

Overview

The KEMET MPCH metal composite inductors are designed for use in power supplies with ripple currents up to 32 A. These inductors offer superior permeability when compared to technologies based on ferrite cores.

The flat wire design allows for high efficiency under high current loads.

Applications

- Switching DC-DC power supplies
- Notebook computers
- Tablets
- Embedded computer systems
- Servers and storage
- HDTVs

Benefits

- Metal composite powder
- Operating temperature up to +125°C
- High current
- High permeability
- Low DCR
- Low acoustic noise



Part Number System

MPCH	0730	L	R12
Series	Size Code	Inductor	Inductance Code μH
MPCH	0730 0740 1040 1055 1060 1250		R = Decimal point Examples: R12 = 0.12 μH 1R3 = 1.30 μH

Алматы (7273)495-231
 Ангарск (3955)60-70-56
 Архангельск (8182)63-90-72
 Астрахань (8512)99-46-04
 Барнаул (3852)73-04-60
 Белгород (4722)40-23-64
 Благовещенск (4162)22-76-07
 Брянск (4832)59-03-52
 Владивосток (423)249-28-31
 Владикавказ (8672)28-90-48
 Владимир (4922)49-43-18
 Волгоград (844)278-03-48
 Вологда (8172)26-41-59
 Воронеж (473)204-51-73
 Екатеринбург (343)384-55-89
 Россия +7(495)268-04-70

Иваново (4932)77-34-06
 Ижевск (3412)26-03-58
 Иркутск (395)279-98-46
 Казань (843)206-01-48
 Калининград (4012)72-03-81
 Калуга (4842)92-23-67
 Кемерово (3842)65-04-62
 Киров (8332)68-02-04
 Коломна (4966)23-41-49
 Кострома (4942)77-07-48
 Краснодар (861)203-40-90
 Красноярск (391)204-63-61
 Курск (4712)77-13-04
 Курган (3522)50-90-47
 Липецк (4742)52-20-81
 Казахстан +7(7172)727-132

Магнитогорск (3519)55-03-13
 Москва (495)268-04-70
 Мурманск (8152)59-64-93
 Набережные Челны (8552)20-53-41
 Нижний Новгород (831)429-08-12
 Новокузнецк (3843)20-46-81
 Ноябрьск (3496)41-32-12
 Новосибирск (383)227-86-73
 Омск (3812)21-46-40
 Орел (4862)44-53-42
 Оренбург (3532)37-68-04
 Пенза (8412)22-31-16
 Петрозаводск (8142)55-98-37
 Псков (8112)59-10-37
 Пермь (342)205-81-47
 Киргизия +996(312)96-26-47

Ростов-на-Дону (863)308-18-15
 Рязань (4912)46-61-64
 Самара (846)206-03-16
 Саранск (8342)22-96-24
 Санкт-Петербург (812)309-46-40
 Саратов (845)249-38-78
 Севастополь (8692)22-31-93
 Симферополь (3652)67-13-56
 Смоленск (4812)29-41-54
 Сочи (862)225-72-31
 Ставрополь (8652)20-65-13
 Сургут (3462)77-98-35
 Сыктывкар (8212)25-95-17
 Тамбов (4752)50-40-97
 Тверь (4822)63-31-35

Тольятти (8482)63-91-07
 Томск (3822)98-41-53
 Тула (4872)33-79-87
 Тюмень (3452)66-21-18
 Ульяновск (8422)24-23-59
 Улан-Удэ (3012)59-97-51
 Уфа (347)229-48-12
 Хабаровск (4212)92-98-04
 Чебоксары (8352)28-53-07
 Челябинск (351)202-03-61
 Череповец (8202)49-02-64
 Чита (3022)38-34-83
 Якутск (4112)23-90-97
 Ярославль (4852)69-52-93

