THE DATASHEET OF

TSL1112RA-2R2M6R7-PF

Inductors for Power Circuits

Radial lead

TSL series

Type: **TSL0709**
TSL0808
TSL1112
TSL1315

Issue date: September 2011

- All specifications are subject to change without notice.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using these products.

⚠ REMINDERS

- The storage period is less than 12 months. Be sure to follow the storage conditions (Temperature: 5 to 30°C, Humidity: 10 to 75% RH or less).
  If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
- Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).
- Before soldering, be sure to preheat components.
  The preheating temperature should be set so that the temperature difference between the solder temperature and chip temperature does not exceed 150°C.
- Soldering corrections after mounting should be within the range of the conditions determined in the specifications.
  If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.
- When embedding a printed circuit board where a chip is mounted to a set, be sure that residual stress is not given to the chip due to the overall distortion of the printed circuit board and partial distortion such as at screw tightening portions.
- Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.
- Carefully lay out the coil for the circuit board design of the non-magnetic shield type.
  A malfunction may occur due to magnetic interference.
- Use a wrist band to discharge static electricity in your body through the grounding wire.
- Do not expose the products to magnets or magnetic fields.
- Do not use for a purpose outside of the contents regulated in the delivery specifications.
- The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.
  The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.
  If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.

(1) Aerospace/Aviation equipment
(2) Transportation equipment (cars, electric trains, ships, etc.)
(3) Medical equipment
(4) Power-generation control equipment
(5) Atomic energy-related equipment
(6) Seabed equipment
(7) Transportation control equipment
(8) Public information-processing equipment
(9) Military equipment
(10) Electric heating apparatus, burning equipment
(11) Disaster prevention/crime prevention equipment
(12) Safety equipment
(13) Other applications that are not considered general-purpose applications

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.

TDK

Inductors for Power Circuits
Radial Lead

Conformity to RoHS Directive

TSL Series TSL0709

FEATURES

- The TSL series feature low DC resistance and high current handling capacities, making them ideal for power supply line applications.
- These parts are manufactured to a high degree of dimensional accuracy using non-flammable material (UL94V-0).
- Available in tape packaging to support automated mounting machines.
- It is a product conforming to RoHS directive.

APPLICATIONS

Televisions, VCRs, personal computers, and other electronic equipment.

SPECIFICATIONS

Operating temperature range	–40 to +85°C [Including self-temperature rise]
Storage temperature range	–40 to +85°C[Unit of products]
Terminal tensile strength	9.8N min.
Flow soldering condition	260°C /10 seconds

PRODUCT IDENTIFICATION

TSL	0709	RA-	1R0	M	5R0	-	PF
(1)	(2)	(3)	(4)	(5)	(6)		(7)

(1)Series name

(2)Dimensions

0709	ø7.7×9.5mm (lead pitch 5mm)

(3)Packaging style

RA	Taping(Ammo-pack)
S	Bulk

(4)Inductance value

1R0	1μH
100	10μH

(5)Inductance tolerance

K	±10%
M	±20%

(6)Rated current

5R0	5A
R66	0.66A

(7)Lead-free compatible product

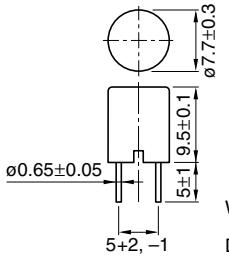
PF	Lead-free compatible product

PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping (Ammo-pack)	1000 pieces/box
Bulk	500 pieces/10tray

- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

SHAPES AND DIMENSIONS



Weight: 1.1g

Dimensions in mm

ELECTRICAL CHARACTERISTICS

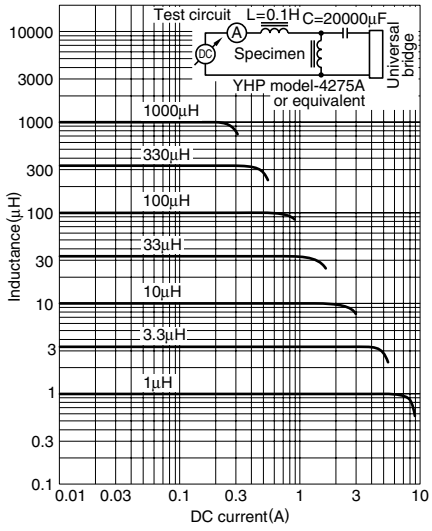
Inductance (µH)	Inductance tolerance	Q min.	Test frequency L/Q (Hz)	Self-resonant frequency (MHz)min.	DC resistance (Ω)max.	Rated current(A)*1max.		Part No.
						Based on inductance change	Based on temperature rise	
1	±20%	10	1k/7.96M	70	0.006	6.6	5	TSL0709□*2-1R0M5R0-PF
1.5	±20%	10	1k/7.96M	56	0.008	5.4	4.3	TSL0709□-1R5M4R3-PF
2.2	±20%	10	1k/7.96M	45	0.011	4	3.7	TSL0709□-2R2M3R7-PF
3.3	±20%	10	1k/7.96M	36	0.018	3.6	2.9	TSL0709□-3R3M2R9-PF
4.7	±20%	10	1k/7.96M	29	0.022	3.1	2.6	TSL0709□-4R7M2R6-PF
6.8	±20%	10	1k/7.96M	24	0.028	2.5	2.3	TSL0709□-6R8M2R3-PF
10	±10%	20	1k/2.52M	19	0.043	2.1	1.9	TSL0709□-100K1R9-PF
15	±10%	20	1k/2.52M	15	0.056	1.7	1.6	TSL0709□-150K1R6-PF
22	±10%	20	1k/2.52M	12	0.086	1.4	1.3	TSL0709□-220K1R3-PF
33	±10%	20	1k/2.52M	9.4	0.14	1.1	1	TSL0709□-330K1R0-PF
47	±10%	20	1k/2.52M	7.6	0.17	0.96	0.94	TSL0709□-470KR94-PF
68	±10%	20	1k/2.52M	6.2	0.28	0.79	0.73	TSL0709□-680KR73-PF
100	±10%	20	1k/796k	5	0.33	0.66	0.67	TSL0709□-101KR66-PF
150	±10%	20	1k/796k	4	0.56	0.53	0.52	TSL0709□-151KR52-PF
220	±10%	20	1k/796k	3.2	0.72	0.44	0.46	TSL0709□-221KR44-PF
330	±10%	20	1k/796k	2.5	1.1	0.36	0.37	TSL0709□-331KR36-PF
470	±10%	20	1k/796k	2	1.7	0.3	0.3	TSL0709□-471KR30-PF
680	±10%	20	1k/796k	1.7	2.3	0.25	0.26	TSL0709□-681KR25-PF
1000	±10%	70	1k/252k	1.3	4.3	0.2	0.19	TSL0709□-102KR19-PF
1500	±10%	50	1k/252k	1.3	5	0.17	0.16	TSL0709□-152KR16-PF

*1 Rated current: Value obtained when current flows and the temperature has risen to 25°C or when DC current flows and the initial value of inductance has fallen by 20%, whichever is smaller.

*2 □: Please specify packaging style, S(Bulk) or RA(Taping).

TYPICAL ELECTRICAL CHARACTERISTICS

INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



Inductors for Power Circuits
Radial Lead

Conformity to RoHS Directive

TSL Series TSL0808

FEATURES

- The TSL series feature low DC resistance and high current handling capacities, making them ideal for power supply line applications.
- These parts are manufactured to a high degree of dimensional accuracy using non-flammable material (UL94V-0).
- Available in tape packaging to support automated mounting machines.
- It is a product conforming to RoHS directive.

APPLICATIONS

Televisions, VCRs, personal computers, and other electronic equipment.

