MF58 玻壳测温型 NTC

NTC 热敏电阻器是一种以过渡金属氧化物为主要原材料制造的半导体陶瓷元件。它具有电阻值随着温度的变化而相应变化的特性。即在一定的测量功率下，电阻值随着温度上升而下降。利用这一特性，可将 NTC 热敏电阻器及其温度传感器应用在测控温，温度补偿，和抑制浪涌电流等场合。

Thermistor is a ceramic semiconducting element made from exorbitant oxides materal. It has the feature that the resistance changes according to the ambient temperature. Namely, their resistance declines with the rising of ambient temperature at a determinate measuring power. With this feature NTC thermistor and temperature sensor can be applied in the situation of temperature measurement and control, compensation and surge current protection.

NTC 热敏电阻器及其温度传感器的主要参数：

零功率电阻值 R_T

在规定温度下，采用引起电阻变化相对于总的测量误差来说可以忽略不计的测量功率测的的电阻值

额定零功率电阻值 R_{25}

也称标称电阻值，通常是指 25℃时测得的零功率电阻值

B 值

B 值是负温度系数热敏电阻器的热敏指数，他被定义为两个温度下零功率电阻值的自然对数之差与这两个温度导数之差的比值

$$B=\ln\frac{R_{T1}}{R_{T2}} \Big/ \left(\frac{1}{T_1}-\frac{1}{T_2}\right)=\frac{T_1T_2}{T_2-T_1}\ln\frac{R_{T1}}{R_{T2}}$$

式中：R_{T1}-温度为 T1 时的零功率电阻值

R_{T2}-温度为 T2 时的零功率电阻值

除非特别指出，B 值是由 25℃（298.15K）和 50℃(323.15K)的零功率电阻值计算而得到的，B 值在工作温度范围内并不是一个严格的常数。

零功率电阻温度系数α_T

指在规定温度下，热敏电阻器的零功率电阻值随着温度的变化率与它的零功率电阻值之比。

Main techno-Parameter of NTC Thermistor:

Zero Power Resistance R_T

At rated temperature ,it is the resistance measured by the measuring power which causes the resistance change that can be ignored relative to the whole measuring error.

Rated Zero Power Resistance R_{25}

Also Known as Nominal Resistance,is the zero power resistance measured at 25℃

B Value

B Value is the thermel exponent of negative temperature coefficient thermistor, which is defined as the ratio of the difference between the napierian logarithm of zero power resistance at two temperatures to the difference between the temperatures' reciprocal.

In the equation: RT1-The zero power resistance at T1

RT2-The zero power resistance at T2

Unless the particular indication, B value is figured out from the zero power resistance at 25℃（298.15K） and 50℃(323.15K) and B value is not a rigorous constant in the range of operating temperature.

Temperature Coefficient of Zero power Resistance α_T

At rated temperature, it is the ratio of the zero power resistance change rate with temperature to the zero power resistance itself.Namely：

$$\alpha_T=\frac{1}{R}\frac{dR_T}{dT}=-\frac{B}{T^2}$$

式中：α_T-温度为 T 时的零功率电阻温度系数
R_T-温度为 T 时的零功率电阻值
T-温度（以 K 表示）
B-B 值

α_T-the temperature coefficient of zero power resistance at T
R_T-the zero power resistance at T
T-temperature
B-B value

耗散系数 δ

在规定的环境温度下，热敏电阻器耗散功率变化与其相应温度变化之比，即

$$\delta = \frac{\Delta P}{\Delta T}$$

在工作温度范围内，δ随着环境温度的变化而变化。

Dissipation coefficient δ

At rated ambient temperature, it is the radio of consumption power change rate of thermistor to the change of the corresponding temperature,namely:

In the range of operating temperature, δ has a little change with the ambient.

热时间常数 τ

在零功率条件下，当温度发生突变时，热敏电阻体温度变化了始末两个温度差的 63.2%所需的时间。

τ 与热敏电阻器的热容量 C 成正比，与其耗散系数 δ 成反比，即：

$$\tau = \frac{C}{\delta}$$

Thermal Time Constant τ

At zero power,it is measured as time in seconds which needed for thermistor temperature change of 63.2% difference between initial and final thermistor temperature when the temperature breaks.

