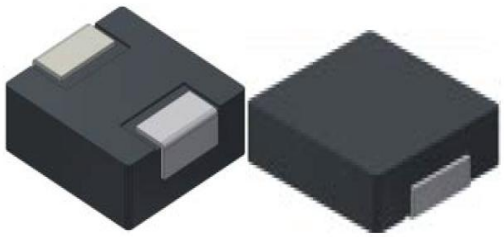
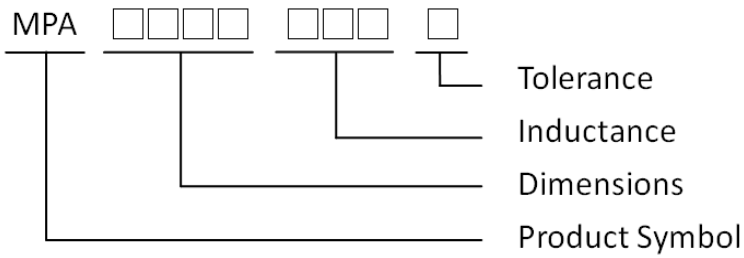
High Current, Power Inductors / MPA Series

.Applications:

1. Voltage Regulator Module (VRM)
2. Multi-phase regulators.
3. Point-of-load modules.
4. Smart phone POL modules.
5. SSD modules.
6. Notebook regulators.
7. Battery power systems.
8. Graphics cards.
9. Data networking and storage systems



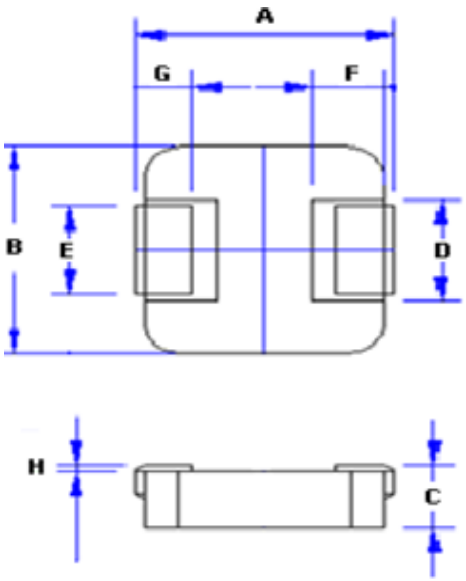
.Product Identification :



.Rating

1. Storage temperature range: -55°C to +125 °C
2. Operating temperature range: -55°C to +125°C
   (ambient plus self-temperature rise)
3. Solder reflow temperature: J-STD-020D compliant.

.Shape and Dimension

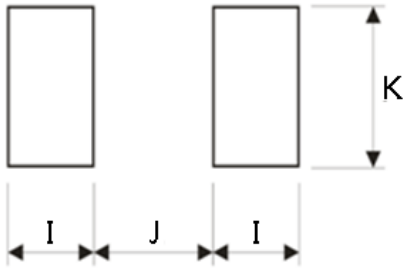


TYPE	Dimensions in mm							
	A(mm)	B(mm)	C(mm	D(mm	E(mm	F(mm)	G(mm	H(mm
MPA0412	4.4±0.35	4.2±0.25	1.0±0.2	2.5±0.2	2.0±0.3	1.0±0.1	0.8±0.3	0~0.15
MPA0420	4.4±0.35	4.2±0.25	1.8±0.2	2.5±0.2	2.0±0.3	1.0±0.1	0.8±0.3	0~0.15
MPA0518	5.4±0.3	5.2±0.2	1.6±0.2	2.5±0.3	2.2±0.3	1.5±0.1	1.2±0.2	0~0.15
MPA0530	5.4±0.3	5.2±0.2	2.8±0.2	2.5±0.3	2.2±0.3	1.5±0.1	1.2±0.2	0~0.15
MPA0618	7.0±0.3	6.6±0.2	1.6±0.2	3.6±0.2	3.0±0.3	2.0±0.1	1.6±0.3	0~0.15
MPA0624	7.0±0.3	6.6±0.2	2.2±0.2	3.6±0.2	3.0±0.3	2.0±0.1	1.6±0.3	0~0.15
MPA0630	7.0±0.3	6.6±0.2	2.8±0.2	3.6±0.2	3.0±0.3	2.0±0.1	1.6±0.3	0~0.15
MPA1040	11.5Max	10±0.3	3.8±0.2	5.0±0.2	3.0±0.5	2.5±0.1	2.0±0.5	0~0.15
MPA1350	13.45±0.35	12.6±0.3	4.8±0.2	6.0±0.2		2.5±0.1	2.0±0.5	0~0.15

