

High Current Inductor / MPF Type

Features:

1. Flat wire winding which achieve high current and a low DCR.
2. High inductance, low magnetic loss & ERS, small parasitic capacitance.
3. Magnetically shielded & SMD type.

Applications:

1. DC/DC Converters, Switch and servers, PCs and Laptops
2. VRM/VRD, Battery Powered devices and SSD modules

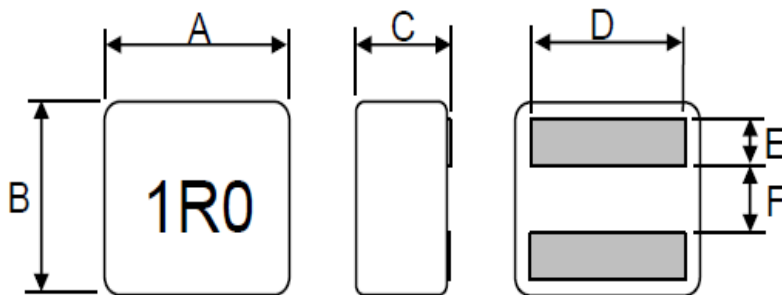
Product Identification

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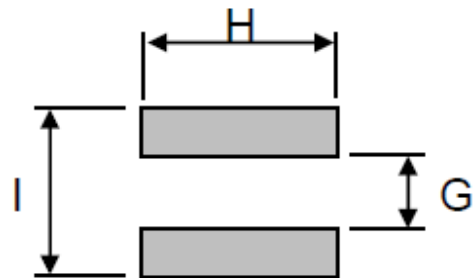
Series name	Dimensions (WxLxH)		Internal code
MPF	0420	4.1*4.1*1.9 mm	H=Alloy
	0520	5.5*5.3*1.9 mm	T= Carbonyl Iron
	0630	6.6*6.4*2.9mm	

Inductance		Tolerance	
R15	0.15uH	M	20%
1R0	1.0uH		
8R2	8.2uH		

Shape and Dimension



Recommended PCB Pattern



Dimensions(mm)

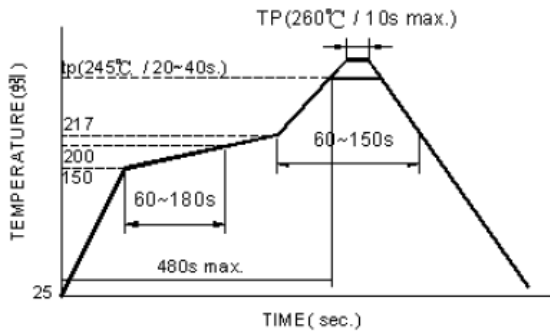
Type	A	B	C	D	E	F	G	H	I
MPF0420H	4.10 ± 0.2	4.10 ± 0.2	1.90 ± 0.2	3.40 ± 0.2	0.88 ± 0.3	1.60 ± 0.3	1.40 Ref	3.80 Ref	3.40 Ref
MPF0520H	5.50 ± 0.2	5.30 ± 0.2	1.90 ± 0.2	4.30 ± 0.2	1.10 ± 0.3	2.30 ± 0.3	2.00 Ref	4.70 Ref	4.50 Ref
MPF0530H	5.50 ± 0.2	5.30 ± 0.2	2.90 ± 0.2	4.30 ± 0.2	1.10 ± 0.3	2.30 ± 0.3	2.50 Ref	4.70 Ref	4.50 Ref
MPF0630H (L ≤ 1.2μH)	6.60 ± 0.2	6.40 ± 0.2	2.80 ± 0.2	See Remark	1.40 ± 0.3	2.60 ± 0.3	2.50 Ref	5.60 Ref	5.60 Ref
MPF0630H (L ≥ 1.5μH)	6.60 ± 0.2	6.40 ± 0.2	2.90 ± 0.2	See Remark	1.40 ± 0.3	2.60 ± 0.3	2.50 Ref	5.60 Ref	5.60 Ref
MPF0730H	7.80 ± 0.3	7.60 ± 0.2	2.90 ± 0.2	See Remark	1.75 ± 0.3	3.15 ± 0.3	2.80 Ref	7.20 Ref	7.40 Ref

Remarks

Series	D	Dimension
0630	5.55 ± 0.3	R18 / R56 / R68
	5.30 ± 0.3	1R0
	5.20 ± 0.3	1R2 / 1R5
	5.15 ± 0.3	1R8
	5.10 ± 0.3	2R2
	5.00 ± 0.3	3R3 / 4R5 / 4R7
0730	6.20 ± 0.3	2R2 / 2R7 / 3R3 / 4R7 / 5R6 / 6R8 / 8R2
	6.60 ± 0.3	1R0 / 1R5

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4 . Reflow Soldering Heat Endurance



No mechanical and electrical defects are found after testing based on the above profile and keeping under the conditions of room temperature and humidity for 2 hours.