τ is in direct ratio to thermal capacity C of thermistor and in inverse ratio to the dissipation coefficient δ ,namely:

电阻-温度特性

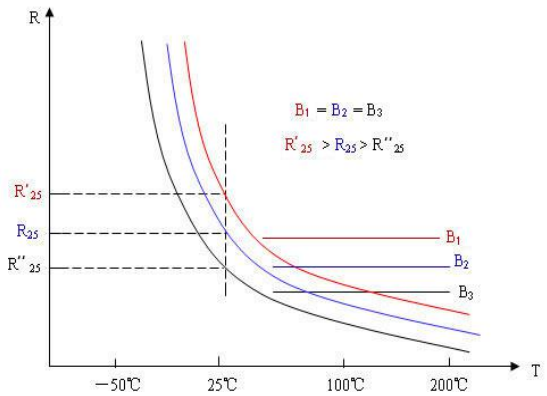
热敏电阻器的零功率电阻值与其电阻体温度之间的依赖关系。

Resistance-Temperature Characteristic

The reliant relationship between the zero power resistance of thermistor and its temperature.

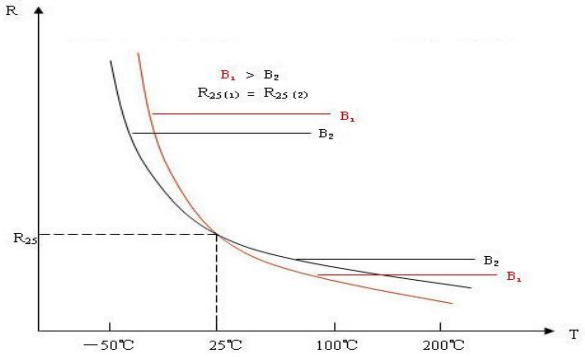
R 值与 B 值关系

热敏电阻器的零功率电阻值与其电阻体温度之间的依赖关系。



R-T curve NTC thermisor

The reliant relationship between the zero power resistance of thermistor and its temperature.



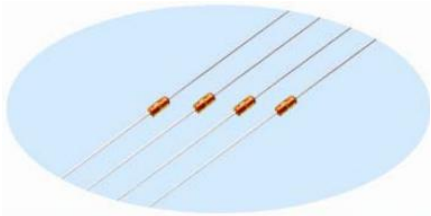
B 值相同，阻值不同的 R-T 特性曲线示意图
相同阻值，不同 B 值的 R-T 特性曲线示意图

R-T curve based on same B value, different resistance
R-T curve based on different B value, same resistance

MF58 玻壳测温型 NTC 热敏电阻器系列
MF58 Glass shell Temp Measurement NTC Thermistor Series

应用范围

●家用电器（如空调机，微波炉，电磁炉，多士炉，电风扇，电取暖炉等）的温度控制与温度检测
●办公自动化设备（如复印机，打印机等）的温度检测或温度补偿
●手机电池，电池组
●仪表线圈，集成电路，石英晶体振荡器和热电偶的温度补偿



Applications

●Temperature control and examination of household electrical appliance(such as air-condition, microwave oven, induction cooker, toaster fanner, electric heating and so on)
● Temperature examination and compensation of the automatic work facilities(such as copycat, printer and so on)
●Battery of mobile telephone, battery pile
●Temperature compensation of loops of instrument, integrate circuit, quartz crystal monofier and thermocouple.

特点

●稳定性好，可靠性高
●阻值范围宽，精度高
●可在高温和高湿等恶劣环境下使用
●体积小，重量轻，结构坚固，便于自动化安装
●热感应快，灵敏度高

Characteristics

●Good stability and security
●Broad range of resistance
● Capability of operating in the bad envi ronment of high temperature and high humidity because of glassencapsulation framework.
● Small size, light weight, strong frame, easy automatic installation (on the printed-circuit board)
●Fast response to the temperature,high delicacy.

