



上海立凯电控科技有限公司

Shanghai LineKey Technology Co., Ltd.



## Specification For Approval

### 规格书



客户名称:

部件名称:

一体成型电感

客户料号:

立凯料号:

SPMA7054HC-680MT

| 供方确认 |    |     | 客户确认 |
|------|----|-----|------|
| 制作   | 审核 | 核准  |      |
| 殷文海  | 李娇 | 赵建平 |      |

Spec 变更记录:

| 版本 | 序号 | 更改描述     | 更改原因 | 备注 |
|----|----|----------|------|----|
| A0 | 01 | Released |      |    |
|    |    |          |      |    |

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客户/CLIENT:

承制方/MANUFACTURER: 上海立凯电控科技有限公司

型号/MODEL: SPMA7054HC-680MT

版本/REV.: A0 页数: 2/5

## 1. Scope

This specification applies to SPMA7054HC-680MT SMD Molding Power Inductor.

## 2. Product Description and Identification (Part Number)

SPMA    7054    HC    -    680    M    T

①                  ②                  ③                  ④                  ⑤          ⑥

① Product Series: Power Inductor Molded, AEC-Q200 qualified

② Size: 7.7mm x 7.2mm x 5.2mm

③ Wide Pattern

④ Inductance: 68uH

⑤ M:  $\pm 20\%$

⑥ T: Tape & Reel

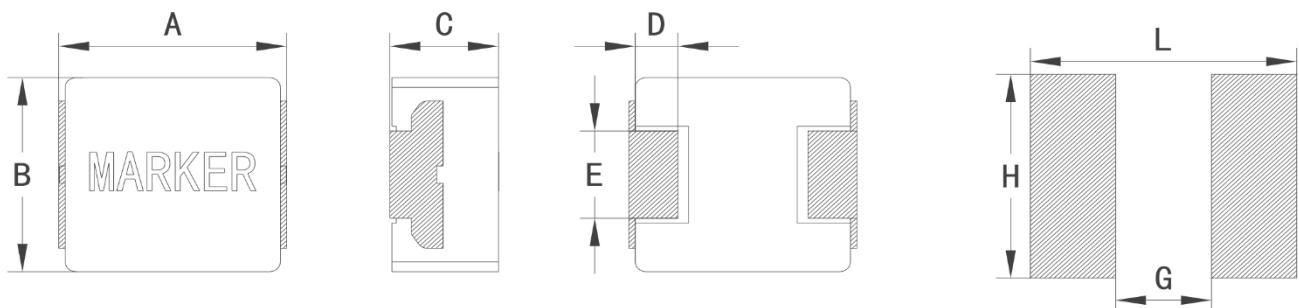
## 3. Operating & Storage Temperature

1) Operating temperature range:  $-55^{\circ}\text{C} \sim +155^{\circ}\text{C}$  (Including Self-heating) .

2) Storage temperature range:  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$  and RH 70% (Max.)

## 4. Shape and Dimensions (Unit: mm)

Dimensions and recommended PCB pattern for reflow soldering



| A              | B             | C             | D             | E             | H       | G        | L       |
|----------------|---------------|---------------|---------------|---------------|---------|----------|---------|
| 7.7 $\pm$ 0.35 | 7.2 $\pm$ 0.3 | 5.2 $\pm$ 0.2 | 2.0 $\pm$ 0.3 | 3.0 $\pm$ 0.3 | 3.5 Ref | 2.55 Ref | 9.2 Ref |

