

Molded Power Inductor

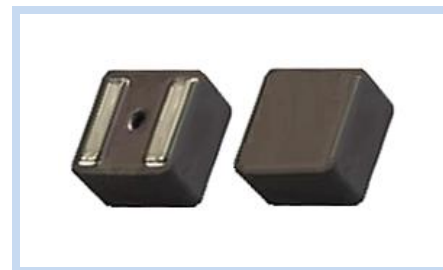
High Current Low DCR AEC-Q200

PIM-0403LMA2 series

MERITEK

FEATURE

- High Current, Low DCR, High Efficiency
- Soft Saturation
- Minimized acoustic and leakage flux noise.
- Shielded and compact construction design
- AEC-Q200 Compliant
- Application: Note PC Power System, incl. IMVP-6, DC/DC Converter



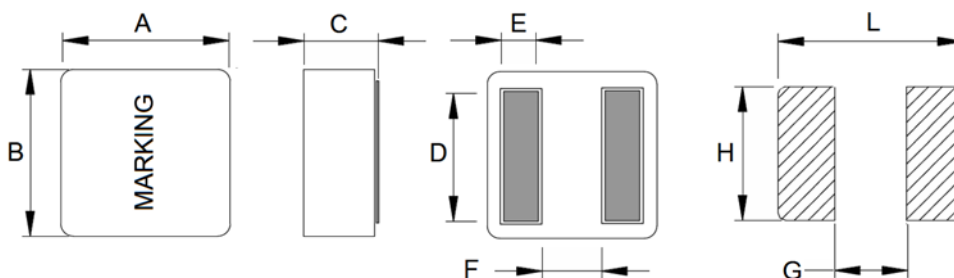
ELECTRICAL CHARACTERISTICS

| Item | Inductance (μH) | Tolerance (%) | DCR Typ. (mΩ) | DCR Max. (mΩ) | I _{SAT} Typ. (A) | I _{RMS} (A) | |
|-----------------|-----------------|---------------|---------------|---------------|---------------------------|----------------------|-----------|
| | | | | | | 20°C Rise | 40°C Rise |
| PIMR90M0403LMA2 | 0.9 | ±20% | 9.1 | 10.1 | 10.0 | 8.2 | 11.2 |
| PIM1R0M0403LMA2 | 1.0 | ±20% | 9.1 | 10.1 | 9.8 | 8.0 | 11.0 |
| PIM1R2M0403LMA2 | 1.2 | ±20% | 10.4 | 11.5 | 9.2 | 7.8 | 9.8 |
| PIM1R5M0403LMA2 | 1.5 | ±20% | 12.0 | 13.2 | 8.0 | 7.0 | 9.0 |
| PIM2R2M0403LMA2 | 2.2 | ±20% | 20.5 | 22.6 | 7.0 | 6.0 | 7.8 |
| PIM3R3M0403LMA2 | 3.3 | ±20% | 26.0 | 28.6 | 6.2 | 5.0 | 6.6 |

Note:

1. Inductance test under 100KHz, 0.1V
2. All test data referenced to 25°C ambient
3. I_{SAT} based on inductance change ($\Delta L/L_0 \leq 30\%$) approximately
4. Operating temperature: -55°C ~ +155°C (Including Self-temperature rise)

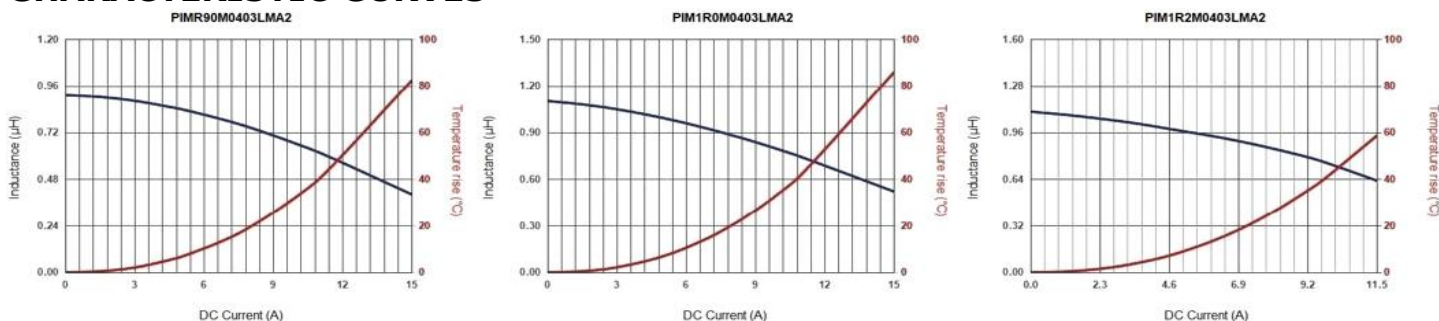
DIMENSIONS



(Unit: mm)

