

# APPROVAL SHEET

|                      |                               |               |            |
|----------------------|-------------------------------|---------------|------------|
| PRODUCT              | Power Inductors (CSME Series) |               |            |
| SERIES               | CSME0540D                     |               |            |
| PART NO.             |                               |               |            |
| DESCRIPTION          |                               |               |            |
| ISSUE DATE           | 2024/04/02                    | REVISION DATE | 2024/04/02 |
| REFERENCE NO.        |                               |               |            |
| RoHS COMPLIANCE ITEM |                               |               |            |
| Halogen Free         |                               |               |            |

|                   |             |
|-------------------|-------------|
| CUSTOMER APPROVAL |             |
| CUSTOMER          | CUSTOMER PN |

- Vendor:

Walsin Technology Corporation  
566-1, Kao Shi Road, Yangmei, Taiwan  
Tel. 886-3-475-3711    www.passivecomponent.com
- Manufacturer:

INPAQ Technology Co., Ltd.  
No.11, Ke-Yi St., Chunan, Miaoli 35059, Taiwan  
Tel. 886-37-585-555    www.inpaq.com.tw

Note:

- The product is subjected to changes in accordance with individual product change notification (PCN) agreement (if any) or Walsin Technology Corporation's policy.
- Hyperlinks may be included in this document and may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Walsin Technology Corporation disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

## Power Inductors Engineering Specification

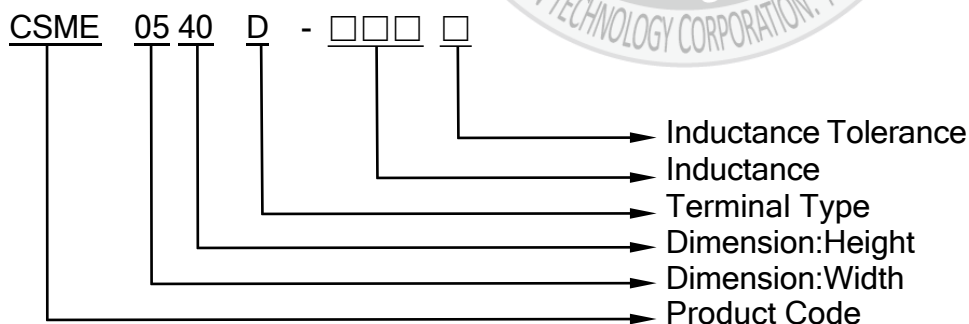
### 1. Feature

- High saturation current realized by material properties and structure design.
- Low DC resistance to achieve high conversion efficiency and lower temperature rising.
- Low Profile: 5.0 mm × 5.0 mm × 4.0 mm.
- Magnetically shielded structure to accomplish high resolution in EMC protection.
- Halogen free, Lead Free, RoHS Compliance.
- Surface marking : Have.
- The moisture sensitivity level (MSL) of products is level 1.

