



**3L ELECTRONIC  
CORPORATION**



# AUTOMOTIVE

## INDUCTOR SELECTION

**2019**  
Products  
Catalog

[WWW.3LCOIL.COM](http://WWW.3LCOIL.COM)



# 3L Profile

## I. General

- 1) Name of company : 3L Electronic Corp.
- 2) Address: 3F, No.192, Sec. 2, Zhongxing Rd. Xindian Dist., New Taipei City 23146 Taiwan (R.O.C.)
- 3) Telephone: +886 (2) 86659999
- 4) Fax: +886 (2) 86659900
- 5) Chairman: Ms. Yongsu Liu
- 6) GM : Mr. Weiyang Liu
- 7) Established on: 1977
- 8) Paid up Capital: USD \$ 14,649,130
- 9) Turn Over: USD \$ 45,450,000
- 10) Main Bankers: United World Chinese Commercial Bank, General Bank, Hong Kong Bank

## II. Number of employees & Building Floorage

- 1) Our Employees (in total):  
Management: 9 Design/FAE/R&D: 78 Production Techniques: 127 MFG: 900  
Quality Control.: 69 Procurement: 23 PC/Warehouse: 49 Sales: 51  
Finance/Accounting: 27 HR and Education: 9 Logistics/Power Supply: 46 Total: 1388
- 2) Building Floorage:  
Taiwan Headquarters: 1100 M<sup>2</sup> Zhong Shan Factory I : 27760 M<sup>2</sup>  
Tampa Branch: 200 M<sup>2</sup> Zhong Shan Factory II: 40000 M<sup>2</sup>  
Su Zhou Branch: 300 M<sup>2</sup> Guangxi Factory : 9000 M<sup>2</sup>

## III. Standards

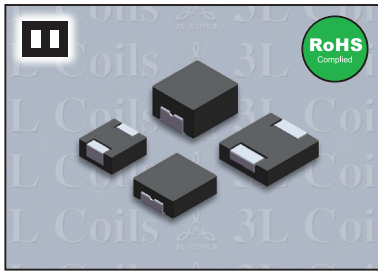
- ISO 14001:2015: CN06/31122 ISO 9001:2015: HK05/01601.01  
QC80000 NO. IECQ-H SGSCN 09.0285 Issue 4 IATF 16949:2016: IATF 0284881  
IATF 16949:2016: IATF 0302315

## IV. Milestones:

- 1977** Established 3L Electronic Corp. in Taipei, Taiwan by Dave Liou and Y.T. Liu.
- 1989** Established 3L's First Factory in China.
- 1991** Established 3L Electronic Corp. (U.S.A)(3LU) as North American warehouse and logistic controlling center. Incorporated G-TEP, meanwhile, and formed 3L Global Co. (3LG) for handling North American business.
- 2000** ISO 9001 certificated.
- 2002** Established 3L Electronic (Zhong Shan) Corp. (3LF)..
- 2003** Established 3L Electronic Corp. Su Zhou Branch (3LS).
- 2005** Awarded ISO 9001:2000 ISO14000:2004 and SGS GPMS. Fully complied RoHS requirement. Award China A Class Enterprise Certificate. Finished SDR, Planar Xfmrs, Flat Wire High Current Power Chokes Automation lines.
- 2006** Built up a new plant 40,000 M<sup>2</sup>, Henry Electronic. Corp. (3LQ), for expanding Customized Products manufacturing.
- 2007** Established 3L Electronic Group Holdings Ltd and its subsidiary holding companies. Established 3L Electronic International Trading Ltd for overseas business. Established Henry Electronic Corp., a 40,000 M<sup>2</sup> new site, and separated SMT & DIP types manufacturing plants.
- 2008** Got Sony and ASUS Green Partner certificated; Get QC080000 Certificate. Established Sanle Electronic Co. Ltd. for China domestic Sales.
- 2009** Completed mass production preparation for Iron Powders and UPI/DPI Molded Inductor; Approved by Texas Instrument and Flextronics. Re-issued company vision & re-defined 3L: (Improvement) Lasting, (Production) Leaning, (Customer) Leading.
- 2010** Established Equipment Center and enhanced ability of self-produced device like robot arm. Completed the lean production for SMTBW, NL, SMTDR, EE, FS, UPI series and raised 30% efficiency and decreased 50% defects and inventory. Established Inland China factories for labor intensive products & cost saving.
- 2011** Technical cooperation with Texas Instruments for developing molded power module / Promote E-learning and cloud technology developing.
- 2013** Develops Word class miniature Power Choke 2520 & 2016 series with lead-frame structure.
- 2016** Achieve Whole-Processes Automation on PK, FC, SDR, SMTDR, SMDV, BRI lean manufacturing.
- 2017** Expanding the Molded Power Inductor Family into 2: HPI Series will extend the sizes to bigger size as HPI 03/04/05/06 and be qualified for AEC-Q 200, for Automobile business; @ the same time, PHP Series will expand the size to a even Lower Profile and smaller size in order to achieve Consumer Electronic requirements.
- 2018** Plan to purchase land in Long An County in Guangxi Prov. (around 65,041 M<sup>2</sup>) for building 3L Electronic (Nanning) Co. Ltd which would be put into operation by 2020, with capacity increased double of that in 2017. Set up solar power for electricity generation and it is estimated to reach 40% of the self-provided power of 3L Electronic (Zhongshan) Co Ltd. and Henry Electronic Co. Ltd.; Obtain IATF 16949 on Jan to fully realize production for automobile products in 3L and Henry, Aim at sales volume increasing from 15% to 30% for the entire Group. Import FANUC 6 axis manipulator, automatic core grinding machine and multi-lens OVI to further reduce the manpower of repeated works for 15%.

# Product Index

## Power Inductor

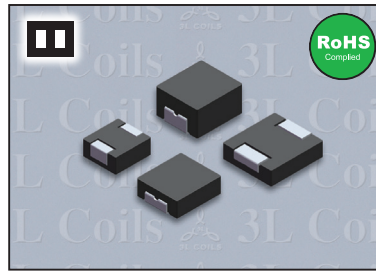


### HPIM



0310, 0312, 0315, 0302  
0410, 0412, 0415, 0402

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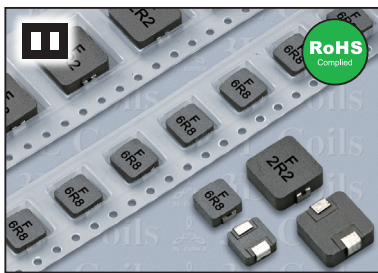


### AHPI



0312, 0302  
0412, 0402

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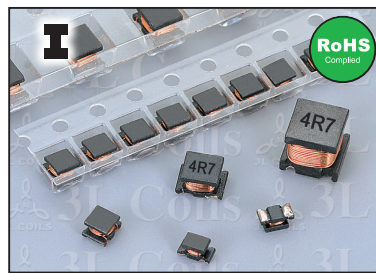


### UPIMF



S0603, 0804  
1004, 1005  
1205, 1207

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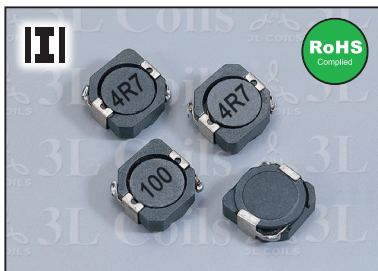


### SMTSDR



322520M  
453226M

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### SMTDRH



104RM, 105RM

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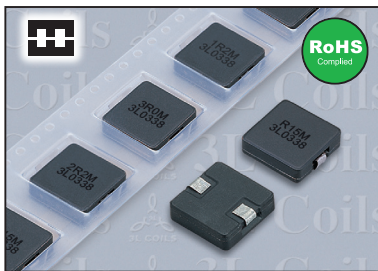


### SMTDRRI



127PM

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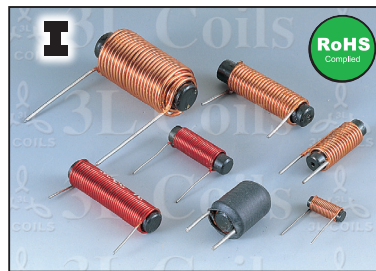


### SMTER



64M, 65M

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### FC



0315M  
0416M, 0417M, 0418M  
0518M, 0524M, 0525M

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### Customized items AEC-Q200 standard compliance: Page 9



SMTDRH0530M-680M



SMTDRH0635M-100N



SMTDRRI6D38M-330N



SMTDRS0732M-221M



SMTDRS1275M-220M



PK1010M-470K-UL (DIP)

Note: The magnetic structure: Unshielded Shielded

# WARRANTY

- **All standard parts** are guaranteed to be free from defects in material and workmanship, and are warranted to meet the 3L published specifications. No other warranty expressed or Implied is made by 3L. All special parts manufactured to a customer's specification are guaranteed to the extent agreed upon in writing between 3L and the user.
- **3L will repair / replace** units under the following conditions:
  1. The buyer must notify 3L in writing within 60 days of receipt of material, that they request authorization to return the parts.  
A description of the complaint and samples / Photos must be included.
  2. 3L must determine to its satisfaction that the parts are defective, and the defect is not due to misuse , accident , poor engineering practices or improper application.
- **3L's liability** shall in no event exceed the cost of repair or replacement of its parts. This warranty does not extend to any material which has been altered or repaired by others without our written authorization.



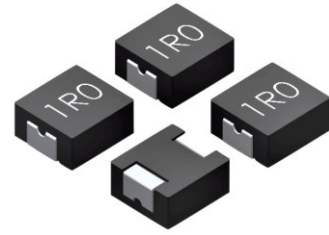


## HPIM03&04 SERIES

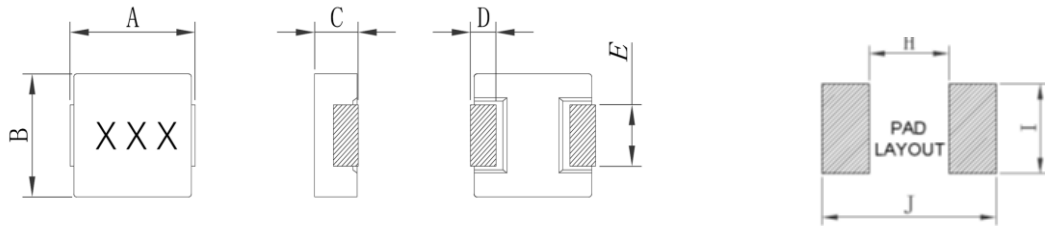
HIGH POWER INDUCTOR

### Applications:

- Automotive reliability comply with **AEC-Q200** grade 1
- DC/DC converters for entertainment / navigation systems
- Noise suppression for motors
- LED drivers



### Shape and Dimensions (Dimensions are in mm)



Item	A	B	C	D	E	H	I	J
HPIM0310	3.4±0.2	3.0±0.2	0.8±0.2	0.7±0.3	1.3±0.2	1.2	2.0	4.2
HPIM0312	3.4±0.2	3.0±0.2	1.0±0.2	0.7±0.3	1.3±0.2	1.2	2.0	4.2
HPIM0315	3.4±0.2	3.0±0.2	1.3±0.2	0.7±0.3	1.3±0.2	1.2	2.0	4.2
HPIM0302	3.4±0.2	3.0±0.2	1.8±0.2	0.7±0.3	1.3±0.2	1.2	2.0	4.2
HPIM0410	4.4±0.2	4.0±0.2	0.8±0.2	0.76±0.3	2.0±0.3	2.16	2.3	4.95
HPIM0412	4.4±0.2	4.0±0.2	1.0±0.2	0.76±0.3	2.0±0.3	2.16	2.3	4.95
HPIM0415	4.4±0.2	4.0±0.2	1.3±0.2	0.76±0.3	2.0±0.3	2.16	2.3	4.95
HPIM0402	4.4±0.2	4.0±0.2	1.8±0.2	0.76±0.3	2.0±0.3	2.16	2.3	4.95

### Features :

- High performance (I sat) realized by metal dust core.
- Low profile: 1.0 ~2.0mm
- Low loss realized with low DCR
- Compliance with RoHS and Halogen Free

### Characteristics:

- Saturation Current (I<sub>sat</sub>) : The current will cause L<sub>0</sub> to drop approximately 30% typical
- Temperature Rise Current ( I<sub>rms</sub> ) : The current will cause the coil temperature rise approximately ΔT=40°C.
- Operating Temperature : -55°C to 125°C

### Product Identification:

**HPI M 0310 - 1R0 M**  
 (1) (2) (3) (4)

- (1) Product Symbol
- (2) Dimensions Code
- (3) Inductance: **1R0** for 1.0uH
- (4) Tolerance: **M** : ± 20%.

### Test equipments :

- L: Wayne Kerr 3260B Precision Magnetics Analyzer.
- DCR: HIOKI RM 3545 DC resistance meters.
- IWT test : CHROMA 19301A .(Impulse winding test )



● **HPIM03 series**

Part No.	Inductance L (uH)	Tolerance (±%)	DCR(mΩ)		I sat(A)		I rms(A)	
			Typ.	Max.	Typ.	Max.	Typ.	Max.
HPIM0310-R22M	0.22	20	11	14	11	9.0	7.0	5.5
HPIM0310-R33M	0.33	20	15	18	10	8.5	6.0	4.0
HPIM0310-R47M	0.47	20	22	25	7.0	6.0	4.0	3.0
HPIM0310-1R0M	1.0	20	40	48	5.0	4.0	2.8	2.4
HPIM0310-1R5M	1.5	20	54	65	4.0	3.5	2.4	2.0
HPIM0310-2R2M	2.2	20	87	100	3.5	3.0	1.8	1.5
HPIM0310-100M	10	20	380	430	1.4	1.2	0.9	0.7
HPIM0312-R22M	0.22	20	9.6	12	12	11	9.0	7.5
HPIM0312-R33M	0.33	20	15.8	18	9.6	8.6	7.2	5.2
HPIM0312-R47M	0.47	20	22	25	8.2	7.2	6.2	4.2
HPIM0312-1R0M	1.0	20	39.2	45	5.8	5.0	4.0	3.0
HPIM0312-2R2M	2.2	20	88	102	4.0	3.5	2.6	2.1
HPIM0312-3R3M	3.3	20	136	155	3.2	2.8	1.8	1.4
HPIM0312-4R7M	4.7	20	160	190	2.0	1.8	1.4	0.9
HPIM0312-100M	10	20	313	360	1.5	1.2	1.0	0.8
HPIM0315-R22M	0.22	20	10.7	13	14	12	11	9.0
HPIM0315-R33M	0.33	20	15	18	13	11.5	8.5	6.5
HPIM0315-R47M	0.47	20	19	22	9.0	7.5	7.0	5.0
HPIM0315-1R0M	1.0	20	36	42	6.2	5.2	4.5	3.5
HPIM0315-1R5M	1.5	20	50	60	5.8	4.8	3.8	3.0
HPIM0315-2R2M	2.2	20	72	85	5.0	4.0	3.2	2.6
HPIM0315-3R3M	3.3	20	92	110	3.5	3.0	2.2	1.5
HPIM0315-100M	10	20	313	360	2.0	1.5	1.2	0.9
HPIM0302-R22M	0.22	20	8.0	10	16	13	10	8.0
HPIM0302-R33M	0.33	20	12	15	14	12	9.0	7.0
HPIM0302-R47M	0.47	20	15	18	12	10	8.0	6.5
HPIM0302-1R0M	1.0	20	25	30	8.0	6.5	5.0	4.0
HPIM0302-1R5M	1.5	20	34	39	6.0	5.0	4.2	3.2
HPIM0302-2R2M	2.2	20	60	69	4.8	4.0	3.3	2.8
HPIM0302-3R3M	3.3	20	70	83	4.0	3.5	2.8	2.2
HPIM0302-4R7M	4.7	20	120	144	3.5	3.0	2.4	2.0
HPIM0302-6R8M	6.8	20	153	184	3.0	2.6	1.6	1.2
HPIM0302-100M	10	20	224	260	1.8	1.6	1.3	1.0

**If you require another part number please contact with us.**

Note 1: Referenced ambient temperature 20°C.

Note 2: Test Condition :1MHz ,1.0 Vrms.

Note 3: I sat (Typ) : DC current (A) that will cause L0 to drop approximately 30%

I sat (Max) : DC current (A) that will cause L0 to drop 30% Max

I rms (Typ) : DC current (A) that will cause an approximate ΔT of 40°C

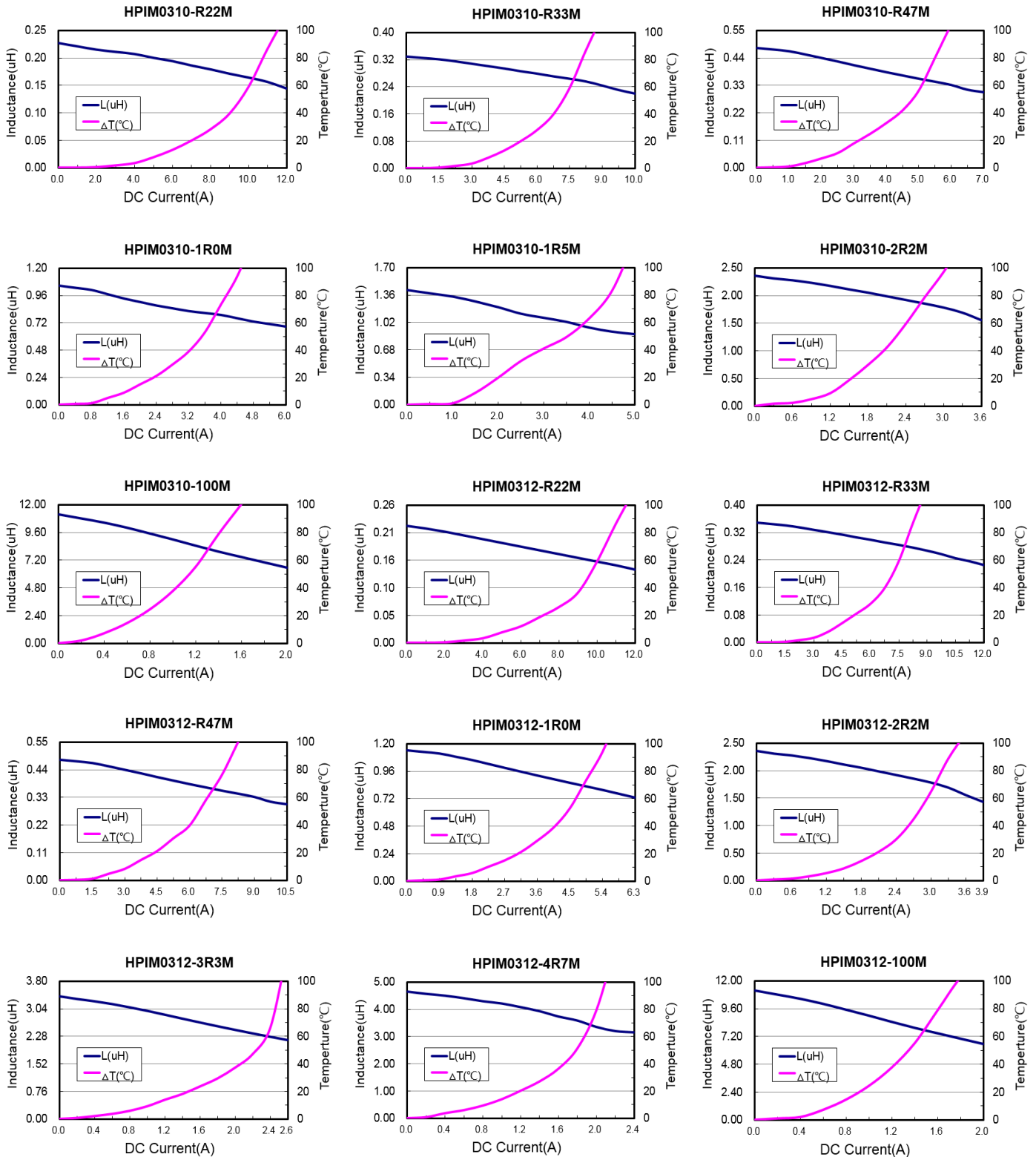
I rms (Max) : DC current (A) that will cause an ΔT of 40°C Max

Note 4: Operating temperature range includes self-temperature rise.

