

# SMD Power Inductor

TMPA-Series(N)

## 1. Features

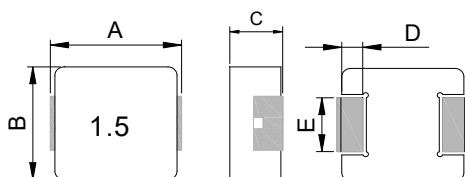
1. Low loss realized with low DCR.
2. High performance realized by metal dust core.
3. Ultra low buzz noise, due to composite construction.
4. 100% Lead(Pb)-Free and RoHS compliant.



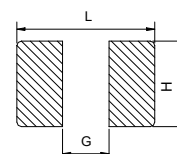
## 2. Applications

Commercial applications

## 3. Dimensions



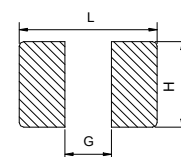
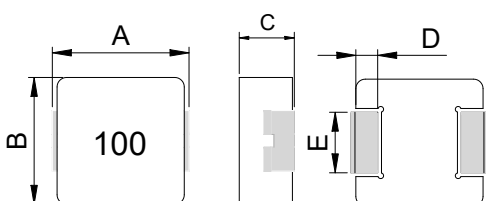
### Recommend PC Board Pattern



- Note: 1.PCB layout is referred to standard IPC-7351B  
 2. The above PCB layout reference only.  
 3. Recommend solder paste thickness at 0.12mm and above.

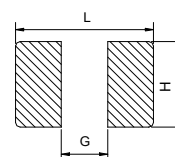
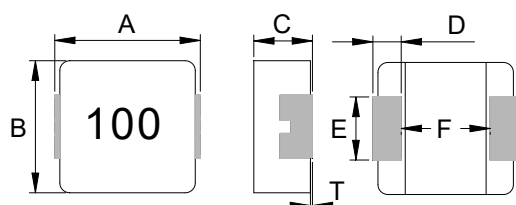
Series	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	L(mm)	G(mm)	H(mm)
TMPA0312S	3.2±0.2	3.1±0.2	1.0±0.2	0.8±0.2	0.6±0.2	3.6Ref	1.9Ref	1.0Ref
TMPA0315S	3.2±0.2	3.1±0.2	1.3±0.2	0.8±0.2	0.6±0.2	3.6Ref	1.9Ref	1.0Ref
TMPA0318S	3.2±0.2	3.1±0.2	1.6±0.2	0.8±0.2	0.6±0.2	3.6Ref	1.9Ref	1.0Ref
TMPA0302S	3.5±0.2	3.2±0.2	1.8±0.2	0.7±0.2	1.2±0.2	4.1Ref	1.9Ref	1.45Ref

### Recommend PC Board Pattern



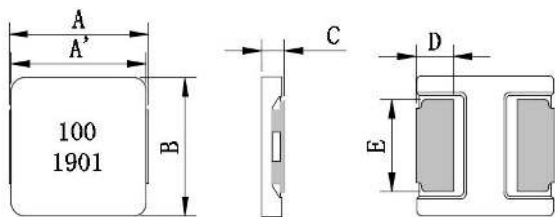
- Note: 1.PCB layout is referred to standard IPC-7351B  
 2. The above PCB layout reference only.  
 3. Recommend solder paste thickness at 0.12mm and above.

Series	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	L(mm)	G(mm)	H(mm)
TMPA0401SP	4.5±0.2	4.1±0.2	1.0Max	0.8±0.25	1.8±0.2	5.2Ref	2.2Ref	2.5Ref
TMPA0402SP	4.45±0.25	4.1±0.2	1.8±0.2	0.8±0.25	2.0±0.2	5.2Ref	2.2Ref	2.0Ref

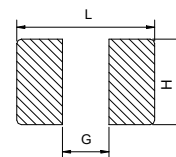


- Note: 1. The above PCB layout reference only.  
 2. Recommend solder paste thickness at 0.12mm and above.

Series	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	T(mm)	L(mm)	G(mm)	H(mm)
TMPA404010	4.20±0.20	4.15±0.20	0.83±0.2	0.9±0.20	1.8±0.20	2.4±0.20	0~0.05	4.4 Ref	2.2 Ref	2.0 Ref

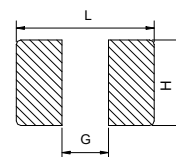
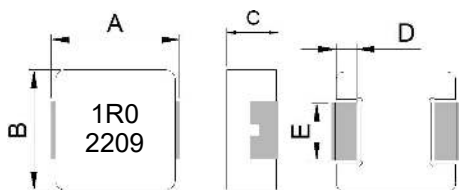


**Recommend PC Board Pattern**



Note: 1.PCB layout is referred to standard IPC-7351B  
 2. The above PCB layout reference only.  
 3. Recommend solder paste thickness at 0.12mm and above.

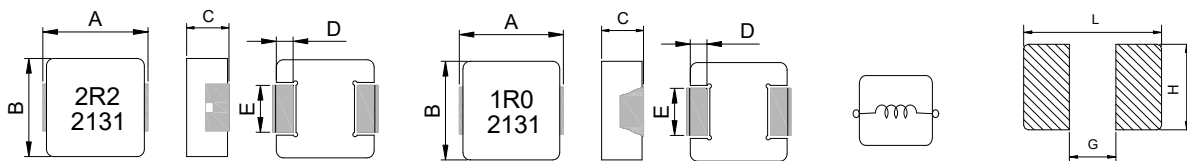
Series	A(mm)	A'(mm)	B(mm)	C(mm)	D(mm)	E(mm)	L(mm)	G(mm)	H(mm)
TMPA606010	6.1±0.3	6.0±0.2	6.1±0.3	0.8±0.2	1.75±0.3	4.0±0.2	7.0	2.8	4.5



Note: 1.PCB layout is referred to standard IPC-7351B  
 2. The above PCB layout reference only.  
 3. Recommend solder paste thickness at 0.12mm and above.

Series	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	L(mm)	G(mm)	H(mm)
TMPA0502SP	5.7±0.3	5.2±0.2	1.8±0.2	1.0±0.3	2.5±0.3	6.0 Ref	2.8 Ref	2.5 Ref
TMPA0503S	5.7±0.3	5.2±0.2	2.8±0.2	1.0±0.3	2.0±0.2	6.0 Ref	2.8 Ref	2.5 Ref
TMPA053T	4.9±0.3	4.7±0.2	2.8±0.2	1.0±0.3	1.5±0.2	5.5 Ref	2.5 Ref	1.8 Ref
TMPA0618S	7.0±0.3	6.6±0.2	1.6±0.2	1.8±0.3	3.0±0.2	8.0Ref	3.7Ref	3.4Ref
TMPA0602S	7.1±0.3	6.6±0.2	1.8±0.2	1.6±0.3	3.0±0.2	8.0 Ref	3.7 Ref	3.4 Ref
TMPA0624S	7.1±0.3	6.7±0.2	2.2±0.2	1.6±0.3	3.0±0.2	8.0 Ref	3.7 Ref	3.4 Ref
TMPA0603S	7.1±0.3	6.6±0.2	2.8±0.2	1.6±0.3	3.0±0.2	8.0 Ref	3.7 Ref	3.4 Ref
TMPA0604S	7.1±0.3	6.6±0.2	3.8±0.2	1.6±0.3	2.8±0.3	8.0 Ref	3.7 Ref	3.4 Ref
TMPA0605S	7.3±0.3	6.6±0.3	4.8±0.2	1.6±0.3	3.0±0.2	8.0 Ref	3.7 Ref	3.4 Ref
TMPA0754S	7.8±0.3	7.1±0.2	5.2±0.2	1.6±0.3	3.0±0.3	9.0 Ref	3.2 Ref	3.5 Ref
TMPA0804S	8.8±0.4	8.2±0.3	3.8±0.2	1.4±0.3	5.0±0.3	9.5 Ref	4.0 Ref	5.5 Ref

Recommend PC Board Pattern



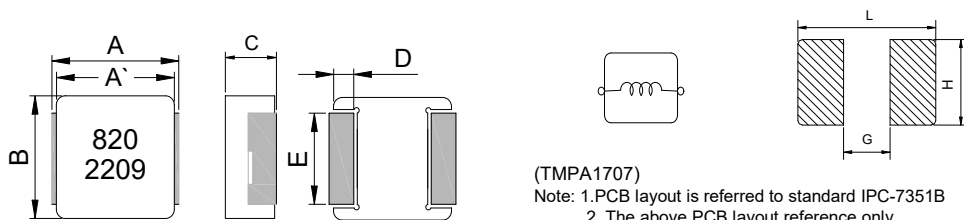
Note: 1.PCB layout is referred to standard IPC-7351B  
 2. The above PCB layout reference only.  
 3. Recommend solder paste thickness at 0.12mm and above.

Leadframe

non-leadframe

Series	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	L(mm)	G(mm)	H(mm)
TMPA1003S	11.0±0.5	10.0±0.3	2.8±0.2	2.0±0.3	See Spec table	13.5Ref	5.4Ref	3.5Ref
TMPA1004S	11.0±0.3	10.0±0.3	3.8±0.2	2.0±0.3	See Spec table	12.5Ref	5.4Ref	3.5Ref
TMPA1005S	11.0±0.5	10.0±0.3	4.8±0.2	2.0±0.3	See Spec table	12.5Ref	5.4Ref	3.5Ref
TMPA1205SP	13.5±0.5	12.6±0.2	4.7±0.3	2.3±0.3	See Spec table	14.5Ref	8.0Ref	5.0Ref
TMPA1206SP	13.5±0.5	12.6±0.2	5.7±0.3	2.3±0.3	See Spec table	14.5Ref	8.0Ref	5.0Ref
TMPA1265SP	13.5±0.5	12.6±0.2	6.2±0.3	2.3±0.3	See Spec table	14.5Ref	8.0Ref	5.0Ref

Recommend PC Board Pattern



(TMPA1707)

Note: 1.PCB layout is referred to standard IPC-7351B  
 2. The above PCB layout reference only.  
 3. Recommend solder paste thickness at 0.17mm and above.

(TMPA2313)

Note: 1.PCB layout is referred to standard IPC-7351B  
 2. The above PCB layout reference only.  
 3. Recommend solder paste thickness at 2.0mm and above.

Series	A(mm)	A'(mm)	B(mm)	C(mm)	D(mm)	E(mm)	L(mm)	G(mm)	H(mm)
TMPA1707SP	17.8±0.5	16.9±0.3	16.9±0.3	6.7±0.3	2.3±0.3	11.9±0.3	18.5Ref	12.0Ref	12.5Ref
TMPA2313SP	23.5±0.5	22.7±0.3	22.0±0.3	12.6±0.4	5.0±0.4	19.0±0.3	24.0Ref	12.5Ref	19.6Ref

### 4. Part Numbering

TMPA    0302    S    -    1R5    MN  
 A                    B                    C                    D                    E

A: Series  
 B: Dimension  
 C: Type  
 D: Inductance  
 E: Inductance Tolerance

BxC  
 Standard.V: Vehicle  
 1R5=1.50uH.  
 M=±20% Y±30%  
 Marking: Black.1.5 (1.5:1R5).

TMPA    0402    SP    -    100    MN  
 A                    B                    C                    D                    E

A: Series  
 B: Dimension  
 C: Type  
 D: Inductance  
 E: Inductance Tolerance

BxC  
 Standard.  
 R10=0.1uh, 1R0=1.0uh, 100=10uh, 101=100uh, 102=1000uh.  
 K=±10%, L=±15%, M=±20%, N=±25%, Y=±30%  
 Marking: Black.100 Unidirectional printing.

TMPA    0603    S    -    1R0    MN    -    D  
 A                    B                    C                    D                    E                    F

B: Dimension  
 C: Type  
 D: Inductance  
 E: Inductance Tolerance  
 F: Code

BxC  
 Standard.  
 R10=0.1uh, 1R0=1.0uh, 100=10uh, 101=100uh, 102=1000uh.  
 K=±10%, L=±15%, M=±20%, N=±25%, Y=±30%  
 Marking: Black.1R0 and 2209(22YY, 09 WW, follow production date).

## 5. Specification

Part Number	Inductance L0 (uH)±20% @ 0 A	I rms ( A )		I sat ( A )		DCR(mΩ)	
		Typ	Max	Typ	Max	Typ	Max
TMPA0312S-R24MN	0.24	8.3	7.2	9.5	8.0	12.0	14.4
TMPA0312S-R36MN	0.36	7.0	6.4	7.5	6.8	15.5	18.6
TMPA0312S-R47MN	0.47	6.3	5.9	6.6	6.1	20.5	24.6
TMPA0312S-R68MN	0.68	5.1	4.6	5.5	5.0	29.0	34.8
TMPA0312S-1R0MN	1.00	3.8	3.5	4.1	3.6	42.0	50.4
TMPA0312S-1R5MN	1.50	3.3	2.9	3.5	3.0	57.0	68.4
TMPA0312S-2R2MN	2.20	2.8	2.5	3.0	2.6	84	101
TMPA0312S-3R3MN	3.30	2.2	2.0	2.5	2.3	150	180
TMPA0312S-4R7MN	4.70	1.8	1.6	2.2	2.0	225	248
TMPA0312S-6R8MN	6.80	1.5	1.3	1.7	1.5	290	319
TMPA0312S-100MN	10.0	1.2	1.1	1.3	1.2	440	484

Part Number	Inductance L0 (uH)±20% @ 0 A	I rms ( A )		I sat ( A )		DCR(mΩ)	
		Typ	Max	Typ	Max	Typ	Max
TMPA0315S-R22MN	0.22	8.7	8.0	10.0	8.5	10.0	12.0
TMPA0315S-R33MN	0.33	7.4	6.8	8.0	7.0	12.5	15.0
TMPA0315S-R47MN	0.47	6.6	6.1	7.0	6.5	15.5	19.0
TMPA0315S-R56MN	0.56	6.3	6.0	7.0	6.3	20.0	24.0
TMPA0315S-R68MN	0.68	5.6	5.0	6.0	5.5	25.0	30.0
TMPA0315S-1R0MN	1.00	4.7	4.4	5.0	4.5	34.0	41.0
TMPA0315S-1R5MN	1.50	4.0	3.2	4.0	3.2	50.0	60.0
TMPA0315S-2R2MN	2.20	3.2	2.9	3.5	3.1	70.0	84.0
TMPA0315S-3R3MN	3.30	2.6	2.4	2.8	2.5	120	144
TMPA0315S-4R7MN	4.70	2.0	1.8	2.4	2.2	170	204
TMPA0315S-5R6MN	5.60	1.7	1.5	2.0	1.8	200	240
TMPA0315S-6R8MN	6.80	1.6	1.4	1.8	1.6	223	268
TMPA0315S-8R2MN	8.20	1.5	1.3	1.6	1.4	300	360
TMPA0315S-100MN	10.0	1.4	1.2	1.5	1.3	335	402

Part Number	Inductance L0 (uH)±20% @ 0 A	I rms ( A )		I sat ( A )		DCR(mΩ)	
		Typ	Max	Typ	Max	Typ	Max
TMPA0318S-R24MN	0.24	9.0	8.5	11.0	9.5	11.5	13.8
TMPA0318S-R36MN	0.36	7.4	6.9	9.0	8.0	13.0	15.6
TMPA0318S-R47MN	0.47	7.0	6.6	7.7	7.0	15.0	18.0
TMPA0318S-R56MN	0.56	6.6	6.3	7.3	6.5	19.0	22.8
TMPA0318S-R68MN	0.68	6.2	5.9	6.8	6.2	22.0	26.4
TMPA0318S-1R0MN	1.00	5.3	5.0	5.8	5.3	28.0	34.0
TMPA0318S-1R5MN	1.50	4.5	4.0	5.0	4.5	38.0	45.6
TMPA0318S-2R2MN	2.20	3.5	3.2	4.1	3.7	63.0	75.0
TMPA0318S-3R3MN	3.30	2.8	2.5	3.0	2.6	96.0	115.0
TMPA0318S-4R7MN	4.70	2.3	2.0	2.5	2.3	145.0	174.0
TMPA0318S-5R6MN	5.60	2.0	1.8	2.1	1.9	170.0	204.0
TMPA0318S-6R8MN	6.80	1.8	1.5	2.0	1.8	220.0	264.0
TMPA0318S-8R2MN	8.20	1.5	1.3	1.6	1.4	300.0	360.0
TMPA0318S-100MN	10.0	1.6	1.4	1.7	1.5	290.0	348.0

Part Number	Inductance L0 (uH)±20%	I rms ( A )		I sat ( A )		DCR (mΩ)	
		Typ	Max	Typ	Max	Typ	Max
TMPA0302S-R15YN	0.15±30%	11.0	10.0	14.0	12.0	8.0	9.6
TMPA0302S-R22MN	0.22	10.0	9.0	12.0	10.5	10.0	12.0
TMPA0302S-R33MN	0.33	9.0	8.0	10.0	9.0	12.0	14.4
TMPA0302S-R47MN	0.47	8.0	7.0	8.5	7.5	14.5	17.4
TMPA0302S-R68MN	0.68	6.8	6.3	7.0	6.5	20	24
TMPA0302S-1R0MN	1.0	5.8	5.3	6.0	5.5	27	33
TMPA0302S-1R5MN	1.5	5.1	4.6	5.5	5.0	35	42
TMPA0302S-2R2MN	2.2	4.0	3.5	4.5	4.0	55	66
TMPA0302S-3R3MN	3.3	3.0	2.6	3.2	2.8	92	111
TMPA0302S-4R7MN	4.7	2.5	2.2	2.8	2.5	122	147
TMPA0302S-6R8MN	6.8	2.0	1.8	2.2	2.0	211	254
TMPA0302S-100MN	10.0	1.5	1.3	1.6	1.4	285	342

Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR(mΩ)	
		Typ	Max	Typ	Max	Typ	Max
TMPA0401SP-1R0MN	1.00	3.5	3.0	5.0	4.5	42	48.3
TMPA0401SP-1R5MN	1.50	2.8	2.4	4.6	4.3	62	72
TMPA0401SP-2R2MN	2.20	2.6	2.3	3.8	3.3	90	108
TMPA0401SP-3R3MN	3.30	2.1	1.8	3.3	2.8	135	150
TMPA0401SP-4R7MN	4.70	1.9	1.6	2.8	2.4	180	216
TMPA0401SP-6R8MN	6.80	1.7	1.5	2.3	2.0	260	300
TMPA0401SP-8R2MN	8.20	1.5	1.3	2.1	1.8	282	330
TMPA0401SP-100MN	10.0	1.4	1.2	2.0	1.6	316	340

Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR(mΩ)	
		Typ	Max	Typ	Max	Typ	Max
TMPA0402SP-R10MN	0.10	16	14	26	22	2.9	3.2
TMPA0402SP-R22MN	0.22	14	12.5	15	13	4.8	5.5
TMPA0402SP-R33MN	0.33	12	11	10.5	9.5	7.5	8.3
TMPA0402SP-R47MN	0.47	10	9.0	9.0	8.0	9.5	11
TMPA0402SP-R68MN	0.68	9.0	8.0	7.6	6.6	11.6	13.5
TMPA0402SP-R82MN	0.82	8.0	7.0	6.0	5.5	16.3	18.8
TMPA0402SP-1R0MN	1.00	7.5	6.5	5.5	5.0	19	22
TMPA0402SP-1R5MN	1.50	6.7	5.8	5.2	4.8	27	31
TMPA0402SP-2R2MN	2.20	5.5	5.0	4.5	4.0	41	48
TMPA0402SP-3R3MN	3.30	4.5	3.5	3.1	2.7	65	75
TMPA0402SP-4R7MN	4.70	3.8	3.2	2.8	2.5	84	95
TMPA0402SP-5R6MN	5.60	3.2	2.8	2.6	2.3	97	115
TMPA0402SP-6R8MN	6.80	2.9	2.5	2.4	2.1	131	157
TMPA0402SP-8R2MN	8.20	2.6	2.3	2.2	2.0	140	168
TMPA0402SP-100MN	10.0	2.4	2.2	2.1	1.9	165	215
TMPA0402SP-150MN	15.0	1.5	1.3	1.6	1.4	325	375

Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)Typ	DCR (mΩ)Max
		Typ	Max	Typ	Max		
TMPA404010AF-4R7MN	4.70	2.6	2.3	3.0	2.6	120	144
TMPA404010AF-6R8MN	6.80	2.0	1.8	2.3	2.0	200	240
TMPA404010AF-100MN	10.0	1.6	1.4	2.0	1.7	300	320

Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR(mΩ)	
		Typ	Max	Typ	Max	Typ	Max
TMPA0502SP-R10MN-D	0.10	25	22	29	26	2.3	2.53
TMPA0502SP-R15YN-D	0.15±30%	22	19	27	24	2.8	3.2
TMPA0502SP-R22MN-D	0.22	16	14	20	17	3.80	4.40
TMPA0502SP-R33MN-D	0.33	14	13	11	9.0	5.20	6.00
TMPA0502SP-R47MN-D	0.47	13	11	9.0	8.0	6.10	7.20
TMPA0502SP-R68MN-D	0.68	12	10	8.0	7.0	8.00	9.20
TMPA0502SP-1R0MN-D	1.00	8.6	7.5	7.5	6.5	14.0	16.2
TMPA0502SP-1R5MN-D	1.50	7.5	6.5	7.0	6.0	22.0	26.4
TMPA0502SP-2R2MN-D	2.20	6.5	6.0	5.8	5.0	29.0	34.0
TMPA0502SP-3R3MN-D	3.30	6.0	5.0	5.0	4.7	50.0	60.0
TMPA0502SP-4R7MN-D	4.70	4.0	3.0	4.7	4.4	84.0	97.0
TMPA0502SP-5R6MN-D	5.60	3.5	2.8	4.4	4.0	91.0	109
TMPA0502SP-6R8MN-D	6.80	3.1	2.6	4.2	3.8	110	127
TMPA0502SP-8R2MN-D	8.20	2.9	2.5	3.9	3.4	123	142
TMPA0502SP-100MN-D	10.0	2.7	2.4	3.5	3.0	150	180
TMPA0502SP-150MN-D	15.0	2.2	1.9	2.6	2.3	224	252
TMPA0502SP-220MN-D	22.0	1.9	1.6	2.2	1.9	290	325

Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)Typ	DCR (mΩ)Max
		Typ	Max	Typ	Max		
TMPA0503S-R10MN-D	0.10	26	23	33	29	2.0	2.2
TMPA0503S-R33MN-D	0.33	16	14	12	10	4.5	5.4
TMPA0503S-R47MN-D	0.47	13.5	12	10	9.0	5.2	6.0
TMPA0503S-R56MN-D	0.56	13.0	11.5	9.5	8.5	6.1	7.2
TMPA0503S-R68MN-D	0.68	12.5	11	9.0	8.0	7.4	8.5
TMPA0503S-R82MN-D	0.82	10	9.0	8.8	7.7	8.0	9.2
TMPA0503S-1R0MN-D	1.00	9.0	8.0	8.5	7.5	10.5	12
TMPA0503S-1R5MN-D	1.50	8.0	7.0	7.5	6.5	13.6	15.7
TMPA0503S-2R2MN-D	2.20	7.0	6.5	6.5	5.8	21.6	25
TMPA0503S-3R3MN-D	3.30	6.3	5.8	6.0	5.3	28	33
TMPA0503S-4R7MN-D	4.70	5.5	4.8	5.3	4.6	38	44
TMPA0503S-5R6MN-D	5.60	5.0	4.3	4.6	4.0	50	58
TMPA0503S-6R8MN-D	6.80	4.3	3.7	3.5	3.1	57	66
TMPA0503S-100MN-D	10.0	3.8	3.4	2.5	2.1	88	103
TMPA0503S-150MN-D	15.0	2.9	2.5	2.2	1.7	140	170
TMPA0503S-220MN-D	22.0	2.4	2.0	2.0	1.7	190	228

Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)Typ	DCR (mΩ)Max
		Typ	Max	Typ	Max		
TMPA053T-R10YN-D	0.10±30%	32	28	32	28	1.8	2.1
TMPA053T-R22MN-D	0.22	18	16	17	14.5	2.8	3.2
TMPA053T-R35MN-D	0.35	16.5	15	15	12	4.6	5.1
TMPA053T-R47MN-D	0.47	16	14	11	9.5	5.5	6.4
TMPA053T-R68MN-D	0.68	12	10.5	9.0	8.5	7.0	8.4
TMPA053T-1R0MN-D	1.00	8.5	7.5	8.5	8.0	12.8	13.8
TMPA053T-1R5MN-D	1.50	6.6	6.0	6.3	5.5	16	21
TMPA053T-2R2MN-D	2.20	6.0	5.5	5.7	5.0	23	27.6
TMPA053T-3R3MN-D	3.30	5.5	5.0	5.0	4.3	30	36
TMPA053T-4R7MN-D	4.70	5.0	4.5	4.0	3.7	43	52

