Version: 00

SPECIFICATION FOR APPROVAL

RoHS COMPLIANT

ITEM P/N	TPMC0603H-SERIES	TEST INSTRUMENT	HP4284 / CH16502 Equality
PRODUCT	SMD Inductor	TEST FREQUENCY	100 kHz / 1.0V

CUSTOMER	:	
CUSTOMER P/N	:	
DESCRIPTION	:	SMD INDUCTOR
SINKA P/N	:	TMPC0603H-SERIES
REVISION NO.	:	00
DATE	:	2015/2/15
NOTES	:	STANDARD

DOCUMENTED BY	
APPROVED	Y Imai
CHECKED	Cosby Liu
PREPARED	Wenny Wei

CUSTOMER APPROVAL

company seals

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SINKA JAPAN CO.,LTD

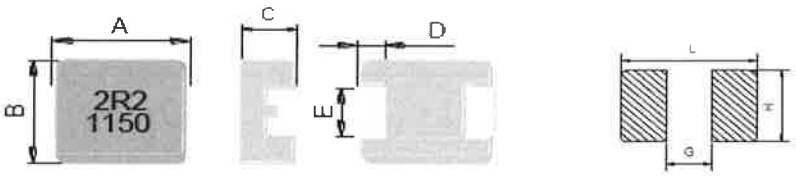
Version: 00

COIL SPECIFICATION

RoHS COMPLIANT

ITEM P/N	TMPC0603-SERIES	TEST INSTRUMENT	HP4284 / CH16502 Equality
PRODUCT	SMD Inductor	TEST FREQUENCY	100 kHz / 1.0V

PACKING DIMENSIONS (mm)



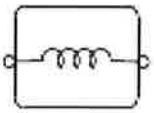
TMPC 0603	Dimensions
A	7.3 ± 0.3
B	6.6 ± 0.3
C	2.8 ± 0.2
D	1.8 ± 0.3
E	3.0 ± 0.3
L	8.4 Typ
G	2.5 Typ
H	3.5 Typ

EXPLANATION OF PART NUMBERS

1	2	3	4	5	6	7	8	9	10	11	12
T	M	P	C	0	6	0	3H	- R	4	7	M

Serial Codes — Size — Inductance Code

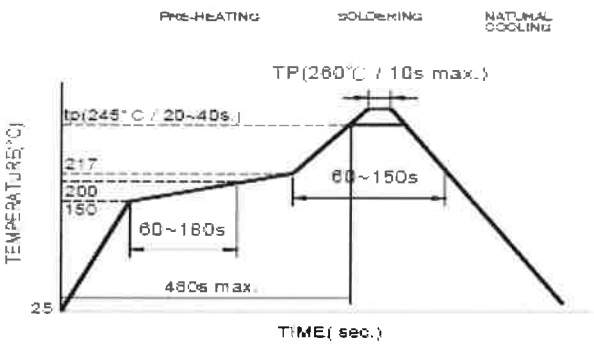
CONNECTIONS



◎ Inductor Contents ONE (1) Set(s) of Coil

◎ DC/AC Currnet Shall Be Introduced By Any One of Two Pads

RECOMMENDED SOLDERING TEMP. GRAPH



Reflow times: 3 times max.

Manual Soldering for rework

Solder Irom Temperature : 350 °Cmax

Soldering Times : Less than 5sec

(Manual Soldering is 1 time only)

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PRODUCT	SMD Inductor	TEST FREQUENCY	100 kHz / 1.0V