Twice reflow test is acceptable with the test interval remaining 1 hour under the normal conditions.

The reflow test profile may vary with the testing instruments.

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Electrical Characteristics MPF0420H Type

Part No.	Inductance (μ H)	Tolerance (\pm %)	Irms (Amp) Typ.	Isat (Amp) Typ.	DCR (m Ω)		Test Frequency (Hz / V)
					Typ.	Max.	
MPF0420H-R10M	0.10	20%	18.2	37.8	2.3	2.5	100K / 0.1
MPF0420H-R22M	0.22	20%	16.5	19.4	4.2	4.7	100K / 0.1
MPF0420H-R\36M	0.36	20%	14.6	16.9	5.7	6.5	100K / 0.1
MPF0420H-R40M	0.40	20%	13.9	15.3	7.1	7.9	100K / 0.1
MPF0420H-R47M	0.47	20%	12.3	14.2	7.8	8.8	100K / 0.1
MPF0420H-R56M	0.56	20%	11.8	13.9	8.5	8.8	100K / 0.1
MPF0420H-R60M	0.60	20%	11.5	13.5	8.8	9.7	100K / 0.1
MPF0420H-R72M	0.72	20%	10.7	11.8	10.6	11.9	100K / 0.1
MPF0420H-1R0M	1.00	20%	9.5	9.5	13.5	15.0	100K / 0.1
MPF0420H-1R2M	1.20	20%	8.8	8.8	16.4	18.1	100K / 0.1
MPF0420H-1R5M	1.50	20%	7.5	7.8	21.2	23.8	100K / 0.1
MPF0420H-1R8M	1.80	20%	6.8	7.3	25.3	28.5	100K / 0.1

Electrical Characteristics MPF0520H Type

Part No.	Inductance (μ H)	Tolerance (\pm %)	Irms (Amp) Typ.	Isat (Amp) Typ.	DCR (m Ω)		Test Frequency (Hz / V)
					Typ.	Max.	
MPF0520H-R15M	0.10	20%	18.6	29.8	4.3	4.9	100K / 0.1
MPF0520H-R16M	0.16	20%	18.6	29.8	4.3	4.9	100K / 0.1
MPF0520H-R33M	0.33	20%	14.3	25.8	6.2	7.3	100K / 0.1
MPF0520H-R47M	0.47	20%	14.0	21.7	7.3	8.2	100K / 0.1
MPF0520H-R56M	0.56	20%	13.8	18.8	8.8	9.7	100K / 0.1
MPF0520H-R68M	0.68	20%	13.2	15.8	9.1	10.5	100K / 0.1
MPF0520H-R80M	0.80	20%	12.7	15.3	10.5	12.0	100K / 0.1
MPF0520H-R82M	0.82	20%	11.8	14.8	11.2	12.8	100K / 0.1
MPF0520H-1R0M	1.00	20%	10.1	14.3	12.3	14.1	100K / 0.1
MPF0520H-1R2M	1.20	20%	9.2	13.9	14.3	16.5	100K / 0.1
MPF0520H-1R5M	1.50	20%	8.5	13.1	16.5	19.0	100K / 0.1

Electrical Characteristics MPF0530H Type

Part No.	Inductance (μ H)	Tolerance (\pm %)	Irms (Amp) Typ.	Isat (Amp) Typ.	DCR (m Ω)		Test Frequency (Hz / V)
					Typ.	Max.	
MPF0530H-R15M	0.15	20%	22.0	35.8	2.15	2.4	100K / 0.1
MPF0530H-R16M	0.16	20%	22.0	34.7	2.15	2.4	100K / 0.1
MPF0530H-R33M	0.33	20%	18.9	27.9	3.3	3.6	100K / 0.1
MPF0530H-R47M	0.47	20%	18.3	25.6	3.8	4.3	100K / 0.1
MPF0530H-R56M	0.56	20%	17.5	22.0	4.2	4.7	100K / 0.1
MPF0530H-R60M	0.60	20%	17.5	21.8	4.2	4.7	100K / 0.1
MPF0530H-R80M	0.80	20%	13.0	19.8	5.2	5.8	100K / 0.1
MPF0530H-R82M	0.82	20%	12.6	19.5	5.4	5.9	100K / 0.1
MPF0530H-1R0M	1.00	20%	12.0	16.2	7.1	7.9	100K / 0.1
MPF0530H-1R2M	1.20	20%	11.0	14.7	8.9	9.9	100K / 0.1
MPF0530H-1R5M	1.50	20%	10.4	13.6	10.3	11.5	100K / 0.1
MPF0530H-1R8M	1.80	20%	9.8	12.1	11.7	12.9	100K / 0.1