Part Number	Inductance L0 (uH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)Typ	DCR (mΩ)Max
		Typ	Max	Typ	Max		
TMPA606010AF-4R7MN-D	4.70	2.6	2.3	3.5	3.0	140.0	161.0
TMPA606010AF-6R8MN-D	6.80	2.1	1.9	2.5	2.2	164.0	197.0
TMPA606010AF-100MN-D	10.0	1.7	1.5	2.1	1.9	259.0	310.0

Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ) Typ	DCR (mΩ) Max
		Typ	Max	Typ	Max		
TMPA0618S-R15YN-D	0.15±30%	21	19	30	27	1.9	2.4
TMPA0618S-R22MN-D	0.22	19	17	22	20	3	3.6
TMPA0618S-R33MN-D	0.33	17	15	19.5	17.5	4.4	5.3
TMPA0618S-R47MN-D	0.47	14	12	16	14	6.3	7.0
TMPA0618S-R68MN-D	0.68	12	10	14	12	7	8.4
TMPA0618S-1R0MN-D	1.0	9.5	8.5	11.5	10	12	14.4
TMPA0618S-1R5MN-D	1.5	8	7	10.5	9	18.5	22.2
TMPA0618S-2R2MN-D	2.2	7.0	6.0	7.5	6.5	29.5	33.5
TMPA0618S-3R3MN-D	3.3	6.0	5	7	5.7	49	56.4
TMPA0618S-4R7MN-D	4.7	4.5	4	5.8	5	56	67.2
TMPA0618S-6R8MN-D	6.8	4	3.2	4	3.5	75	90
TMPA0618S-100MN-D	10.0	3	2.7	3.3	2.9	109	130



Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)Typ	DCR (mΩ)Max
		Typ	Max	Typ	Max		
TMPA0602S-R15MN-D	0.15	28	25	34	31	2.1	2.4
TMPA0602S-R22MN-D	0.22	21	18	23	20	2.7	3.4
TMPA0602S-R33MN-D	0.33	19	16	20	18	3.7	4.4
TMPA0602S-R47MN-D	0.47	15	13	18	16	5.6	6.3
TMPA0602S-R68MN-D	0.68	13	11	14	12	7.8	8.8
TMPA0602S-1R0MN-D	1.00	11	9.5	12.5	10.5	13.5	15.5
TMPA0602S-1R5MN-D	1.50	9.5	8.0	11.5	9.8	19.5	22.5
TMPA0602S-2R2MN-D	2.20	8.0	7.0	10	9.0	25.6	29.5
TMPA0602S-3R3MN-D	3.30	6.8	5.2	7.5	6.0	41.5	48
TMPA0602S-4R7MN-D	4.70	5.5	4.5	6.0	5.0	48	57
TMPA0602S-5R6MN-D	5.60	5.0	4.0	5.0	4.0	56	66
TMPA0602S-6R8MN-D	6.80	4.5	3.8	4.3	3.6	60	70
TMPA0602S-100MN-D	10.0	3.4	3.0	3.4	3.0	118	140

Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)Typ	DCR (mΩ)Max
		Typ	Max	Typ	Max		
TMPA0624S-R10YN-D	0.10±30%	30	25	70	60	1.2	1.35
TMPA0624S-R15YN-D	0.15±30%	32	30	41	34	1.5	1.80
TMPA0624S-R22MN-D	0.22	26	23	34	28	2.2	2.53
TMPA0624S-R33MN-D	0.33	24	21	27	24	3.2	3.52
TMPA0624S-R47MN-D	0.47	19	16	22	18	4.4	5.06
TMPA0624S-R68MN-D	0.68	17	14	17	15	5.2	6.0
TMPA0624S-R82MN-D	0.82	16	13	16	14	7.3	8.1
TMPA0624S-1R0MN-D	1.00	13	11	15	13	10	11.8
TMPA0624S-1R5MN-D	1.50	11	9.0	14	12	13.5	16
TMPA0624S-2R2MN-D	2.20	9.5	8.0	10	9.0	18.5	23
TMPA0624S-3R3MN-D	3.30	8.0	6.0	8.5	7.0	31	38
TMPA0624S-4R7MN-D	4.70	6.5	5.5	7.0	6.0	38	46
TMPA0624S-5R6MN-D	5.60	6.0	5.0	6.2	5.7	47	56.4
TMPA0624S-6R8MN-D	6.80	4.5	4.0	6.0	5.6	58	67
TMPA0624S-100MN-D	10.0	3.7	3.4	4.6	4.2	81	93

Part Number	Inductance L0 A( $\mu$ H) $\pm 20\%$	I rms ( A )		I sat ( A )		DCR (m $\Omega$ )Typ	DCR (m $\Omega$ )Max
		Typ	Max	Typ	Max		
TMPA0603S-R10YN-D	0.10 $\pm 30\%$	35	30	45	40	1.1	1.3
TMPA0603S-R15YN-D	0.15 $\pm 30\%$	30	25	40	36	1.7	2.1
TMPA0603S-R22MN-D	0.22	23	21	34	32	2.0	2.5
TMPA0603S-R33MN-D	0.33	21	20	25	22	2.8	3.4
TMPA0603S-R47MN-D	0.47	18	16	20	18	3.4	4.0
TMPA0603S-R56MN-D	0.56	16.5	15	18	16	3.9	4.5
TMPA0603S-R68MN-D	0.68	16	14.5	17	15	4.7	5.3
TMPA0603S-R82MN-D	0.82	14	13	16	14	5.4	6.0
TMPA0603S-1R0MN-D	1.00	12	11	15	13.5	6.7	7.4
TMPA0603S-1R5MN-D	1.50	10	9.0	14	12	10.2	12.1
TMPA0603S-2R2MN-D	2.20	8.0	7.5	10	9.0	13.5	15
TMPA0603S-3R3MN-D	3.30	6.5	6.0	9.5	8.5	19	22
TMPA0603S-4R7MN-D	4.70	5.5	5.0	6.5	5.5	28	33
TMPA0603S-5R6MN-D	5.60	5.5	5.0	6	5.2	39	42
TMPA0603S-6R8MN-D	6.80	4.5	4.2	6	5.0	43	50
TMPA0603S-8R2MN-D	8.20	4.5	4.0	6	4.7	54	60
TMPA0603S-100MN-D	10.0	4.0	3.5	5.5	4.5	62	68
TMPA0603S-150MN-D	15.0	3.0	2.5	4.5	4.0	110	140
TMPA0603S-220MN-D	22.0	2.5	2.0	3.0	2.5	150	190
TMPA0603S-330MN-D	33.0	2.1	1.8	2.5	2.0	215	258
TMPA0603S-470MN-D	47.0	1.9	1.6	1.8	1.6	250	300

Part Number	Inductance L0 A( $\mu$ H) $\pm 20\%$	I rms ( A )		I sat ( A )		DCR (m $\Omega$ )Typ	DCR (m $\Omega$ )Max
		Typ	Max	Typ	Max		
TMPA0604S-R15MN-D	0.15	35	30	45	40	1.4	1.68
TMPA0604S-R33MN-D	0.33	25	23	28	25	2.2	2.5
TMPA0604S-R45MN-D	0.45	20	18	21	18	2.8	3.2
TMPA0604S-R56MN-D	0.56	19	16	20	17	3.4	3.7
TMPA0604S-1R0MN-D	1.00	15	13	15	13.5	5.6	6.2
TMPA0604S-6R8MN-D	6.80	7.6	6.6	6.8	5.8	31	38
TMPA0604S-100MN-D	10.0	5.0	4.5	6.3	5.8	52	60

Part Number	Inductance L0 A( $\mu$ H) $\pm 20\%$	I rms ( A )		I sat ( A )		DCR (m $\Omega$ )Typ	DCR (m $\Omega$ )Max
		Typ	Max	Typ	Max		
TMPA0605S-R15MN-D	0.15	35	32	45	40	1.3	1.7
TMPA0605S-R22MN-D	0.22	30	26	40	35	1.7	2.2
TMPA0605S-R33MN-D	0.33	26	24	25	23	1.9	2.4
TMPA0605S-R47MN-D	0.47	22	20	22	20	2.9	3.3
TMPA0605S-R56MN-D	0.56	21	19	21	18	3.4	3.9
TMPA0605S-R68MN-D	0.68	20	18	20	17	3.6	4.1
TMPA0605S-R82MN-D	0.82	18	16	18	15	5.3	5.9
TMPA0605S-1R0MN-D	1.00	17	15	16	13	5.6	6.2
TMPA0605S-1R5MN-D	1.50	15	13	13	10.5	6.6	7.3
TMPA0605S-2R2MN-D	2.20	14	12	10	8.5	10	11.5
TMPA0605S-3R3MN-D	3.30	13	11	9.5	8.0	14	16.2
TMPA0605S-4R7MN-D	4.70	11	9.5	8.8	7.5	20.8	24
TMPA0605S-5R6MN-D	5.60	10	8.5	8.0	7.2	28	33
TMPA0605S-6R8MN-D	6.80	9.0	8.0	7.6	7.0	30	36
TMPA0605S-8R2MN-D	8.20	7.5	6.5	6.5	6.0	38.5	45
TMPA0605S-100MN-D	10.0	7.0	6.0	6.0	5.7	44	53
TMPA0605S-150MN-D	15.0	5.0	4.0	4.0	3.2	73	85
TMPA0605S-220MN-D	22.0	4.2	3.6	3.6	3.1	122	142
TMPA0605S-330MN-D	33.0	3.0	2.5	2.3	1.8	142	170
TMPA0605S-470MN-D	47.0	2.6	2.0	1.8	1.5	275	320
TMPA0605S-101MN-D	100.0	1.8	1.4	1.2	1	432	520

Part Number	Inductance L0 A( $\mu$ H) $\pm 20\%$	I rms ( A )		I sat ( A )		DCR (m $\Omega$ )	
		Typ	Max	Typ	Max	Typ	Max
TMPA0754S-1R5MN-D	1.5	15.5	14.0	16.0	14.0	6.1	7.3
TMPA0754S-3R3MN-D	3.3	11.5	10.5	12.0	11.0	12.0	14.4
TMPA0754S-4R4MN-D	4.4	10.3	9.3	11.5	10.3	15.3	18.4
TMPA0754S-4R7MN-D	4.7	10.0	9.0	11.2	10.0	17.0	20.4
TMPA0754S-6R8MN-D	6.8	8.0	7.0	9.5	8.5	24	28.8

Part Number	Inductance L0 A( $\mu$ H) $\pm 20\%$	I rms ( A )		I sat ( A )		DCR (m $\Omega$ )	
		Typ	Max	Typ	Max	Typ	Max
TMPA0804SP-R10YN-D	0.10 $\pm 30\%$	35.0	30.0	52.0	47.0	0.42	0.47
TMPA0804SP-R15MN-D	0.15	32.0	28.0	48.0	45.0	1.1	1.25
TMPA0804SP-R33MN-D	0.33	28.0	25.0	36.0	32.0	1.6	1.9
TMPA0804SP-1R0MN-D	1.0	19.0	17.0	18.0	16.0	3.6	4.32
TMPA0804SP-3R3MN-D	3.3	13.0	11.0	13.0	11.0	12.0	14.0
TMPA0804SP-4R7MN-D	4.7	10.0	9.0	11.0	10.0	19.0	21.9
TMPA0804SP-100MN-D	10.0	6.5	5.5	8.5	7.5	45.0	52.0
TMPA0804SP-150MN-D	15.0	5.4	4.9	6.5	6.0	60.0	69.0
TMPA0804SP-220MN-D	22.0	4.5	4.0	4.5	4.0	85.0	98.0

Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)	
		Typ	Max	Typ	Max	Typ	Max
TMPA0805SP-1R0MN-D	1.0	20.0	18.0	16.0	14.0	3.4	4.1
TMPA0805SP-3R3MN-D	3.3	15.0	13.0	12.0	10.0	10.8	13.0
TMPA0805SP-4R7MN-D	4.7	11.0	10.0	11.0	10.0	16.0	19.6
TMPA0805SP-100MN-D	10.0	7.2	6.5	8.0	7.0	37	44.5
TMPA0805SP-150MN-D	15.0	5.0	4.0	5.5	4.5	50.0	60.0
TMPA0805SP-220MN-D	22.0	4.6	4	5	4.5	82	90
TMPA0805SP-470MN-D	47.0	3.8	3.2	3.1	2.6	135	150
TMPA0805SP-101MN-D	100.0	2.5	2.2	2.3	1.9	290	319

Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)		E(mm)	Type
		Typ	Max	Typ	Max	typ	max		
TMPA1003S-R22MN-D	0.22	33	30	50	45	0.9	1.0	2.7±0.35	non-leadframe
TMPA1003S-R36MN-D	0.36	28	25	40	35	1.25	1.4	2.7±0.35	non-leadframe
TMPA1003S-R47MN-D	0.47	26	23	36	32	1.8	2.2	2.5±0.35	non-leadframe
TMPA1003S-R82MN-D	0.82	20	18	28	25	3.1	3.7	3.0±0.3	leadframe
TMPA1003S-2R2MN-D	2.20	14	12	18	16	7.8	8.8	3.0±0.3	leadframe
TMPA1003S-4R7MN-D	4.70	10	9	12	10	18.5	21.3	3.0±0.3	leadframe
TMPA1003S-8R2MN-D	8.20	7.2	6.5	7.2	6.8	32	38	3.0±0.3	leadframe

Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)		E(mm) ±0.3	Type
		Typ	Max	Typ	Max	typ	max		
TMPA1004S-R15YN-D	0.15±30%	44.0	38.0	82.0	75.0	0.5	0.6	3.0	non-leadframe
TMPA1004S-R15MN-0R4410-D	0.15	40.0		75.0		0.44±10%		3.0	non-leadframe
TMPA1004S-R22MN-D	0.22	36.0	33.0	70.0	60.0	0.72	0.83	3.0	non-leadframe
TMPA1004S-R22MN-R6007-D	0.22	50.0	40.0	72.0	65.0	0.6±7%		3.0	non-leadframe
TMPA1004S-R36MN-D	0.36	33.0	29.0	51.0	45.0	1.05	1.18	3.0	non-leadframe
TMPA1004S-R47MN-D	0.47	32.0	28.0	46.0	40.0	1.3	1.5	3.0	non-leadframe
TMPA1004S-R56MN-D	0.56	25.0	23.0	34.0	29.0	1.6	1.8	2.5	non-leadframe
TMPA1004S-R68MN-D	0.68	23.0	20.0	31.0	28.0	1.9	2.2	2.5	non-leadframe
TMPA1004S-R82MN-D	0.82	22.0	19.0	30.0	27.0	2.1	2.5	2.5	non-leadframe
TMPA1004S-1R0MN-D	1.00	20.0	18.0	29.0	26.0	2.9	3.25	2.5	non-leadframe
TMPA1004S-1R5MN-D	1.50	17.5	16.0	26.0	22.0	3.7	4.2	2.5	non-leadframe
TMPA1004S-2R2MN-D	2.20	15.0	13.0	20.0	16.0	5.8	6.7	3.0	leadframe
TMPA1004S-3R3MN-D	3.30	11.0	10.0	17.5	14.0	10.5	11.8	3.0	leadframe
TMPA1004S-4R7MN-D	4.70	8.8	8.0	15.2	13.0	15.8	19	3.0	leadframe
TMPA1004S-5R6MN-D	5.60	8.0	7.2	14.1	11.5	19	22.8	3.0	leadframe
TMPA1004S-6R8MN-D	6.80	7.8	6.8	12.2	11.0	22	24.5	3.0	leadframe
TMPA1004S-8R2MN-D	8.20	7.6	6.5	9.5	8.5	25	28	3.0	leadframe
TMPA1004S-100MN-D	10.0	7.5	6.1	8.6	7.5	27	30	3.0	leadframe
TMPA1004S-150MN-D	15.0	6.25	5.0	7.0	6.0	41	45	3.0	leadframe
TMPA1004S-220MN-D	22.0	5.0	4.1	6.2	5.5	58	66	3.0	leadframe
TMPA1004S-330MN-D	33.0	4.4	3.5	5.5	5.0	84	91	3.0	leadframe
TMPA1004S-470MN-D	47.0	3.5	3.0	4.0	3.7	125	143	3.0	leadframe
TMPA1004S-680MN-D	68.0	2.6	2.4	3.2	3.0	184	210	3.0	leadframe
TMPA1004S-820MN-D	82.0	2.3	2.1	3.0	2.8	240	270	3.0	leadframe
TMPA1004S-101MN-D	100	2.0	1.8	2.7	2.4	270	310	3.0	leadframe

Part Number	Inductance L0 A(μH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)		E(mm) ±0.3	Type
		Typ	Max	Typ	Max	Typ	Max		
TMPA1005S-R36MN-D	0.36	34.0	30.0	52.0	46.0	0.82	0.92	3.0	non-leadframe
TMPA1005S-R47MN-D	0.47	33.0	29.0	46.0	40.0	1.15	1.32	3.0	non-leadframe
TMPA1005S-R68MN-D	0.68	28.0	25.0	35.0	32.0	1.6	1.9	2.5	non-leadframe
TMPA1005S-1R0MN-D	1.00	25.0	23.0	33.0	30.0	2.6	3.0	2.5	non-leadframe
TMPA1005S-1R5MN-D	1.50	23.0	21.0	27.0	24.0	3.4	3.8	2.5	non-leadframe
TMPA1005S-2R2MN-D	2.20	19.5	17.5	20.0	18.0	5.1	5.6	3.0	leadframe
TMPA1005S-3R3MN-D	3.30	17.0	15.0	17.5	15.5	8.1	9.1	3.0	leadframe
TMPA1005S-4R7MN-D	4.70	15.0	13.0	16.0	14.0	9.3	10.5	3.0	leadframe
TMPA1005S-5R6MN-D	5.60	13.0	11.0	15.0	12.5	12.8	14.4	3.0	leadframe
TMPA1005S-6R8MN-D	6.80	12.0	10.0	14.0	12.0	15.0	17.3	3.0	leadframe
TMPA1005S-8R2MN-D	8.2	10	8.5	13.5	11.5	16.1	18.8	3.0	leadframe
TMPA1005S-100MN-D	10.0	7.6	7.2	13.0	11.0	18.9	21.8	3.0	leadframe
TMPA1005S-150MN-D	15.0	6.5	6.0	8.5	7.5	32	39	3.0	leadframe
TMPA1005S-220MN-D	22.0	6.0	5.5	6.0	5.5	44.0	54.0	3.0	leadframe
TMPA1005S-330MN-D	33.0	5.5	5.0	5.8	5.2	740	86.0	3.0	leadframe
TMPA1005S-470MN-D	47.0	4.5	4.0	4.0	3.5	106.0	127.0	3.0	leadframe
TMPA1005S-680MN-D	68.0	3.5	3.0	3.5	3.0	148.0	177.0	3.0	leadframe
TMPA1005S-101MN-D	100	2.2	2.0	2.8	2.4	242.0	290.0	3.0	leadframe

Part Number	Inductance L0 A(μH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)		E(mm) ±0.3	Type
		Typ	Max	Typ	Max	Typ	Max		
TMPA1205SP-R47MN-D	0.47	38.0	34.0	65.0	58.0	0.77	0.9	4.0	non-leadframe
TMPA1205SP-R56MN-D	0.56	36.0	32.5	57.0	50.0	1.1	1.3	4.0	non-leadframe
TMPA1205SP-R68MN-D	0.68	34	31	50	42	1.3	1.55	4.0	non-leadframe
TMPA1205SP-1R0MN-D	1.00	30	27	40	34	1.6	1.9	4.0	non-leadframe
TMPA1205SP-1R5MN-D	1.50	25	22	31	28	3.2	3.8	4.7	leadframe
TMPA1205SP-2R2MN-D	2.20	17	15.5	26	23	4.1	4.8	4.7	leadframe
TMPA1205SP-3R3MN-D	3.30	15.5	14	23	20.5	6.0	7.0	4.7	leadframe
TMPA1205SP-4R7MN-D	4.70	14	12.5	18.5	16	8.8	10.2	4.7	leadframe
TMPA1205SP-6R8MN-D	6.80	12	11	16.5	15	13	16	4.7	leadframe
TMPA1205SP-100MN-D	10.0	10	9.0	13	10.5	19.2	22	4.7	leadframe
TMPA1205SP-150MN-D	15.0	9.4	8.2	11	9.2	30	36	4.7	leadframe
TMPA1205SP-220MN-D	22.0	8.0	7.0	8.5	7.5	42	52	4.7	leadframe
TMPA1205SP-330MN-D	33.0	6.0	5.2	7.3	6.5	66	80	4.7	leadframe
TMPA1205SP-470MN-D	47.0	5.2	4.3	6.0	5.2	78	94	4.7	leadframe
TMPA1205SP-680MN-D	68.0	4.3	3.6	5.0	4.4	110	132	4.7	leadframe
TMPA1205SP-820MN-D	82.0	3.9	3.4	4.5	4.1	142	171	4.7	leadframe
TMPA1205SP-101MN-D	100	3.5	3.0	4.0	3.7	175	210	4.7	leadframe
TMPA1205SP-151MN-D	150	2.7	2.3	3.2	2.8	280	336	4.7	leadframe

Part Number	Inductance L0 A(μH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)		E(mm) ±0.3	Type
		Typ	Max	Typ	Max	Typ	Max		
TMPA1206SP-R36MN-D	0.36	60.0	50.0	70.0	60.0	0.65	0.8	4.7	non-leadframe
TMPA1206SP-R82MN-D	0.82	35	30	41	36	1.4	1.7	4.0	non-leadframe
TMPA1206SP-1R0MN-D	1.00	30.0	26.0	34.0	29.0	1.7	2.0	4.0	leadframe
TMPA1206SP-1R5MN-D	1.50	28.0	24.0	32.0	27.0	2.4	3.0	4.0	leadframe
TMPA1206SP-2R2MN-D	2.20	25.0	21.0	28.0	24.0	3.7	4.3	4.7	leadframe
TMPA1206SP-3R3MN-D	3.30	21.0	18.0	28.0	24.0	5.30	6.50	4.7	leadframe
TMPA1206SP-4R7MN-D	4.70	19.0	16.0	23.0	19.5	7.0	8.4	4.7	leadframe
TMPA1206SP-5R6MN-D	5.60	16.0	14.0	19.0	17.0	9.0	10.8	4.7	leadframe
TMPA1206SP-8R2MN-D	8.20	13.5	12.0	17.0	15.5	13.5	16.0	4.7	leadframe
TMPA1206SP-100MN-D	10.0	12.0	10.5	16.0	14.5	15.5	18.6	4.7	leadframe
TMPA1206SP-150MN-D	15.0	10.0	8.50	10.0	9.00	24.0	29.0	4.7	leadframe
TMPA1206SP-220MN-D	22.0	8.00	7.00	9.00	8.00	31.2	37.5	4.7	leadframe
TMPA1206SP-330MN-D	33.0	6.50	5.50	7.80	6.70	56.0	68.0	4.7	leadframe
TMPA1206SP-470MN-D	47.0	5.20	4.50	6.70	5.50	76.0	88.0	4.7	leadframe
TMPA1206SP-560MN-D	56.0	4.90	4.10	6.30	5.30	90	108	4.7	leadframe
TMPA1206SP-680MN-D	68.0	4.50	3.70	5.80	5.00	103	124	4.7	leadframe
TMPA1206SP-101MN-D	100	3.20	2.80	5.00	4.00	162	195	4.7	leadframe
TMPA1206SP-151MN-D	150	2.60	2.20	4.10	3.20	270	325	4.7	leadframe

Part Number	Inductance L0 A(μH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)		E(mm) ±0.3	Type
		Typ	Max	Typ	Max	Typ	Max		
TMPA1265SP-R10YN-D	0.10±30%	65	60	120	115	0.2	0.25	4.7	non-leadframe
TMPA1265SP-R22MN-D	0.22	53	42	112	105	0.4	0.46	4.7	non-leadframe
TMPA1265SP-R33MN-D	0.33	46.0	36.0	75.0	65.0	0.6	0.7	4.7	non-leadframe
TMPA1265SP-R47MN-D	0.47	42.0	35.0	68.0	58.0	0.88	1.02	4.7	non-leadframe
TMPA1265SP-R56MN-D	0.56	37.0	33.5	57.0	50.0	1.1	1.3	4.0	non-leadframe
TMPA1265SP-R68MN-D	0.68	36.5	33	55	46	1.25	1.5	4.0	non-leadframe
TMPA1265SP-1R0MN-D	1.00	33	29	45	36	1.5	1.8	4.0	non-leadframe
TMPA1265SP-1R5MN-D	1.50	29	25	35	30	2.2	2.53	4.0	non-leadframe
TMPA1265SP-2R2MN-D	2.20	25	21	28.5	24	3.7	4.2	4.7	leadframe
TMPA1265SP-3R3MN-D	3.30	22	19	27	22.5	5.3	6.2	4.7	leadframe
TMPA1265SP-4R7MN-D	4.70	20	17	25	21	6.8	8.0	4.7	leadframe
TMPA1265SP-5R6MN-D	5.60	18	15	23	19.5	8.3	9.8	4.7	leadframe
TMPA1265SP-6R8MN-D	6.80	16.5	14	21	18	9.8	11.3	4.7	leadframe
TMPA1265SP-8R2MN-D	8.20	15	12.5	19	17	12	13.8	4.7	leadframe
TMPA1265SP-100MN-D	10.0	13	11	17	15	13	15.8	4.7	leadframe
TMPA1265SP-150MN-D	15.0	11	9.5	13.5	12	22	26	4.7	leadframe
TMPA1265SP-220MN-D	22.0	10	8	10	9	31	35	4.7	leadframe
TMPA1265SP-330MN-D	33.0	9.0	6.5	9.0	8.0	46.0	55.0	4.7	leadframe
TMPA1265SP-470MN-D	47.0	8.0	5.7	7.6	6.8	58.0	67.0	4.7	leadframe
TMPA1265SP-680MN-D	68.0	5.8	4.8	6.0	5.0	82.0	100.0	4.7	leadframe
TMPA1265SP-101MN-D	100	5.0	3.8	5.0	4.0	140.0	161.0	4.7	leadframe

