Data Sheet

Customer:	
Product:	**Automotive Grade SMD Power Inductor – SDIA..A Series**
Sizes.:	**0315/0418/0430/0520/0540/0628/0645**
Issued Date:	**7-Aug-23**
Edition:	**REV.A**

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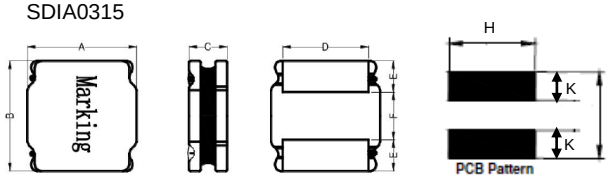
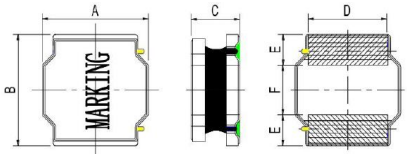
Automotive Grade SMD Power Inductor

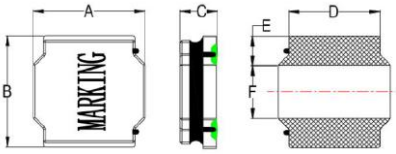
SDIA0315



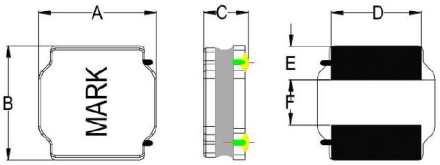
SDIA0418



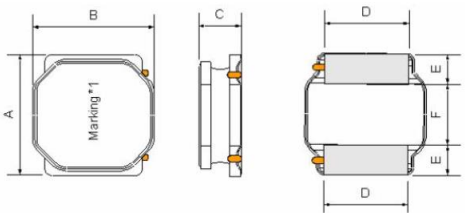
SDIA0430 / 0628



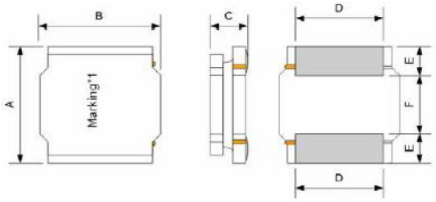
SDIA0520



SDIA0540



SDIA0645



■Features

- Small and Low profile inductor
- It corresponds to high current
- Shield structure magnetically
- Strong structure against a shock-proof
- Reliability test complied to AEC-Q200

■Applications

- LCD Display etc.
- For Small DC to DC Converters
- PDA.

■Characteristics

- Saturation Current(I sat): The current when the inductance becomes 30% lower than its initial value.
- Temperature Rise Current(I rms): The actual current when temperature of coil becomes △T=40℃.

■Inductance and rated current ranges

- SDIA0315 1.0～47μH 2.10～0.32A
- SDIA0418 1.0～100μH 4.00～0.40A
- SDIA0430 1.0～100μH 5.26～0.60A
- SDIA0520 1.0～47μH 4.33～0.81A
- SDIA0540 1.0～220μH 7.35～0.45A
- SDIA0628 1.0～100μH 6.70～0.65A
- SDIA0645 2.2～220μH 6.00～0.80A

■Dimensions

Unit: mm

Type	A	B	C	D	E	F	H	J	K
SDIA0315	3.0±0.2	3.0±0.2	1.5±0.1	2.5 typ	0.9 typ	1.2 typ	2.7	3.0	0.8
SDIA0418	4.0±0.2	4.0±0.2	1.85 max	3.3 typ	1.1 typ	1.8 typ	3.7	4.0	1.2
SDIA0430	4.0±0.2	4.0±0.2	3.0 max	3.3 typ	1.1 typ	1.8 typ	3.7	4.0	1.2
SDIA0520	5.0±0.2	5.0±0.2	2.0 max	4.0 typ	1.25 typ	2.5 typ	4.7	5.0	1.5
SDIA0540	5.0±0.2	5.0±0.2	4.0 max	4.0 typ	1.25 typ	1.5 typ	4.7	5.0	1.5
SDIA0628	6.0±0.3	6.0±0.3	2.8 max	4.9 typ	1.75 typ	2.5 typ	5.7	6.3	1.6
SDIA0645	6.0±0.3	6.0±0.3	4.5 max	4.9 typ	1.65 typ	2.7 typ	5.7	6.3	1.6