Note 5: The rated current as listed is either the saturation current or the heating current depending on which value is lower.

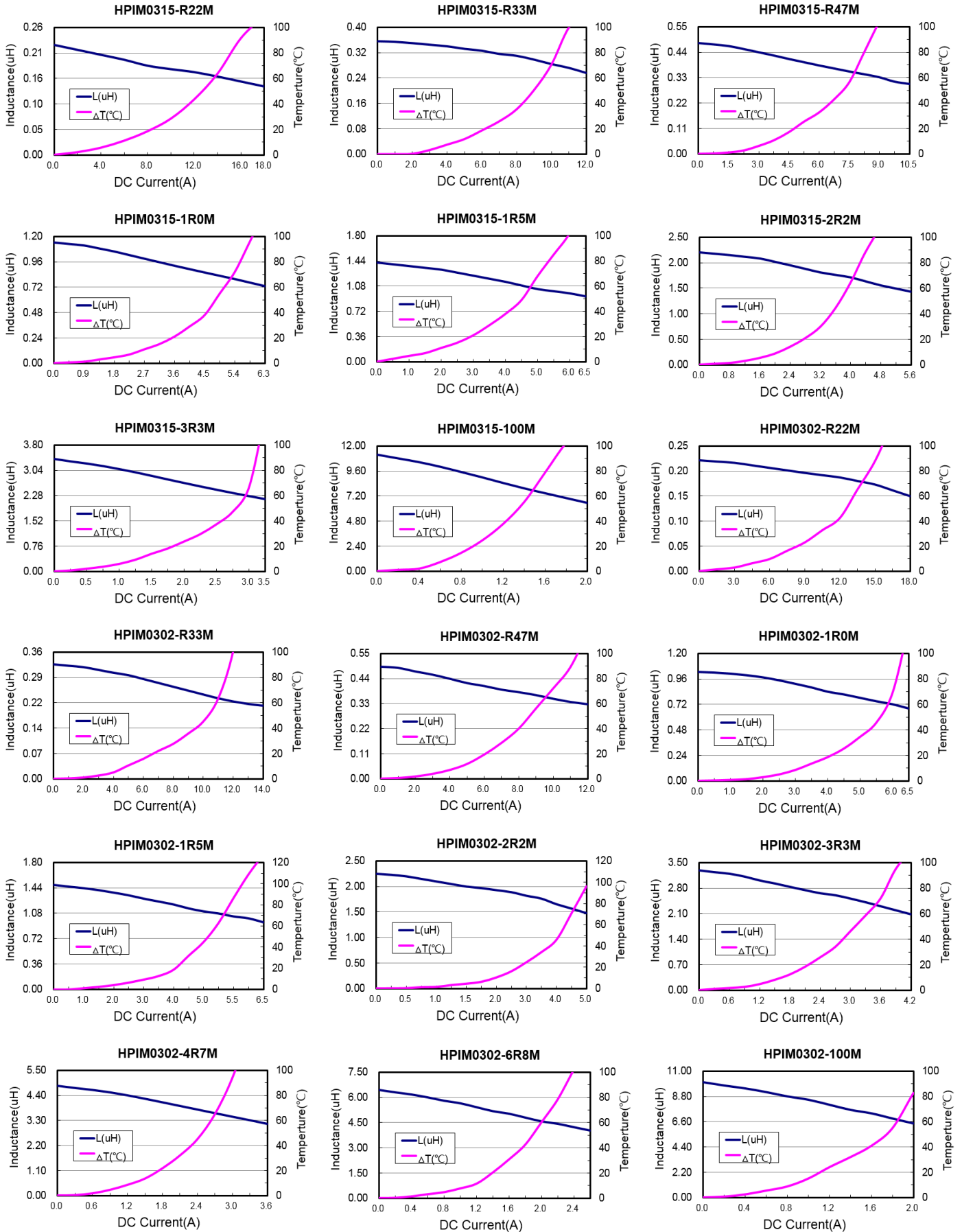


Typical Performance curves:





Typical Performance curves:







● **HPIM04 series**

Part No.	Inductance L(uH)	Tolerance (±%)	DCR(mΩ)		I sat(A)		I rms(A)	
			Typ.	Max.	Typ.	Max.	Typ.	Max.
HPIM0410-R22M	0.22	20	9.8	12	18	15	11	9.0
HPIM0410-R33M	0.33	20	11.7	14.5	14	12	10	8.0
HPIM0410-R47M	0.47	20	15.2	18.5	11	9.0	8.5	7.0
HPIM0410-1R0M	1.0	20	35	42	6.5	5.5	4.2	3.5
HPIM0410-2R2M	2.2	20	90	108	4.5	4.0	2.8	2.4
HPIM0410-6R8M	6.8	20	224	268	2.8	2.2	1.4	1.1
HPIM0410-100M	10	20	260	312	1.7	1.4	1.1	0.8
HPIM0412-R33M	0.33	20	12	14.5	14	12	10	8.0
HPIM0412-R47M	0.47	20	16.8	20	13	10	8.8	7.0
HPIM0412-1R0M	1.0	20	36.5	43	7.8	6.2	5.2	4.5
HPIM0412-1R5M	1.5	20	54.5	62	6.2	5.4	4.2	3.5
HPIM0412-2R2M	2.2	20	72	80	5.5	4.5	3.5	3.0
HPIM0412-3R3M	3.3	20	97	111	4.5	3.9	2.8	2.4
HPIM0412-4R7M	4.7	20	119	143	3.2	2.8	2.2	1.8
HPIM0415-R33M	0.33	20	12	14.5	14	12.5	10	8.0
HPIM0415-R47M	0.47	20	17.8	22	13	11	8.8	7.0
HPIM0415-1R0M	1.0	20	28.5	33.5	8.0	6.5	5.5	5.0
HPIM0415-1R5M	1.5	20	41	47	7.0	6.0	4.2	3.5
HPIM0415-2R2M	2.2	20	53	62.5	5.5	4.5	3.5	3.0
HPIM0415-100M	10	20	232	278	2.0	1.8	1.2	1.0
HPIM0402-R22M	0.22	20	6.2	7.4	24	18	14	12
HPIM0402-R33M	0.33	20	7.0	8.4	14	12	11	9.0
HPIM0402-R47M	0.47	20	9.4	11.3	13	11.5	10	8.0
HPIM0402-R68M	0.68	20	13.3	16	12	11	9.0	7.0
HPIM0402-1R0M	1.0	20	16.4	20	9.0	7.2	6.5	5.5
HPIM0402-1R5M	1.5	20	22	26.4	7.5	6.5	4.8	4.0
HPIM0402-2R2M	2.2	20	31.5	38	6.0	5.5	4.0	3.5
HPIM0402-3R3M	3.3	20	45	54	5.0	4.5	3.5	3.0
HPIM0402-4R7M	4.7	20	58	70	4.5	4.0	3.0	2.2
HPIM0402-6R8M	6.8	20	86	103	3.5	3.0	2.4	2.0
HPIM0402-100M	10	20	170	190	3.0	2.6	2.0	1.8
HPIM0402-150M	15	20	240	275	2.6	2.0	1.8	1.3
HPIM0402-220M	22	20	265	320	2.1	1.6	1.2	1.0

**If you require another part number please contact with us.**

Note 1: Referenced ambient temperature 20°C.

Note 2: Test Condition :1MHz ,1.0 Vrms.

Note 3: I sat (Typ) : DC current (A) that will cause L0 to drop approximately 30%

I sat (Max) : DC current (A) that will cause L0 to drop 30% Max

I rms (Typ) : DC current (A) that will cause an approximate ΔT of 40°C

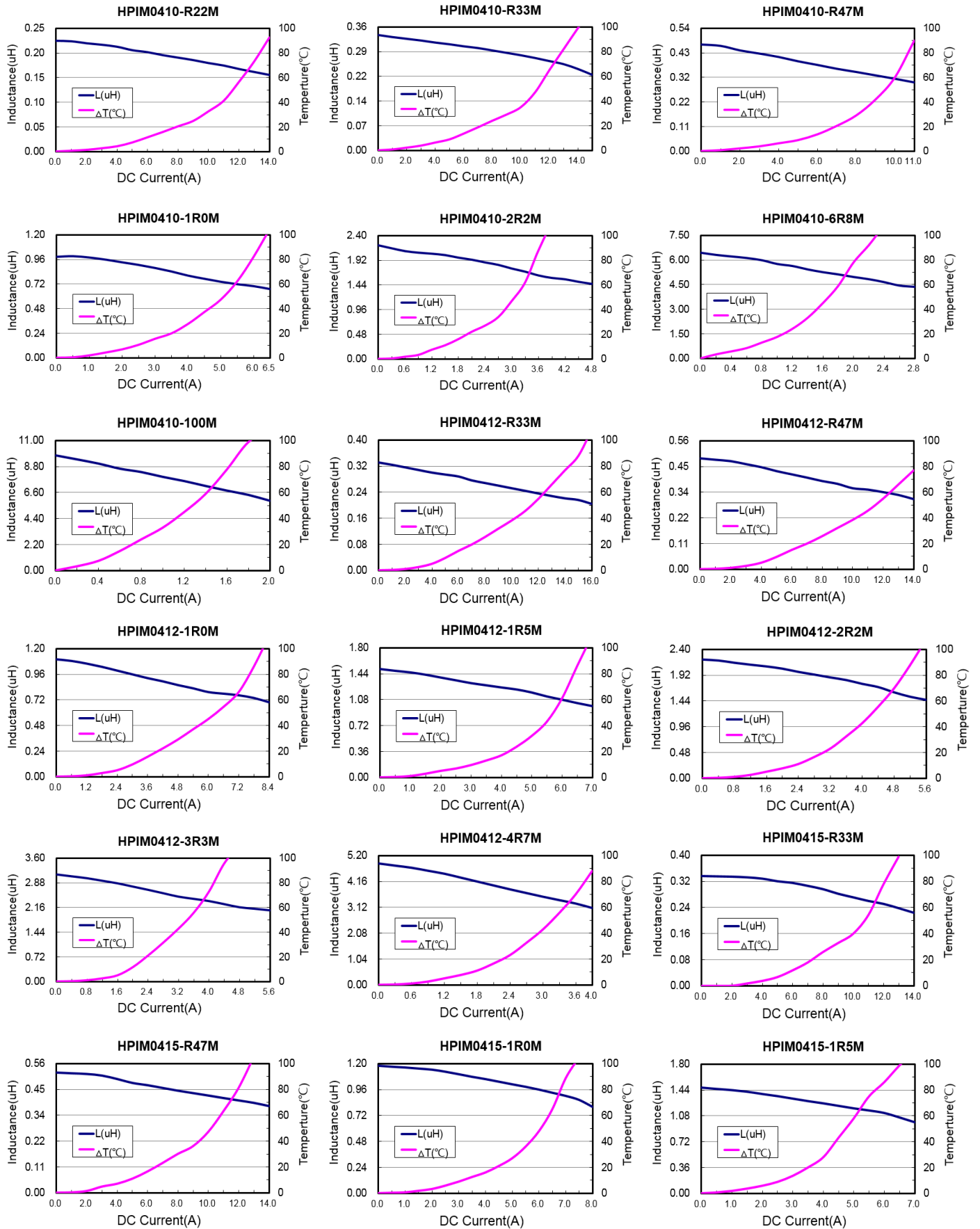
I rms (Max) : DC current (A) that will cause an ΔT of 40°C Max

Note 4: Operating temperature range includes self-temperature rise.

Note 5: The rated current as listed is either the saturation current or the heating current depending on which value is lower.

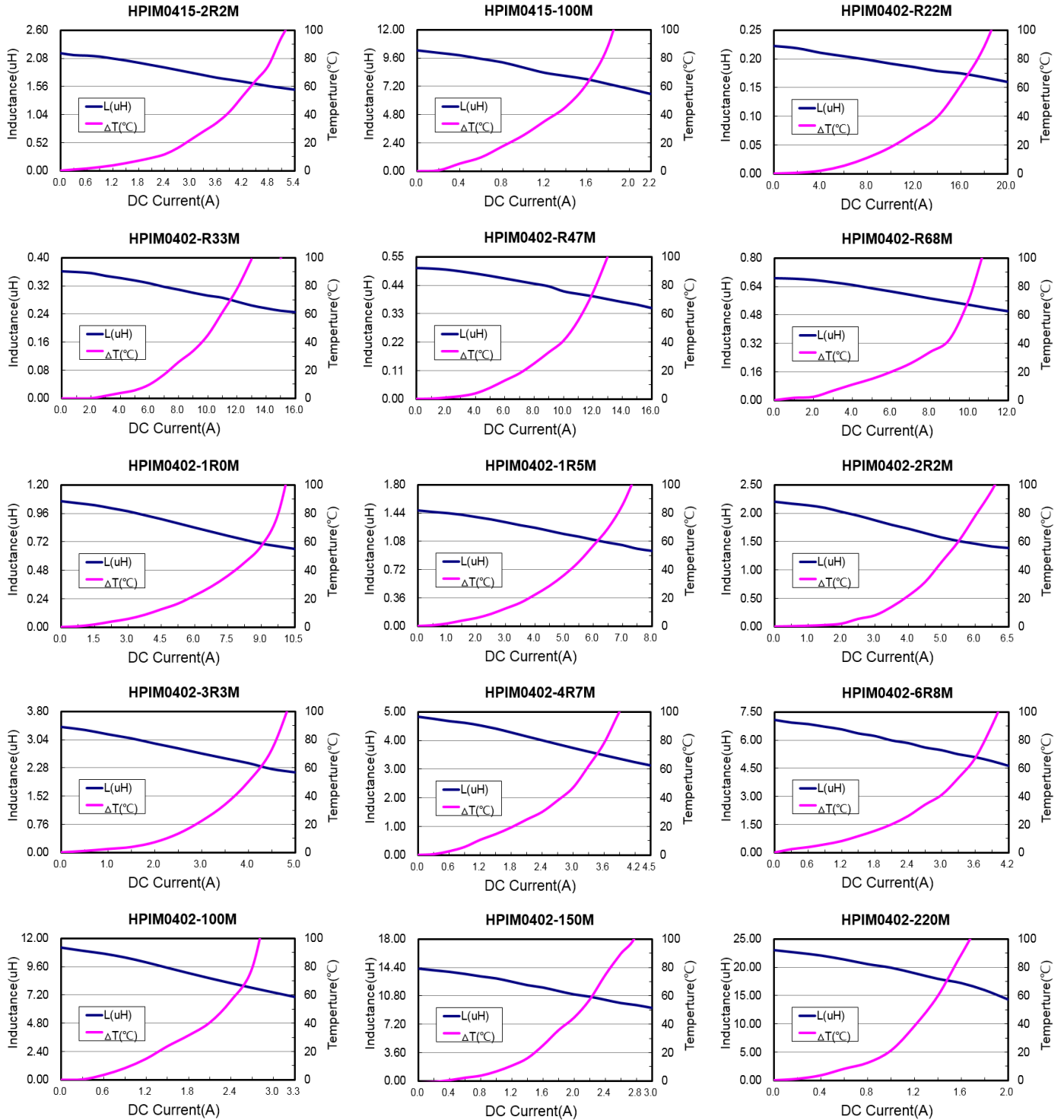


Typical Performance curves:





Typical Performance curves:



\*Due to the limited space, the catalogue shows the typical specifications only. For more specific details ( characteristics graph, reliability, and others), kindly invite you to access 3L official website [www.3lcoil.com](http://www.3lcoil.com) for better known.



## AHPI03&04 SERIES

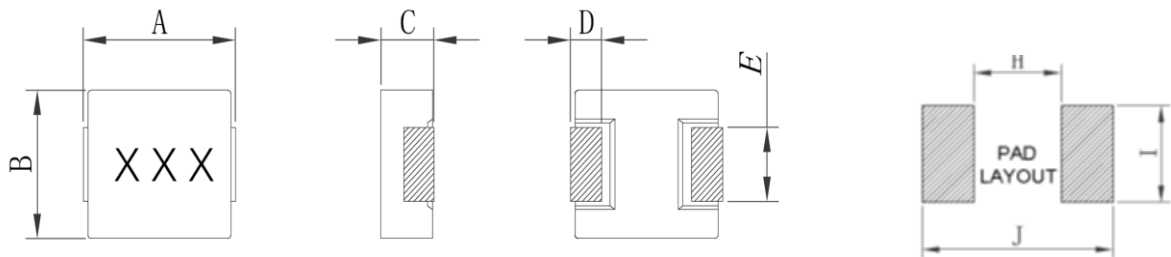
HIGH POWER INDUCTOR

### Applications:

- Automotive reliability comply with **AEC-Q200** grade 0
- DC/DC converters for entertainment / navigation systems
- Noise suppression for motors
- LED drivers



### Shape and Dimensions (Dimensions are in mm)



Item	A	B	C	D	E	H	I	J
AHPI0312	3.4±0.2	3.0±0.2	1.0±0.2	0.7±0.3	1.3±0.2	1.2	2.0	4.2
AHPI0302	3.4±0.2	3.0±0.2	1.8±0.2	0.7±0.3	1.3±0.2	1.2	2.0	4.2
AHPI0412	4.4±0.2	4.0±0.2	1.0±0.2	0.76±0.3	2.0±0.3	2.16	2.3	4.95
AHPI0402	4.4±0.2	4.0±0.2	1.8±0.2	0.76±0.3	2.0±0.3	2.16	2.3	4.95

### Features :

- High performance (I sat) realized by metal dust core.
- Low profile: 1.2~2.0mm
- Low loss realized with low DCR
- Compliance with RoHS and Halogen Free

### Product Identification:

**AHPI 0312 - 1R0 M**

(1) (2) (3) (4)

- (1) Product Symbol
- (2) Dimensions Code
- (3) Inductance: **1R0** for 1.0uH
- (4) Tolerance: **M** : ± 20%.

