# Panasonic ELC09D series alternative

15 µH ±20% Ferrite Leaded Inductor, 2.1A Idc, 35mΩ Rdc,

Part Number: JAD875-150K-CM

# SPECIFICATION APPROVAL

| | | |
|---|---|---|
| CUSTOMER | : | BEC Distribution |
| PRODUCT | : | JAD875-150K-CM |
| | | Pb-free |
| CODE NO. | : | C04708032 |
| CUS. CODE | : | |
| SPEC.NO. | : | C-4708-032(00) |
| DATE | : | 18-Sep-09 |

| CUSTOMER APPROVAL |
|---|
| |

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| PREPARED BY | APPROVED BY | AUTHORIZED BY |
|---|---|---|
| JEAN | TONY | MASCOT |

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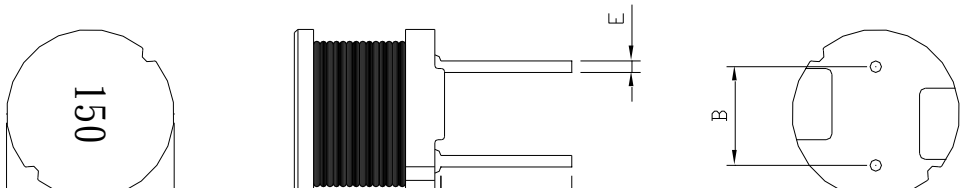
**EXTERNAL DIMENSIONS** :

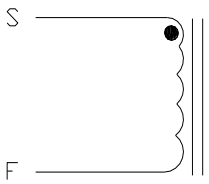



A ： 8.3 Max. m/m
B ： 5.0±0.5 m/m
C ： 5.0±1.0 m/m
D ： 7.5 Max. m/m
E ： 0.65±0.1 m/m

**ELECTRICAL CHARACTERISTIC** :

| | | |
|---|---|---|
| L(μH) ： | 15±10% | 2.52MHz |
| DCR(mΩ)： | 70 | Max. |
| IDC(A)： | 2.2 | Max. ( L2.2A MAX ≧0Ax90% ) |
| INDUCTANCE DROP : | 10% Typ. @ IDC 2.2 A | |

**SCHE**




$\phi$ 0.4x19.5Ts(Ref.)

**MATERIAL LIST** :

| NO | ITEM | MATERIAL | SUPPLIER OF THE MATERIAL |
|---|---|---|---|
| 1 | CORE | F4D DR2W 7.8*7.3(SW) RCH B3.2F3.0 P5.0 | |
| 2 | WIRE | ϕ0.4 UEF1/U(155℃) | |
| 3 | SOLDER | 99.3Sn/0.7Cu | |
| 4 | FLUX | K8088 | |

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**TEST DATA**

| ELECTRICAL CHARACTERISTICS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| MEAS. ITEM | L(μH) | DCR(mΩ) | IDC(A) | | | | | |
| TEST FREQ. | 2.52MHz | Max. | Max. | | | | | |
| YOUR | | | L(2.2A) | | | | | |
| SPEC. | 15±10% | 70 | ≧0Ax90% | | | | | |
| 1 | 14.60 | 42.50 | 13.90 | | | | | |
| 2 | 14.90 | 42.30 | 14.20 | | | | | |
| 3 | 14.80 | 42.20 | 14.20 | | | | | |
| 4 | 14.70 | 41.90 | 14.10 | | | | | |
| 5 | 14.90 | 42.20 | 14.30 | | | | | |
| 6 | 14.80 | 42.10 | 14.10 | | | | | |
| 7 | 14.80 | 42.30 | 14.20 | | | | | |
| 8 | 14.70 | 42.50 | 14.10 | | | | | |
| 9 | 14.80 | 42.20 | 14.10 | | | | | |
| 10 | 14.70 | 41.70 | 14.10 | | | | | |
| X | 14.77 | 42.19 | 14.13 | | | | | |
| R | 0.3 | 0.8 | 0.4 | | | | | |

