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ISSUED:	2017.01.18

SPECIFICATION

PRODUCTS:	THERMAL-LINKS (RoHS Compliant)
CUSTOMER Part No.:	
MODEL:	T6D

【Acceptance Sign/Stamp】

This specification is received.

DATE: Y/ M/ D/

COMPANY NAME:

TAMURA CORPORATION

Electronics Components Business Sector Thermal Device Department Engineering Group

5-5-30,CHIYODA,SAKADO-SHI,SAITAMA,350-0214 JAPAN

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1. Applicable Scope

This specification is applied for selling product by Tamura Corporation.

2. Ratings and Standard for safety approval No.

Refer to appropriate ratings and standard for safety approval numbers in Table-1 as following.

Table-1. Rating and Standard for safety approval numbers

Model	Tf [°C] <small>Note1</small>	Functioning Temperature [°C] <small>Note2</small>	Ratings			Th [°C] <small>Note3</small>	Tm [°C] <small>Note4</small>	Normally Operating Temperature [°C]	Safety approvals <small>Note5</small>				
			AC/ DC	Voltage [V]	Current [A]				PSE	KTL	CCC	UL C-UL	VDE
T6D	139	139+0-7	DC	50	8.0	90	200	80	-	-	*1,*2	*3	*4
					9.0	80	200	80	-	-	*1,*2	*3	*4

Standard for safety approval numbers-Tamura Corporation.

* 1:2010010205396483

Standard for safety approval numbers-Anzen Dengu(Huizhou)Co.,Ltd.

* 2:2010010205396487

Standard for safety approval numbers-Tamura Corporation and Anzen Dengu(Huizhou)Co.,Ltd.

* 3: E73591 * 4:40009915

Note1 : Rated Functioning Temperature

Note2 : Only for reference value, not the ratings temperature demanded by the safety standard.

Note3 : Holding Temperature

Note4 : Maximum Temperature Limit

Note5 : Tamura Corporation is the applicant for all approved safety certifications.

3. Shape and dimension

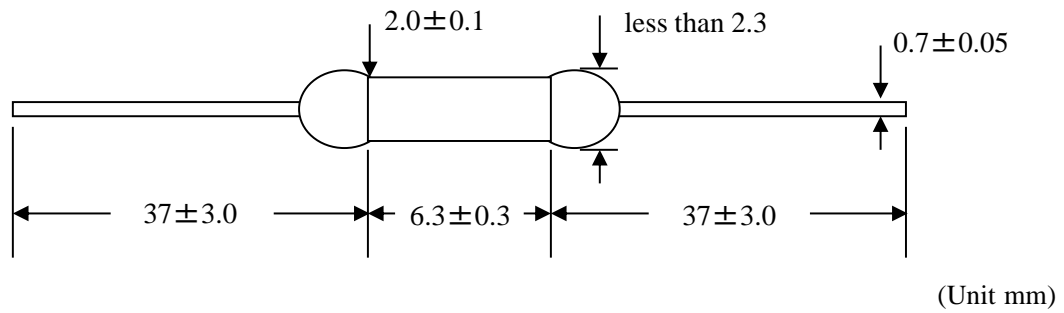


Fig 1. Dimension

4. Construction and used material

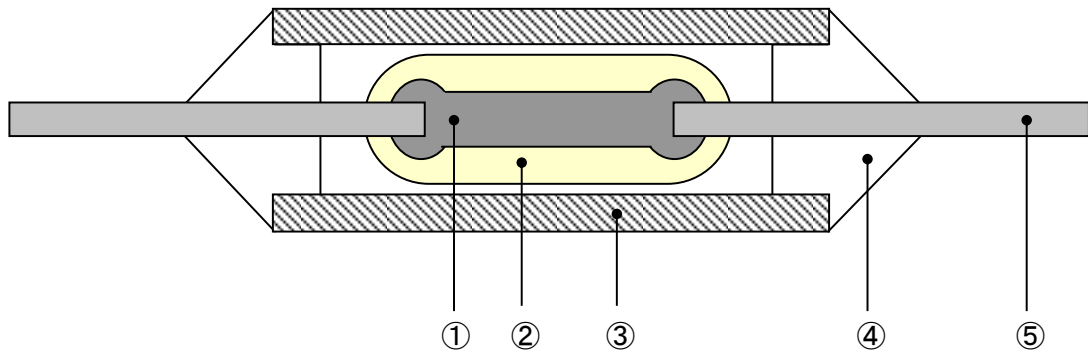


Fig 2. Component

Table-2. Component and Material

No.	Component	Material
①	Fusible Alloy	Low melting point alloy
②	Flux	Special resin
③	Case	Ceramics
④	Sealant	Epoxy resin
⑤	Lead wire	Tin plated copper wire

5. Performance

The thermal-links must comply with the following test items and any other applicable requirements.

5-1. Appearance and Dimension check

Test conditions: Visual, Micrometer or Caliper

Specific: The display should be legible with no remarkable fault, and the size should be within the specified dimensions.