	Dimensions in mm	E(mm)
MPA1350	R36M / R50M / R68M / 1R0M / 1R5M / 2R2M	3.85±0.5
	3R3M / 100M/ 150M / 220M / 330M / 470M	5.0±0.5

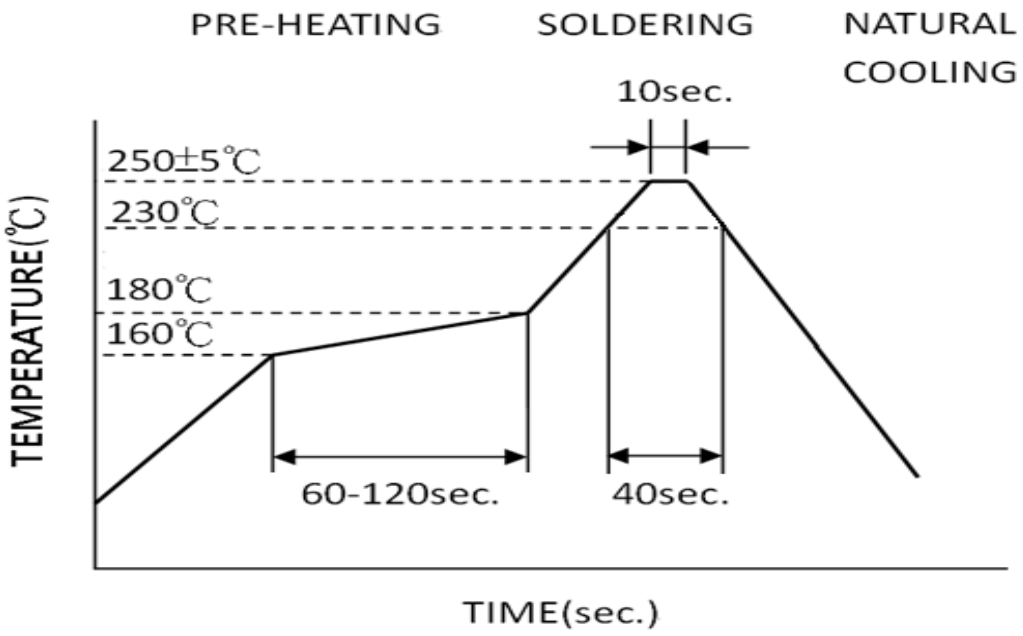
High Current, Power Inductors / MPA Series

.Land Patterns for Reflow Soldering



TYPE	I(mm)	J(mm)	K(mm
MPA0412	1.5	2.2	2.5
MPA0420	1.5	2.2	2.5
MPA0518	1.9	2.2	2.5
MPA0530	1.9	2.2	2.5
MPA0618	2.35	3.7	3.5
MPA0624	2.35	3.7	3.5
MPA0630	2.35	3.7	3.5
MPA1040	4.1	5.4	4.1
MPA1350	3.25	8	5

.Recommended Reflow Soldering Conditions.



High Current, Power Inductors / MPA Series

. Electrical Characteristics（MPA0412 TYPE）

Part No.	Inductance (μH)	DC Resistance (mΩ)		Idc (A)	Isat (A)
	100 kHz, 1V	TYP.	MAX	TYP.	TYP.
MPA0412-R33M	0.33	17	19	6.5	8.4
MPA0412-R47M	0.47	19	21	6.0	6.8
MPA0412-R68M	0.68	32	36	4.7	6.0
MPA0412-1R0M	1.0	43	47	4.5	5.5
MPA0412-1R5M	1.5	68	75	3.25	4.0
MPA0412-2R2M	2.2	79.4	83.5	2.75	3.5
MPA0412-4R7M	4.7	175	195	1.8	2.8

