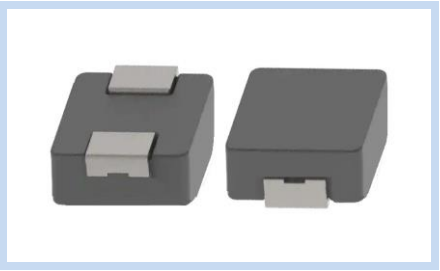
Molded Power Inductor
High Current AEC-Q200

PIM-0312MA1 series

MERITEK

FEATURE

- High Current，Low DCR，High Efficiency
- Minimized acoustic and leakage flux noise.
- Shielded and compact construction design
- AEC-Q200 Compliant
- Application: Note PC Power System, incl. IMVP-6, DC/DC Converter



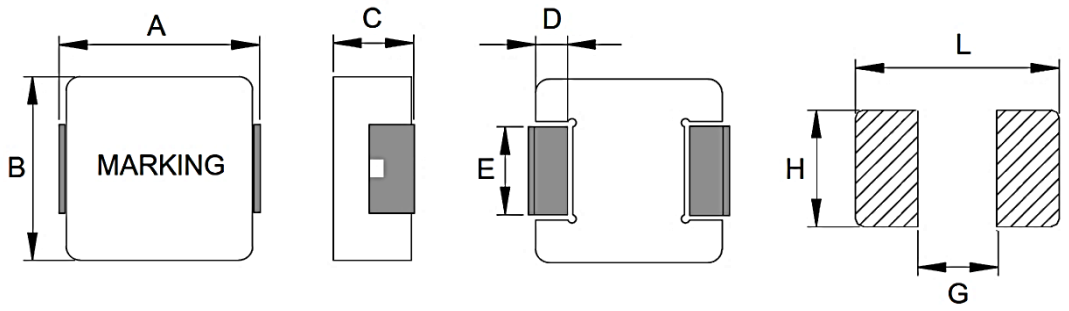
RoHS

ELECTRICAL CHARACTERISTICS

Item	Inductance (μH)	Tolerance (%)	DCR Typ. (mΩ)	DCR Max. (mΩ)	I_{SAT} Typ. (A)	I_{RMS} Typ. (A)
PIMR22M0312MA1	0.22	±20%	14.0	17.0	10.0	6.5
PIMR33M0312MA1	0.33	±20%	16.0	20.0	9.2	6.2
PIMR36M0312MA1	0.36	±20%	18.5	23.0	8.5	6.0
PIMR47M0312MA1	0.47	±20%	25	30	7.20	5.00
PIMR56M0312MA1	0.56	±20%	31	36	6.60	4.50
PIMR68M0312MA1	0.68	±20%	34	40	6.10	4.00
PIMR82M0312MA1	0.82	±20%	41	48	5.80	3.50
PIM1R0M0312MA1	1.0	±20%	50	60	5.50	3.30
PIM1R5M0312MA1	1.5	±20%	71	85	4.00	3.00
PIM2R2M0312MA1	2.2	±20%	98	115	3.40	2.70
PIM3R3M0312MA1	3.3	±20%	191	210	3.10	2.00
PIM4R7M0312MA1	4.7	±20%	266	293	2.80	1.60
PIM5R6M0312MA1	5.6	±20%	310	360	2.20	1.50
PIM6R8M0312MA1	6.8	±20%	360	400	2.00	1.40
PIM8R2M0312MA1	8.2	±20%	420	463	1.70	1.20
PIM100M0312MA1	10.0	±20%	498	550	1.40	1.00

Note:
1. Inductance test under 100KHz, 1.0V
2. All test data referenced to 25˚C ambient
3. I_{SAT} based on inductance drop (ΔL/L0: ≦30%) approximately
4. I_{RMS} based on temperature rise (ΔT: 40 ˚C) approximately
5. Operating temperature: -55°C ~ +125°C (Including Self-temperature rise)