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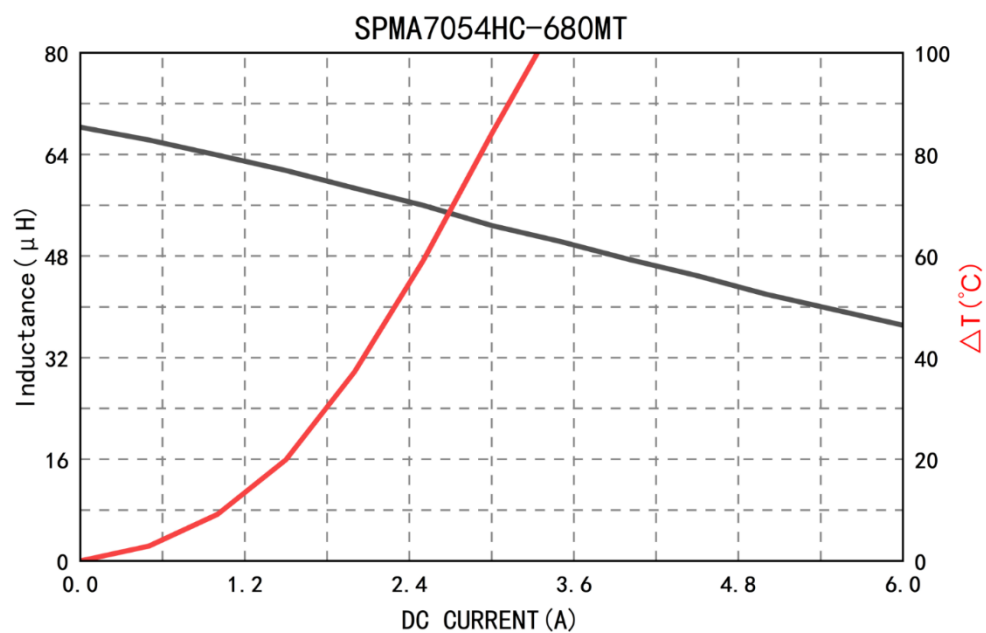
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## 5. Electrical Characteristics

| Part Number      | Inductance<br>( $\mu$ H) | DCR(m $\Omega$ )<br>Max | Isat Max.<br>(A) | Isat Typ.<br>(A) | Irms Max.<br>(A) | Irms Typ.<br>(A) | Test Condition |
|------------------|--------------------------|-------------------------|------------------|------------------|------------------|------------------|----------------|
| SPMA7054HC-680MT | 68 $\pm$ 20%             | 255                     | 2.4              | 2.8              | 1.8              | 2.0              | 100KHz /1V     |

- 1) Isat: DC current at which the inductance drops approximate 30% from its value without current;
- 2) Irms: DC current that causes the temperature rise ( $\Delta T = 40^{\circ}\text{C}$ ) from  $25^{\circ}\text{C}$  ambient.



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## 6. Reliability Test

| Items                                      | Requirements                                                                      | Test Methods and Remarks                                                                                                                                                                                                       |
|--------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.1<br>Mechanical<br>shock                 | 1. No case deformation or change in appearance<br>2. $\Delta L/L_0 \leq \pm 20\%$ | 1. Acceleration: 100G<br>2. Pulse time: 6ms<br>3. Direction: $\pm X \pm Y \pm Z$<br>4. 3 times in each positive and negative direction of 3 mutual perpendicular directions                                                    |
| 6.2<br>Vibration                           | 1. No case deformation or change in appearance<br>2. $\Delta L/L_0 \leq \pm 20\%$ | 1. Reflow: 2 times<br>2. Frequency: 10HZ ~ 55HZ ~ 10HZ, 20Min/Cycles<br>3. Amplitude: 1.52 mm<br>4. Directions: X, Y, Z 5. Time: 12 cycle/ direction                                                                           |
| 6.3<br>Solderability                       | 1. No case deformation or change in appearance<br>2. New solder coverage > 95%    | 1. Preheat: $155^\circ\text{C} \pm 5^\circ\text{C}$ , 60S $\pm$ 2S<br>2. Tin: lead-free.<br>3. Temperature: $240^\circ\text{C} \pm 5^\circ\text{C}$ , flux 3.0S $\pm$ 0.5S                                                     |
| 6.4<br>Thermal<br>Shock                    | Inductance change: Within $\pm 20\%$ Without distinct damage in appearance        | 1. $-55^\circ\text{C}$ for 30 minutes, then $155^\circ\text{C}$ for 30 minutes as 1 cycle. Go through 1000 cycles.<br>2. Max transfer time is 3 minutes.<br>3. Measured at room temperature after placing for 24 $\pm$ 2 hours |
| 6.5<br>High<br>Temperature<br>Storage Test | 1) No visible mechanical damage.<br>2) Inductance change: Within $\pm 20\%$       | 1) Storage Temperature: $155^\circ\text{C} \pm 2^\circ\text{C}$ .<br>2) Duration: 1000 Hours.<br>3) Recovery: then measured at room ambient temperature after placing 24 hours.                                                |
| 6.6<br>Low<br>Temperature<br>Storage Test  | 1) No visible mechanical damage.<br>2) Inductance change: Within $\pm 20\%$       | 1) Storage Temperature: $-55^\circ\text{C} \pm 2^\circ\text{C}$ .<br>2) Duration: 1000 Hours.<br>Recovery: then measured at room ambient temperature after placing 24 hours.                                                   |
| 6.7<br>Humidity<br>Resistance              | 1) No visible mechanical damage.<br>2) Inductance change: Within $\pm 20\%$       | 1) Reflow 2 times,<br>2) $85^\circ\text{C}$ , 85%RH, 1000 hours<br>3) Measured at room temperature after placing for 24 $\pm$ 2 hours                                                                                          |