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-40°C to +125°C (including self-temperature rise)
Rated Inductance Range	0.12 – 1.50 μ H at 100 kHz, 1 mA
Inductance Tolerance	\pm 20%
Rated DC Resistance Range	0.65 – 2.30 m Ω
DC Resistance Tolerance	\pm 10%
Rated Current Range	17 – 32 A

Table 1 – Ratings & Part Number Reference

Part Number	Inductance (μ H) at 100 kHz, 1 mA	Inductance Tolerance	DC Resistance (m Ω) \pm 10%	Rated Current (A)	
				I _{rms} ¹ (Ref.)	I _{sat} ² (Ref.)
MPCH0730LR12	0.12	\pm 20%	0.65	31.00	32.00
MPCH0730LR24	0.24	\pm 20%	1.20	23.00	18.50
MPCH0740LR15	0.15	\pm 20%	0.93	29.00	31.00
MPCH0740LR24	0.24	\pm 20%	0.96	27.00	20.00
MPCH0740LR36E*	0.36	\pm20%	1.42	23.00	22.00
MPCH1040LR36	0.36	\pm 20%	0.88	28.00	24.00
MPCH1040LR68	0.68	\pm 20%	1.35	22.00	24.00
MPCH1040LR1R0	1.00	\pm 20%	2.30	17.00	17.00
MPCH1055LR1R3	1.30	\pm 20%	2.30	18.50	17.00
MPCH1060LR45	0.45	\pm 20%	0.76	32.00	32.00
MPCH1250LR1R5	1.50	\pm 20%	2.20	21.00	21.00

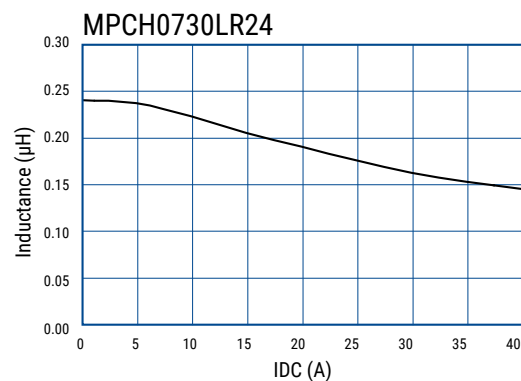
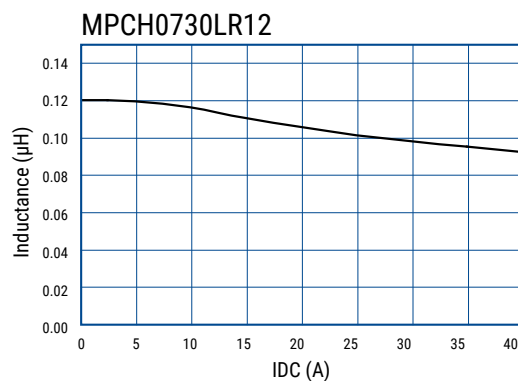
¹ T = 40 K rise at rated current

