**SMD Power Choke Coil**

**1. Features**

1. Magnetic metal powder inductor.
2. Compact design.
3. High current，low DCR，high efficiency.
4. Very low acoustic noise and very low leakage flux noise.
5. High reliability.
6. 100% Lead(Pb)-Free and RoHS compliant.

**2. Applications**

Note PC power system，incl. IMVP-6

DC/DC converter .

**3. Part Numbering**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **PMA** | **-** | **10DZ** | **-** | **2R2** | **-** | **MC** |  |
| A |  | B |  | C |  | D |  |

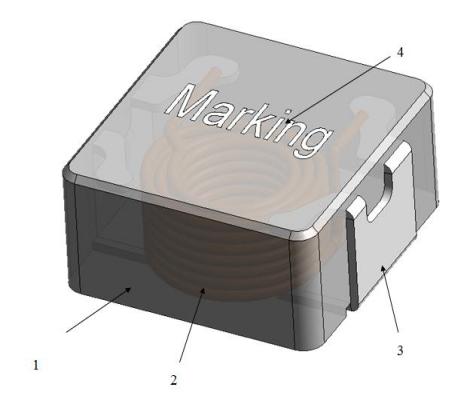
A: Series

B: Dimension Size A\*C=10.1\*4.0

C: Inductance 2R2=2.20uH 100=10uH

D: Inductance Tolerance M=±20% N=±30%

**4. Material List**



|  |  |  |
| --- | --- | --- |
| NO | Items | Materials |
| 1 | Core | Magnetic metal powder |
| 2 | Wire | Polyester Wire or equivalent. |
| 3 | Solder Plating | 100% Pb free solder |
| 4 | Ink | Halogen-free ketone |

**Specification**  **04BZ**

1. **Dimension（Unit：mm）**
   1. External dimensions 1.2 Recommended land patterns





|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| A | B | C | D | E | F | G | H |
| 4.1±0.2 | 4.6±0.2 | 2.0 MAX | 1.5 ±0.3 | 1.0 ±0.5 | 5.0 Ref. | 2.0 Ref. | 1.6 Ref. |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | P/N. | Inductance (μH) | Stamp | D.C.R.  (mΩ) Max. | Saturation current(A) Typ | Temperature rise current(A) Typ |
| 01 | PMA-04BZ-R22-MC | 0.22±20% | R22 | 6.6 | 12 | 9.0 |
| 02 | PMA-04BZ-R33-MC | 0.33±20% | R33 | 10 | 12 | 8.5 |
| 03 | PMA-04BZ-R47-MC | 0.47±20% | R47 | 14 | 9.5 | 7.0 |
| 04 | PMA-04BZ-R56-MC | 0.56±20% | R56 | 16 | 9.3 | 6.5 |
| 05 | PMA-04BZ-R68-MC | 0.68±20% | R68 | 21 | 8.0 | 5.2 |
| 06 | PMA-04BZ-1R0-MC | 1.0±20% | 1R0 | 27 | 7.0 | 4.5 |
| 07 | PMA-04BZ-1R5-MC | 1.5±20% | 1R5 | 46 | 6.0 | 4.0 |
| 08 | PMA-04BZ-2R2-MC | 2.2±20% | 2R2 | 58 | 5.0 | 3.0 |
| 09 | PMA-04BZ-3R3-MC | 3.3±20% | 3R3 | 87 | 4.02.5 | 2.5 |
| 10 | PMA-04BZ-4R7-MC | 4.7±20% | 4R7 | 126 | 3.0 | 2.2 |
| 11 | PMA-04BZ-6R8-MC | 6.8±20% | 6R8 | 135 | 2.5 | 1.6 |
| 12 | PMA-04BZ-100-MC | 10±20% | 100 | 258 | 2.0 | 1.2 |

1. **Electrical Characteristic**

* Testing instrument: Inductance TH2829C or equivalent at 100KHz /1V.

D.C.R : TH2512B or equivalent. (Ta= 25℃)

Saturation current: TH2829C+TH1778S or equivalent.