■Product Identification

SDIA	0315	M	T	470	A
Product Type	Dimensions (AxC)	Inductor Tolerance	Packaging Style	Inductance	Function Code
	0315: 3.0x1.5 0418: 4.0x1.85 0430: 4.0x3.0 0520: 5.0x2.0 0540: 5.0x4.0 0628: 6.0x2.8 0645: 6.0x4.5	M: ±20% N: ±30%	T: Tape and Reel	1R0: 1.0μH 470: 47μH 101: 100μH	A: Automotive Grade

■Electrical Characteristics

SDIA0315 Type:

Part No	L (μH)	Tolerance	Test Condition	DCR (mΩ) ±30%	Isat (A) max.	Irms (A) max.
SDIA0315NT1R0A	1.0	±30%	100KHz, 0.25V	37	2.10	1.90
SDIA0315MT1R5A	1.5	±20%	100KHz, 0.25V	50	1.80	1.70
SDIA0315MT2R2A	2.2	±20%	100KHz, 0.25V	60	1.60	1.45
SDIA0315MT3R3A	3.3	±20%	100KHz, 0.25V	80	1.32	1.20
SDIA0315MT4R7A	4.7	±20%	100KHz, 0.25V	125	1.10	1.08
SDIA0315MT6R8A	6.8	±20%	100KHz, 0.25V	200	0.87	0.85
SDIA0315MT100A	10	±20%	1KHz, 0.25V	250	0.72	0.70
SDIA0315MT150A	15	±20%	1KHz, 0.25V	350	0.65	0.64
SDIA0315MT220A	22	±20%	1KHz, 0.25V	460	0.52	0.57
SDIA0315MT330A	33	±20%	1KHz, 0.25V	780	0.42	0.35
SDIA0315MT470A	47	±20%	1KHz, 0.25V	1200	0.32	0.30

SDIA0418 Type:

Part No	L (μH)	Tolerance	Test Condition	DCR (mΩ) ±30%	Isat (A) max.	Irms (A) max.
SDIA0418NT1R0A	1.0	±30%	100KHz, 0.25V	23	4.00	2.00
SDIA0418NT1R5A	1.5	±30%	100KHz, 0.25V	33	3.35	1.80
SDIA0418MT2R2A	2.2	±20%	100KHz, 0.25V	42	3.00	1.75
SDIA0418MT3R3A	3.3	±20%	100KHz, 0.25V	70	2.45	1.23
SDIA0418MT4R7A	4.7	±20%	100KHz, 0.25V	90	2.00	1.20
SDIA0418MT5R6A	5.6	±20%	100KHz, 0.25V	103	1.60	1.15
SDIA0418MT6R8A	6.8	±20%	100KHz, 0.25V	124	1.45	1.06
SDIA0418MT100A	10	±20%	1KHz, 0.25V	200	1.30	0.90
SDIA0418MT150A	15	±20%	1KHz, 0.25V	268	1.10	0.65
SDIA0418MT220A	22	±20%	1KHz, 0.25V	390	0.80	0.59
SDIA0418MT330A	33	±20%	1KHz, 0.25V	560	0.65	0.55
SDIA0418MT470A	47	±20%	1KHz, 0.25V	850	0.60	0.42
SDIA0418MT680A	68	±20%	1KHz, 0.25V	1000	0.52	0.32
SDIA0418MT101A	100	±20%	1KHz, 0.25V	1500	0.40	0.25

■Electrical Characteristics

SDIA0430 Type:

Part No	L (μH)	Tolerance	Test Condition	DCR (mΩ) ±30%	Isat (A) max.	Irms (A) max.
SDIA0430NT1R0A	1.0	±30%	100KHz, 0.25V	14	5.26	4.15
SDIA0430NT1R5A	1.5	±30%	100KHz, 0.25V	20	4.84	3.34
SDIA0430MT2R2A	2.2	±20%	100KHz, 0.25V	30	4.50	2.95
SDIA0430MT3R3A	3.3	±20%	100KHz, 0.25V	40	3.30	2.40
SDIA0430MT4R7A	4.7	±20%	100KHz, 0.25V	60	2.90	2.00
SDIA0430MT6R8A	6.8	±20%	100KHz, 0.25V	90	2.75	1.60
SDIA0430MT100A	10	±20%	1KHz, 0.25V	100	1.95	1.50
SDIA0430MT150A	15	±20%	1KHz, 0.25V	190	1.65	1.11
SDIA0430MT220A	22	±20%	1KHz, 0.25V	225	1.30	1.00
SDIA0430MT330A	33	±20%	1KHz, 0.25V	330	1.10	0.84
SDIA0430MT470A	47	±20%	1KHz, 0.25V	445	0.95	0.72
SDIA0430MT680A	68	±20%	1KHz, 0.25V	868	0.72	0.52
SDIA0430MT820A	82	±20%	1KHz, 0.25V	1060	0.66	0.47
SDIA0430MT101A	100	±20%	1KHz, 0.25V	1150	0.60	0.45

SDIA0520 Type:

Part No	L (μH)	Tolerance	Test Condition	DCR (mΩ) ±30%	Isat (A) max.	Irms (A) max.
SDIA0520NT1R0A	1.0	±30%	100KHz, 0.25V	20	4.33	4.30
SDIA0520NT1R5A	1.5	±30%	100KHz, 0.25V	26	4.10	3.20
SDIA0520MT2R2A	2.2	±20%	100KHz, 0.25V	38	3.85	2.90
SDIA0520MT3R3A	3.3	±20%	100KHz, 0.25V	46	3.25	2.50
SDIA0520MT4R7A	4.7	±20%	100KHz, 0.25V	65	2.40	2.20
SDIA0520MT6R8A	6.8	±20%	100KHz, 0.25V	92	2.10	1.80
SDIA0520MT8R2A	8.2	±20%	100KHz, 0.25V	100	1.90	1.68
SDIA0520MT100A	10	±20%	1KHz, 0.25V	125	1.80	1.45
SDIA0520MT150A	15	±20%	1KHz, 0.25V	180	1.44	1.25
SDIA0520MT220A	22	±20%	1KHz, 0.25V	250	1.18	1.10
SDIA0520MT330A	33	±20%	1KHz, 0.25V	370	0.97	0.93
SDIA0520MT470A	47	±20%	1KHz, 0.25V	560	0.81	0.77

SDIA0540 Type:

Part No	L (μH)	Tolerance	Test Condition	DCR (mΩ) ±30%	Isat (A) max.	Irms (A) max.
SDIA0540NT1R0A	1.0	±30%	100KHz, 0.25V	12	7.35	4.90
SDIA0540NT1R5A	1.5	±30%	100KHz, 0.25V	15	6.40	4.30
SDIA0540MT2R2A	2.2	±20%	100KHz, 0.25V	19	5.00	3.80
SDIA0540MT3R3A	3.3	±20%	100KHz, 0.25V	24	4.00	3.40
SDIA0540MT4R7A	4.7	±20%	100KHz, 0.25V	30	3.50	3.00
SDIA0540MT6R8A	6.8	±20%	100KHz, 0.25V	43	2.90	2.50
SDIA0540MT100A	10	±20%	1KHz, 0.25V	64	2.35	2.10
SDIA0540MT150A	15	±20%	1KHz, 0.25V	86	2.00	2.00
SDIA0540MT220A	22	±20%	1KHz, 0.25V	129	1.60	1.50
SDIA0540MT330A	33	±20%	1KHz, 0.25V	188	1.30	1.20
SDIA0540MT470A	47	±20%	1KHz, 0.25V	272	1.10	1.00
SDIA0540MT680A	68	±20%	1KHz, 0.25V	400	0.90	0.80
SDIA0540MT101A	100	±20%	1KHz, 0.25V	560	0.75	0.70
SDIA0540MT151A	150	±20%	1KHz, 0.25V	1180	0.55	0.50
SDIA0540MT221A	220	±20%	1KHz, 0.25V	1450	0.45	0.45