| DIMENSION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| MEAS. ITEM | A | B | C | D | E | | | |
| TEST FREQ. | m/m | m/m | m/m | m/m | m/m | | | |
| YOUR | | | | | | | | |
| SPEC. | 8.3 Max. | 5.0±0.5 | 5.0±1.0 | 7.5 Max. | 0.65±0.1 | | | |
| 1 | 7.81 | 4.99 | 4.94 | 7.33 | 0.59 | | | |
| 2 | 7.78 | 4.96 | 4.93 | 7.36 | 0.60 | | | |
| 3 | 7.79 | 4.99 | 4.91 | 7.34 | 0.60 | | | |
| 4 | 7.81 | 4.97 | 4.94 | 7.32 | 0.59 | | | |
| 5 | 7.79 | 4.98 | 4.91 | 7.33 | 0.60 | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |
| X | 7.80 | 4.98 | 4.93 | 7.34 | 0.60 | | | |
| R | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |

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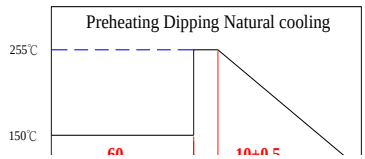
| TEST ITEMS | SPECIFICATIONS | TEST CONDITIONS / TEST METHODS |
|---|---|---|
| ***ELECTRICAL PERFORMANCE TEST*** | | |
| L | REFER TO STANDARD ELEC-TRICAL CHARACTERISTIC LIST. | CH-1061 OR EQUIV. |
| DCR | | CH-502A OR EQUIV |
| RATED CURRENT | | APPLIED THE CURRENT TO COILS THE IDUCTANCE CHANGE SHOULD BE LESS THAN 10% TO INITIAL VALUE AND TEMPERATURE RISE SHOULD NOT BE MORE THAN 40℃.. |
| TEMPERATURERISE TEST | 40℃ MAX (△t) | 1. APPLIED THE ALLOWED DC CURRENT FOR 4 HOURS<br>2. TEMPERATURE MEASURE BY DIGTAL SURFACE THERMOMETER. |
| OVER LOAD TEST | NO EVIDENCE OF ELECTRICAL DAMAGE | APPLIED 1.5 TIMES OF RATED ALLOWED DC CURRENT TO INDUCTORS FOR A PERIOD OF 5 MINUTES. |
| ***MECHANICAL PERFORMANCE TEST*** | | |
| SOLDER HEAT RESISTANCE | 1. INDUCTORS SHOULD HAVE NO EVIDENCE OF ELEC- TRICAL AND MICHANICAL DAMAGE<br>2. INDUCTANCE SHOULD NOT HANGE MORE THAN±10%<br>3. SOLDER MATERIAL WILL BE LEAD FREE. | PREHEAT:150℃ 60SECS<br>SOLDER TEMPERATU<br>255±5℃<br>FLUX: ROXIN..<br>  <br>DIP TIME:10±0.5SECS. |
| VIBRATION TEST<br>(LOW FREQUENCY) | | 1.AMPLITUDE: 1.5 mm<br>2.FREQUENCY: 10-55-10HZ / 1 MIN<br>3.DIRECTION: X, Y, Z<br>4.DURATION: 2 HRS/X, Y, Z |
| SHOCK TEST | | INDUCTORS SHOULD BE DROPPED 10 TIMES FROM A HEIGHT OF 1m ONTO 3cm WOODEN BOARD. |