### Characteristics:

- Saturation Current (I<sub>sat</sub>) : The current will cause L<sub>0</sub> to drop approximately 30% typical
- Temperature Rise Current ( I<sub>rms</sub> ) : The current will cause the coil temperature rise approximately ΔT=40°C
- Operating Temperature : -55°C to 155°C.

### Test equipments :

- L: Wayne Kerr 3260B Precision Magnetics Analyzer.
- DCR: HIOKI RM 3545 DC resistance meters.
- IWT test : CHROMA 19301A .(Impulse winding test )





● **AHPI03 series**

Part No.	Inductance L (uH)	Tolerance (±%)	DCR(mΩ)		I sat(A)		I rms(A)	
			Typ.	Max.	Typ.	Max.	Typ.	Max.
AHPI0312-R33M	0.33	20	16	18	9.0	7.0	7.0	6.0
AHPI0312-1R0M	1.0	20	38	45	4.8	4.0	3.5	3.0
AHPI0312-1R5M	1.5	20	63	75	3.6	3.2	3.0	2.5
AHPI0312-2R2M	2.2	20	82	102	2.8	2.4	2.2	2.0
AHPI0312-3R3M	3.3	20	135	160	2.5	2.0	2.0	1.8
AHPI0312-4R7M	4.7	20	150	180	2.2	1.8	1.6	1.4
AHPI0302-1R0M	1.0	20	26	32	6.0	5.0	4.2	3.8
AHPI0302-1R5M	1.5	20	36	45	5.0	4.5	3.6	3.2
AHPI0302-2R2M	2.2	20	60	72	4.0	3.5	3.0	2.5
AHPI0302-3R3M	3.3	20	81	100	3.2	2.8	2.4	2.0
AHPI0302-4R7M	4.7	20	118	140	2.6	2.2	2.0	1.6
AHPI0302-6R8M	6.8	20	152	180	2.2	1.8	1.4	1.0

**If you require another part number please contact with us.**

Note 1: Referenced ambient temperature 20°C.

Note 2: Test Condition :1MHz , 1.0 Vrms.

Note 3: I sat (Typ) : DC current (A) that will cause L0 to drop approximately 30%

I sat (Max) : DC current (A) that will cause L0 to drop 30% Max

I rms (Typ) : DC current (A) that will cause an approximate ΔT of 40°C

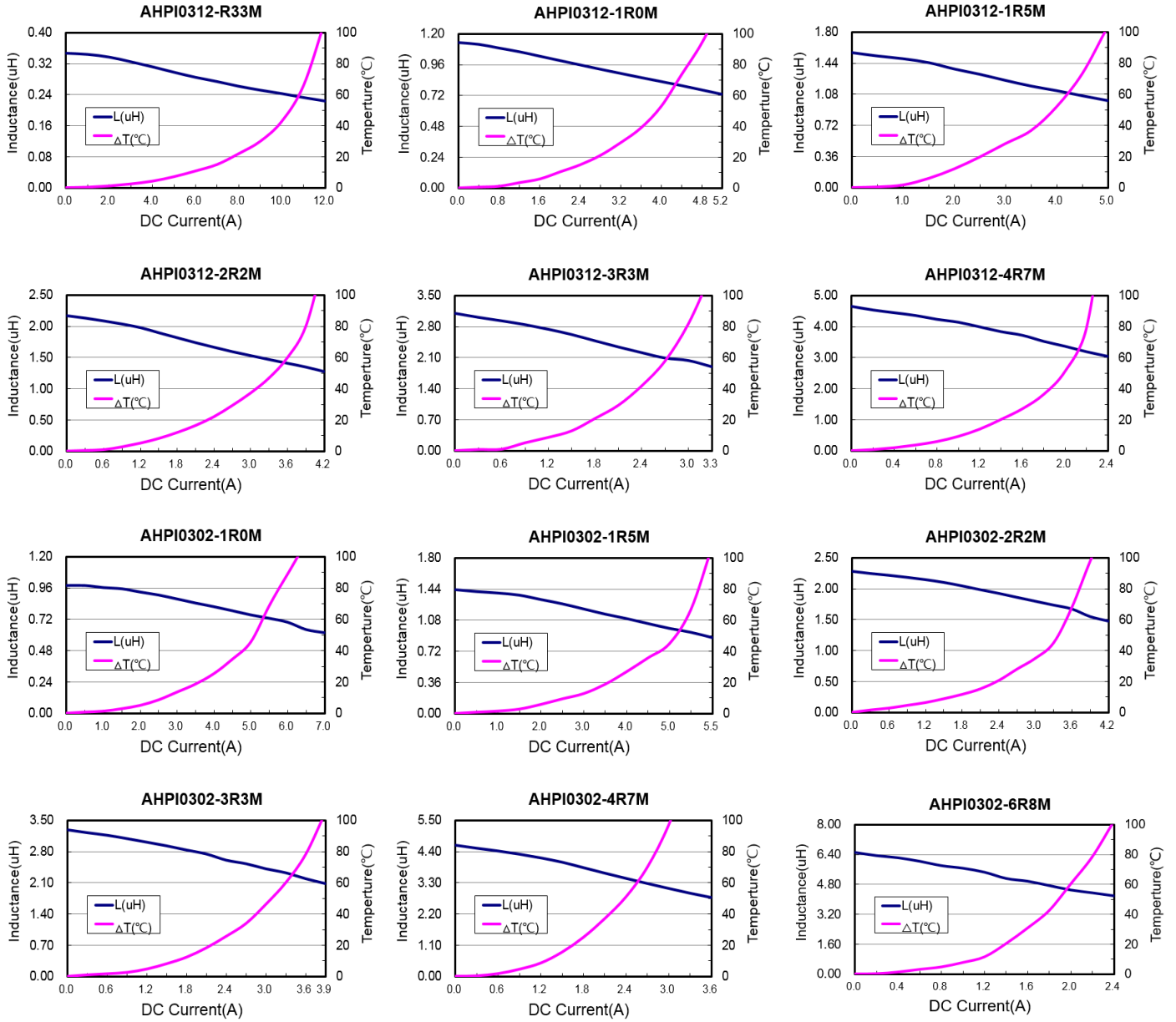
I rms (Max) : DC current (A) that will cause an ΔT of 40°C Max

Note 4: Operating temperature range includes self-temperature rise.

Note 5: The rated current as listed is either the saturation current or the heating current depending on which value is lower.



Typical Performance curves:





● **AHPI04 series**

Part No.	Inductance L(uH)	Tolerance (±%)	DCR(mΩ)		I sat(A)		I rms(A)	
			Typ.	Max.	Typ.	Max.	Typ.	Max.
AHPI0412-R22M	0.22	20	9	11	12	10	9	7.5
AHPI0412-R47M	0.47	20	16	20	10	8.0	8.0	7.0
AHPI0412-1R0M	1.0	20	36	43	6.5	5.5	4.5	4.0
AHPI0412-2R2M	2.2	20	72	80	4.2	3.8	3.5	2.8
AHPI0402-R47M	0.47	20	12	14	11	10	8.5	7.5
AHPI0402-1R0M	1.0	20	13	16	7.5	6.0	6.5	5.5
AHPI0402-2R2M	2.2	20	32	38	5.0	4.2	4.0	3.5
AHPI0402-4R7M	4.7	20	60	70	4.5	3.5	2.5	2.0
AHPI0402-100M	10	20	150	190	2.2	1.7	1.5	1.2
AHPI0402-150M	15	20	250	290	1.8	1.5	1.3	1.0

**If you require another part number please contact with us.**

Note 1: Referenced ambient temperature 20°C.

Note 2: Test Condition :1MHz ,1.0 Vrms.

Note 3: I sat (Typ) : DC current (A) that will cause L0 to drop approximately 30%

I sat (Max) : DC current (A) that will cause L0 to drop 30% Max

I rms (Typ) : DC current (A) that will cause an approximate ΔT of 40°C

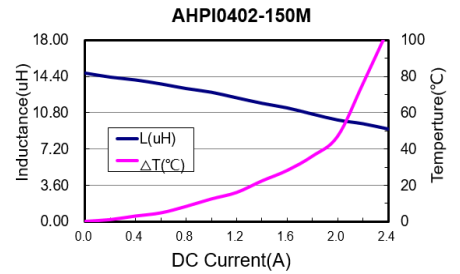
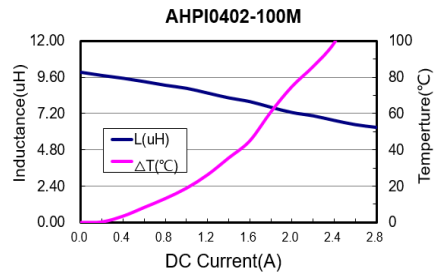
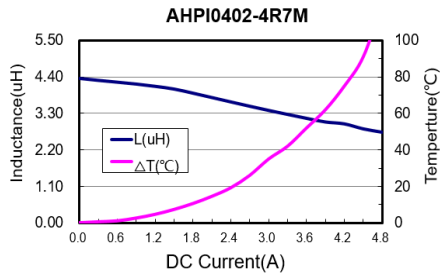
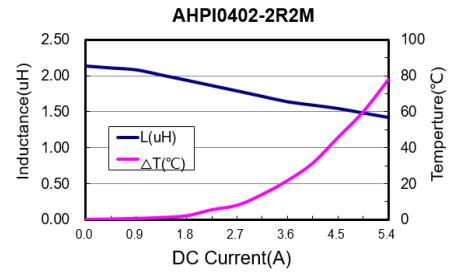
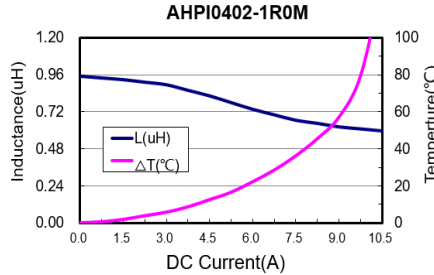
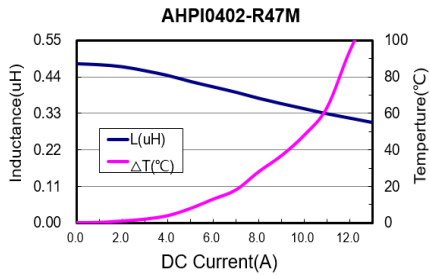
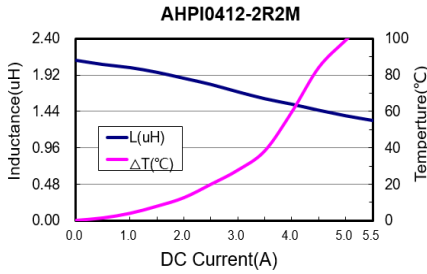
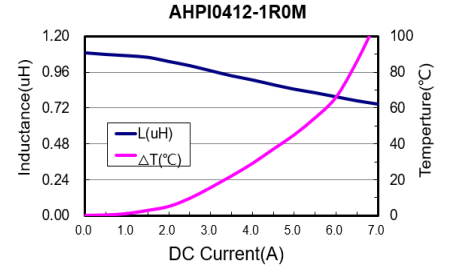
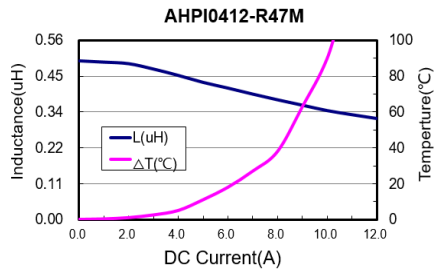
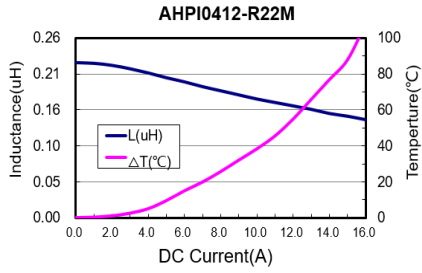
I rms (Max) : DC current (A) that will cause an ΔT of 40°C Max

Note 4: Operating temperature range includes self-temperature rise.

Note 5: The rated current as listed is either the saturation current or the heating current depending on which value is lower.



**Typical Performance curves:**



\* Due to the limited space, the catalogue shows the typical specifications only. For more specific details ( characteristics graph, reliability, and others), kindly invite you to access 3L official website [www.3lcoil.com](http://www.3lcoil.com) for better known.



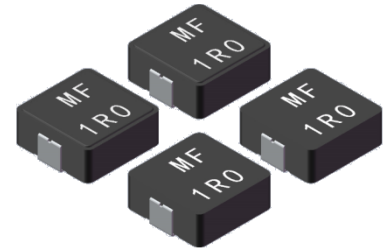


## UPIMF SERIES

HIGH POWER INDUCTOR

### Applications:

- Automotive reliability comply with **AEC-Q200** grade 1
- DC/DC converters for entertainment / navigation systems
- Noise suppression for motors
- LED drivers



### Shape and Dimensions (Dimensions are in mm) :

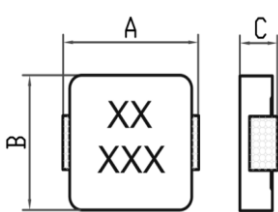


Figure 1

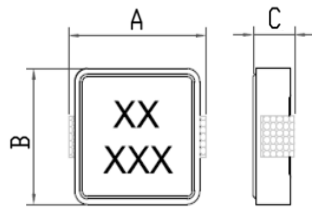
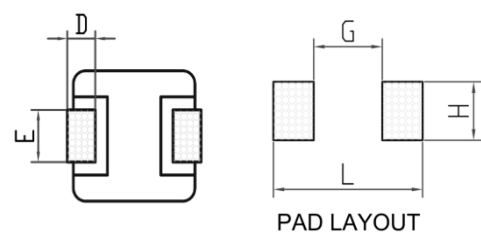


Figure 2



PAD LAYOUT

Item	A	B	C	D	E	G	H	L	Figure
UPIMFS0603	7.1±0.2	6.6±0.2	2.8±0.2	1.60±0.3	3.0±0.5	3.7	3.5	8.0	1
UPIMF0804	8.6±0.3	8.1±0.25	3.8±0.2	1.08±0.3	3.2±0.5	4.6	3.8	10.6	1
UPIMF1004	11.0±0.5	10±0.3	3.8±0.2	2.3±0.3	3.0±0.5	5.4	4.5	12.4	2
UPIMF1205	13.4±0.5	12.6±0.3	4.8±0.2	2.3±0.3	3.0±0.5	8.0	5.0	14.5	1
UPIMF1207	13.4±0.5	12.6±0.3	6.8±0.2	2.3±0.3	3.0±0.5	8.0	5.0	14.5	1

### Features :

- High performance (I sat) realized by metal dust core.
- Low loss realized with low DCR
- Compliance with RoHS and Halogen Free

### Characteristics:

- Saturation Current (I<sub>sat</sub>) : The current will cause L<sub>0</sub> to drop approximately 30% typical
- Temperature Rise Current ( I<sub>rms</sub>) : The current will cause the coil temperature rise approximately ΔT=40°C.
- Operating Temperature : -55°C to 125°C

### Product Identification:

**UPIMF S0603 - 1R0 M**  
 (1) (2) (3) (4)

- (1) Product Symbol
- (2) Dimensions Code
- (3) Inductance: **1R0** for 1.0uH
- (4) Tolerance: **M** : ± 20%.

### Test equipments :

- L: Wayne Kerr 3260B Precision Magnetics Analyzer
- DCR: IOKI RM 3545 DC resistance meters.
- IWT test : CHROMA 19301A .(Impulse winding test )



● **UPIMFS06 series**

Part No.	Inductance L (uH)	Tolerance (±%)	DCR(mΩ)		I sat(A)		I rms(A)	
			Typ.	Max.	Typ.	Max.	Typ.	Max.
UPIMFS0603-6R8M	6.8	20	45	46.8	5.0	4.0	5.7	5.0
UPIMFS0603-100M	10	20	62.5	71.2	4.8	3.5	4.5	4.0
UPIMFS0603-220M	22	20	127	135	4.0	2.7	3.2	2.8

**If you require another part number please contact with us.**

Note 1: Referenced ambient temperature 20°C.

Note 2: Test Condition :100kHz ,0.25 Vrms.

Note 3: I sat (Typ) : DC current (A) that will cause L0 to drop approximately 30%

I sat (Max) : DC current (A) that will cause L0 to drop 30% Max

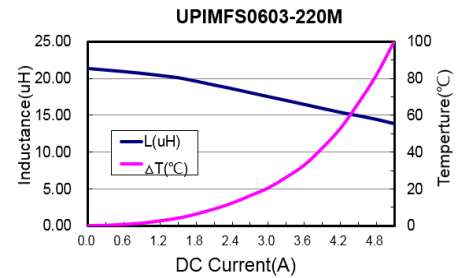
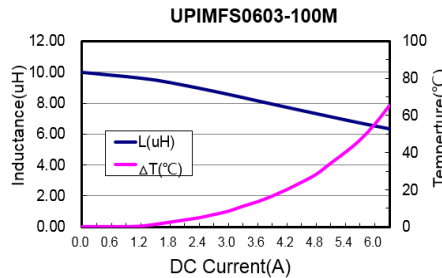
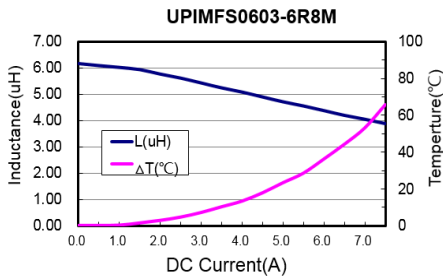
I rms (Typ) : DC current (A) that will cause an approximate ΔT of 40°C

I rms (Max) : DC current (A) that will cause an ΔT of 40°C Max

Note 4: Operating temperature range includes self-temperature rise.