| Size Code | A | B | C | D | E | F | L | G | H |
|-----------|---------|---------|---------|---------|----------|----------|---------|---------|---------|
| 0403L | 4.4±0.2 | 4.4±0.2 | 2.8±0.2 | 3.4±0.3 | 0.88±0.2 | 1.6±0.25 | 3.4 ref | 1.4 ref | 3.8 ref |

CHARACTERISTIC CURVES

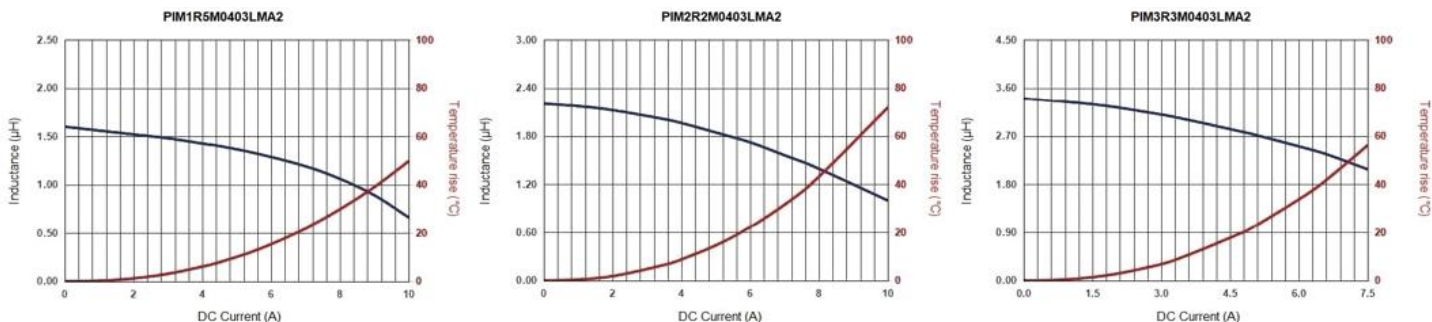


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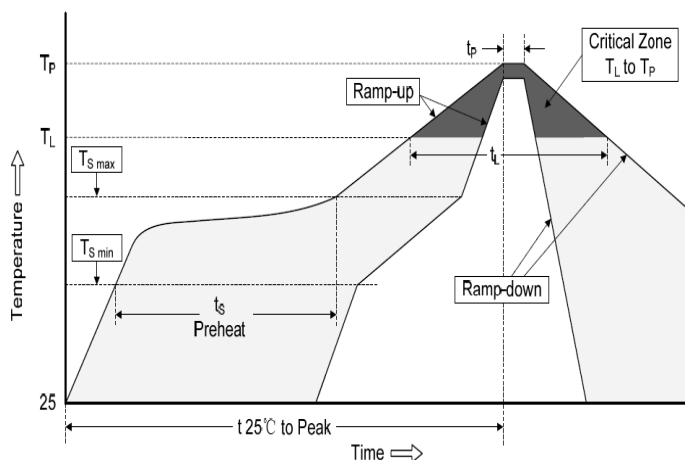
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CHARACTERISTIC CURVES



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) 0403L (4) MA2 (5)

| No | Item | Code | Description |
|-----|--------------|-------|--|
| (1) | Product Code | PIM | Power Inductor, Molded Type |
| (2) | Inductance | 1R0 | 1R0: 1.0µH R47: 0.47µR, 2R2: 2.2µH, 100: 10µH |
| (3) | Tolerance | M | M: ±20% +20% ~ -20% |
| (4) | Size Code | 0403L | 0403L: 4.4 x 2.8mm Width x Height (mm) |
| (5) | Series Code | MA2 | Molded High Current, Low RDC AEC-Q200 series |

