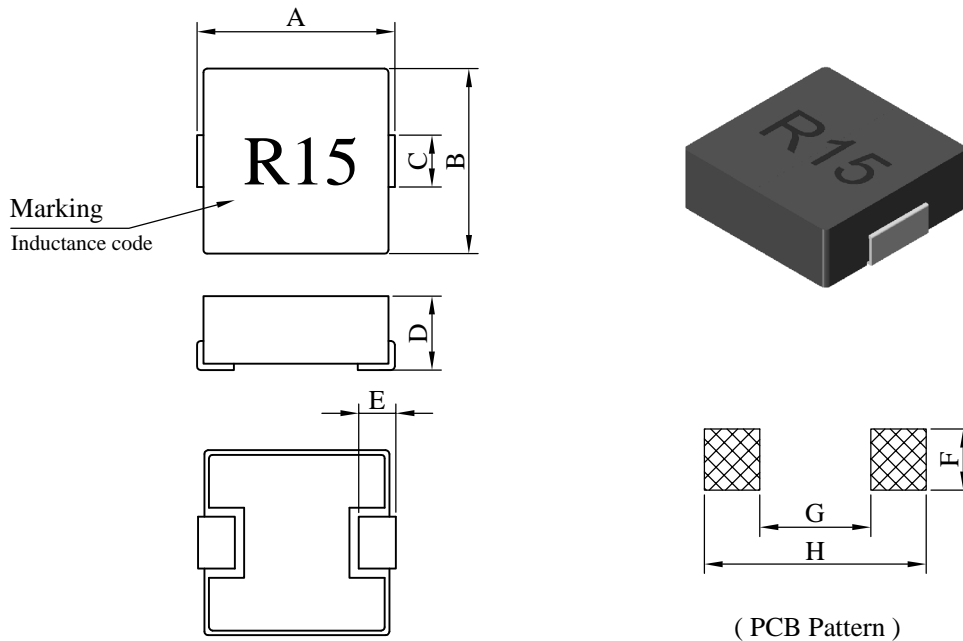


SPECIFICATION FOR APPROVAL

REF. :

| | | | | | |
|------------|-----------------------------|---------------|------------|------------------|---|
| PROD. NAME | Shielded SMD Power Inductor | ABC'S DWG NO. | | HE1040□□□□S□-□□□ | |
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I . Configuration and dimensions :



Unit : m/m

| A | B | C | D | E | F | G | H |
|------------|-------------|------------|-----------|------------|-----------|-----------|------------|
| 11.50 max. | 10.00 ±0.30 | 2.80 ±0.50 | 4.00 max. | 2.00 ±0.50 | 3.30 ref. | 6.00 ref. | 12.00 ref. |

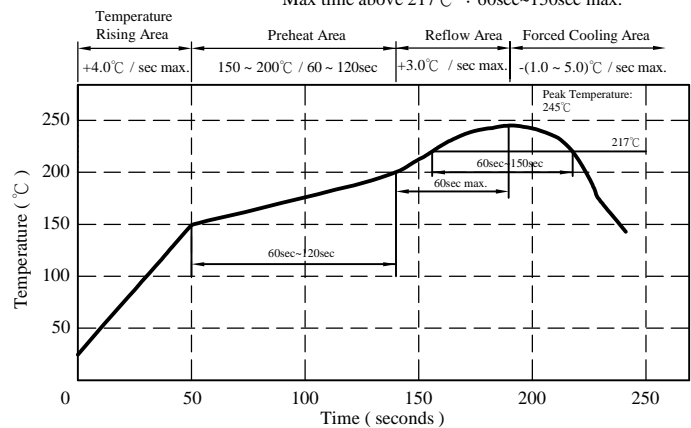
II . Description :

- a . Powder molding construction
- b . Magnetically shielded
- c . Enamelled copper wire : N class
- d . Product weight : 2.30g (ref.)
- e . Moisture sensitivity Level 2a
- f . Products comply with RoHS' requirements
- g . Halogen free

Peak Temp : 245°C max.
 Max. Peak Temp - 5°C : 30sec max.
 Max time above 217°C : 60sec~150sec max.

III . General specification :

- a . Storage temp. : -55°C ~ +125°C
- b . Operating temp. : -55°C ~ +125°C
(Temp. rise included)
- c . Resistance to solder heat : 245°C . 10 secs.



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IV . Electrical characteristics :

| DWG No. | Inductance (uH) | RDC (mΩ) | | Isat (A) typ. | Irms (A) typ. |
|------------------|----------------------|---------------|-------|-----------------------|-----------------------|
| | | typ. | max. | | |
| HE1040R15MS□-□□□ | 0.15 ±20% | 0.50 | 0.65 | 75.0 | 40.0 |
| HE1040R19MS□-□□□ | 0.19 ±20% | 0.70 | 0.80 | 60.0 | 38.0 |
| HE1040R36MS□-□□□ | 0.36 ±20% | 1.05 | 1.20 | 58.0 | 30.0 |
| HE1040R39MS□-□□□ | 0.39 ±20% | 1.10 | 1.30 | 50.0 | 30.0 |
| HE1040R41MS□-□□□ | 0.41 ±20% | 1.10 | 1.30 | 45.0 | 30.0 |
| HE1040R45MS□-□□□ | 0.45 ±20% | 1.10 | 1.30 | 45.0 | 29.0 |
| HE1040R47MS□-□□□ | 0.47 ±20% | 1.60 | 1.80 | 40.0 | 26.0 |
| HE1040R56MS□-□□□ | 0.56 ±20% | 1.60 | 1.80 | 39.0 | 25.0 |
| HE1040R68MS□-□□□ | 0.68 ±20% | 2.40 | 2.70 | 39.0 | 22.0 |
| HE1040R88MS□-□□□ | 0.88 ±20% | 2.70 | 3.00 | 38.0 | 20.0 |
| HE10401R0MS□-□□□ | 1.00 ±20% | 3.00 | 3.30 | 28.0 | 18.0 |
| HE10401R5MS□-□□□ | 1.50 ±20% | 3.80 | 4.20 | 24.0 | 16.0 |
| HE10402R2MS□-□□□ | 2.20 ±20% | 6.70 | 7.00 | 22.0 | 12.0 |
| HE10403R3MS□-□□□ | 3.30 ±20% | 10.80 | 11.80 | 17.0 | 10.0 |
| HE10404R7MS□-□□□ | 4.70 ±20% | 15.00 | 16.50 | 15.0 | 9.5 |
| HE10405R6MS□-□□□ | 5.60 ±20% | 17.60 | 19.30 | 14.0 | 8.5 |
| HE10406R8MS□-□□□ | 6.80 ±20% | 21.20 | 23.30 | 12.0 | 8.0 |
| HE10408R2MS□-□□□ | 8.20 ±20% | 26.00 | 29.00 | 9.0 | 7.0 |

- 1). Electrical specifications at 25°C
- 2). Inductance Test Condition. :500kHz / 0.25V
- 3). Isat base on $\Delta L / L0A=30\%$ typ.(Approximately transient current)
- 4). Irms base on Temp. rise 40°C typ.

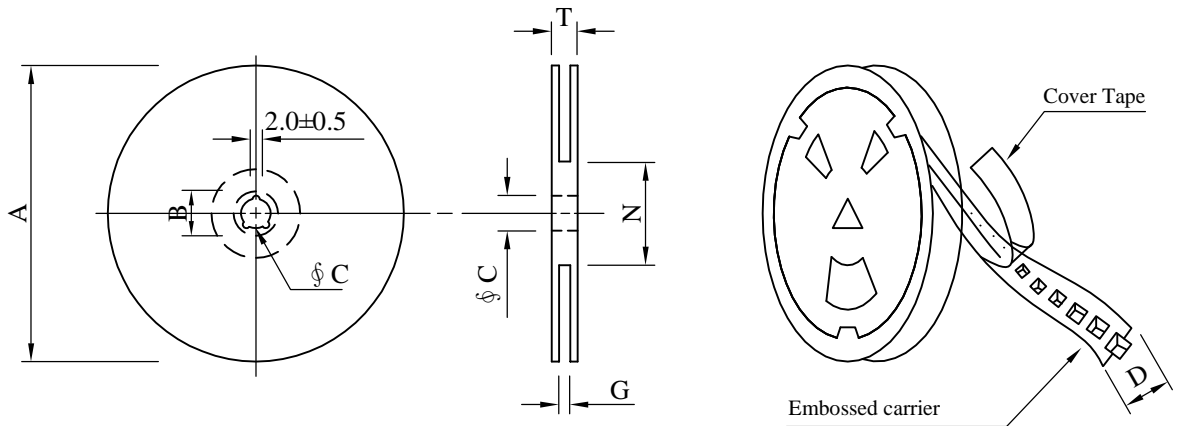
SPECIFICATION FOR APPROVAL

REF. :

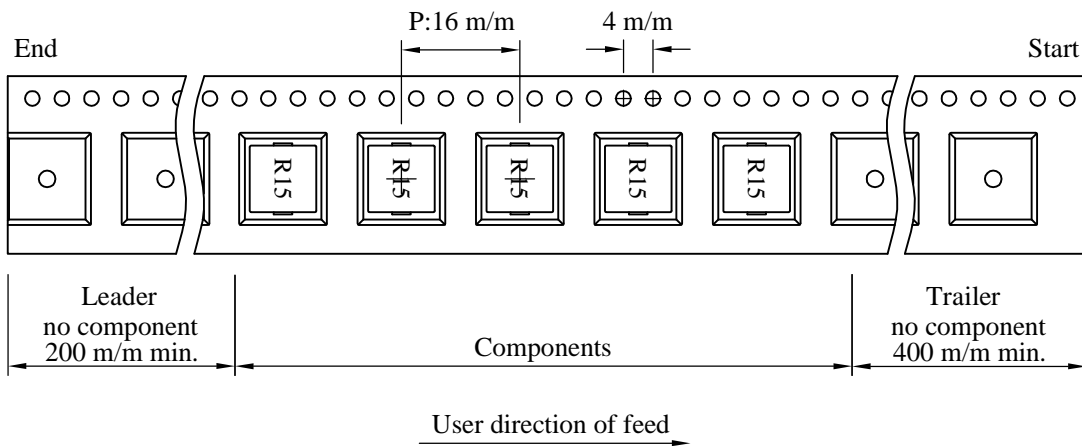
| | | | | | |
|------------|-----------------------------|---------------|------------------|------|---|
| PROD. NAME | Shielded SMD Power Inductor | ABC'S DWG NO. | HE1040□□□□S□-□□□ | | |
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V . Packaging information :

(1) Configuration



※Carrier tape width : D



(2) Dimensions

Unit:m/m

| Style | A | B | C | D | G | N | T |
|---------|-----|--------|--------|----|------------------|------------------|------|
| 13 - 24 | 330 | 21±0.8 | 13±0.5 | 24 | 26 ⁺⁰ | 60 ⁻⁰ | 30.4 |

(3) Q'TY & G.W. Per package

| Code | Inner : Reel | | | Outer : Carton | | |
|------|--------------|----------|---------|----------------|-----------|--------------|
| | QTY (pcs) | G.W. (g) | Style | QTY (pcs) | G.W. (Kg) | Size (cm) |
| B | 800 | 2,400 | 13 - 24 | 3,200 | 11.00 | 38 x 37 x 22 |

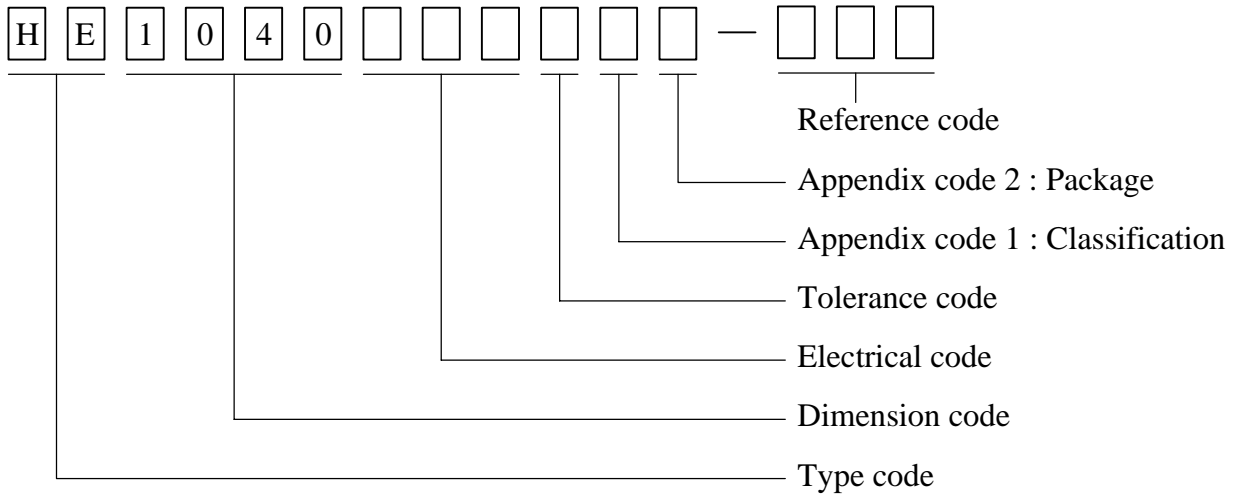
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VI . Drawing number expression :



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VII . Reliability test :

| Item | Reference documents | Test Condition | Test Specification |
|-------------------------------------|--|---|---|
| 1.High Temperature Exposure | MIL-STD-202 Method 108 | 1.Temperature: 125±2℃ 2.Time:96±2 hours. | 1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%. |
| 2.Temperature Cycling | JESD22-A 104 | 1.Temperature: -40℃ ~ +125℃ 2.Number of cycle:100 cycle 3.Dwell time:30 minutes | 1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%. |
| 3.Biased Humidity Test | MIL-STD-202 Method 103 | 1.Temperature : 85±2 ℃ 2.Humidity: 85% RH. 3.Time:96±2 Hours | 1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%. |
| 4.Operational Life | JESD22-A 108 | 1.Temperature: 125℃ (Temp. rise included) 2.Time:96±2 hours. 3.Rated current | 1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%. |
| 5.External Visual | JESD22-B 101 & MIL-STD-883 Method 2009 | Inspect product constructions, marking and workmanship. | 1.No pollution on the surface of products. 2.Clear marking. 3.No crack. |
| 6.Physical Dimensions | JESD22-B 100 | Verify physical dimensions to the applicable product detail specification. | Per product specification standard |
| 7.Resistance to solvents | MIL-STD-202 Method 215 | Immerse into solvent for 3±0.5 minutes & brush 10 times for 3 cycles. | 1.No body change in appearance. 2.No marking blurred. 3.Inductance shall not change more than ±20%. |
| 8.Vibration Test | MIL-STD-202 Method 204 | 1.Frequency and Amplitud : 10-2000-10 Hz, 1.5 mm. 2.Direction:X, Y, Z 3.Test duration:2 hours for each direction, 6 hours in total. | 1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%. |
| 9.Resistance To Soldering Heat Test | MIL-STD-202 Method 210 & J-STD020D.1 | 1.Highest temperature : 245±5℃. 2.Time (temp. ≥ 217℃) : 60~150 Second. 3.IR reflow times : 3 times. | 1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%. |
| 10.Saturation Current | JIS C 6436 & User SPEC. | 1.Applied rated current for 5 second. 2.Saturation current | Inductance shall not drop more than 30% typ. |
| 11.Over load | JIS C 6436 & User SPEC. | 1.Applied one and half rated current for a period of 5 minutes. 2.Rated current | No electrical or mechanical damage |
| 12.Temperature Rise Current | JIS C 6436 & User SPEC. | 1.Applied rated current for 10 minutes. 2.Temperature measure by digital surface thermometer. 3.Irms current | Surface temperature rise is less than 40℃ typ. |
| 13.Solderability Test | J-STD-002 & JESD22-B 102 | 1.Baking in pre-testing : 150±5℃ / 16Hours±30 min. 2.Peak temperature : 240±5℃ 3.Time (temp. ≥ 217℃) : 60~150 second. 4.IR reflow times : 1 times. | More than 95% soldering coverage min on terminations. |
| 14.Electrical Characteriazation | MIL-STD-202 Method 304 & User SPEC. | 1.Operating temperature : -55℃~125℃ 2.Room temperature : 25℃. | 1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%. |
| 15.Drop | CNS-C6354 & GB/T 2423.8 | 1.Products shall be mounted on SPEC. PCB and dropped down from a height of 1m 2.Drop total time : 6 time (Every side of sample drop 2 time) | 1. Adhesion on PCB shall be enough. 2. Product appearance shall not break. 3. No electrical damage. |
| 16.Terminal Strength Test | IEC 60068-2-21 | 1.Apply push force to samples mounted on PCB. 2.Force of 1.8 kg for 60±1 seconds. | After test, inductors shall be no mechanical damage. |

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VIII . Change history :

| DATE/REV. | DISCRIPTION | DRAWN | CHECKED | APPROVED |
|------------|-------------|-------|---------|----------|
| 20171115-A | Released | Colin | Leo | Nick |
| | | | | |

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