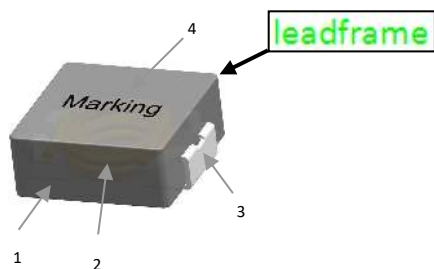
Part Number	Inductance L0 A( $\mu$ H) $\pm 20\%$	I rms ( A )		I sat ( A )		DCR (m $\Omega$ )Typ	DCR (m $\Omega$ )Max
		Typ	Max	Typ	Max		
TMPA1707SP-R47MN-D	0.47	60	55	110	100	0.7	0.9
TMPA1707SP-R56MN-D	0.56	56	50	80	70	0.81	0.97
TMPA1707SP-1R0MN-D	1.00	46	42	50	45	1.06	1.3
TMPA1707SP-1R5MN-D	1.50	39	35	46	40	1.5	1.8
TMPA1707SP-2R2MN-D	2.20	32	30	35	32	1.8	2.2
TMPA1707SP-3R3MN-D	3.30	30	28	32	29	2.7	3.3
TMPA1707SP-4R7MN-D	4.70	28	26	29	26	3.7	4.5
TMPA1707SP-5R6MN-D	5.6	26	23	27	23	5.0	6.0
TMPA1707SP-6R8MN-D	6.80	24	22	25	22	6.0	7.2
TMPA1707SP-100MN-D	10.0	21	19	22	19	9.2	10.6
TMPA1707SP-150MN-D	15.0	16	14	16	14	12.8	15.5
TMPA1707SP-220MN-D	22.0	13.5	11.5	13.5	11.5	20.5	24
TMPA1707SP-330MN-D	33.0	12	10	12	10	32	37
TMPA1707SP-470MN-D	47.0	9.5	8.0	9.5	8.0	40	47
TMPA1707SP-560MN-D	56.0	8.8	7.3	9.0	7.6	53	64
TMPA1707SP-680MN-D	68.0	8.0	6.5	8.5	7.2	66	76
TMPA1707SP-820MN-D	82.0	6.5	5.7	8.0	6.5	69	83
TMPA1707SP-101MN-D	100.0	6.0	5.0	6.5	5.5	90	105

Part Number	Inductance L0 A(uH) ±20%	I rms ( A )		I sat ( A )		DCR (mΩ)Typ	DCR (mΩ)Max
		Typ	Max	Typ	Max		
TMPA2313SP-R47MN-D	0.47	80	75	140	110	0.44	0.5
TMPA2313SP-R68MN-D	0.68	75	70	90	80	0.6	0.72
TMPA2313SP-1R0MN-D	1.00	70	65	60	54	0.8	0.95
TMPA2313SP-1R5MN-D	1.50	62	57	52	48	1.0	1.15
TMPA2313SP-2R2MN-D	2.20	58	52	48	43	1.05	1.25
TMPA2313SP-3R3MN-D	3.30	49	47	41	37	1.5	1.75
TMPA2313SP-4R7MN-D	4.70	47	44	38	34	1.9	2.2
TMPA2313SP-5R6MN-D	5.60	43	40	37	33	2.3	2.7
TMPA2313SP-6R8MN-D	6.80	40	36	36	32	2.7	3.1
TMPA2313SP-100MN-D	10.0	33	30	28	20	3.8	4.15
TMPA2313SP-150MN-D	15.0	26	23	23	18	5.1	6.12
TMPA2313SP-220MN-D	22.0	22	18	15	14	9.2	11
TMPA2313SP-330MN-D	33.0	19	16	12	10.5	13.5	15.4
TMPA2313SP-470MN-D	47.0	17	14	12	10	17.3	20.8
TMPA2313SP-680MN-D	68.0	14	12	12	9.0	26.2	29.5
TMPA2313SP-820MN-D	82.0	12	10	9.0	7.7	31	34.2
TMPA2313SP-101MN-D	100	11	9.5	9.0	7.5	36	40
TMPA2313SP-151MN-D	150	8	7	7	5.5	67	80
TMPA2313SP-251MN-D	250	6.5	5.5	5.0	4.0	110	121
TMPA2313SP-331MN-D	330	5.0	4.5	4.0	3.5	140	160
TMPA2313SP-471MN-D	470	4.5	4.0	3.5	3.0	193	232

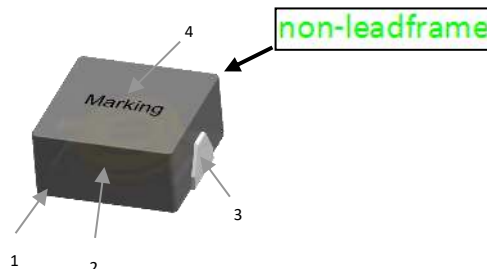
Note:

1. Test frequency : Ls : 100KHz /1.0V.
2. All test data referenced to 25°C ambient.
3. Testing Instrument(or equ) : Agilent 4284A,E4991A,4339B,KEYSIGHT E4980A/AL,chroma3302,3250,16502.
4. Heat Rated Current (Irms) will cause the coil temperature rise approximately ΔT of 40°C
5. Saturation Current (Isat) will cause L0 to drop approximately 30%.
6. The part temperature (ambient + temp rise) should not exceed 125°C under worst case operating conditions.Circuit design,component,PCB trace size and thickness,airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.
7. I rms Testing : Temperature rise is highly dependent on many factors including pcb land pattern, trace size, and proximity to other components.  
Therefore temperature rise should be verified in application conditions.
8. Rated DC current: The lower value of I rms and Isat

### 6. Material List



NO	Items	Materials
1	Core	Alloy Powder .
2	Wire	Polyester Wire or equivalent.
3	Clip	100% Pb free solder(Ni+Sn---Plating)
4	Ink	Halogen-free ketone

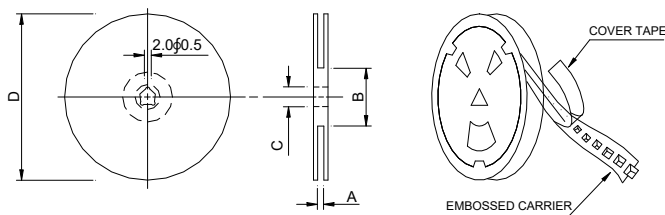


NO	Items	Materials
1	Core	Alloy Powder .
2	Wire	Polyester Wire or equivalent.
3	Solder	100% Pb free solder
4	Ink	Halogen-free ketone



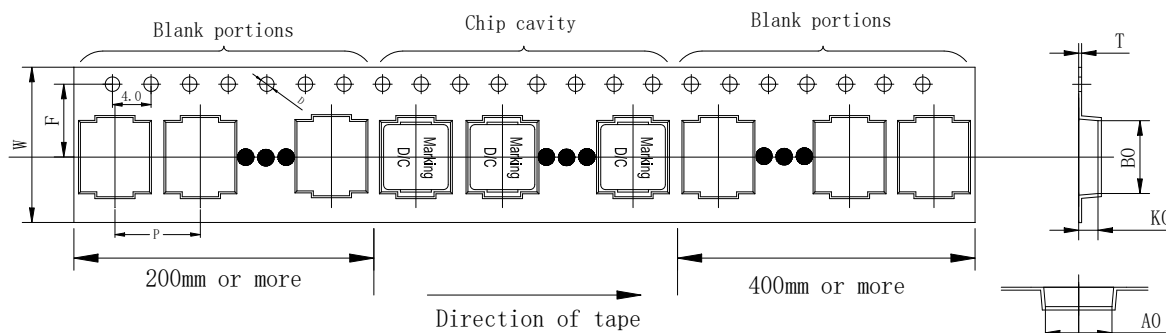
## 7. Packaging Information

### (1) Reel Dimension

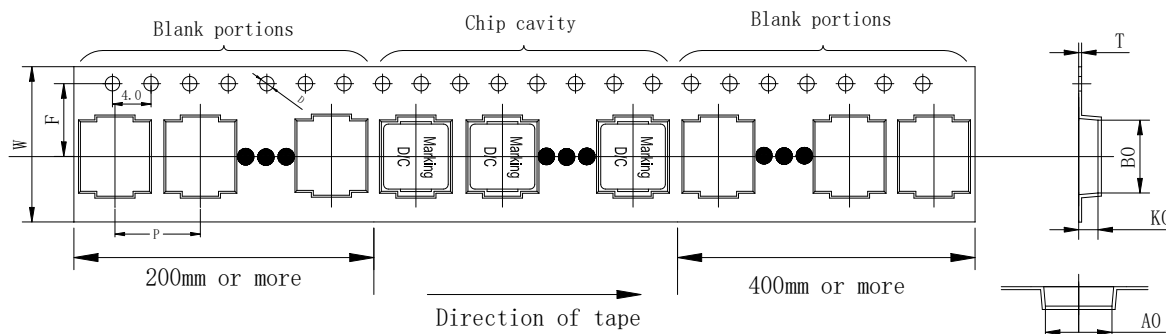


TMPA	Type	A(mm)	B(mm)	C(mm)	D(mm)
0302/0312/0315/0318/ 0401/0402/0502/0503/ 401040	13"x12mm	12.4+2/-0	100±2	13+0.5/-0.2	330
053T/606010/0618/060 2/0624/0603/0604/ 0605/0754	13"x16mm	16.4+2/-0	100±2	13+0.5/-0.2	330
0804/0805/1003/1004/ 1005/1205/1206/1265	13"x24mm	24.4+4/-0	100±2	13.5±0.5	330
1707	13"x32mm	32.4+2/-0	100±2	13+0.5/-0.2	330
2313	13"x44mm	44.4+2/-0	100±2	13+0.5/-0.2	330

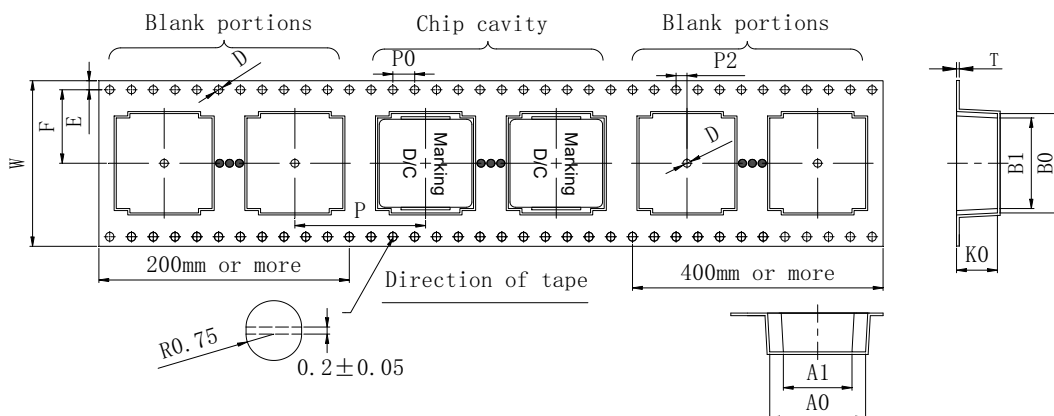
### (2) Tape Dimension



Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	W(mm)	F(mm)	T(mm)	D(mm)	Packaging Quantity
TMPA	0302	3.8±0.1	3.5±0.1	2.3±0.1	8.0±0.1	12±0.3	5.5±0.1	0.35±0.05	1.5±0.1	3000PCS/R
TMPA	0312	3.8±0.1	3.5±0.1	1.5±0.1	8.0±0.1	12±0.3	5.5±0.1	0.35±0.05	1.5±0.1	3000PCS/R
TMPA	0315	3.8±0.1	3.5±0.1	1.8±0.1	8.0±0.1	12±0.3	5.5±0.1	0.35±0.05	1.5±0.1	4000PCS/R
TMPA	0318	4.0±0.1	3.5±0.1	2.0±0.1	8.0±0.1	12±0.3	5.5±0.1	0.35±0.05	1.5±0.1	3000PCS/R
TMPA	0401	5.0±0.1	4.4±0.1	1.1±0.1	8.0±0.1	12±0.3	5.5±0.1	0.35±0.05	1.5±0.1	5000PCS/R
TMPA	0402	5.0±0.1	4.4±0.1	2.3±0.1	8.0±0.1	12±0.3	5.5±0.1	0.35±0.05	1.5±0.1	3000PCS/R
TMPA	404010	5.0±0.1	4.40±0.1	1.1±0.1	8.0±0.1	12±0.3	5.5±0.1	0.35±0.05	1.5±0.1	5000PCS/R
TMPA	0502	6.2±0.1	5.6±0.1	2.3±0.1	8.0±0.1	12±0.3	5.5±0.1	0.35±0.05	1.5±0.1	3000PCS/R
TMPA	0503	6.2±0.1	5.6±0.1	3.3±0.1	8.0±0.1	12±0.3	5.5±0.1	0.35±0.05	1.5±0.1	2000PCS/R
TMPA	053T	5.3±0.1	5.0±0.1	3.3±0.1	12±0.1	16±0.3	5.5±0.1	0.35±0.05	1.5±0.1	1000PCS/R
TMPA	606010	6.45±0.1	6.40±0.1	1.1±0.1	12.0±0.1	16±0.3	7.5±0.1	0.35±0.05	1.5±0.1	3000PCS/R
TMPA	0618	7.7±0.1	7.0±0.1	2.1±0.1	12.0±0.1	16±0.3	7.5±0.1	0.35±0.05	1.5±0.1	2000PCS/R
TMPA	0602	7.7±0.1	7.0±0.1	2.3±0.1	12±0.1	16±0.3	7.5±0.1	0.35±0.05	1.5±0.1	1500PCS/R

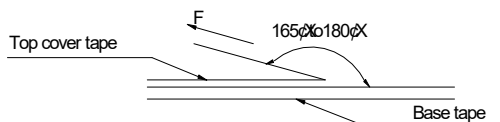


Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	W(mm)	F(mm)	T(mm)	D(mm)	Packaging Quantity
TMPA	0624	7.7±0.1	7.0±0.1	2.7±0.1	12±0.1	16±0.3	7.5±0.1	0.35±0.05	1.5±0.1	1500PCS/R
TMPA	0603	7.7±0.1	7.0±0.1	3.3±0.1	12±0.1	16±0.3	7.5±0.1	0.35±0.05	1.5±0.1	1000PCS/R
TMPA	0604	7.7±0.1	7.0±0.1	4.3±0.1	12±0.1	16±0.3	7.5±0.1	0.35±0.05	1.5±0.1	1000PCS/R
TMPA	0605	7.7±0.1	7.0±0.1	5.3±0.1	12±0.1	16±0.3	7.5±0.1	0.35±0.05	1.5±0.1	800PCS/R
TMPA	0754	8.6±0.1	7.4±0.1	5.7±0.1	12±0.1	16±0.3	7.5±0.1	0.4±0.05	1.5±0.1	800PCS/R
TMPA	0804	10.1±0.1	8.9±0.1	4.5±0.1	16.0±0.1	24±0.3	11.5±0.1	0.35±0.05	1.5±0.1	800PCS/R
TMPA	0805	10.1±0.1	8.9±0.1	5.5±0.1	16.0±0.1	24±0.3	11.5±0.1	0.35±0.05	1.5±0.1	500PCS/R
TMPA	1003	11.6±0.1	10.4±0.1	3.3±0.1	16.0±0.1	24±0.3	11.5±0.1	0.35±0.05	1.5±0.1	1000PCS/R
TMPA	1004	11.6±0.1	10.4±0.1	4.5±0.1	16±0.1	24±0.3	11.5±0.1	0.35±0.05	1.5±0.1	500PCS/R
TMPA	1005	11.6±0.1	10.4±0.1	5.3±0.1	16±0.1	24±0.3	11.5±0.1	0.35±0.1	1.5±0.1	500PCS/R
TMPA	1205	14.1±0.1	12.9±0.1	5.5±0.1	16±0.1	24±0.3	11.5±0.1	0.35±0.05	1.5±0.1	500PCS/R
TMPA	1206	14.1±0.1	12.9±0.1	6.5±0.1	16±0.1	24±0.3	11.5±0.1	0.35±0.05	1.5±0.1	500PCS/R
TMPA	1265	14.1±0.1	12.9±0.1	7.0±0.1	16±0.1	24±0.3	11.5±0.1	0.35±0.1	1.5±0.1	500PCS/R



Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	W(mm)	F(mm)	T(mm)	D(mm)	Packaging Quantity
TMPA	1707	18.5±0.1	17.5±0.1	7.5±0.1	24±0.1	32±0.3	14.2±0.1	0.5±0.05	1.5±0.1	200PCS/R
TMPA	2313	25±0.1	23.0±0.1	13.6±0.1	32±0.1	44±0.3	20.2±0.1	0.5±0.05	1.5±0.1	80 PCS/R

**(4) Tearing Off Force**

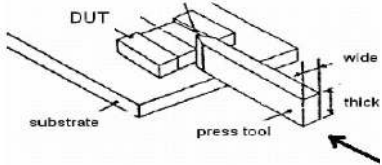


The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions(referenced ANSI/EIA-481-D-2008 of 4.11 standard).

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed mm/min
5~35	45~85	860~1060	300

## 8. Reliability and Test Condition

Item	Performance	Test Condition
Operating temperature	-40~+125℃ (Including self - temperature rise)	N/A
Storage temperature	1. -10~+40℃,50~60%RH (Product with taping) 2. -40~+125℃ (on board)	N/A
<b>Electrical Performance Test</b>		
Inductance	Refer to standard electrical characteristics list.	Agilent4284A,E4991A,KEYSIGHTE4980A/AL,chroma3302,3205
DCR		Agilent 4339B,chrom16502
Saturation Current (Isat)	Approximately $\Delta$ 30%	Saturation DC Current (Isat) will cause L0 to drop $\Delta$ L(%)
Heat Rated Current (Irms)	Approximately $\Delta$ T40℃	Heat Rated Current (Irms) will cause the coil temperature rise $\Delta$ T(℃). 1.Applied the allowed DC current 2.Temperature measured by digital surface thermometer
<b>Reliability Test</b>		
Life Test	Appearance: No damage. Inductance: within $\pm$ 10% of initial value RDC: within $\pm$ 15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 3 times. times.( IPC/JEDECJ-STD-020E Classification Reflow Profiles) Temperature: 125 $\pm$ 2℃ (Inductor, ambient + temp rise) Applied current: rated current Duration: 1000 $\pm$ 12hrs Measured at room temperature after placing for 24 $\pm$ 2 hrs.
Load Humidity		Preconditioning: Run through IR reflow for 3 times times.( IPC/JEDECJ-STD-020E Classification Reflow Profiles) Humidity: 85 $\pm$ 2% R.H. Temperature: 85℃ $\pm$ 2℃ Duration: 1000hrs Min.(No load current) Measured at room temperature after placing for 24 $\pm$ 2 hrs.
Moisture Resistance		Preconditioning: Run through IR reflow for 3 times. times.( IPC/JEDECJ-STD-020E Classification Reflow Profiles) 1. Baked at 50℃ for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to 65 $\pm$ 2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs. 3. Raise temperature to 65 $\pm$ 2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs,keep at 25℃ for 2 hrs then keep at -10℃ for 3 hrs 4. Keep at 25℃ 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.
Thermal shock		Preconditioning: Run through IR reflow for 3 times. ( IPC/JEDECJ-STD-020E Classification Reflow Profiles) Condition for 1 cycle Step1: -40 $\pm$ 2℃ 30 $\pm$ 5min Step2: 125 $\pm$ 2℃ $\cong$ 20S Step3: 125 $\pm$ 2℃ 30 $\pm$ 5min Step4: -40 $\pm$ 2℃ $\cong$ 20S Number of cycles: 500 Measured at room temperature after placing for 24 $\pm$ 2 hrs.
Vibration		Preconditioning: Run through IR reflow for 3 times. times.( IPC/JEDECJ-STD-020E Classification Reflow Profiles) Oscillation Frequency: 10Hz~2KHz~10Hz for 20 minutes Equipment: Vibration checker Total Amplitude: 10g Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations).

Item	Performance	Test Condition															
Bending	Appearance: No damage.	Shall be mounted on a FR4 substrate of the following dimensions: $\geq 0.805$ inch(2012mm):40x100x1.2mm $< 0.805$ inch(2012mm):40x100x0.8mm Bending depth: $\geq 0.805$ inch(2012mm):1.2mm $< 0.805$ inch(2012mm):0.8mm duration of 10 sec.															
Shock	Inductance: within $\pm 10\%$ of initial value  RDC: within $\pm 15\%$ of initial value and shall not exceed the specification value	<table border="1" data-bbox="1002 342 1437 479"> <thead> <tr> <th>Type</th> <th>Peak value (g's)</th> <th>Normal duration (D) (ms)</th> <th>Wave form</th> <th>Velocity change (Vi)ft/sec</th> </tr> </thead> <tbody> <tr> <td>SMD</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> <tr> <td>Lead</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> </tbody> </table> 3 shocks in each direction along 3 perpendicular axes(18 shocks).	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3
Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec													
SMD	50	11	Half-sine	11.3													
Lead	50	11	Half-sine	11.3													
Solderability	More than 95% of the terminal electrode should be covered with solder.	Solder: Sn96.5% Ag3% Cu0.5% Method B1, 4 hrs @ 155°C dry heat Temperature: 245 $\pm$ 5°C. Dip time: 5+0/-0.5s.															
Resistance to Soldering Heat		Depth: completely cover the termination  <table border="1" data-bbox="1002 629 1430 743"> <thead> <tr> <th>Temperature(°C)</th> <th>Time(s)</th> <th>Temperature ramp/immersion and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260 <math>\pm</math>5 (solder temp)</td> <td>10 <math>\pm</math>1</td> <td>25mm/s <math>\pm</math>6 mm/s</td> <td>1</td> </tr> </tbody> </table>	Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260 $\pm$ 5 (solder temp)	10 $\pm$ 1	25mm/s $\pm$ 6 mm/s	1							
Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles														
260 $\pm$ 5 (solder temp)	10 $\pm$ 1	25mm/s $\pm$ 6 mm/s	1														
Terminal Strength	Appearance: No damage.  Inductance: within $\pm 10\%$ of initial value  RDC: within $\pm 15\%$ of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 3 times. ( IPC/JEDEC J-STD-020E Classification Reflow Profiles With the component mounted on a PCB with the device to be tested, apply a force ( $> 0.805$ inch(2012mm):1kg, $\leq 0.805$ inch(2012mm):0.5kg) to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.  															

Note : When there are questions concerning measurement result : measurement shall be made after 48  $\pm$  2 hours of recovery under the standard condition.

### 9.Soldering Specifications

**(1) Soldering**

Mildly activated rosin fluxes are preferred. TAI-TECH terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

**(2) Soldering Reflow:**

Recommended temperature profiles for lead free re-flow soldering in Figure 1. Table 1.1&1.2 (J-STD-020E)

**(3) Iron Reflow:**

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.(Fig. 2)

- Preheat circuit and products to 150°C
- Never contact the ceramic with the iron tip
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- 355°C tip temperature (max)
- 1.0mm tip diameter (max)
- Limit soldering time to 4~5sec.