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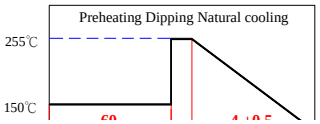
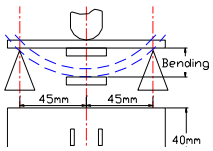
| TEST ITEMS | SPECIFICATIONS | TEST CONDITIONS / TEST METHODS |
|---|---|---|
| ***MECHANICAL PERFORMANCE TEST*** | | |
| SOLDERABILITY TEST | MORE THAN 90% OF TERMINAL ELECTRODE SHOULD BE COVERED WITH SOLDER. | AFTER FLUXING, INDUCTOR SHALI BE DIPPEDIN A MELTED SOLDER BATH AT 255±5℃ FOR 5 SECONDS   |
| COMPONENT ADHESION ( PUSH TEST ) | 1.5Kg Min | THE DEVICE SHOULD BE REFLOW SOLDERED ( 255±5℃ FOR 10 SECONDS ) TO A TINNED COPPER SUBSTRATE. A DYNOMETER FORCE GAUGE SHOULD BE APPLIED TO THE SIDE OF THE COMPONENT. THE DEVICE MUST WITH- STAND A MINIMUM FORCE OF 1.5Kg WITHOUT AILURE OF THE TERMINATION . ATTACHED TO COMPONENT.  |
| COMPONENT ADHESION ( PULL TEST ) | 1.5Kg Min | 1.INSERT 10cm WIRE INTO THE REMAINING OPEN EYE BEND THE ENDS OF EVEN WIRE LENGTHS UPWARD AND WIND TOGETHER 2. TERMINAL SHALL NOT BEREMARKABLY DAMAGED  |
| FLEXTURE STRENGTH | THE FORCES APPLIED SHOULD NOT DAMAGE THE DIELECTRIC. | SOLDER A CHIP ON A TEST SUBSTRATE, BEND THE SUBSTRATE BY 2mm AND RETURN.   |
| RESISTANCE TO SOLVENT TEST | THERE SHOULD BE NO CASEDEFORMATION, CHANGE IN APPEARANCE OR BITERATION OF MARKING | INDUCTERS SHALL WITHSTAND 6 MINTES OF ALCOHOL |

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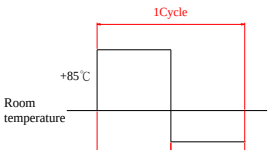
| TEST ITEMS | SPECIFICATIONS | TEST CONDITIONS / TEST METHODS |
|---|---|---|
| ***CLIMATIC TEST*** | | |
| TEMPERATURE CHARACTERISTIC | 1.APPEARANCE:NO DAMAGE<br>2.INDUCTANCE:WITHIN±10% OF INITIAL VALUE. | - 40℃ ~ +105℃ |
| HUMIDITY TEST | | 60℃±2℃ / 96±2 HOURS |
| LOW TEMPERATURE STORAGE | | 1.TEMPERATURE:- 25℃±2℃<br>2.TIME: 96±2 HOURS |
| THERMAL SHOCK TEST | | 1.-25±5℃ FOR 30 MINUTES.<br>+80±5℃ FOR 30 MINUTES.<br>2.TOTAL: 10 CYCLES<br>  |
| HIGH TEMPERATURE STORAGE | | 1.APPLIED CURRENT: MAX RATED CURRENT<br>2.TEMPERATURE:80℃±2℃ |
| NOTE：INDUCTORS ARE TO BE TESTED AFTER 2 HOUR AT ROOM TEMPERATURE. | | |
| ***LIFE TEST*** | | |
| HIGH TEMPERATURE LOAD LIFE TEST | INDUCTORS SHOULD BE NO EVIDENCE OF SHORT OR OPEN CIRCUIT | 1. TEMPERATURE: 80±2℃<br>2. TIME: 500±12 HOURS<br>3. LOAD: ALLOWED DC CURREN |
| HUMIDITY LOAD LIFE TEST | | 1. TEMPERATURE: 60±2℃<br>2. R.H.: 90-95%<br>3. TIME: 500±12 HOURS<br>4. LOAD: ALLOWED DC CURREN |

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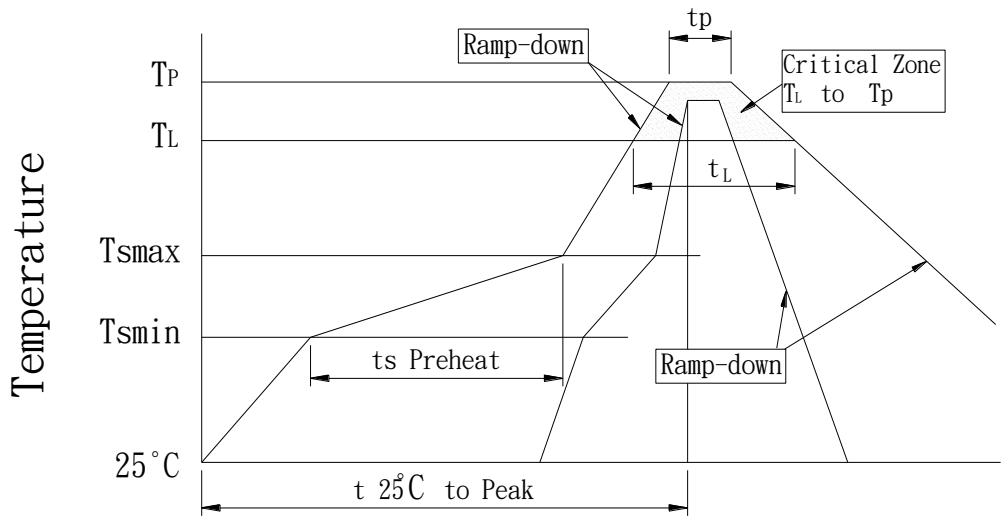
**RECOMMENDED SOLDERING CONDITIONS：**