. Electrical Characteristics（MPA0420 TYPE）

Part No.	Inductance (μH)	DC Resistance (mΩ)		Idc (A)	Isat (A)
	100 kHz, 1V	TYP.	MAX	TYP.	TYP.
MPA0420-R10M	0.10	3.5	4	13	22
MPA0420-R22M	0.22	6	6.6	9.5	12.5
MPA0420-R33M	0.33	9	11	10	12
MPA0420-R47M	0.47	12.5	14	7.5	9.5
MPA0420-R56M	0.56	14	16	7.0	10
MPA0420-R68M	0.68	16	18	7.0	9.0
MPA0420-1R0M	1.0	24	27	6.0	7.0
MPA0420-1R2M	1.2	24	27	6.0	7.0
MPA0420-1R5M	1.5	38	46	5.0	6.0
MPA0420-2R2M	2.2	52	58	4.5	5.0
MPA0420-3R3M	3.3	74	87	3.3	4.0
MPA0420-4R7M	4.7	92	105	2.8	3.0
MPA0420-6R8M	6.8	160	175	2.4	2.5
MPA0420-100M	10	256	282	1.6	2.2

. Electrical Characteristics（MPA0518 TYPE）

Part No.	Inductance (μH)	DC Resistance (mΩ)		Idc (A)	Isat (A)
	100 kHz, 1V	TYP.	MAX	TYP.	TYP.
MPA0518-R47M	0.47	7.7	9.0	10.5	15.5
MPA0518-R56M	0.56	8.0	10	9.5	15
MPA0518-1R0M	1.0	15	17	8.0	9.0
MPA0518-1R5M	1.5	21	26	7.5	9.0
MPA0518-2R2M	2.2	30	35	5.0	6.5
MPA0518-3R3M	3.3	52	58	4.5	5.0
MPA0518-4R7M	4.7	78	85	3.5	4.0
MPA0518-6R8M	6.8	107	120	2.8	3.4
MPA0518-100M	10	140	155	2.5	3.0

High Current, Power Inductors / MPA Series

. Electrical Characteristics（MPA0530 TYPE）

Part No.	Inductance (μH)	DC Resistance (mΩ)		Idc (A)	Isat (A)
	100 kHz, 1V	TYP.	MAX	TYP.	TYP.
MPA0530-R10M	0.10	2.4	3.0	25	33
MPA0530-R20M	0.20	3.5	3.9	14	14.5
MPA0530-R47M	0.47	7.4	8.5	11	12
MPA0530-R68M	0.68	11	12	9.0	11.5
MPA0530-1R0M	1.0	13	14	8.5	11
MPA0530-1R2M	1.2	15	16	8.5	11
MPA0530-1R5M	1.5	20	25	8.2	8.5
MPA0530-2R2M	2.2	25	29	7.0	7.5
MPA0530-3R3M	3.3	32	38	5.5	6.0
MPA0530-4R7M	4.7	50	60	4.5	5.0
MPA0530-6R8M	6.8	75	90	3.5	4.0
MPA0530-100M	10	110	125	3.2	3.5

. Electrical Characteristics（MPA0618 TYPE）

Part No.	Inductance (μH)	DC Resistance (mΩ)		Idc (A)	Isat (A)
	100 kHz, 1V	TYP.	MAX	TYP.	TYP.
MPA0618-R47M	0.47	8.0	8.4	11.5	18
MPA0618-R68M	0.68	10	12	9.5	17
MPA0618-1R0M	1.0	13	16	8.5	14
MPA0618-1R5M	1.5	20	26	8.0	12
MPA0618-2R2M	2.2	28	35	7.0	8.0
MPA0618-3R3M	3.3	43	50	4.5	6.5
MPA0618-4R7M	4.7	56	62	4.0	5.0
MPA0618-6R8M	6.8	101	110	3.0	4.5
MPA0618-100M	10		155	2.3	2.5