ELECTRICAL CHARACTERISTICS

P/N	L0 Inductance μH ±20% @0A	DCR (mΩ)		Heat Rating Current	Saturation Current
		[Typical]	[Max]	Idc (AMP) Typical	Isat (AMP) Typical
TMPC0603H-R22YG-D	0.22 ± 30%	2.1	2.8	23.0	40.0
TMPC0603H-R33MG-D	0.33	3.5	3.9	20.0	32.0
TMPC0603H-R47MG-D	0.47	4.0	4.2	17.5	26.0
TMPC0603H-R56MG-D	0.56	4.7	5.0	16.5	25.5
TMPC0603H-R68MG-D	0.68	4.8	5.5	15.5	25.0
TMPC0603H-R75MG-D	0.75	5.5	6.6	14.5	24.5
TMPC0603H-R82MG-D	0.82	6.7	8.0	13.0	24.0
TMPC0603H-1R0MG-D	1.00	8.3	10	11.0	22.0
TMPC0603H-1R5MG-D	1.50	13	15	9.0	18.0
TMPC0603H-1R8MG-D	1.80	14	17	8.5	16.0
TMPC0603H-2R2MG-D	2.20	18	20	8.0	14.0
TMPC0603H-2R5MG-D	2.50	20	22	7.0	13.0
TMPC0603H-3R3MG-D	3.30	28	30	6.0	13.5
TMPC0603H-4R7MG-D	4.70	37	40	5.5	10.0
TMPC0603H-5R6MG-D	5.60	43	48	5.0	9.0
TMPC0603H-6R8MG-D	6.80	54	60	4.5	8.0
TMPC0603H-8R2MG-D	8.20	64	68	4.0	7.5
TMPC0603H-100MG-D	10.0	75	85	3.5	6.0
TMPC0603H-220MG-D	22.0	165	190	2.0	3.5

- All test Data is referenced to 25℃ ambient
- Typical Heat Rating DC Current would cause an approximately △T of 40℃
- Typical Saturation DC Current would cause Lo to drop approximately 20%
- The Part temperature (ambient + △T) should not exceed 125℃ under worst case operating conditions.
- Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all effect the part temperature. Part temperature should be verified in the end application.

Strage Condition

Temparature : 0 ~ 40℃

Humidity : 20~65%RH

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CHARACTERISTICS

RoHS COMPLIANT

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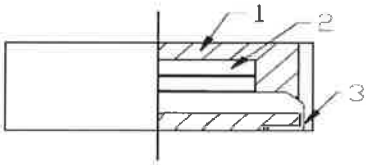
PRODUCT	SMD Inductor	TEST FREQUENCY	100 kHz / 1.0V

Marking

Marking showned inductance value
2R2 = Inductance (2.2uH)
1150 = Date Code
11 = Years (2011)
50 = Weeks

Structure



NO	Items	Materials
1	Core	Carbonyl powder or equ.
2	Wire	Polyester Wire or equivalent.
3	Solder Plating	100% Pb free solder

Break Down Ratio

This value is calculate based on MIL-HDBK-217F
Calculated Formuta $\lambda p = \lambda b \times \pi c \times \pi Q \times \pi E$
λp = Supposion of break down ratio λb = Based break down ratio
πc = Based on Structure πQ = Quality Factor
πE = Environment Factor
Result
λp = 0.00096 [pcs/10 h] = 76.8 [pcs/10 h] = 77 FIT
Calcurate Condition
Max motion tenperature TCM = 105℃ (General Supposion)
Temperature Rising ΔT = 35K (When flow the rated current)
Max Surroundings Temperature TAM = 50℃ (General Supposion)
Hot Spot Temperature THS = 85℃ (ΔT + TA
→ Based break down ratio λb = 0.00096 [pcs/10 h] (TCM , THS , MIL-HDBK-217F)
→ Based on Structure πc = 1.0 Fix Inductor (MIL-HDBK-217F)
→ Quality Factor πQ = 20 for public application (MIL-HDBK-217F)
→ Environmental Factor πE = 4.0 GB grade (MIL-HDBK-217F)

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CHARACTERISTICS

RoHS COMPLIANT

ITEM P/N	TMPC0603H-SERIES	TEST INSTRUMENT	HP4284 / CH16502 Equality
PRODUCT	SMD Inductor	TEST FREQUENCY	100 kHz / 1.0V

