

Overview

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

Also, the flat wire used in the design of the MPC 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 μH |
| MPC | 0730 0740 0750 1040 1055 1250 | | R = decimal point Examples: R42C = 0.42 μH 1R0C = 1.0 μH |

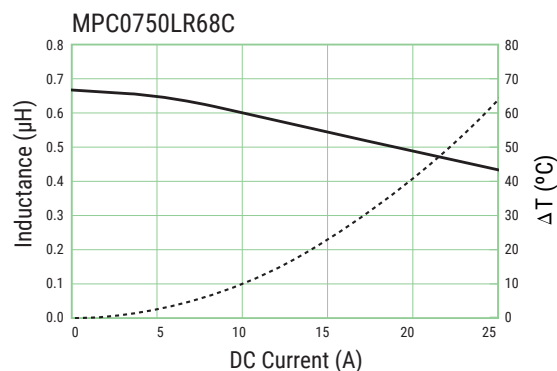
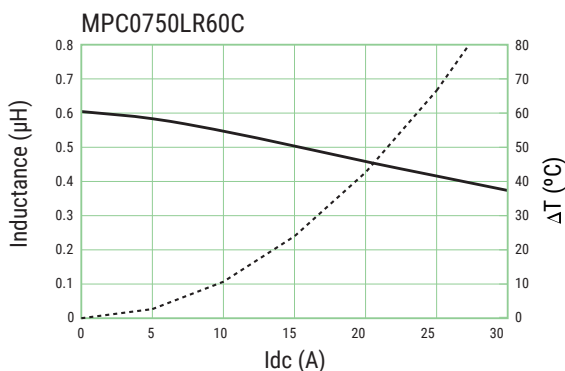
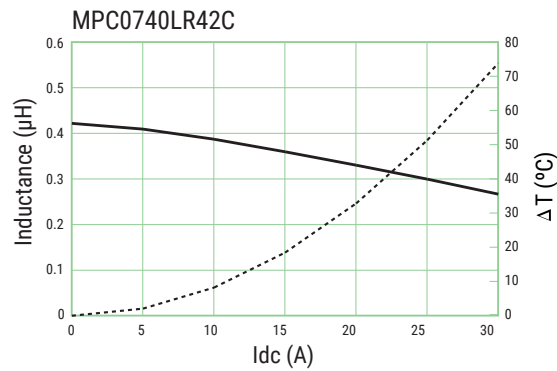
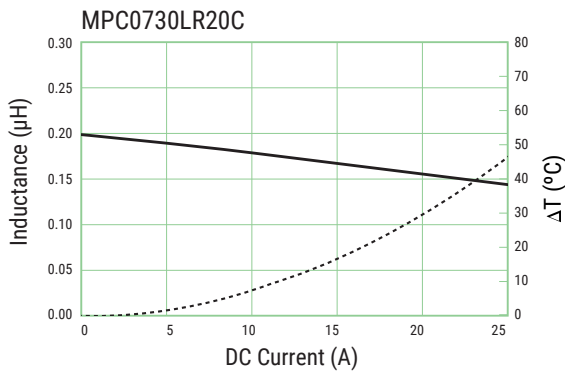
Table 1 – Ratings & Part Number Reference