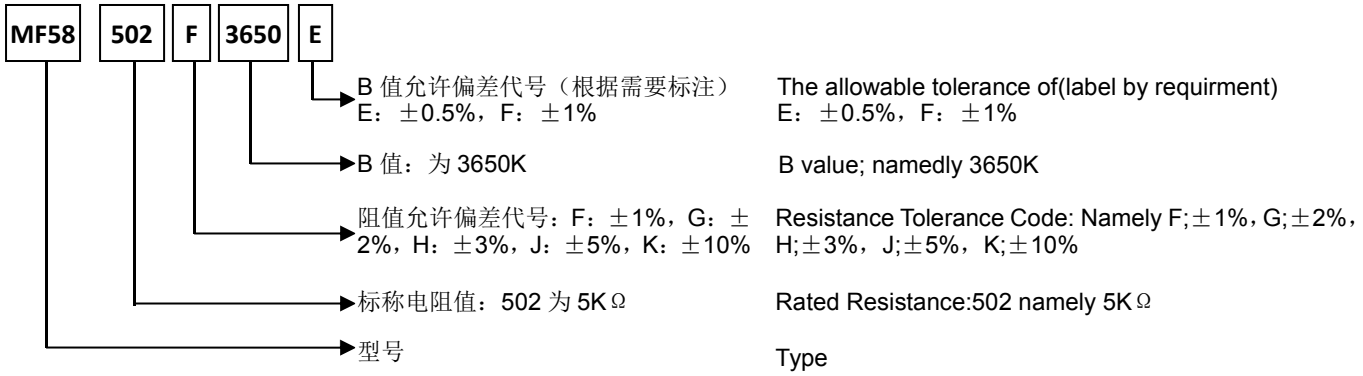
主要技术参数

●额定零功率电阻值范围（R25）：0.1～3780KΩ
●R25 允许偏差：±1%，±2%，±3%，±5%，±10%
●B 值范围（B25/50℃）:3100～4500K
●B 值允许偏差（根据需要标注）：±0.5%，±1%
●耗散系数：≥2mW/℃（在静止空气中）
●热时间常数：≤20S（在静止空气中）
●工作温度范围：-55℃～+250℃
●额定功率：≤50mW

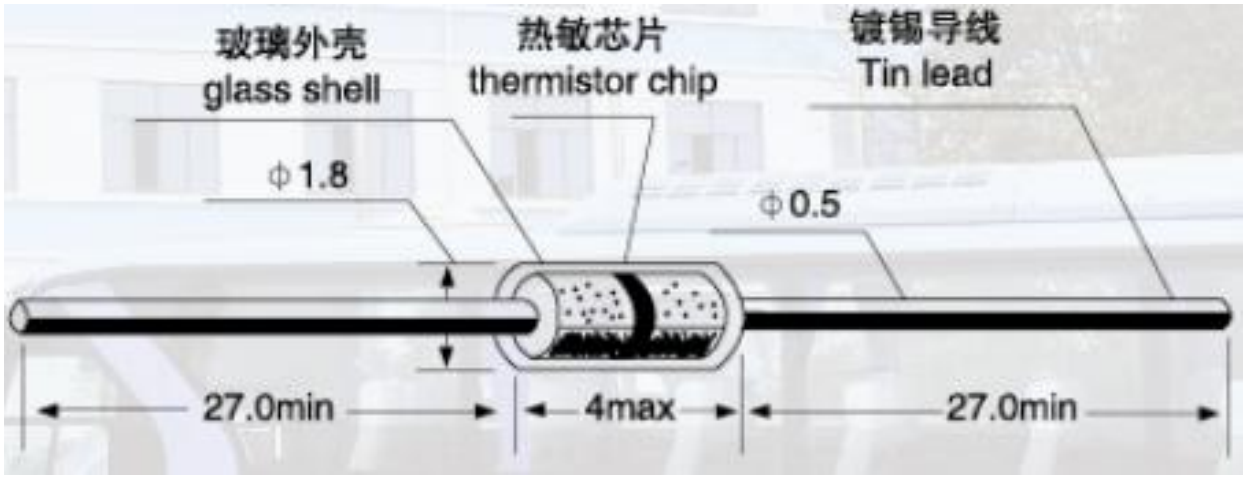
Main techno-parameter

●The range of resisitance under the rated zero power(R25): 0.1-3780KΩ
●The allowable tolerance of R25: ±1%，±2%，±3%，±5%，±10%
●The range of B value: 3100～4500K
● The allowable tolerance of (label by requirment)B value: ±0.5%，±1%
●Dissipation factor: ≥2mW/℃(in still air)
●Thermal time constant: ≤20S(in still air)
●The range of operating temperature: -55℃～+250℃
Rated power: ≤50mW

产品标识说明 Specification



外形结构和尺寸 Dimensions(mm)



Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications