

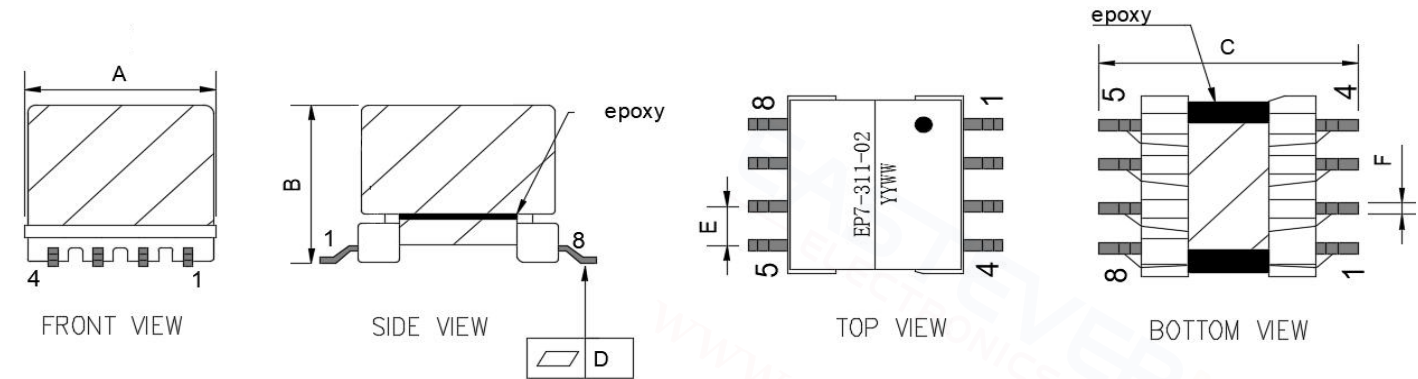
# High Frequency Transformer

## EP7-311K-02

2024-12-7 Rev. 0

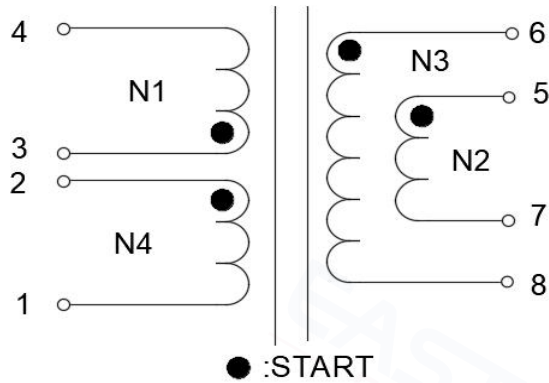


### A. MECHANICAL(unit:mm)



| Item | A     | B    | C    | D    | E    | F    |
|------|-------|------|------|------|------|------|
| Dim  | 11.50 | 9.50 | 13.5 | 0.13 | 2.50 | 0.70 |
| Tole | Max   | Max  | Max  | Max  | ±0.5 | ±0.5 |

### B. SCHEMATICS



### C. ELECTRIC CHARACTERICS (@25)

| NO. | ITEMS         | TEMINAL                | SPECIFICATION       | TEST CONDITION             |
|-----|---------------|------------------------|---------------------|----------------------------|
| 1   | INDUCTANCE    | 3-4                    | 310uH±10%           | @10KHz/0.1V<br>内阻100Ω      |
| 2   | LK INDUCTANCE | 3-4                    | 4.5uH Max           | @100KHz/0.1V<br>短路N2,N3,N4 |
| 3   | DCR           | 2-1                    | 2.01Ω Max           | @25℃                       |
|     |               | 3-4                    | 1.02Ω Max           |                            |
|     |               | 5,6-7,8                | 118mΩ Max           |                            |
| 4   | T/R           | (3-4):(5-7)(6-8):(2-1) | 43:12:12:30±3%      | @20KHZ/1.0V                |
| 5   | H-IPOT        | PRI-SEC                | 1500VAC/5mA/50Hz/1S |                            |

