

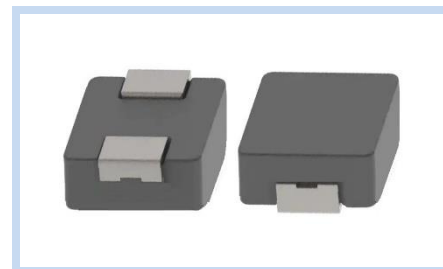
# Molded Power Inductor High Current Shielded Type

PIM-0315A1 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



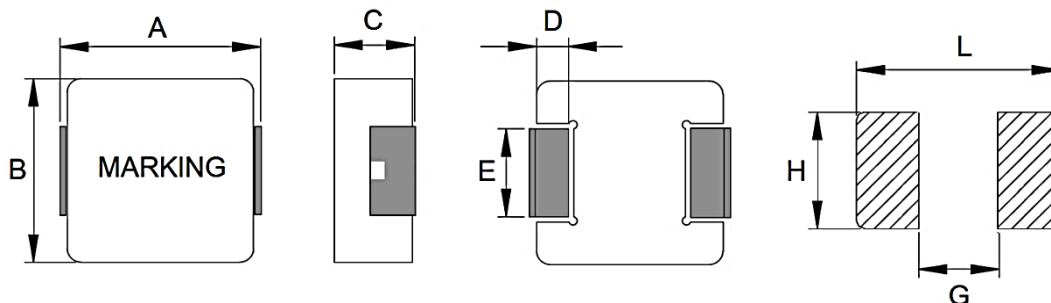
## ELECTRICAL CHARACTERISTICS

| Item          | Inductance (μH) | Tolerance (%) | DCR Typ. (mΩ) | DCR Max. (mΩ) | I <sub>SAT</sub> Typ. (A) | I <sub>RMS</sub> Typ. (A) |
|---------------|-----------------|---------------|---------------|---------------|---------------------------|---------------------------|
| PIMR22M0315A1 | 0.22            | ±20%          | 14.0          | 17.0          | 10.8                      | 7.0                       |
| PIMR47M0315A1 | 0.47            | ±20%          | 23.3          | 28.0          | 8.0                       | 5.5                       |
| PIMR56M0315A1 | 0.56            | ±20%          | 28.0          | 33.0          | 7.2                       | 5.0                       |
| PIMR68M0315A1 | 0.68            | ±20%          | 34.0          | 42.0          | 6.5                       | 4.5                       |
| PIM1R0M0315A1 | 1.00            | ±20%          | 41.0          | 50.0          | 5.8                       | 3.6                       |
| PIM1R5M0315A1 | 1.50            | ±20%          | 64.0          | 77.0          | 4.0                       | 3.4                       |
| PIM2R2M0315A1 | 2.20            | ±20%          | 82.0          | 98.0          | 3.8                       | 3.2                       |
| PIM3R3M0315A1 | 3.30            | ±20%          | 170           | 205           | 3.2                       | 2.5                       |
| PIM4R7M0315A1 | 4.70            | ±20%          | 220           | 264           | 2.8                       | 1.9                       |
| PIM5R6M0315A1 | 5.60            | ±20%          | 265           | 318           | 2.3                       | 1.7                       |
| PIM6R8M0315A1 | 6.80            | ±20%          | 290           | 348           | 2.0                       | 1.5                       |
| PIM8R2M0315A1 | 8.20            | ±20%          | 390           | 468           | 1.8                       | 1.3                       |
| PIM100M0315A1 | 10.00           | ±20%          | 435           | 522           | 1.6                       | 1.2                       |

Note:

1. Inductance test under 100KRz, 1.0V
2. All test data referenced to 25°C ambient
3. I<sub>SAT</sub> based on inductance drop (ΔL/L0: ≤30%) approximately
4. I<sub>RMS</sub> based on temperature rise (ΔT: 40 °C) approximately
5. Operating temperature: -40°C ~ +125°C (Including Self-temperature rise)

## DIMENSIONS



(Unit: mm)

