

	<b>PRODUCT SPECIFICATION</b> 产品规格书	ISSUED DATE: 2016/7/20 REV. NO.: A02 DOC. NO.: HLD-PSI-551 PAGE: Page 1 of 8	
	<b>LP240 Series</b>		

制定 PREPARED BY	研发部 2016-7-18 符灵丰	审核 CHECKED BY	研发部 2016-7-18 李秉俊	批准 APPROVED BY	研发部 2016-7-18 符灵丰
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## 1 适用范围

This specification defines the technical requirements of resettable fuse LP240 Series with H® brand, which is according to RoHS Compliant.

## 2 公司地址

## 3 外形 VIEWS

### 3.1 外形尺寸 DIMENSIONS(mm)

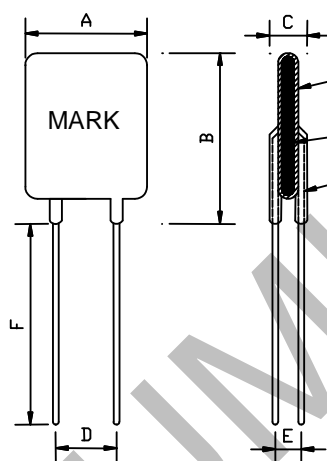


Fig.1

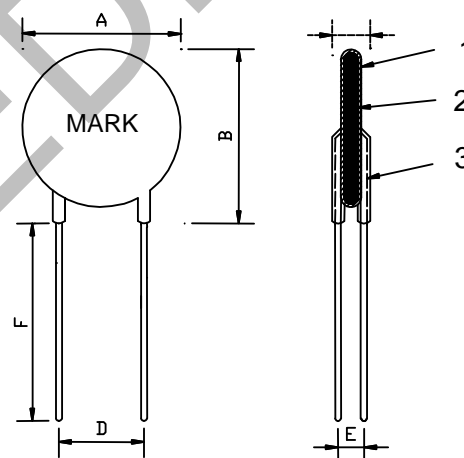


Fig.2

Model	A(Max.)	B(Max.)	C(Max.)	D	E(Max.)	F(Min.)	Figure No.
LP240-003	8.50	12.50	4.60	5.00±0.75	1.80	9.00	2
LP240-005	8.50	12.50	4.60	5.00±0.75	1.80	9.00	2
LP240-007	9.11	13.61	5.10	5.00±0.75	1.80	9.00	2
LP240-010	9.67	14.17	5.10	5.00±0.75	1.80	9.00	2
LP240-012	9.96	14.46	5.10	5.00±0.75	1.80	9.00	2
LP240-015	10.24	14.74	5.10	5.00±0.75	1.80	9.00	2
LP240-018	10.80	15.30	5.10	5.00±0.75	1.80	9.00	2
LP240-020	11.53	16.03	5.10	5.00±0.75	1.80	9.00	2
LP240-025	12.00	19.50	5.40	5.00±0.75	2.00	9.00	1

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LP240-030	12.00	20.50	5.40	5.00±0.75	2.00	9.00	1
LP240-040	16.00	19.50	5.40	5.00±0.75	2.00	9.00	1
LP240-050	16.00	19.50	5.40	5.00±0.75	2.00	9.00	1
LP240-065	15.00	23.00	5.40	5.00±0.75	2.00	9.00	1
LP240-075	18.00	21.50	5.40	10.00±0.75	2.00	9.00	1
LP240-090	20.00	25.50	5.40	10.00±0.75	2.20	9.00	1
LP240-100	20.00	25.50	5.40	10.00±0.75	2.20	9.00	1
LP240-130	22.00	27.50	5.40	10.00±0.75	2.20	9.00	1
LP240-150	22.00	27.50	5.40	10.00±0.75	2.20	9.00	1
LP240-170	24.00	27.50	5.60	10.00±0.75	2.20	9.00	1
LP240-200	28.00	31.50	5.60	10.00±0.75	2.20	9.00	1