SPECIFICATIONS

Operating temperature range	–40 to +85°C [Including self-temperature rise]
Storage temperature range	–40 to +85°C[Unit of products]
Terminal tensile strength	9.8N min.
Flow soldering condition	260°C /10 seconds

PRODUCT IDENTIFICATION

TSL	0808	RA-	3R3	M	3R8	-	PF
(1)	(2)	(3)	(4)	(5)	(6)		(7)

(1)Series name

(2)Dimensions

0808	ø8.5×8.3mm (lead pitch 5mm)

(3)Packaging style

RA	Taping(Ammo-pack)
S	Bulk

(4)Inductance value

3R3	3.3µH
100	10µH

(5)Inductance tolerance

K	±10%
M	±20%

(6)Rated current

3R8	3.8A
R67	0.67A

(7)Lead-free compatible product

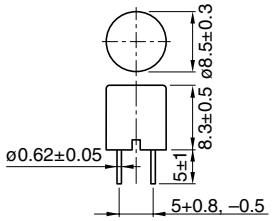
PF	Lead-free compatible product

PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping (Ammo-pack)	1000 pieces/box
Bulk	500 pieces/10tray

- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

SHAPES AND DIMENSIONS



Weight: 1.5g

Dimensions in mm

ELECTRICAL CHARACTERISTICS

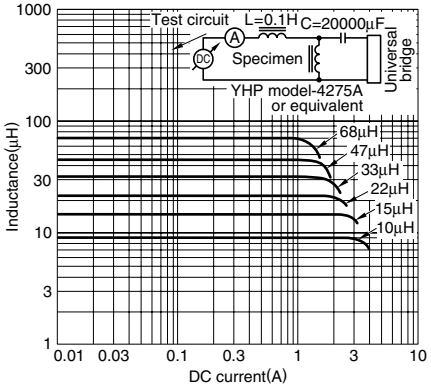
Inductance (µH)	Inductance tolerance	Q min.	Test frequency L/Q (Hz)	Self-resonant frequency (MHz)min.	DC resistance (Ω)max.	Rated current (A)*1max.		Part No.
						Based on inductance change	Based on temperature rise	
2.2	±20%	10	1k/7.96M	45	0.015	5.6	3.9	TSL0808□*2-2R2M3R9-PF
3.3	±20%	10	1k/7.96M	34	0.017	4.5	3.8	TSL0808□-3R3M3R8-PF
4.7	±20%	10	1k/7.96M	27	0.021	3.8	3.5	TSL0808□-4R7M3R5-PF
6.8	±20%	10	1k/7.96M	22	0.025	3.2	3.1	TSL0808□-6R8M3R1-PF
10	±10%	20	1k/2.52M	17	0.031	2.6	2.7	TSL0808□-100K2R6-PF
15	±10%	20	1k/2.52M	13	0.042	2.1	2.4	TSL0808□-150K2R1-PF
22	±10%	20	1k/2.52M	10	0.07	1.7	1.9	TSL0808□-220K1R7-PF
33	±10%	20	1k/2.52M	8	0.092	1.4	1.5	TSL0808□-330K1R4-PF
47	±10%	20	1k/2.52M	6.5	0.13	1.2	1.3	TSL0808□-470K1R2-PF
68	±10%	20	1k/2.52M	5.4	0.16	1	1.1	TSL0808□-680K1R0-PF
100	±10%	20	1k/796k	4.4	0.25	0.8	0.94	TSL0808□-101KR80-PF
150	±10%	20	1k/796k	3.6	0.4	0.67	0.73	TSL0808□-151KR67-PF
220	±10%	15	1k/796k	2.9	0.53	0.54	0.64	TSL0808□-221KR54-PF
330	±10%	15	1k/796k	2.4	0.78	0.45	0.52	TSL0808□-331KR45-PF
470	±10%	15	1k/796k	2	1	0.38	0.46	TSL0808□-471KR38-PF
680	±10%	15	1k/796k	1.6	1.5	0.32	0.37	TSL0808□-681KR32-PF
1000	±10%	30	1k/252k	1.3	2.2	0.26	0.3	TSL0808□-102KR26-PF
1500	±10%	30	1k/252k	1.1	3.5	0.21	0.25	TSL0808□-152KR21-PF
2200	±10%	50	1k/252k	0.88	6.4	0.17	0.21	TSL0808□-222KR17-PF
3300	±10%	50	1k/252k	0.71	8.5	0.14	0.16	TSL0808□-332KR14-PF
4700	±5%	50	1k/252k	0.68	12.2	0.15	0.13	TSL0808□-472JR13-PF