Fig.1 Soldering Reflow

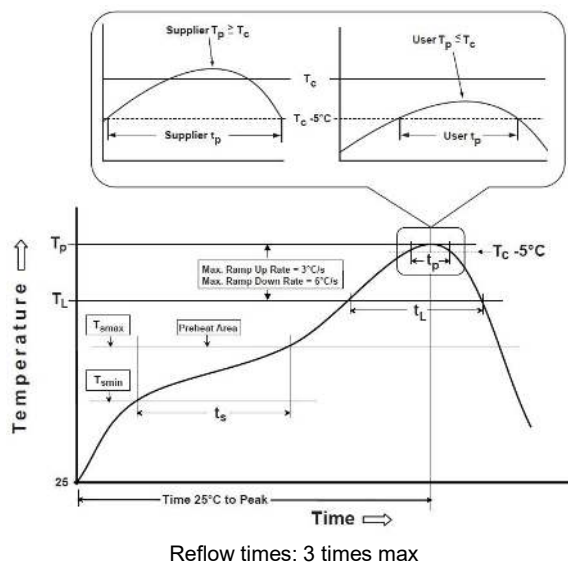
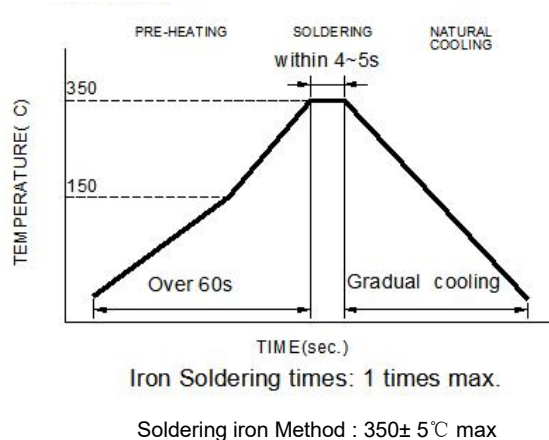


Fig.2 Iron Reflow



**Table (1.1): Reflow Profiles**

Profile Type:	Pb-Free Assembly
Preheat	
-Temperature Min( $T_{smin}$ )	150°C
-Temperature Max( $T_{smax}$ )	200°C
-Time( $t_s$ )from( $T_{smin}$ to $T_{smax}$ )	60-120seconds
Ramp-up rate( $T_L$ to $T_p$ )	3°C/second max.
Liquidus temperature( $T_L$ )	217°C
Time( $t_L$ )maintained above $T_L$	60-150 seconds
Classification temperature( $T_c$ )	See Table (1.2)
Time( $t_p$ ) at $T_c - 5^\circ C$ ( $T_p$ should be equal to or less than $T_c$ .)	< 30 seconds
Ramp-down rate( $T_p$ to $T_L$ )	6°C /second max.
Time 25°C to peak temperature	8 minutes max.

$T_p$ : maximum peak package body temperature,  $T_c$ : the classification temperature.  
For user (customer)  $T_p$  should be equal to or less than  $T_c$ .

**Table (1.2) Package Thickness/Volume and Classification Temperature ( $T_c$ )**

	Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020E.

## 10. Notes

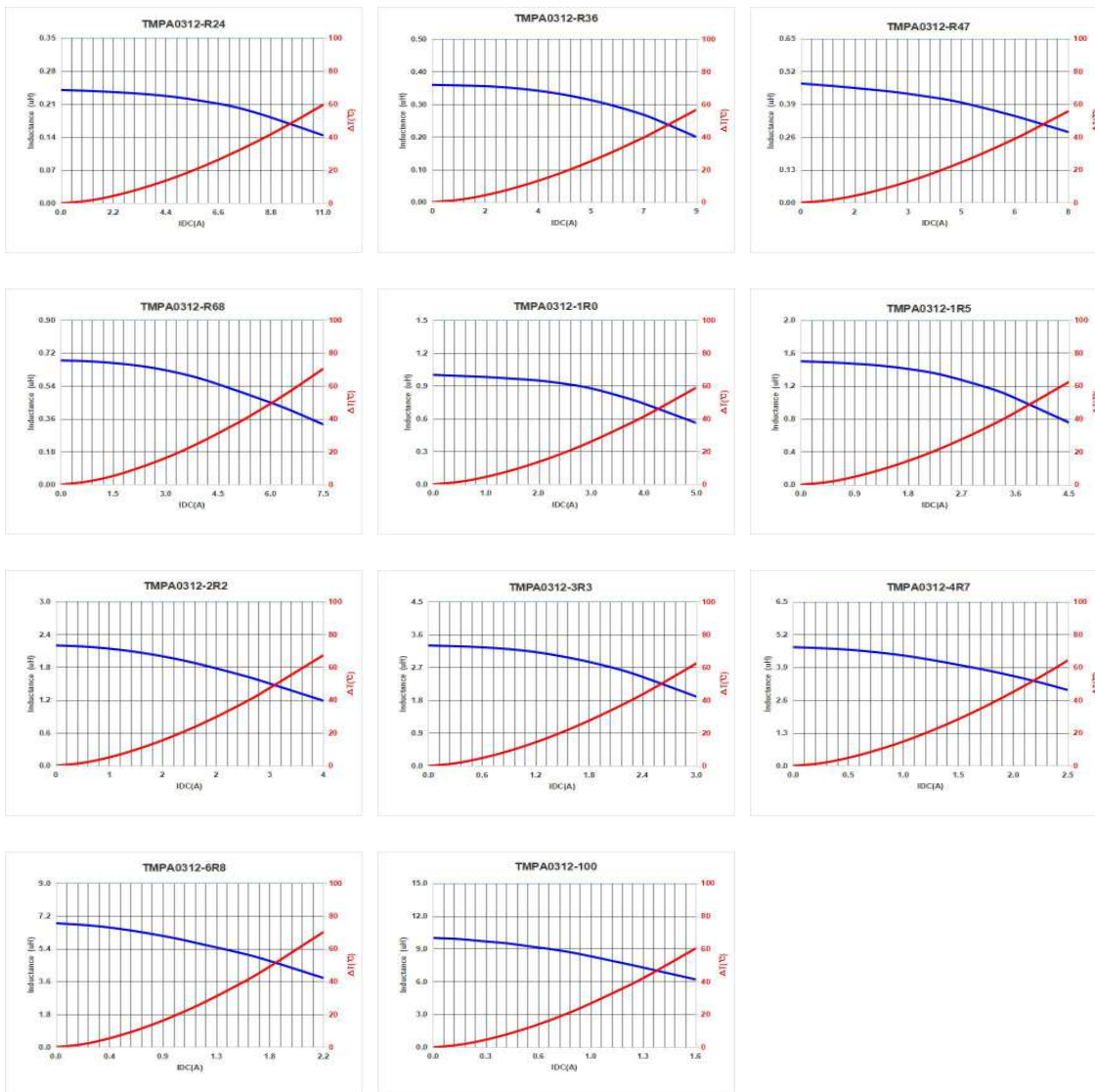
- (1) When there are questions concerning measurement result : measurement shall be made after  $48 \pm 2$  hours of recovery under the standard condition
- (2) This power choke coil itself does not have any protective function in abnormal condition such as overload, short-circuit and open-circuit conditions, etc. Therefore, it shall be confirmed as the end product that there is no risk of smoking, fire, dielectric withstand voltage, insulation resistance, etc. in abnormal conditions to provide protective devices and/or protection circuit in the end product.
- (3) When this power choke coil was used in a similar or new product to the original one, sometimes it might not be able to satisfy the specifications due to different condition of use.
- (4) Dielectric withstanding test with higher voltage than specific value will damage insulating material and shorten its life.
- (5) This power choke coil must not be used in wet condition by water, coffee or any liquid because insulation strength becomes very low in this condition.
- (6) Please consult our company to confirm the reliability of the process required to wash or use or exposure to a chemical solvent used in this product. PCB washing tested to MIL-STD-202 Method, and dry it off immediately.
- (7) The rated current as listed is either the saturation current or the heating current depending on which value is lower.
- (8) If this power choke is dipped in the cleaning agent, such as toluene, xylene, ketone, and ether system, there is a possibility that the performance decreases greatly, and marking disappears.
- (9) The high power ultrasonic washing may damage the choke body.
- (10) Before use, the user should determine whether this product is suitable for their own design. Our company only guarantees that the product meets the requirements of this specification.

### **Application Notice**

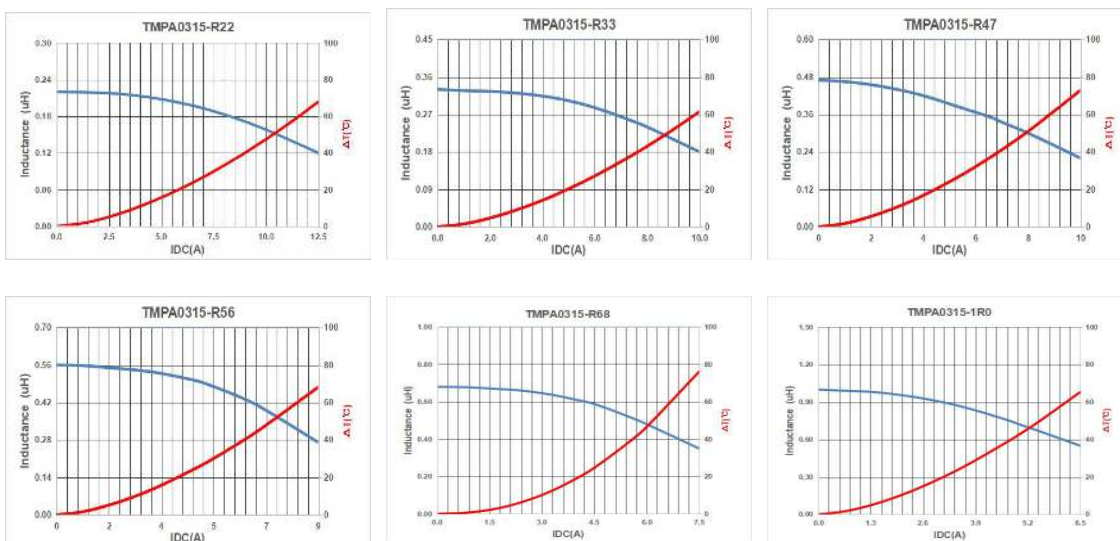
- Storage Conditions  
To maintain the solderability of terminal electrodes:
  1. TAI-TECH products meet IPC/JEDEC J-STD-020E standard-MSL, level 1.
  2. Temperature and humidity conditions: Less than 40°C and 60% RH.
  3. Recommended products should be used within 12 months from the time of delivery.
  4. The packaging material should be kept where no chlorine or sulfur exists in the air.
- Transportation
  1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
  2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
  3. Bulk handling should ensure that abrasion and mechanical shock are minimized.

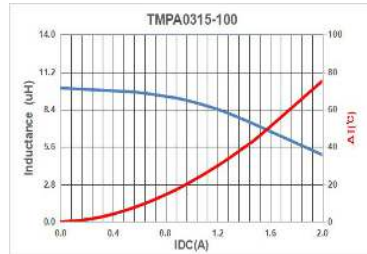
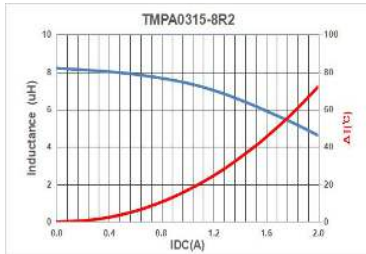
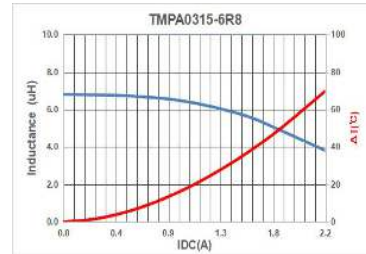
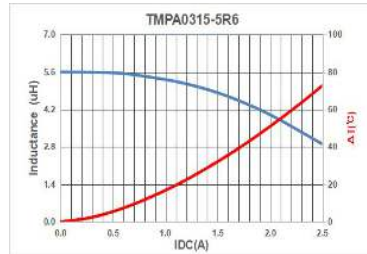
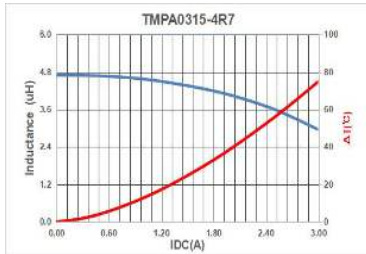
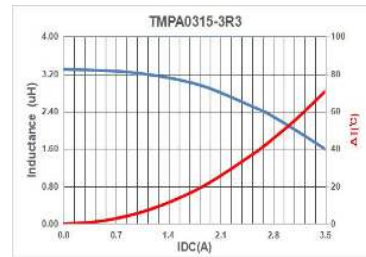
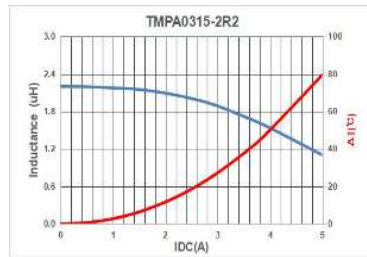
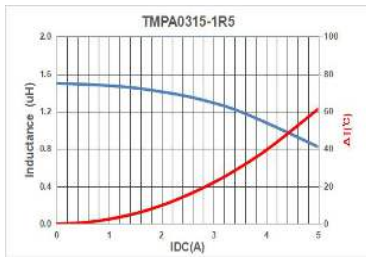
# 11. Typical Performance Curves

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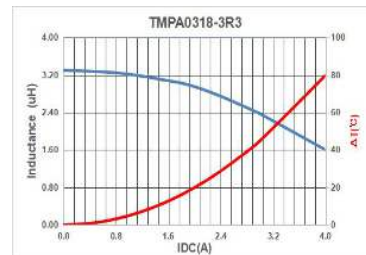
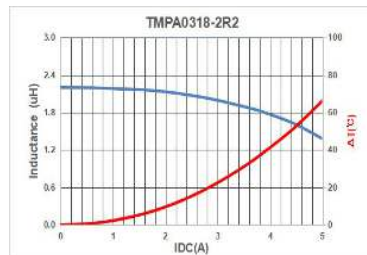
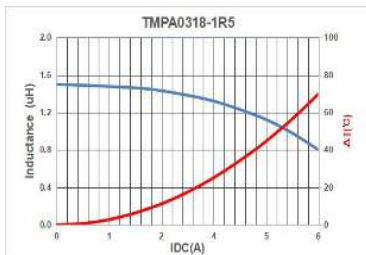
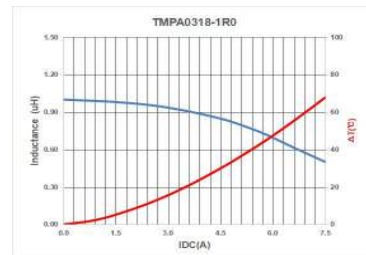
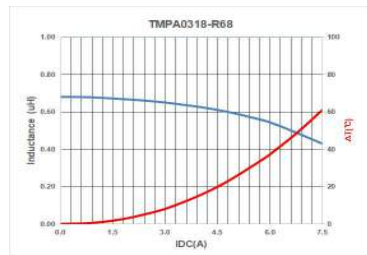
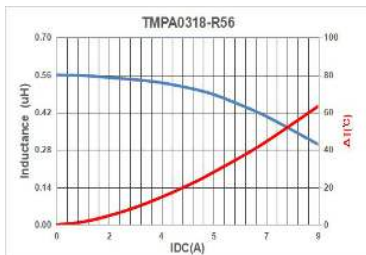
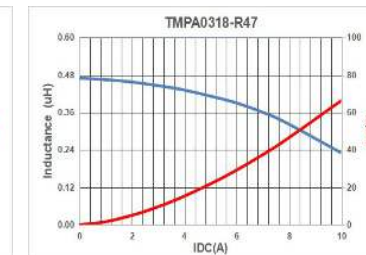
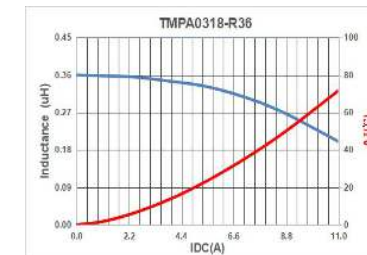
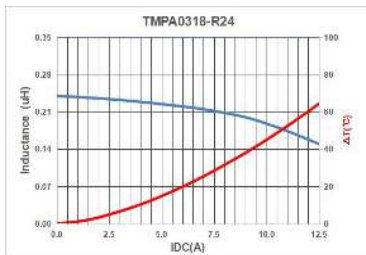


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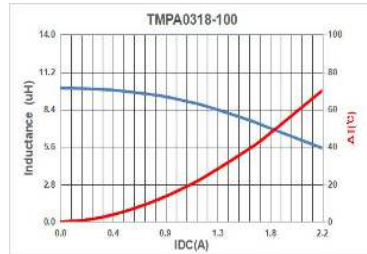
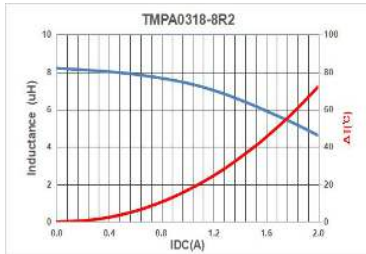
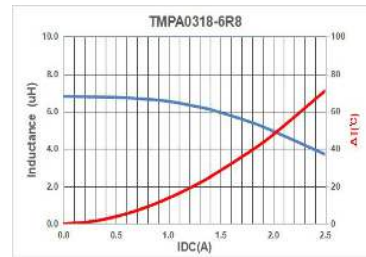
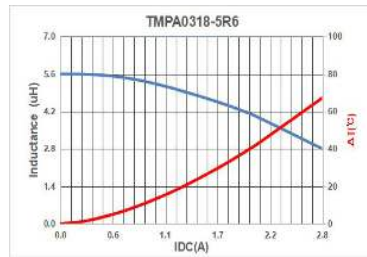
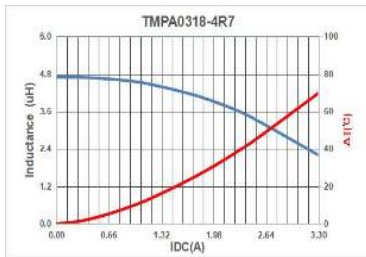




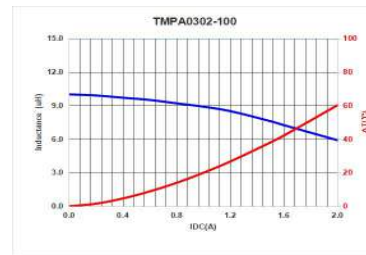
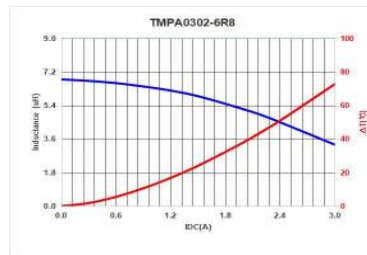
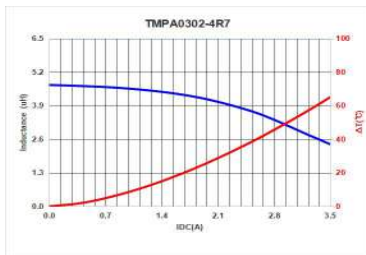
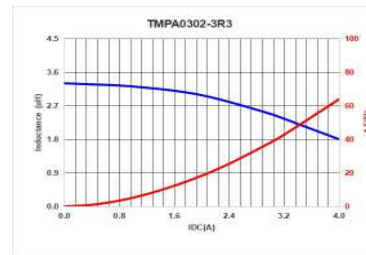
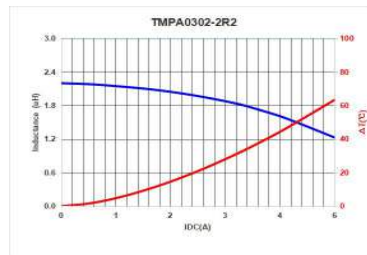
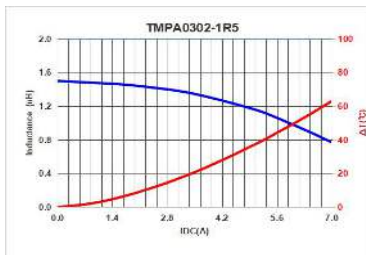
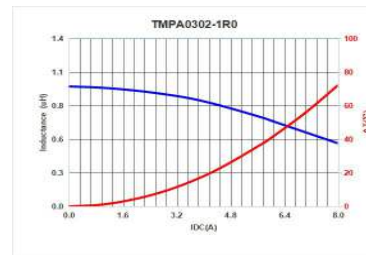
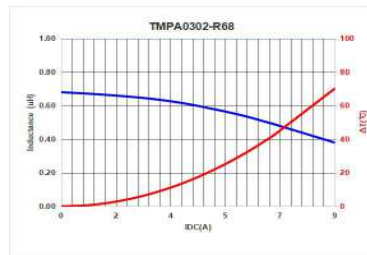
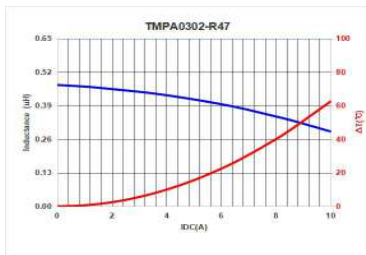
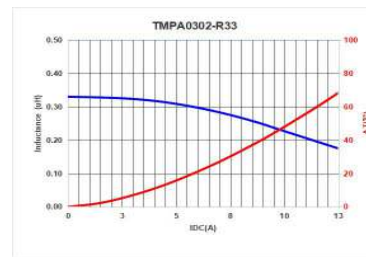
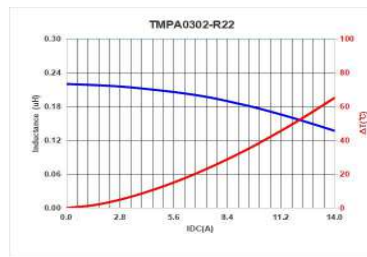
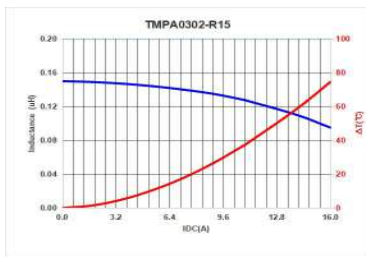
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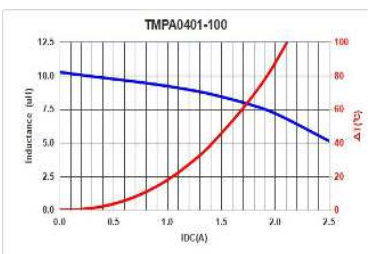
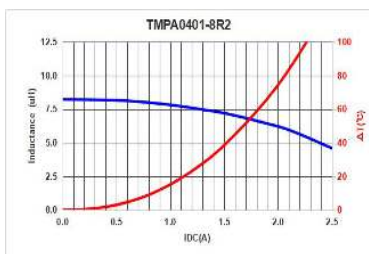
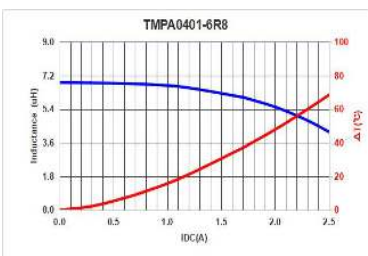
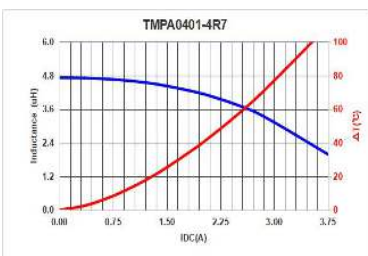
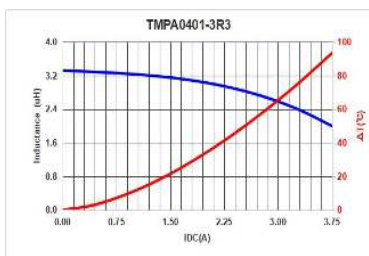
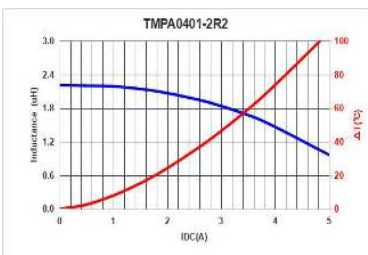
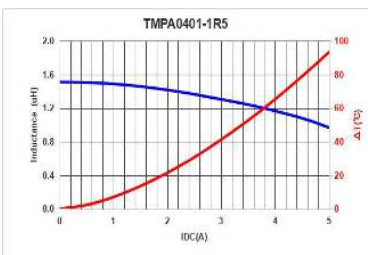
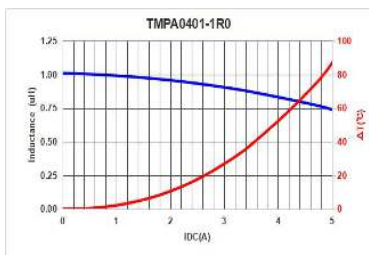