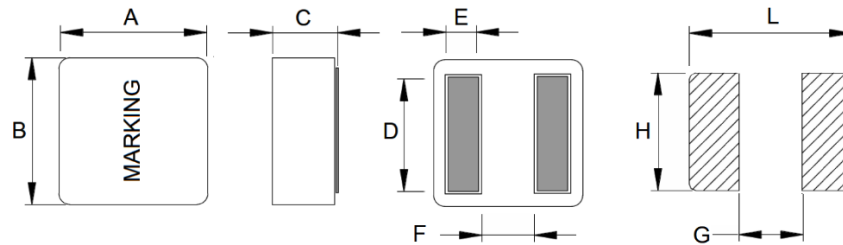
Molded Power Inductor

High Current Low DCR AEC-Q200

PIM-0403LMA2 series

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DIMENSIONS – PIM-MA2 series



(Unit: mm)

| Size Code | A | B | C | D | E | F | L | G | H |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|---------|----------|
| 0402A/R | 4.1±0.2 | 4.1±0.2 | 1.9±0.2 | 3.4±0.3 | 0.88±0.2 | 1.6±0.25 | 3.4 ref | 1.4 ref | 3.8 ref |
| 0402B/L | 4.4±0.2 | 4.4±0.2 | 1.9±0.2 | 3.4±0.3 | 0.88±0.2 | 1.6±0.25 | 3.4 ref | 1.4 ref | 3.8 ref |
| 0403R | 4.1±0.25 | 4.1±0.25 | 2.8±0.2 | 3.4±0.3 | 0.88±0.2 | 1.6±0.25 | 3.4 ref | 1.4 ref | 3.8 ref |
| 0403L | 4.4±0.2 | 4.4±0.2 | 2.8±0.2 | 3.4±0.3 | 0.88±0.2 | 1.6±0.25 | 3.4 ref | 1.4 ref | 3.8 ref |
| 0502A | 5.5±0.2 | 5.3±0.2 | 1.9±0.2 | 4.3±0.3 | 1.1±0.2 | 2.3±0.25 | 4.5 ref | 2.0 ref | 4.7 ref |
| 0502B | 6.0±0.2 | 5.7±0.2 | 1.9±0.2 | 4.3±0.3 | 1.1±0.2 | 2.3±0.25 | 4.5 ref | 2.0 ref | 4.7 ref |
| 0503A | 5.5±0.2 | 5.3±0.2 | 2.9±0.2 | 4.3±0.3 | 1.1±0.2 | 2.3±0.25 | 4.5 ref | 2.0 ref | 4.7 ref |
| 0503B | 6.0±0.2 | 5.7±0.2 | 2.9±0.2 | 4.3±0.3 | 1.1±0.2 | 2.3±0.25 | 4.5 ref | 2.0 ref | 4.7 ref |
| 0505R | 5.5±0.2 | 5.3±0.2 | 4.8±0.2 | 4.3±0.3 | 1.1±0.2 | 2.3±0.25 | 4.5 ref | 2.0 ref | 4.7 ref |
| 0505L | 6.0±0.2 | 5.7±0.2 | 4.8±0.2 | 4.3±0.3 | 1.1±0.2 | 2.3±0.25 | 4.5 ref | 2.0 ref | 4.7 ref |
| 0603A | 6.6±0.2 | 6.4±0.2 | 2.9±0.2 | See Table | 1.4±0.2 | 2.6±0.25 | 5.8 ref | 2.5 ref | 5.6 ref |
| 0603B | 7.2±0.2 | 6.9±0.2 | 2.9±0.2 | See Table | 1.4±0.2 | 2.6±0.25 | 5.6 ref | 2.5 ref | 5.6 ref |
| 0604B | 7.2±0.2 | 6.9±0.2 | 3.8±0.2 | See Table | 1.4±0.2 | 2.6±0.25 | 5.6 ref | 2.5 ref | 5.6 ref |
| 0605A | 6.6±0.2 | 6.4±0.2 | 4.8±0.2 | See Table | 1.4±0.2 | 2.6±0.25 | 5.8 ref | 2.5 ref | 5.6 ref |
| 0605B | 7.2±0.2 | 6.9±0.2 | 4.8±0.2 | See Table | 1.4±0.2 | 2.6±0.25 | 5.6 ref | 2.5 ref | 5.6 ref |
| 0606R | 6.6±0.2 | 6.4±0.2 | 5.8±0.2 | 5.3±0.3 | 1.4±0.2 | 2.6±0.25 | 5.6 ref | 2.5 ref | 5.6 ref |