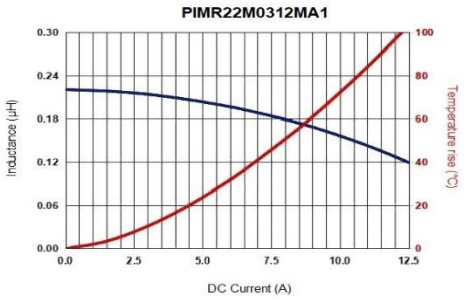
DIMENSIONS

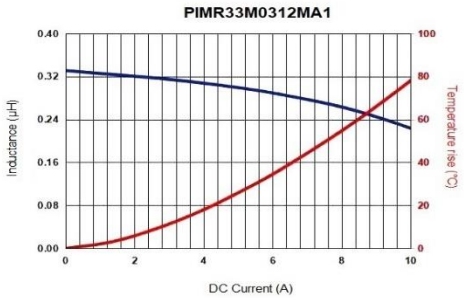


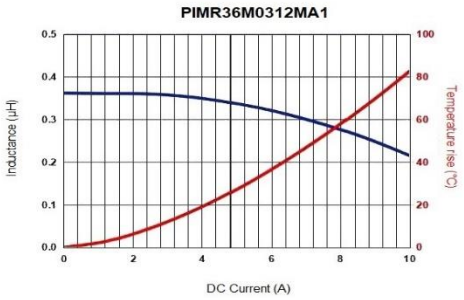
(Unit: mm)

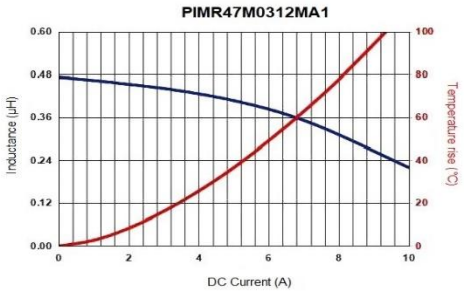
Size Code	A	B	C	D	E	L	G	H
0312	3.5±0.20	3.2±0.20	1.0±0.2	0.7±0.20	1.2±0.20	4.1	1.9	1.45