High Current, Power Inductors / MPA Series

. Electrical Characteristics（MPA0624 TYPE）

Part No.	Inductance (μH)	DC Resistance (mΩ)		Idc (A)	Isat (A)
	100 kHz, 1V	TYP.	MAX	TYP.	TYP.
MPA0624-R22M	0.22	2.5	3.0	21	34
MPA0624-R33M	0.33	3.5	4.1	18	24.5
MPA0624-R47M	0.47	4.5	5.1	15	22
MPA0624-R56M	0.56	5.5	6.5	13	17
MPA0624-R68M	0.68	6.2	7.0	12	16
MPA0624-1R0M	1.0	11	13.5	9.0	16
MPA0624-1R5M	1.5	17	20	9.0	15
MPA0624-2R2M	2.2	23	28	7.0	14
MPA0624-3R3M	3.3	31	39	5.5	10
MPA0624-4R7M	4.7	41	50	5.0	7.5
MPA0624-6R8M	6.8	57	70	4.0	6.0
MPA0624-100M	10	92	101	3.1	4.0
MPA0624-150M	15	145	160	2.5	3.3
MPA0624-220M	22	220	230	2.0	2.5

. Electrical Characteristics（MPA0630 TYPE）

Part No.	Inductance (μH)	DC Resistance (mΩ)		Idc (A)	Isat (A)
	100 kHz, 1V	TYP.	MAX	TYP.	TYP.
MPA0630-R22M	0.22	2.5	3.0	24	34
MPA0630-R24M	0.24	2.6	3.1	23	26
MPA0630-R33M	0.33	3.0	3.5	21	25
MPA0630-R47M	0.47	3.5	4.1	18	20
MPA0630-R56M	0.56	3.9	4.5	16.5	18
MPA0630-R68M	0.68	4.8	5.3	16	17
MPA0630-R82M	0.82	5.4	6.0	14	16
MPA0630-1R0M	1.0	6.7	7.4	12	15
MPA0630-1R5M	1.5	10.6	12.1	12	14
MPA0630-2R2M	2.2	13.5	15	9.5	10
MPA0630-3R3M	3.3	18	22	8.5	9.5
MPA0630-4R7M	4.7	28	33	6.0	6.5
MPA0630-6R8M	6.8	42.5	48	5.0	6.0
MPA0630-8R2M	8.2	54	60	5.0	6.0
MPA0630-100M	10	62	67	4.5	5.5
MPA0630-150M	15	104	115	3.0	4.5
MPA0630-220M	22	180	200	2.3	3.0
MPA0630-330M	33	280	310	2.0	2.5

High Current, Power Inductors / MPA Series

. Electrical Characteristics（MPA1040 TYPE）

Part No.	Inductance (μH)	DC Resistance (mΩ)		Idc (A)	Isat (A)
	100 kHz, 1V	TYP.	MAX	TYP.	TYP.
MPA1040-R15M	0.15	0.5	0.65	45	75
MPA1040-R22M	0.22	0.9	1.0	35	60
MPA1040-R30M	0.30	0.95	1.1	35	50
MPA1040-R36M	0.36	1.05	1.2	30	50
MPA1040-R47M	0.47	1.5	1.7	30	40
MPA1040-R56M	0.56	1.6	1.8	25	33
MPA1040-R68M	0.68	2.1	2.4	23	30
MPA1040-R80M	0.80	2.6	2.7	23	29
MPA1040-1R0M	1.0	3.0	3.3	19	28
MPA1040-1R5M	1.5	3.8	4.2	16	26
MPA1040-2R2M	2.2	6.0	7.0	12	18
MPA1040-3R3M	3.3	10	11.8	11	16
MPA1040-4R7M	4.7	17	20	9.0	15
MPA1040-6R8M	6.8	22	25	8.5	12
MPA1040-8R2M	8.2	25	27	8.0	9.0
MPA1040-100M	10	27	30	7.8	8.5
MPA1040-150M	15	40	45	6.5	7.0
MPA1040-220M	22	58	66	5.0	5.5
MPA1040-330M	33	85	92	4.4	5.0
MPA1040-470M	47	130	145	3.3	3.5
MPA1040-680M	68	178	195	2.5	3.0