* Saturation current: indicates the current when the inductance decrease to 70% of initial value. (Ta=25℃)
* The temperature rise current value is the DC current value having temperature increase up to 40℃(Ta=25℃)

**Specification**  **05CZ**

**1. Dimension（Unit：mm）**

1.1 External dimensions 1.2 Recommended land patterns





|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| A | B | C | D | E | F | G | H |
| 5.4±0.35 | 5.7±0.2 | 3.0 MAX | 2.0 ±0.3 | 1.5 ±0.3 | 6.0 Ref. | 2.5 Ref. | 2.2 Ref. |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | P/N. | Inductance (μH) | Stamp | D.C.R.  (mΩ) Max. | Saturation current(A) Typ | Temperature rise current(A) Typ |
| 01 | PMA-05CZ-R33-MC | 0.33±20% | R33 | 5.3 | 16 | 12 |
| 02 | PMA-05CZ-R47-MC | 0.47±20% | R47 | 8.0 | 14 | 10 |
| 03 | PMA-05CZ-R68-MC | 0.68±20% | R68 | 12 | 14 | 8.0 |
| 04 | PMA-05CZ-1R0-MC | 1.0±20% | 1R0 | 15 | 11 | 7.0 |
| 05 | PMA-05CZ-1R5-MC | 1.5±20% | 1R5 | 25 | 10 | 6.0 |
| 06 | PMA-05CZ-2R2-MC | 2.2±20% | 2R2 | 35 | 8.0 | 5.0 |
| 07 | PMA-05CZ-3R3-MC | 3.3±20% | 3R3 | 46 | 7.02.5 | 4.5 |
| 08 | PMA-05CZ-4R7-MC | 4.7±20% | 4R7 | 60 | 6.0 | 4.0 |
| 09 | PMA-05CZ-6R8-MC | 6.8±20% | 6R8 | 110 | 5.0 | 3.0 |
| 10 | PMA-05CZ-100-MC | 10±20% | 100 | 126 | 4.5 | 1.5 |

**2. Electrical Characteristic**

* Testing instrument: Inductance TH2829C or equivalent at 100KHz /1V.

D.C.R : TH2512B or equivalent. (Ta= 25℃)

Saturation current: TH2829C+TH1778S or equivalent.

* Saturation current: indicates the current when the inductance decrease to 70% of initial value. (Ta=25℃)
* The temperature rise current value is the DC current value having temperature increase up to 40℃(Ta=25℃)

**Specification**  **06CZ**

**1. Dimension（Unit：mm）**

1.1 External dimensions 1.2 Recommended land patterns





|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| A | B | C | D | E | F | G | H |
| 6.6±0.2 | 7.4 Max | 3.0 MAX | 3.0 ±0.2 | 1.6 ±0.3 | 8.4 Ref. | 3.5 Ref. | 3.7 Ref. |

**2. Electrical Characteristic**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | P/N. | Inductance (μH) | STAMP | D.C.R.  (mΩ) Max. | Saturation current(A) Typ | Temperature rise current(A) Typ |
| 01 | PMA-06CZ-R33-MC | 0.33±20% | R33 | 4.2 | 33 | 20 |
| 02 | PMA-06CZ-R47-MC | 0.47±20% | R47 | 5.5 | 27 | 16.5 |
| 03 | PMA-06CZ-R68-MC | 0.68±20% | R68 | 6.3 | 24 | 15 |
| 04 | PMA-06CZ-R82-MC | 0.82±20% | R82 | 8.0 | 23 | 13 |
| 05 | PMA-06CZ-1R0-MC | 1.0±20% | 1R0 | 10 | 22 | 12 |
| 06 | PMA-06CZ-1R5-MC | 1.5±20% | 1R5 | 15 | 18 | 9.5 |
| 07 | PMA-06CZ-1R8-MC | 1.8±20% | 1R8 | 17 | 14 | 9.5 |
| 08 | PMA-06CZ-2R2-MC | 2.2±20% | 2R2 | 20 | 14 | 8.5 |
| 09 | PMA-06CZ-3R3-MC | 3.3±20% | 3R3 | 35 | 12 | 6.0 |
| 10 | PMA-06CZ-4R7-MC | 4.7±20% | 4R7 | 40 | 9.0 | 5.5 |
| 11 | PMA-06CZ-5R6-MC | 5.6±20% | 5R6 | 40 | 8.0 | 5.5 |
| 12 | PMA-06CZ-6R8-MC | 6.8±20% | 6R8 | 60 | 8.0 | 4.5 |
| 13 | PMA-06CZ-8R2-MC | 8.2±20% | 8R2 | 60 | 6.0 | 4.5 |
| 14 | PMA-06CZ-100-MC | 10±20% | 100 | 68 | 5.5 | 4.0 |
| 15 | PMA-06CZ-150-MC | 15±20% | 150 | 122 | 5.0 | 3.0 |
| 16 | PMA-06CZ-220-MC | 22±20% | 220 | 145 | 3.2 | 3.0 |
| 17 | PMA-06CZ-330-MC | 33±20% | 330 | 270 | 3.0 | 2.0 |