5-2. Resistance test

Test conditions: The D.C. resistance be measured by putting the thermal-links body between less than 20mm by four terminal method.

Specific: Refer to the Table-3 below.

Table-3. Resistance specific

Model	D.C resistance[mΩ]
T6D	Less than 6

5-3. Functioning temperature test

Test conditions: The thermal-links soaking in oil bath which rise temperature at $0.5 \sim 1.0^{\circ}\text{C}/\text{min}$, and measure the oil temperature at functioning. Measurement beginning temperature $T_f - 20^{\circ}\text{C}$, and the detection current are assumed to be less than 10mA.

Specific: Functioning within at $+0^{\circ}\text{C}, -7^{\circ}\text{C}$ of rated functioning temperature.

5-4. Insulation resistance test

Test conditions: (a) Before functioning test •between case and lead wires

(b) After functioning test •between case and lead wires •between lead wires

Specific: D.C.100V, more than 1000MΩ

5-5. Dielectric withstand test

Test conditions: (a) Before functioning test •between case and lead wires

(b) After functioning test •between case and lead wires

(c) After functioning test •between lead wires

Specific: (a)(b) Apply D.C.1100V continuity endure for 1 minute. (Detection current 0.5mA)

(c) Apply D.C.100V continuity endure for 1 minute. (Detection current 0.5mA)

5-6. Humidity test

Test conditions: Measure the functioning temperature after left for 500 hours in the following temperature conditions. T6D [60°C 95%RH]

Specific: Functioning within at $+0^{\circ}\text{C}, -10^{\circ}\text{C}$ of rated functioning temperature.

5-7. Heat shock test

Test conditions: Measure the functioning temperature after left for per 30 minutes with 200 cycles in the following temperature conditions.

T6D [$-40^{\circ}\text{C} \rightleftharpoons 80^{\circ}\text{C}$]

Specific: Functioning within at $+0^{\circ}\text{C}, -10^{\circ}\text{C}$ of rated functioning temperature.

5-8. Heat deterioration test

Test conditions: Measure the functioning temperature after left 1000 hours in controlling bath of following temperature conditions. T6D [90°C]

Specific: Functioning within at $+0^{\circ}\text{C}, -10^{\circ}\text{C}$ of rated functioning temperature.

5-9. Inrush current test

Specific: None of disconnection happen during inrush current test.

Conduct the functioning temperature test after done the inrush current test.

Functioning within at $+0^{\circ}\text{C}$, -10°C of rated functioning temperature.

None of abnormally in the externals.

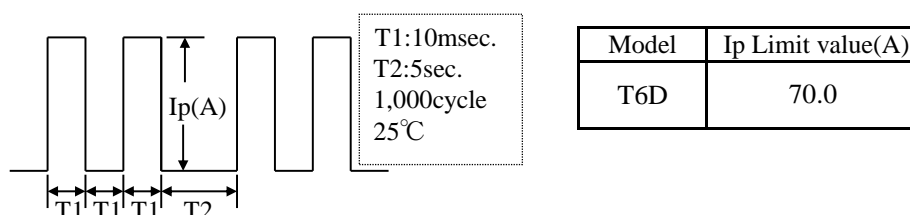


Fig 3. Test condition

5-10. Temperature increase test

Test conditions: Energizing the rated current at DC50V for 15 minutes, then measure the temperature increase value on the surface of case.

Specific: Temperature increase value shall within at 10°C .

5-11. Thrust test

Test conditions: Add 98N of load on case for one minute.

Specific: None of abnormally about the damage of container and initial functioning characteristic.

5-12. Tensile test

Test conditions: Add 29.4N of load between the lead wires for one minute.

Specific: None of abnormally about the damage of container and initial functioning characteristic.

5-13. Bending test

Test conditions: Add 2.5N of load and twist the lead wires with 90 degree for three times.

Specific: None of damage on lead wires.

6. Attached test and record

The thermal-links in the test item of 5 clause, conduct test with per lot regarding the following items and add the test report.

- | | |
|------------------------------------|--------------------------------|
| (1) Appearance and Dimension check | (4) Insulation resistance test |
| (2) Resistance test | (5) Dielectric withstand test |
| (3) Functioning temperature test | |

7. Marking

Thermal-links shall stamp permanent ink of model name, rating voltage and current, rated functioning temperature and manufacture's trade, manufacturing date cord.

Those specified color shown in the following.

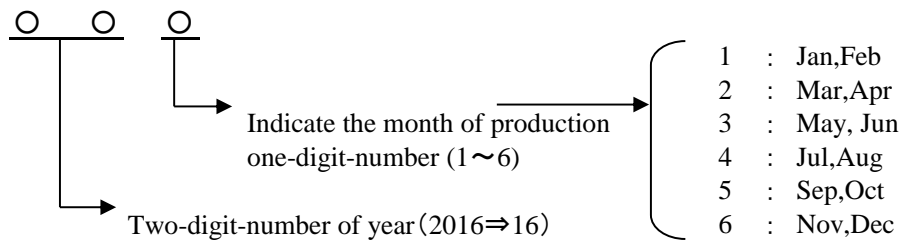
7-1. Marking color

Table-4. Models and Colors

Model	T6D
Color	Blue green

7-2. Date code

The date code on product body is as following.