High Current, Power Inductors / MPA Series

. Electrical Characteristics（MPA1350 TYPE）

Part No.	Inductance (μH)	DC Resistance (mΩ)		Idc (A)	Isat (A)
	100 kHz, 1V	TYP.	MAX	TYP.	TYP.
MPA1350-R22M	0.22	0.5	0.7	50	75
MPA1350-R36M	0.36	0.74	0.85	42	50
MPA1350-R50M	0.50	1.1	1.15	38	48
MPA1350-R68M	0.68	1.35	1.55	33	46
MPA1350-R82M	0.82	1.45	1.67	30	39
MPA1350-1R0M	1.0	1.9	2.2	26	35
MPA1350-1R5M	1.5	2.8	3.2	23	33
MPA1350-2R2M	2.2	4.0	5.0	15	24
MPA1350-3R3M	3.3	5.9	7.0	14	22
MPA1350-4R7M	4.7	8.2	9.0	13	21
MPA1350-6R8M	6.8	14.5	18	12	16
MPA1350-100M	10	19	22	9.0	12
MPA1350-150M	15	23	30	8.0	10
MPA1350-220M	22	51	58	4.5	6.5
MPA1350-330M	33	75	84	3.5	6.0
MPA1350-470M	47	116	130	3.0	5.0

NOTE:

1. All test data is referenced to 25 °C ambient
2. Operating temperature range - 55 °C to + 125 °C
3. Idc(A):DC current (A) that will cause an approximate ΔT of 40 °C (reference ambient temperature is 25 °C)
4. Isat(A):DC current (A) that will cause L0 to drop approximately 30 %
5. The part temperature (ambient + temp rise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PWB trace size and thickness, airflow and other all affect the part temperature. Part temperature should be verified in the end application.

High Current, Power Inductors / MPA Series

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

1-1.Mechanical Performance

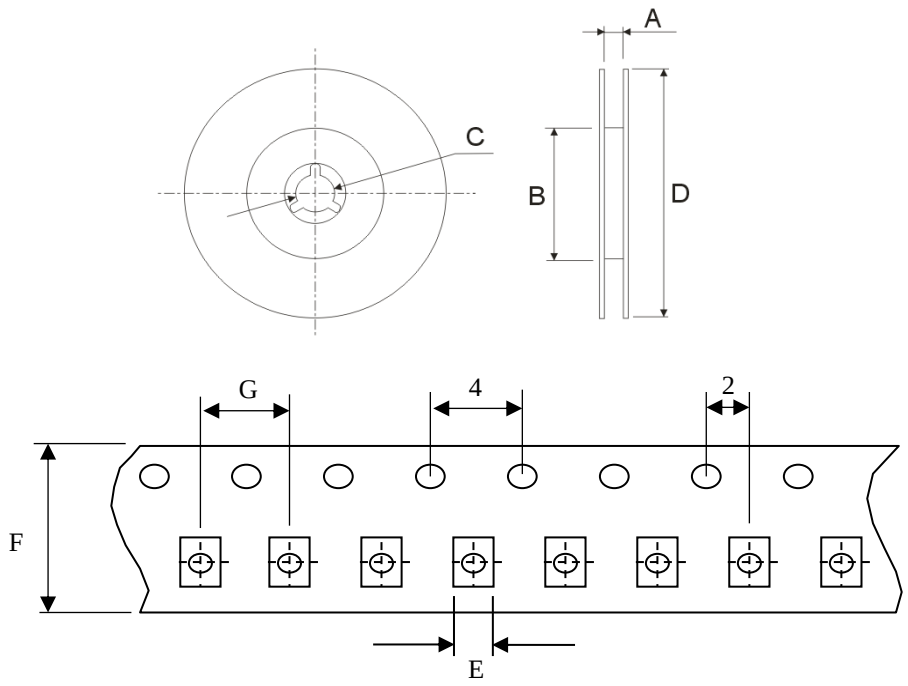
Item	Specification	Test Method
Solder ability	The surface of term inalimmersed shall be minimum of 95% covered with a new coating of solder.	Solder heat proof : 1. Preheating: 160 ± 10 ℃ 2. Retention time: 245 ± 5 ℃ for 2 ± 0.5 seconds
Vibration	Inductance change: Within ± 5% Without mechanical damage such break.	1. Vibration frequency : (10 Hz to 55 Hz to 10Hz) in 60 seconds as a period 2. Vibration time : Period cycled for 2 hours in each of 3 mutual directions. 3. Amplitude: 1.5 mm max.
Shock	Inductance change: Within ± 5% Without mechanical damage such as break.	1. Peak value: 100 G 2. Duration of pulse: 11ms 3. 3 times in each positive and negative direction of 3 mutual perpendicular directions.