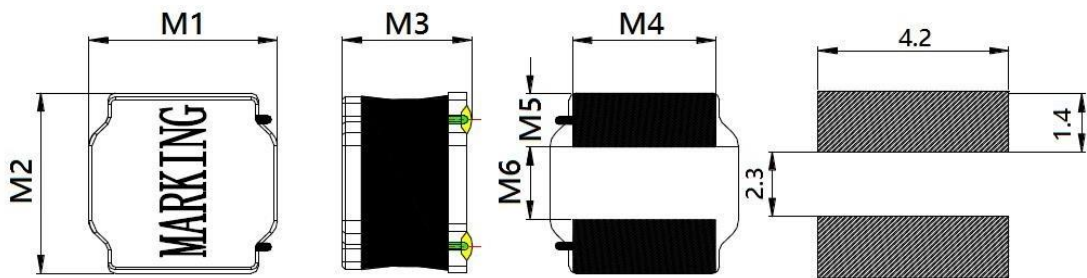
### 2. Applications

- Smart phone, PAD
- DC/DC converter
- Thin-type power supply module,

### 3. Explanation of Part Number



4. Shapes and Dimensions (Unit:mm)

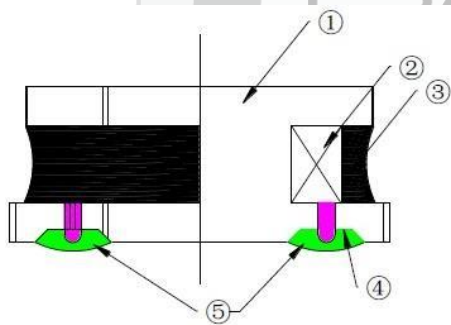


| ITEM | M1   | M2   | M3   | M4   | M5   | M6   |
|------|------|------|------|------|------|------|
| DIM  | 5.0  | 5.0  | 4.0  | 4.0  | 1.25 | 2.5  |
| TOL  | ±0.2 | ±0.2 | MAX. | ±0.2 | ±0.3 | ±0.3 |

5. Temperature Specifications

Operating Temperature range : - 40℃ to +125℃ (Including coil's self temperature rise)  
Storage Temperature range : - 40℃ to + 105℃

6. Structure



7. Material List

| No. | Components        | Material                          |
|-----|-------------------|-----------------------------------|
| 1   | Drum core         | Ni-Zn ferrite core                |
| 2   | Wire              | Polyurethane enameled copper wire |
| 3   | Adhesive          | Epoxy resin magnetic powder       |
| 4   | Plating electrode | Ag/Ni/Sn                          |
| 5   | Outer electrode   | Sn-Ag-Cu alloy                    |