Reliability and Test Condition

Item	Performance	Test Method and Remarks
Operating Temperature	-40~+125 C	
Storage Temperature	-40~+125 C (on board)	
Rated current	Within the specified tolerance	
Inductance (L)		LCR Meter: HP 4285A or equivalent, 100kHz, 1V
DC Resistance		DC Ohmmeter: HIOKI3227 or equivalent
Life Test	Appearance : No damage Inductance : within±10% of initial value Q : Shall not exceed the specification value RDC : within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times (IPC/JEDEC J-STD-020D classification Reflow Profile) Temperature : 125±2°C (Beads) Temperature : 85±2°C (Inductor) Applied current : rated current Duration : 1000±12hrs Measured at room temperature after placing for 24±2 hrs
Load Humidity		Preconditioning: Run through IR reflow for 2 times (IPC/JEDEC J-STD-020D classification Reflow Profile) Humidity : 85±2% R.H. Temperature : 85°C±2°C Duration : 1000hrs Min. with 100% rated current Measured at room temperature after placing for 24±2 hrs
Thermal shock		Preconditioning: Run through IR reflow for 2 times (IPC/JEDEC J-STD-020D classification Reflow Profile) Condition for 1 cycle Step1 : -40±2°C : 30±5min Step2 : 25±2°C : ≦0.5min Step3 : 105±2°C : 30±5min Number of cycles : 500 Measured at room temperature after placing for 24±2 hrs
Vibration		Oscillation Frequency: 10 ~ 2K ~ 10Hz for 20 minutes Equipment : Vibration checker Total Amplitude 1.52mm±10% Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations)

Type	Peak Value (g's)	Normal Duration (D) (ms)	Wave form	Velocity change (M/Sec)
SMD	1500	0.5	Half-sine	15.4
Lead	100	6	Half-sine	12.3

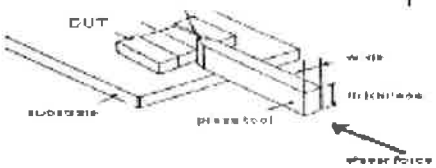
Shock	
Bending	Shall be mounted on a FR4 substrate of the following dimensions: >=0805 40x100x1.2mm >0805 40x100x0.8mm Bending depth: >=0805 1.2mm >0805 0.8mm Duration of 10 sec.

CHARACTERISTICS

RoHS COMPLIANT

ITEM P/N	TMPC0603H-SERIES	TEST INSTRUMENT	HP4284 / CH16502 Equality
PRODUCT	SMD Inductor	TEST FREQUENCY	100 kHz / 1.0V

Reliability and Test Condition -2

<table>
<tr><th>Item</th><th>Performance</th><th>Test Method and Remarks</th></tr>
<tr><td>Solderability</td><td>More than 95% of the terminal electrode should be covered with solder.</td><td>Preheat: 150℃, 60sec.
Solder: Sn-3.0Ag-0.5Cu.
Temperature: 245±5℃.
Flux for lead free: Rosin 25%.
Dip time: 4±1sec.
Depth: completely cover the termination</td></tr>
<tr><td>Resistance to Soldering Heat</td><td rowspan="2">Appearance : No damage.
Inductance : within ±10% of initial value
Q : Shall not exceed the specification value.
RDC : within ±15% of initial value and shall not exceed the specification value</td><td>Number of heat cycles: 1
<table><tr><td>Temperature (°C)</td><td>Time(s)</td><td>Temperature ramp/immersion and emersion rate</td></tr><tr><td>260 ±5(solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td></tr></table></td></tr>
<tr><td>Terminal Strength</td><td>Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles
With the component mounted on a PCB with the device to be tested, apply a force
(>3806: 1kg <=3806:0.5kg)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.
  </td></tr>
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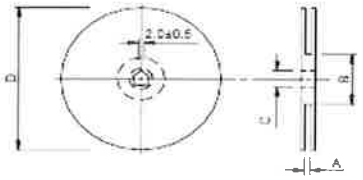
PACKING FOR SMD

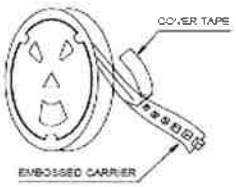
RoHS COMPLIANT

ITEM P/N	TMPC0603H-SERIES	TEST INSTRUMENT	HP4284 / CH16502 Equality
PRODUCT	SMD Inductor	TEST FREQUENCY	100 kHz / 1.0V

