

### 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 $\mu\text{H}$
MPC	0730 0740 0750 1040 1055 1250		R = decimal point Examples: R42C = 0.42 $\mu\text{H}$ 1R0C = 1.0 $\mu\text{H}$

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SMD Inductors

Large-Current Power Inductors MPC

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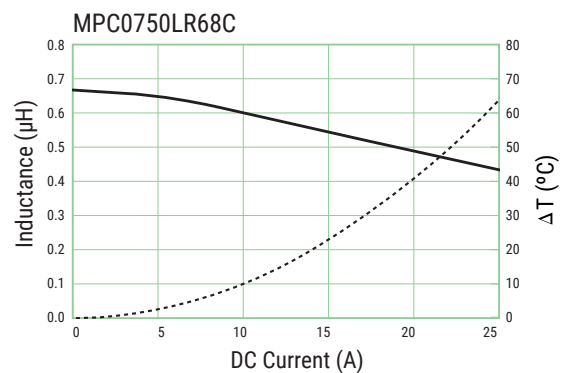
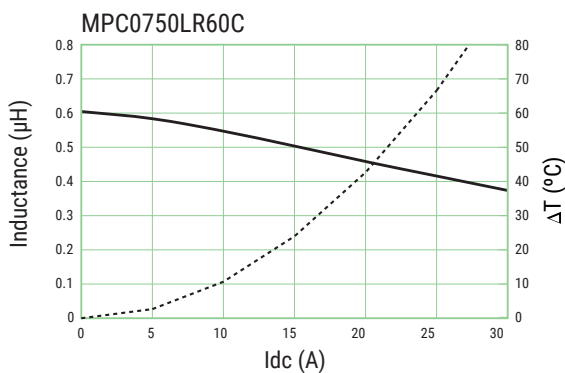
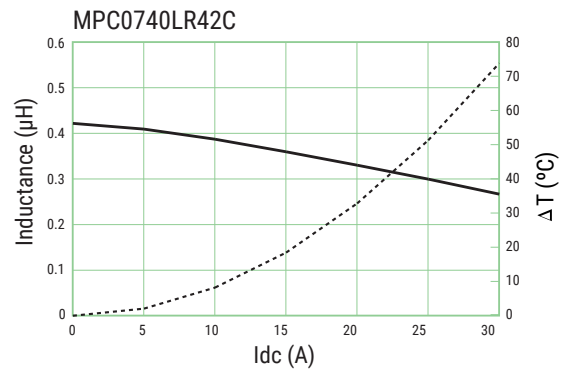
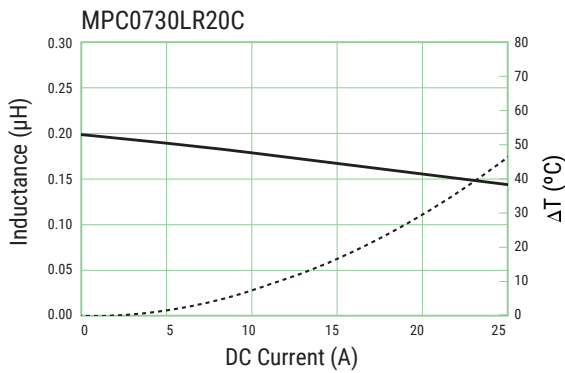
**Table 1 – Ratings & Part Number Reference**

Part Number	Inductance ( $\mu\text{H}$ ) at 100 kHz	Inductance Tolerance	DC Resistance ( $\text{m}\Omega$ ) $\pm 10\%$	Rated Current (A)	
				$I_{\text{rms}}^1$ (Ref.)	$I_{\text{sat}}^2$ (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

<sup>1</sup>  $T = 40\text{ K}$  rise at rated current.

<sup>2</sup> Inductance drop 20% at rated current.

