

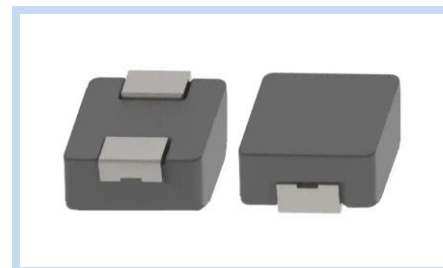
# Molded Power Inductor High Current Shielded Type

PIM-1004A1 series

**MERITEK**

## FEATURE

- High Current, Low DCR, High Efficiency
- Minimized Acoustic and Leakage Flux Noise
- Shielded and Compact Construction Design
- Application: Notebook, PC, Servers, DC/DC Converter, High current converter, Battery powered devices



## ELECTRICAL CHARACTERISTICS

| Item          | Inductance (μH) | Tolerance (%) | DCR Typ. (mΩ) | DCR Max. (mΩ) | ISAT Typ. (A) | IRMS Typ. (A) |
|---------------|-----------------|---------------|---------------|---------------|---------------|---------------|
| PIMR15N1004A1 | 0.15            | ±30%          | 0.5           | 0.6           | 75.0          | 43.0          |
| PIMR22M1004A1 | 0.22            | ±20%          | 0.8           | 1.0           | 60.0          | 35.0          |
| PIMR33M1004A1 | 0.33            | ±20%          | 1.0           | 1.2           | 60.0          | 31.0          |
| PIMR36M1004A1 | 0.36            | ±20%          | 1.05          | 1.2           | 60.0          | 31.0          |
| PIMR47M1004A1 | 0.47            | ±20%          | 1.3           | 1.5           | 43.0          | 28.0          |
| PIMR56M1004A1 | 0.56            | ±20%          | 1.6           | 1.8           | 40.0          | 25.0          |
| PIMR68M1004A1 | 0.68            | ±20%          | 2.4           | 2.7           | 39.0          | 22.0          |
| PIM1R0M1004A1 | 1.0             | ±20%          | 3.0           | 3.3           | 36.0          | 18.0          |
| PIM1R5M1004A1 | 1.5             | ±20%          | 4.0           | 4.6           | 33.0          | 16.0          |
| PIM2R2M1004A1 | 2.2             | ±20%          | 6.5           | 7.0           | 27.0          | 12.0          |
| PIM3R3M1004A1 | 3.3             | ±20%          | 10.8          | 11.8          | 20.0          | 11.0          |
| PIM4R7M1004A1 | 4.7             | ±20%          | 15.0          | 15.5          | 17.0          | 10.0          |
| PIM5R6M1004A1 | 5.6             | ±20%          | 17.0          | 19.3          | 14.0          | 9.0           |
| PIM6R8M1004A1 | 6.8             | ±20%          | 17.5          | 23.3          | 13.5          | 8.5           |
| PIM8R2M1004A1 | 8.2             | ±20%          | 20.0          | 22.5          | 12.5          | 8.0           |
| PIM100M1004A1 | 10              | ±20%          | 27.0          | 30.0          | 12.0          | 7.5           |
| PIM150M1004A1 | 15              | ±20%          | 40.0          | 45.0          | 10.0          | 6.25          |
| PIM220M1004A1 | 22              | ±20%          | 64.0          | 74.0          | 7.0           | 5.0           |
| PIM330M1004A1 | 33              | ±20%          | 92.0          | 112           | 5.0           | 3.5           |
| PIM470M1004A1 | 47              | ±20%          | 145           | 167           | 4.5           | 3.0           |

Note:

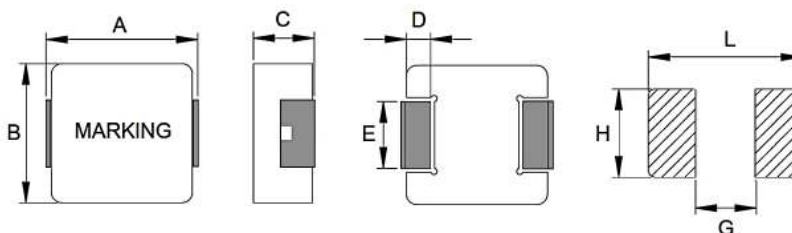
1. Inductance test under 100KRz, 1.0V
2. All test data referenced to 25°C ambient

