



THE DATASHEET OF MPC1040LR45C



Overview

KEMET's MPC Series of metal composite inductors is designed for use in power supplies with high ripple current. These inductors offer superior saturation current when compared to technologies based on ferrite cores. Their low height makes them ideal in applications with thin profile requirements.

The flat wire used in the design of the MPC Series enables high ripple current carrying capabilities.

Applications

- Switching DC-DC power supplies
- Notebook computers
- Tablets
- Embedded computer systems
- HDTVs
- DVD and BluRay players



Part Number System

| MPC | 0740 | L | R42C |
|--------|--|----------|---|
| Series | Size Code | Inductor | Inductance Code μ H |
| MPC | 0730 0740 0750 1040 1055 1250 | | R = decimal point Examples: R42C = 0.42 μ H 1R0C = 1.0 μ H |

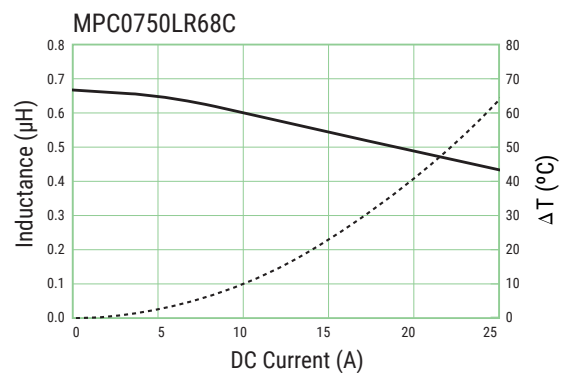
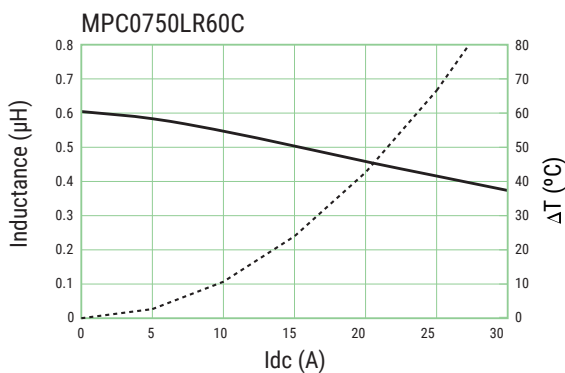
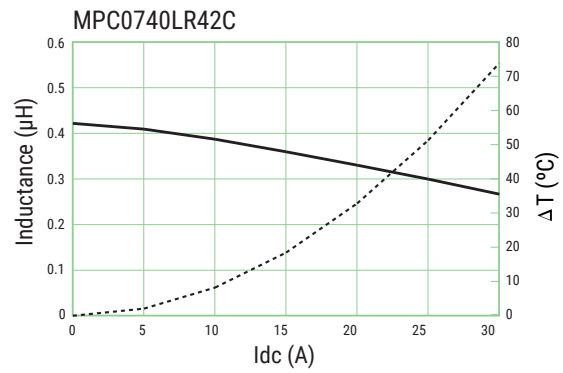
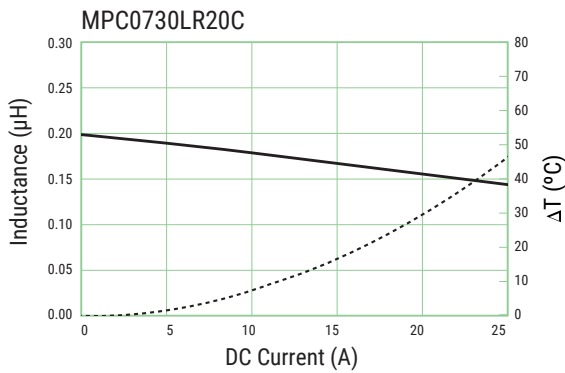
Table 1 – Ratings & Part Number Reference

| Part Number | Inductance (μH) at 100 kHz | Inductance Tolerance | DC Resistance ($\text{m}\Omega$) $\pm 10\%$ | Rated Current (A) | |
|--------------|--|-------------------------|--|---------------------------|---------------------------|
| | | | | I_{rms}^1 (Ref.) | I_{sat}^2 (Ref.) |
| MPC0730LR20C | 0.20 | $\pm 25\%$ | 1.20 | 23.0 | 17.5 |
| MPC0740LR42C | 0.42 | $\pm 20\%$ | 1.55 | 22.0 | 20.0 |
| MPC0750LR60C | 0.60 | $\pm 20\%$ | 2.30 | 17.0 | 19.0 |
| MPC0750LR68C | 0.68 | $\pm 20\%$ | 2.20 | 18.0 | 16.0 |
| MPC1040LR36C | 0.36 | $\pm 20\%$ | 1.05 | 25.5 | 30.0 |
| MPC1040LR45C | 0.45 | $\pm 20\%$ | 1.10 | 25.0 | 27.0 |
| MPC1040LR56C | 0.56 | $\pm 20\%$ | 1.30 | 23.0 | 25.0 |
| MPC1040LR88C | 0.88 | $\pm 20\%$ | 2.30 | 17.0 | 24.0 |
| MPC1055LR36C | 0.36 | $\pm 20\%$ | 0.75 | 32.0 | 35.0 |
| MPC1055L1R0C | 1.00 | $\pm 20\%$ | 2.30 | 18.5 | 21.0 |
| MPC1250LR36C | 0.36 | $\pm 20\%$ | 0.65 | 38.0 | 40.0 |
| MPC1250LR50C | 0.50 | $\pm 20\%$ | 0.80 | 35.0 | 40.0 |