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Part No.	Inductance (uH)	Tolerance (±%)	Irms (Amp) Typ.	Isat (Amp) Typ.	DCR (mΩ)		Test Frequency (Hz / V)
					Typ.	Max.	
MPF0530H-2R2M	2.20	20%	9.5	9.8	13.3	14.8	100K / 0.1
MPF0530H-3R3M	3.30	20%	8.0	9.2	21.3	23.5	100K / 0.1
MPF0530H-4R7M	4.70	20%	5.6	8.0	33.2	36.7	100K / 0.1

Electrical Characteristics MPF0630H Type

Part No.	Inductance (uH)	Tolerance (±%)	Irms (Amp) Typ.	Isat (Amp) Typ.	DCR (mΩ)		Test Frequency (Hz / V)
					Typ.	Max.	
MPF0630H-R18M	0.18	20%	31.5	40.0	1.8	2.0	100K / 0.1
MPF0630H-R33M	0.33	20%	24.8	31.8	2.3	2.6	100K / 0.1
MPF0630H-R56M	0.56	20%	21.6	28.6	3.1	3.5	100K / 0.1
MPF0630H-R68M	0.68	20%	19.8	24.7	4.9	5.3	100K / 0.1
MPF0630H-1R0M	1.00	20%	17.7	22.6	5.7	6.3	100K / 0.1
MPF0630H-1R2M	1.20	20%	15.8	21.7	6.9	7.7	100K / 0.1
MPF0630H-1R5M	1.50	20%	14.5	20.0	8.5	9.4	100K / 0.1
MPF0630H-1R8M	1.80	20%	13.6	18.0	9.5	10.5	100K / 0.1
MPF0630H-2R2M	2.20	20%	9.8	15.4	11.3	12.6	100K / 0.1
MPF0630H-3R3M	3.30	20%	8.0	11.8	19.0	21.2	100K / 0.1
MPF0630H-4R5M	4.50	20%	6.9	9.6	23.3	25.7	100K / 0.1
MPF0630H-4R7M	4.70	20%	6.6	9.5	23.5	26.0	100K / 0.1

Electrical Characteristics MPF0730H Type

Part No.	Inductance (uH)	Tolerance (±%)	Irms (Amp) Typ.	Isat (Amp) Typ.	DCR (mΩ)		Test Frequency (Hz / V)
					Typ.	Max.	
MPF0730H-1R0M	1.20	20%	21.5	29.5	4.6	5.2	100K / 0.1
MPF0730H-1R5M	1.50	20%	15.3	25.0	7.5	8.3	100K / 0.1
MPF0730H-2R2M	2.20	20%	13.0	18.7	12.5	14.0	100K / 0.1
MPF0730H-2R7M	2.70	20%	11.2	15.7	14.2	15.5	100K / 0.1
MPF0730H-3R3M	3.30	20%	10.0	14.5	16.5	18.0	100K / 0.1
MPF0730H-4R7M	4.70	20%	8.8	13.3	24.5	27.0	100K / 0.1
MPF0730H-5R6M	5.60	20%	7.1	12.3	30.5	33.0	100K / 0.1
MPF0730H-6R8M	6.80	20%	6.5	11.8	39.0	42.5	100K / 0.1
MPF0730H-8R2M	8.20	20%	5.8	10.0	44.5	49.0	100K / 0.1

NOTE:

- All test data is referenced to 25°C ambient.
- Irms: DC current(A) that will cause an approximate ΔT of 40°C.
- Isat: DC current(A) that will cause L_o to drop approximate 30%.
- Operating temperature range is -55°C to 125°C.
- The Part temperature (ambient + ΔT) should not exceed 125°C under worst case operating conditions.
- Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all effect the part temperature. Part temperature should be verified in the end application.