## 8. Electrical Specification

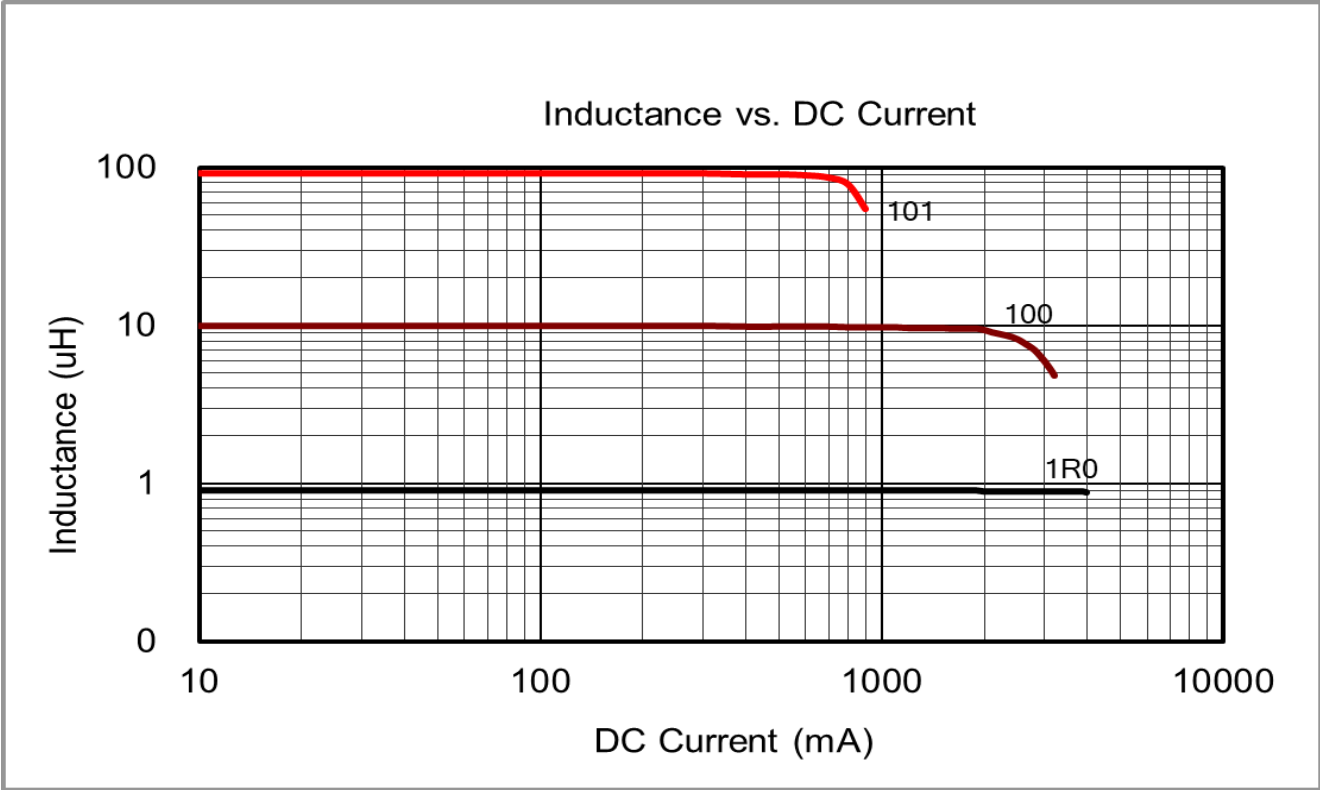
### ● Specifications

| Part Number.   | Mark | Inductance (uH) | Inductance Tolerance | DC Resistance (mΩ) ±30% | Isat (A) MAX. | Isat (A) TYP. | Irms (A) MAX. | Irms (A) TYP. |
|----------------|------|-----------------|----------------------|-------------------------|---------------|---------------|---------------|---------------|
| CSME0540D-1R0□ | 1R0  | 1.0             | N                    | 13                      | 7.35          | 7.65          | 4.90          | 5.20          |
| CSME0540D-1R5□ | 1R5  | 1.5             | N                    | 17                      | 6.40          | 6.70          | 4.50          | 4.80          |
| CSME0540D-2R2□ | 2R2  | 2.2             | N, M                 | 22                      | 5.00          | 5.30          | 3.70          | 4.00          |
| CSME0540D-3R3□ | 3R3  | 3.3             | N, M                 | 27                      | 4.00          | 4.30          | 3.30          | 3.60          |
| CSME0540D-4R7□ | 4R7  | 4.7             | N, M                 | 29                      | 3.30          | 3.60          | 3.10          | 3.40          |
| CSME0540D-6R8□ | 6R8  | 6.8             | N, M                 | 49                      | 2.80          | 3.10          | 2.40          | 2.80          |
| CSME0540D-8R2□ | 8R2  | 8.2             | M                    | 55                      | 3.00          | 3.30          | 2.30          | 2.60          |
| CSME0540D-100□ | 100  | 10              | N, M                 | 56                      | 2.30          | 2.60          | 2.10          | 2.40          |
| CSME0540D-150□ | 150  | 15              | N, M                 | 80                      | 2.00          | 2.30          | 1.80          | 2.10          |
| CSME0540D-220□ | 220  | 22              | N, M                 | 126                     | 1.50          | 1.80          | 1.40          | 1.70          |
| CSME0540D-330□ | 330  | 33              | N, M                 | 180                     | 1.30          | 1.60          | 1.20          | 1.50          |
| CSME0540D-470□ | 470  | 47              | N, M                 | 310                     | 1.10          | 1.40          | 0.90          | 1.20          |
| CSME0540D-680□ | 680  | 68              | M                    | 400                     | 0.90          | 1.20          | 0.80          | 1.10          |
| CSME0540D-101□ | 101  | 100             | N, M                 | 560                     | 0.75          | 1.05          | 0.70          | 1.00          |