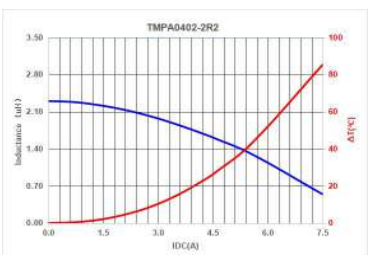
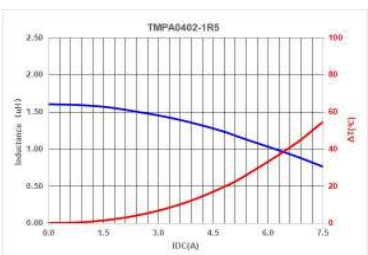
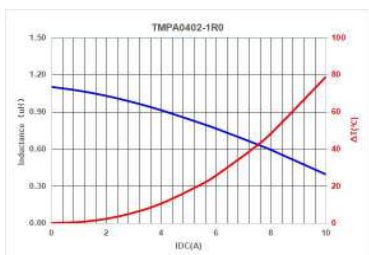
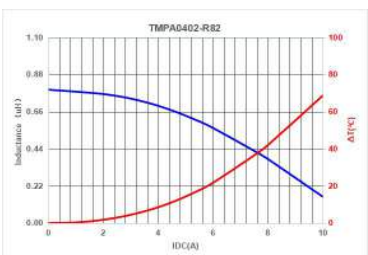
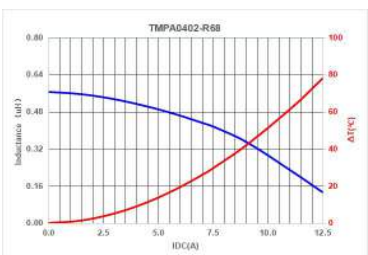
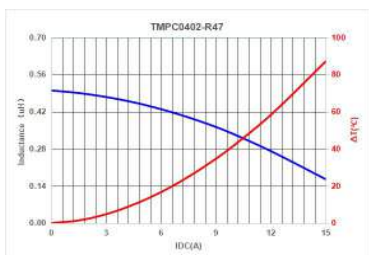
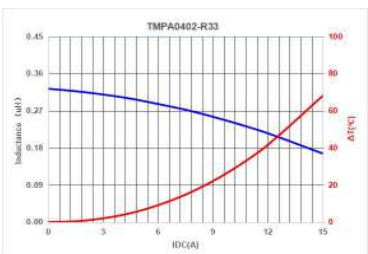
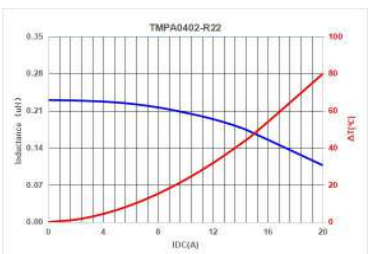
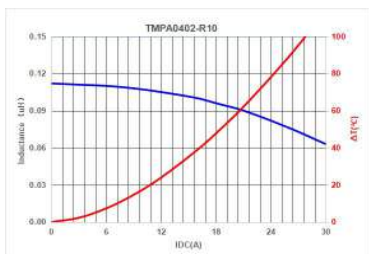
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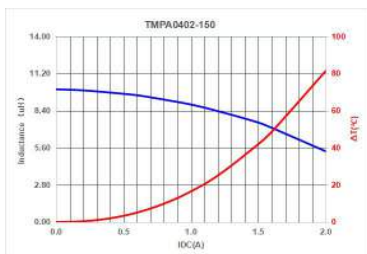
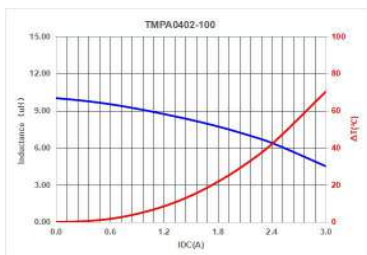
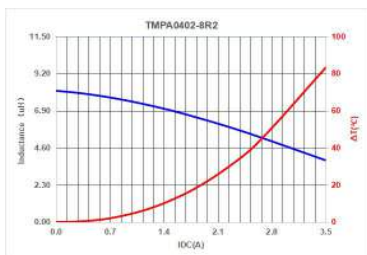
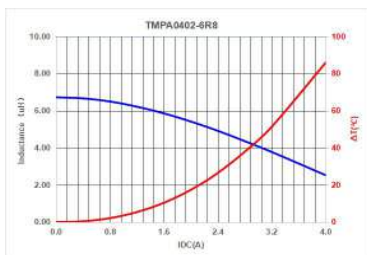
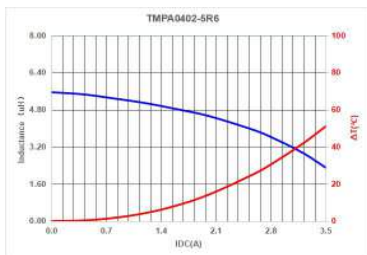
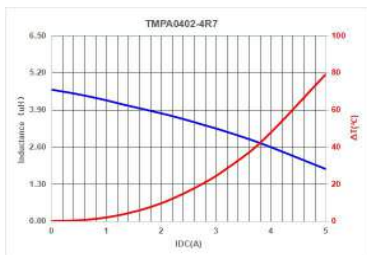
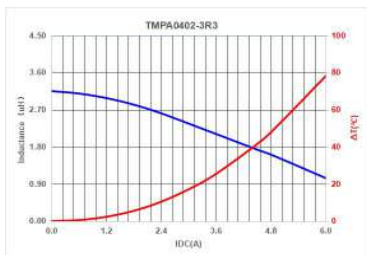


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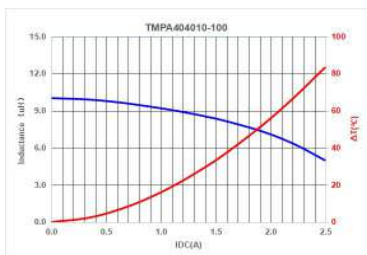
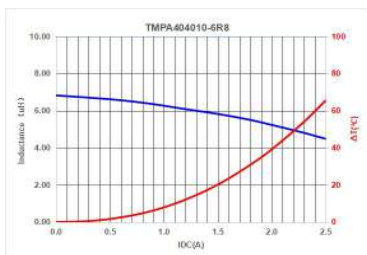
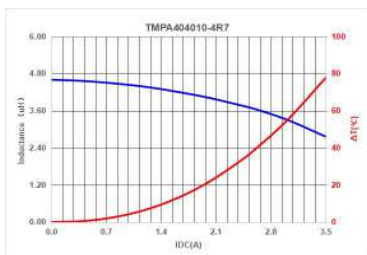


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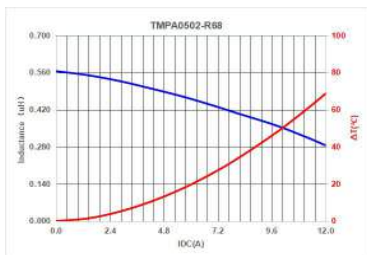
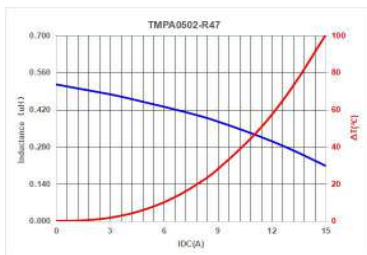
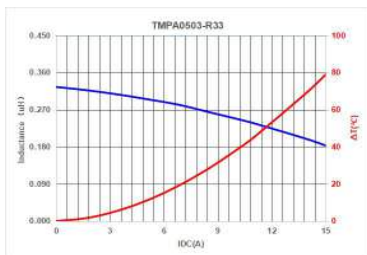
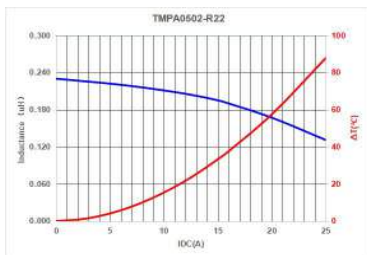
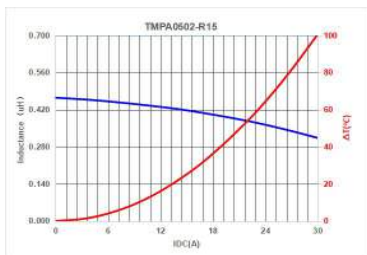
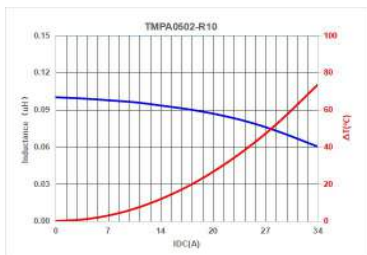


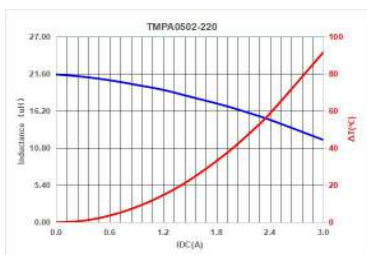
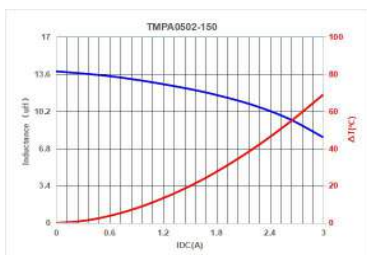
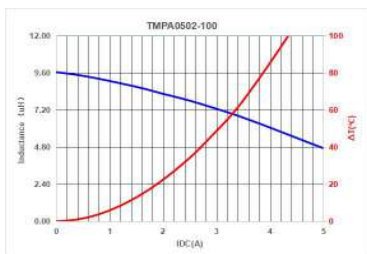
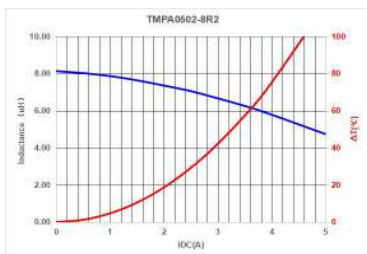
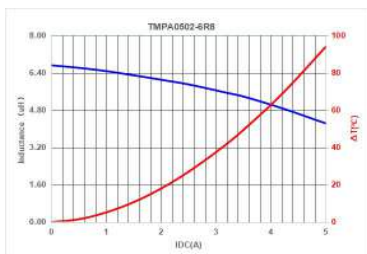
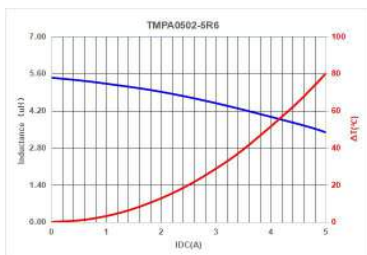
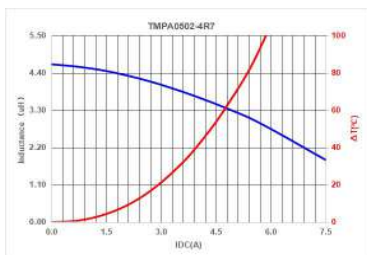
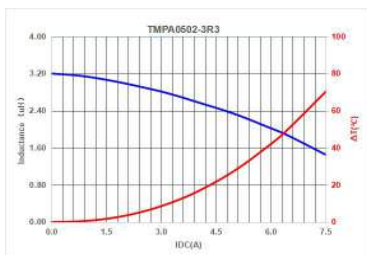
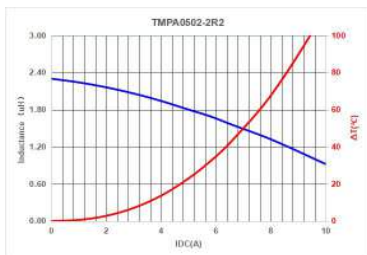
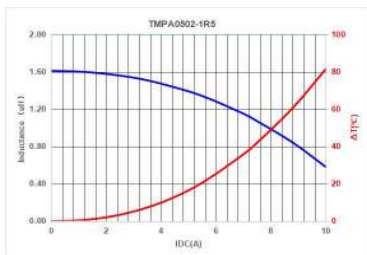
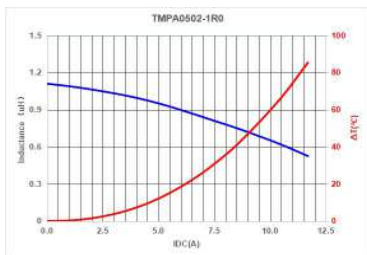


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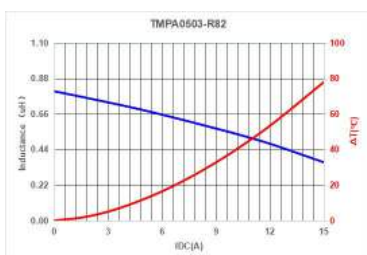
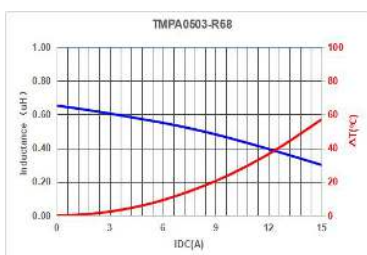
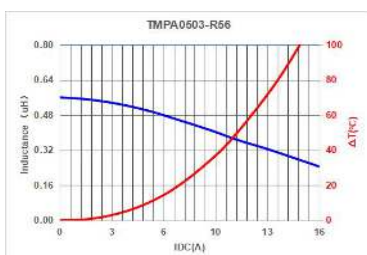
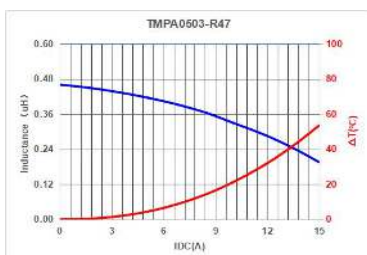
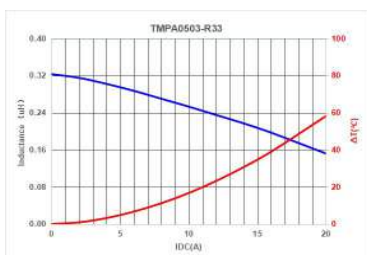
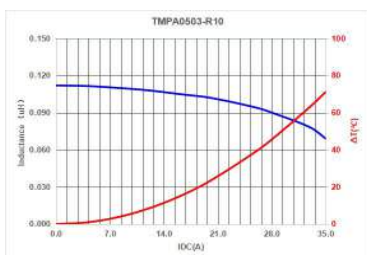


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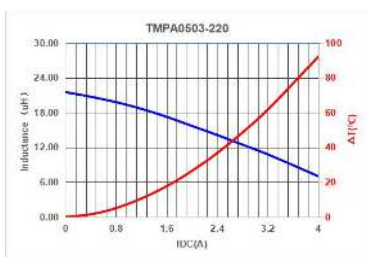
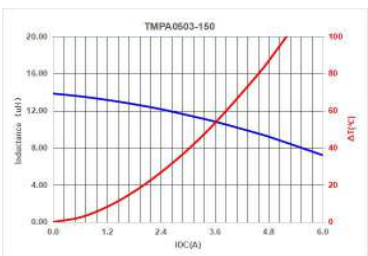
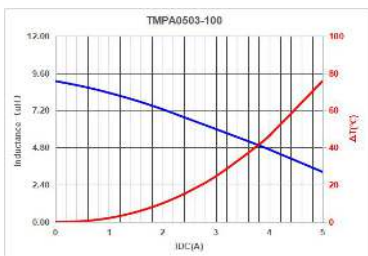
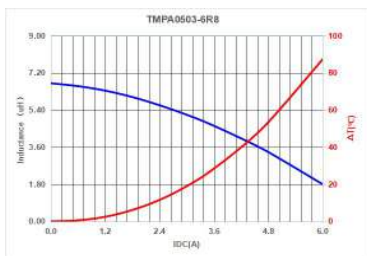
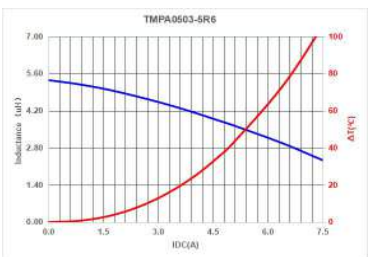
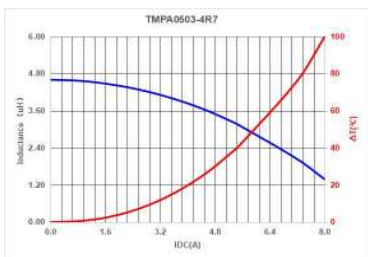
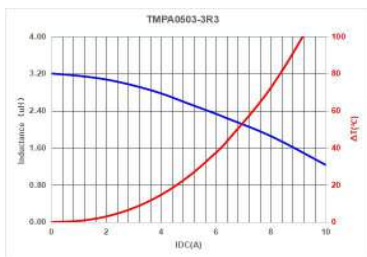
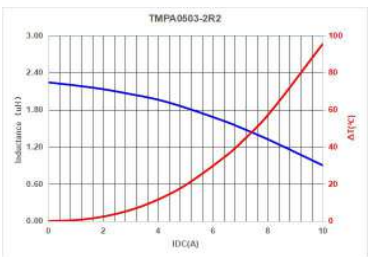
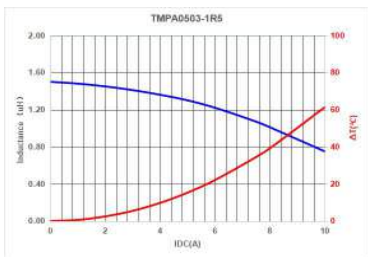
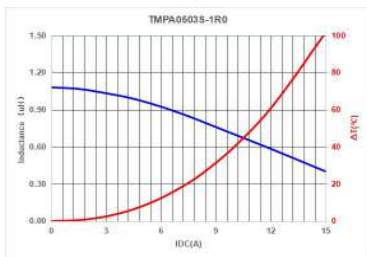




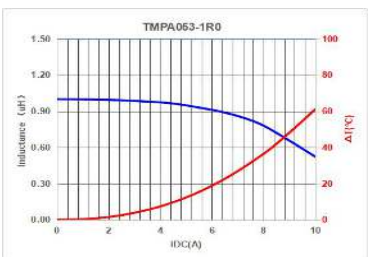
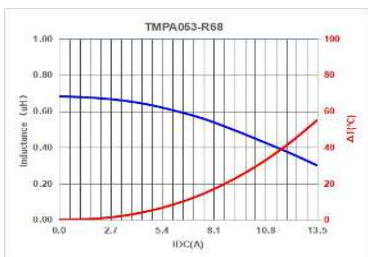
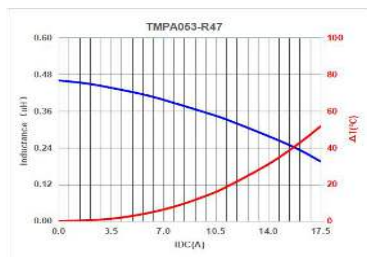
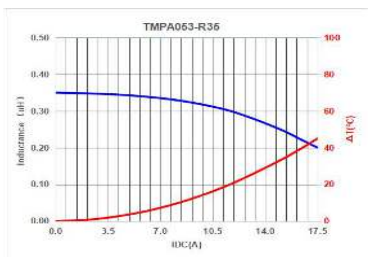
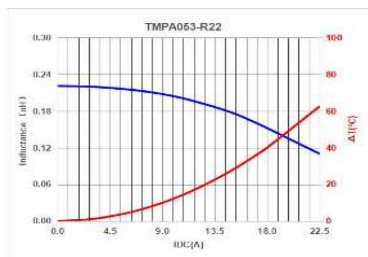
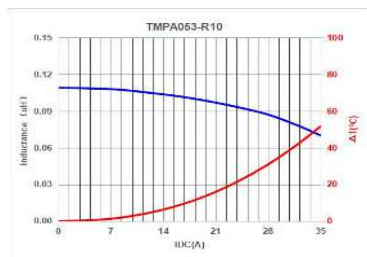
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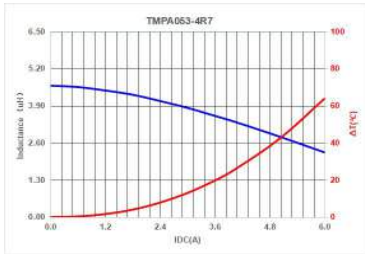
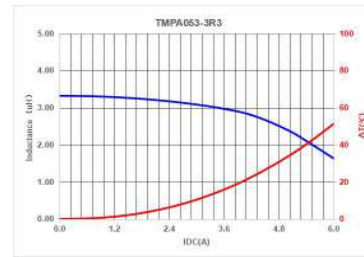
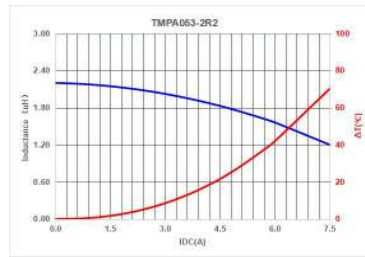
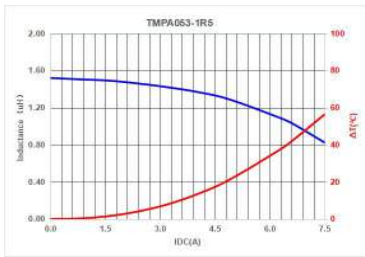




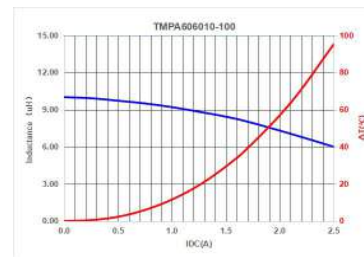
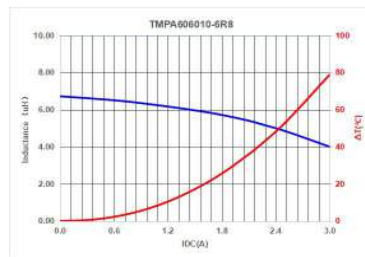
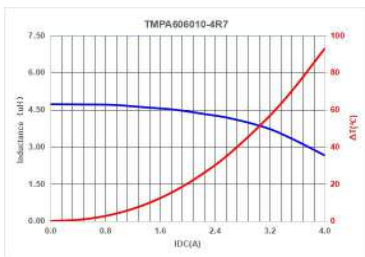


**TMPA053T**

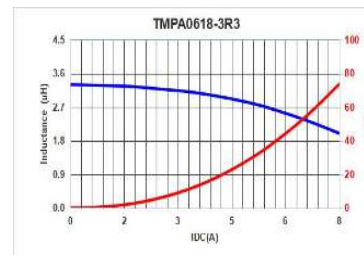
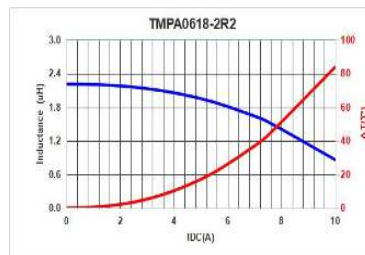
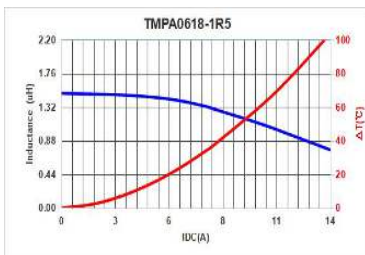
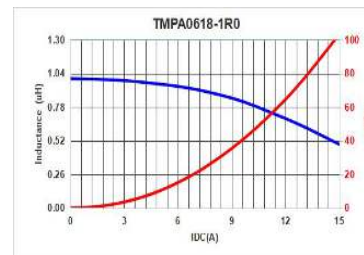
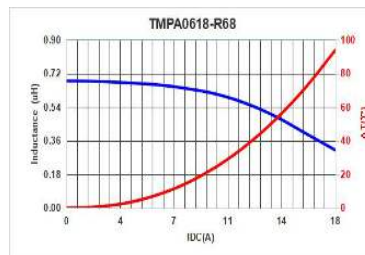
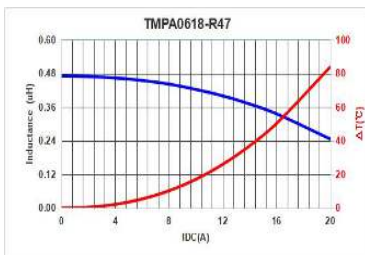
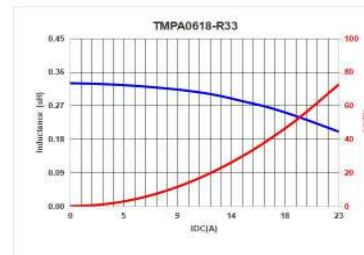
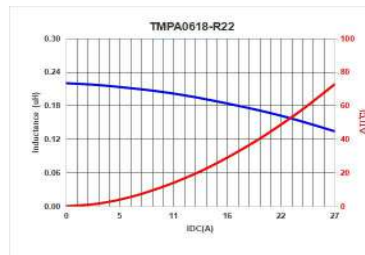
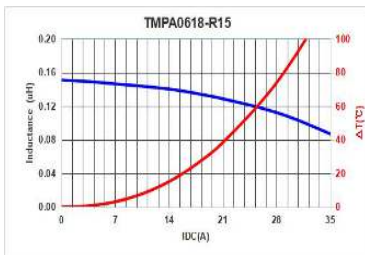


