_{25} and $B_{25/85}$ after test shall be within +/- 1 % of those of the initial values. This test is not making an issue of visible damages.
	In case of a soldering iron, the 350 deg. C +/- 5 deg. C of the iron shall be applied to the area of the lead wires below the tiebar cut for 3 s +/- 0.5 s.	

7.3. Climatic properties

Item	Test Conditions	Criteria
7.3.1 Dry heat	At +90 deg. C +/- 3 deg. C for 1 000 h and then stored at room temperature and humidity for 1 h.	Variation of R_{25} and $B_{25/85}$ after test shall be within +/- 1 % of those of the initial values.
7.3.2 Change of temperature	100 times in the following order and conditions and then stored at room temperature and humidity for 1 h. "Room temperature (Initial value)." " -30 deg. C +/- 3 deg. C for 30 min". "Room temperature for 3 min". " +90 deg. C +/- 3 deg. C for 30 min". "Room temperature for 3 min".	

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Item	Test Conditions	Criteria
7.3.3 Damp heat	At +40 deg. C +/- 3 deg. C, 90 %RH ~ 95 %RH for 1 000 h and then stored at room temperature and humidity for 1 h.	Variation of R25 and B25/85 after test shall be within +/- 1 % of those of the initial values.
7.3.4 Damp heat (Under loading)	At +40 deg. C +/- 3 deg. C, 90 %RH ~ 95 %RH with the DC 1 mA load for 1 000 h and then stored at room temperature and humidity for 1 h.	

Note
"Room temperature" is defined as the temperature between 15 deg. C to 35 deg. C.
"Room humidity" is defined as the humidity between 25 %RH to 85 %RH.

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Precautions for use of AT Thermistor.

Warning.

Comply with the following precaution for use, since AT Thermistor may be broken down or it may cause failure and/or malfunction of equipment.

(1)AT Thermistor is designed for a particular use. Do not utilize if for other use applied.
(2)Check performance and function of your equipment with AT Thermistor by your actual evaluation and reliability tests.
(3)Pay attention to voltage to be applied to AT Thermistor because its lowered resistance by self-heating may cause failure and/or malfunction of equipment.
(4)Do not use the AT Thermistor out operating temperature range specified.
(5)Take all possible measures such as a safety circuit or concomitance use of another temperature sensor with same performance to prevent any accident.
(6)Take measures as follows in case of electrical noise is concerned.
- A protect circuit
- An electrical shield over AT Thermistor including lead wirer.

(7)When AT Thermistor is sealed, examine a kind of sealant, quantity, curing condition and adhesiveness and confirm its reliability.
(8)Do not apply rating power in excess of that specified.
(9)Do not apply any mechanical impact such as vibration or falling in excess of those specified.
(10)Do not bend the lead wire more than 2 times with 90 degree bending and 3N loading.
(11)Do not apply to the lead wire tensile force of leg split in excess of 2N.
(12)Connect lead wires of AT Thermistor without blot or stain, otherwise it may cause loose contact.
(13)When connecting a lead part with solder, it is soldering iron temperature to the tie bar part subordinate. Please make it 3.5 s or less second at the time of 350 deg. C.
(14)Do not make molten solder or soldering iron have contact with a resin department.
(15)When bending a lead line and processing or cutoff, pleases fix a lead line on both of 2 at the location where it's more than 3 mm away from the resin part end.
(16)Do not use AT Thermistor for long time at more than 85 %RH, except when it is taken measures.
(17)Give warning to a user not to touch AT Thermistor, if the user may touch Thermistor in your application.
(18)Do not use AT Thermistor under the following environment, except it is taken measures.
- Corrosive gas (Cl_2, NH_3, SOx, NOx etc.)
- High conductive conditions (electrolyte, water, saline solution and etc.)
- Acids, alkalis, organic solvent.
- Dusty place.
- Condensing place.

Caution

Pay attention to the following cautions use of AT Thermistor.

(1)Please consult us when the Thermistor is reprocessed.

(2)Pay attention to the following description when AT Thernistor is installed to your equipment, otherwise it may cause malfunction of your equipment when the Thermistor can not detect real temperature.

- When AT Thermistor detects temperature of air or liquid, put the Thermistor in order to detect the certain ambient temperature and not to be affected by a heater or a chiller.
- When AT Thermistor detects temperature of a solid substance, then fill thermal conductive grease or adhesive up between the substance and the Thermistor, and pay attention that the Thermistor is not affected by air-flow or wind from outside.

(3)When AT Thermistor is installed with pushing, pressing, clamping or inserting, then please consult us about installing condition such as mechanical properties of the Thermistor.

(4)Depend on circumstances of using or atmosphere during storage, it may occur rust at tie bar portions and edge surfaces of lead wire.

(5)This part can use printed-wiring board only.

(6)Pay attention to the following storage condition, otherwise it may cause deterioration and/or damage AT Thermistor.
Store AT Thermistor at -10 deg. C to +40 deg. C, and at 75%RH in a carton not to be loaded at a depository without rapid temperature change, direct sunlight corrosive gas and dust.

(7)Subject to be used within 6 months from the date of shipment.

(8)If you consider an end-usage of our products that requires a high reliability due to a potential risk for property or even human life, such as the usage listed below, it is necessary to contact our sales department. It is also necessary to consider a fail-safe mechanism.
・medical equipment ・transportation devices such as automobiles, railway, ships and boats ・aircraft ・spacecraft ・traffic equipment ・security/disaster prevention hardware ・nuclear power related hardware ・military hardware ・submarine hardware ・fail-safe devices ・other devices that require similarly high reliability

Revision records

Revision No.	Date	Approved	Revision item	Former specification	New specification
Original	May.27.2020	課長 20.5.27 仁木	———	———	———
A					
B					
C					
D					
E					
F					
G					
H					
I					
J					

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