Note 5: The rated current as listed is either the saturation current or the heating current depending on which value is lower.

**Typical Performance curves:**





● **UPIMF0804 series**

Part No.	Inductance L (uH)	Tolerance (±%)	DCR(mΩ)		I sat(A)		I rms(A)	
			Typ.	Max.	Typ.	Max.	Typ.	Max.
UPIMF0804-2R2M	2.2	20	8.3	10	14	12	12	10
UPIMF0804-4R7M	4.7	20	21	26.5	8.7	6.0	8.0	6.5
UPIMF0804-100M	10	20	43.5	52	6.4	5.0	5.4	4.0
UPIMF0804-330M	33	20	122	144	4.2	3.5	3.2	2.5
UPIMF0804-470M	47	20	148.7	155	3.2	2.7	1.9	1.5

If you require another part number please contact with us.

Note 1: Referenced ambient temperature 20°C.

Note 2: Test Condition :100KHz ,0.25 Vrms.

Note 3: I sat (Typ) : DC current (A) that will cause L0 to drop approximately 30%

I sat (Max) : DC current (A) that will cause L0 to drop 30% Max

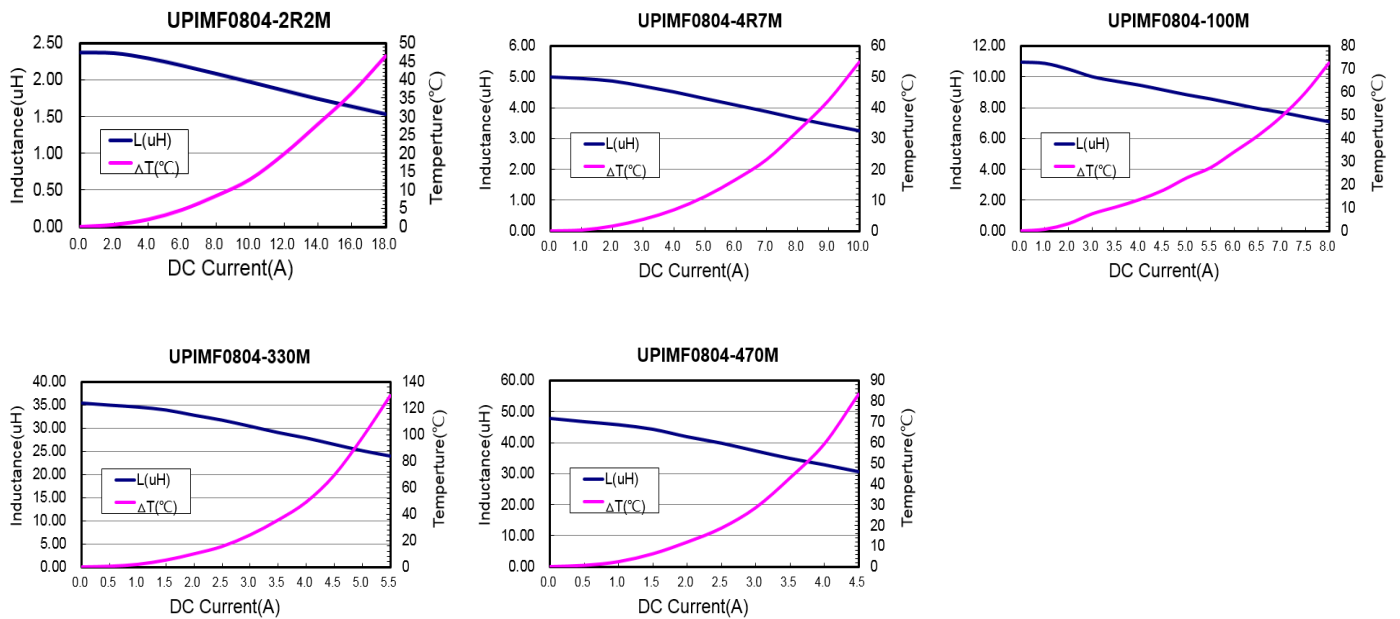
I rms (Typ) : DC current (A) that will cause an approximate ΔT of 40°C

I rms (Max) : DC current (A) that will cause an ΔT of 40°C Max

Note 4: Operating temperature range includes self-temperature rise.

Note 5: The rated current as listed is either the saturation current or the heating current depending on which value is lower.

**Typical Performance curves:**





● **UPIMF1004 series**

Part No.	Inductance L (uH)	Tolerance (±%)	DCR(mΩ)		I sat(A)		I rms(A)	
			Typ.	Max.	Typ.	Max.	Typ.	Max.
UPIMF1004-2R2M	2.2	20	7.5	8.5	21	17	15	12
UPIMF1004-4R7M	4.7	20	13.4	14.2	16.5	14	11	9.0
UPIMF1004-100M	10	20	29	35	8.5	7.5	7.5	6.5
UPIMF1004-150M	15	20	38	45	7.0	6.5	6.5	5.5
UPIMF1004-220M	22	20	60.1	66	6.0	5.0	5.0	4.0
UPIMF1004-330M	33	20	89.5	94.5	4.8	4.2	4.4	4.0
UPIMF1004-470M	47	20	139	145	4.0	3.5	3.3	2.8

**If you require another part number please contact with us.**

Note 1: Referenced ambient temperature 20°C.

Note 2: Test Condition :100KHz ,0.25 Vrms.

Note 3: I sat (Typ) : DC current ( A ) that will cause L0 to drop approximately 30%

I sat (Max) : DC current ( A ) that will cause L0 to drop 30% Max

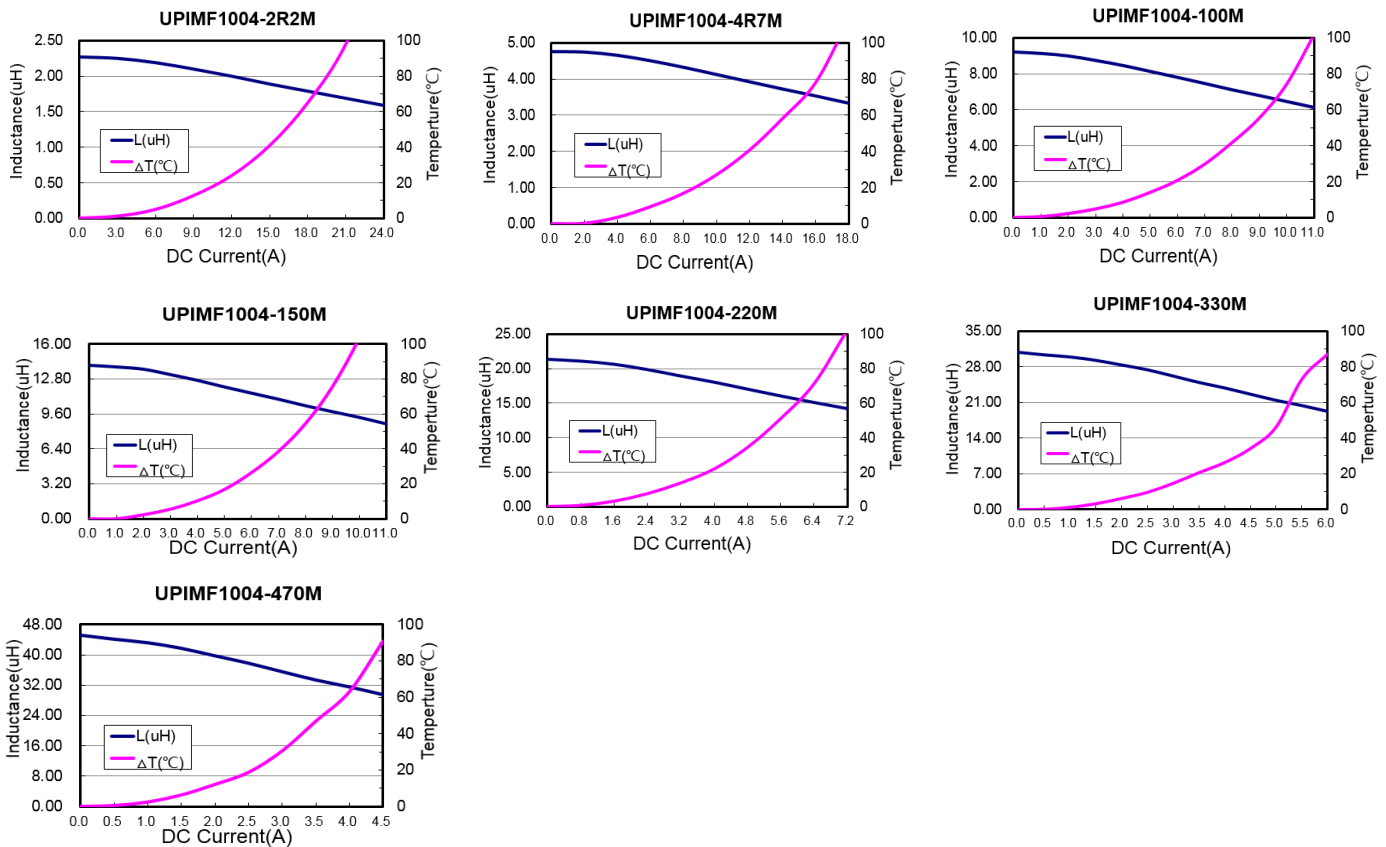
I rms (Typ) : DC current ( A ) that will cause an approximate ΔT of 40°C

I rms (Max) : DC current ( A ) that will cause an ΔT of 40°C Max

Note 4: Operating temperature range includes self-temperature rise.

Note 5: The rated current as listed is either the saturation current or the heating current depending on which value is lower.

**Typical Performance curves:**







● **UPIMF12 series**

Part No.	Inductance L (uH)	Tolerance (±%)	DCR(mΩ)		I sat(A)		I rms(A)	
			Typ.	Max.	Typ.	Max.	Typ.	Max.
UPIMF1205-R68M	0.68	20	1.5	1.8	52	45	30	28
UPIMF1205-100M	10	20	21.1	25	12	10	9.0	7.0
UPIMF1205-220M	22	20	41.5	45	8.0	7.0	5.0	4.0
UPIMF1207-1R0M	1.0	20	1.4	1.7	40	30	35	32
UPIMF1207-6R8M	6.8	20	7.7	9.8	17	13	14	13
UPIMF1207-470M	47	20	65.5	78	7.0	5.5	5.0	4.5

**If you require another part number please contact with us.**

Note 1: Referenced ambient temperature 20°C.

Note 2: Test Condition :100KHz ,0.25 Vrms.

Note 3: I sat (Typ) : DC current (A) that will cause L0 to drop approximately 30%

I sat (Max) : DC current (A) that will cause L0 to drop 30% Max

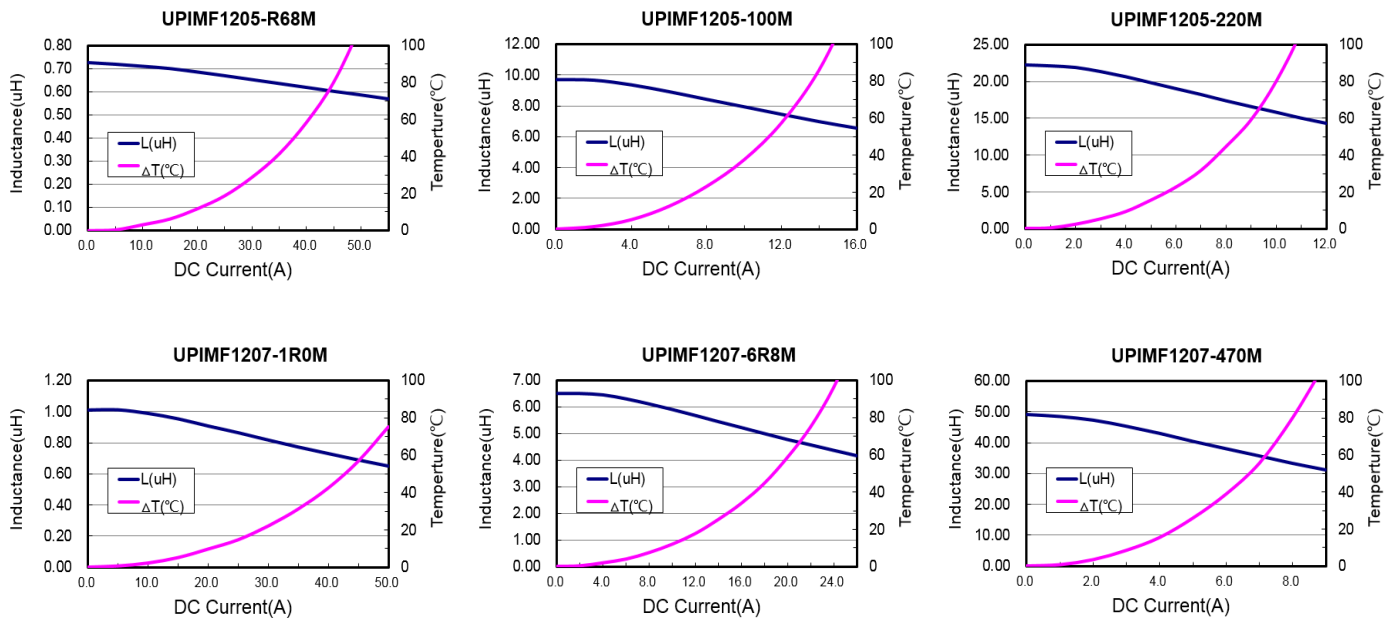
I rms (Typ) : DC current (A) that will cause an approximate ΔT of 40°C

I rms (Max) : DC current (A) that will cause an ΔT of 40°C Max

Note 4: Operating temperature range includes self-temperature rise.

Note 5: The rated current as listed is either the saturation current or the heating current depending on which value is lower.

**Typical Performance curves:**



\* Due to the limited space, the catalogue shows the typical specifications only. For more specific details ( characteristics graph, reliability, and others), kindly invite you to access 3L official website [www.3lcoil.com](http://www.3lcoil.com) for better known.

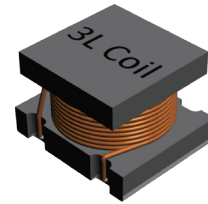


## SMTSDR SERIES

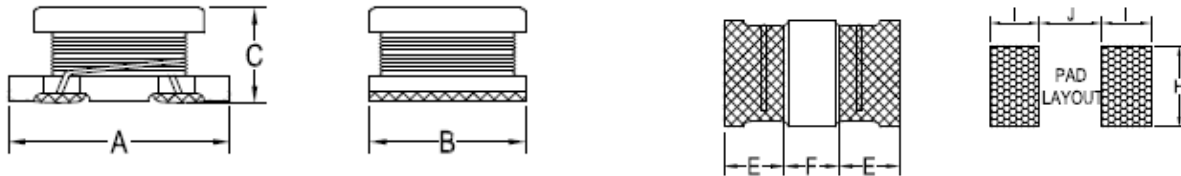
MINIATURE SMD CHIP CHOKE COILS

### Applications :

- Automotive reliability comply with **AEC-Q200** grade 1
- Pagers, Cordless phone.
- High Freq. Communication Products.
- Personal computers.
- Disk Drives and computer peripherals.
- DC power supply circuits.



### Shape and Dimensions (Dimensions are in mm) :



Item	A	B	C	E Min	F Min	H	I	J
SMTSDR322520M	3.2±0.3	2.5±0.2	2.0±0.3	0.7	0.7	2.0	1.5	1.0
SMTSDR453226M	4.5±0.3	3.2±0.2	2.6±0.3	1.0	1.0	3.0	2.0	1.2

### Features :

- These miniature chip inductors wound on a special ferrite core.
- low DC resistance.

### Characteristics :

- Saturation Current(I<sub>sat</sub>):The current when the inductance becomes 10% lower than is initial value.(T<sub>a</sub>=20°C)
- Temperature Rise Current(I<sub>rms</sub>):The current when temperature of coil increases up to max.ΔT=20°C.(T<sub>a</sub>=20°C)
- Operating temperature : -40°C to 125°C.

### Product Identification :

**SMTSDR453226M-101K**

**1                      2                      3                      4                      5**

- (1)Type : Surface Mounting Type.
- (2)Style : **SDR** Type core, L=4.5mm W=3.2 Ht=2.6.
- (3)Vehicle product code : **M= temp. -40~125°C**
- (4)Inductance : 101 for 100uH.
- (5)Inductance tolerance : K : ±10%; M : ±20%.

### Test equipments :

- Inductance measured at 0Adc on HP 4284A LCR meter or equivalent.
- DCR measured on Chroma 16502 micro-ohmmeter or equivalent.
- Electrical specifications at 25°C.