3. ISAT based on inductance drop ( $\Delta L/L_0 \leq 30\%$ ) approximately

4. IRMS based on temperature rise ( $\Delta T: 40^\circ\text{C}$ ) approximately

5. Operating temperature:  $-40^\circ\text{C} \sim +125^\circ\text{C}$  (Including Self-temperature rise)

## DIMENSIONS



(Unit: mm)

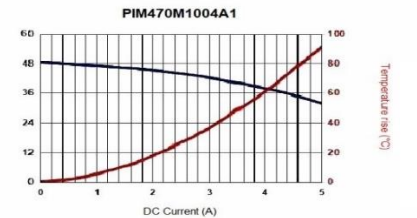
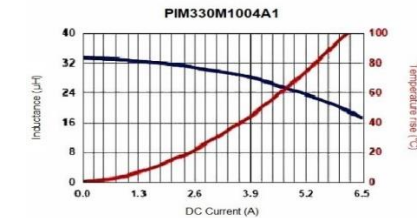
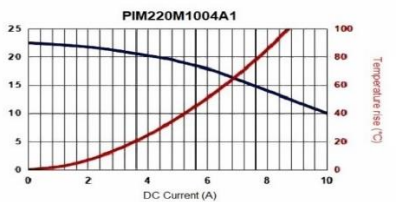
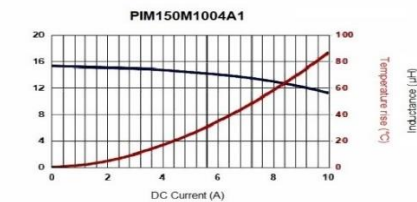
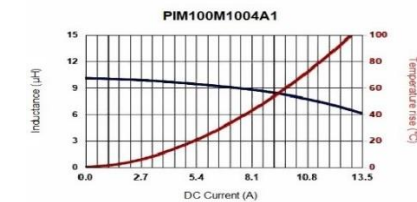
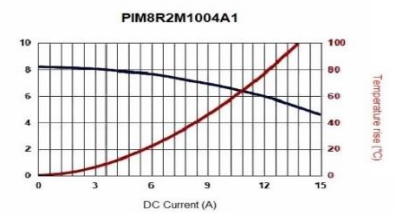
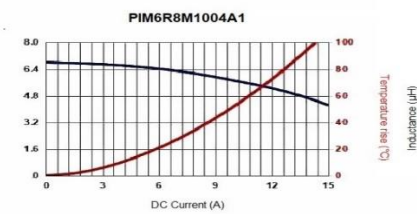
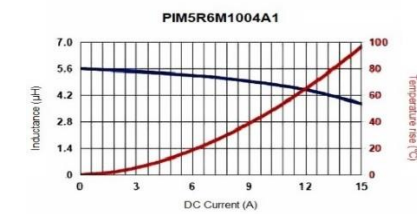
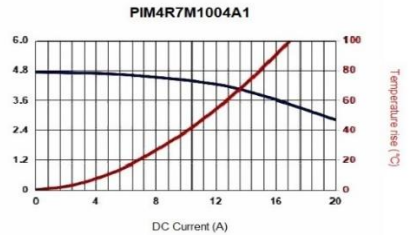
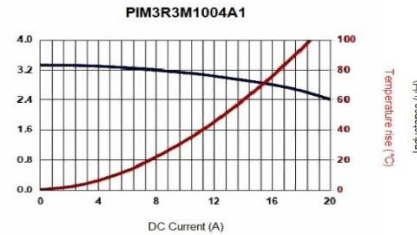
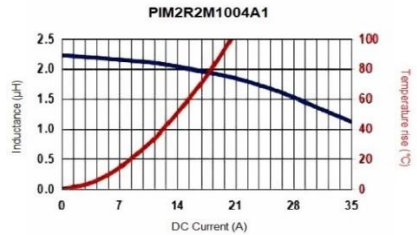
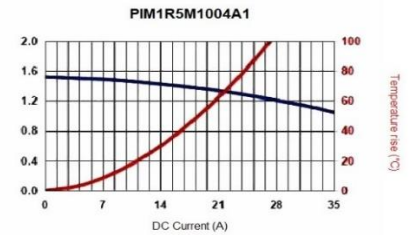
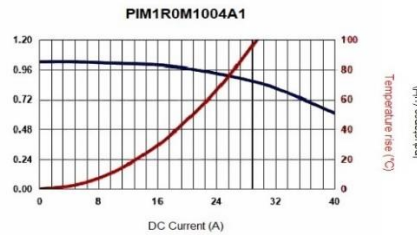
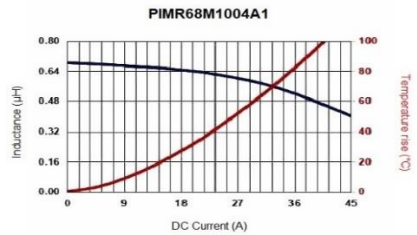
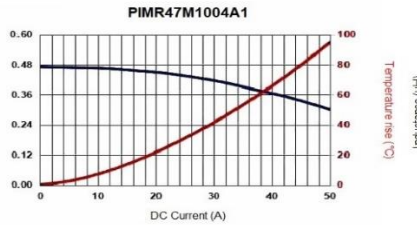
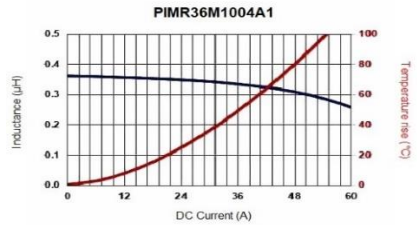
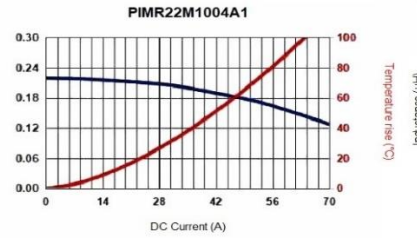
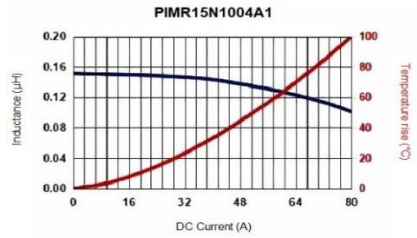
| Size Code | A         | B         | C       | D        | E        | L    | G   | R   |
|-----------|-----------|-----------|---------|----------|----------|------|-----|-----|
| 1004      | 11.0±0.50 | 10.0±0.30 | 3.8±0.2 | 2.3±0.30 | 3.0±0.30 | 13.6 | 5.4 | 3.5 |