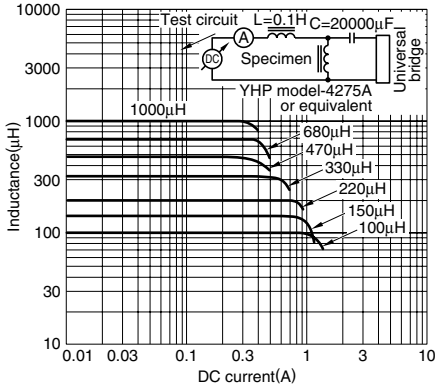
*1 Rated current: Value obtained when current flows and the temperature has risen to 25°C or when DC current flows and the initial value of inductance has fallen by 10%, whichever is smaller.

*2 □: Please specify packaging style, S(Bulk) or RA(Taping).

TYPICAL ELECTRICAL CHARACTERISTICS

INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS





Inductors for Power Circuits
Radial Lead

Conformity to RoHS Directive

TSL Series TSL1112

FEATURES

- The TSL series feature low DC resistance and high current handling capacities, making them ideal for power supply line applications.
- These parts are manufactured to a high degree of dimensional accuracy using non-flammable material (UL94V-0).
- Available in tape packaging to support automated mounting machines.
- It is a product conforming to RoHS directive.

APPLICATIONS

Televisions, VCRs, personal computers, and other electronic equipment.

SPECIFICATIONS

Operating temperature range	–40 to +85°C [Including self-temperature rise]
Storage temperature range	–40 to +85°C[Unit of products]
Terminal tensile strength	9.8N min.
Flow soldering condition	260°C /10 seconds

PRODUCT IDENTIFICATION

TSL	1112	RA-	3R3	M	5R9	-	PF
(1)	(2)	(3)	(4)	(5)	(6)		(7)

(1)Series name

(2)Dimensions

1112	ø11.2×12.2mm (lead pitch 5mm)

(3)Packaging style

RA	Taping(Ammo-pack)
S	Bulk

(4)Inductance value

3R3	3.3μH
100	10μH

(5)Inductance tolerance

J	±5%
K	±10%
M	±20%

(6)Rated current

5R9	5.9A
R56	0.56A

(7)Lead-free compatible product

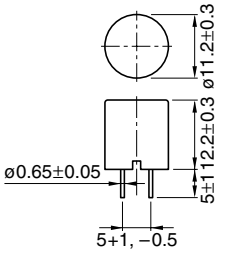
PF	Lead-free compatible product

PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping (Ammo-pack)	500 pieces/box
Bulk	400 pieces/8tray

- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

SHAPES AND DIMENSIONS



Weight: 3.3g

Dimensions in mm

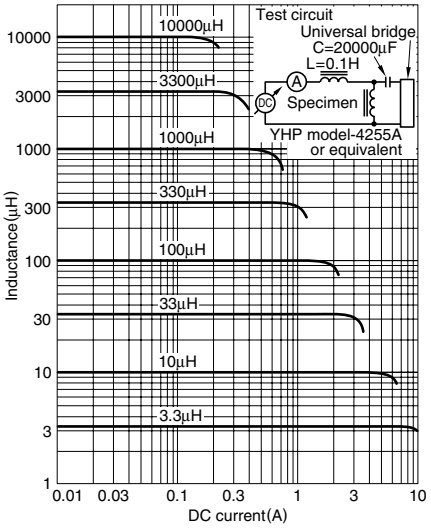
ELECTRICAL CHARACTERISTICS

Inductance (µH)	Inductance tolerance	Q min.	Test frequency L/Q (Hz)	Self-resonant frequency (MHz)min.	DC resistance (Ω)max.	Rated current (A)*1max.		Part No.
						Based on inductance change	Based on temperature rise	
1.0	±20%	15	1k/7.96M	144	0.058	14	7.7	TSL1112□*2-1R0M7R7-PF
2.2	±20%	15	1k/7.96M	70	0.073	10	6.7	TSL1112□-2R2M6R7-PF
3.3	±20%	10	1k/7.96M	36	0.01	8.8	5.9	TSL1112□-3R3M5R9-PF
4.7	±20%	10	1k/7.96M	28	0.015	7.2	4.8	TSL1112□-4R7M4R8-PF
6.8	±20%	10	1k/7.96M	18	0.016	6.1	4.6	TSL1112□-6R8M4R6-PF
10	±20%	20	1k/2.52M	16	0.025	5	3.7	TSL1112□-100M3R7-PF
15	±20%	20	1k/2.52M	12	0.029	4.2	3.4	TSL1112□-150M3R4-PF
22	±10%	20	1k/2.52M	9.5	0.04	3.4	2.9	TSL1112□-220K2R9-PF
33	±10%	30	1k/2.52M	7	0.062	2.8	2.3	TSL1112□-330K2R3-PF
47	±10%	30	1k/2.52M	5.8	0.075	2.3	2.1	TSL1112□-470K2R1-PF
68	±10%	20	1k/2.52M	4.7	0.13	1.9	1.6	TSL1112□-680K1R6-PF
100	±10%	20	1k/796k	3.8	0.16	1.6	1.4	TSL1112□-101K1R4-PF
150	±10%	20	1k/796k	3.1	0.26	1.3	1.1	TSL1112□-151K1R1-PF
220	±10%	20	1k/796k	2.5	0.33	1.1	1	TSL1112□-221K1R0-PF
330	±10%	20	1k/796k	2	0.52	0.88	0.82	TSL1112□-331KR82-PF
470	±10%	10	1k/796k	1.6	0.66	0.75	0.72	TSL1112□-471KR72-PF
680	±10%	10	1k/796k	1.3	1.1	0.61	0.56	TSL1112□-681KR56-PF
1000	±5%	20	1k/252k	1.1	1.4	0.51	0.5	TSL1112□-102JR50-PF
1500	±5%	30	1k/252k	0.82	2.4	0.43	0.38	TSL1112□-152JR38-PF
2200	±5%	20	1k/252k	0.76	3.2	0.35	0.33	TSL1112□-222JR33-PF
3300	±5%	30	1k/252k	0.64	4.9	0.28	0.26	TSL1112□-332JR26-PF
4700	±5%	30	1k/252k	0.54	7.6	0.24	0.21	TSL1112□-472JR21-PF
6800	±5%	30	1k/252k	0.45	9.8	0.2	0.18	TSL1112□-682JR18-PF
10000	±5%	30	1k/79.6k	0.38	18	0.17	0.14	TSL1112□-103JR14-PF
15000	±5%	50	1k/79.6k	0.29	24	0.13	0.12	TSL1112□-153JR12-PF

*1 Rated current: Value obtained when current flows and the temperature has risen to 25°C or when DC current flows and the initial value of inductance has fallen by 10%, whichever is smaller.

*2 □: Please specify packaging style, S(Bulk) or RA(Taping).

TYPICAL ELECTRICAL CHARACTERISTICS
INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



Inductors for Power Circuits
Radial Lead

Conformity to RoHS Directive

TSL Series TSL1315

FEATURES

- The TSL series feature low DC resistance and high current handling capacities, making them ideal for power supply line applications.
- These parts are manufactured to a high degree of dimensional accuracy using non-flammable material (UL94V-0).
- Available in tape packaging to support automated mounting machines.
- It is a product conforming to RoHS directive.

APPLICATIONS

Televisions, VCRs, personal computers, and other electronic equipment.

SPECIFICATIONS

Operating temperature range	–40 to +85°C [Including self-temperature rise]
Storage temperature range	–40 to +85°C[Unit of products]
Terminal tensile strength	9.8N min.
Flow soldering condition	260°C /10 seconds

PRODUCT IDENTIFICATION

TSL	1315	RA-	100	K	5R1	- PF
(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1)Series name

(2)Dimensions

1315	ø14×17mm (lead pitch 7.5mm)