| 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 |

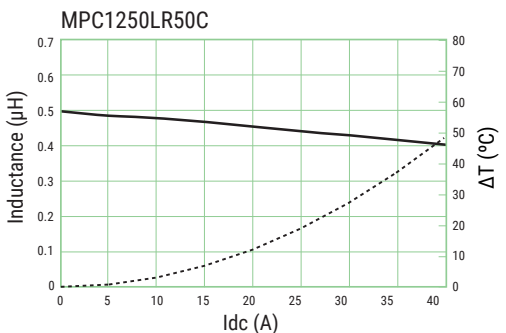
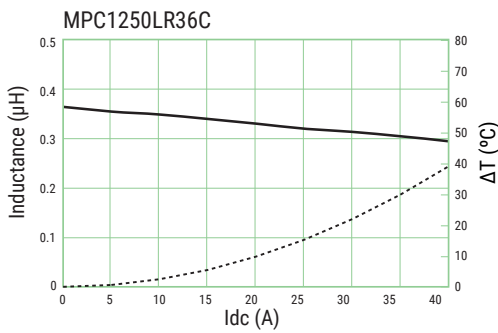
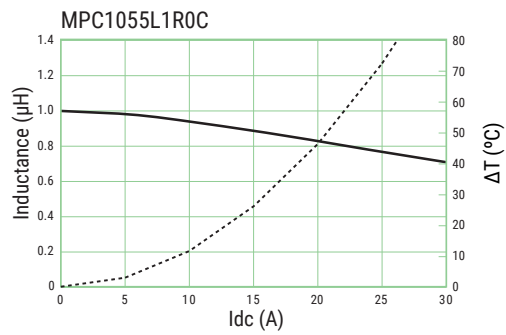
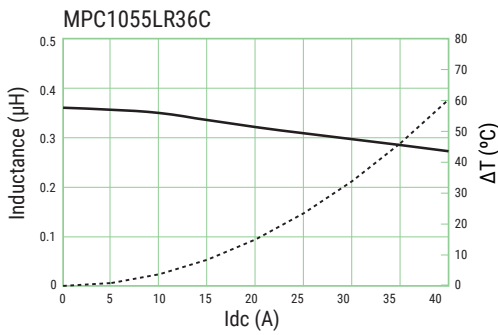
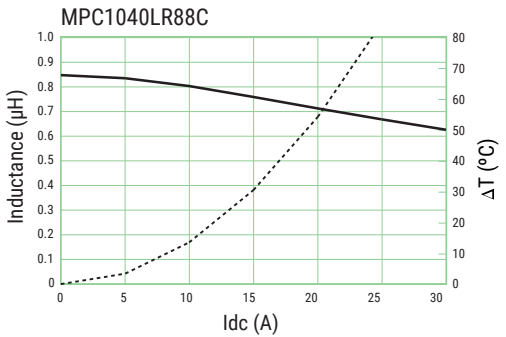
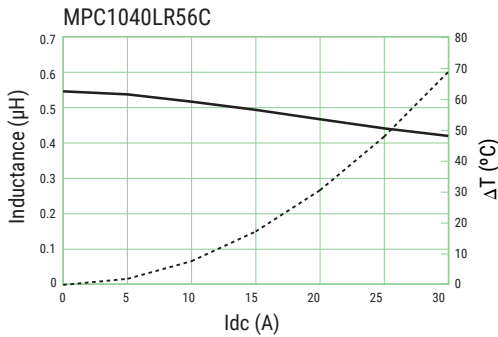
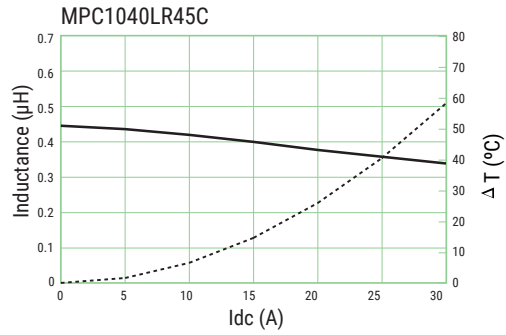
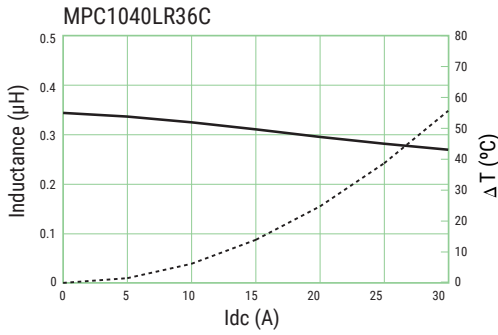
¹ $T = 40\text{ K}$ rise at rated current.

² Inductance drop 20% at rated current.

