

No. TPQ-20M37TA

Dec. 11, 2020

TO : Digi-Key Electronics

TECHNICAL REPORT

Product name : DIA THERMISTOR NEGATIVE

Part number : MH18 Series

Interim Specification

This document describes targeted specifications based on a new product under development. Therefore it DOES NOT warrant the new product's specifications.
A separate "SPECIFICATION" will be issued for approval of the final product.

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Thermistor Sensor Specification		Drawing	PW - A P - 0 4	Page 1 / 5
Type	MH 1 8 series	Date	December 9, 2010	REFERENCE DRAWING

1. Usage range

These specifications define thermistor [MH18 series].
RoHS directive pass.

2. Type

(Ex.) $\frac{\text{MH18}}{\text{①}} - \frac{\text{3H}}{\text{②}} \frac{\text{103}}{\text{③}} \frac{\text{F}}{\text{④}} \frac{\text{B}}{\text{⑤}}$

No.	Item	Symbol	Specification
①	Product series	MH 1 8	MH18 series
②	Material characteristics	3 H	B-value between t1°C and t2°C. $B_{t1/t2} = \ln \frac{R_{t1}}{R_{t2}} \left/ \left(\frac{1}{t1+273.15} - \frac{1}{t2+273.15} \right) \right.$ Rt1 : Zero-power resistance at t1°C Rt2 : Zero-power resistance at t2°C
③	Zero-power resistance	1 0 3	Zero-power resistance at 25°C (10 × 10 ³ Ω) (Reference to table 1)
④	Resistance tolerance	F	F : ±1% G : ±2% H : ±3%
⑤	Packaging form	B	B = Bulk, P = Plastic tape

②・③・④=Reference to 『Table 1』

**REFERENCE
DRAWING**

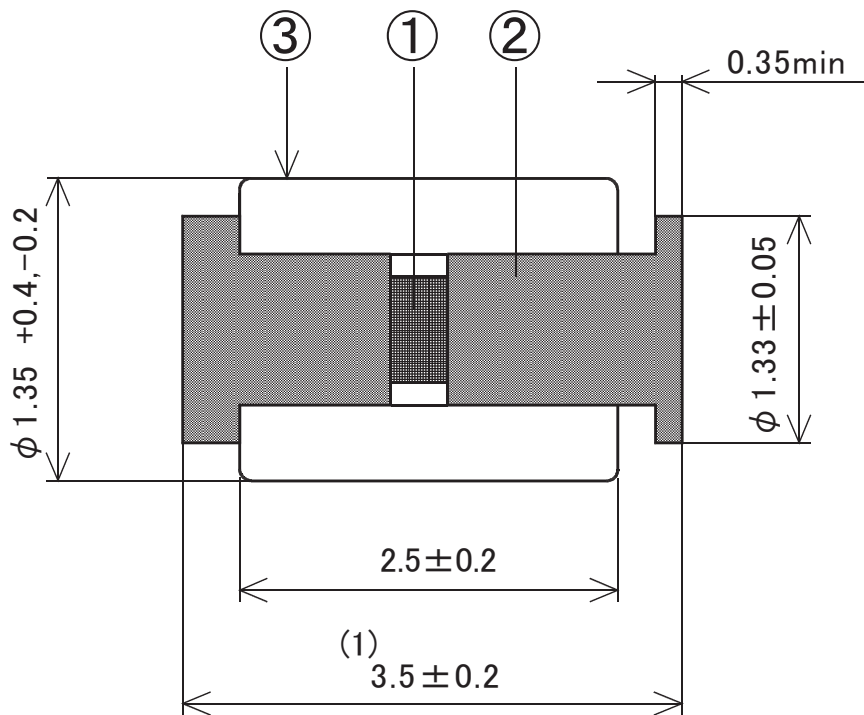
3. Characteristics

Item	Particular	Sign	Specification
3-1 Thermal time constant (ambient temp. change)	The time required for the temperature of a thermistor to change by 63.2% of the difference between 25°C and 50°C in still air.	τ	Approx. 140 sec.
3-2 Dissipation constant	The electric power to increase 1 degree in temperature of thermistor at 25°C in still air.	δ	Approx. 2.0 mW/°C
3-3 Rated power	The maximum dissipation which can be applied to the thermistor for an extended period of time, at an ambient temperature of 25°C.	Pmax.	250 mW
3-4 Operating temperature range	Continuously usable temperature range of thermistor.	Tw	-40~+150°C

※3-1, 3-2, 3-3 were mounted on a glass epoxy board (t1.2mm)

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4. Appearance・Dimensions



(1) MH18-3G202 → 3.45 ± 0.2

Unit : mm

3	Glass tube	SiO ₂ -PbO-K ₂ O	Yes
2	Terminal	Dumet (Mounting part : Tin plated)	Yes
1	Thermistor	Flake chip	Yes
No.	Type	Specification	RoHS compliant

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Table 1

Resistance · B-value

Type MH 18 -	R25 (Ω)	B 25/50 (K)	B 25/85 (K)	
3 G 2 0 2	2 k	3 4 7 0	3 5 0 7	
3 G 3 0 2	3 k			
3 G 5 0 2	5 k			
3 H 1 0 3	1 0 k	3 4 6 5	3 5 0 2	
6 E 2 0 3	2 0 k	3 9 6 5	4 0 1 6	
6 P 3 0 3	3 0 k	3 9 4 8	3 9 8 4	
6 H 5 0 3	5 0 k	3 7 7 0	3 8 2 0	
3 U 1 0 4	1 0 0 k	3 9 6 5	4 0 3 8	
3 U 1 5 4	1 5 0 k			
Tolerance	F	$\pm 1\%$	$\pm 1\%$	(Reference)
	G	$\pm 2\%$		
	H	$\pm 3\%$		

**REFERENCE
DRAWING**

5. 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.

- ① The 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.
- ② Whenever designing the equipment, make sure to check sensor operation and if there is no lack of quality.
- ③ Do not use the sensor exceeding rated electric power.
- ④ Due 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.
- ⑤ Do not use the sensor beyond operating temperature range.
- ⑥ Avoid from exceeding radical temperature change, which is beyond operating temperature range.
- ⑦ If the sensor is used as the main control of the device, be sure to take safety measures such as providing a "safety circuit" and "parallel use with another similar function sensor" to prevent accidents.
- ⑧ Under 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)
- ⑨ Do not add excessive vibrating shocking pressure.
- ⑩ Avoid from excessive pulling and bending of the lead wire.
- ⑪ Do not impress excessive voltage in the insulated part and between the electrode. his might cause to occur the insulated malfunction.
- ⑫ Do 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.
- ⑬ When you do processing (such as resin molding) by using thermistor sensor, please be reminded that sensor might be destroyed by the material or mismatch of it.

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