# Molded Power Inductor High Current Shielded Type

PIM-1004A1 series

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## CHARACTERISTIC CURVES

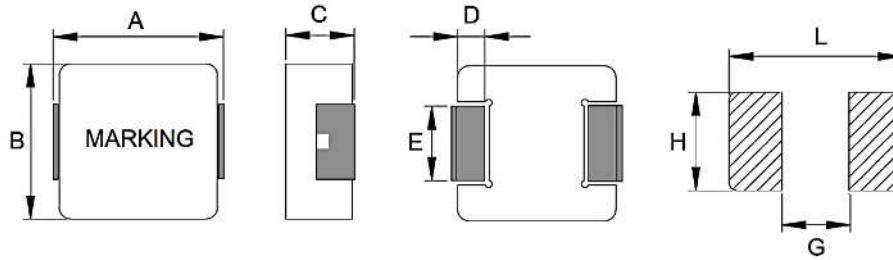


# Molded Power Inductor High Current Shielded Type

PIM-1004A1 series

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## DIMENSIONS – PIM-A1 series



(Unit: mm)

| Size Code | A         | B         | C       | D         | E         | L    | G    | H    |
|-----------|-----------|-----------|---------|-----------|-----------|------|------|------|
| 0302      | 3.5±0.20  | 3.2±0.20  | 1.8±0.2 | 0.7±0.20  | 1.2±0.20  | 4.1  | 1.9  | 1.45 |
| 0312      | 3.5±0.20  | 3.2±0.20  | 1.0±0.2 | 0.7±0.20  | 1.2±0.20  | 4.1  | 1.9  | 1.45 |
| 0315      | 3.5±0.20  | 3.2±0.20  | 1.3±0.2 | 0.7±0.20  | 1.2±0.20  | 4.1  | 1.9  | 1.45 |
| 0402      | 4.45±0.25 | 4.06±0.25 | 1.8±0.2 | 0.76±0.30 | 2.0±0.20  | 5.2  | 2.2  | 2.4  |
| 0412      | 4.45±0.25 | 4.06±0.25 | 1.0±0.2 | 0.76±0.30 | 2.0±0.20  | 5.2  | 2.2  | 2.4  |
| 0415      | 4.45±0.25 | 4.06±0.25 | 1.3±0.2 | 0.76±0.30 | 2.0±0.20  | 5.2  | 2.2  | 2.4  |
| 0502      | 5.7±0.30  | 5.2±0.20  | 1.8±0.2 | 1.1±0.30  | 2.5±0.30  | 6.2  | 2.2  | 2.8  |
| 0503      | 5.7±0.30  | 5.2±0.20  | 2.8±0.2 | 1.1±0.30  | 1.5±0.20  | 6.2  | 2.5  | 1.8  |
| 0512      | 5.7±0.30  | 5.2±0.20  | 1.0±0.2 | 1.1±0.30  | 2.5±0.30  | 6.2  | 2.2  | 2.8  |
| 0515      | 5.7±0.30  | 5.2±0.20  | 1.3±0.2 | 1.1±0.30  | 2.5±0.30  | 6.2  | 2.2  | 2.8  |
| 0518      | 5.7±0.30  | 5.2±0.20  | 1.6±0.2 | 1.1±0.30  | 2.5±0.30  | 6.2  | 2.2  | 2.8  |
| 053P      | 5.7±0.30  | 5.2±0.20  | 2.8±0.2 | 1.1±0.30  | 2.5±0.30  | 6.5  | 2.5  | 2.8  |
| 053T      | 4.9±0.30  | 4.7±0.20  | 2.8±0.2 | 1.0±0.30  | 1.5±0.30  | 7.0  | 3.0  | 2.5  |
