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有限公司

大亞秋田電子科技 (深圳)

立創

製造廠商：

使用廠商：

負溫度系數熱敏電阻器  
 規格：WMF-7SV3R3M2A  
 產品規格書

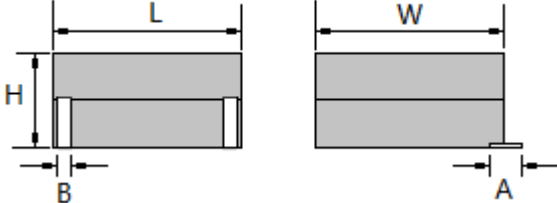
大亞秋田電子科技 (深圳) 有限公司

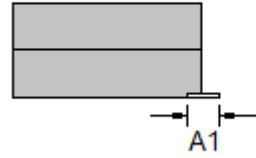
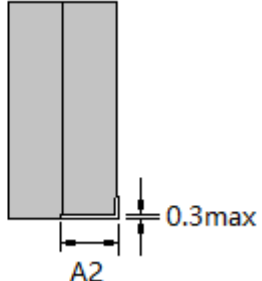
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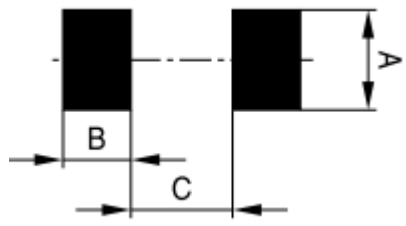
Model No.: NTC-3.3D-7 Ordering code: WMF-7SV3R3M2A	NTC THERMISTOR 2A/3.3Ω	Rev No.: 0/A (JUN. 19th, 2020)版本: A0
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**1. Appearance**

1-1. Marking 标志	WMF 3.3D7					
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1-2. Dimensional Drawing (mm)尺寸	Chip size mm	L	W	H	A1 /A2	B
	7SV	9.0±0.3	9.0±0.3	4.8±0.3	2.0±0.3	1.8±0.5

1-3 Use 使用方案	A type (卧式)	B type (立式)
		

1-4. Recommended solder pad layout(mm)	Chip size EIA in mm	A type			B type		
		A	B	C	A	B	C
	7SV	2.5	2.5	4.0	3.0	2.5	4.0

**2. Part numbering**

2-1 Model No. 型号				
NTC- 负温度系数 热敏电阻器	20		D-5	
	电阻值(Ω)		芯片尺寸	
	3.3	3.3	D-5	Φ5
	8	8	D-13	Φ13
	10	10	D-20	Φ20

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## 2-2. Ordering code 订货代码

WMF-	7		SV	3R3		M		2		A	
负温度系数热敏电阻器系列	产品尺寸		塑封贴片	零功率电阻值		电阻值允差		最大稳态电流 (A)		使用方式	
	芯片直径	成品代码									
	5	2626		3R3	3.3	K	±10%	2	2	A	卧式
	7	3333		5R0	5	U	±15%	10	10	B	立式
				10R	10	M	±20%				

## 3.ELECTRICAL CHARACTERISTICS 电气性能

Items 指标项目	Spec. 技术要求	Test Conditions & Methods 测试条件/方法
3-1. Rated Zero-Power Resistance 额定零功率电阻 $R_N (\Omega)$	$3.3 \pm 20\%$	Ambient temp. Range: $25^\circ\text{C} \pm 2^\circ\text{C} (T_A)$ . Testing voltage: 1.5VDC After placing for 1~2 hours under $T_A$ , the resistance value shall be measured. 环境温度 $T_A$ : $25^\circ\text{C} \pm 2^\circ\text{C}$ 测试电压: 1.5VDC 在常温 $T_A$ 条件下, 放置 1~2 小时 后测得阻值 $R_N$ 。
3-2. Thermal Dissipation Constant 热耗散系数 (mW/°C)	$\geq 10$	The thermal dissipation constant( $\delta$ ) could be calculated by the ratio of a change in power dissipation( $\Delta P$ ) of the thermistor to a change in temperature( $\Delta T$ ) of the thermistor at a specified ambient temperature 在特定的环境温度下, 热耗散系数( $\delta$ )为热敏电阻电功率消耗( $\Delta P$ )与本体温度变化量 ( $\Delta T$ )的比值。
3-3. Thermal Time Constant 热时间常数 $\tau$ (s)	$\leq 30$	The time( $\tau$ ) shall be measured within which the temperature change of NTC thermistor is reached at 63.2% of the ambient temperature change under zero power condition 热时间常数( $\tau$ )为在零功率条件下, 热敏电阻的温度下降到其最初温度与最终温度之差为 63.2% 时所需要的时间
3-4. Material Constant 材料常数 $B$ (°K)	$2600 \pm 20\%$ $B = T_1 T_2 / (T_2 - T_1) \times L_n (R_1 / R_2)$	$R_1, R_2$ is zero-power resistance at $T_1, T_2$ $R_1, R_2$ 分别为 $T_1, T_2$ 温度下的零功率电阻 $T_1 = 298.15^\circ\text{K} (25^\circ\text{C})$ $T_2 = 323.15^\circ\text{K} (50^\circ\text{C})$
3-5. Max. Steady State Current 最大稳态电流 (A)	<b>2A</b> No visible mechanical damage. 无可见损伤 $\Delta R_N / R_N \leq 20\%$ ( $\Delta R =  R_N - R_N' $ )	Ambient temp. Range 环境温度: $25^\circ\text{C} \pm 2^\circ\text{C}$ . Testing Current 测试电流: 2A