CLASSIFICATION REFLOW PROFILES

| Profile Feature | Sn-Pb Eutectic Assembly | | Pb-Free Assembly | |
|---|---|---|---|---|
| | Large Body | Small Body | Large Body | Small Body |
| Average ramp-up rate ($T_L$ to $T_P$) | 3℃/second max. | | 3℃/second max. | |
| Preheat<br>-Temperature Min ($Ts_{min}$)<br>-Temperature Min ($Ts_{max}$)<br>-Time (min to max) (ts) | 100℃<br>150℃<br>60-120 seconds | | 150℃<br>200℃<br>60-180 seconds | |
| Tsmax to $T_L$<br>-Ramp-up Rate | | | 3℃/second max. | |
| Time maintained above:<br>-Temperature ($T_L$)<br>-Time ($t_L$) | 183℃<br>60-150 seconds | | 217℃<br>60-150 seconds | |
| Peak Temperature (Tp) | 225 +0/-5℃ | 240 +0/-5℃ | 245 +0/-5℃ | 255 +5/-5℃ |
| Time within 5℃ of actual Peak Temperature (tp) | 10-30 seconds | 10-30 seconds | 10-30 seconds | 20-40 seconds |
| Ramp-down Rate | 6℃/second max. | | 6℃/second max. | |
| Time 25℃ to Peak Temperature | 6 minutes max. | | 8 minutes max. | |

Note : All temperatures refer t topside of the package. Measured on the package body surface.