| 0612      | 7.0±0.30  | 6.6±0.30  | 1.0±0.2 | 1.8±0.30  | 2.5±0.30  | 7.7  | 2.5  | 3.0  |
| 0615      | 7.0±0.30  | 6.6±0.30  | 1.3±0.2 | 1.8±0.30  | 3.0±0.30  | 7.7  | 2.5  | 3.5  |
| 0618      | 7.0±0.30  | 6.6±0.30  | 1.6±0.2 | 1.8±0.30  | 3.0±0.30  | 7.7  | 2.5  | 3.5  |
| 0602      | 7.0±0.30  | 6.6±0.30  | 1.8±0.2 | 1.8±0.30  | 3.0±0.30  | 7.7  | 2.5  | 3.5  |
| 0624      | 7.3±0.30  | 6.6±0.30  | 2.2±0.2 | 1.8±0.30  | 3.0±0.30  | 7.7  | 2.5  | 3.5  |
| 0603      | 7.3±0.30  | 6.6±0.30  | 2.8±0.2 | 1.8±0.30  | 3.0±0.30  | 8.4  | 2.5  | 3.5  |
| 0604      | 7.3±0.30  | 6.6±0.30  | 3.8±0.2 | 1.8±0.30  | 3.0±0.30  | 8.4  | 2.5  | 3.5  |
| 0605      | 7.3±0.30  | 6.6±0.30  | 4.8±0.2 | 1.8±0.30  | 3.0±0.30  | 8.4  | 2.5  | 3.5  |
| 0803      | 8.8±0.40  | 8.4±0.30  | 2.8±0.2 | 1.6±0.30  | 5.0±0.30  | 9.6  | 4.5  | 5.5  |
| 0840      | 8.8±0.40  | 8.4±0.30  | 3.8±0.2 | 1.6±0.30  | 5.0±0.30  | 9.6  | 4.5  | 5.5  |
| 1002      | 11.0±0.50 | 10.0±0.30 | 1.8±0.2 | 2.3±0.30  | 3.0±0.30  | 12.5 | 5.4  | 3.5  |
| 1003      | 11.0±0.50 | 10.0±0.30 | 2.8±0.2 | 2.3±0.30  | 3.0±0.30  | 13.6 | 5.4  | 3.5  |
| 1004      | 11.0±0.50 | 10.0±0.30 | 3.8±0.2 | 2.3±0.30  | 3.0±0.30  | 13.6 | 5.4  | 3.5  |
| 1005      | 11.0±0.50 | 10.0±0.30 | 4.8±0.2 | 2.3±0.30  | 3.0±0.30  | 13.6 | 5.4  | 3.5  |
| 1235      | 13.5±0.50 | 12.5±0.30 | 3.3±0.2 | 2.3±0.30  | 4.7±0.30  | 14.2 | 8.0  | 5.0  |
| 1205      | 13.5±0.50 | 12.5±0.30 | 4.8±0.2 | 2.3±0.30  | 4.7±0.30  | 14.2 | 8.0  | 5.0  |
| 1206      | 13.5±0.50 | 12.5±0.30 | 5.7±0.2 | 2.3±0.30  | 4.7±0.30  | 14.2 | 8.0  | 5.0  |
| 1265      | 13.5±0.50 | 12.5±0.30 | 6.2±0.3 | 2.3±0.30  | 4.7±0.30  | 14.2 | 8.0  | 5.0  |
| 1707      | 18.0 max  | 16.9±0.30 | 6.7±0.3 | 2.1±0.30  | 11.9±0.30 | 18.5 | 12.2 | 12.5 |