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3-6. Rate Insulation 绝缘耐压 (V)	No breakdown or flashover. 无击穿或飞弧	In the pin and encapsulating materials applied between 1000VDC dc voltage 1 min 在引脚与包封料之间施加 700VDC 直流电压 1min
3-7.Max surface temperature 最大表面温度 (°C)	≤130 (产品和 PCB 板之间)	Ambient temp. Range 环境温度:25°C ± 2°C. Testing Current 测试电流:2A Testing Time 测试时间: 30 分钟
4. Reliability Test 可靠性试验		
Items 指标项目	Spec. 技术要求	Test Conditions & Methods 测试条件/方法
*4-1. Temp. Cycling Testing 温度循环测试	No visible mechanical damage. 无可见损伤 $\Delta R_N / R_N \leq 20\%$ ( $\Delta R =  R_N - R_N' $ )	Ta:-40 ± 3°C / 30min → 25 ± 2°C / 5min → Tb:160 ± 3°C / 30min → 25 ± 2°C / 5min Cycles: 5times After recovering 4~5 h under 25 ± 2°C, the rated zero power resistance value R <sub>N</sub> ' shall be measured. 在 Ta=-40 ± 3°C 和 Tb=160 ± 3°C 的环境温度中各存放 30 分钟, 循环 5 次.每次高低温循环都有在 25 ± 2°C 的环境中过渡 5 分钟。 样品进行温度循环测试后, 取出放置室温 (25 ± 2°C) 4~5 小时后测量零功率电阻 R <sub>N</sub> '.
*4-2. Electrical Cycling Testing 电循环测试		Ambient temp. Range:25°C ± 2°C. Cycles: 2,000times On / Off: 5 s / 55 s Test Current:2.0A After recovering 4~5h under 25 ± 2°C, the rated zero power resistance value R <sub>N</sub> ' shall be measured. 环境温度:25°C ± 2°C. 循环次数: 2,000 次 通/断: 5 s / 55 s 测试电流:2.0A 样品置于室温 (25 ± 2°C) 4~5 小时后,测量其零功率电阻 R <sub>N</sub> '.
*4-3.LoadLife ( Endurance ) Testing 持久性测试		Ambient temp. Range:25°C ± 2°C;2.0A/ 1,000 ± 24h After recovering 4~5 h under 25 ± 2°C, the rated zero power resistance value R <sub>N</sub> ' shall be measured. 环境温度:25°C ± 2°C. 样品通过最大工作电流 2.0A, 1,000 ± 24 小时后, 取出置于室温 (25 ± 2°C) 4~5 小时后,测量其零功率电阻 R <sub>N</sub> '.
*4-3. Humidity Testing 耐湿性测试		No visible mechanical damage. 无可见损伤 $\Delta R_N / R_N \leq 20\%$ ( $\Delta R =  R_N - R_N' $ )

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5. MECHANICAL CHARACTERISTICS 机械性能