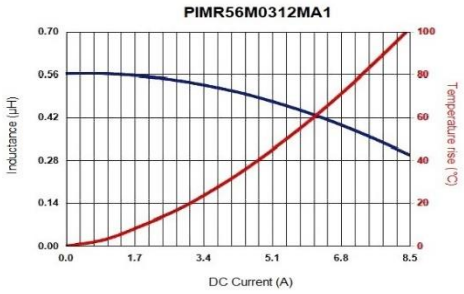
CHARACTERISTIC CURVES

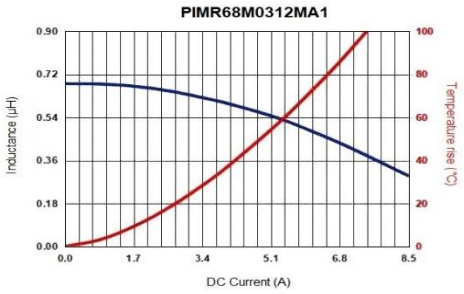


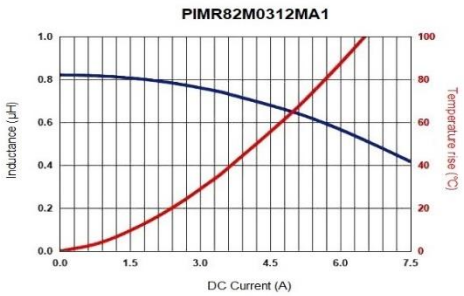


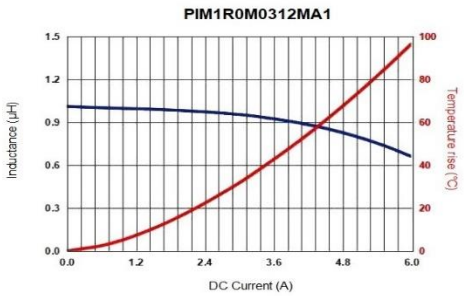


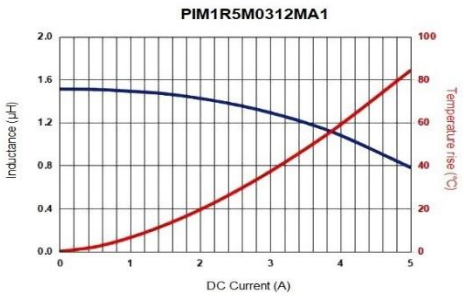












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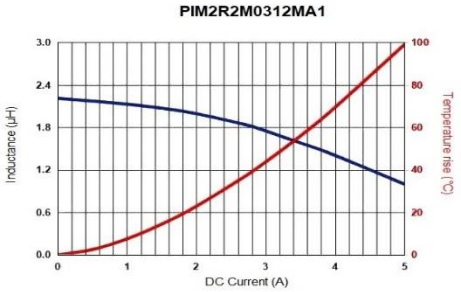
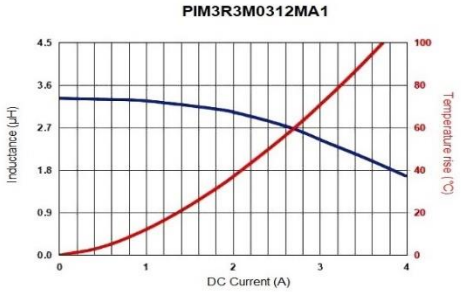
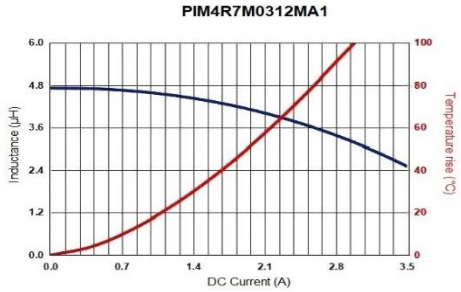
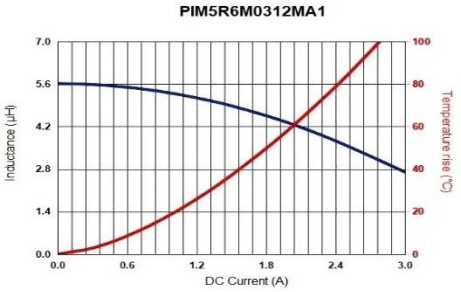
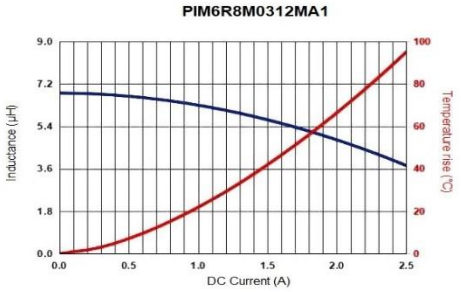
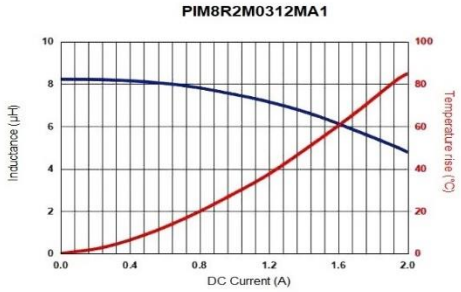