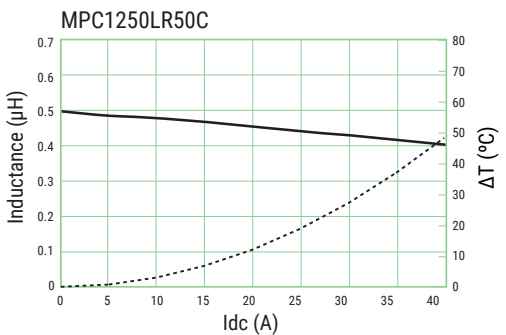
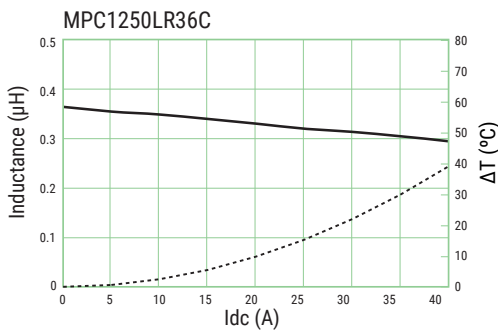
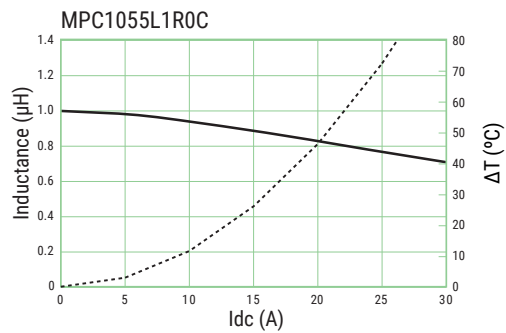
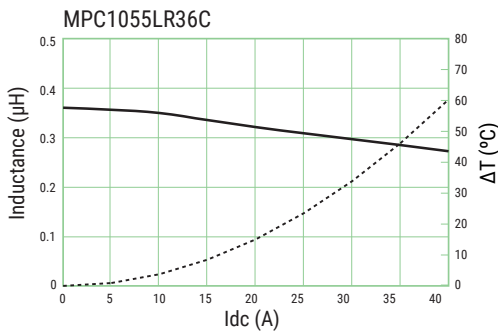
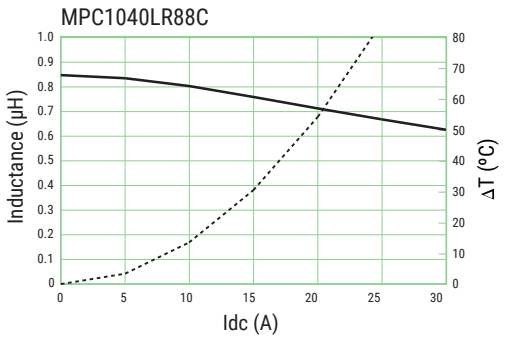
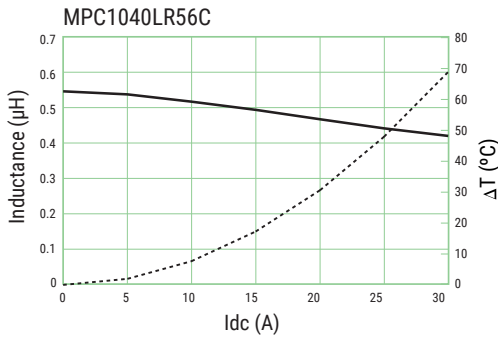
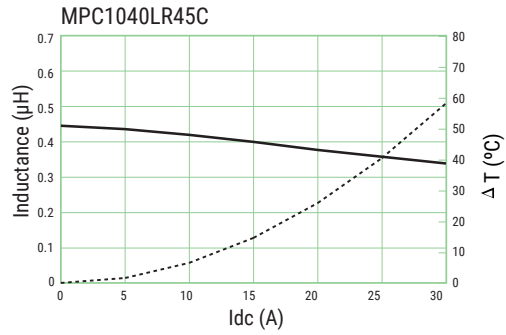
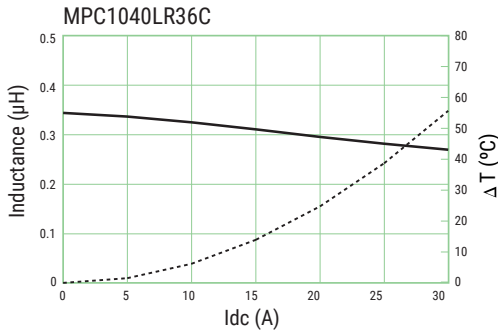
¹ $T = 40\text{ K}$ rise at rated current.