5-1. Solder-ability 可焊性	The terminals shall be uniformly tinned, and its area ≥ 95% 浸润部分上锡均匀, 上锡面积 ≥ 95%	Dipping the NTC terminals to a depth of 15mm in a soldering bath of 265 ± 5°C and to the place of 6mm far from NTC body for 2-3s (See IEC68-2-20 /GB2423.28 Ta) 将引出端沾助焊剂后, 浸入到温度为 265 ± 5°C、深度为 15mm 的锡槽中锡面距 NTC 本体下端 6mm 处, 持续 2-3 秒。(参见 IEC68-2-20 /GB2423.28 试验 Ta)
5-2. Resistance To Soldering Heat 耐焊接热	No visible mechanical damage. 无可见损伤 $\Delta R/R_N \leq 20\%$ ( $\Delta R =  R_N - R_N' $ )	Dipping the NTC terminals to a depth of 15mm in a soldering bath of 265 ± 5°C and to the place for 6mm below from NTC body for 10 ± 1s. After recovering 4-5h under 25 ± 2°C. The rated zero power resistance value R <sub>N'</sub> shall be measured. (See IEC68-2-20 /GB2423.28 Tb) 根据 IEC68-2-20 (GB2423.28) 试验 Tb 进行试验。 采用焊槽法, 将引出端沾助焊剂后, 浸入到温度为 265 ± 5°C、深度为 15mm 的锡槽中, 锡面距 NTC 本体下端 6mm 处, 维持 10 ± 1 秒. 在 25 ± 2°C 条件下恢复 4-5h 后, 复测额定零功率电阻 R <sub>N'</sub> .

6. INSPECTION 检验方法

6-1. Lot Inspection 批量检验

Sampling with IEC410 / DIN ISO 2859-1 (GB/T2828.1-2003); Testing with SPEC.NO.: WMFS-191225-1  
抽样方法按 IEC410/ DIN ISO 2859-1 (GB/T2828.1-2003); 试验方法按 SPEC.NO.: WMFS-191225-1

Item 指标项目	IL	AQL	Item 指标项目	IL	AQL
Appearance 外观	II	0.65	Rated Zero-Power Resistance 额定零功率电阻 R <sub>N</sub>	II	0.65
Soldering-ability 可焊性	S-2	2.5	Max. Steady State Current 最大稳态电流 (A)	S-2	2.5

6-2. Periodic Inspection 周期性试验

See the items with \*参见\*条目

7..Lot Numbering 批号编号方法

WMFS	171219	1/3
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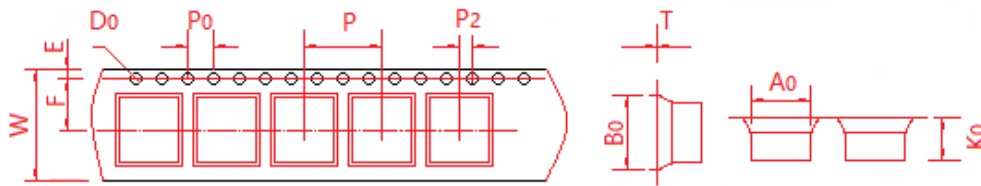
- ① Material code 材料代号 WMFS: 型号规格;
- ② Pipelined batch number 流水批号: 171219;
- ③ Shipment branch card batch number 出货分卡号;

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8、Packing Type 包装方式

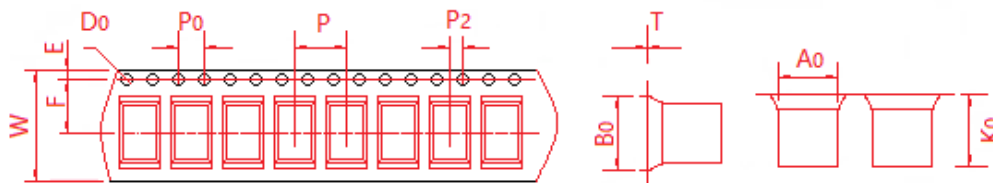
8.1 卧式贴片

项目	W	A <sub>0</sub>	B <sub>0</sub>	K <sub>0</sub>	P	P <sub>0</sub>	P <sub>2</sub>	F	E	T	D <sub>0</sub>
卧式 尺寸	24.00 <sup>±0.10</sup>	9.30 <sup>±0.10</sup>	10.50 <sup>±0.10</sup>	9.30 <sup>±0.10</sup>	12.00 <sup>±0.10</sup>	4.00 <sup>±0.10</sup>	2.00 <sup>±0.10</sup>	11.50 <sup>±0.10</sup>	1.75 <sup>-0.10</sup>	0.40 <sup>±0.05</sup>	1.50 <sup>-0.10</sup>