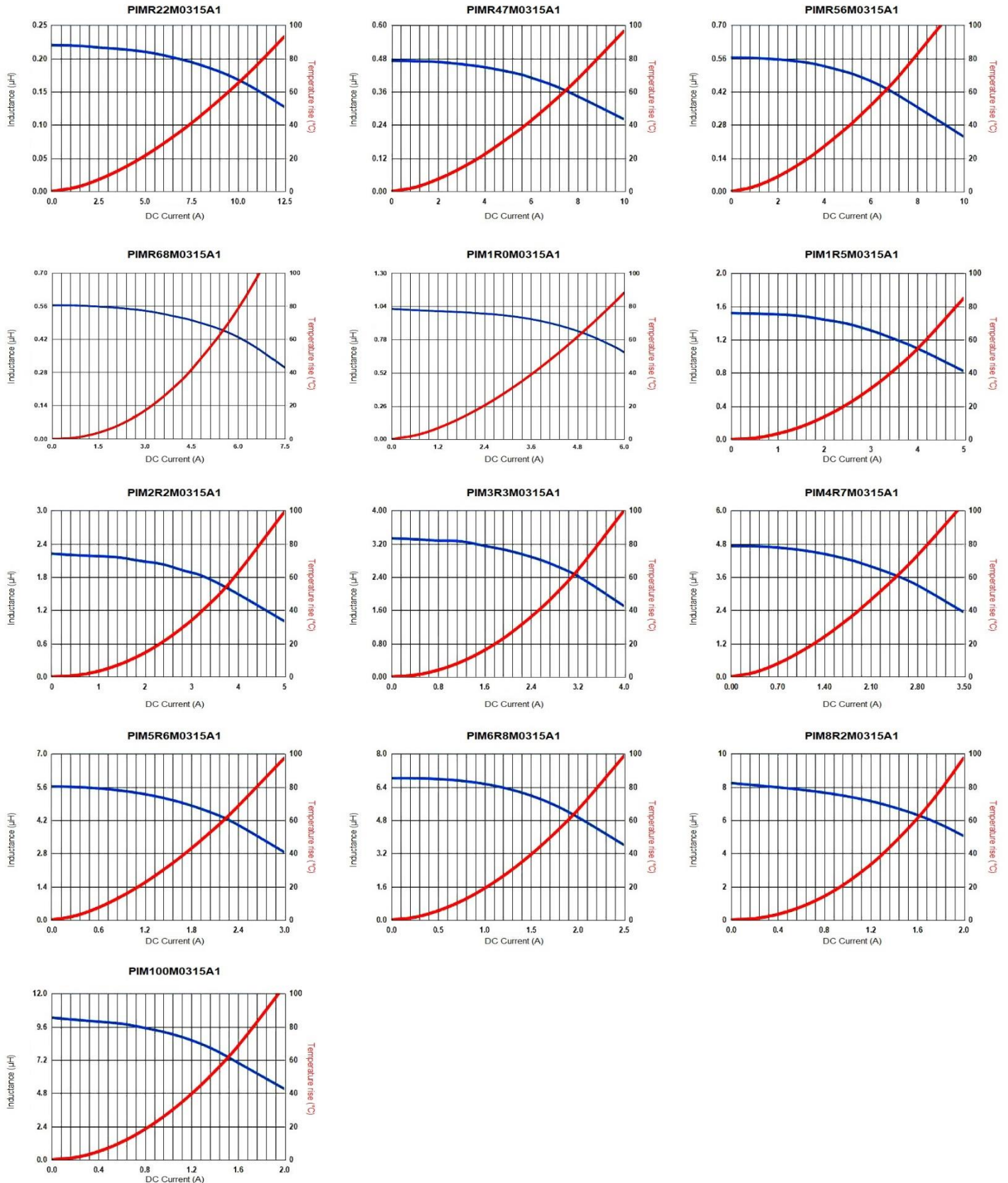
| Size Code | A        | B        | C       | D        | E        | L   | G   | H    |
|-----------|----------|----------|---------|----------|----------|-----|-----|------|
| 0315      | 3.5±0.20 | 3.2±0.20 | 1.3±0.2 | 0.7±0.20 | 1.2±0.20 | 4.1 | 1.9 | 1.45 |

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## CHARACTERISTIC CURVES

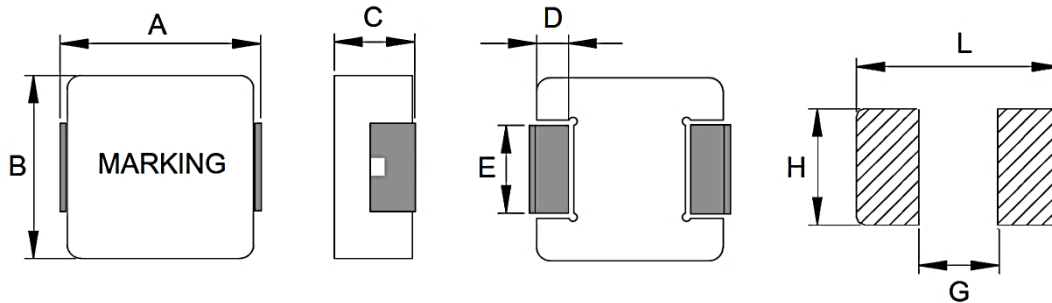


# Molded Power Inductor High Current Shielded Type

PIM-0315A1 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 |

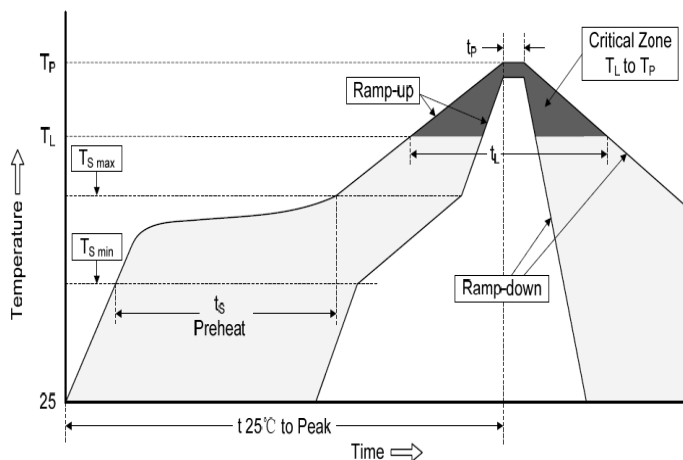
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## RECOMMENDED SOLDERING PROFILES

| 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)    R47 (2)    M (3)    0315 (4)    A1 (5)

| No  | item         | Code | Description   |
|-----|--------------|------|---|
| (1) | Product Code | PIM  | Power Inductor Series, Molded Surface Mount Type                    |
| (2) | Inductance   | R47  | R47: 0.47 $\mu$ H      2R2: 2.2 $\mu$ H, 100: 10 $\mu$ H            |
| (3) | Tolerance    | M    | M: $\pm$ 20%      N: $\pm$ 30%                                      |
| (4) | Size Code    | 0315 | 0315: 3.5x1.3mm      Width x Height (mm)                            |
| (5) | Series Code  | A1   | High Current Molded Type      Internal control or project reference |

\*Specifications subject to change without notice.