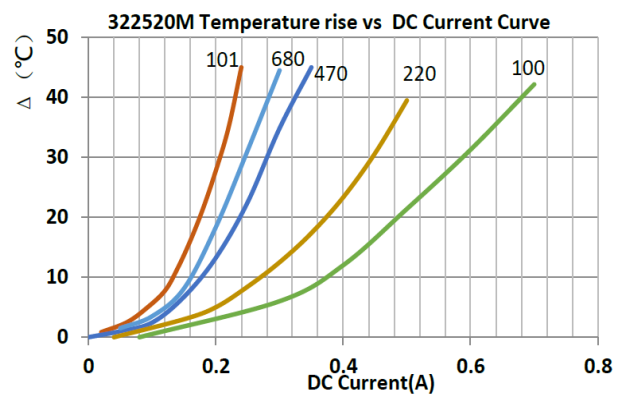
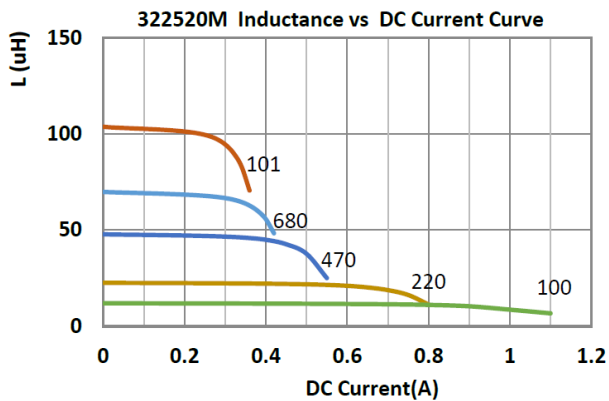


● **SMTSDR322520M series**

Part NO.	L(uH)	DCR( $\Omega$ )		I sat (A)		I rms (A)	
		Max.	Typ.	Max.	Typ.	Max.	Typ.
SMTSDR322520M-6R8K	6.8	1.5	0.29	0.96	1.20	0.70	1.00
SMTSDR322520M-8R2K	8.2	1.6	0.32	0.90	1.10	0.62	0.80
SMTSDR322520M-100K	10	1.8	0.40	0.80	1.00	0.44	0.64
SMTSDR322520M-120K	12	2.0	0.55	0.75	0.90	0.43	0.60
SMTSDR322520M-150K	15	2.2	0.61	0.60	0.75	0.42	0.52
SMTSDR322520M-180K	18	2.5	0.68	0.55	0.70	0.39	0.49
SMTSDR322520M-220K	22	2.8	0.78	0.50	0.62	0.38	0.47
SMTSDR322520M-270K	27	3.1	0.91	0.48	0.60	0.36	0.46
SMTSDR322520M-330K	33	3.5	1.00	0.42	0.52	0.33	0.44
SMTSDR322520M-390K	39	3.9	1.75	0.38	0.48	0.26	0.33
SMTSDR322520M-470K	47	4.3	2.14	0.35	0.43	0.24	0.32
SMTSDR322520M-560K	56	4.9	2.22	0.32	0.40	0.22	0.29
SMTSDR322520M-680K	68	5.5	2.50	0.28	0.35	0.21	0.26
SMTSDR322520M-820K	82	6.2	3.75	0.27	0.34	0.18	0.24
SMTSDR322520M-101K	100	7.0	4.14	0.25	0.30	0.17	0.23

Measuring Frequency : 6.8~100uH @1MHz 1V

**Typical Performance curves:**



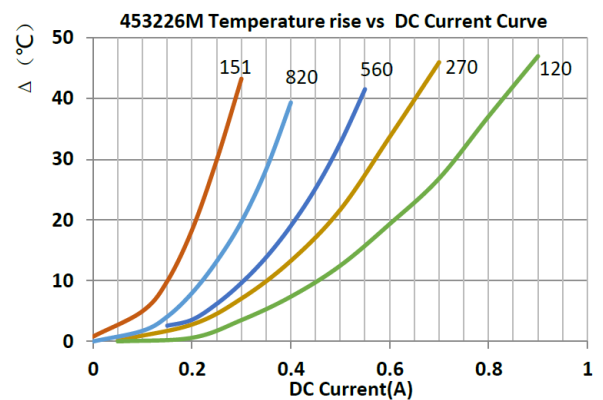
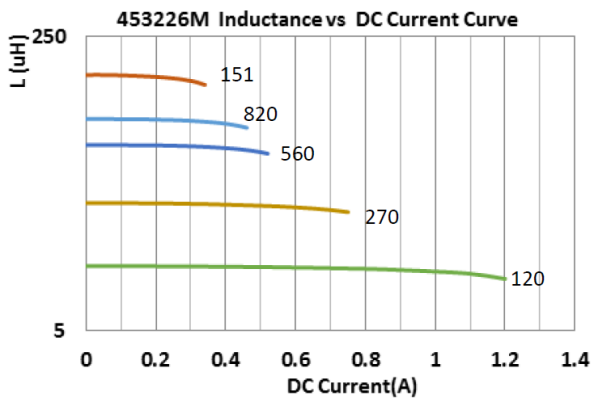


● **SMTSDR453226M series**

Part NO.	L(u H)	DCR( $\Omega$ )		I sat (A)		I rms (A)	
		Max.	Typ.	Max.	Typ.	Max.	Typ.
SMTSDR453226M-6R8K	6.8	0.50	0.21	1.35	1.65	0.80	1.05
SMTSDR453226M-8R2K	8.2	0.56	0.23	1.05	1.30	0.78	0.90
SMTSDR453226M-100K	10	0.58	0.35	0.96	1.20	0.63	0.85
SMTSDR453226M-120K	12	0.62	0.39	0.90	1.10	0.61	0.83
SMTSDR453226M-150K	15	0.73	0.44	0.76	0.95	0.60	0.80
SMTSDR453226M-180K	18	0.82	0.49	0.72	0.90	0.55	0.70
SMTSDR453226M-220K	22	0.94	0.55	0.65	0.80	0.51	0.63
SMTSDR453226M-270K	27	1.1	0.64	0.56	0.70	0.47	0.60
SMTSDR453226M-330K	33	1.2	0.72	0.51	0.64	0.46	0.58
SMTSDR453226M-390K	39	1.4	0.78	0.48	0.60	0.45	0.55
SMTSDR453226M-470K	47	1.5	1.01	0.45	0.56	0.42	0.53
SMTSDR453226M-560K	56	1.7	1.15	0.40	0.50	0.40	0.50
SMTSDR453226M-680K	68	1.9	1.25	0.38	0.48	0.35	0.45
SMTSDR453226M-820K	82	2.2	1.75	0.35	0.44	0.30	0.40
SMTSDR453226M-101K	100	2.5	2.00	0.30	0.38	0.28	0.35
SMTSDR453226M-121K	120	3.0	2.20	0.28	0.36	0.27	0.34
SMTSDR453226M-151K	150	3.7	3.05	0.25	0.32	0.21	0.26
SMTSDR453226M-181K	180	4.5	3.45	0.23	0.29	0.19	0.24
SMTSDR453226M-221K	220	5.4	4.95	0.20	0.26	0.18	0.22
SMTSDR453226M-271K	270	6.8	5.60	0.19	0.24	0.17	0.21
SMTSDR453226M-331K	330	8.2	6.30	0.17	0.22	0.16	0.19

Measuring Frequency : 6.8~330uH @1MHz 1V

**Typical Performance curves:**



\*Due to the limited space, the catalogue shows the typical specifications only. For more specific details ( characteristics graph, reliability, and others), kindly invite you to access 3L official website [www.3lcoil.com](http://www.3lcoil.com) for better known.

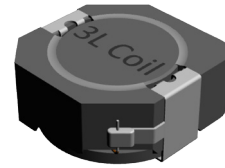


## SMTDRH SERIES

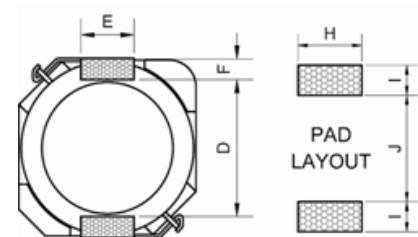
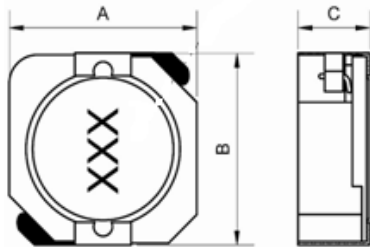
SHIELDED SMT POWER INDUCTORS.

### Applications :

- Automotive reliability comply with **AEC-Q200** grade 1
- Power supply for VTRs.
- LCD televisions.
- Portable communication equipment.
- DC/DC converters, etc.



### Shape and Dimensions (Dimensions are in mm) :



Item	A Max.	B Max.	C Max.
SMTDRH104RM	10.3	10.4	4.0
SMTDRH105RM	10.3	10.4	5.0

Item	D	E	F	H	I	J
SMTDRH104RM	7.7	3.0	1.2	3.6	1.7	7.3
SMTDRH105RM	7.7	3.0	1.2	3.6	1.7	7.3

### Features :

- Directly connected electrode on ferrite core.
- Ideal inductors for DC-DC conversion.
- High power, High saturation inductors.
- With magnetic shield against radiation.
- Available on tape and reel for auto surface mounting.

### Characteristics :

- Saturation Current( $I_{sat}$ ):The current when the inductance becomes 30% lower than is initial value.( $T_a=20^\circ\text{C}$ )
- Temperature Rise Current( $I_{rms}$ ):The current when temperature of coil increases up to max.  $\Delta T=40^\circ\text{C}$ .( $T_a=20^\circ\text{C}$ )
- Operating temperature :  $-40^\circ\text{C}$  to  $125^\circ\text{C}$ .

### Product Identification :

**SMT DRH104R M - 470 N**  
**1 2 3 4 5**

- (1) Type : **Surface Mountable Type**.
- (2) Style : **DR** Core with **RI** shield , **104R** is size.
- (3)Vehicle product code : **M= temp.  $-40\sim 125^\circ\text{C}$**
- (4) Inductance : **470** for **47** uH.
- (5)Inductance tolerance : **N :  $\pm 30\%$** .

### Test equipments :

- Inductance measured at 0Adc on HP 4284A LCR meter or equivalent.
- DCR measured on Chroma 16502 micro-ohmmeter or equivalent.
- Electrical specifications at  $25^\circ\text{C}$ .

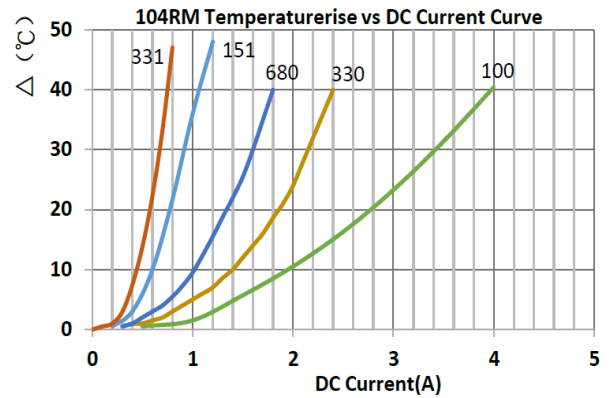
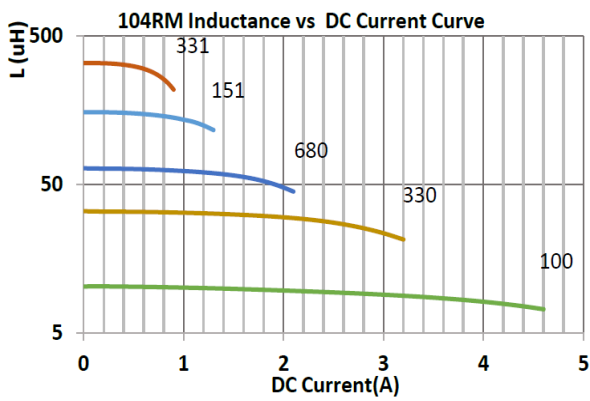


● **SMTDRH104RM series**

Part NO.	L(uH)	DCR(Ω)		I sat (A)		I rms (A)	
		Max.	Typ.	Max.	Typ.	Max.	Typ.
SMTDRH104RM-7R0N	7.0	27m	21m	4.80	6.00	3.80	4.80
SMTDRH104RM-100N	10	35m	27m	3.70	4.60	3.20	4.00
SMTDRH104RM-150N	15	50m	42m	3.40	4.00	2.50	3.10
SMTDRH104RM-220N	22	73m	60m	2.80	3.50	2.30	2.80
SMTDRH104RM-330N	33	110m	87m	2.40	3.00	2.00	2.40
SMTDRH104RM-470N	47	0.128	0.11	1.75	2.18	1.80	2.20
SMTDRH104RM-680N	68	0.213	0.16	1.70	2.10	1.50	1.80
SMTDRH104RM-101N	100	0.304	0.23	1.45	1.78	1.30	1.60
SMTDRH104RM-151N	150	0.506	0.42	1.11	1.39	0.85	1.05
SMTDRH104RM-221N	220	0.756	0.58	0.96	1.20	0.78	0.92
SMTDRH104RM-331N	330	1.20	0.96	0.70	0.88	0.65	0.75

Measuring Frequency : 7.0~330uH @100KHz 0.1V

**Typical Performance curves:**



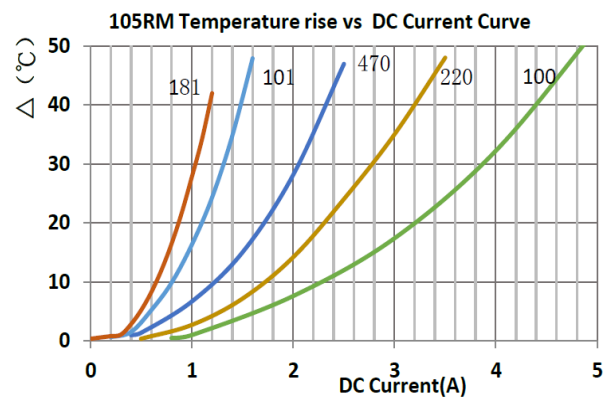
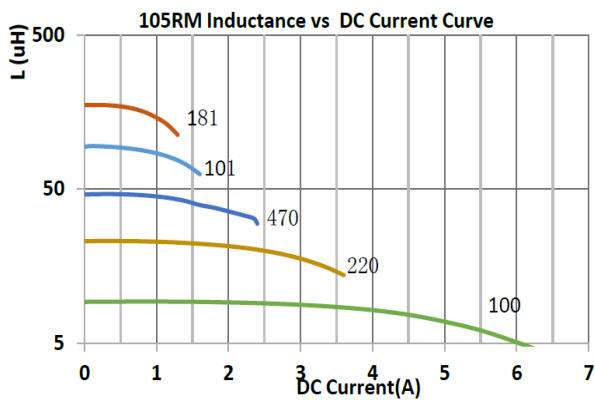


● **SMTDRH105RM series**

Part NO.	L(uH)	DCR( $\Omega$ )		I sat (A)		I rms (A)	
		Max.	Typ.	Max.	Typ.	Max.	Typ.
SMTDRH105RM-6R8N	6.8	18m	15m	5.60	7.00	5.00	6.05
SMTDRH105RM-8R2N	8.2	20m	17m	4.45	5.56	3.60	4.60
SMTDRH105RM-100N	10	26m	22m	4.10	5.10	3.50	4.40
SMTDRH105RM-120N	12	32m	25m	3.95	4.90	3.20	4.00
SMTDRH105RM-150N	15	40m	30m	3.36	4.20	2.90	3.60
SMTDRH105RM-180N	18	46m	36m	2.96	3.70	2.80	3.40
SMTDRH105RM-220N	22	59m	45m	2.65	3.30	2.60	3.20
SMTDRH105RM-270N	27	65m	49m	2.56	3.20	2.50	3.10
SMTDRH105RM-330N	33	81m	63m	2.20	2.70	2.10	2.60
SMTDRH105RM-390N	39	103m	85m	1.98	2.48	2.00	2.50
SMTDRH105RM-470N	47	122m	105m	1.90	2.35	1.90	2.30
SMTDRH105RM-560N	56	145m	115m	1.85	2.30	1.78	2.10
SMTDRH105RM-680N	68	0.19	0.14	1.61	2.02	1.58	1.90
SMTDRH105RM-820N	82	0.22	0.16	1.45	1.80	1.30	1.62
SMTDRH105RM-101N	100	0.25	0.21	1.21	1.52	1.20	1.50
SMTDRH105RM-121N	120	0.30	0.24	1.12	1.40	1.15	1.45
SMTDRH105RM-151N	150	0.35	0.27	1.05	1.32	1.10	1.38
SMTDRH105RM-181N	180	0.39	0.35	0.97	1.21	0.98	1.20
SMTDRH105RM-221N	220	0.48	0.41	0.86	1.08	0.89	1.10
SMTDRH105RM-271N	270	0.63	0.53	0.70	0.88	0.80	0.98
SMTDRH105RM-331N	330	0.78	0.62	0.68	0.85	0.72	0.90

Measuring Frequency : 6.8~330uH @100KHz 0.1V

**Typical Performance curves:**



\* Due to the limited space, the catalogue shows the typical specifications only. For more specific details ( characteristics graph, reliability, and others), kindly invite you to access 3L official website [www.3lcoil.com](http://www.3lcoil.com) for better known.





## SMTDRRI127PM SERIES

SHIELDED SMT POWER INDUCTORS.

### Applications :

- Automotive reliability comply with **AEC-Q200** grade 1
- Power supply for VTRS
- LCD televisions
- DC/DC converters, etc
- Portable communication equipment



### Shape and Dimensions (Dimensions are in mm) :



Item	A	B	C Max
SMTDRRI127PM	12±0.3	12±0.3	8.5

Item	I	J	H
SMTDRRI127PM	4.0	4.5	5.5

### Features :

- High power, High saturation inductors
- With magnetic shield against radiation .
- Directly connected electrode on ferrite core.
- Highly accurate dimensions for automatic mounting.

### Product identification :

**SMT DRRI127P M - 101 M**

**1 2 3 4 5**

- (1).Type : Surface Mount Type.
- (2).Style : **DR** core with **RI** core, 127 is size, **P** is plastic base
- (3)Vehicle product code : **M= temp. -40~125°C**
- (4).Inductance : **101** for **100** uH.
- (5).Inductance tolerance : M : ±20% ; N : 40+/-20%.

### Characteristics :

- Saturation Current(Isat):The current when the inductance becomes 25% lower than initial value.(Ta=20°C).
- Temperature Rise (Irms): The current when temperature of coil increases up to MaxΔT=40°C. (Ta=20°C)
- Operating temperature: -40°C to 125°C.

### Test equipments :

- Inductance measured at 0Adc on HP 4284A LCR Meter or equivalent.
- DCR measured on Chroma 16502 micro-ohmmeter or equivalent.
- Electrical specifications at 25°C.