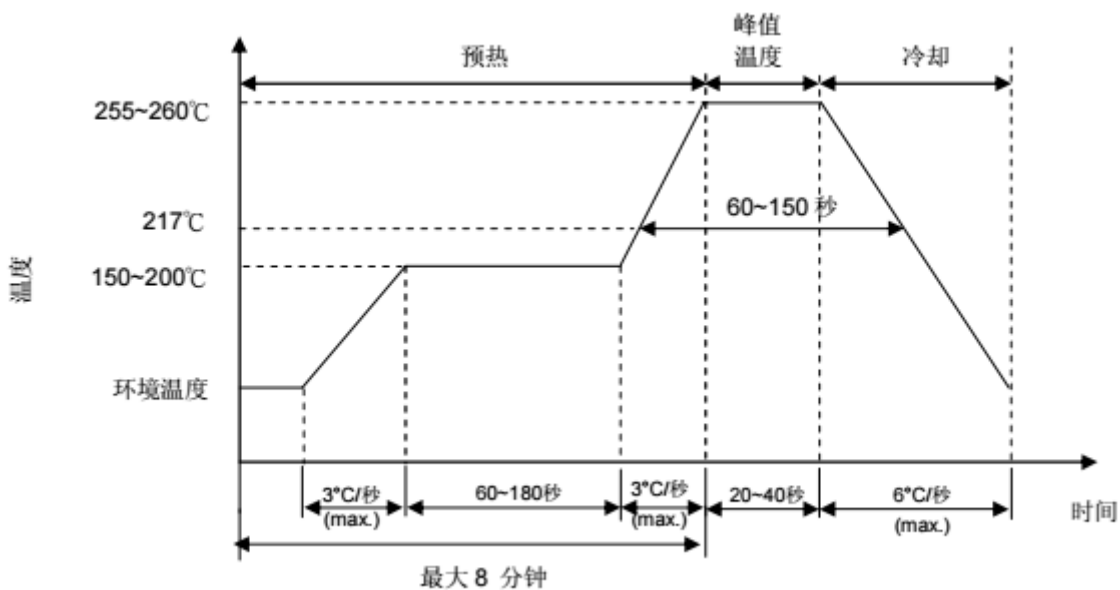


8.2 立式贴片：24MM\*330 卷轴 /900pcs

项目	W	A <sub>0</sub>	B <sub>0</sub>	K <sub>0</sub>	P	P <sub>0</sub>	P <sub>2</sub>	F	E	T	D <sub>0</sub>
立式 尺寸	24.00 <sup>±0.10</sup>	5.10 <sup>±0.10</sup>	9.30 <sup>±0.10</sup>	9.30 <sup>±0.10</sup>	8.00 <sup>±0.10</sup>	4.00 <sup>±0.10</sup>	2.00 <sup>±0.10</sup>	11.50 <sup>±0.10</sup>	1.75 <sup>-0.10</sup>	0.50 <sup>±0.05</sup>	1.50 <sup>-0.10</sup>



9.热风回流焊曲线图



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10. Operating Temperature Range 工作温度范围: -40 ~ +160℃		
11. STORAGE CONDITIONS 存储环境条件: 11-1. Temperature 温度: -10℃ ~ +40℃ 11-2. Humidity 湿度: ≤70%RH 11-3. Term 期限: ≤6 months (First-in/ First-out 先进先出) 11-4. Place 地点: Do not exposing the components to the following conditions, otherwise, it may result in deterioration of characteristics. 不要暴露在下列环境条件下, 否则将导致性能衰退或参数飘移: 1) Corrosive gas or deoxidizing gas. 腐蚀性或易氧化气体 2) Flammable and explosive gases. 易燃易爆气体 3) Oil, water and chemical liquid. 油、水和化学溶液 4) Under the sunlight. 太阳光下 11-5. Handling after seal open: After unpacking of the minimum package, reseal it promptly or store it inside a sealed container with a drying agent. 尽量保证开口最小化, 立即重新封好, 并贮存在密封、带有干燥剂的容器中。		
12. WARNING 注意、警告  Do not apply the components under the following conditions, otherwise, it may result in deterioration of characteristics, destruction of components or in the worst case, to catching fire. 请不要在下列条件下使用本元件, 否则将可能导致产品性能衰退或产品损毁, 甚至引发火灾: 1) Exceeding $I_{max}$ . 超过最大工作电流 2) Exceeding rated temperature range. 超过许可工作温度范围 3) Inferior thermal dissipation (Due to badly inferior thermal dissipation, some part of the components body will become overheated and then be damaged.) 散热不良 (由于散热不良, 本元件可能因部分过热而导致破坏)		

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[NXFT15WF104FEAB021](#) [GA100K6A1IB](#) [11026149-00](#) [TCTR0805F10K0F4460T](#) [TCTR0805F10K0F3720T](#) [TCTR0603F100KF4460T](#)  
[TCTR0603F100KF4390T](#) [TCTR0603F100KF4050T](#) [TCTR0603F100KF3980T](#) [TCTR0603F10K0F4300T](#) [TCTR0603F10K0F3960T](#)  
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