* Testing instrument: Inductance TH2829C or equivalent at 100KHz /1V.

D.C.R : TH2512B or equivalent. (Ta= 25℃)

Saturation current: TH2829C+TH1778S or equivalent.

* Saturation current: indicates the current when the inductance decrease to 70% of initial value. (Ta=25℃)
* The temperature rise current value is the DC current value having temperature increase up to 40℃(Ta=25℃)

**Specification**  **10DZ**

**1. Dimension（Unit：mm）**

1.1 External dimensions 1.2 Recommended land patterns





|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| A | B | C | D | E | F | G | H |
| 10.1±0.3 | 11.6 Max | 4.0 MAX | 3.0 ±0.2 | 2.0 ±0.3 | 13 Ref. | 4 Ref. | 6 Ref. |

**2. Electrical Characteristic**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | P/N. | Inductance (μH) | STAMP | D.C.R.  (mΩ) Max. | Saturation current(A) Typ | Temperature rise current(A) Typ |
| 01 | PMA-10DZ-1R0-MC | 1.0±20% | 1R0 | 3.1 | 26 | 20 |
| 02 | PMA-10DZ-1R5-MC | 1.5±20% | 1R5 | 4.2 | 22 | 16 |
| 03 | PMA-10DZ-1R8-MC | 1.8±20% | 1R8 | 5.0 | 16 | 15.3 |
| 04 | PMA-10DZ-2R2-MC | 2.2±20% | 2R2 | 7.0 | 16 | 14 |
| 05 | PMA-10DZ-3R3-MC | 3.3±20% | 3R3 | 13.2 | 12 | 11 |
| 06 | PMA-10DZ-4R7-MC | 4.7±20% | 4R7 | 16.5 | 12 | 9 |
| 07 | PMA-10DZ-6R8-MC | 6.8±20% | 6R8 | 25 | 10 | 6.0 |
| 08 | PMA-10DZ-8R2-MC | 8.2±20% | 8R2 | 30 | 9.0 | 6.0 |
| 09 | PMA-10DZ-100-MC | 10±20% | 100 | 30 | 7.0 | 5.5 |
| 10 | PMA-10DZ-150-MC | 15±20% | 150 | 45 | 6.0 | 5.25 |
| 11 | PMA-10DZ-220-MC | 22±20% | 220 | 72 | 5.5 | 5.0 |
| 12 | PMA-10DZ-330-MC | 33±20% | 330 | 91 | 5.0 | 3.5 |
| 13 | PMA-10DZ-470-MC | 47±20% | 470 | 143 | 3.7 | 2.8 |
| 14 | PMA-10DZ-680-MC | 68±20% | 680 | 195 | 2.8 | 2.5 |
| 15 | PMA-10DZ-101-MC | 100±20% | 101 | 300 | 2.0 | 1.5 |

* Testing instrument: Inductance TH2829C or equivalent at 100KHz /1V.