■Electrical Characteristics

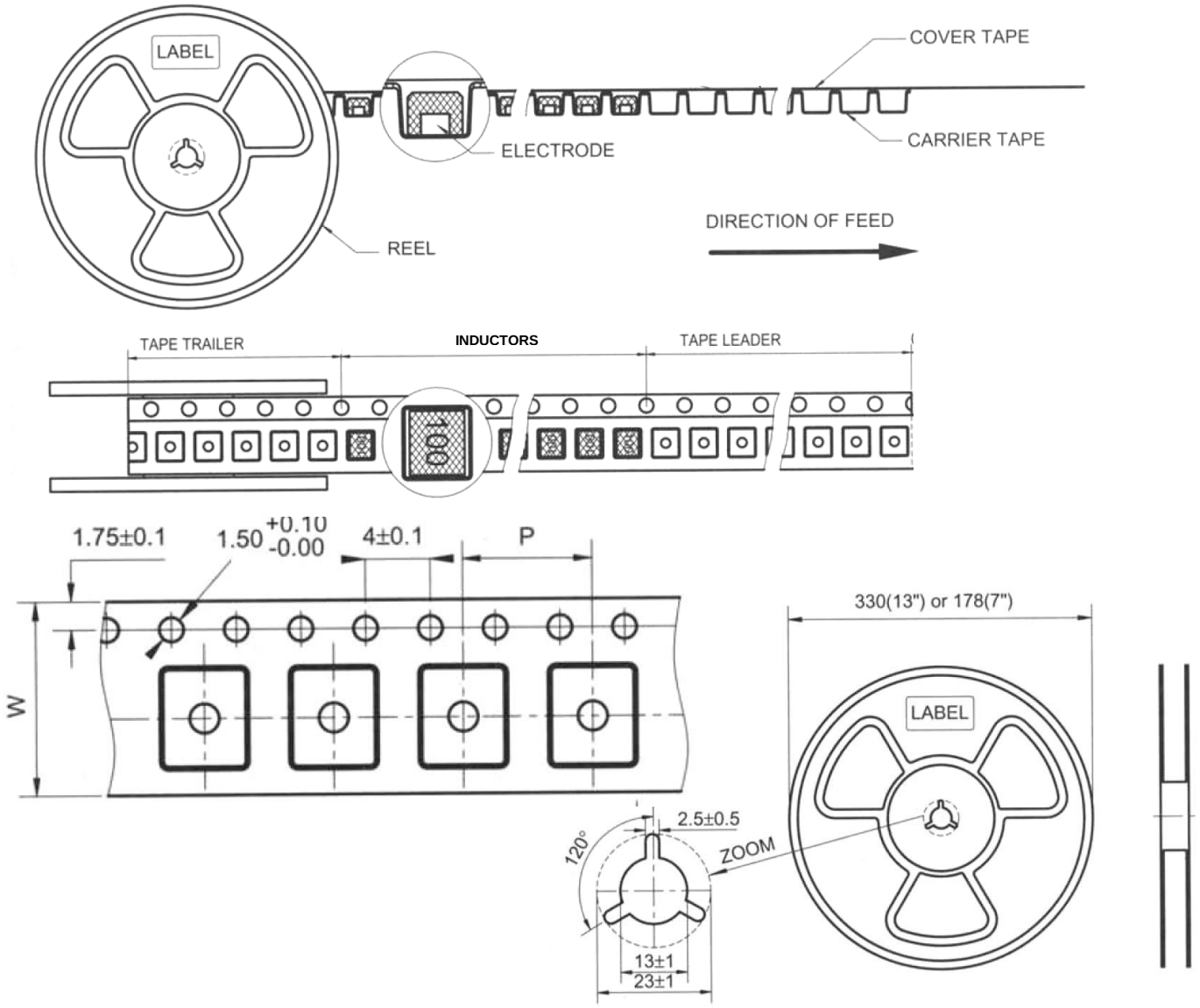
SDIA0628 Type:

Part No	L (μH)	Tolerance	Test Condition	DCR (mΩ) ±30%	Isat (A) max.	Irms (A) max.
SDIA0628NT1R0A	1.0	±30%	100KHz, 0.25V	12	6.70	5.20
SDIA0628MT1R5A	1.5	±20%	100KHz, 0.25V	16	6.00	4.50
SDIA0628MT2R2A	2.2	±20%	100KHz, 0.25V	20	5.10	3.80
SDIA0628MT3R3A	3.3	±20%	100KHz, 0.25V	25	3.63	3.20
SDIA0628MT4R7A	4.7	±20%	100KHz, 0.25V	33	3.00	2.70
SDIA0628MT6R8A	6.8	±20%	100KHz, 0.25V	56	2.60	2.20
SDIA0628MT100A	10	±20%	1KHz, 0.25V	78	2.05	1.80
SDIA0628MT150A	15	±20%	1KHz, 0.25V	125	1.75	1.70
SDIA0628MT180A	18	±20%	1KHz, 0.25V	130	1.55	1.50
SDIA0628MT220A	22	±20%	1KHz, 0.25V	140	1.45	140
SDIA0628MT270A	27	±20%	1KHz, 0.25V	180	1.40	1.20
SDIA0628MT330A	33	±20%	1KHz, 0.25V	220	1.36	1.10
SDIA0628MT470A	47	±20%	1KHz, 0.25V	280	1.15	1.00
SDIA0628MT680A	68	±20%	1KHz, 0.25V	450	0.95	0.80
SDIA0628MT820A	82	±20%	1KHz, 0.25V	550	0.80	0.70
SDIA0628MT101A	100	±20%	1KHz, 0.25V	670	0.65	0.60

SDIA0645 Type:

Part No	L (μH)	Tolerance	Test Condition	DCR (mΩ) ±30%	Isat (A) max.	Irms (A) max.
SDIA0645MT2R2A	2.2	±20%	100KHz, 0.25V	21	6.00	4.00
SDIA0645MT3R3A	3.3	±20%	100KHz, 0.25V	23	5.20	3.00
SDIA0645MT4R7A	4.7	±20%	100KHz, 0.25V	26	4.00	3.00
SDIA0645MT6R8A	6.8	±20%	100KHz, 0.25V	40	3.80	3.00
SDIA0645MT100A	10	±20%	1KHz, 0.25V	46	3.10	2.50
SDIA0645MT150A	15	±20%	1KHz, 0.25V	70	2.50	2.00
SDIA0645MT220A	22	±20%	1KHz, 0.25V	107	2.00	1.80
SDIA0645MT330A	33	±20%	1KHz, 0.25V	141	1.65	1.45
SDIA0645MT470A	47	±20%	1KHz, 0.25V	211	1.40	1.25
SDIA0645MT560A	56	±20%	1KHz, 0.25V	221	1.30	1.05
SDIA0645MT680A	68	±20%	1KHz, 0.25V	304	1.10	0.90
SDIA0645MT101A	100	±20%	1KHz, 0.25V	466	0.90	0.70
SDIA0645MT151A	150	±20%	1KHz, 0.25V	600	0.80	0.50
SDIA0645MT221A	220	±20%	1KHz, 0.25V	1100	0.80	0.45