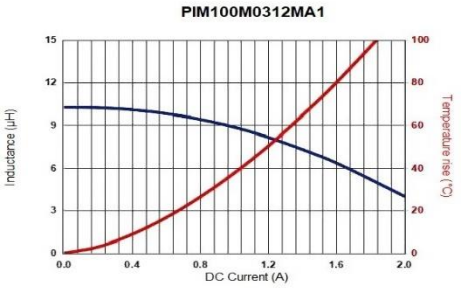






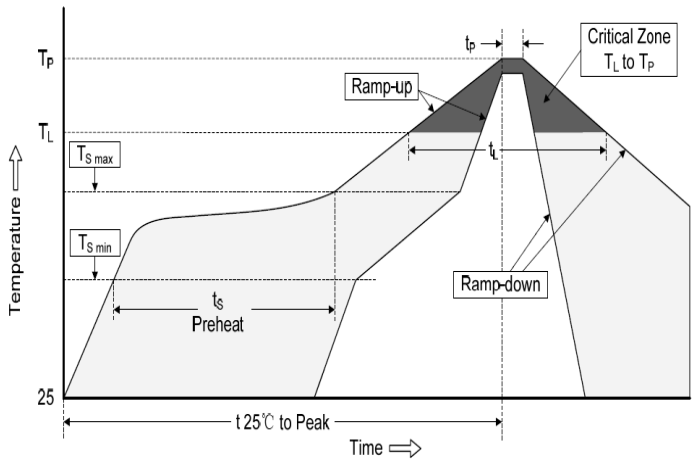






RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Pre Heat	**Temp. Min $T_{s(min)}$**	150°C
	Temp. Max $T_{s(max)}$	200°C
	Time (min. to max.) (t_s)	60~120 seconds
Average ramp up rate $T_{s(max)}$ to T_L		3°C/second max.
Average ramp up rate T_L to peak		3°C/second max.
Reflow	**Temp. (T_L)**	217°C
	Time (min. to max.) (t_L)	60~150 seconds
Peak Temperature (T_P)		245°C
Time within 5°C of actual peak Temperature (t_p)		10 seconds
Ramp-down Rate		6°C/second max.
Reflow Times		3 times max.



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High Current AEC-Q200

PIM-0312MA1 series

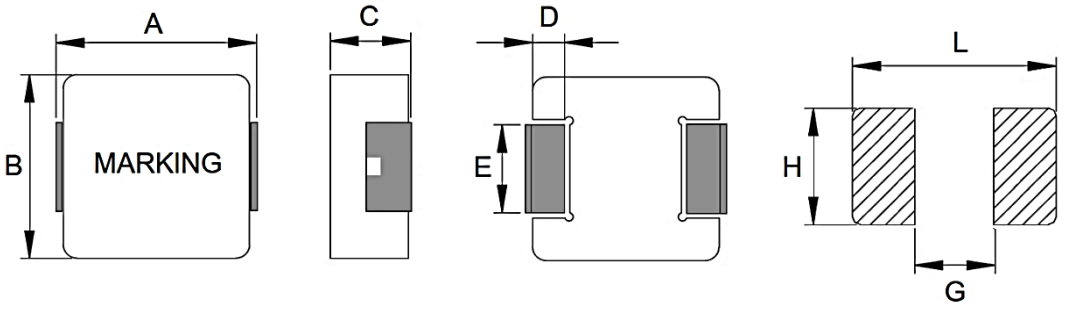
MERITEK

PART NUMBERING SYSTEM

PIM	470	M	0312	MA1
(1)	(2)	(3)	(4)	(5)

No	item	Code	Description	
(1)	**Product Code**	PIM	Power Inductor Series, Molded Surface Mount Type	
(2)	**Inductance**	470	470: 47µH	R47: 0.47µH, 2R2: 2.2µH, 100: 10µH
(3)	**Tolerance**	M	M: ±20%	N: ±30%
(4)	**Size Code**	0312	0312: 3.5x1.0mm	Width x Height (mm)
(5)	**Series Code**	MA1	High Current AEC-Q200	Internal control or project reference

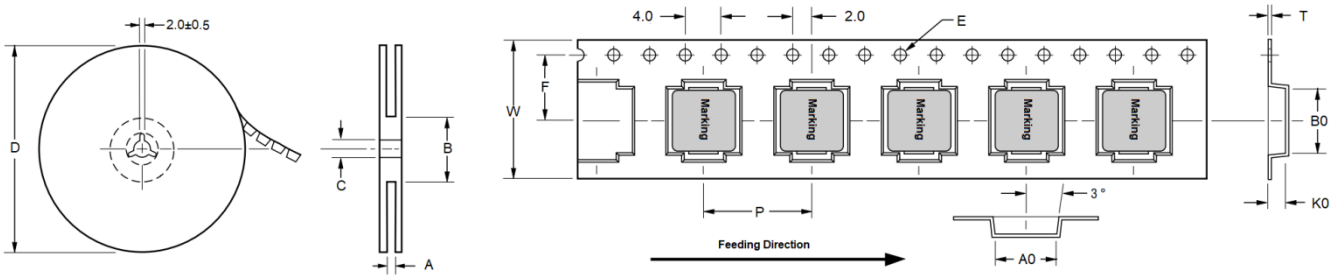
DIMENSIONS – PIM-MA1 series



(Unit: mm)