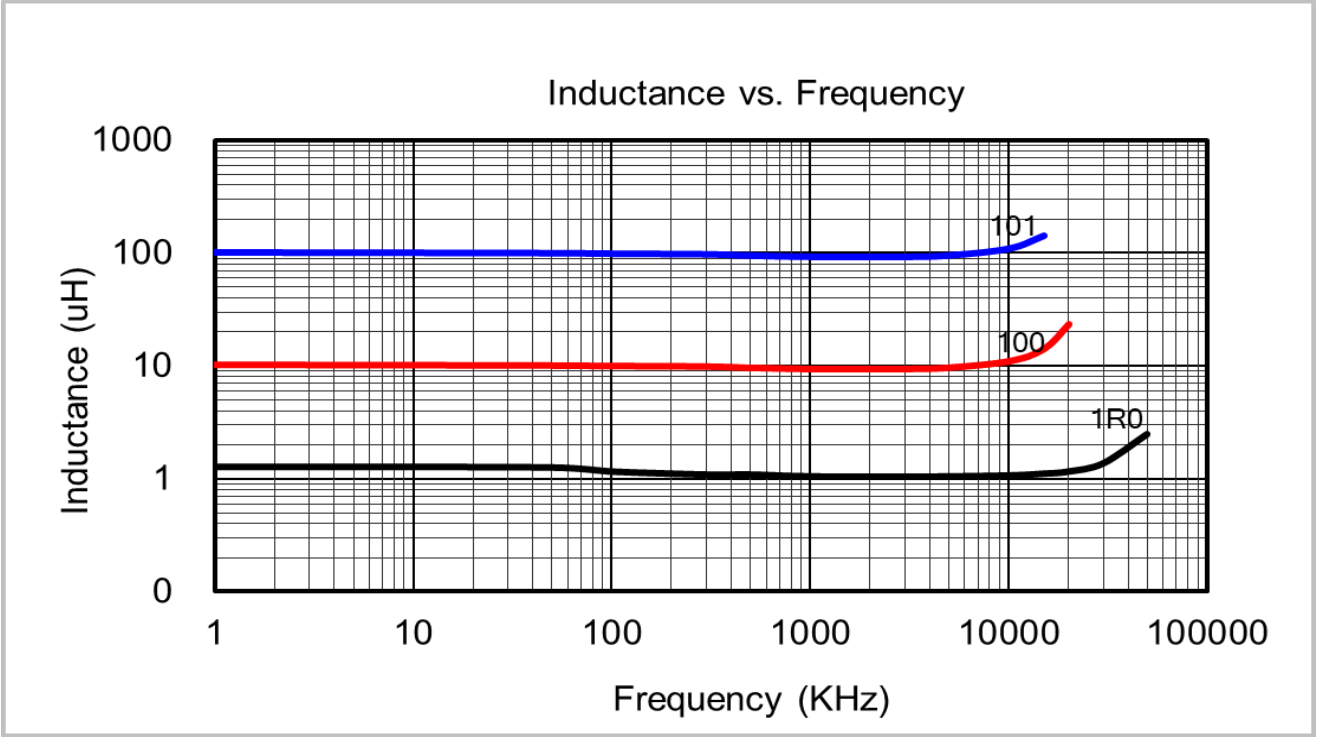
### Notes

- Tolerance: N: ±30%, M: ±20%
- Test frequency: 100KHz/0.25V
- Inductance: CH3302
- DC Resistance: CH16502
- Isat/Irms: CH3302+CH1320
- Isat : DC saturation current that will cause initial inductance to drop approximately 30% max.
- Irms : DC current that will cause an approximate ΔT of 40°C.
- MSL: Level 1