■Tape and Reel specifications



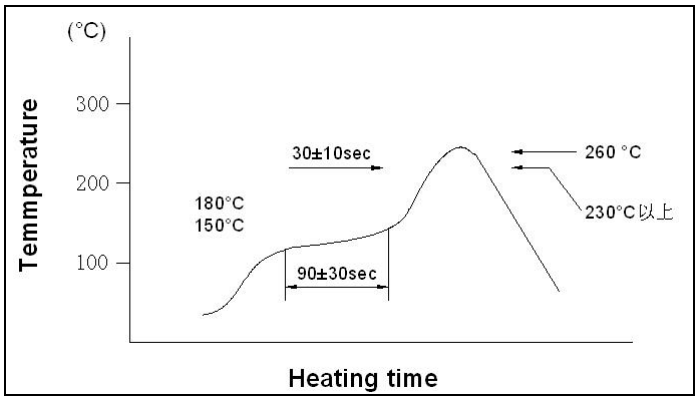
Unit: mm

Type	Tape size		Parts Per Reel	
	W	P	7″	13″
SDIA0315	8	4	2,000	-
SDIA0418	12	8	-	3,000
SDIA0430	12	8	-	2,500
SDIA0520	12	8	-	2,500
SDIA0540	12	8	-	1,500
SDIA0628	16	8	-	1,500
SDIA0645	16	12	-	1,000

■SMT Power Inductor Environmental Specifications

Test Items	Specifications	Test Conditions
Operational Life	Inductance: within ± 20 % of the initial value Appearance without damage	At 105℃ storage for 1000 hrs
Biased Humidity		At 85℃ 85%RH storage for 1000 hrs
High Temperature Exposure (Storage)		At 125℃ storage for 1000 hrs
ESD Test		IEC 61000-4-2 @500V, clamp measurement made 30 ns after initiation of pulse, all test in contact discharge mode. ESD pulse : 10 hits
Resistance to Solder Heat	Inductance: within ± 20 % of the initial value Appearance without damage The termination area should be covered by solder over 95% and won't come off	Put the sample on board by tape. Brush flux and put the board into solder bath 260±5℃, 10±1 sec
Resistance to Solvent	Appearance without damage	Refer to MIL-STD-202-215 test Solvent 1~4.
Board Flex	Inductance: within ± 20 % of the initial value Appearance without damage	Testing sample should be welding on board. Press the center of sample in the rate 1.0mm/sec until it is bend to 3mm for 60sec.
Terminal Strength		Weld testing sample on the testing board, pushing it with 1.8Kgf,60±1sec.
Temperature Cycling		Run 1000 cycle as following steps Step1: -40±3℃ 30±3min Step1: +125±3℃ 30±3min
Mechanical Shock		Pulse shape: Half-sine waveform Impact acceleration: 100 g Pulse duration: 6 ms Number of shocks:18 shocks (3 shocks for each face) Orientation: Bottom, top, left, right, front and rear faces
Vibration		Vibration waveform: Sine waveform Vibration frequency / Displacement: 10 to 40 Hz/ 1.52 mm Vibration frequency / Acceleration: 40 to 2000Hz / 5 g Cycle time: 20 minute Number of cycles: 12 cycles for each axis Vibration axes: X, Y and Z (Rotating each axis on vertical vibration table)
Solderability	The termination area should be covered by solder over 95% and won't come off.	Put the sample on board by tape. Brush flux and put the board into solder bath 260±5℃ , 30+0/-0.5sec.
Flammability Test	compliant with the V-1 requirements of UL 94 Vertical Burning Test	Conditioning 1: Specimens are to be preconditioned at 23±29 and 50±5% percent relative humidity for 48 hours. Conditioning 2:Specimens are to be preconditioned in an air-circulating ven for 168 hours at 70±19 and then cooled in theo desiccator for at least 4 hours at room temperature.
Operating Temperature Range	-45 ~ + 125℃	Products heating temperature.
Storage Temperature Range	-40 ~ + 85℃	In packing state.

■Reflow Soldering Condition



Reflow times: 2times max
We recommend infrared ray as heat source of reflow bath.
However halogen lamp shall be used, side heat will be beyond range of resistance heat, so we can't recommend it.