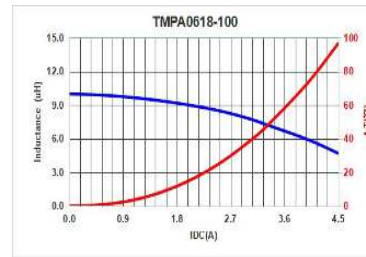
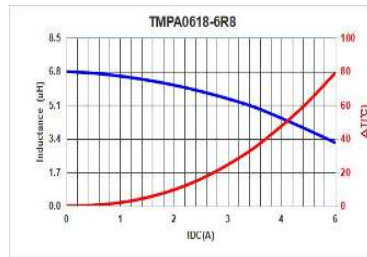
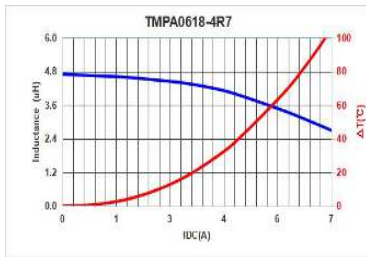


**TMPA06010**

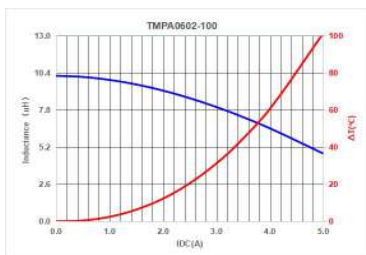
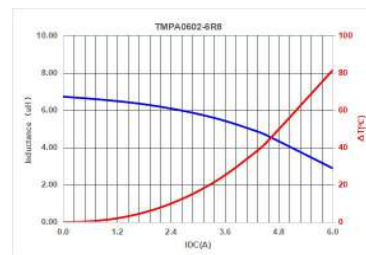
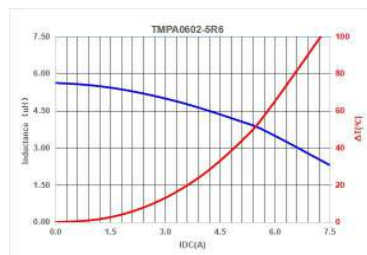
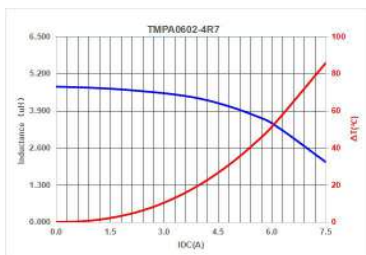
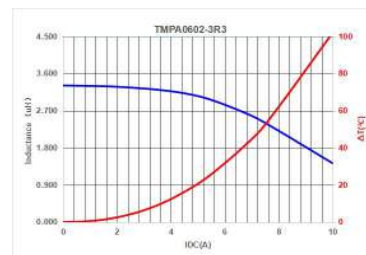
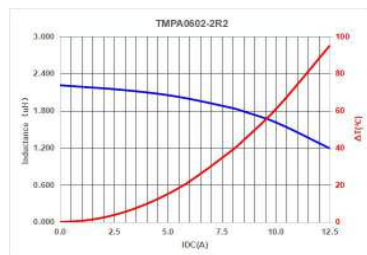
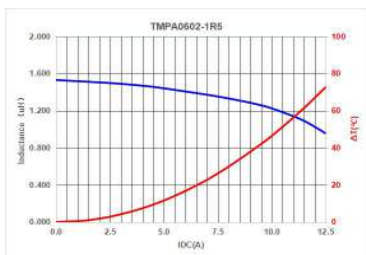
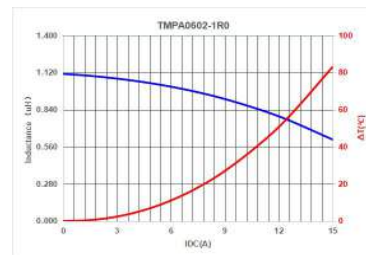
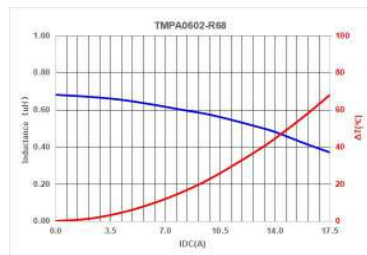
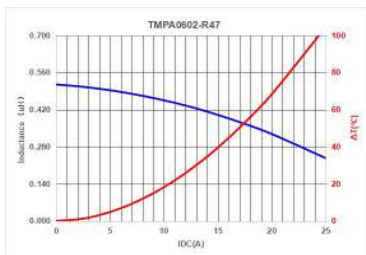
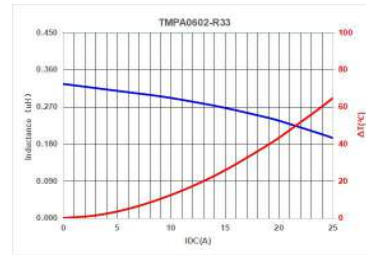
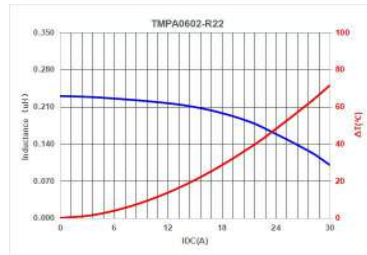
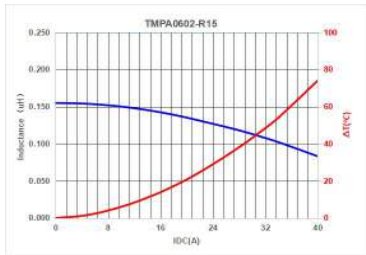


**TMPA0618**

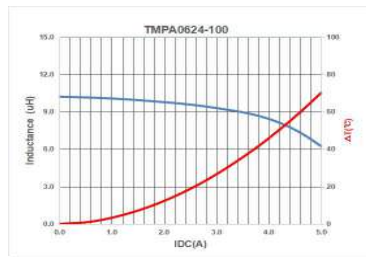
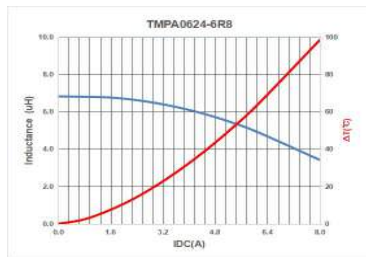
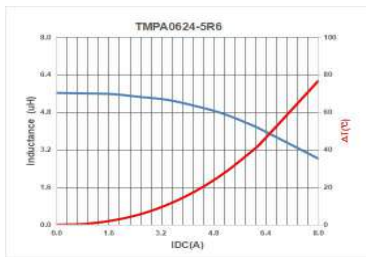
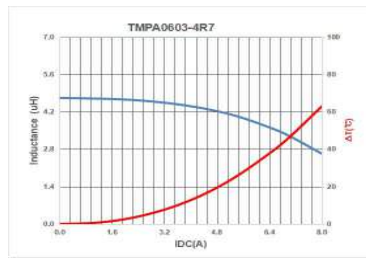
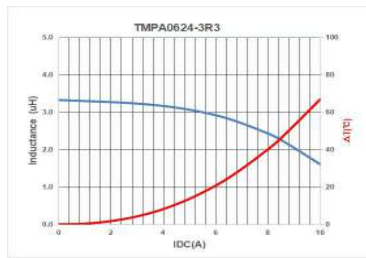
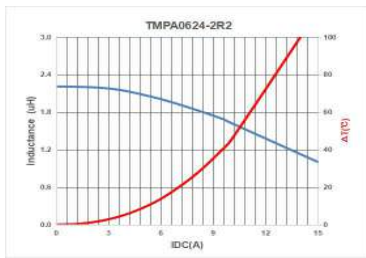
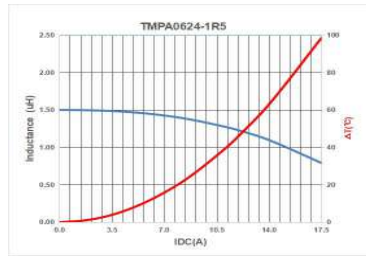
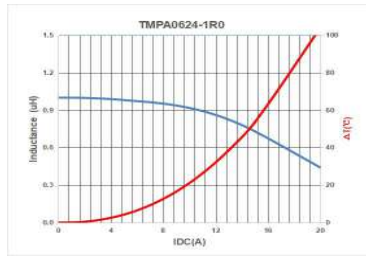
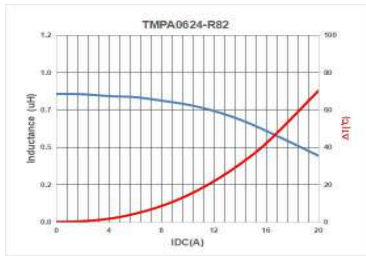
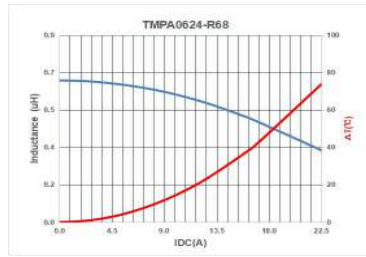
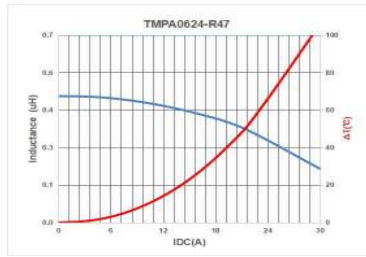
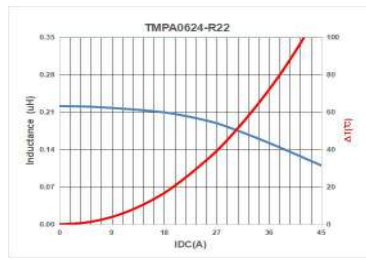
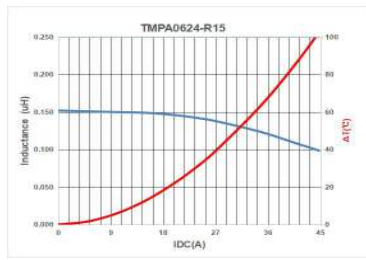
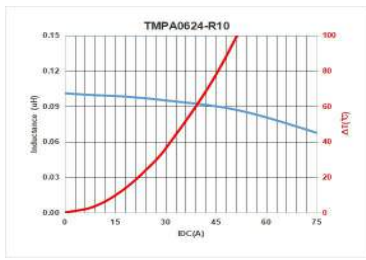




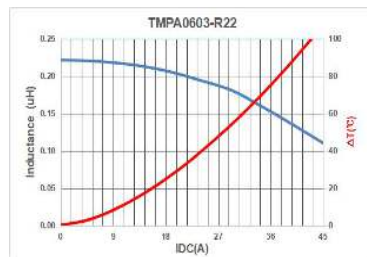
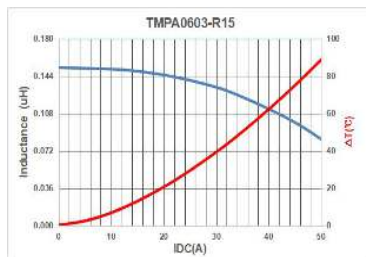
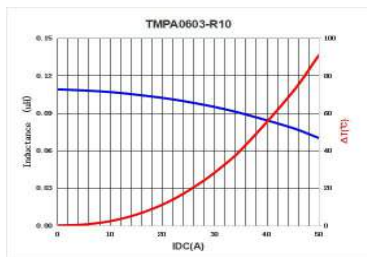
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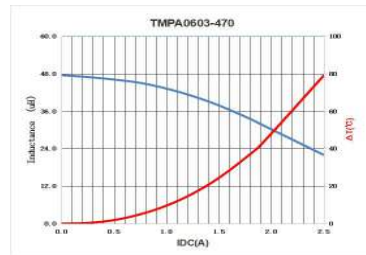
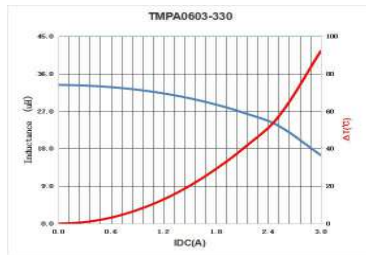
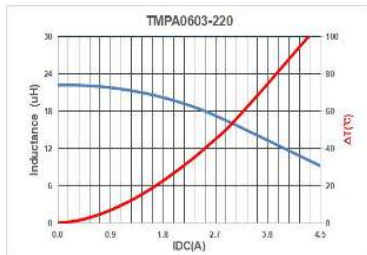
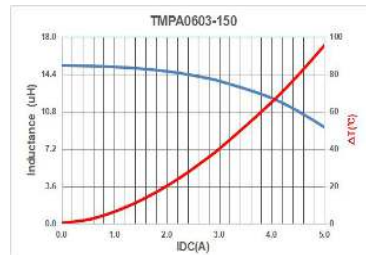
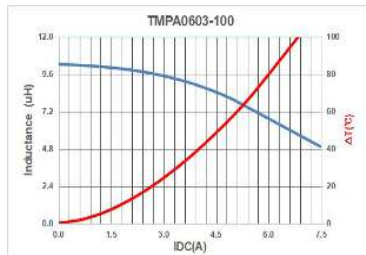
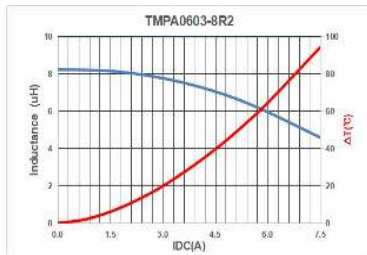
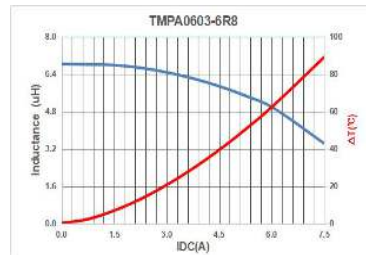
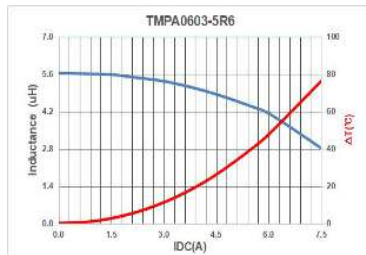
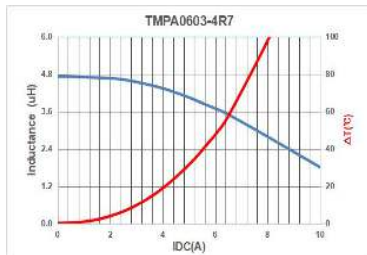
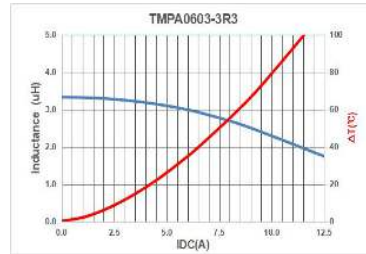
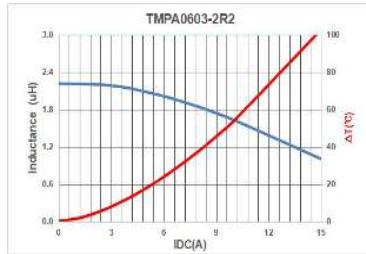
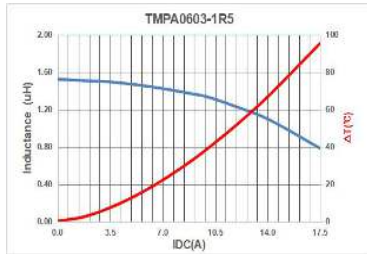
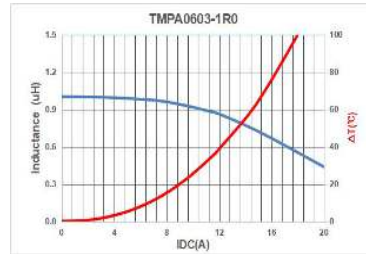
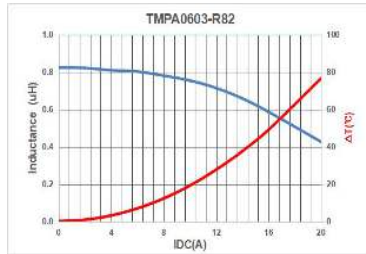
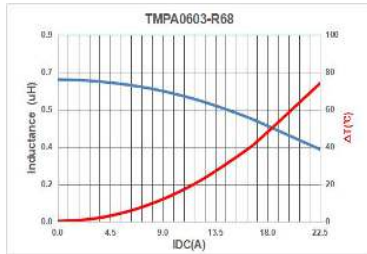
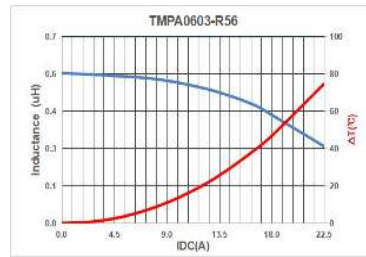
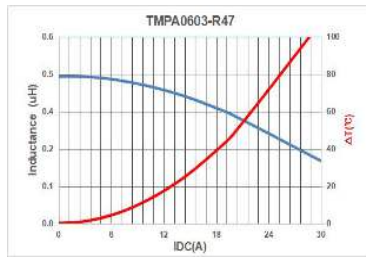
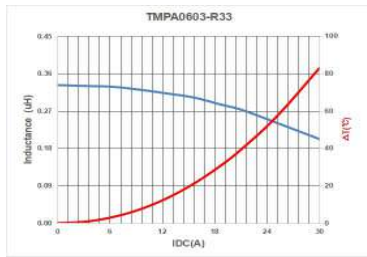
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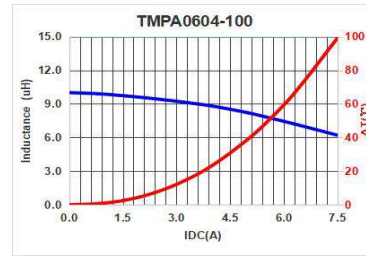
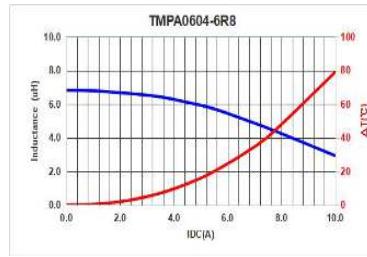
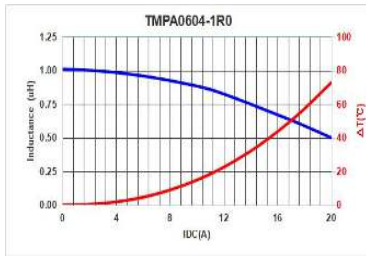
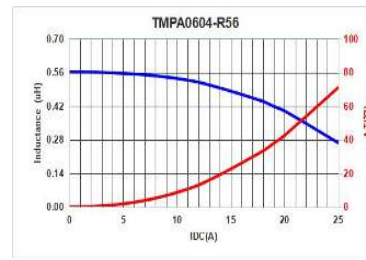
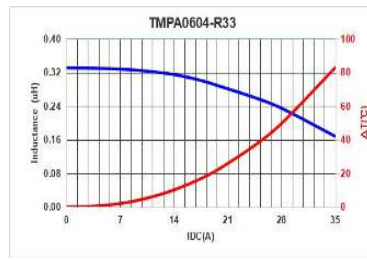
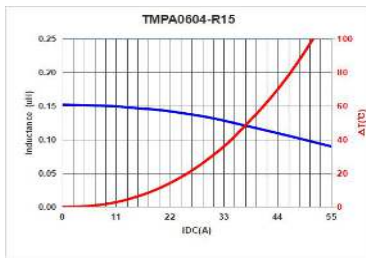
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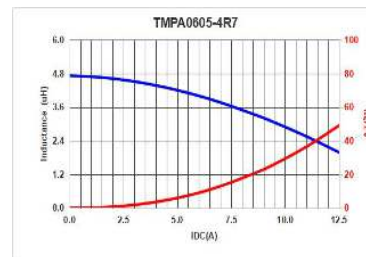
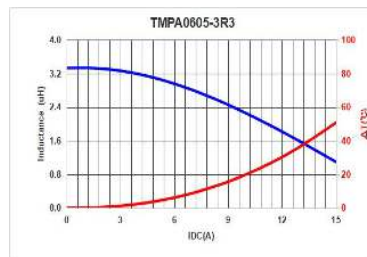
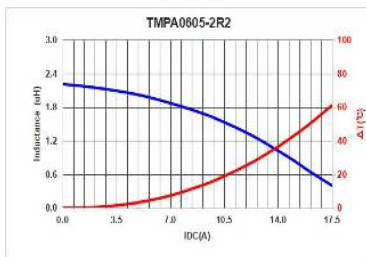
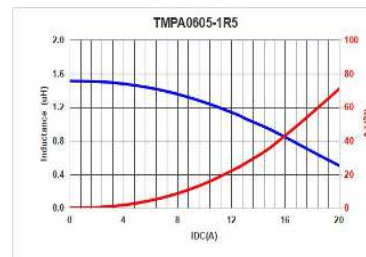
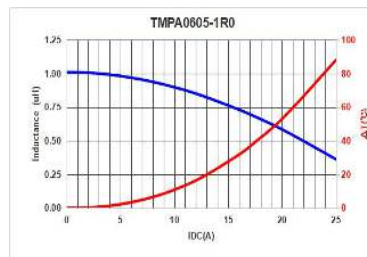
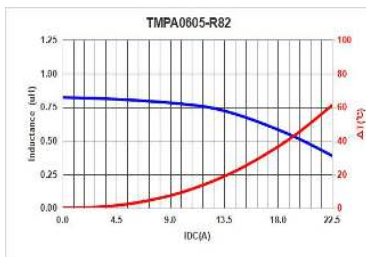
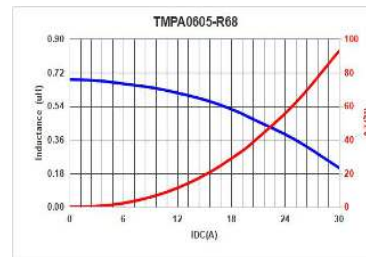
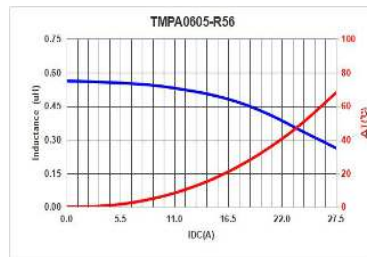
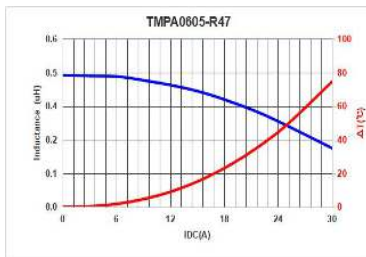
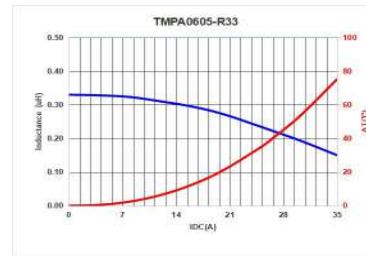
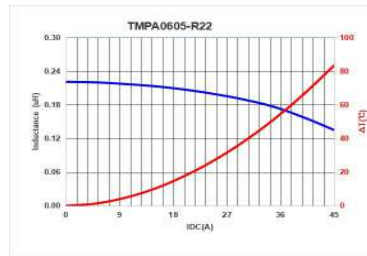
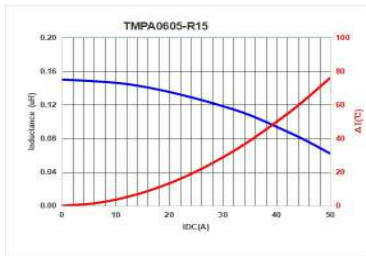