DC-Superposed Characteristics



DC-Superposed Characteristics cont'd



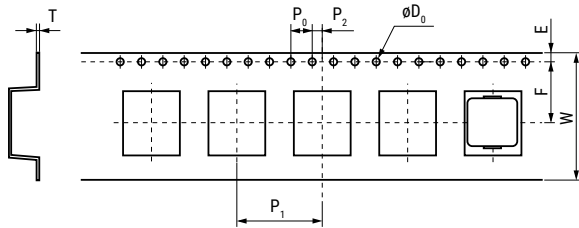
Dimensions

| 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)

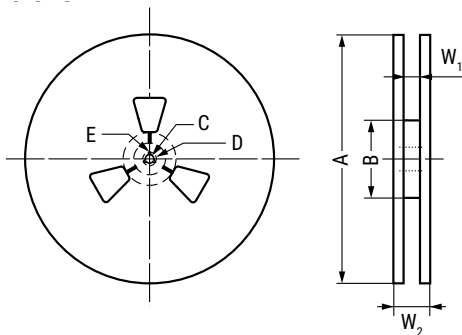
Taping Specification

Dimensions of indented square hole plastic tape



| Case Size | Reel Quantity | | Dimensions (mm) | | | | | | | | |
|-------------------------------|---------------|-----------|-----------------|------|------|----------------|----------------|----------------|-----------------|-------|-------|
| | | | W | F | E | P ₁ | P ₂ | P ₀ | øD ₀ | T | |
| MPC0730 MPC0740 MPC0750 | 1,000 | Tolerance | ±0.2 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.05 | ±0.05 |
| | | Nominal | 16.0 | 7.5 | 1.75 | 12.0 | 2.0 | 4.0 | 1.55 | 0.4 | |
| MPC1040 | 500 | Tolerance | ±0.3 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.05 | ±0.05 |
| | | Nominal | 24.0 | 11.5 | 1.75 | 16.0 | 2.0 | 4.0 | 1.55 | 0.4 | |
| MPC1055 | 500 | Tolerance | ±0.2 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.05 | ±0.05 |
| | | Nominal | 24.0 | 11.5 | 1.75 | 24.0 | 2.0 | 4.0 | 1.55 | 0.4 | |
| MPC1250 | 500 | Tolerance | ±0.4 | ±0.2 | ±0.2 | ±0.2 | ±0.2 | ±0.2 | ±0.2 | ±0.02 | ±0.1 |
| | | Nominal | 24.0 | 11.5 | 1.75 | 24.0 | 2.0 | 4.0 | 1.5 | 0.4 | |

Reel Specifications



| Case Size | | Dimensions (mm) | | | | | | | |
|-------------------------------|-----------|-----------------|------|-------|-------|------|------|----------------|----------------|
| | | A | B | C | D | E | r | W ₁ | W ₂ |
| MPC0730 MPC0740 MPC0750 | Tolerance | ±2.0 | ±1.0 | ±0.2 | ±0.8 | ±0.5 | | ±1.0 | ±1.0 |
| | Nominal | ø330 | ø80 | ø13.0 | ø21.0 | 2.0 | R1.0 | 17.5 | 21.5 |
| 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 |

Handling Precautions

Inductors should be stored in normal working environments. While the inductors themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage.

KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 70% relative humidity. Atmospheres should be free of chlorine and sulfur bearing compounds. Temperature fluctuations should be minimized to avoid condensation on the parts. For optimized solderability, inductors' stock should be used promptly, preferably within six months of receipt.

Export Control

For customers in Japan

For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

For customers outside Japan

Inductors should not be used or sold for use in the development, production, stockpiling or utilization of any conventional weapons or mass-destruction weapons (nuclear, chemical, biological weapons or missiles), or any other weapons.

KEMET Electronics Corporation Sales Offices

For a complete list of our global sales offices, please visit www.kemet.com/sales.

Disclaimer

All product specifications, statements, information and data (collectively, the "Information") in this datasheet are subject to change. The customer is responsible for checking and verifying the extent to which the Information contained in this publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without guarantee, warranty, or responsibility of any kind, expressed or implied.

Statements of suitability for certain applications are based on KEMET Electronics Corporation's ("KEMET") knowledge of typical operating conditions for such applications, but are not intended to constitute – and KEMET specifically disclaims – any warranty concerning suitability for a specific customer application or use. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by KEMET with reference to the use of KEMET's products is given gratis, and KEMET assumes no obligation or liability for the advice given or results obtained.

Although KEMET designs and manufactures its products to the most stringent quality and safety standards, given the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage.

Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

KEMET is a registered trademark of KEMET Electronics Corporation.