² Inductance drop 20% at rated current

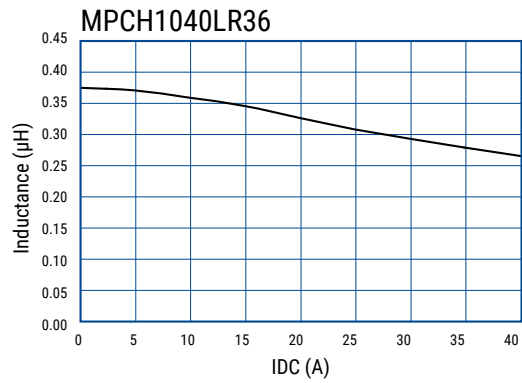
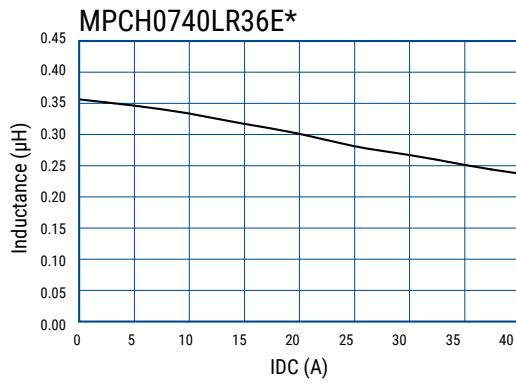
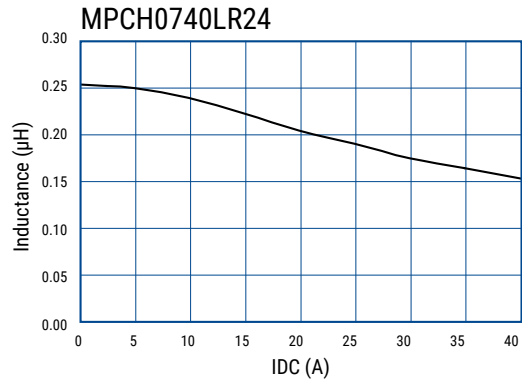
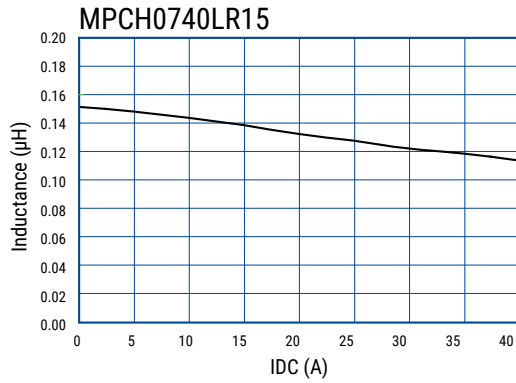
All electrical characteristics data is referenced to 20°C.