PACKING IMFORMATION

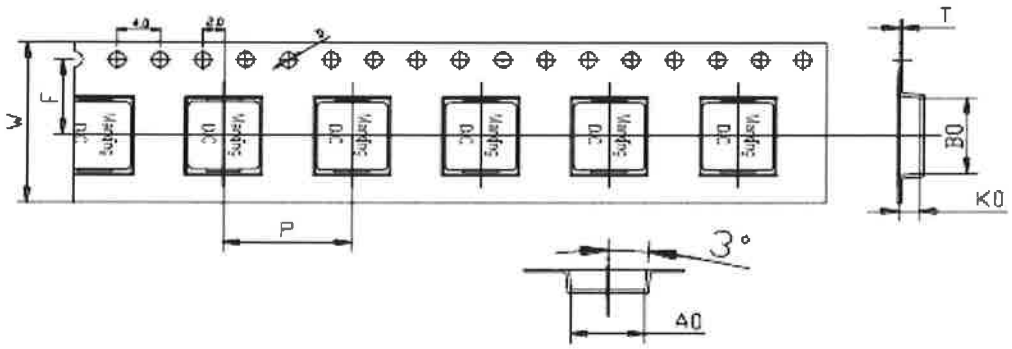
(1) Reel Dimension





Size	Type	A(mm)	B(mm)	C(mm)	D(mm)
0302 0412/02 0512/15/18/20/30	13"x12mm	12.0±0.5	100±2	13.5±0.5	330
053T 0612/15/18/02/24/03/05	13"x16mm	16.0±0.5	100±2	13.5±0.5	330

(2) Tape Dimension

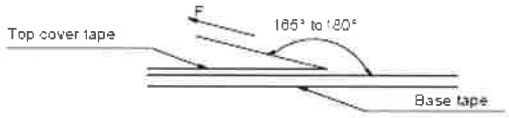


Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	W(mm)	F(mm)	t(mm)	D(mm)
TMPC	0603	7.8±0.1	7.1±0.1	3.3±0.1	12.0±0.1	16.0±0.3	7.5±0.1	0.35±0.05	1.5±0.1

(3) Packaging Quantity

TMPC	0302	0412	0402	0512	0515	0518/02	053T	0503	0612	0615/18	0602/24	0603	0605
Chip / Reel	3000	4000	3500	4000	3500	3000	1000	2000	3000	2000	1500	1000	800
Inner box	6000	8000	6000	8000	7000	6000	2000	4000	6000	4000	3000	2000	1600
Carton	24000	32000	24000	32000	28000	24000	8000	16000	24000	16000	12000	8000	6400

(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-C-2003 of 4.11 stadnard).

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

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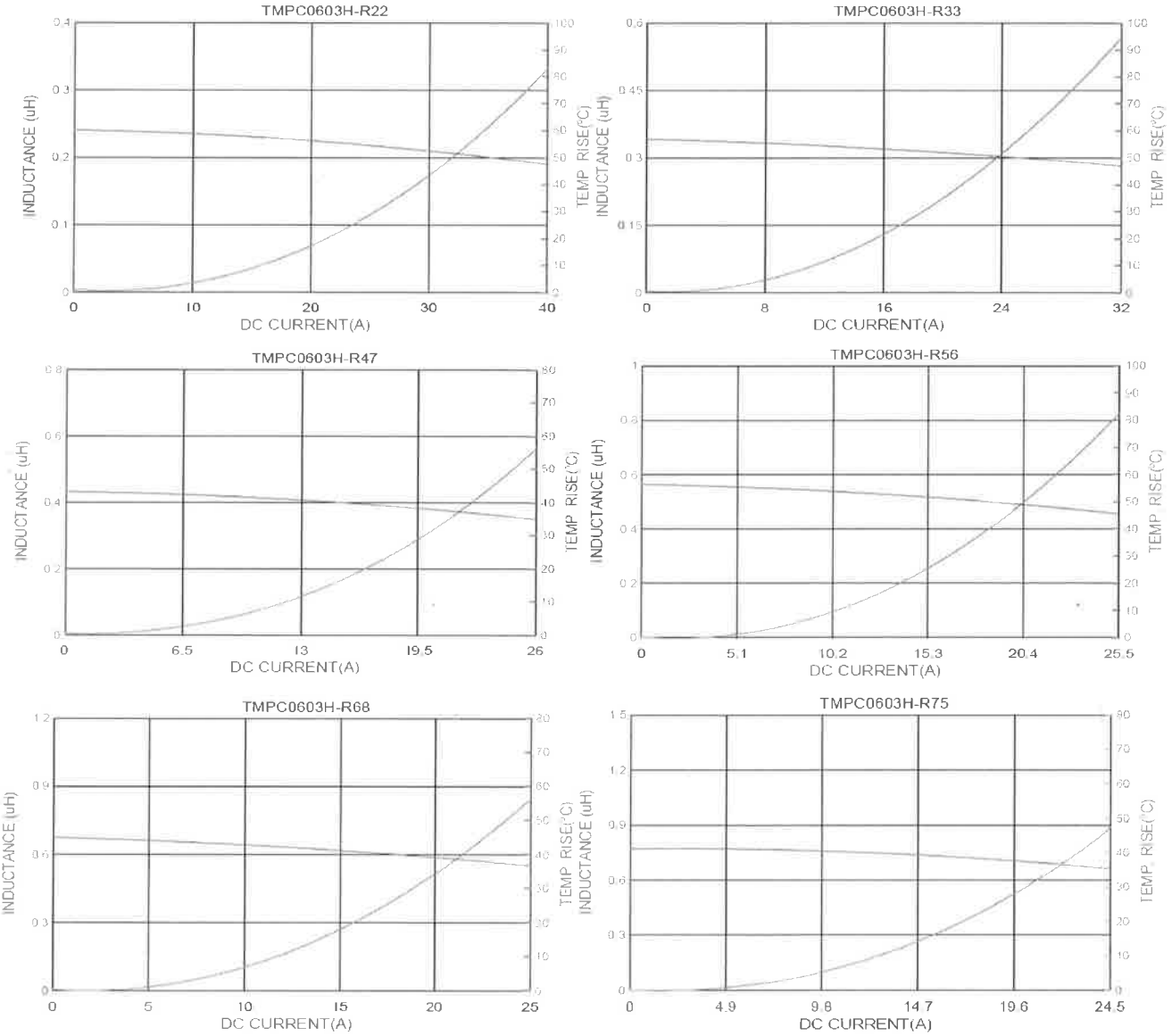
DC-Bias Chracterization