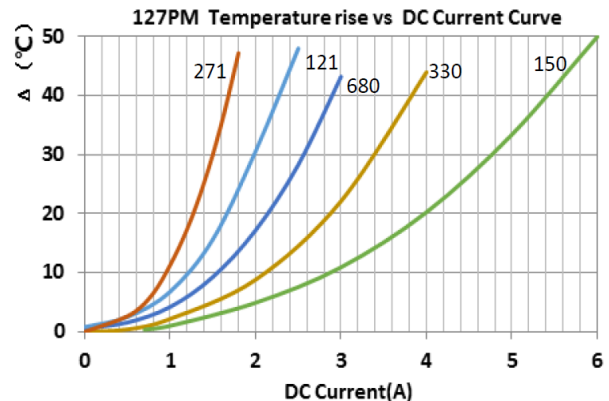
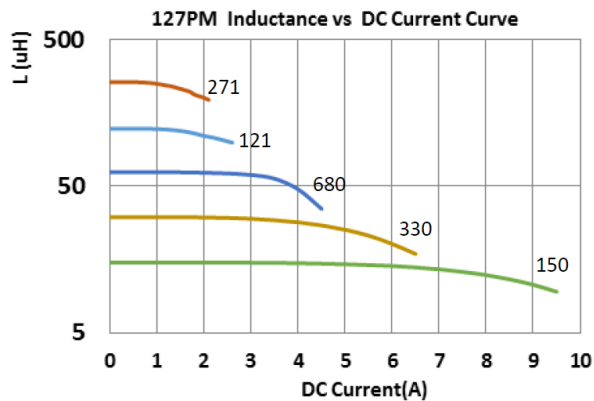


● **SMTDRRI127PM series**

Part NO.	L( $\mu$ H)	DCR( $\Omega$ )		I sat (A)		I rms (A)	
		Max.	Typ.	Max.	Typ.	Max.	Typ.
SMTDRRI127PM-3R5N	3.5	13.5m	8m	13.0	16.0	6.20	7.60
SMTDRRI127PM-4R7N	4.7	15.8m	11m	10.0	12.5	5.80	7.20
SMTDRRI127PM-6R1N	6.1	17.6m	12m	9.50	11.5	5.60	7.00
SMTDRRI127PM-100M	10	21.6m	15m	7.60	9.50	5.20	6.48
SMTDRRI127PM-120M	12	24.3m	17m	7.20	9.00	4.80	6.00
SMTDRRI127PM-150M	15	27.0m	23m	7.00	8.50	4.60	5.60
SMTDRRI127PM-180M	18	39.2m	27m	5.70	8.10	4.30	5.10
SMTDRRI127PM-220M	22	43.2m	32m	6.50	8.00	4.20	5.00
SMTDRRI127PM-270M	27	45.9m	38m	5.40	6.70	3.90	4.50
SMTDRRI127PM-330M	33	64.8m	56m	4.50	5.50	3.20	3.80
SMTDRRI127PM-390M	39	72.9m	63m	4.00	5.00	3.00	3.60
SMTDRRI127PM-470M	47	100m	68m	3.70	4.60	2.75	3.40
SMTDRRI127PM-560M	56	110m	78m	3.55	4.40	2.70	3.20
SMTDRRI127PM-680M	68	140m	94m	3.30	4.10	2.40	2.98
SMTDRRI127PM-820M	82	0.15	0.11	3.05	3.80	2.30	2.70
SMTDRRI127PM-101M	100	0.22	0.14	2.80	3.50	2.20	2.50
SMTDRRI127PM-121M	120	0.23	0.15	2.56	3.20	1.80	2.20
SMTDRRI127PM-151M	150	0.25	0.21	2.20	2.70	1.70	2.00
SMTDRRI127PM-181M	180	0.32	0.27	2.10	2.60	1.45	1.78
SMTDRRI127PM-221M	220	0.36	0.30	1.80	2.20	1.42	1.70
SMTDRRI127PM-271M	270	0.47	0.32	1.70	2.10	1.40	1.64
SMTDRRI127PM-331M	330	0.52	0.42	1.54	1.92	1.15	1.40

Measuring Frequency : 3.5~6.1uH@100KHz 0.25V ; 10~330 uH@1KHz 0.25V

**Typical Performance curves:**



\* Due to the limited space, the catalogue shows the typical specifications only. For more specific details ( characteristics graph, reliability, and others), kindly invite you to access 3L official website [www.3lcoil.com](http://www.3lcoil.com) for better known.

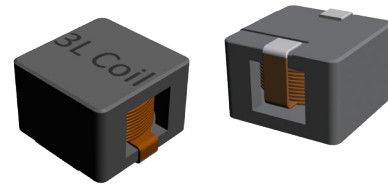


## SMTER SERIES

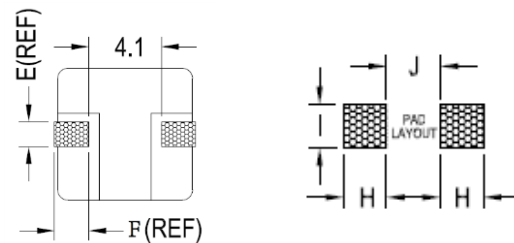
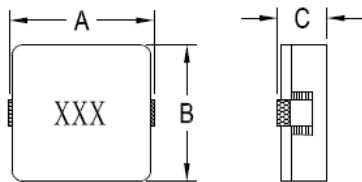
SMT FLAT WIRE COLLS

### Applications :

- Automotive reliability comply with **AEC-Q200** grade 1
- Computer and portable power devices.
- Energy storage applications.
- DC/DC converters.
- Input – output filter application.



### Shape and Dimensions (Dimensions are in mm)



Item	A Max.	B Max.	C Max.
SMTER64M	7.9	7.0	4.0
SMTER65M	7.9	7.0	5.0

Item	E	F	H	I	J
SMTER64M	2.5±0.3	1.6±0.2	2.5	4.0	3.0
SMTER65M	2.5±0.3	1.6±0.2	2.5	4.0	3.0

### Features :

- Super flux core materials.
- High current.
- Low DCR
- Frequency range up to 2MHz.

### Product identification :

**SMT ER65 M - 1R0 M**  
**1 2 3 4 5**

- (1)Type : **Surface Mountable Type** .
- (2)Style : Flat wire with **ER** core.
- (3)Vehicle product code : **M= temp. -40~125°C**
- (4)Inductance : **1R0** for **1.0uH**.
- (5)Inductance tolerance : **M** : ±20%.

### Characteristics :

- Saturation Current (Isat): The current when the inductance becomes 10% (or 15%) lower than its initial value.(Ta=20°C).
- Temperature Rise Current( Irms): The current when temperature of coil increase up to max.ΔT=40°C.(Ta=20°C).
- Operating temperature : -40°C to 125°C.

### Test equipments :

- Inductance measured at 0Adc on HP 4284A LCR Meter or equivalent.
- DCR measured on Chroma 16502 micro-ohmmeter or equivalent.
- Electrical specifications at 25°C



● **SMTER64M series**

Part NO.	L(uH)	DCR(mΩ)		I sat (A)		I rms (A)	
		Max.	Typ.	Max.	Typ.	Max.	Typ.
SMTER64M-R22M	0.22	1.8	1.53	19.5	24	15.0	9.0
SMTER64M-R36M	0.36	2.5	2.10	14.5	18	13.5	8.0
SMTER64M-R47M	0.47	2.7	2.24	12.8	16	13.0	7.5
SMTER64M-R68M	0.68	5.2	4.32	11.2	14	12.0	6.0

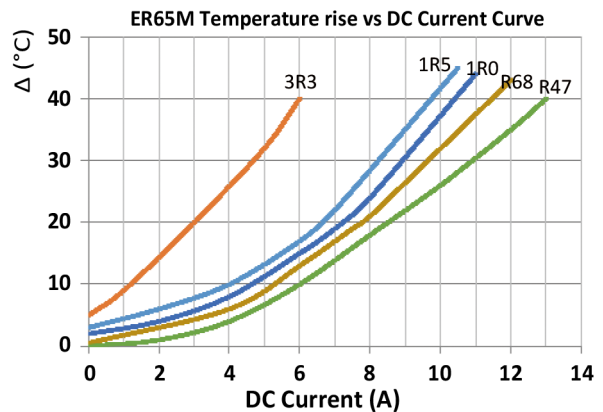
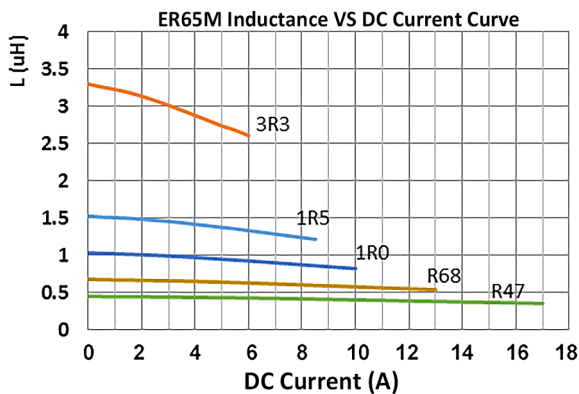
Measuring Frequency : 0.22~0.68 uH @100KHz 0.1V

● **SMTER65M series**

Part NO.	L(uH)	DCR(mΩ)		I sat (A)		I rms (A)	
		Max.	Typ.	Max.	Typ.	Max.	Typ.
SMTER65M-R47M	0.47	2.60	2.17	8.0	10	13.0	8.5
SMTER65M-R68M	0.68	3.20	2.71	6.4	8.0	11.5	8.0
SMTER65M-1R0M	1.0	4.00	3.32	4.8	6.0	10.2	7.2
SMTER65M-1R5M	1.5	4.50	3.82	4.0	5.0	9.8	6.8
SMTER65M-3R3M	3.3	11.8	9.87	2.8	3.5	6.0	3.0

Measuring Frequency : 0.47~3.3 uH @100KHz 0.1V

**Typical Performance curves:**



\* Due to the limited space, the catalogue shows the typical specifications only. For more specific details ( characteristics graph, reliability, and others), kindly invite you to access 3L official website [www.3lcoil.com](http://www.3lcoil.com) for better known.

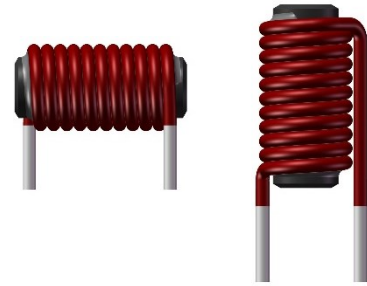


## FC03XXM & FC04XXM & FC05XXM SERIES

HIGH CURRENT CHOKE

### Features :

- . Automotive reliability comply with **AEC-Q200** grade 1
- . General purpose inductors.
- . Ni-Zn rod .
- . Low cost design of mechanical automation.
- . Customized by customer requirements.

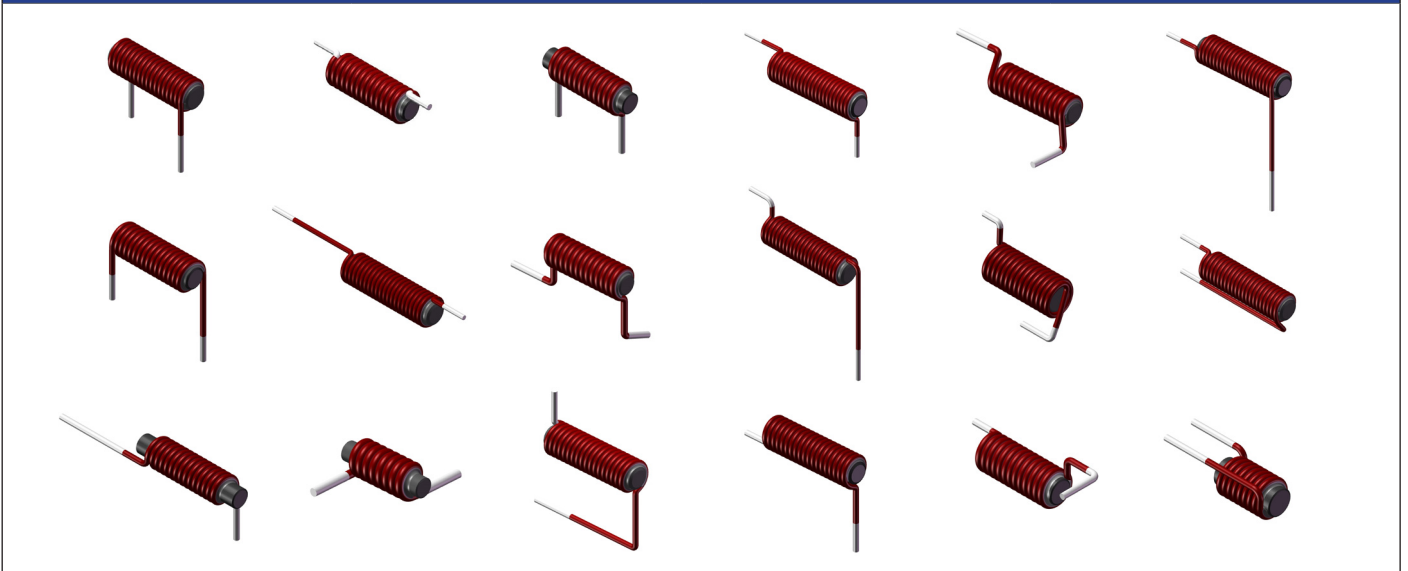


### Product Identification :

**FC 0315 M - 2R6 K - 8 R/L V/H - X**  
**(1) (2) (3) (4) (5) (6) (7) (8) (9)**

- |  |   |
|--|---|
| (1) Type: Basic model high current choke.                                | (6) Lead wire length.   |
| (2) CORE size: Diameter=3mm; Length=15mm.                                | (7) Direction: R=Clockwise winding; L=Counterclockwise winding. |
| (3) Vehicle product code : <b>M= temp. -40~125°C</b>                     | (8) Structure: V=Vertical; H=Horizontal.                        |
| (4) Inductance: 2R6 for 2.6uH.   | (9) <b>Molding style.</b>                                       |
| (5) Inductance tolerance: K: ±10%; L: ±15%;<br>M: ±20%; N: ±30%; U: Min. |   |

**The forming shapes shown below. All are adjustable upon customer's requests.**



### Characteristics:

- . High temperature round wire design.
- . High saturation current.
- . High strength(Coil and core thrust>10kg.f).
- . Operating temperature range -40°C~125°C  
(Including self - temperature rise)

### Test equipments:

- . Inductance measured at 0A<sub>dc</sub> on HP 4284A LCR
- . SRF: HM9461 L-SRF METER.
- . DCR: Milli-ohm meter.
- . Electrical specifications at 25°C.



Part NO.	L (uH)	SRF (MHz) Min.	DCR(mΩ) Max.	I sat (A) Max.	I rms (A) Max.	COEE Size (mm)	Wire Size (mm)
FC0315M-2R6U-RH-X	2.6 Min	45	15	5.5	5.0	3x15	0.70
FC0315M-2R7U-LH-X	2.7 Min	45	22	5.5	5.0	3x15	0.70
FC0315M-4R5U-RH-X	4.5 Min	35	22	5.5	3.5	3x15	0.60
FC0416M-4R5K-RH-X	4.5±10%	70	15	7.0	5.0	4x16	0.75
FC0417M-3R0K-LH-X	3.0±10%	90	12	11	7.0	4x17	1.00
FC0418M-2R5K-RH-X	2.5±10%	100	12	12	8.0	4x18	1.20
FC0418M-4R5K-RH-X	4.5±10%	60	15	8.0	6.0	4x18	0.85
FC0518M-4R9M-LH-X	4.9±20%	45	13	10	8.0	5X18	0.85
FC0524M-1R5M-RH-X	1.5±20%	100	5.0	25	20	5X24	2.0
FC0525M-3R5M-RH-X	3.5±20%	70	5.0	11	10	5X25	1.4

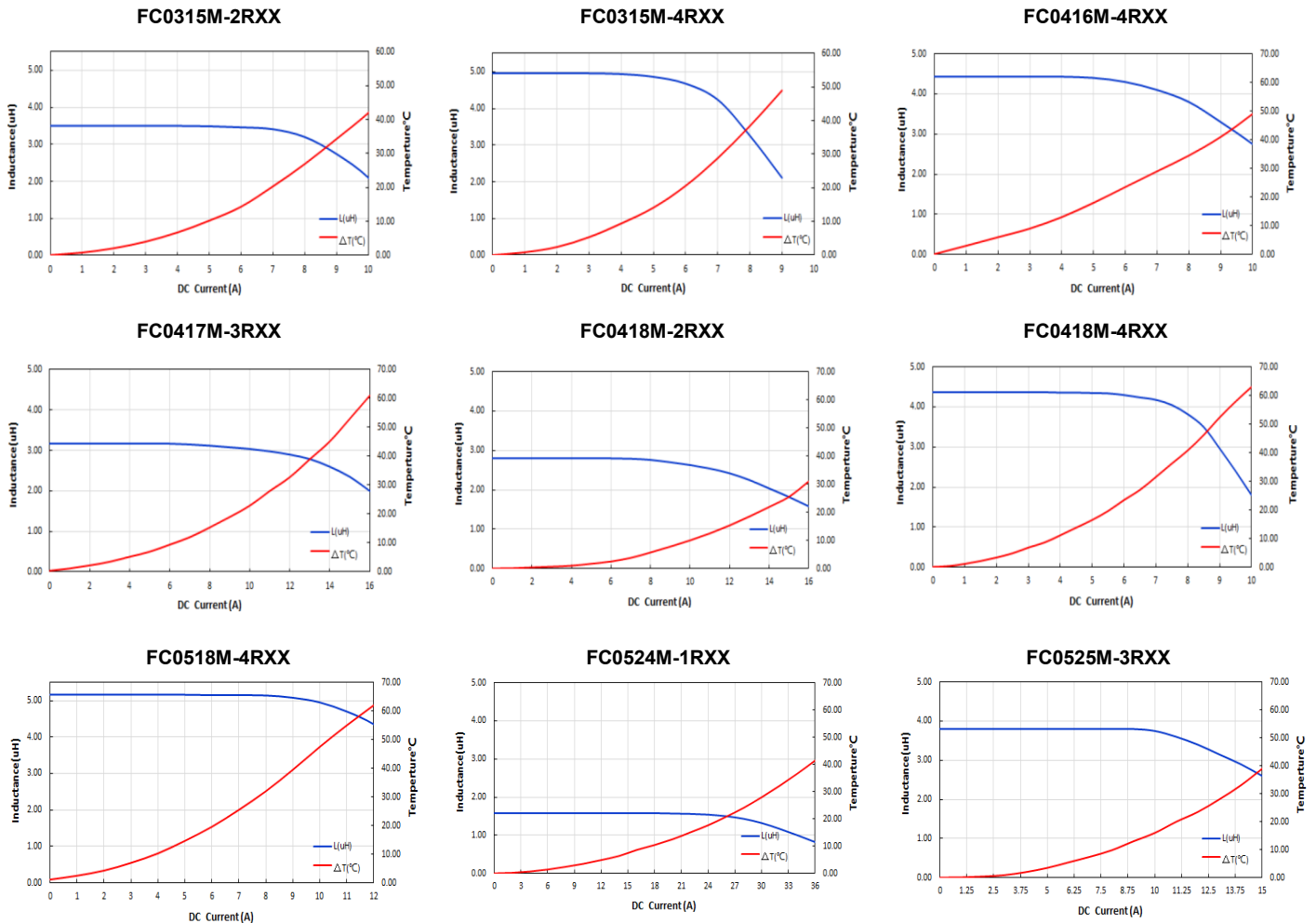
Note 1: Test Condition:10KHz,0.25 Vrms.

Note 2: I sat(Max):DC current (A) that will cause L0 to drop 10% Max.

I rms(Max):DC current (A) that will cause an ΔT of 40°C.

Automotive reliability comply with AEC-Q200 standard.

### Typical Performance curves:



\* Due to the limited space, the catalogue shows the typical specifications only. For more specific details ( characteristics graph, reliability, and others), kindly invite you to access 3L official website [www.3lcoil.com](http://www.3lcoil.com) for better known.