8. Packing

8-1. Packing Unit

The standard of packing unit for this thermal links shall put 1000pcs for per inner box.

8-2. Packing appearance

(1) Packing unit(Inner box)

Packing separately by 4 polybags with each 250pcs.

(2) Inner box

Refer to the Fig 4.

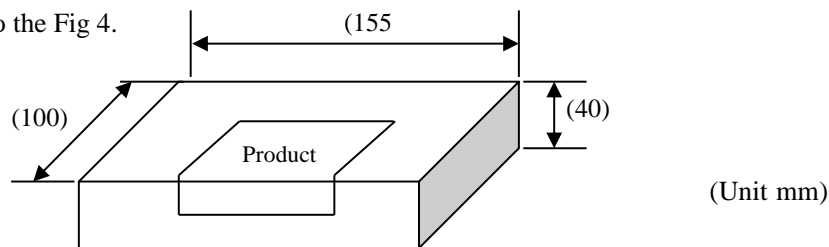


Fig 4. Packing appearance(Inner box)

8-3. Product label

- (1) UL, C-UL Standard mark for safety
- VDE Standard mark for safety
- CCC Factory registered ID
- (2) Model
- (3) Trade Mark TAM
- (4) Lot No.
- (5) Final inspection date

- (6) Packing quantity
- (7) Electrical ratings
- (8) Rated functioning temperature
- (9) Manufacturer
- (10) RoHS compliance

The label of RoHS compliance products is green color, and Non-RoHS compliance is white for identification under management

9. Treatment for abnormally situations

Regarding the thermal-links, any abnormally for quality occurs, please contact with both side Immediately and make a exactly and certainly solution for problem under final agreement.

10. About Green Procurement Activities

All thermal-links are following Green Procurement Standards of Tamura Corporation (TMR-CSR-G1001). <http://www.tamura-ss.co.jp/jp/csr/green/index.htm> and the disable substance to specify is not used. However, about Pb and its compound, cadmium and its compound have set up as strict threshold as following table 5.

Table-5 Tamura Corporation of disuse substance group (Pb, Cd)

Substance group	Threshold
Pb and its compound	less than 700ppm (packing material less than 100ppm)
Cadmium and its compound	Less than 50 ppm (Less than [plastic 5ppm], less than 20 ppm of solder)

11. Use of Ozone depleting substance(ODS)

None of use or contain the ODS of CLASS- I ,CLASS- II CLASS according to the law of Air Act regulations be established on November 1990 in United States.

12. Use of Bromic flame retardant

None of contain the 「PBDEs」「PBBs」in all materials of thermal-links.

13. Precautions for using and operating

We recommend the rapidly the test of forecast abnormally status in order to confirm the thermal-links operating. And please do not use related system for aircraft and life maintenance equipment such as the device and transport machine of engine control. When bending lead wire at using, please fix the root and bend it gradually apart more than 3mm from the thermal-links body.

14. Storage environment

The product storage shall avoiding heat and high humidity. As standard keeping thermal-link in the packing box with temperature -10℃~40℃ and 10~75% of relative humidity without rapid temperature and humidity change additional keep product in the place where are not provided direct rays, vibration, a shock, etc. Product life recommendation is 3 years once small package is opened.

15. Manufacture

The assembly and processing are performed in Anzen Dengu (Huizhou)Co.,Ltd of China Factory.

16. Country of origin

The semi-product under assemblies *processing is conducted final inspection in Tamura Corporation or Anzen Dengu (Huizhou)Co.,Ltd.(China)for delivery to customers.

The Country of origina is determined final inspection locaton that be mentioned on package contain)labels.

Country of origin	Final shipping inspection location
Made in Japan	Tamura Corporation
Made in China	Anzen Dengu (Huizhou)Co.,Ltd.

17. About Export Trade Regulation

The thermal-links is off subject in the 1st and 2nd item of Export trade regulations. It is not kind of strategy material.

18. Soldering

It is impossible to use the reflow solder heatproof.

19. Regarding industrial property

For any conflict of industrial property regarding the thermal-links,Tamura Corporation shall take whole responsibilities to make a solution.

20. Prior notice of specification and process modification

For any modification for specification, componet, material, process and management system of this thermal cutoff and influences to the performance and characteristic, it needs to proposal a document in beforehand and obtain the acknowledgment.

21. Execution and reorganization

This specification will be executive at your receiving date. If in case of reorganization, Please obtain a acknowledgment with both side under a agreement.

22.Others

When a doubt arises on Japanese and English specificaliton,Japanese will be considered as prority.