² Inductance drop 20% at rated current.

DC-Superposed Characteristics



DC-Superposed Characteristics cont'd



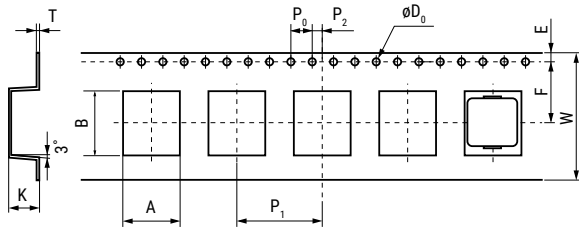
Specifications

| Part Number | Dimensions (mm) | Land Pattern |
|--|-----------------|--------------|
| MPC0730LR20C MPC0740LR42C | | |
| MPC0750LR60C MPC0750LR68C | | |
| MPC1040LR36C MPC1040LR45C MPC1040LR56C | | |
| MPC1040LR88C | | |
| MPC1055LR36C | | |
| MPC1055L1R0C | | |
| MPC1250LR36C MPC1250LR50C | | |

Operating temperature range: -20°C to $+120^{\circ}\text{C}$ (Include self temperature rise)

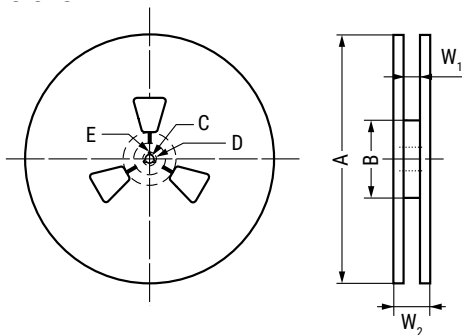
Taping Specification

Dimensions of indented square hole plastic tape



| Series | Reel Qty | | Dimensions (mm) | | | | | | | | | | | |
|---------|----------|-----------|-----------------|------|------|------|------|----------------|----------------|----------------|-----------------|-------|-------|------|
| | | | A | B | W | F | E | P ₁ | P ₂ | P ₀ | øD ₀ | T | K | |
| MPC0730 | 1,000 | Tolerance | ±0.1 | ±0.1 | ±0.2 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.05 | ±0.05 | ±0.1 |
| MPC0740 | | Nominal | 7.0 | 8.0 | 16.0 | 7.5 | 1.75 | 12.0 | 2.0 | 4.0 | 1.55 | 0.4 | 5.3 | |
| MPC0750 | | | | | | | | | | | | | | |
| MPC1040 | 500 | Tolerance | ±0.1 | ±0.1 | ±0.3 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.05 | ±0.05 | ±0.1 | |
| | | Nominal | 10.5 | 12.1 | 24.0 | 11.5 | 1.75 | 16.0 | 2.0 | 4.0 | 1.55 | 0.4 | 5.2 | |
| MPC1055 | 500 | Tolerance | ±0.1 | ±0.1 | ±0.2 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.05 | ±0.05 | ±0.1 | |
| | | Nominal | 10.5 | 12.1 | 24.0 | 11.5 | 1.75 | 24.0 | 2.0 | 4.0 | 1.55 | 0.4 | 6.0 | |
| MPC1250 | 500 | Tolerance | ±0.2 | ±0.2 | ±0.4 | ±0.2 | ±0.2 | ±0.2 | ±0.2 | ±0.2 | ±0.02 | ±0.1 | ±0.2 | |
| | | Nominal | 13.1 | 14.6 | 24.0 | 11.5 | 1.75 | 24.0 | 2.0 | 4.0 | 1.5 | 0.4 | 5.3 | |

Reel Specifications



| Series | | Dimensions (mm) | | | | | | | |
|---------|-----------|-----------------|------|-------|-------|------|------|----------------|----------------|
| | | A | B | C | D | E | r | W ₁ | W ₂ |
| MPC0730 | Tolerance | ±2.0 | ±1.0 | ±0.2 | ±0.8 | ±0.5 | | ±1.0 | ±1.0 |
| MPC0740 | Nominal | ø330 | ø80 | ø13.0 | ø21.0 | 2.0 | R1.0 | 17.5 | 21.5 |
| MPC0750 | | | | | | | | | |
| MPC1040 | Tolerance | ±5.0 | ±5.0 | ±0.5 | ±1.0 | ±0.5 | | ±2.0 | ±3.0 |
| | Nominal | ø330 | ø80 | ø13.5 | ø21.0 | 2.0 | R1.0 | 24.4 | 30.4 |
| MPC1055 | Tolerance | ±2.0 | ±1.0 | ±0.5 | ±0.8 | ±0.5 | | ±2.0 | ±3.0 |
| | Nominal | ø380 | ø100 | ø13.0 | ø21.0 | 2.0 | R1.0 | 24.4 | 30.4 |
| MPC1250 | Tolerance | ±2.0 | ±5.0 | ±0.5 | ±0.8 | ±0.5 | | ±2.0 | ±3.0 |
| | Nominal | ø380 | ø100 | ø13.0 | ø21.0 | 2.0 | R1.0 | 25.5 | 28.5 |

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