● Current Characteristic

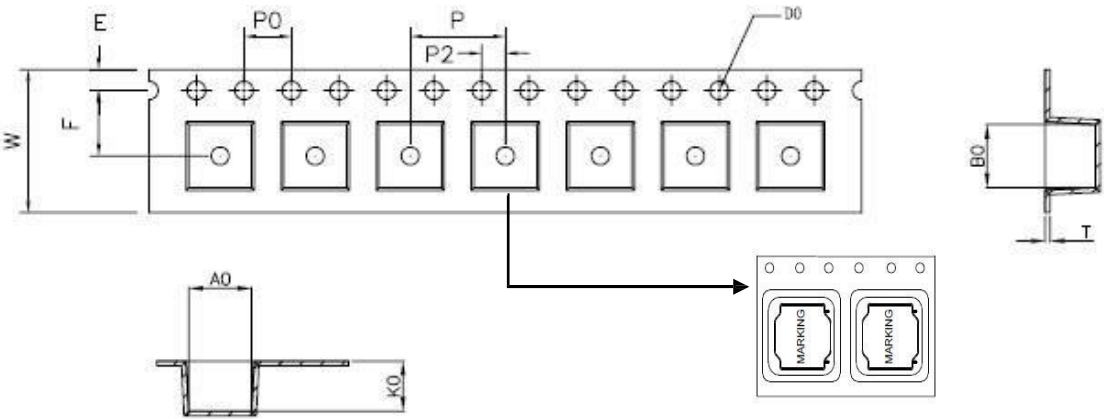


● Frequency Characteristic



9. Packing

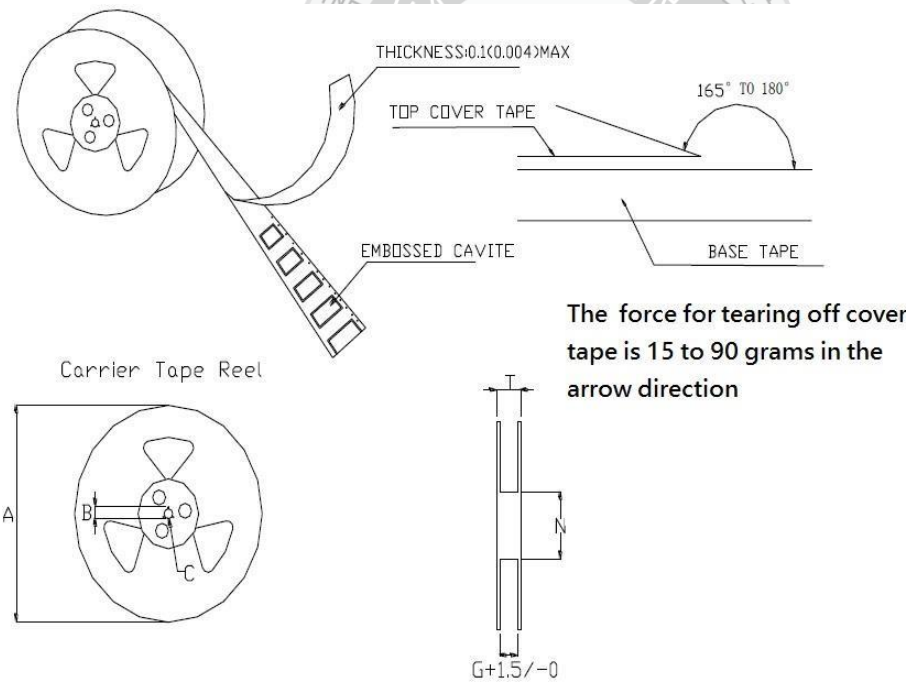
Carrier Tape Dimensions



Unit:mm

| ITEM | W    | P    | F     | E    | D0   | P0   | P2   | T     | A0   | B0   | K0    |
|------|------|------|-------|------|------|------|------|-------|------|------|-------|
| DIM  | 12.0 | 8.00 | 5.50  | 1.75 | 1.50 | 4.00 | 2.00 | 0.4   | 5.3  | 5.3  | 4.3   |
| TOLE | ±0.3 | ±0.1 | ±0.15 | ±0.1 | +0.1 | ±0.1 | ±0.1 | ±0.05 | ±0.1 | ±0.1 | ±0.15 |