Size Code	A	B	C	D	E	L	G	H
0312	3.5±0.20	3.2±0.20	1.0±0.2	0.7±0.20	1.2±0.20	4.1	1.9	1.45
0315	3.5±0.20	3.2±0.20	1.3±0.2	0.7±0.20	1.2±0.20	4.1	1.9	1.45
0320	3.5±0.20	3.2±0.20	1.8±0.2	0.7±0.20	1.2±0.20	4.1	1.9	1.45
0412	4.45±0.25	4.06±0.25	1.0±0.2	0.76±0.30	2.0±0.20	5.2	2.2	2.4
0415	4.45±0.25	4.06±0.25	1.3±0.2	0.76±0.30	2.0±0.20	5.2	2.2	2.4
0418	4.45±0.25	4.06±0.25	1.6±0.2	0.76±0.30	2.0±0.20	5.2	2.2	2.3
0420	4.45±0.25	4.06±0.25	1.8±0.2	0.76±0.30	2.0±0.20	5.2	2.2	2.4
0512	5.7±0.30	5.2±0.20	1.0±0.2	1.1±0.30	2.5±0.30	6.2	2.2	2.8
0515	5.7±0.30	5.2±0.20	1.3±0.2	1.1±0.30	2.5±0.30	6.2	2.2	2.8
0518	5.7±0.30	5.2±0.20	1.6±0.2	1.1±0.30	2.5±0.30	6.2	2.2	2.8
0520	5.7±0.30	5.2±0.20	1.8±0.2	1.1±0.30	2.5±0.30	6.2	2.2	2.8
0530	5.7±0.30	5.2±0.20	2.8±0.2	1.1±0.30	1.5±0.20	6.2	2.5	1.8
053P	5.7±0.30	5.2±0.20	2.8±0.2	1.1±0.30	2.5±0.30	6.5	2.5	2.8
053T	4.9±0.30	4.7±0.20	2.8±0.2	1.0±0.30	1.5±0.30	7.0	3.0	2.5

PACKAGING DIMENSION – PIM-MA1 series



Size Code	Reel Dimension (mm)				Tape Dimensions (mm)								Qty
	A +2/-0	B ±2.0	C ±0.5	D	W ±0.3	F ±0.1	P ±0.1	E ±0.1	A0 ±0.1	B0 ±0.1	K0 ±0.1	T ±0.05	13”
0312	12.4	100	13.5	330	12.0	5.5	8.0	1.5	3.5	3.8	1.5	0.35	4000
0315	12.4	100	13.5	330	12.0	5.5	8.0	1.5	3.5	3.8	1.8	0.35	4000
0320	12.4	100	13.5	330	12.0	5.5	8.0	1.5	3.5	3.8	2.3	0.35	3000
0412	12.4	100	13.5	330	12.0	5.5	8.0	1.5	4.4	5.0	1.5	0.35	4000
0415	12.4	100	13.5	330	12.0	5.5	8.0	1.5	4.4	5.0	1.8	0.35	4000
0418	12.4	100	13.5	330	12.0	5.5	8.0	1.5	4.4	5.0	2.1	0.35	3000
0420	12.4	100	13.5	330	12.0	5.5	8.0	1.5	4.4	5.0	2.3	0.35	3000
0512	12.4	100	13.5	330	12.0	5.5	8.0	1.5	5.5	6.2	1.5	0.35	4000
0515	12.4	100	13.5	330	12.0	5.5	8.0	1.5	5.5	6.2	1.8	0.35	3500
0518	12.4	100	13.5	330	12.0	5.5	8.0	1.5	5.5	6.2	2.1	0.35	3000
0520	12.4	100	13.5	330	12.0	5.5	8.0	1.5	5.5	6.2	2.3	0.35	3000
0530 (053P)	12.4	100	13.5	330	12.0	5.5	8.0	1.5	5.5	6.2	3.3	0.35	2000
053T	16.4	100	13.5	330	16.0	7.5	12.0	1.5	5.1	5.4	3.3	0.35	1000

*Specifications subject to change without notice.