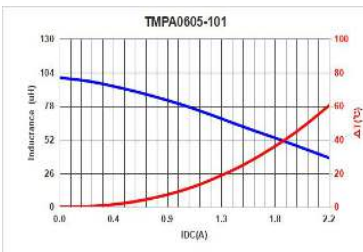
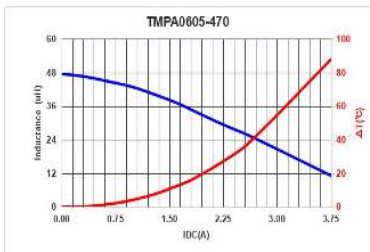
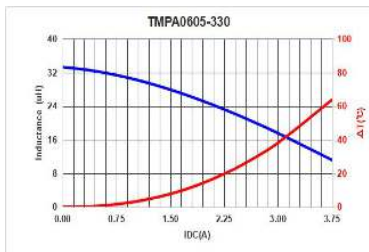
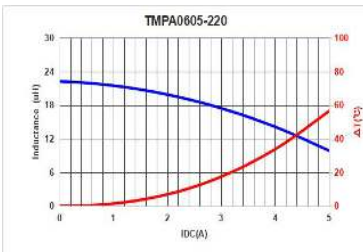
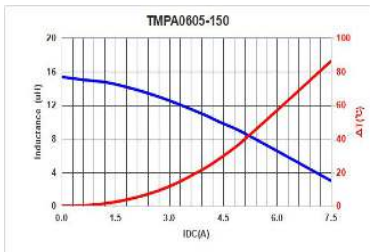
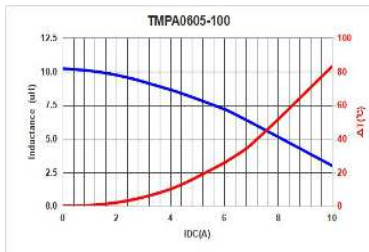
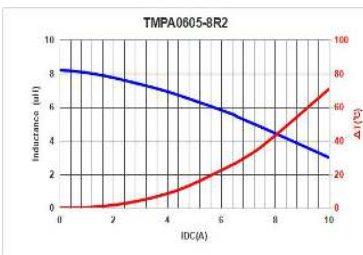
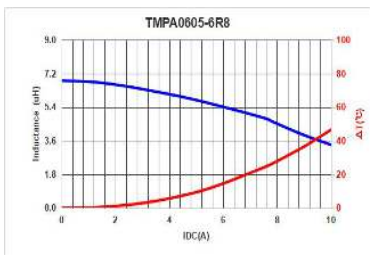
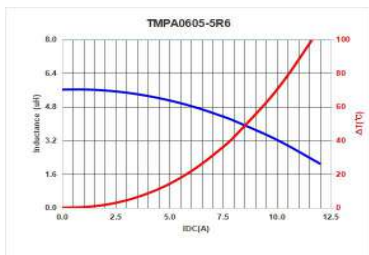


**TMPA0604**

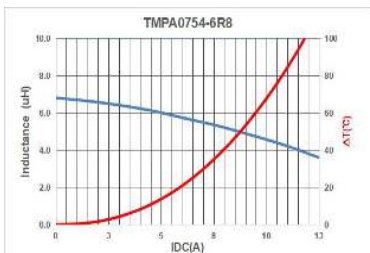
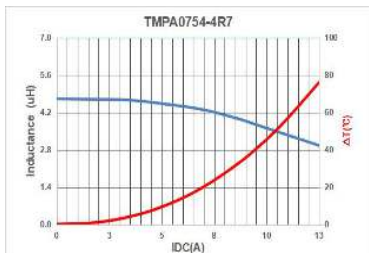
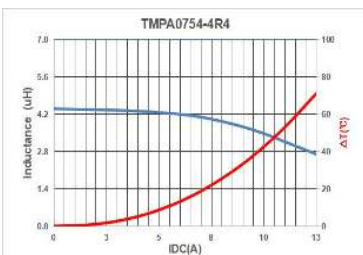
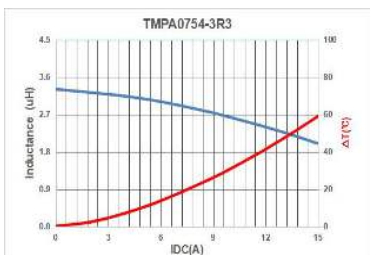
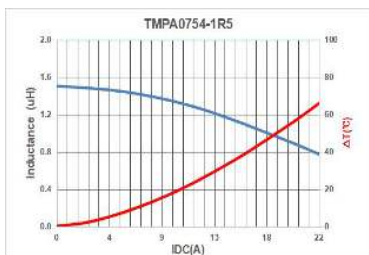


**TMPA0605**

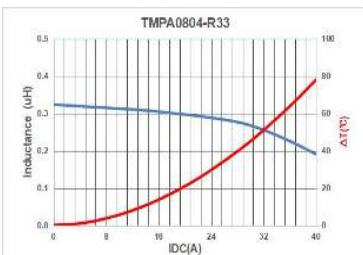
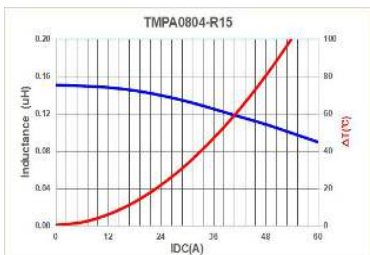
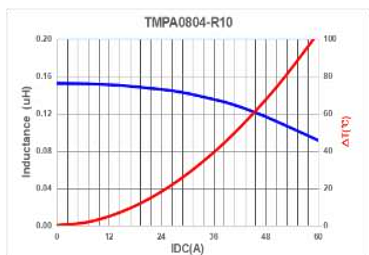


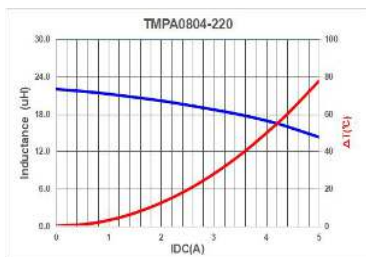
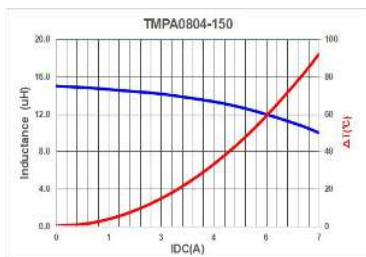
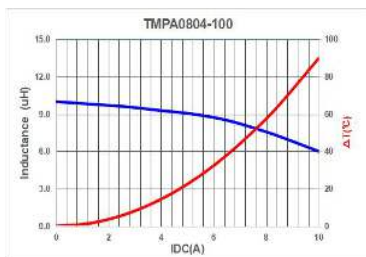
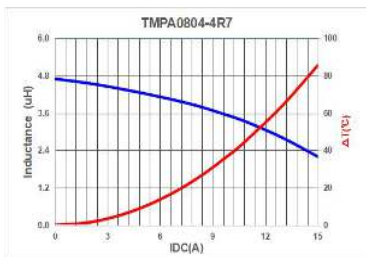
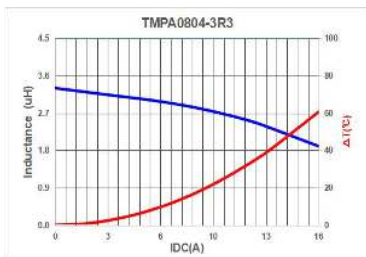
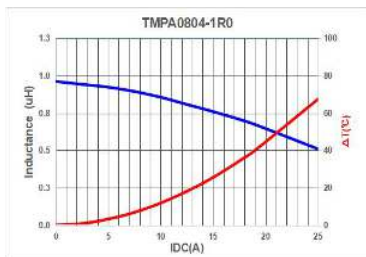


**TMPA0754**

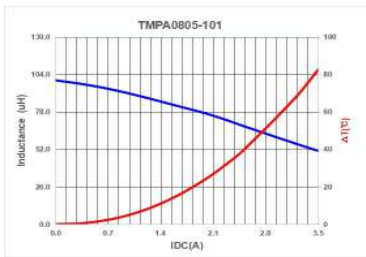
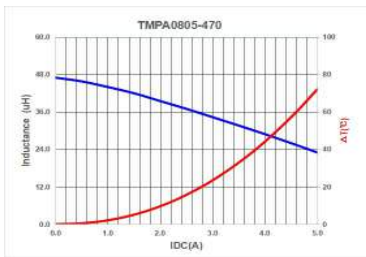
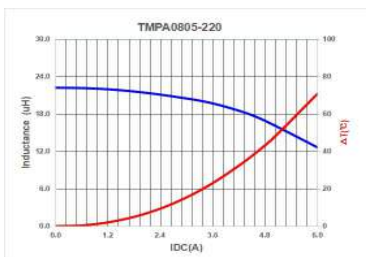
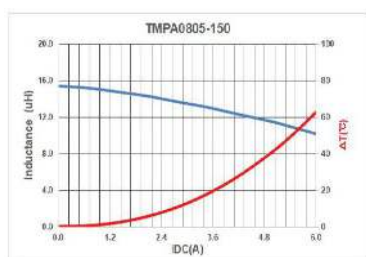
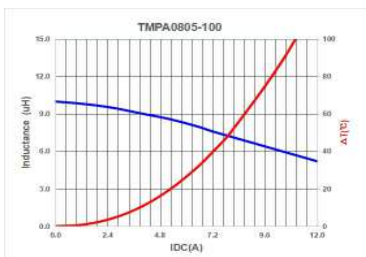
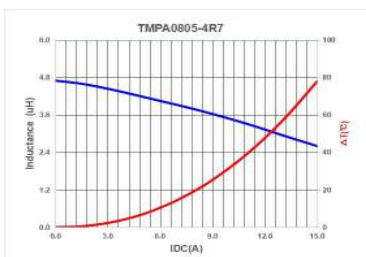
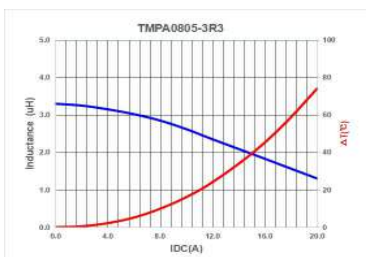
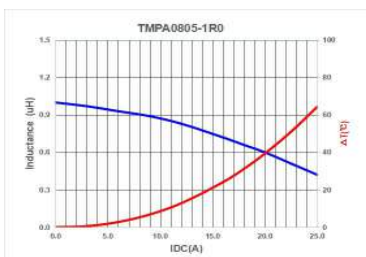


**TMPA0804**

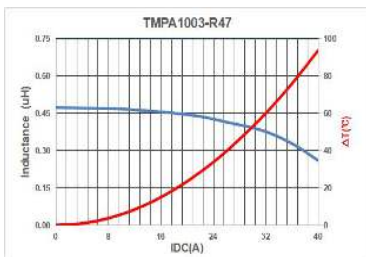
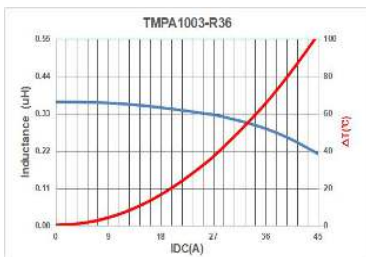
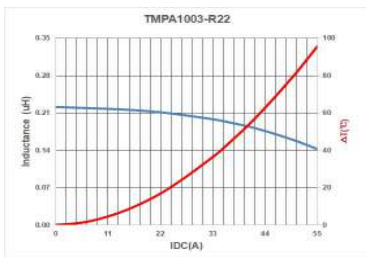




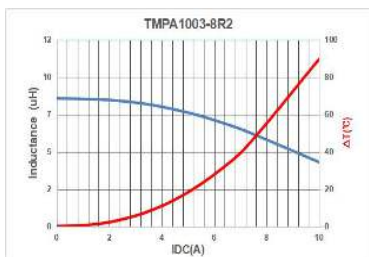
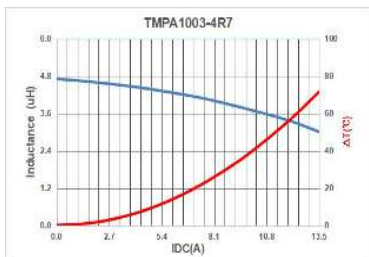
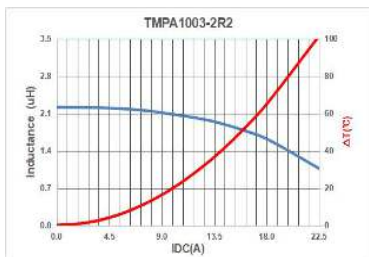
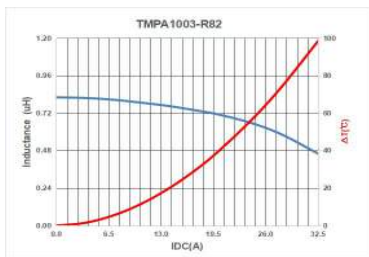
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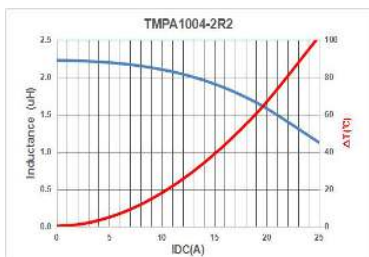
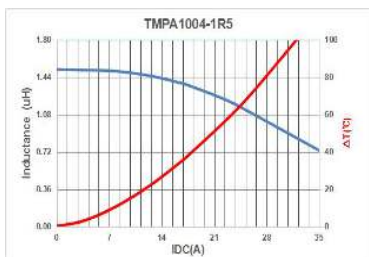
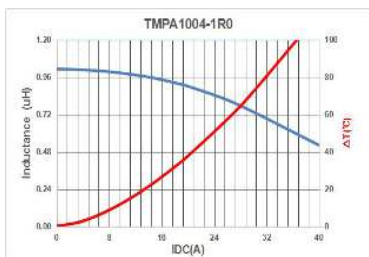
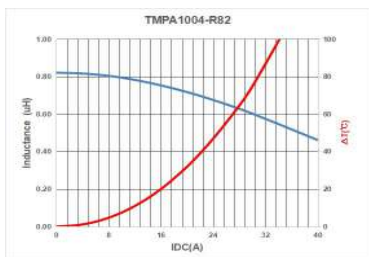
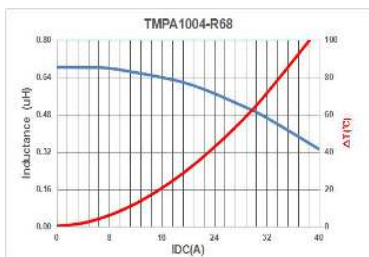
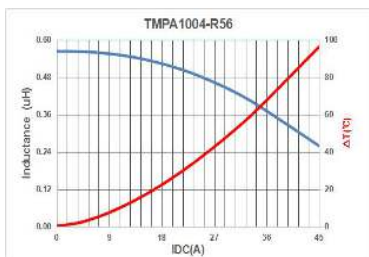
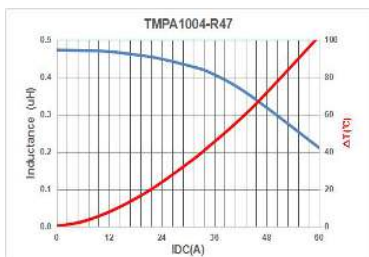
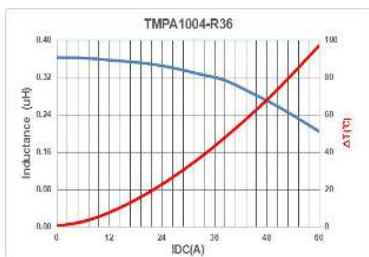
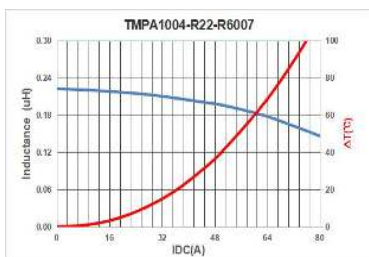
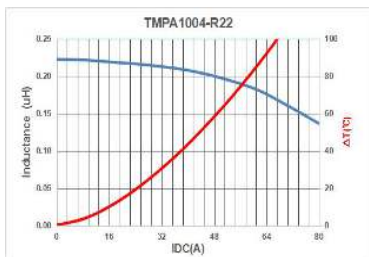
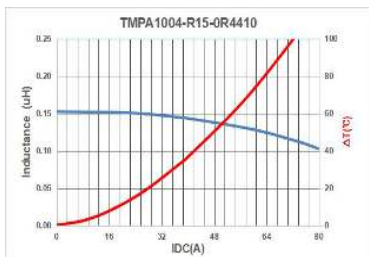
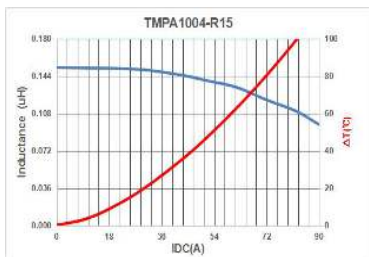
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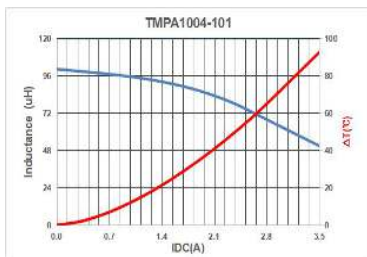
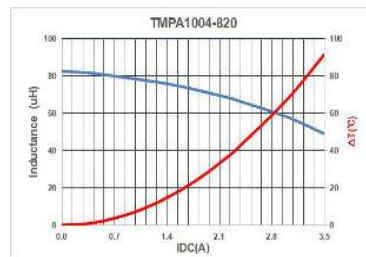
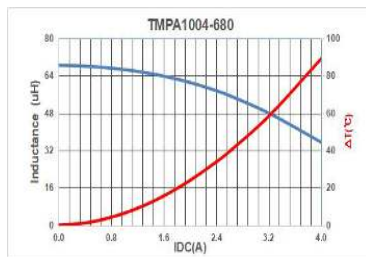
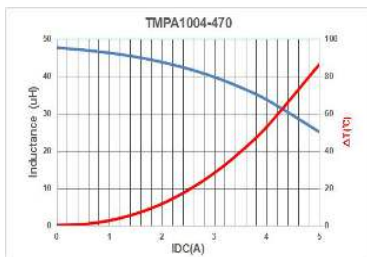
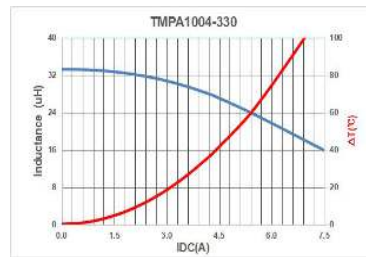
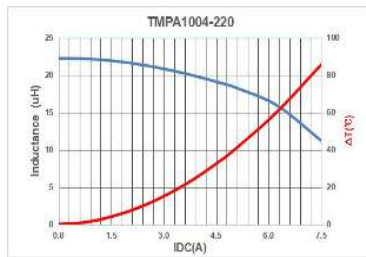
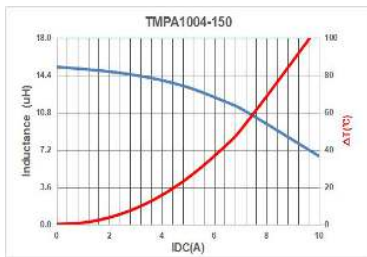
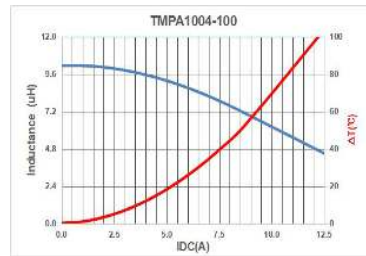
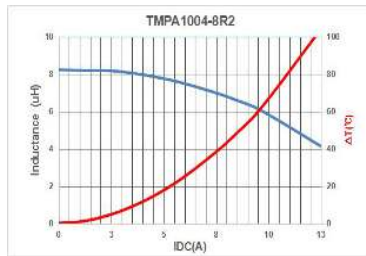
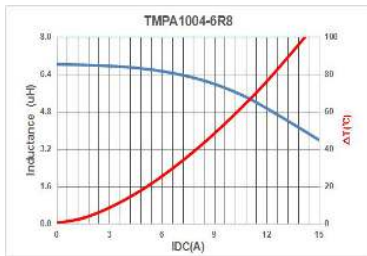
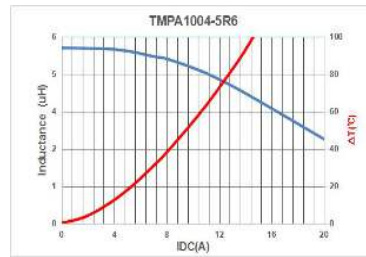
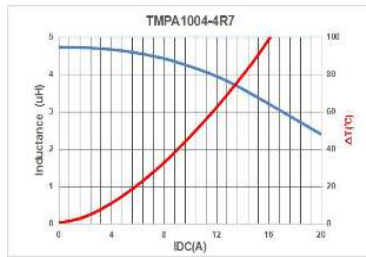
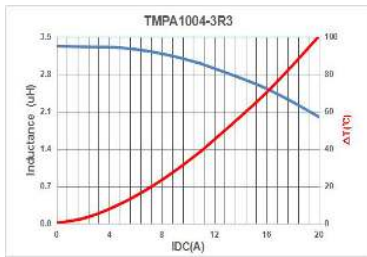




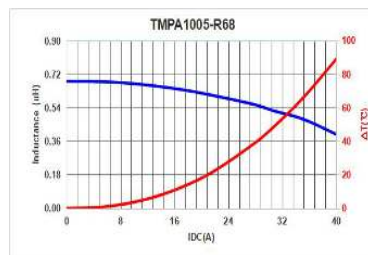
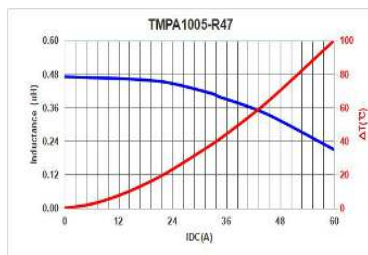
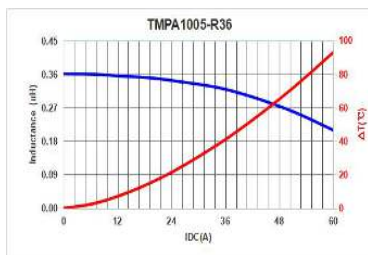


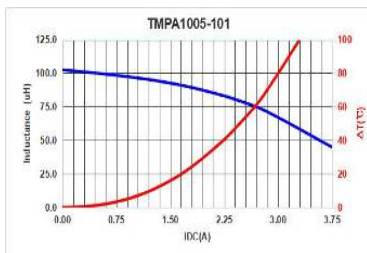
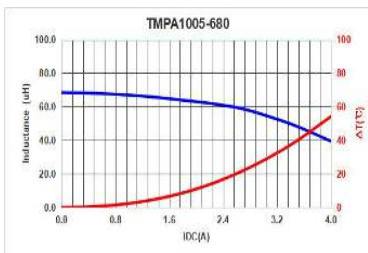
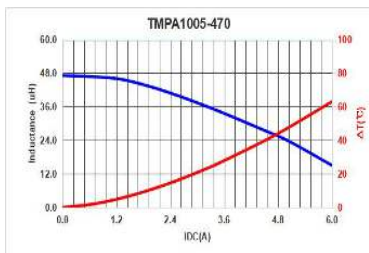
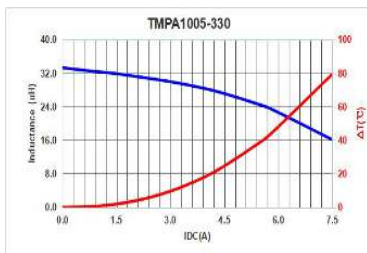
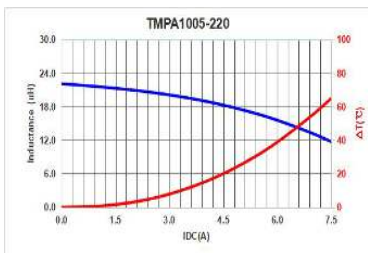
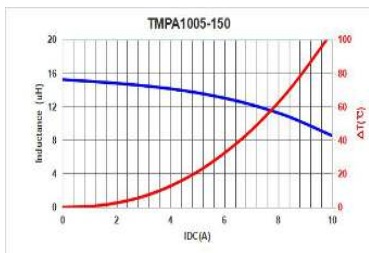
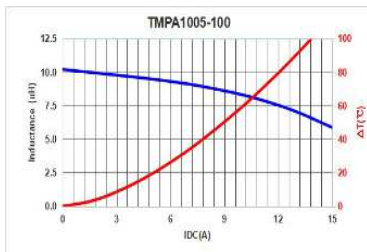
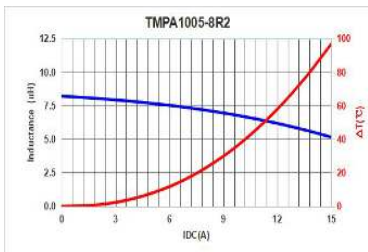
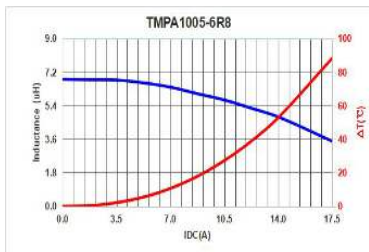
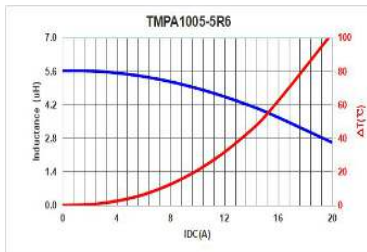
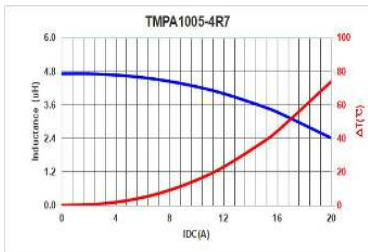
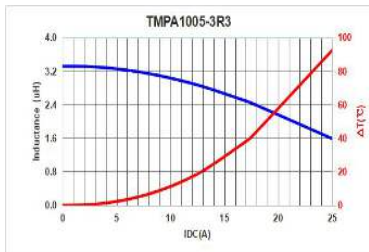
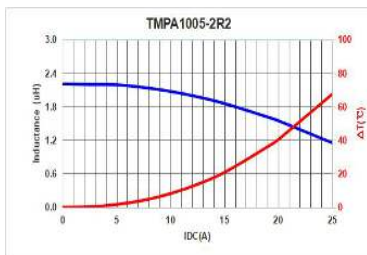
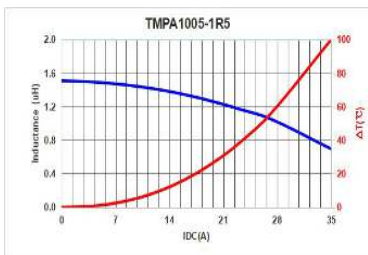
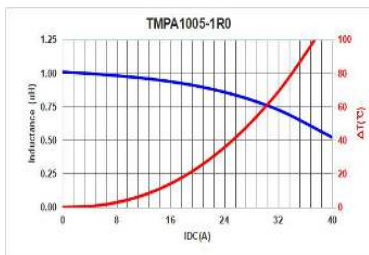
**TMPA1004**