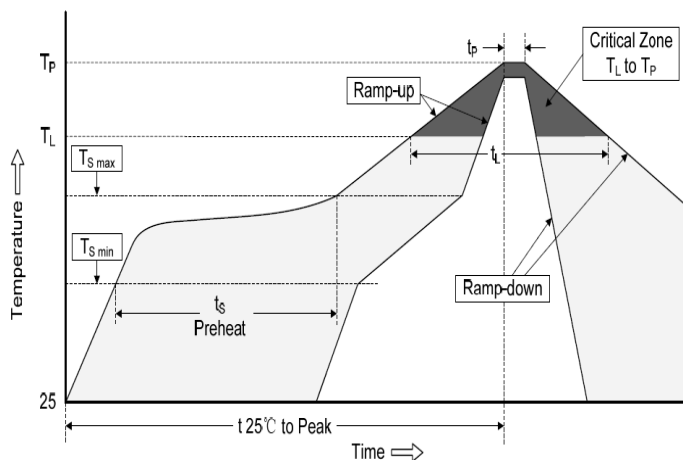
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PIM-1004A1 series

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## RECOMMENDED SOLDERING PROFILES

| Reflow Condition                                     |                               |                 |
|--|-------------------------------|-----------------|
| Pre Heat   | Temp. Min $T_{s(min)}$        | 150°C           |
|  | Temp. Max $T_{s(max)}$        | 200°C           |
|  | Time (min. to max.) ( $t_s$ ) | 60~120 seconds  |
| Average ramp up rate $T_{s(max)}$ to $T_L$           |                               | 3°C/second max. |
| Average ramp up rate $T_L$ to peak                   |                               | 3°C/second max. |
| Reflow   | Temp. ( $T_L$ )               | 217°C           |
|  | Time (min. to max.) ( $t_L$ ) | 60~150 seconds  |
| Peak Temperature ( $T_P$ )                           |                               | 245°C           |
| Time within 5°C of actual peak Temperature ( $t_p$ ) |                               | 10 seconds      |
| Ramp-down Rate                                       |                               | 6°C/second max. |
| Reflow Times   |                               | 3 times max.    |



## PART NUMBERING SYSTEM

**PIM** (1)    **1R0** (2)    **M** (3)    **1004** (4)    **A1** (5)

| No  | Item         | Code | Description                                      |
|-----|--------------|------|--|
| (1) | Product Code | PIM  | Power Inductor Series, Molded Surface Mount Type |
| (2) | Inductance   | 1R0  | 1R0: 1.0μH<br>R47: 0.47μH, 2R2: 2.2μH, 100: 10μH |
| (3) | Tolerance    | M    | M: ±20%<br>N: ±30%                               |
| (4) | Size Code    | 1004 | 1004: 11.0x3.8mm<br>Width x Height (mm)          |
| (5) | Series Code  | A1   | High Current Molded Type                         |

\*Specifications subject to change without notice.