* **This part is not for new design.**

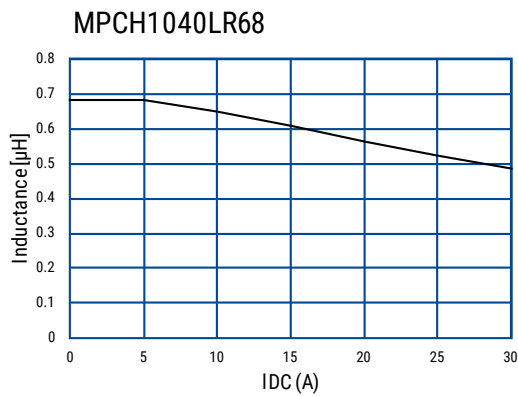
DC-Superposed Characteristics



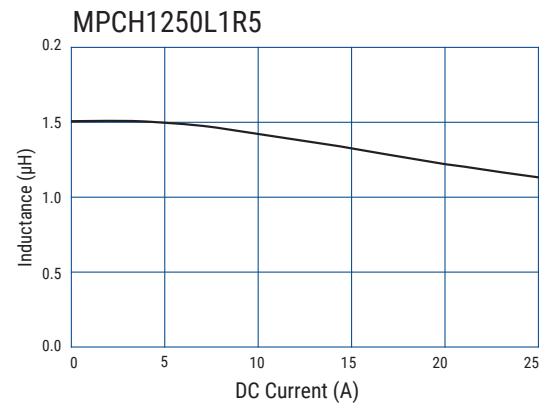
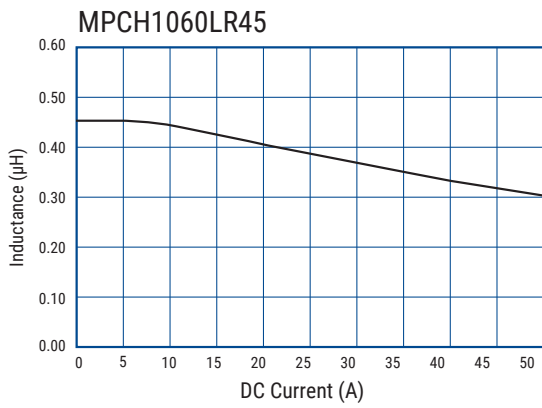
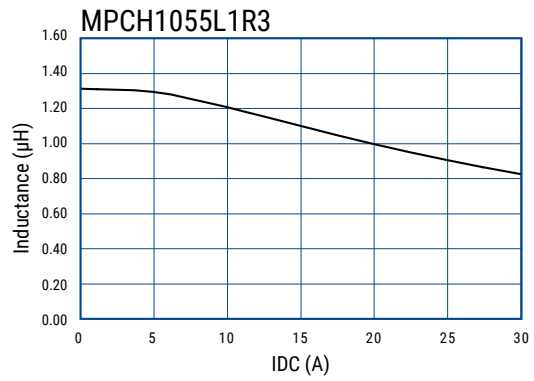
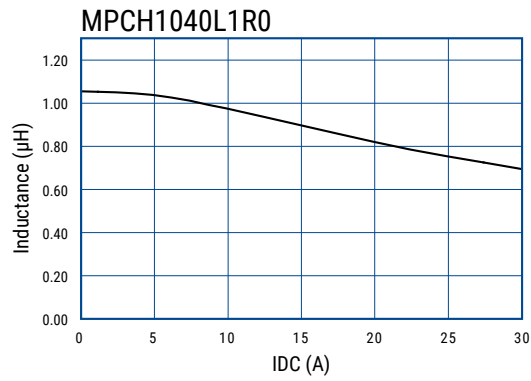
DC-Superposed Characteristics cont'd



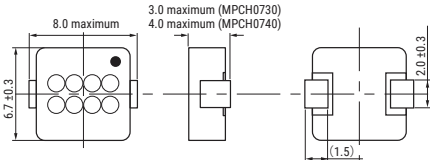
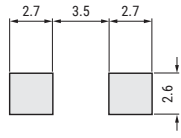
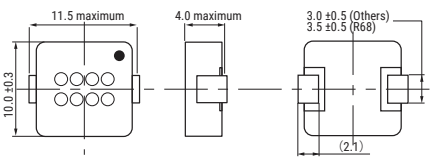
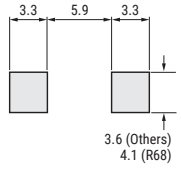
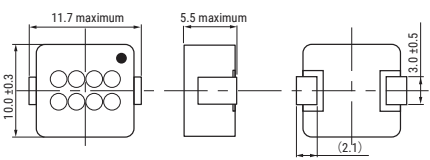
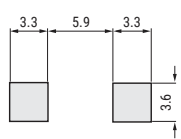
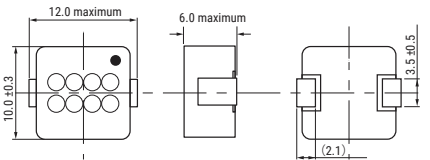
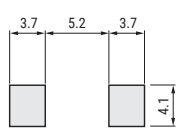
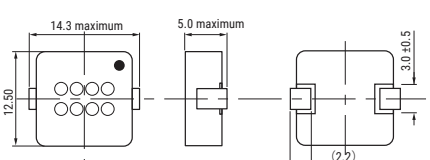
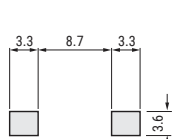
*** This part is not for new design.**



DC-Superposed Characteristics cont'd

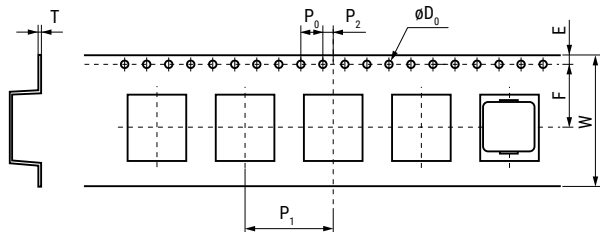


Dimensions

Case Size	Dimensions (mm)	Land Pattern (mm)
MPCH0730 MPCH0740		
MPCH1040		
MPCH1055		
MPCH1060		
MPCH1250		