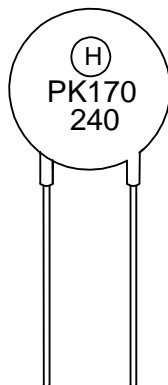
### 3.2 物料清单 BILL OF MATERIAL

编号 NO.	零件 Components	材料清单 Material	备注 Remark
1	包封材料 Material of coating	环氧树脂 Epoxy	
2	PTC 芯片 PTC Pill	高分子聚合物 Polymer	
3	引脚材料 Material of lead	镀锡铜包钢线 ( $\Phi 0.51 \pm 0.02\text{mm}$ 直径) Tinned copper clad steel wire ( $\Phi 0.51 \pm 0.02\text{mm}$ diameter)	LP240-003~ LP240-005
		镀锡铜包钢线 ( $\Phi 0.60 \pm 0.02\text{mm}$ 直径) Tinned copper clad steel wire ( $\Phi 0.60 \pm 0.02\text{mm}$ diameter)	LP240-007~ LP240-012
		镀锡铜线 ( $\Phi 0.60 \pm 0.02\text{mm}$ 直径) Tinned copper wire ( $\Phi 0.60 \pm 0.02\text{mm}$ diameter)	LP240-015~ LP240-020
		镀锡铜线 ( $\Phi 0.81 \pm 0.02\text{mm}$ 直径) Tinned copper wire ( $\Phi 0.81 \pm 0.02\text{mm}$ diameter)	LP240-025~ LP240-150
		镀锡铜线 ( $\Phi 1.00 \pm 0.02\text{mm}$ 直径) Tinned copper wire ( $\Phi 1.00 \pm 0.02\text{mm}$ diameter)	LP240-170~ LP240-200

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### 3.3 标识 MARKING

例如 FOR EXAMPLE



3.3.1 商标 Trade mark: (H)

3.3.2 产品型号 Products type: PK170 (LP240-170)

3.3.3 额定电压 Rated voltage: 240 (240V)

3.3.4 额定电流 Rated current: 170(1.7A)

## 4 电气特性和安规认证 ELECTRICAL CHARACTERISTICS & AGENCY RECOGNITION

4.1 测试环境温度 Testing environmental temperature: 25±2℃.

4.2 电气特性和安规认证 Electrical characteristics & Agency recognition

Model	Rated Voltage	Max.Int Voltage	Hold Current	Trip Current	Max.Time To Trip	Max. Current	Resistance Tolerance		Safety Approvals		
	Vmax,V	Vmax,V	IH,A	IT,A	at 5×IH,s	I <sub>max</sub> ,A	Rmin	Rmax			
LP240-003	240	265	0.03	0.09	15.0	1.0	28.00	75.00	○	○	○
LP240-005	240	265	0.05	0.15	15.0	1.0	14.00	41.00	○	○	○
LP240-007	240	265	0.07	0.21	15.0	1.0	8.50	25.00	○	○	○
LP240-010	240	265	0.10	0.20	15.4	3.0	6.20	15.00	○	○	○
LP240-012	240	265	0.12	0.24	15.8	3.0	2.80	11.20	○	○	○
LP240-015	240	265	0.15	0.30	15.8	3.0	2.50	10.00	○	○	○
LP240-018	240	265	0.18	0.36	15.8	4.0	2.50	9.00	○	○	○
LP240-020	240	265	0.20	0.40	16.0	4.0	2.80	5.60	○	○	○
LP240-025	240	265	0.25	0.50	16.0	4.0	2.50	5.10	○	○	○
LP240-030	240	265	0.30	0.60	16.2	5.0	2.05	4.32	○	○	○
LP240-040	240	265	0.40	0.80	16.5	5.0	1.20	3.50	○	○	○
LP240-050	240	265	0.50	1.00	16.8	5.0	0.65	2.10	○	○	○

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Model	Rated Voltage	Max.Int Voltage	Hold Current	Trip Current	Max.Time To Trip	Max. Current	Resistance Tolerance		Safety Approvals		
	Vmax,V	Vmax,V	IH,A	IT,A	at 5×IH,s	I <sub>max</sub> ,A	Rmin	Rmax			
							ohms	ohms	TUV	UR	CUR
LP240-065	240	265	0.65	1.30	17.4	5.0	0.55	1.80	○	○	○
LP240-075	240	265	0.75	1.50	17.8	6.0	0.50	1.35	○	○	○
LP240-090	240	265	0.90	1.60	18.4	6.0	0.35	1.10	○	○	○
LP240-100	240	265	1.00	2.00	19.7	8.0	0.32	1.00	○	○	○
LP240-130	240	265	1.30	2.60	21.8	8.0	0.25	0.85	○	○	○
LP240-150	240	265	1.50	3.00	22.5	8.0	0.20	0.70	○	○	○
LP240-170	240	265	1.70	3.40	23.8	12.0	0.18	0.65	○	○	○
LP240-200	240	265	2.00	4.00	28.9	12.0	0.10	0.50	○	○	○

●Denotes For Approved ;○Denotes For Pending

4.2.1 Vmax: 额定电流条件下产品能承受的最大电压。

Vmax: Maximum voltage device can withstand without damage at its rated current.

4.2.2 IH: 25±2℃的环境下产品不动作的最大电流。

IH: Maximum current at which the device will not trip at 25±2℃.

4.2.3 IT: 25±2℃的环境下产品的最小动作电流。

IT: Minimum current at which the device will trip at 25±2℃.

4.2.4 I<sub>max</sub>: 额定电压条件下产品能承受的最大故障电流。

I<sub>max</sub>: Maximum fault current device can withstand without damage at its rated voltage.