## Customized items AEC-Q200 standard compliance

### SMTDRH0530M

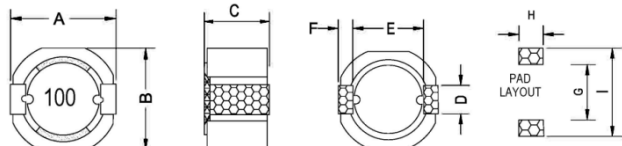
SHIELDED SMT POWER INDUCTORS.



#### Applications :

- Automotive reliability comply with **AEC-Q200** grade 1

#### Shape and Dimensions (Dimensions are in mm) :



A max	B max	C max	D	E	F	H	I	J
5.2	5.2	3.0	1.4	4.2	0.6	4.0	2.0	6.0

#### Product Identification :

**SMT DRH0530 M - 680 M**

(1) (2) (3) (4) (5)

- (1) Type: **Surface Mountable Type**.
- (2) Style: **DR** Core with **RI** Shield, **0530** is size.
- (3) Vehicle product code : **M= temp. -40~125°C**
- (4) Inductance: **680** for **68.0** uH.
- (5) Inductance tolerance : **M** : ± 20%.

Part NO.	L(uH)	DCR(mΩ)		I sat (A)		I rms (A)	
		Max.	Typ.	Max.	Typ.	Max.	Typ.
SMTDRH0530M-680M	68	525	470	0.52	0.65	0.70	0.90

- Measuring Frequency : @100KHz 0.1V
- Saturation Current(Isat):The current when the inductance becomes 30% lower than is initial value.(Ta=20°C)
- temperature of coil increases up to max. ΔT=40°C.(Ta=20°C)
- Operating temperature : -40°C to 125°C.

### SMTDRH0635M

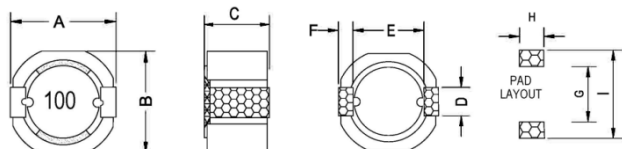
SHIELDED SMT POWER INDUCTORS.



#### Applications :

- Automotive reliability comply with **AEC-Q200** grade 1

#### Shape and Dimensions (Dimensions are in mm) :



A max	B max	C max	D	E	F	H	I	J
6.3	6.2	3.5	2.0	4.8	0.6	4.6	2.6	6.6

#### Product Identification :

**SMT DRH0635 M - 100 M**

(1) (2) (3) (4) (5)

- (1) Type: **Surface Mountable Type**.
- (2) Style: **DR** Core with **RI** Shield, **0635** is size.
- (3) Vehicle product code : **M= temp. -40~125°C**
- (4) Inductance: **100** for **10** uH.
- (5) Inductance tolerance : **M** : ± 20%.

Part NO.	L(uH)	DCR(mΩ)		I sat (A)		I rms (A)	
		Max.	Typ.	Max.	Typ.	Max.	Typ.
SMTDRH0635M-100M	10	50.8	44	1.52	1.90	2.00	2.70

- Measuring Frequency : @100KHz 0.1V
- Saturation Current(Isat):The current when the inductance becomes 30% lower than is initial value.(Ta=20°C)
- temperature of coil increases up to max. ΔT=40°C.(Ta=20°C)
- Operating temperature : -40°C to 125°C.





## Customized items AEC-Q200 standard compliance

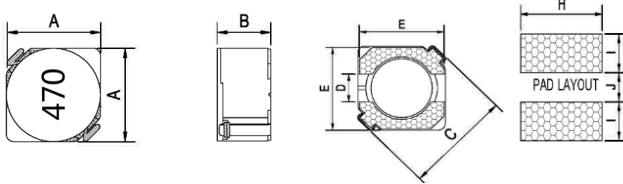
### SMTDRRI6D38M

SHIELDED SMT POWER INDUCTORS.

#### Applications :

- Automotive reliability comply with **AEC-Q200** grade 1

#### Shape and Dimensions (Dimensions are in mm) :



A ±0.3	B max	C max	D	E	H	I	J
6.7	4.0	9.5	2.0	6.5	7.3	2.5	2.0



#### Product Identification :

**SMT DRRI6D38 M - 330 N**  
**1 2 3 4 5**

- (1) Type : **Surface Mountable Type.**
- (2) Style : **DR Core with RI Shield,**  
**6D** is 6.7mm square and **38** is about 3.8mm height.
- (3) Vehicle product code : **M= temp. -40~125°C**
- (4) Inductance: **330** for **33** uH.
- (5) Inductance tolerance : **N : ± 30%.**

Part NO.	L(uH)	DCR(mΩ)		I sat (A)		I rms (A)	
		Max.	Typ.	Max.	Typ.	Max.	Typ.
SMTDRRI6D38M-330N	33.0	124	105	1.05	1.20	1.50	2.00

- Measuring Frequency : @100KHz 0.1V
- Saturation Current(Isat):The current when the inductance becomes 30% lower than is initial value.(Ta=20°C)
- temperature of coil increases up to max. ΔT=40°C.(Ta=20°C)
- Operating temperature : -40°C to 125°C.

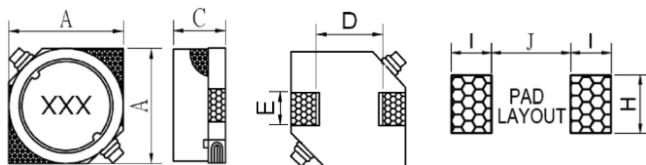
### SMTDRS0732M

SHIELDED SMT POWER INDUCTORS.

#### Applications :

- Automotive reliability comply with **AEC-Q200** grade 1

#### Shape and Dimensions (Dimensions are in mm) :



A max	C max	D	E	H	I	J
7.2	3.4	4.0	2.0	2.2	2.0	4.0



#### Product Identification :

**SMT DRS0732 M - 221 M**  
**(1) (2) (3) (4) (5)**

- (1) Type : **Surface Mountable Type.**
- (2) Style : **DR Core with RI Shield, 0732** is size.
- (3) Vehicle product code : **M= temp. -40~125°C**
- (4) Inductance: **221** for **220** uH.
- (5) Inductance tolerance : **M : ± 20%.**

Part NO.	L(uH)	DCR(Ω)		I sat (A)		I rms (A)	
		Max.	Max.	Max.	Max.		
SMTDRS0732M-221M	220	1.05	0.29	0.29	0.29		

- Measuring Frequency : @100KHz 0.1V
- Saturation Current(Isat):The current when the inductance becomes 10% lower than is initial value.(Ta=20°C)
- temperature of coil increases up to max. ΔT=40°C.(Ta=20°C)
- Operating temperature : -40°C to 125°C.



## Customized items AEC-Q200 standard compliance

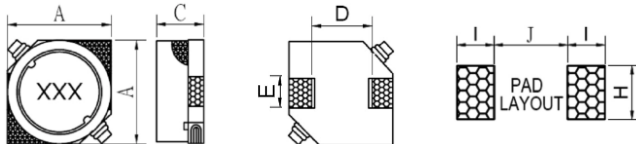
### SMTDRS1275M

SHIELDED SMT POWER INDUCTORS.

#### Applications :

- Automotive reliability comply with **AEC-Q200** grade 1

#### Shape and Dimensions (Dimensions are in mm) :



A max	C max	D	E	H	I	J
12.8	7.85	8.6	3.0	3.2	2.5	8.6



#### Product Identification :

##### SMT DRS1275 M – 220 M

(1) (2) (3) (4) (5)

- (1) Type : **Surface Mountable Type.**
- (2) Style : **DR Core with RI Shield, 1275** is size.
- (3) Vehicle product code : **M= temp. -40~125°C**
- (4) Inductance: **220** for **22** uH.
- (5) Inductance tolerance : **M** :  $\pm 20\%$ .

Part NO.	L(uH)	DCR(mΩ)	I sat (A)	I rms (A)
		+ -20%	Max.	Max.
<b>SMTDRS1275M-220M</b>	22	26.3	4.0	4.0

- Measuring Frequency : @1KHz 0.1V
- Saturation Current(Isat):The current when the inductance becomes 10% lower than is initial value.(Ta=20°C)
- temperature of coil increases up to max.  $\Delta T=40^{\circ}\text{C}$ .(Ta=20°C)
- Operating temperature : -40°C to 125°C.

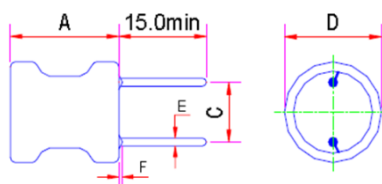
### PK1010M

PEAKING COILS.

#### Applications :

- Automotive reliability comply with **AEC-Q200** grade1

#### Shape and Dimensions (Dimensions are in mm) :



A max	D max	C+0.5	E+0.1	F max
13.5	12.0	5.0	0.8	2.0



#### Product Identification :

##### PK 1010 M – 470 K – UL

(1) (2) (3) (4) (5) (6)

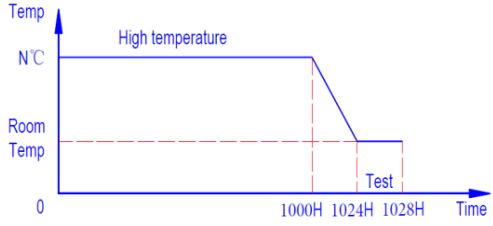
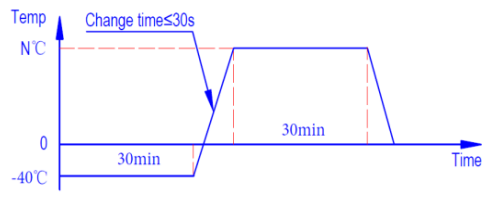
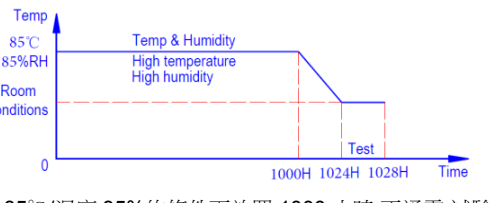
- (1) Type: **Peaking coils.**
- (2) Style : Core size, **OD=10 mm , L=10 mm.**
- (3) Vehicle product code : **M= temp. -40~125°C**
- (4) Inductance: **470** for **47** uH.
- (5) Inductance tolerance : **K** :  $\pm 10\%$ .
- (6) Sleeve: **UL tube, Black; No code: NO sleeve**

Part NO.	L(uH)	DCR(mΩ)	I sat (A)	I rms (A)
		Max.	Max.	Max.
<b>PK1010M-470K-UL</b>	47	75	2.3	2.1

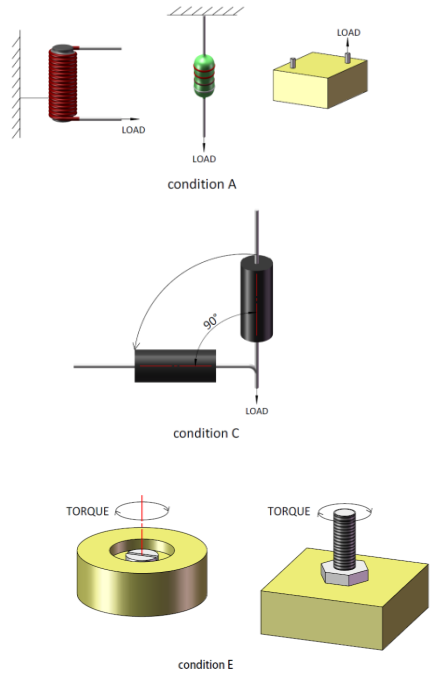
- Measuring Frequency : @1KHz 1V
- Saturation Current(Isat):The current when the inductance becomes 10% lower than is initial value.(Ta=20°C)
- temperature of coil increases up to max.  $\Delta T=40^{\circ}\text{C}$ .(Ta=20°C)
- Operating temperature : -40°C to 125°C.



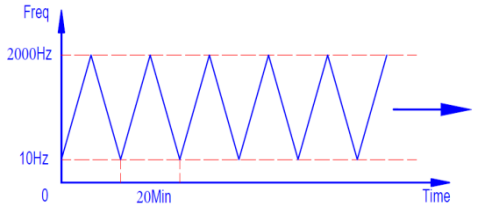
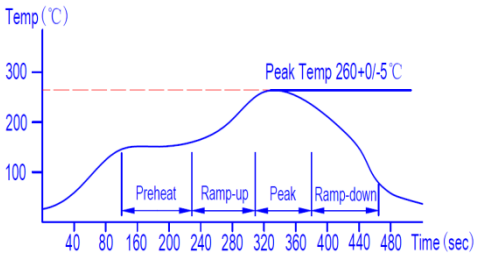
## ● RELIABILITY TEST CONDITIONS (AEC-Q200)

Item (項目)	Required Characteristics (要求)	Test Method / Condition (測試方法)
High Temperature Storage  Reference documents: <b>MIL-STD-202G Method 108</b> (Sample Size : 77PCS )  高溫儲存試驗	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$  1. 無明顯的外觀缺陷 2. 感值變化不超過 10% 3. 直流電阻變化不超過 10%	Temperature: N°C (N: Follow the product specification for the setting.) 1000 hrs. at rated operating temperature (e.g. 125°C part can be stored for 1000 hrs. @ 125°C. Same applies for 105°C and 85°C. Unpowered. Measurement at 24±4 hours after test conclusion.   溫度: N°C (N:依據產品規格設定) 在額定工作溫度下放置器件 1000 小時。例如:125°C 的產品可以在 125°C 下存儲 1000 小時,同樣地也適用於 105°C 和 85°C 的產品,不通電。試驗結束後 24±4 小時內進行測試。
Temperature Cycling  Reference documents: <b>JESD22 Method JA-104</b> (Sample Size : 77PCS )  溫度循環試驗	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$  1. 無明顯的外觀缺陷 2. 感值變化不超過 10% 3. 直流電阻變化不超過 10%	Temperature: N°C (N: Follow the product specification for the setting.) 1000 cycles (-40°C to +125°C). Note: If 85°C part or 105°C part the 1000 cycles will be at that temperature. Measurement at 24±4 hours after test conclusion. 30min maximum dwell time at each temperature extreme. 1min. maximum transition time.   溫度: N°C (N:依據產品規格設定) 1000 個循環(-40°C 到 125°C)。注意:如果 85°C 或 105°C 的產品,1000 個循環應在其溫度等級下進行。試驗結束後 24±4 小時內進行測試。每個溫度的停留時間不超過 30 分鐘,轉換時間不超過 1 分鐘。
Biased Humidity  Reference documents: <b>MIL-STD-202G Method 103</b> (Sample Size : 77PCS )  高溫高濕試驗	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$  1. 無明顯的外觀缺陷 2. 感值變化不超過 10% 3. 直流電阻變化不超過 10%	1000 hours 85°C/85%RH. Unpowered. Measurement at 24±4 hours after test conclusion.   在溫度 85°C/濕度 85%的條件下放置 1000 小時,不通電。試驗結束後 24±4 小時內進行測試。
Operational Life  Reference documents: <b>MIL-PRF-27</b> (Sample Size : 77PCS )  工作壽命試驗	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$  1. 無明顯的外觀缺陷 2. 感值變化不超過 10% 3. 直流電阻變化不超過 10%	1000 hrs. @ 105°C. If 125°C or 155°C parts should be tested at the temperature specified. Measurement at 24±4 hours after test conclusion.  1000 小時 105°C,如果 125°C 或 155°C 的產品,應在其溫度下進行,試驗結束後 24±4 小時內進行測試。

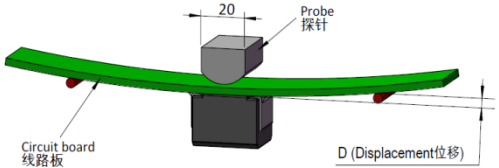
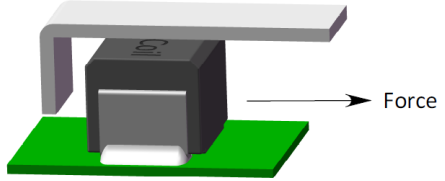


Item (項目)	Required Characteristics (要求)	Test Method / Condition (測試方法)
External Visual  Reference documents: <b>MIL-STD-883 Method 2009</b> (All Samples)  外觀	Electrical Test not required.  不需進行電氣測試。	Inspect device construction, marking and workmanship  檢查器件結構,標識和工藝品質。
Physical Dimension  Reference documents: <b>JESD22 Method JB-100</b> (Sample Size : 30PCS)  尺寸	Electrical Test not required.  不要求電氣測試。	Verify physical dimensions to the applicable device detail specification. Note: User(s) and Suppliers spec. Electrical Test not required.  器件詳細規格驗證物理尺寸。注意:使用者和供應商規格
Electrical Characterization  Reference documents: <b>User Spec.</b> (Sample Size : 30 PCS )  電氣特性測試	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$  1.無明顯的外觀缺陷 2.感值變化不超過 10% 3.直流電阻變化不超過 10%	Parametrically test sample size requirements,summary to show Min, Max, Mean and Standard deviation at room as well as Min and Max operating temperatures.  樣品數量要求進行參數試驗:總結列出室溫下及最低、最高工作溫度下器件的最小值、最大值平均值和標準差。
Terminal Strength (Leaded)  Reference documents: <b>MIL-STD-202 Method 211</b> (Sample Size : 30PCS )  端子強度試驗 (插件類)	No significant defects in appearance.  無明顯的外觀缺陷	Test leaded device lead integrity only. Conditions: A (910 g), C (1.13kg), E (1.45 kg-mm)    只進行引腳器件的引腳牢固性測試。條件A(910克);C(1.13公斤);E(1.45公斤-mm)。