D.C.R : TH2512B or equivalent. (Ta= 25℃)

Saturation current: TH2829C+TH1778S or equivalent.

* Saturation current: indicates the current when the inductance decrease to 70% of initial value. (Ta=25℃)
* The temperature rise current value is the DC current value having temperature increase up to 40℃(Ta=25℃)

**Specification**  **12EZ**

**1. Dimension（Unit：mm）**

1.1 External dimensions 1.2 Recommended land patterns





|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| A | B | C | D | E | F | G | H |
| 12.6±0.3 | 13.8 Max | 5.0 MAX | 3.7 ±0.2 | 2.5 ±0.5 | 14.5 Ref. | 5 Ref. | 8 Ref. |

**2. Electrical Characteristic**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | P/N. | Inductance (μH) | STAMP | D.C.R.  (mΩ) Max. | Saturation current(A) Typ | Temperature rise current(A) Typ |
| 01 | PMA-12EZ-3R3-MC | 3.3±20% | 3R3 | 8.0 | 20.5 | 14 |
| 02 | PMA-12EZ-4R7-MC | 4.7±20% | 4R7 | 11.5 | 16 | 11 |
| 03 | PMA-12EZ-6R8-MC | 6.8±20% | 6R8 | 22 | 14 | 9.0 |
| 04 | PMA-12EZ-8R2-MC | 8.2±20% | 8R2 | 27 | 13 | 8.0 |
| 05 | PMA-12EZ-100-MC | 10±20% | 100 | 33 | 12 | 7.0 |
| 06 | PMA-12EZ-150-MC | 15±20% | 150 | 35 | 10 | 6.0 |
| 07 | PMA-12EZ-220-MC | 22±20% | 220 | 52 | 7.0 | 5.0 |
| 08 | PMA-12EZ-330-MC | 33±20% | 330 | 80 | 5.5 | 5.0 |
| 09 | PMA-12EZ-470-MC | 47±20% | 470 | 110 | 4.5 | 4.0 |
| 10 | PMA-12EZ-680-MC | 68±20% | 680 | 170 | 4.0 | 3.0 |
| 11 | PMA-12EZ-101-MC | 100±20% | 101 | 260 | 3.0 | 2.0 |

* Testing instrument: Inductance TH2829C or equivalent at 100KHz /1V.

D.C.R : TH2512B or equivalent. (Ta= 25℃)

Saturation current: TH2829C+TH1778S or equivalent.

* Saturation current: indicates the current when the inductance decrease to 70% of initial value. (Ta=25℃)
* The temperature rise current value is the DC current value having temperature increase up to 40℃(Ta=25℃)

**Specification**  **12FE**

**1. Dimension（Unit：mm）**

1.1 External dimensions 1.2 Recommended land patterns





|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| A | B | C | D | E | F | G | H |
| 12.6±0.3 | 13.8 Max | 6.5 MAX | 3.7 ±0.2 | 2.5 ±0.5 | 14.5 Ref. | 5 Ref. | 8 Ref. |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | P/N. | Inductance (μH) | STAMP | D.C.R.  (mΩ) Max. | Saturation current(A) Typ | Temperature rise current(A) Typ |
| 01 | PMA-12FE-3R3-MC | 3.3±20% | 3R3 | 7.0 | 22.5 | 19 |
| 02 | PMA-12FE-4R7-MC | 4.7±20% | 4R7 | 10 | 21 | 17 |
| 03 | PMA-12FE-6R8-MC | 6.8±20% | 6R8 | 14 | 16 | 11 |
| 04 | PMA-12FE-100-MC | 10±20% | 100 | 20 | 15 | 10 |
| 05 | PMA-12FE-150-MC | 15±20% | 150 | 30 | 11 | 7.0 |
| 06 | PMA-12FE-220-MC | 22±20% | 220 | 40 | 7.5 | 6.0 |
| 07 | PMA-12FE-330-MC | 33±20% | 330 | 57 | 6.5 | 5.0 |
| 08 | PMA-12FE-470-MC | 47±20% | 470 | 80 | 5.5 | 4.0 |
| 09 | PMA-12FE-680-MC | 68±20% | 680 | 125 | 5.0 | 3.5 |
| 10 | PMA-12FE-101-MC | 100±20% | 101 | 185 | 4.0 | 2.5 |

**2. Electrical Characteristic**

* Testing instrument: Inductance TH2829C or equivalent at 100KHz /1V.