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4. Reliability and Test Conditions(可靠性測試條件)

1. Mechanical Reliabilty

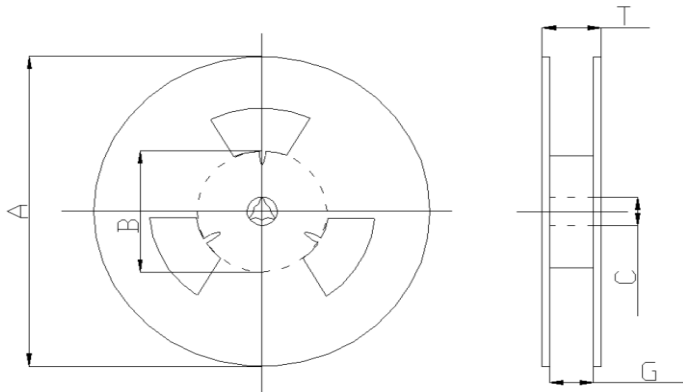
Item	Conditions	Specification
Solderability	Solder heat proof: Preheating: 180 ±10°C 90 seconds Soldering: 255 ±5°C for 3 ±1 sec	The surface of terminal/pin tested shall be covered with new solder by 95%
Shock	Drop down with 981m/s2 (100G) shock Attitude upon a rubber block method shock testing machinem, 3 tests	Inductance change within ± 5% Without mechanical damage.
Vibration	Vibration frequency: 10Hz to 55Hz to 10Hz 60, seconds cycle Vibration time: 2 hours	Inductance change within ± 5% Without mechanical damage.

2. Endurance Reliabilty

Thermal Shock	-55°C, mins) -> room temp. (5 mins)→ 125°C, (30 mins) -> room temp. (5 mins) 100 cycles	Inductance change within ± 5% Without mechanical damage.
Heat Resistance	Apply IDC current @ 85°C ambient Duration: 1000 hrs	Inductance change within ± 5% Without mechanical damage.
Humidity Resistance	Apply IDC current @ 60°C ambient Humidity: 90~95% Duration: 1000 hrs	Inductance change within ± 5% Without mechanical damage.
Low Temp Storing	Storing Temp. -55 ±2 °C for total 1,000 +4/-0 hours	Inductance change within ± 5% Without mechanical damage.
High Temp. Storing	Storing Temp. 125 ±2 °C for total 1,000 +4/-0 hours	Inductance change within ± 5% Without mechanical damage.

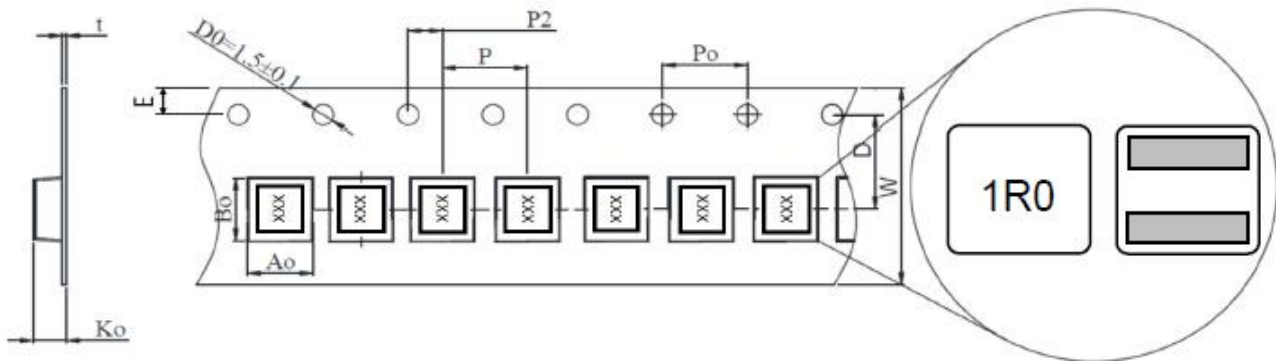
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Reel Dimension(m/m)



TYPE	Dimensions in (mm)					Reel Packing Unit
	A	B	C	G	T	PCS / REEL
MPF0420H	330	100	13	12.5	14.5	3000
MPF0520H	330	100	13	12.5	14.5	3000
MPF0530H	330	100	13	16.5	20.4	2000
MPF0630H	330	100	13	16.5	20.4	1000
MPF0730H	330	100	13	16.5	20.4	1000

Taping Dimension(m/m)



TYPE	Dimensions in (mm)								
	W	A0	B0	K0	D	D0	E	P	P0
MPF0420H	12.0	4.4	4.6	2.3	5.5	1.5	1.8	8.0	4.0
MPF0520H	12.0	5.7	6.0	2.3	5.5	1.5	1.8	8.0	4.0
MPF0530H	16.0	5.7	6.0	3.3	7.5	1.5	1.8	8.0	4.0
MPF0630H	16.0	6.8	7.1	3.3	7.5	1.5	1.8	8.0	4.0
MPF0730H	16.0	6.8	7.1	3.3	7.5	1.5	1.8	12.0	4.0