## DC-Superposed Characteristics



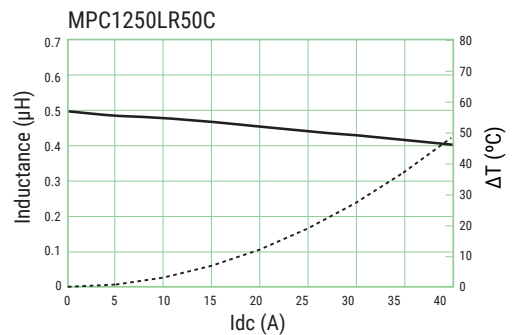
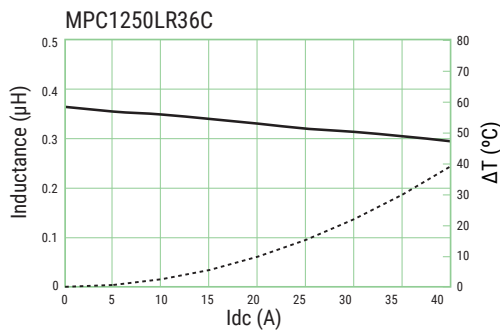
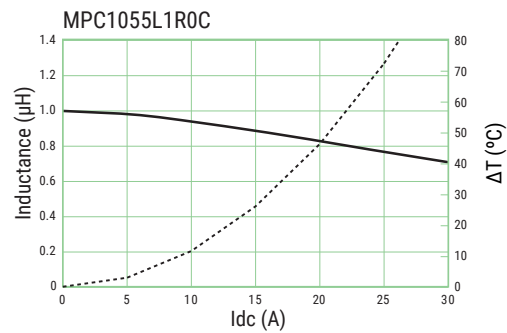
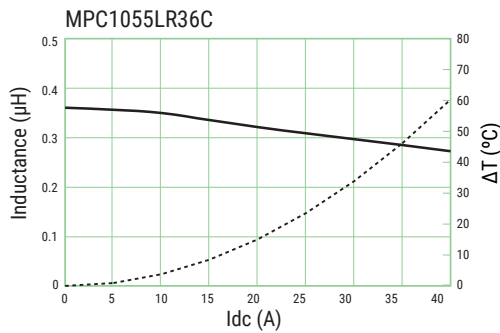
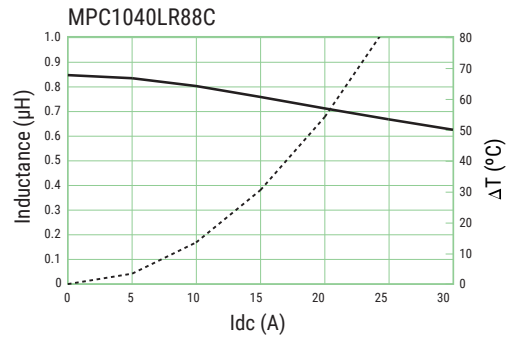
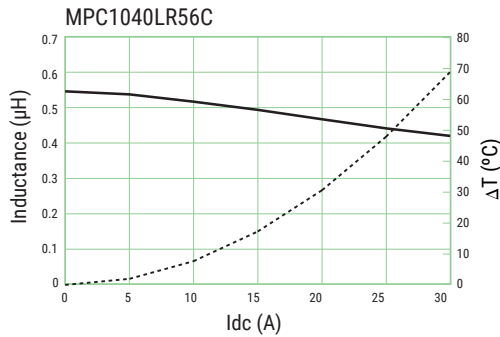
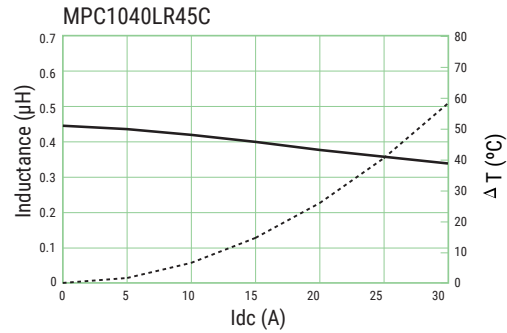
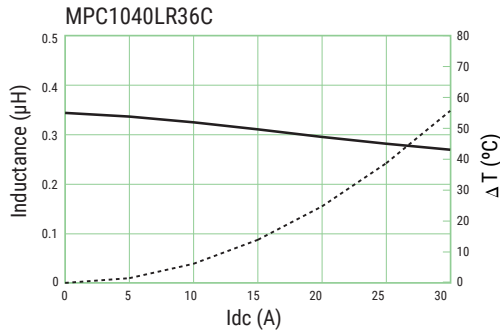
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## DC-Superposed Characteristics cont'd



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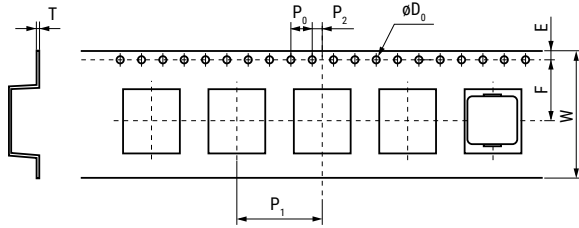
## Dimensions

