No. SPQ-19L28

Nov . 20 , 2019

TO : DIGI-KEY ELECTRONICS

S P E C I F I C A T I O N

Product name : DIA THERMISTOR NEGATIVE

Part number : DTN-V103J3T-DGS103V

PW-AP-3611E : Specification

Should you have any changes regarding this specifications,please make a contact to our sales department within 14 days after receiving this document.

MITSUBISHI MATERIALS CORPORATION CERAMICS PLANT

QUALITY ASSURANCE DEPARTMENT / MANAGER

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Thermistor Sensor Specification		Drawing No.	PW-AP-3611E (1st Edition)	Page	1／4
Type	DTN-V103J3T-DGS103V	Date	November 20, 2019		

1. Usage range

This specification is applied to thermistor sensor〔 DTN-V103J3T-DGS103V 〕.
RoHS directive pass.

2. Thermistor characteristics

Item	Particular	Sign	Char.	Unit	Tol.
2-1 Resistance	Resistance at 25℃.	R_{25}	10	kΩ	±5%
2-2 B-value	B-value between t1℃ and t2 ℃ $Bt_1/t_2=\ln\frac{Rt_1}{Rt_2}/\left(\frac{1}{t_1+273.15}-\frac{1}{t_2+273.15}\right)$	$B_{25/50}$	3820	K	±3%
		($B_{25/85}$ = 3792K)			
2-3 Thermal time constant (ambient temp. change)	Where the sensor is screwed up on aluminum block(120L*20W*20T), the block except sensor attached surface is put into 25℃ water. From this state when the block is moved into 50℃ water, the time required for the temperature of the sensor to change by 63.2% of the difference of temperature.	τ	27	sec.	or less
2-4 Operating temperature range		Tw	-40～+150	℃	
2-5 Dissipation constant	The electric power to increase 1 degree in temperature of sensor at 25℃ in still air.	δ	3 approx.	mW/℃	
2-6 Maximum permissible power	The power taking temperature of sensor to upper limit of operating temperature range by self-heating at 25℃ in still air.	Pmax.	375	mW	
2-7 Withstanding voltage	A.C.500V 1 minute or A.C.600V 1 second. (In water between case and lead wire)	No abnormal found			
2-8 Insulation resistance	D.C.500V megger. (In water between case and lead wire)	I.R.	100	MΩ	or more

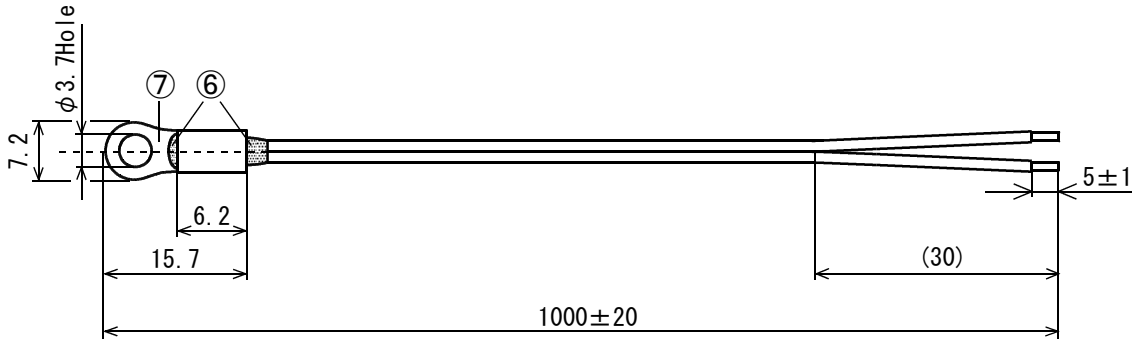
3. Reliability characteristics

Testing item	Testing requirement	Changing ratio after test
3-1 Heat resistance test	150℃ in air placed for 1000 hours	$\triangle R_{25}$ ≦±5% $\triangle B_{25/50}$≦±3%
3-2 Cold resistance test	-40℃ in air placed for 1000 hours	$\triangle R_{25}$ ≦±5% $\triangle B_{25/50}$≦±3%
3-3 High temperature humidity test	40℃,95%R.H. placed for 1000 hours	$\triangle R_{25}$ ≦±5% $\triangle B_{25/50}$≦±3%
3-4 Heat cycle test	-40℃, 3 minutes ⇔ 125℃, 3 minutes 〔in air〕 〔in air〕 600 cycles	$\triangle R_{25}$ ≦±5% $\triangle B_{25/50}$≦±3%