D.C.R : TH2512B or equivalent. (Ta= 25℃)

Saturation current: TH2829C+TH1778S or equivalent.

* Saturation current: indicates the current when the inductance decrease to 70% of initial value. (Ta=25℃)
* The temperature rise current value is the DC current value having temperature increase up to 40℃(Ta=25℃)

**General Characteristics**

|  |  |  |
| --- | --- | --- |
| Mechanical Performance Test | | |
| Item | **Performance** | **Test Condition** |
| **Solder ability Test** | More than 90% of terminal electrode should be covered with solder.  After fluxing, component shall be dipped in a melted solder bath at 260±5℃ for 10 seconds | |
| **Solder Heat Resistance** | Components should have not evidence of electrical and mechanical damage.  Inductance: within±20% of initial value.  Preheat:150℃ 60 seconds  Solder: (SnCu0.7)  Solder Temperature:260±5℃  Flux: Rosin.  Dip time:10±0.5 seconds | |
| **Low temperature storage test** | 1. Appearance: No damage.  2. Inductance: within ±10% of initial value.  3.No disconnection or short circuit. | Temperature:- 40±5℃ Time: 96±2 Hours  Recovery: 4to24hrs of recovery under the standard condition after the removal from test chamber. |
| **High temperature storage test** | Temperature: 125±5℃ Time: 96±2 Hours  Recovery: 4to24hrs of recovery under the standard condition after the removal from test chamber. |
| **Thermal Shock Test**  **(Temperature cycle)** | -40±5℃ for 30 Minutes. +125±5℃ for 30 Minutes.  Total: 10 Cycles |
| **Humidity load life test** | Temperature: 40±5℃ Humidity.: 90-95%  Time: 96±2 Hours Load: Allowed DC current  Recovery: 4to24hrs of recovery under the standard condition after the removal from test chamber. |

**The Condition Of Reflow**

1. **Reflow Soldering**



Reflow times: 3 times max.

1. **Iron soldering**



Iron Soldering times: 1 times max.

**Packing For Specification**

1. **Tape Dimension**



|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Type** | **Bo(mm)** | **Ao(mm)** | **Ko(mm)** | **P(mm)** | **W(mm)** | **F(mm)** | **T(mm)** | **D(mm)** |
| **04BZ 05CZ** | **5.0±0.1** | **4.40±0.1** | **2.3±0.1** | **8.0±0.1** | **12±0.3** | **5.5±0.1** | **0.35±0.05** | **1.5±0.1** |
| **06CZ** | **7.7±0.1** | **7.0±0.1** | **3.3±0.1** | **12.0±0.1** | **16±0.3** | **7.5±0.1** | **0.35±0.05** | **1.5±0.1** |
| **10DZ 12EZ 12FE** | **11.6±0.1** | **10.4±0.1** | **4.5±0.1** | **16.0±0.1** | **24±0.3** | **11.5±0.1** | **0.35±0.05** | **1.5±0.1** |

1. **Reel Dimension**



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type** | **Size** | **A** | **B** | **C** | **D** |
| **04BZ 05CZ** | **13”x12mm** | **12.0** | **100** | **13.5** | **330** |
| **06CZ** | **13”x16mm** | **16.0** | **100** | **13.5** | **330** |
| **10DZ 12EZ 12FE** | **13”x24mm** | **24.0** | **100** | **13.5** | **330** |



|  |  |
| --- | --- |
| **Type** | **QUANTITY** |
| **04BZ** | **3000PCS/Reel** |
| **05CZ** | **2000PCS/Reel** |
| **06CZ** | **1000PCS/Reel** |
| **10DZ 12EZ 12FE** | **500PCS/Reel** |

1. **PACKING QUANTITY**