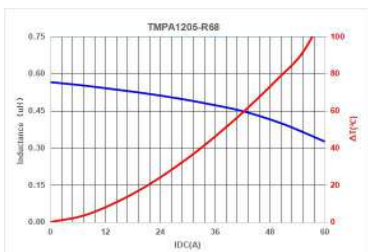
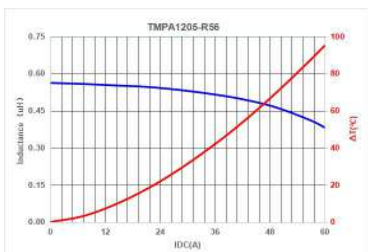
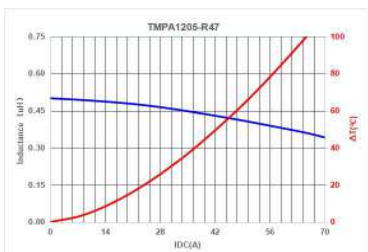


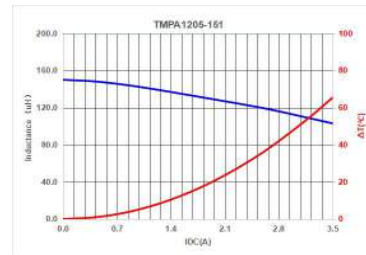
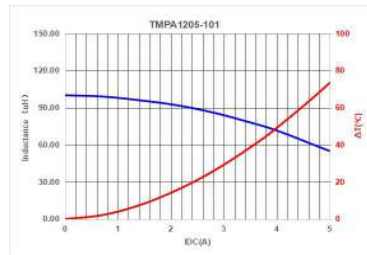
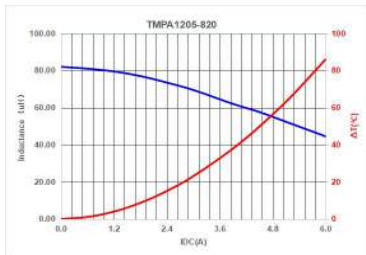
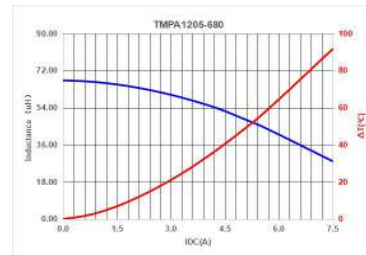
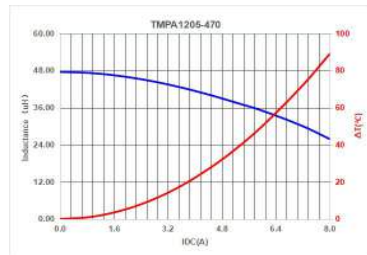
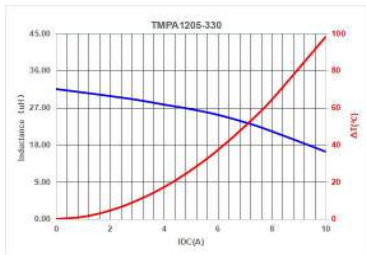
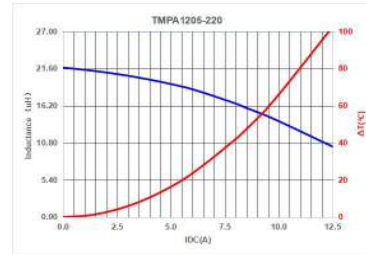
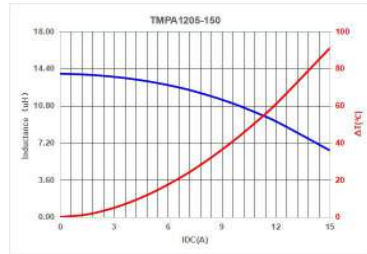
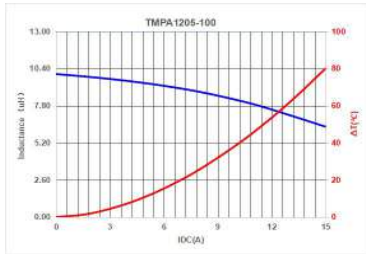
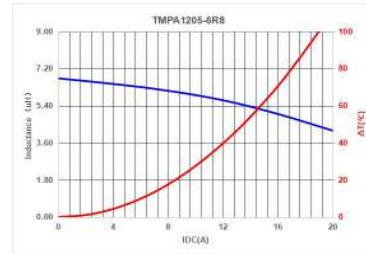
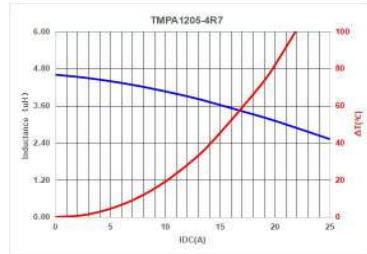
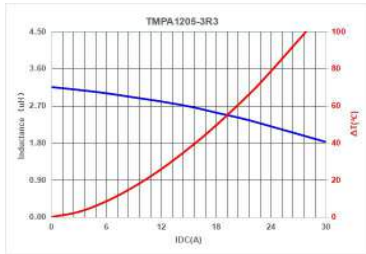
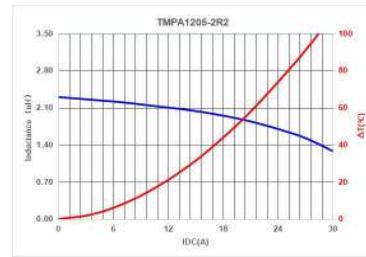
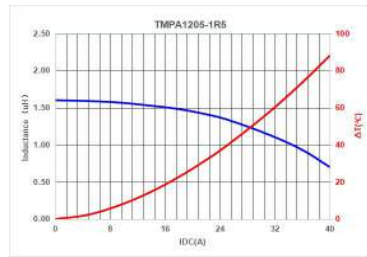
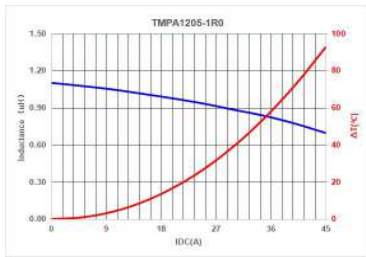
**TMPA1005**



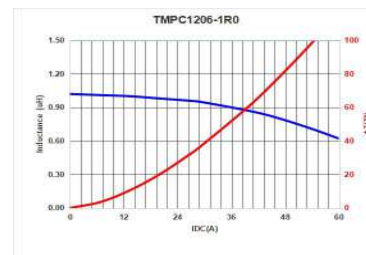
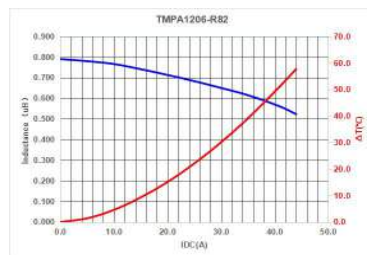
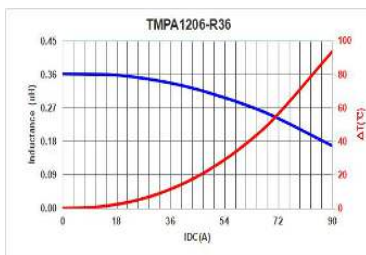


**TMPA1205**

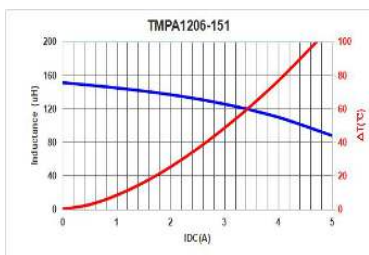
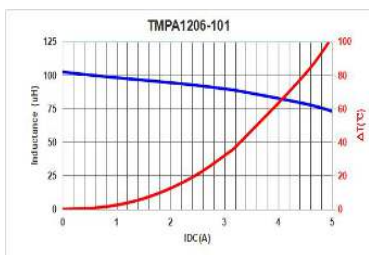
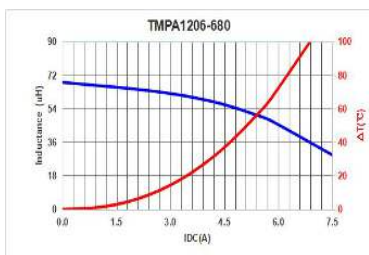
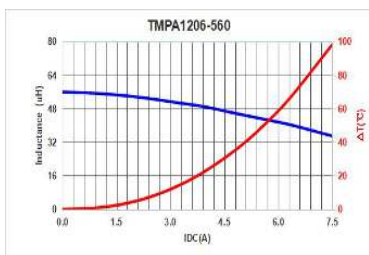
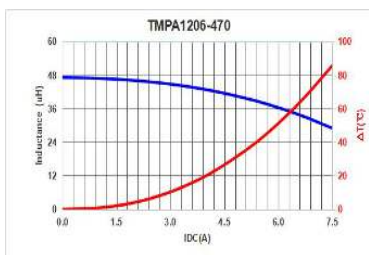
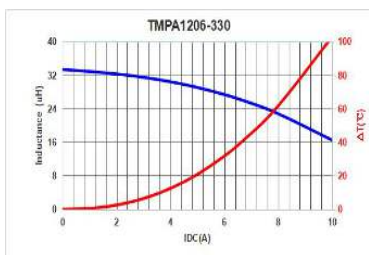
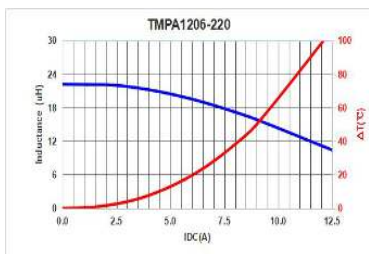
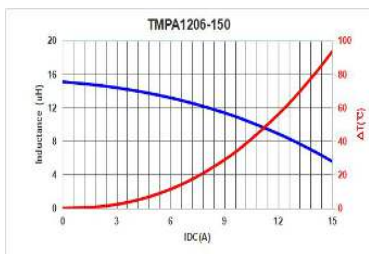
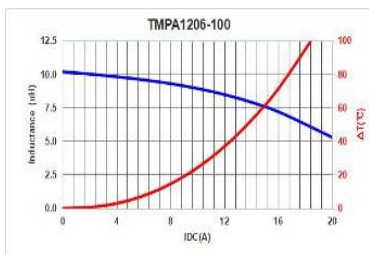
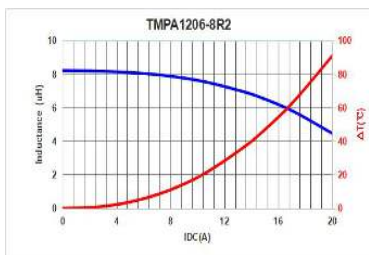
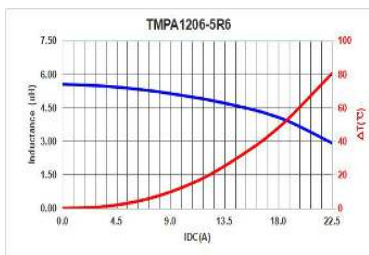
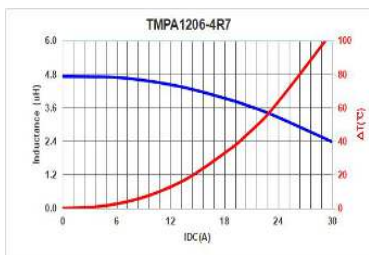
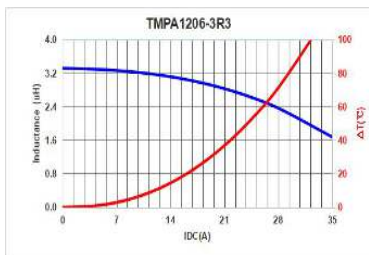
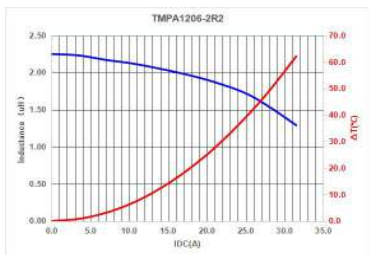
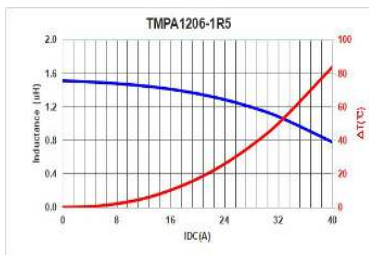




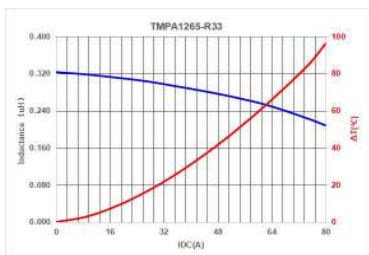
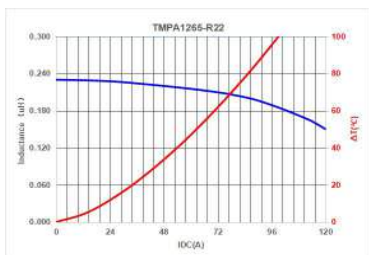
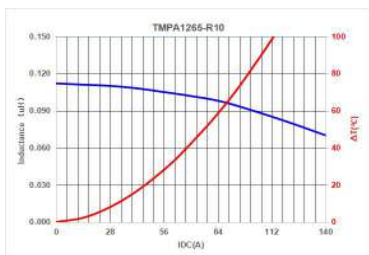
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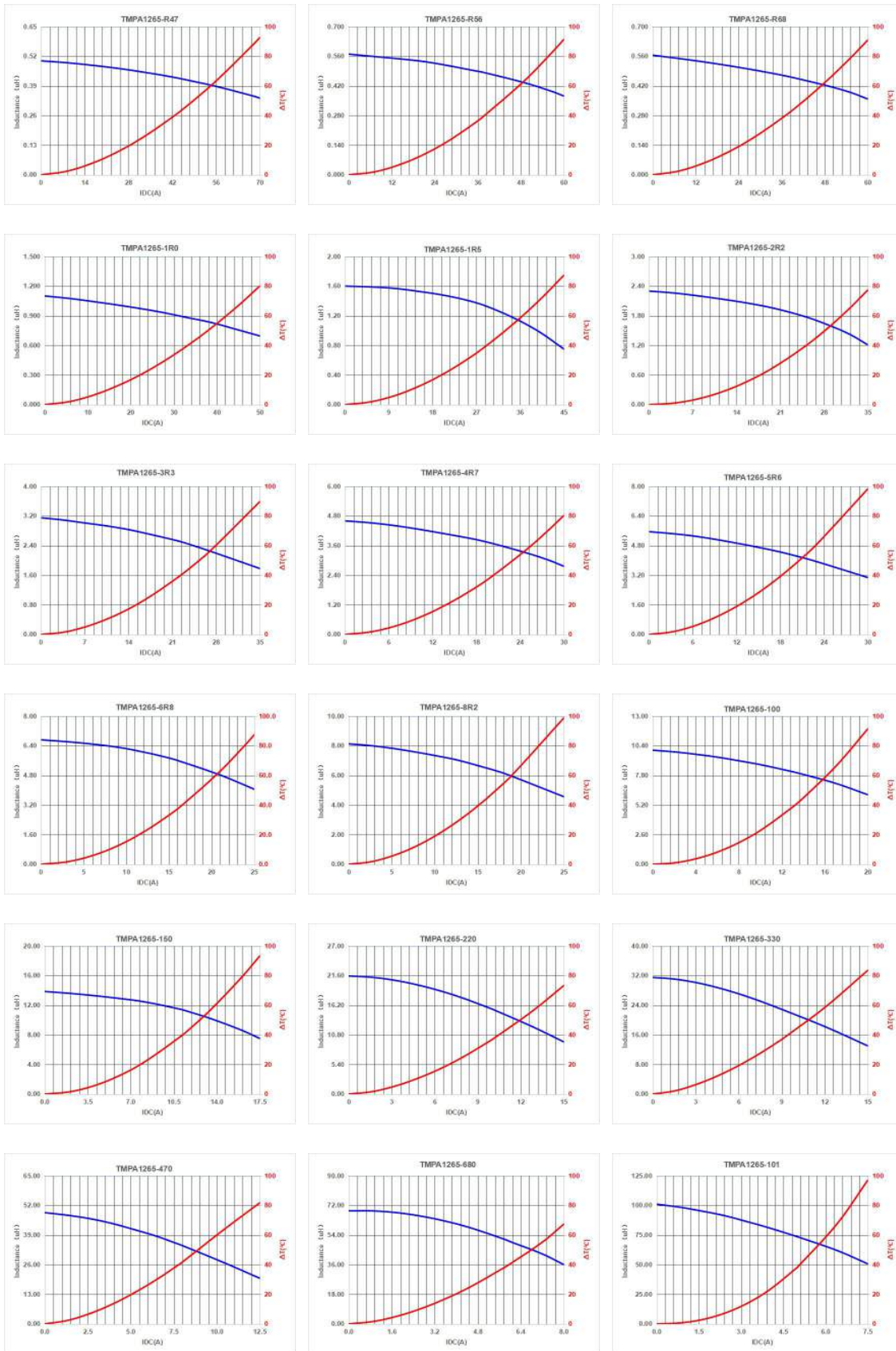




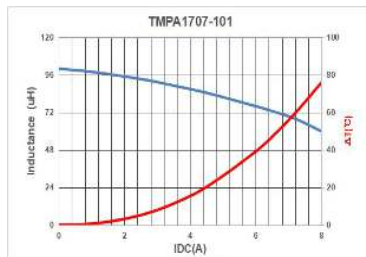
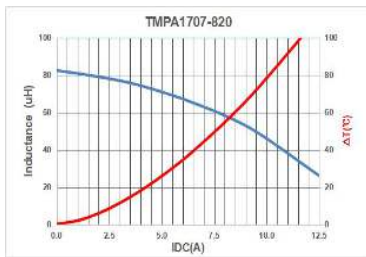
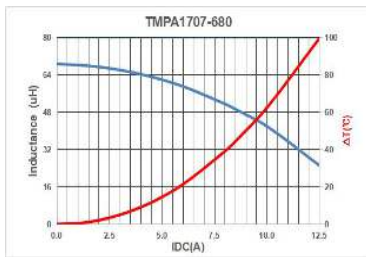
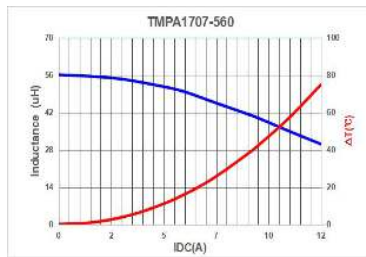
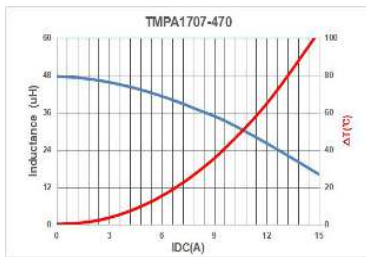
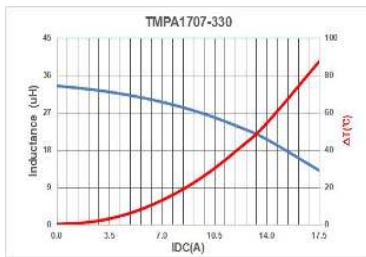
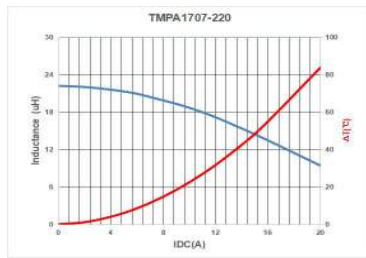
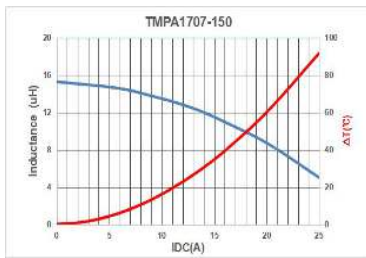
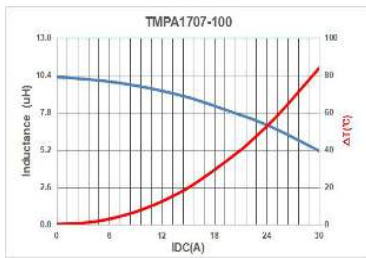
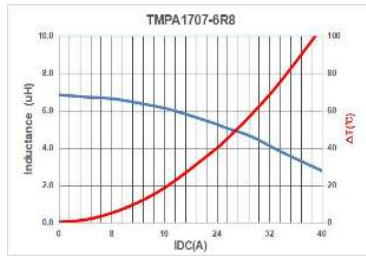
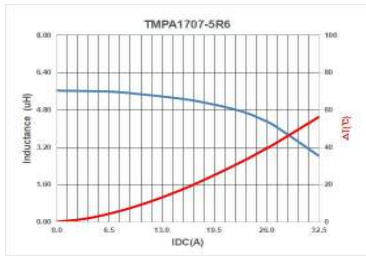
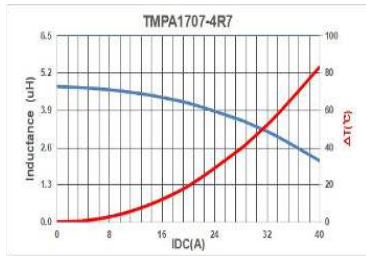
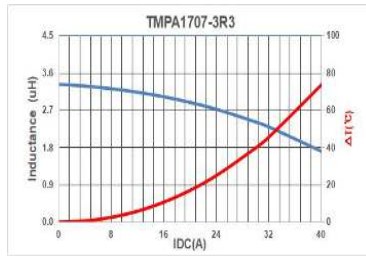
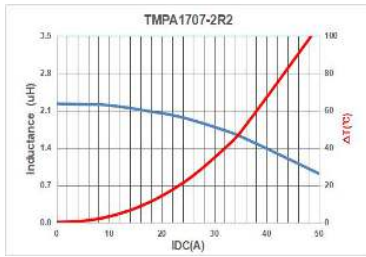
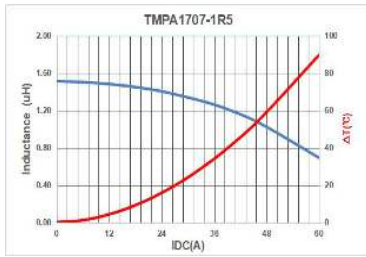
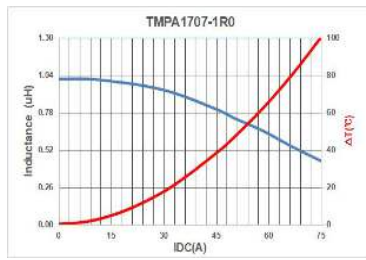
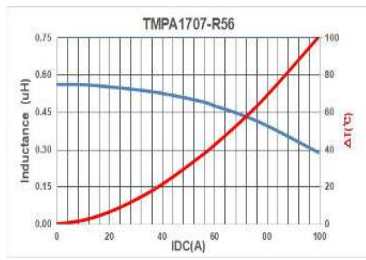
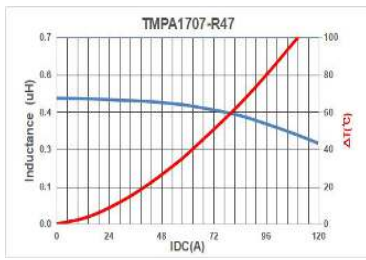


**TMPA1265**





**TMPA1707**



**TMPA2313**