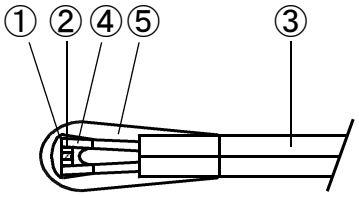
4. Mechanical characteristics

Testing item	Testing requirement	Characteristics after test
4-1 Pull test	From lead wire axis direction, hang a static load of 29.4N(3.0kg·f) and stay for 1 minute between case part and lead wire.	There is no abnormality in appearance and electrical characteristics.
4-2 Vibration test	Frequency:20～200Hz, Cycle:15 minutes. Acceleration:4.4G Vibrate up/down 4 hours,back/forth and right/left each 2 hours.	There is no abnormality in appearance and electrical characteristics.
4-3 Drop test	Drop on wood from height 1m 5 times.	There is no abnormality in appearance and electrical characteristics.

5. Shape・Dimension



(mm)



Some lot indication is shown on lead wire.

Lot indication
①②③ (made in Japan condition)
③②① (made in Malaysia condition)
Ⅴ①②③ (made in Vietnam condition)
① : End of No. for year of christian era. 0～9
② : Month indication
1～9 Month characters,
10-X, 11-Y, 12-Z indication
③ : Lot serial No. on that month indication
A～Z or AA～ZZ (made in Japan or Vietnam condition) ,
MA～MZ, AA～AZ, BA～BZ (made in Malaysia condition)

No.	Parts	Specifications	RoHS compliant
7	Case	Ring tongue terminal 5.5-S3 (JST)	Yes
6	Adhesive	Heatproof low expansion Epoxy resin	Yes
5	Coating	Heatproof low expansion Epoxy resin	Yes
4	Coating	Heatproof low expansion Epoxy resin	Yes
3	Lead wire	Cross linked polyethylene parallel wire 150℃ Heatproof φ1.08 0.14mm² (7/0.16) [Black] Tin plated soft copper wire	Yes
2	Solder	Lead free	Yes
1	Thermistor	Chip thermistor	Yes

6. Caution in Thermistor Sensor usage

Due to the possibilities of destruction of the sensor, damage or miss use of equipment, please strictly follow below matter.

①The sensor is designed for individual usage. When it is going to be used beyond the specified condition, please speak to your daily contact person for our products.

②Whenever designing the equipment, make sure to check sensor operation and if there is no lack of quality.

③Do not use the sensor exceeding rated electric power.

④Due to possibility of causing the decrease of the value of resistance with self heat and malfunction of the equipment or the precision decrease of the inspection temperature, carefully refer to the dissipation constant usage of electric power and voltage.

⑤Do not use the sensor beyond operating temperature range.

⑥Avoid from exceeding radical temperature change, which is beyond operating temperature range.

⑦In case of independently use of the sensor as a main control of the device, make sure to design and devise through safety measures for [safe circuit] and [parallel use with same function sensor] etc, to prevent from accident.

⑧Under the environment which receives the influence of electric noise, make sure to take countermeasure by installing a protection circuit and seal the sensor.
(including the lead wire)

⑨When the case type sensor is used under high humidity environment, make sure to design so that the protected case tip must be exposed to environment (in water, moisture) condition, and to the [utmost] open part of the case must be prevented from not touching water and steam directly.
Please note how such as making the opening downward to install it so as not to stay in this part when you generate the be dewy water.

⑩Do not add excessive vibrating shocking pressure.

⑪Avoid from excessive pulling and bending of the lead wire.

⑫Do not impress excessive voltage in the insulated part and between the electrode. This might cause to occur the insulated malfunction.

⑬Consider wiring, due to contact failure might occur if the terminal of the lead wire (including the connector) is immersed into [water] [steam] [electrolyte] etc.

⑭Do not use in corrosiveness gas atmosphere (Cl_2, NH_3, SO_x, NO_x) beyond the designated condition.
Do not use at the place where the sensor touches the electrolytic, brine, acid, alkaline and organic solvent beyond the designated condition.

⑮Due to possibility of the equipment becoming malfunction depending upon metal corrosion, consider not to cause potential difference with the contact metal for the case and screw equipped type sensor.

If there is any others unclear point, please inquire to our company sales in-charge.