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

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

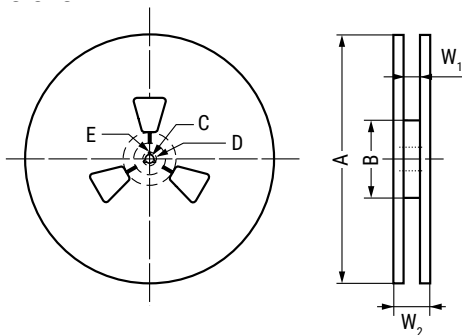
## Taping Specification

Dimensions of indented square hole plastic tape



Case Size	Reel Quantity		Dimensions (mm)								
			W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	øD <sub>0</sub>	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



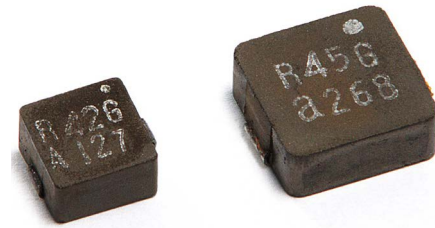
Case Size		Dimensions (mm)							
		A	B	C	D	E	r	W <sub>1</sub>	W <sub>2</sub>
MPC0730 MPC0740 MPC0750	Tolerance	±2.0	±1.0	±0.2	±0.8	±0.5		±1.0	±1.0
	Nominal	ø330	ø80	ø13.0	ø21.0	2.0	R1.0	17.5	21.5
MPC1040	Tolerance	±5.0	±5.0	±0.5	±1.0	±0.5		±2.0	±3.0
	Nominal	ø330	ø80	ø13.5	ø21.0	2.0	R1.0	24.4	30.4
MPC1055	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

**Large-Current Power Inductors MPCG****Overview**

The KEMET MPCG metal composite inductors are designed with a very low loss core and flat wire design, which enables very high efficiency at high ripple currents. The core material used is ideal for high switching frequency applications.

**Applications**

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

**Part Number System**

MPCG	1040	L	R45
Series	Size Code	Inductor	Inductance Code $\mu\text{H}$
MPCG	0730 0740 1040		R = decimal point Example: R45 = 0.45 $\mu\text{H}$

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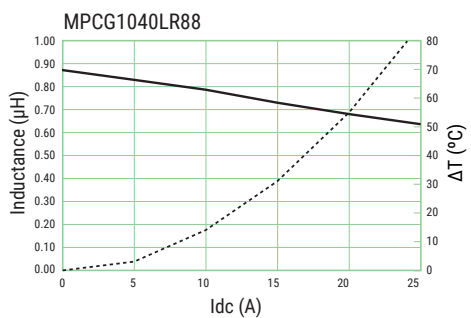
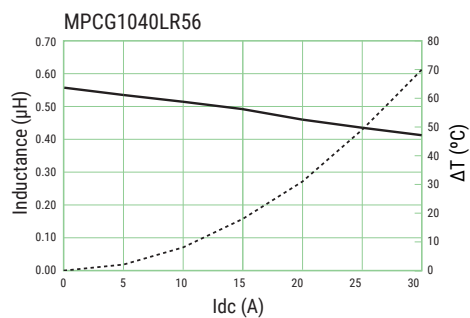
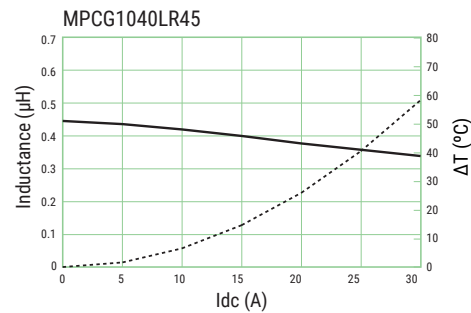
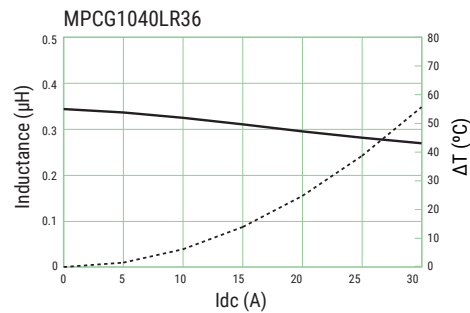
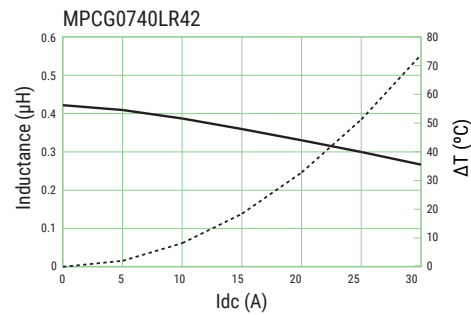
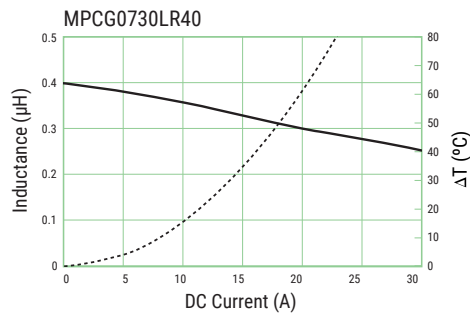
**Table 1 – Ratings & Part Number Reference**