4.2.5 Rmin: 25±2℃的环境下产品的最小零功率电阻。

Rmin: Minimum device resistance at 25±2℃.

4.2.6 Rmax: 25±2℃的环境下产品的最大零功率电阻。

Rmax: Maximum device resistance at 25±2℃.

4.3 安规认证 Agency recognition

UL: Pending

CUL: Pending

TUV: Pending

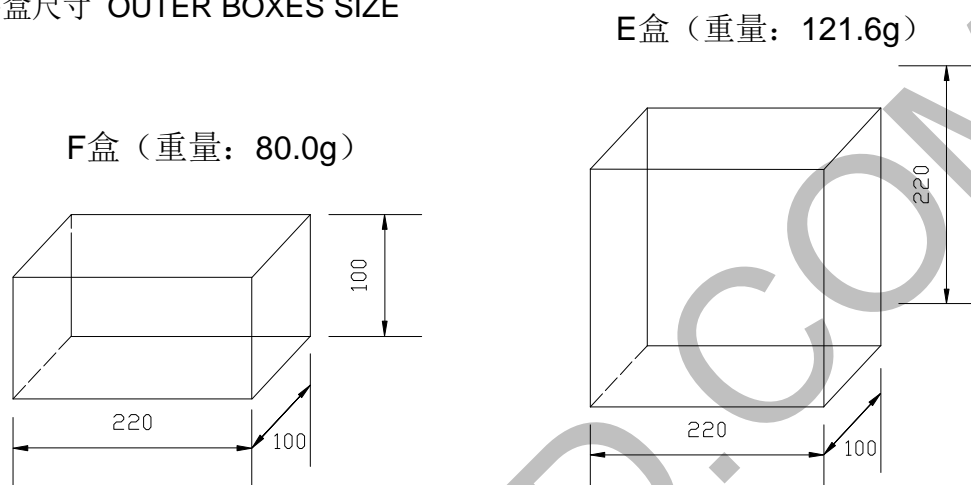
## 5 包装 PACKING

### 5.1 塑料袋尺寸 PLASTIC BAG SIZE

Type	A	B	C	D
Size	90×105mm	100×150mm	110×170mm	170×235mm

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## 5.2 外盒尺寸 OUTER BOXES SIZE



Model	Plastic bag type	Quantity of each bag (EA)	Total quantity of outer box (EA)	Box type
LP240-003	B	500	/	/
LP240-005	B	500	/	/
LP240-007	B	500	/	/
LP240-010	B	500	/	/
LP240-012	B	500	/	/
LP240-015	B	500	/	/
LP240-018	B	500	/	/
LP240-020	B	500	/	/
LP240-025	B	500	/	/
LP240-030	B	200	/	/
LP240-040	B	200	/	/
LP240-050	B	200	/	/
LP240-065	B	200	/	/
LP240-075	B	200	/	/
LP240-090	B	200	/	/
LP240-100	C	200	/	/
LP240-130	C	200	/	/
LP240-150	C	200	/	/
LP240-170	D	200	/	/
LP240-200	D	200	/	/

## 6 使用环境条件 OPERATION CONDITIONS

6.1 环境温度 Ambient temperature: -40℃~85℃.

6.2 相对湿度 Humidity: ≤95%HR(40℃)

6.3 大气压 Atmospheric pressure: 86Kpa ~106Kpa.

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6.4 振动频率 Vibration frequency: 10Hz ~ 50Hz.

6.5 加速度 Acceleration: 98m/s<sup>2</sup>.

6.6 贮存温度 Storage temperature: -40℃~85℃.

6.7 焊接 Soldering

6.7.1 波峰焊 Wave Soldering:

焊接温度 Soldering Temperature:260℃~270℃

焊接时间 Soldering Time:≤3sec.

焊接位置 Soldering Position:引线距自复保险丝底部≥5mm 处。

6.7.2 手工焊接 Manual soldering

焊接温度 Soldering Temperature:280℃~300℃

焊接时间 Soldering Time: ≤2sec.