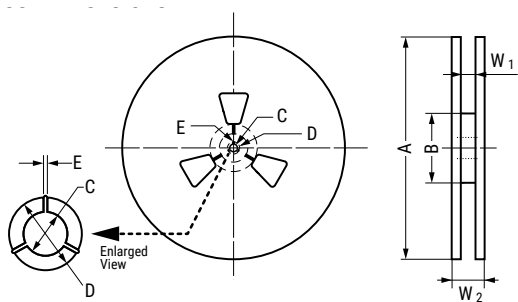
Taping Specification

Dimensions of Indented Square Hole Plastic Tape



Case Size	Reel Quantity		Dimensions (mm)								
			W	F	E	P_1	P_2	P_0	ϕD_0	T	
MPCH0730 MPCH0740	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	
MPCH1040	1,000	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	
MPCH1055	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	
MPCH1060		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	
MPCH1250		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	

Reel Specifications



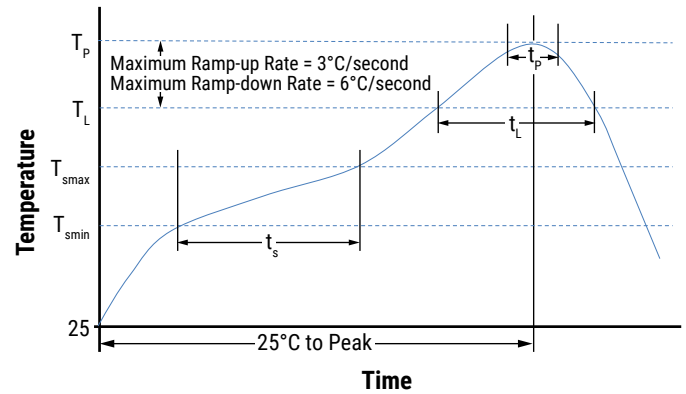
Case Size		Dimensions (mm)						
		A	B	C	D	E	W_1	W_2
MPCH0730, MPCH0740	Tolerance	± 2.0	± 1.0	± 0.5	± 0.8	± 0.5	± 1.0	± 1.0
	Nominal	$\phi 330$	$\phi 80$	$\phi 13.0$	$\phi 21.0$	2.0	17.5	21.5
MPCH1040	Tolerance	± 2.0	± 1.0	± 0.5	± 0.8	± 0.5	± 2.0	± 3.0
	Nominal	$\phi 380$	$\phi 80$	$\phi 13.0$	$\phi 21.0$	2.0	24.4	30.4
MPCH1055 MPCH1060 MPCH1250	Tolerance	± 2.0	± 1.0	± 0.5	± 0.8	± 0.5	± 2.0	± 3.0
	Nominal	$\phi 380$	$\phi 100$	$\phi 13.0$	$\phi 21.0$	2.0	24.4	30.4

Soldering Process

Recommended Reflow Soldering Profile

Reference ICP/JEDEC J-STD-020E

Profile Feature	Pb-Free Assembly
Preheat/Soak	
Temperature Minimum (T_{smin})	150°C
Temperature Maximum (T_{smax})	200°C
Time (t_s) from T_{smin} to T_{smax}	60 – 120 seconds
Ramp-up Rate (T_L to T_p)	3°C/second maximum
Liquidous Temperature (T_L)	217°C
Time Above Liquidous (t_L)	60 – 150 seconds
Peak Temperature (T_p)	250°C for MPCH07xx 245°C for MPCH1xxx
Time within 5°C of Maximum Peak Temperature (t_p)	30 seconds maximum
Ramp-down Rate (T_p to T_L)	6°C/second maximum
Time 25°C to Peak Temperature	8 minutes maximum



Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89

Россия +7(495)268-04-70

Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81

Казахстан +7(7172)727-132

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47

Киргизия +996(312)96-26-47

Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Саранск (8342)22-96-24
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93