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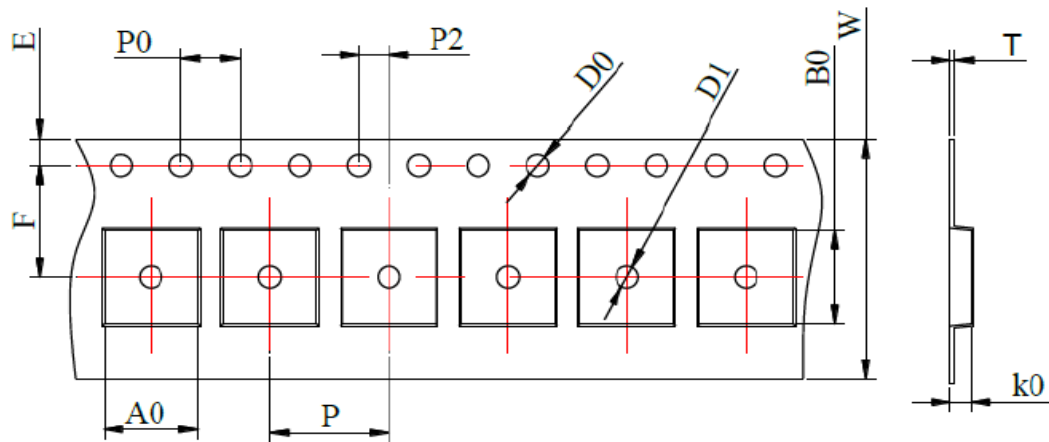
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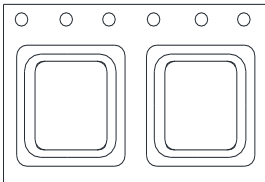
7. Packaging and Marking

7.1 Carrier Tape Dimensions (Unit: mm)

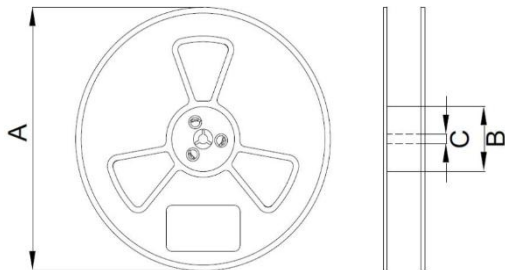


| W          | P          | P0        | P2        | D0          | D1          | T            | A0          | B0          | K0          | E            | F           |
|------------|------------|-----------|-----------|-------------|-------------|--------------|-------------|-------------|-------------|--------------|-------------|
| 16<br>±0.3 | 12<br>±0.1 | 4<br>±0.1 | 2<br>±0.1 | 1.5<br>±0.1 | 1.5<br>±0.1 | 0.4<br>±0.05 | 6.9<br>±0.1 | 7.5<br>±0.1 | 4.3<br>±0.1 | 1.75<br>±0.1 | 7.5<br>±0.1 |

7.2 Taping



7.3 Reel Dimensions



| Item | Dimension |
|------|-----------|
| A    | 330±2     |
| B    | 97±0.5    |
| C    | 13±0.2    |

8. Packaging Specification

1500PCS/ Reel

|                        |                      |                        |
|------------------------|----------------------|------------------------|
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