### D. RELIABILITY TEST

| TEST ITEM                             | SPECIFICATION                                                                                                                                                                   | TEST CONDITION                                                                                                                                                                                                                                            |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Withstanding voltage test             | After test, inductors shall have no evidence of electrical and mechanical damage.                                                                                               | AC voltage of 100v and AC current of 1mA applied between inductor's terminal and core for 3 secs.                                                                                                                                                         |
| Resistance to soldering heat          | 1. Inductor shall have no evidence of electrical and mechanical damage.<br>2. Inductance shall not change more than $\pm 5\%$ .<br>3. Q shall not change more than $\pm 20\%$ . | a. Temp: $260 \pm 5^\circ\text{C}$<br>b. Time: $10 \pm 1.0$ secs                                                                                                                                                                                          |
| Solderability test                    | The terminal shall be at least 95% covered with solder.                                                                                                                         | After fluxing, the terminal shall be dipped in a melted solder bath at $245 \pm 5^\circ\text{C}$ for $4 \pm 1.0$ secs.                                                                                                                                    |
| High temperature & high humidity test | The anti-erosion quality of the surface and the specimen's inductance shall not change from the initial value within $\pm 10\%$                                                 | a. Test condition<br>1)Temp.: $85^\circ\text{C}$ ,<br>R.H.:85%<br>2)Time: $144 \pm 2$ hours<br>b. Measurement methods: The experimental component should be put at normal condition for 2 hours then to measure again after test                          |
| Salt spray test                       |                                                                                                                                                                                 | a. Test condition<br>1)Temp.: $35 \pm 2^\circ\text{C}$<br>2)Time: $48 \pm 2$ hours<br>3)Salt solution PH: 6.5~7.2<br>b. Measurement methods:<br>The experimental component should be put at normal condition for 2 hours then to measure again after test |
| Vibration test                        | 1. Inductance shall be within $\pm 10\%$ of the initial value.<br>2. Appearance: no damage                                                                                      | a. Frequency: 10 to 55HZ<br>b. Amplitude: 1.5mm<br>c. Direction and time:<br>X, Y and Z directions for 2 hours each.                                                                                                                                      |



### E1. RELIABILITY TEST

| TEST ITEM                                                                           | SPECIFICATION                                                                       | TEST CONDITION                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Free fall test                                                                      | No mechanical damage shall be noticed.                                              | Drop 5 times on a concrete floor from 1m the height                                                                                                                                                                                                   |
| Temperature Cycling test                                                            | 1. Inductance shall be within ± 10% of the initial value<br>2. Appearance:No damage | a. Test condition<br>1)Temp.: -55°C,time:30±3min<br>2)Temp.: +125°C,time: 30±3min 3)Cycles times:12cycles<br><br>b. Measurement methods:<br>The experimental component should be put at normal condition for 2 hours then to measure again after test |
| High Temperature resistance test                                                    |                                                                                     | a. Test condition<br>1)Applied rated current<br>2)Temp.:85°C±2 °C<br>3)Test time:1000+24/-0H<br><br>b. Measurement methods:<br>The experimental component should be put at normal condition for 24 hours then to measure again after test.            |
| Low temperature resistance test                                                     |                                                                                     | a. Test condition<br>1)Temp.: -55°C±2°C<br>2)Test time:1000+24/-0H<br><br>b. Measurement methods:<br>The experimental component should be put at normal condition for 24 hours then to measure again after test.                                      |
| We have suggested the storage period of lead-free product should not over 6 months. |                                                                                     |                                                                                                                                                                                                                                                       |

## F. SOLDERING CONDITIONS

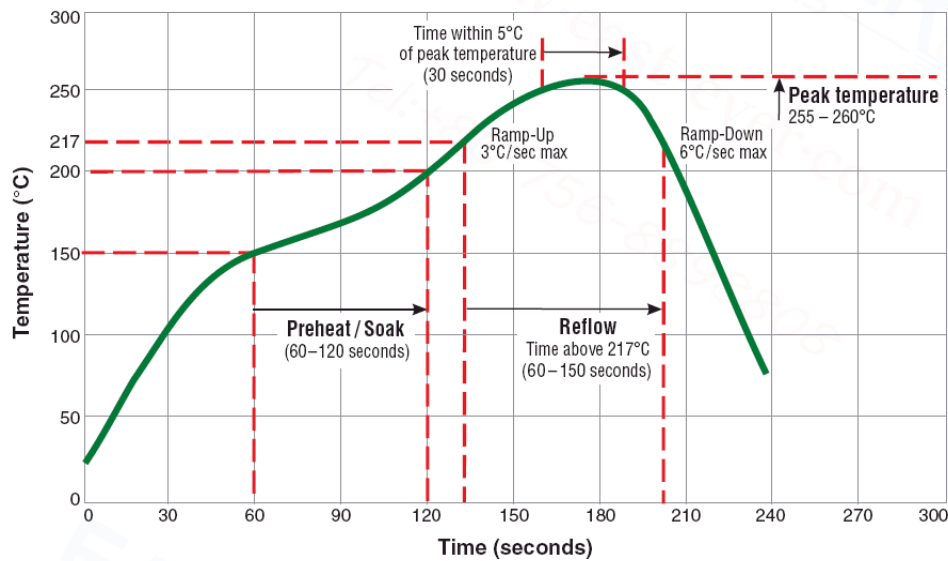
Applicable soldering process to the products is reflow.

### F.1 Soldering Materials

(1) Solder: Sn-3.0Ag-0.5Cu

(2) Flux: Use rosin-based flux, but not strongly acidic flux (with chlorine exceeding 0.2wt%). Do not use water-soluble flux.

### F.2 Reflow Soldering Profile



### F.3 Soldering Iron

Reworking with electric soldering iron must preheating at 150°C for 1 minute is required, and do not directly touch the core with the tip of the soldering iron. The reworking soldering conditions are as follows.

- ① Temperature of soldering iron tip: 350°C;
- ② Soldering iron power output: ≤30W;
- ③ Diameter of soldering iron end: ≤1.0mm;
- ④ Soldering time: <3 s