Carrier Reel Dimension



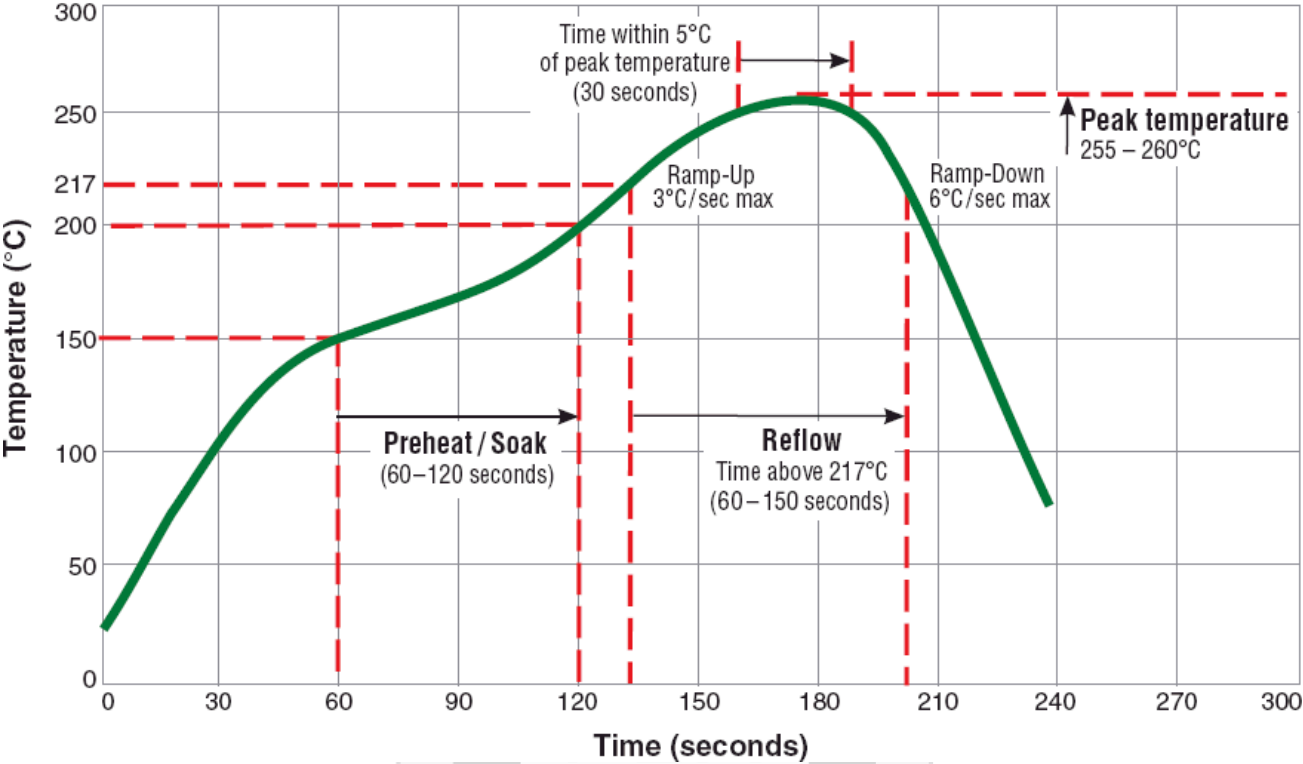
| Type | A   | B      | C      | G    | N   | T    |
|------|-----|--------|--------|------|-----|------|
| 12mm | 330 | 21±0.8 | 13±0.4 | 12.4 | 100 | 16.4 |

Packaging Quantity

1.5KPCS/ Reel

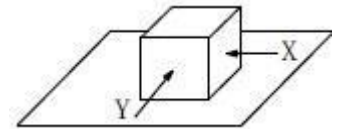
10. Recommended Soldering Conditions

Typical RoHS Reflow Profile



## 11. Reliability and Test Condition

- External appearance : No external defects can be found in the visual inspection.
- Electrode strength : No electrode detachment should be found when the device is pushed in two directions of X and Y with the force of 10.0N for  $60 \pm 2$  seconds after soldering between copper plate and the electrodes. (Refer to figure at right)



- Vibration test : Inductance deviation is within  $\pm 10.0\%$  after 1 hour sweeping vibration in each three directions, namely, forward and backward, up and down, right and left. The frequency is  $10 \sim 55 \sim 10\text{Hz}$  and the amplitude of 1 minute cycle is 1.5mm PP.
- Humidity test : Inductance deviation is within  $\pm 5.0\%$  after  $96 \pm 4$  hours test under the condition of relative humidity of  $90 \sim 95\%$  and temperature of  $60 \pm 2^\circ\text{C}$ , and 1 hour storage under room ambient conditions after the device is wiped with dry cloth.