1-2.Environmental Performance

Item	Specification	Test Method
Therm al Shock	Inductance change: Within ± 5% Without distinct damage in appearance.	1. Repeat 100 cycles as follow : (-55 ± 2 ℃; 30 ± 3 min) → (Room temp., 5 min) → (+125 ± 2 ℃, 30 ± 3 m in) → (Room temp., 5 min) 2. Recovery : 48 + 4 / -0 hours of recovery under the standard condition after the test.
High Temperature Resistance	Inductance change: Within ± 5% Without distinct damage in appearance.	1. Environm ent condition : 85 ± 2 ℃ Applied Current: Rated 2. Duration: 1000 + 4 / -0 hours
Humidity Resistance	Inductance change: Within ± 5% Without distinct damage in appearance.	1. Environm ent condition : 60 ± 2 ℃ Humidity: 90–95% Applied Current: Rated current 2. Duration: 1000 + 4 / -0 hours
Low Temperature Store	Inductance change: Within ± 5% Without distinct damage in appearance.	Store tem perature : -55 ± 2 ℃,1000 + 4 / -0 hours
High Temperature Store	Inductance change: Within ± 5% Without distinct damage in appearance.	Store tem perature : 125 ± 2 ℃,1000 + 4 / -0 hours

High Current, Power Inductors / MPA Series

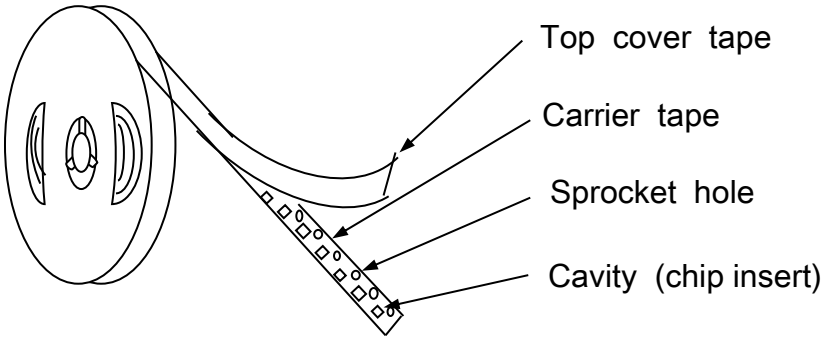
.Packing Specifications



TYPE	Packaging Quantity	Tape and Reel Dimension(mm)						
	Pcs / Reel	A	B	C	D	E	F	G
MPA0412	3000	12.5 ± 0.2	100 ± 1	13 ± 1	330 ± 2	4.5 ± 0.1	12 ± 0.3	8 ± 0.1
MPA0420	3000	12.5 ± 0.2	100 ± 1	13 ± 1	330 ± 2	4.5 ± 0.1	12 ± 0.3	8 ± 0.1
MPA0518	2000	12.5 ± 0.2	100 ± 1	13 ± 1	330 ± 2	5.7 ± 0.1	12 ± 0.3	8 ± 0.1
MPA0530	2000	12.5 ± 0.2	100 ± 1	13 ± 1	330 ± 2	5.7 ± 0.1	12 ± 0.3	8 ± 0.1
MPA0618	1500	16.5 ± 0.2	100 ± 1	13 ± 1	330 ± 2	7.2 ± 0.1	16 ± 0.3	12 ± 0.1
MPA0624	1500	16.5 ± 0.2	100 ± 1	13 ± 1	330 ± 2	7.2 ± 0.1	16 ± 0.3	12 ± 0.1
MPA0630	1500	16.5 ± 0.2	100 ± 1	13 ± 1	330 ± 2	7.2 ± 0.1	16 ± 0.3	12 ± 0.1
MPA1040	500	24.5 ± 0.2	100 ± 1	13 ± 1	330 ± 2	10.7 ± 0.1	24 ± 0.3	16 ± 0.1
MPA1350	500	24.5 ± 0.2	100 ± 1	13 ± 1	330 ± 2	13.4 ± 0.1	24 ± 0.3	16 ± 0.1

High Current, Power Inductors / MPA Series

.Tapping figure



.Cover Tape Peel Strength

Peel force of top cover tape

1. The peel speed shall be about 300mm/minute
2. The peel force of top cover tape shall be between 0.1 to 0.7 N