REFLOW SLODERINGS



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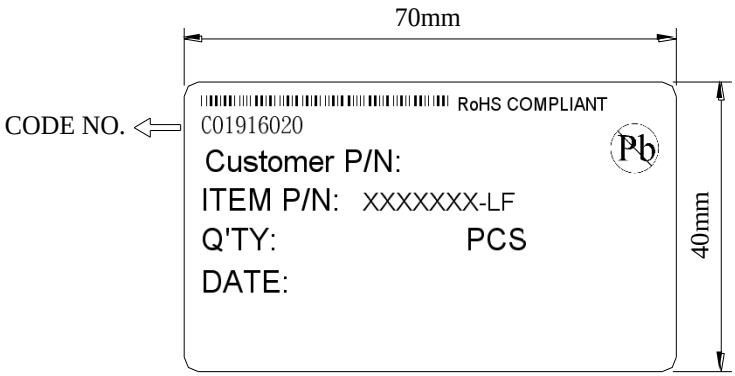
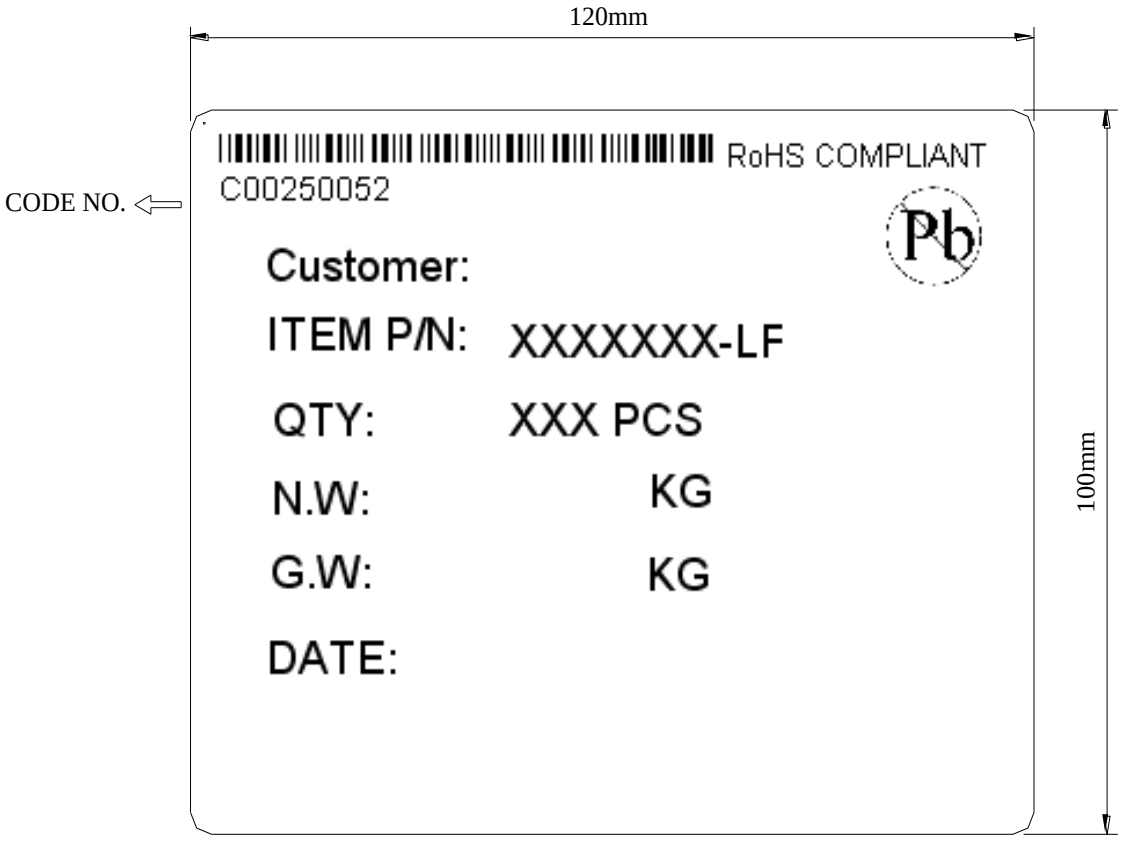
**LABLE：**




INNER BOX LABEL




OUT BOX LABEL

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## Cautions and Warnings：

1. All of the components are manufactured, designed, and promoted for applying in general electronics devices, for the specific area such as automotive, medical, military and aerospace except for general electronic devices, BEC Distribution must be asked for written approval before incorporating the components into these areas.

2. The components that will be used in high-reliability / high level of safety applications should be pre-evaluated by the end customer. Especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health. The customer shall be responsible for evaluating and confirming the product is suitable for use in customer's applications.

3. Customer must be cautioned to verify that data sheets are the updated ones before placing orders. In the individual cases, any trouble or failure of electronic components happens during their long span cannot be eliminated even follow the instruction with existing technology.

4. Washing / Cleaning process may jeopardize the product and cause the defect. Washing agents may harm the long-term functionality of the product

5. The storage period should not be longer than 12 months (In the specific storage environment). The oxidization may happen on the terminals. Hence all the products shall be used within 12 months after the shipping date. If the time is over 12 months, please check the solderability before use it.

6. Products should not be kept in unsuitable storage conditions, such as areas susceptible to high humidity, high temperatures, dust or corrosion.

7. Don't touch electrodes directly with bare hands as oil secretions may inhibit soldering. Always ensure optimum conditions for soldering.

8. Don't bend the terminals or subject them to excessive stress.

9. Please ensure that all terminals and case lugs are completely fixed with solder onto PCB

10. Ensure the tuning slug or cap is not fixed by solder flux during the production process.

11. Avoid placing coils near the edge of the PCB

12. Don't touch any exposed winding part and avoid coming into contact with the guide of the electrode in automatic mounting

13. The inductor / coil / common mode choke generates heat when current is applied. Please take care of this during the design.

14. Always handle the product with care to prevent the damage.

15. Our specification specifies the quality of the component as a single unit. Please ensure the component is thoroughly evaluated in your application circuit. Even for customized products, conclusive validation of the component in the circuit can only be carried out by customer.

16. The general testing condition is in the room temperature 25 +/- 5°C and humidity under 65% RH, which is applied to all products.

17. If have any query, please feel free to contact our sales department.