焊接位置 Soldering Position:引线距自复保险丝底部≥5mm 处。

## 7 信赖性试验 RELIABILITY TEST

1	高温放置 Thermal Aging Test	电阻变化率: ±30% 外观、结构无异常。 The variation rate of the resistance:≤±30% No visible damage	在温度为80±5℃的恒温槽中放置1000h 后取出, 在室温25±2℃中放置1 小时后测量恢复阻值。 Test temperature:80±5℃ Conditioned for :1000Hrs After the test, the resistance of the samples should be checked after set at the room temperature 25±2℃ for 1 hour or more.
2	低温放置 Cold Aging Test	电阻变化率: ±30% 外观、结构无异常。 The variation rate of the resistance:≤±30% No visible damage	在温度为-40±5℃的恒温槽中放置1000h 后取出, 在室温25±2℃中放置1 小时后测量恢复阻值。 Test temperature:-40±5℃ Conditioned for:1000Hrs After the test, the resistance of the samples should be checked after set at the room temperature 25±2℃ for 1 hour or more.
3	高温高湿放置 High temperature and High humidity shelf test	电阻变化率: ±30% 外观、结构无异常。 The variation rate of the resistance:≤±30% No visible damage	在温度为80±5℃, 湿度为90-95%RH 的恒温槽中放置1000h 后取出, 在室温25±2℃中放置1 小时后测量恢复阻值。 Test temperature:80±5℃ Test humidity:90-95%RH Conditioned for :1000Hrs After the test, the resistance of the samples should be checked after set at the room temperature 25±2℃ for 1 hour or more.
4	冷热循环实验 Heat-Cold Cycling test	电阻变化率: ±30% 外观、结构无异常。 The variation rate of the resistance:≤±30% No visible damage	在-40±5℃和125±5℃的环境温度中各放置 30 分钟, 循环10次, 每次高低温循环都在 25±2℃的环境温度中过渡5 分钟, 试验结束后在室温25±2℃中放置1 小时后测量恢复阻值。 One cycle: at -40±5℃ for 30mins,and then at 25±2℃ for 5mins,and then at 125±5℃ for

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			30mins, and then at 25±2℃ for 5mins Cycles:10. After the test, the resistance of the samples should be checked after set at the room temperature 25±2℃ for 1 hour or more.
5	连续负载试验 Endurance test	外观、结构必须无异常。 No visible damage	在保险丝动作后，两端施加其额定电压，持续168小时。 Resettable fuse should be operated at the "tripped-state" for 168 hour, with the rated voltage on the samples.
6	引出端强度 Strength of termination	外观、结构必须无异常、端子无脱落。 No visible damage The terminals should not be disconnected	固定本体，沿端子引出方向施加5N 力负重10±1sec。 The body should be fixed and the force of 0.5N should pull the terminals along the axial for 10±1seconds.
7	耐振动性 Vibration test	外观、结构必须无异常。 No visible damage	将本体固定在安装台面上。 振幅：1.5mm（全振幅3.0mm） 振动频率：10-55-10Hz 按照每周期（10-55-10Hz）1 分钟反复沿X、Y、Z 三个方向各进行1h。 The change rate of vibration frequency shall be so selected that the frequency should increase from 10 to 55 Hz and return again to 10 Hz for 1 minute with 3.0mm of vibration width. Such vibration cycle shall be repeated at X、Y and Z directions for each 1 hour.
8	可焊性 Solderability	95%以上的焊接面被上焊锡。 A new uniform coating solder shall cover a minimum 95% of the surface being immersed.	在助焊剂中浸5-10 秒，然后浸入焊锡中3±0.5秒，检查样品焊接面。 焊锡池温度：245±5℃ 浸入深度：距样品底部4±1mm Dip each terminal to flux for 5-10s. Then dip each terminals into 245±5℃ solder for 3±0.5seconds to the 4±1mm(pants length) above from body.
9	耐热性 Resistance to soldering heat	电阻变化率：±30% The variation ratio within resistance±30%.	将焊脚浸入高温焊锡池10 秒后拿出，在室温25±2℃中放置1 小时后测量恢复阻值。焊锡池温度：260±5℃ 浸入深度：距样品底部4±1mm Dip each terminal into 260±5℃ solder for 10±1s to the 4±1mm above from body. After the test, the resistance of the samples should be checked after set at the room temperature 25±2℃ for 1 hour or more.

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10	跌落 Impact Test	符合电气特性 According to the electrical characteristics	将产品从半高度（500mm）跌落，试验表面应垫以30mm 厚硬质木板，跌落频率为10 次/分钟。 Free falling from the semi-height (500mm) to the surface which should be 30mm thick rigid boards, with falling frequency of 10 times / min.
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## 8 注意事项 Warning

- 8.1 使用本产品之前请务必阅读本规格书。  
Please read this specification before use the product.
- 8.2 使用本产品时请务必遵循本规格书中的各项要求，超出额定范围内的操作都有可能造成元件损坏。  
Using of this product must be sure to follow the requirement of this specification, operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and flame.
- 8.3 PPTC 自复保险丝适用于突发性的过流保护，应用于反复的过流线路中是不合适的。  
PPTC resettable fuse are intended for occasional overcurrent protection. Application for repeated over current condition or prolonged trip are not anticipated.
- 8.4 请不要将 PPTC 自复保险丝和化学溶剂接触，长时间的接触可能破坏产品的特性。  
Please avoid contact of PPTC resettable fuse with chemical solvent. Prolonged contact will damage the device performance.
- 8.5 PPTC 自复保险丝是依照指定的用途而综合设计的，请不要在指定的用途以外使用。  
You are requested not to use our product deviating from the agreed specifications.