Part Number	Inductance ( $\mu\text{H}$ ) at 100 kHz	Inductance Tolerance	DC Resistance ( $\text{m}\Omega$ ) $\pm 10\%$	Rated Current (A)	
				$I_{\text{rms}}^1$ (Ref.)	$I_{\text{sat}}^2$ (Ref.)
MPCG0730LR40	0.40	$\pm 20\%$	2.60	16.0	16.0
MPCG0740LR42	0.42	$\pm 20\%$	1.55	22.0	20.0
MPCG1040LR36	0.36	$\pm 20\%$	1.05	25.0	30.0
MPCG1040LR45	0.45	$\pm 20\%$	1.10	25.0	27.0
MPCG1040LR56	0.56	$\pm 20\%$	1.30	23.0	23.0
MPCG1040LR88	0.88	$\pm 20\%$	2.30	17.0	19.0

<sup>1</sup>  $T = 40\text{ K}$  rise at rated current.

<sup>2</sup> Inductance drop 20% at rated current.

## DC-Superposed Characteristics



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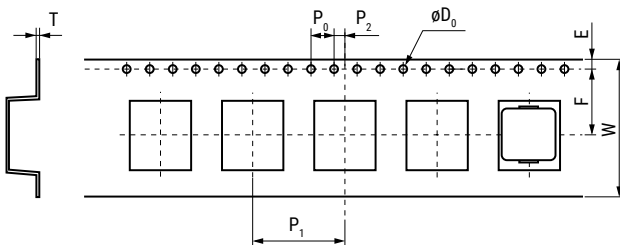
## Dimensions

Part Number	Dimensions (mm)	Land Pattern
MPCG0730LR40		
MPCG0740LR42		
MPCG1040LR36 MPCG1040LR45 MPCG1040LR56 MPCG1040LR88		

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

## Taping Specification

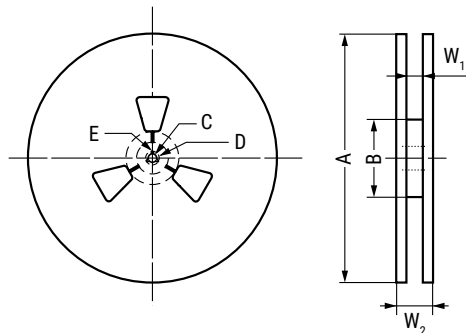
### Dimensions of indented square hole plastic tape



Case Size	Reel Quantity		W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	øD <sub>0</sub>	T
			MPCG0730 MPCG0740	1,000	Tolerance	±0.2	±0.1	±0.1	±0.1	±0.1
	Nominal	16.0	7.5		1.75	12.0	2.0	4.0	1.55	0.4
MPCG1040	500	Tolerance	±0.3	±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



## Reel Specifications



Case Size		Dimensions (mm)							
		A	B	C	D	E	r	W <sub>1</sub>	W <sub>2</sub>
MPCG0730	Tolerance	±2.0	±1.0	±0.2	±0.8	±0.5		±1.0	±1.0
MPCG0740	Nominal	ø330	ø80	ø13.0	ø21.0	2.0	R1.0	17.5	21.5
MPCG1040	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

## 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.

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