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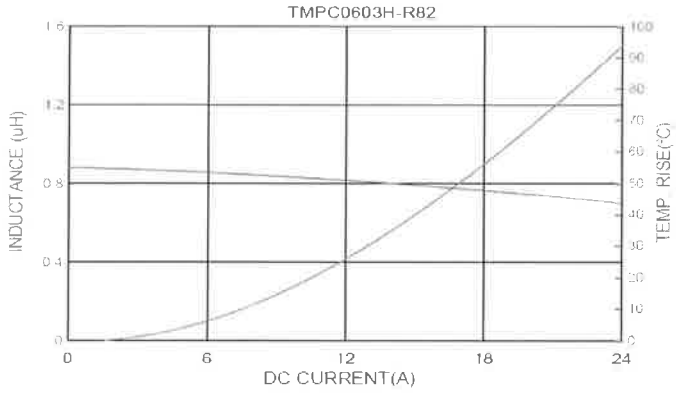

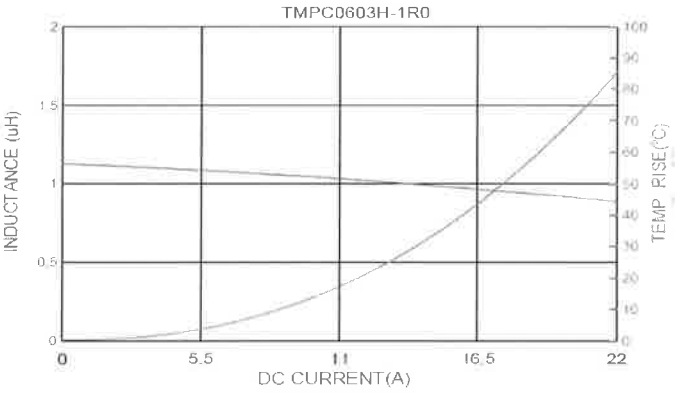

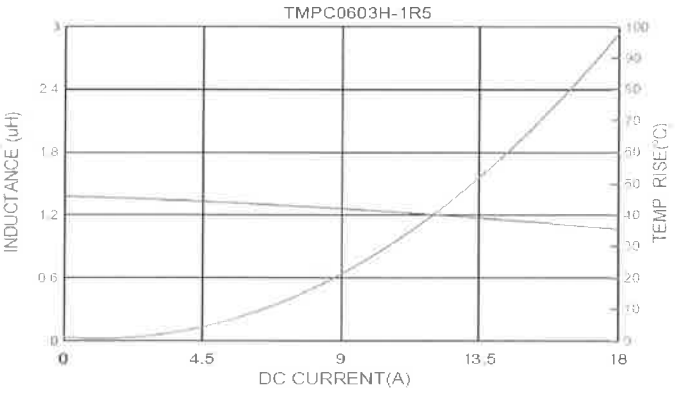