Item (項目)	Required Characteristics (要求)	Test Method / Condition (測試方法)
Mechanical Shock  Reference documents: <b>MIL-STD-202 Method 213</b> (Sample Size : 30PCS )  機械衝擊試驗	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$  1. 無明顯的外觀缺陷 2. 感值變化不超過 10% 3. 直流電阻變化不超過 10%	Condition C : PGA: 100g.s; Duration: 6ms; Using half-sine waveform with max velocity change of 12.3ft/sec  條件C: 半正弦波, 峰值加速度: 100g.s; 脈衝持續時間: 6ms; 使用半正弦波形最大速度變化12.3英尺/秒
Vibration test  Reference documents: <b>MIL-STD-202 Method 204</b> (Sample Size : 30PCS )  振動測試	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$  1. 無明顯的外觀缺陷 2. 感值變化不超過 10% 3. 直流電阻變化不超過 10%	Test from 10-2000 Hz.5g's for 20 minutes, 12 cycles each of 3 orientations .    測試頻率從 10HZ 到 2000HZ, 5g 的力 20 分鐘為一循環, XYZ 每個方向各 12 循環
Resistance to Soldering Heat  Reference documents: <b>MIL-STD-202 Method 210</b> (Sample Size : 30PCS )  焊錫耐熱測試	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$  1. 無明顯的外觀缺陷 2. 感值變化不超過 10% 3. 直流電阻變化不超過 10%	1.The Leaded :No pre-heat of samples. `Leaded with solder within 1.5mm of device body for 10 seconds(260+0/-5°C). 2.The SMD : A : Refer to the above reflow curve and go through the reflow for twice. B : The peak temperature : 260+0/-5°C; C : The reflow test conditions are based on the testing instruments available in 3L    1.外掛程式類: 樣品不進行預熱,在溫度260°C的條件下浸入本體1.5mm的深度10秒.(260+0/-5°C). 2.貼片類: A : 參照上圖回流焊曲線過2次; B : 峰值溫度為: 260+0/-5°C; C : 迴流焊溫度條件是根據我司設備制定的
Solderability  Reference documents: <b>IPC J-STD-002D</b> (Sample Size : 15PCS )  可焊性測試	1. No significant defects in appearance 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$  1. 無明顯的外觀缺陷 2. 感值變化不超過 10% 3. 直流電阻變化不超過 10%	1.Steam aging: 8 hours; (93°C) 2.In solder pot at 245±5°C for 5 second  1.蒸汽老化 8 小時 (93°C); 2.於 245°C±5°C的溫度下焊錫 5s



Item (項目)	Required Characteristics (要求)	Test Method / Condition (測試方法)
Board Flex  Reference documents: <b>AEC-Q200-005</b> (Sample Size : 30 PCS )  板彎曲測試	No significant defects in appearance.  無明顯的外觀缺陷	The apparatus shall consist of mechanical means to apply a force which will bend the board (D) x = 2 mm minimum (or as defined in the customer specification or Q200). The duration of the applied forces shall be 60 (+ 5) Sec. The force is to be applied only once to the board.   儀器由機械裝置組成,可施加使線路板彎曲至少 $Dx = 2mm$ 的力或者是按使用者規格或 Q200 中的定義。施加外力的持續時間應為 60+5 秒,只需施加一次外力到線路板上。
Terminal Strength (SMD)  Reference documents: <b>AEC-Q200-006</b> (Sample Size : 30 PCS )  端子強度測試 (表面貼裝元件)□	No significant defects in appearance.  無明顯的外觀缺陷	apply a 17.7N (1.8Kg) force to the side of a device being tested. This force shall be applied for 60( +1) seconds.   施加一個 17.7N(1.8kg)的力到測試器件的側面,此外力的施加時間為 60+1 秒
Resistance to Solvents  Reference documents: <b>MIL-STD- 202 Method 215</b> (Sample Size : 5PCS )  耐溶劑測試	No significant defects in appearance.  無明顯的外觀缺陷	Note: Add Aqueous wash chemical. OKEM Clean or equivalent. Do not use banned solvents.  注意:增加水洗清洗劑-OKEM 清洗劑或其它相同的溶劑.不要使用禁止的溶劑.

### Application Notice(應用需知) :

#### 1. Storage Conditions (儲存條件)

To maintain the solderability of terminal electrodes:

- (1) Temperature and humidity conditions : <35°C and < 35~65%RH
- (2) Recommendation: inductors should be used within 6 months from the time of delivery.
- (3) Packaging material should be kept away from where chlorine or sulfur exists.

為了維持端面電極的焊錫性 :

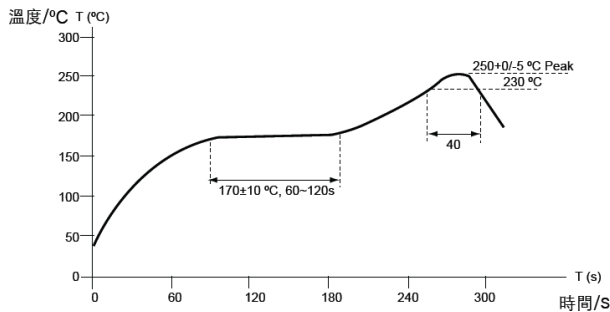
- (1) 溫度及溼度條件 : <35°C and < 35~65%RH 。
- (2) 建議電感最好貨到6個月內使用。
- (3) 包裝材料應避免含氯及硫的環境





## 2. Soldering (焊接)

### (1) Lead-free the recommended reflow condition (SMT TYP) (無鉛回流焊推薦條件 (SMT 型))

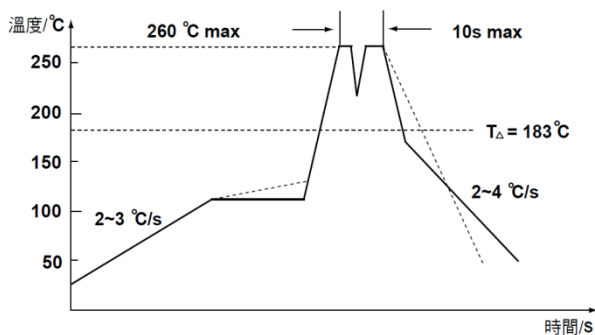


ADD : (補充)

The recommended reflow conditions as left graph, is set according to our soldering equipment, due to various manufacturers may have different reflow soldering equipments, products, process conditions, set methods .. and so on, when setting the reflow conditions, Please adjust and confirm according to users' environment / equipments..

左圖推薦的回流焊條件，是以我們的回流焊設備進行設定，由於各家廠商的回流焊設備、產品制程條件、設定方式..等，有很大的不同，所以回流焊條件的設定，請使用者依自己的環境/設備進行調整及確認。

### (2) Lead-free the recommended Wave soldering (DIP TYP) (無鉛波峰焊推薦條件 (外掛程式型))



ADD : (補充)

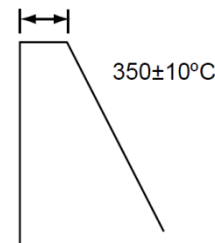
Left recommended Wave soldering, is a reference to a single wave soldering recommended by the manufacturer, because the various manufacturers of soldering equipment, product process conditions, set way .. and so on, are very different, so setting the Wave soldering conditions, Please adjust and confirm according to users' environment / equipments.

左圖推薦的波峰焊條件，是參考單一波峰焊廠商建議，由於各家廠商的波峰焊設備、產品制程條件、設定方式..等，有很大的不同，所以波峰焊條件的設定，請使用者依自己的環境/設備調整及確認。

### (3) Soldering Iron (烙鐵)

- (1) Use a soldering iron to solder inductors by hand, time does not exceed 350 degrees 3 seconds.
- (2) When soldering iron welding, please try to avoid contacting the inductor itself. (definitely do not contact the wire)
- (3) To solder inductors by soldering iron is not recommended.
- (1) 使用烙鐵手工焊接電感器，時間不超過 350 度 3 秒。
- (2) 烙鐵焊接時請盡量避免接觸到電感本體(絕對不能接觸到線包)
- (3) SMT 電感以烙鐵焊接並不鼓勵

3 Seconds Max.



Soldering iron power: 30W Max.

## 3. Precautions (注意事項)

- (1) When using our inductors, please carry out product assembling test and evaluation of product operating environment.
- (2) Non-magnetic shielded inductors, when design circuit, should pay attention to its space allocation in order to avoid electromagnetic interference which can cause malfunctions.
- (3) Do not place inductors near magnet or any magnetic objects.
- (4) Do not use or store inductors in a corrosive gas environment. (example: salt, sulfur, acid, etc ..).
- (5) The catalogue specification for reference only. Please check the official specification from 3L datasheet as approved.
- (1) 使用我司電感時，務必進行產品實裝測試以及產品使用環境下的測試評估。
- (2) 非磁遮罩電感，在電路設計時需注意空間配置，避免受到電磁干擾導致誤動作。
- (3) 請勿將電感產品靠近磁鐵或帶有磁性的物體。
- (4) 請勿在具有腐蝕性氣體的環境(鹽、硫、酸..等)下使用或保存。
- (5) 目錄中記載的規格僅供參考，正式規格請以3L 工程部輸出並經客戶承認的規格書為準。



# 3L Electronic Corp.

## 3L Zhongshan Factory 1



## 3L Zhongshan Factory 2



## Reliability Test Equipment



Temperature and Humidity Chamber



Thermal Shock Chamber



Thermal Shock Chamber



High Temperature Chest



Salt Spray Tester



Temperature and Humidity Chamber



High & low temperature and Humidity Chamber



Thermal Cycle Chamber



Temperature and Humidity



Vibration Tester



# Certificate

## IATF 16949

Certificate IATF 0284881  
Certificate SGS CN1230214.01

The management system of  
**3L Electronic (Zhongshan) Co., Ltd.**  
No. 6 Industrial Park, Nanlang Town, Zhongshan City, Guangdong Province, P. R. China

has been assessed and certified as meeting the requirements of  
**IATF 16949:2016**  
Edition 1  
For the following activities  
Design and manufacture of inductors for automotive electronic products  
EXCLUSIONS: None  
3 Year certification is valid from 10 January 2018 until 09 January 2021 and remains valid subject to satisfactory surveillance audits.  
Version no. 03 Current version updated 10 January 2018

Authorized by  


Web Power Authority  
Contracted Office: SGS United Kingdom Ltd, Station Road, Solihull, B91 4JL, UK  
E-mail: [www@sgs.com](mailto:www@sgs.com)  
SGS IATF 16949 D417 AM2

SGS IATF 16949 D417 AM2

The assurance issued by the Certifier subject to General Conditions of Certification Services available at [www.sgs.com](http://www.sgs.com) and Conditions of Accreditation is subject to the retention of identity, non-transferability and non-alienability. Issuance is subject to the terms of the accreditation and the accreditation agreement. The validity of this accreditation may be verified at the time of the accreditation and the accreditation agreement. Any withdrawal of accreditation, suspension or withdrawal of accreditation shall be subject to the terms of the accreditation and the accreditation agreement. The accreditation agreement shall be subject to the terms of the accreditation and the accreditation agreement.

## SGS GPMS

IEC QUALITY ASSESSMENT SYSTEM (IECQ)  
covering Electronic Components,  
Assemblies, Related Materials and Processes  
For rules and details of the IECQ visit [www.iecq.org](http://www.iecq.org)

IECQ Certificate of Conformity  
**Hazardous Substance Process Management**

IECQ Certificate No.: IECQ-H SGS CN 09 0285	Issue No.: 5	Status: Current
Supersedes: IECQ-H SGS CN 09 0285 Issue 4	Issue Date: 2018/02/27	Org Issue: 2009/02/27
CB Reference No.: CN0930479	Expiration: 2019/09/14	

Applicable to:

- European Directive 2011/65/EU (RoHS - Restriction of the use of Certain Hazardous Substances) in electrical and electronic equipment and its amendments
- Other Identified Hazardous Substances

**3L Electronic (Zhongshan) Co., Ltd.**  
No. 6 Industrial Park, Nanlang Town, Zhongshan, Guangdong, P.R. China

The organization has developed and implemented Hazardous Substance Process Management procedures and related processes which have been assessed and found to comply with the applicable requirements for IECQ HSPM organization approval which is in accordance with the Basic Rules IECQ 01 and Rules of Procedure IECQ 03-5 "IECQ Hazardous Substances Process Management" of the IECQ Quality Assessment System for Electronic Components (IECQ), and with respect to the IECQ Specification:

- IECQ QC 080000:2012 - Hazardous Substance Process Management System Requirements

This Certificate is applicable to all electronic components, assemblies, related materials and processes for the following scope of activities:  
Design and manufacture of inductors and coils

Issued by the Certification Body: SGS-CSTC Standards Technical Services Co. Ltd.  
16F Century Yu-Hui Mansion,  
73 Fucheng Road, Beijing,  
China

Authorized person:  
**Mr. Ben Tsang**

SGS

The validity of this certificate is subject to the terms and conditions of the IECQ Quality Assessment System. This certificate is issued in accordance with the Rules of Procedure of the IECQ System and is subject to the terms and conditions of the IECQ System. This certificate is not transferable and cannot be reproduced in full. The issue and authenticity of this certificate may be verified by visiting [www.sgs.com](http://www.sgs.com).

Added: Transmittal - None

IECQ# Rev. 08

## ISO 9001

Certificate HK0501601.01

The management system of  
**3L Electronic (Zhongshan) Co., Ltd.**  
No. 6 Industrial Park, Nanlang Town, Zhongshan, Guangdong, P.R. China  
Unified Social Credit Code 91442000724378703W

has been assessed and certified as meeting the requirements of  
**ISO 9001:2015**  
For the following activities  
Design and manufacture of inductors and coils

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2015 requirements may be obtained by consulting the organization

This certificate is valid from 16 December 2017 until 15 December 2020 and remains valid subject to satisfactory surveillance audits.  
Recertification audit due a minimum of 60 days before the expiration date  
Issue 8, Certified since 16 December 2005

Multiple certificates have been issued for this scope  
The main certificate is numbered HK0501601.00

Authorized by  


SGS United Kingdom Ltd  
Rosemead Business Park, Elstremers Park, Chislehurst, CH65 5EN, UK  
1+44 (0)151 352-6666 1+44 (0)151 352-6600 [www.sgs.com](http://www.sgs.com)  
The certification information can be verified on the website of Certification and Accreditation Administration of the People's Republic of China [www.cnca.gov.cn](http://www.cnca.gov.cn)

SGS 9001-15 01 0116 ME2

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The assurance issued by the Certifier subject to General Conditions of Certification Services available at [www.sgs.com](http://www.sgs.com) and Conditions of Accreditation is subject to the retention of identity, non-transferability and non-alienability. Issuance is subject to the terms of the accreditation and the accreditation agreement. The validity of this accreditation may be verified at the time of the accreditation and the accreditation agreement. Any withdrawal of accreditation, suspension or withdrawal of accreditation shall be subject to the terms of the accreditation and the accreditation agreement. The accreditation agreement shall be subject to the terms of the accreditation and the accreditation agreement.

## ISO 14001

Certificate CN0631122

The management system of  
**3L Electronic (Zhongshan) Co., Ltd.**  
No. 6 Industrial Park, Nanlang Town, Zhongshan, Guangdong, P.R. China

has been assessed and certified as meeting the requirements of  
**ISO 14001:2015**  
For the following activities  
Design and manufacture of inductors and coils

This certificate is valid from 11 January 2018 until 10 January 2021 and remains valid subject to satisfactory surveillance audits.  
Recertification audit due a minimum of 60 days before the expiration date  
Issue 5, Certified since 10 January 2006

Authorized by  

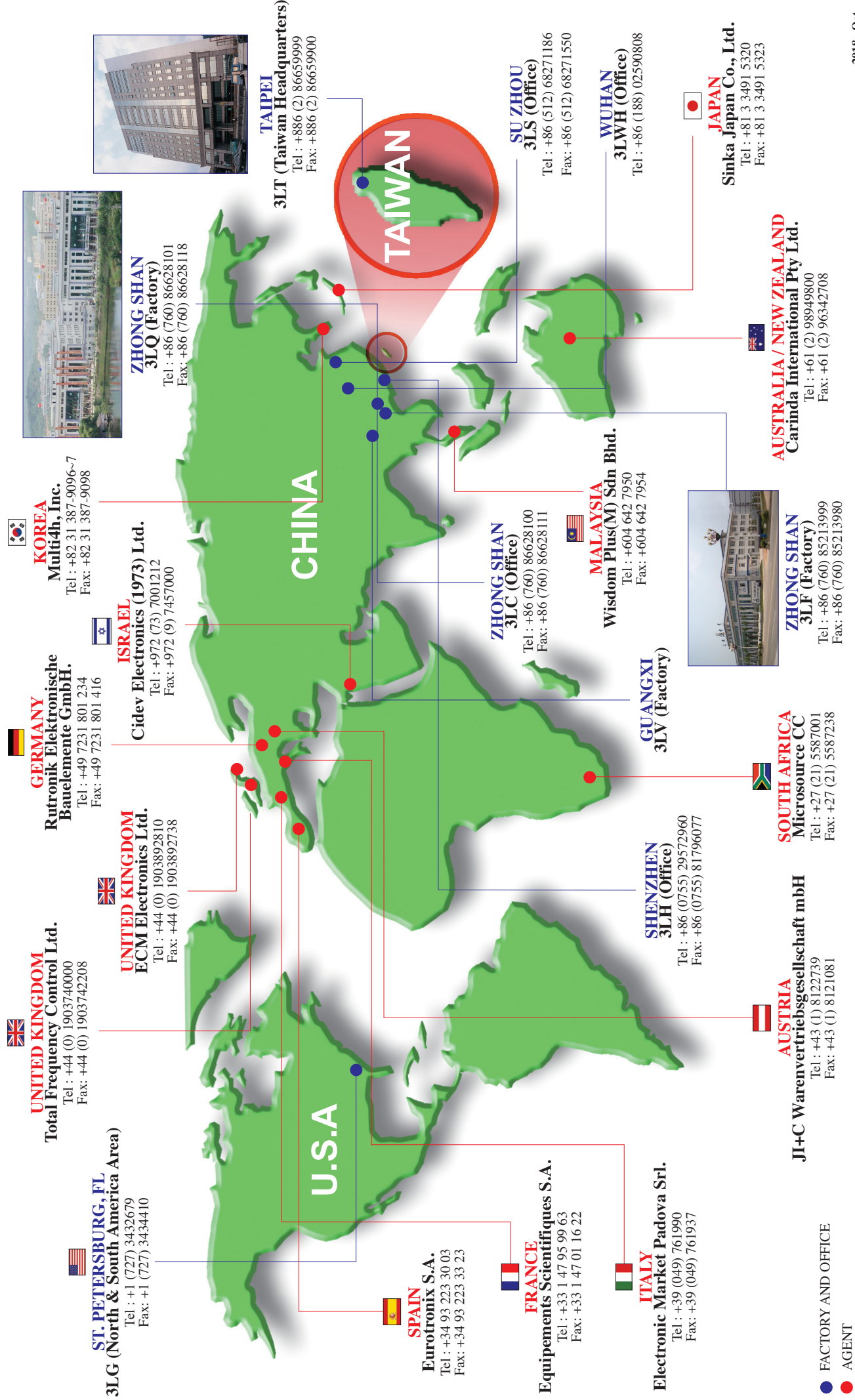

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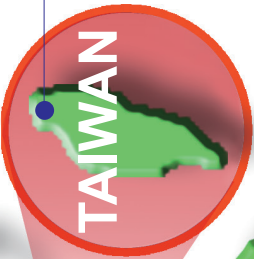


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