| 0606B/L | 7.2±0.2 | 6.9±0.2 | 5.8±0.2 | 5.3±0.3 | 1.4±0.2 | 2.6±0.25 | 5.6 ref | 2.5 ref | 5.6 ref |
| 0702A | 7.80±0.25 | 7.60±0.20 | 1.85±0.2 | 6.2±0.3 | 1.75±0.2 | 3.15±0.25 | 7.4 ref | 2.8 ref | 7.2 ref |
| 0702B | 8.4±0.3 | 8.0±0.3 | 1.85±0.2 | See Table | 1.75±0.2 | 3.15±0.25 | 7.4 ref | 2.8 ref | 7.2 ref |
| 0703A | 7.80±0.25 | 7.60±0.20 | 2.90±0.2 | See Table | 1.75±0.2 | 3.15±0.25 | 7.4 ref | 2.8 ref | 7.2 ref |
| 0703B | 8.4±0.3 | 8.0±0.3 | 2.9±0.2 | See Table | 1.75±0.2 | 3.15±0.25 | 7.4 ref | 2.8 ref | 7.2 ref |
| 0705A | 7.80±0.25 | 7.80±0.25 | 4.80±0.2 | 6.2±0.3 | 1.75±0.2 | 3.15±0.25 | 7.4 ref | 2.8 ref | 7.2 ref |
| 0705B | 8.4±0.3 | 8.0±0.3 | 4.8±0.2 | 6.2±0.3 | 1.75±0.2 | 3.15±0.25 | 7.4 ref | 2.8 ref | 7.2 ref |
| 0707A | 7.80±0.25 | 7.80±0.25 | 6.70±0.30 | See Table | 1.75±0.20 | 3.15±0.25 | 7.8 ref | 2.8 ref | 6.7 ref |
| 0707B | 8.4±0.3 | 8.0±0.3 | 6.7±0.3 | See Table | 1.75±0.2 | 3.15±0.25 | 7.8 ref | 2.8 ref | 6.7 ref |
| 0808B | 8.9±0.3 | 8.5±0.3 | 7.7±0.3 | 6.9±0.4 | 1.8±0.2 | 3.5±0.3 | 8.0 ref | 2.7 ref | 7.8 ref |
| 1010B | 11.9±0.3 | 11.0±0.3 | 9.7±0.3 | See Table | 2.4±0.2 | 4.4±0.3 | 10.5 ref | 3.7 ref | 12.0 ref |
| 1031L | 11.9±0.3 | 11.0±0.30 | 2.9±0.2 | 9.0±0.5 | 2.4±0.2 | 4.4±0.3 | 10.5 ref | 3.7 ref | 13.0 ref |
| 1006B | 11.9±0.3 | 11.0±0.3 | 5.7±0.3 | See Table | 2.4±0.2 | 4.5±0.3 | 10.5 ref | 3.7 ref | 11.0 ref |
| 1508A | 16.5±0.3 | 15.5±0.3 | 7.7±0.3 | 13.2±0.5 | 3.2±0.2 | 7.0±0.3 | 15.0 ref | 6.0 ref | 15.0 ref |
| 1508B | 17.5±0.3 | 16.5±0.3 | 7.7±0.3 | 13.2±0.5 | 3.2±0.2 | 7.0±0.3 | 15.0 ref | 6.0 ref | 15.0 ref |
| 1510A | 16.5±0.3 | 15.5±0.3 | 9.7±0.3 | 13.2±0.5 | 3.2±0.2 | 7.0±0.3 | 15.0 ref | 6.0 ref | 15.0 ref |
| 1510B | 17.5±0.3 | 16.5±0.3 | 9.7±0.3 | 13.2±0.5 | 3.2±0.2 | 7.0±0.3 | 15.0 ref | 6.0 ref | 15.0 ref |
| 1513A | 16.5±0.3 | 15.5±0.3 | 12.7±0.3 | 13.2±0.5 | 3.2±0.2 | 7.0±0.3 | 15.0 ref | 6.0 ref | 15.0 ref |
| 1513B | 17.5±0.3 | 16.5±0.3 | 12.7±0.3 | 13.2±0.5 | 3.2±0.2 | 7.0±0.3 | 15.0 ref | 6.0 ref | 15.0 ref |

*Specifications subject to change without notice.