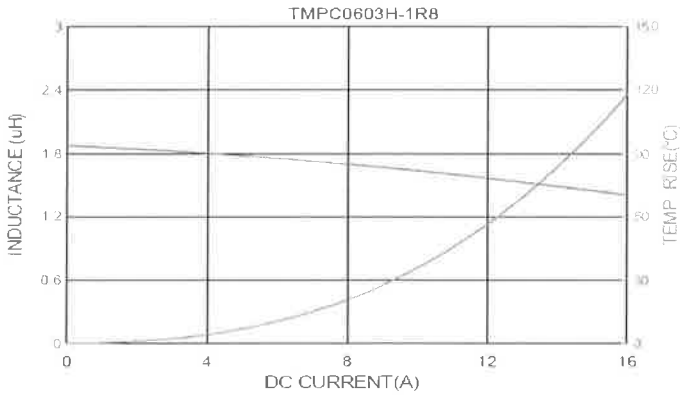

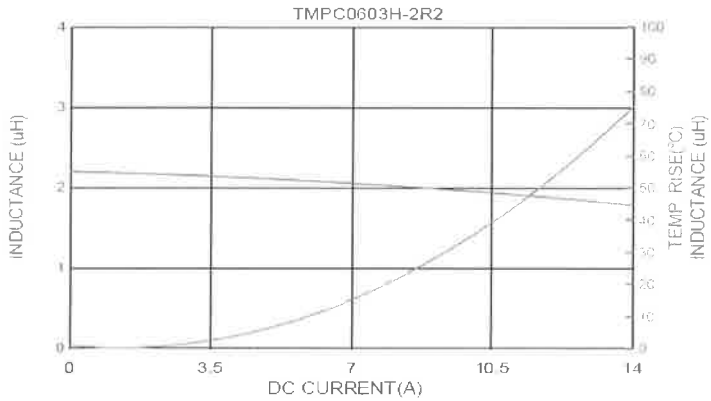

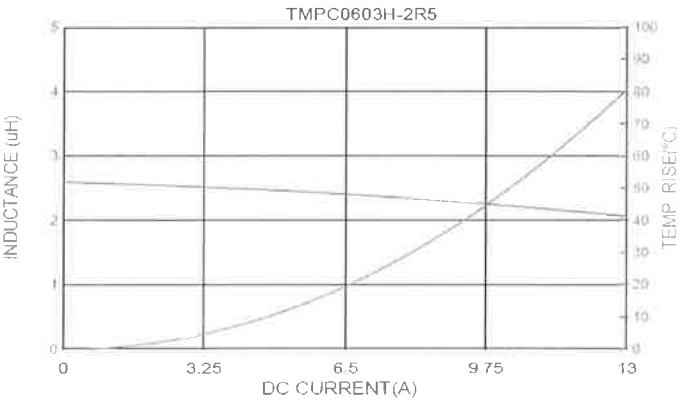

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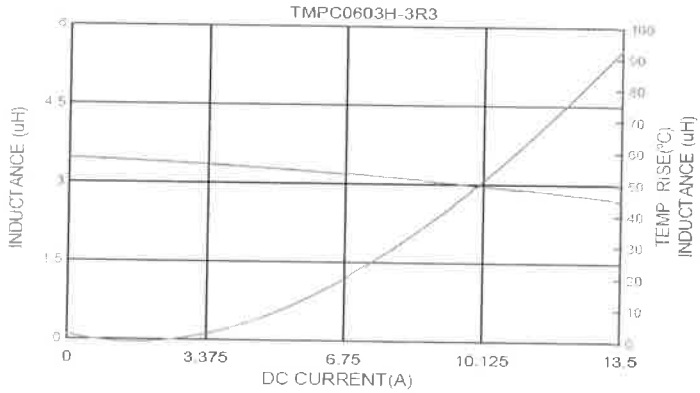