(3)Packaging style

RA	Taping(Ammo-pack)
S	Bulk

(4)Inductance value

100	10μH
102	1000μH

(5)Inductance tolerance

J	±5%
K	±10%

(6)Rated current

5R1	5.1A
R99	0.99A

(7)Lead-free compatible product

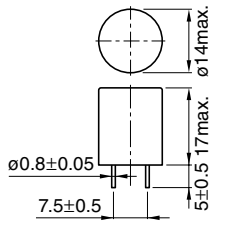
PF	Lead-free compatible product

PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping (Ammo-pack)	200 pieces/box
Bulk	50 pieces/pack

- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

SHAPES AND DIMENSIONS



Weight: 7.5g

Dimensions in mm

ELECTRICAL CHARACTERISTICS

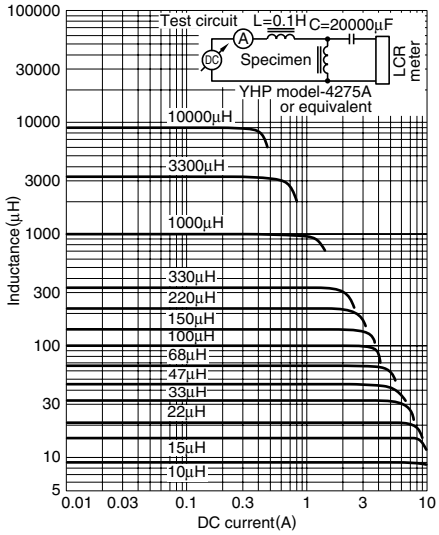
Inductance (µH)	Inductance tolerance	Q typ.	Test frequency L/Q (Hz)	Self-resonant frequency (MHz)min.	DC resistance (Ω)max.	Rated current (A)*1max.		Part No.
						Based on inductance change	Based on temperature rise	
10	±10%	70	1k/2.52M	19	0.023	12	5.1	TSL1315□*2-100K5R1-PF
15	±10%	70	1k/2.52M	12	0.028	9.5	4.5	TSL1315□-150K4R5-PF
22	±10%	60	1k/2.52M	7.6	0.035	8.2	4.2	TSL1315□-220K4R2-PF
33	±10%	50	1k/2.52M	6.9	0.043	6.8	3.7	TSL1315□-330K3R7-PF
47	±10%	50	1k/2.52M	5.6	0.052	5.7	3.4	TSL1315□-470K3R4-PF
68	±10%	40	1k/2.52M	4.4	0.068	4.8	3	TSL1315□-680K3R0-PF
100	±10%	50	1k/796k	3.3	0.097	3.9	2.5	TSL1315□-101K2R5-PF
150	±10%	50	1k/796k	2.6	0.14	3.2	2.1	TSL1315□-151K2R1-PF
220	±10%	40	1k/796k	2.2	0.2	2.7	1.7	TSL1315□-221K1R7-PF
330	±10%	30	1k/796k	1.8	0.3	2.1	1.4	TSL1315□-331K1R4-PF
470	±10%	30	1k/796k	1.5	0.43	1.8	1.1	TSL1315□-471K1R1-PF
680	±10%	30	1k/796k	1.2	0.61	1.5	0.99	TSL1315□-681KR99-PF
1000	±5%	30	1k/252k	1	1	1.2	0.78	TSL1315□-102JR78-PF
1500	±5%	40	1k/252k	0.83	1.3	1	0.68	TSL1315□-152JR68-PF
2200	±5%	40	1k/252k	0.7	2	0.83	0.55	TSL1315□-222JR55-PF
3300	±5%	40	1k/252k	0.6	3.1	0.69	0.44	TSL1315□-332JR44-PF
4700	±5%	40	1k/252k	0.43	4.4	0.58	0.37	TSL1315□-472JR37-PF
6800	±5%	30	1k/252k	0.38	6.5	0.46	0.3	TSL1315□-682JR30-PF
10000	±5%	70	1k/79.6k	0.3	10	0.4	0.24	TSL1315□-103JR24-PF

*1 Rated current: Value obtained when current flows and the temperature has risen to 25°C or when DC current flows and the initial value of inductance has fallen by 10%, whichever is smaller.

*2 □: Please specify packaging style, S(Bulk) or RA(Taping).

TYPICAL ELECTRICAL CHARACTERISTICS

INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



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