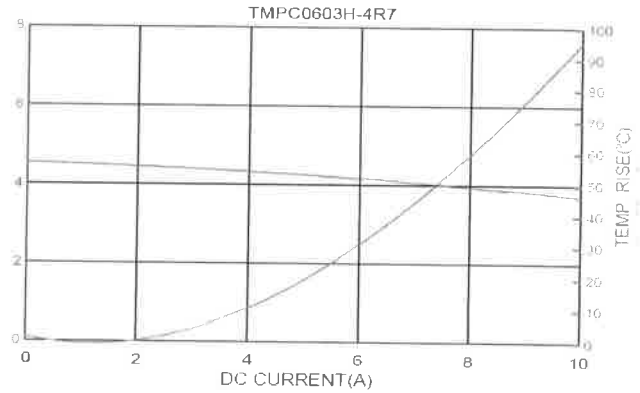

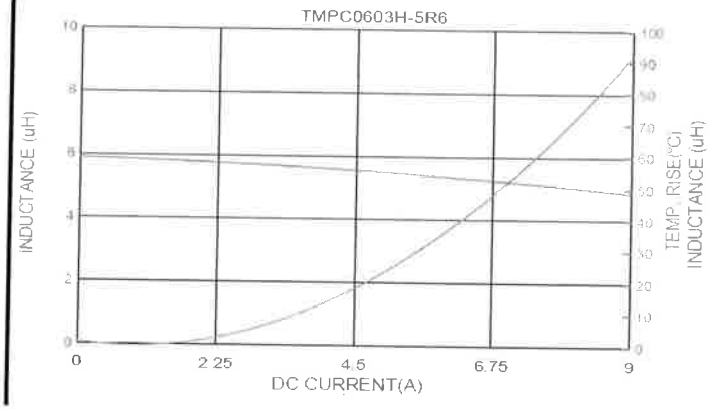

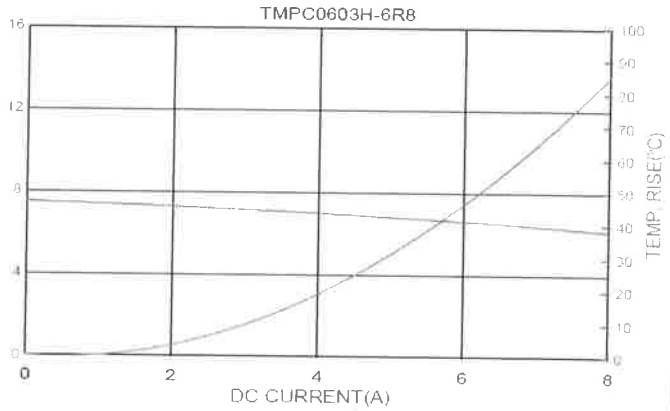

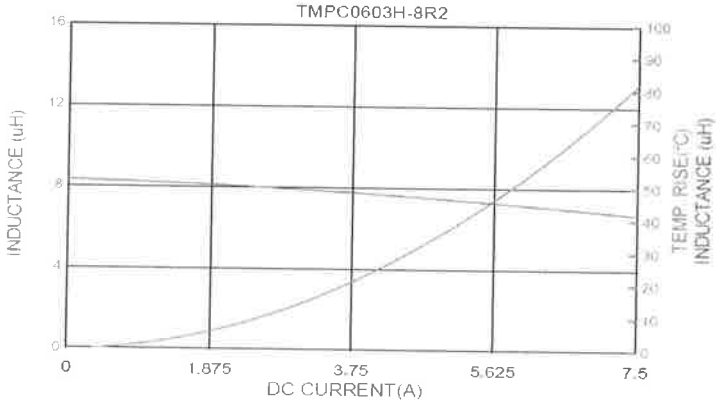

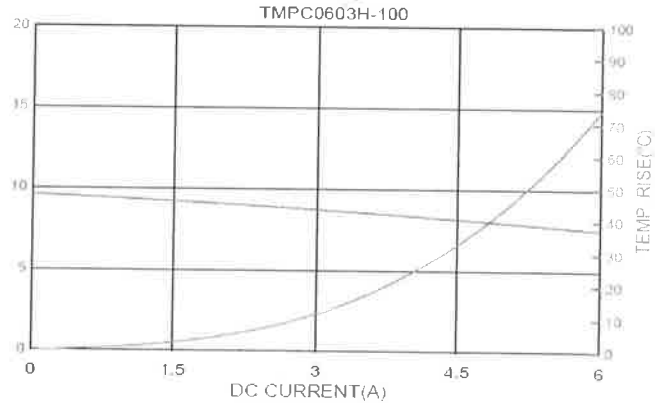

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