Data Sheet

Customer:	
Product:	**Automotive Grade SMD Power Inductor – SDIA-GA Series**
Size:	**0418 / 0645**
Issued Date:	**14-Apr-25**
Edition:	**REV.A1**

RoHS Compliant

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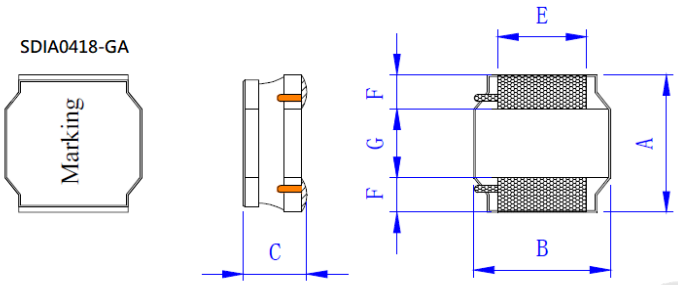
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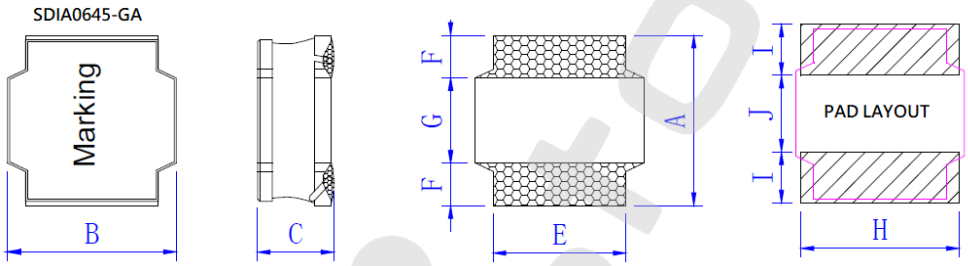
Automotive Grade SMD Power Inductor

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Dimensions

Type	A (mm)	B (mm)	C (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)
SDIA0418-GA	4.0±0.2	4.0±0.2	1.8 max	3.4 typ	1.2 typ	1.6 typ	3.6 typ	1.4 typ	1.6 typ
SDIA0645-GA	6.0±0.2	6.0±0.2	4.5 max	5.0 typ	1.5 typ	3.0 typ	5.7 typ	1.9 typ	2.6 typ

Applications Scope

- This specification involved in the product is recommended for automotive multimedia, wireless connection system and body comfort system. It can not be used for automobile power system without special clarifications. Please contact with VIKING for further confirmation before the products to be used for the automotive area.

Characteristics

- Isat : The DC current at which the inductance drops approximate 30% from its value without current
- Irms : The DC current is inductor surface temperature to rise by 40℃ (Reference ambient temperature 20℃).
- Operating temperature range: -40～125°C (Including self-heating temperature rise.)
- Test equipment:
  L & DCR: HP4263B or equivalent.
  Isat & Irms: Microtest 6379 & 6220 or equivalent.
- Electrical specifications at 20°C

Product Identification

SDIA	0418	M	T	100	-G	A
Product Type	Dimensions (AxC)	Inductor Tolerance	Packaging Style	Inductance	Special	Function Code
	0418: 4.0x1.8 0645: 6.0x4.5	M: ±20% N: ±30%	T: Tape and Reel	100: 10μH		A:Automotive Grade

■Electrical Characteristics

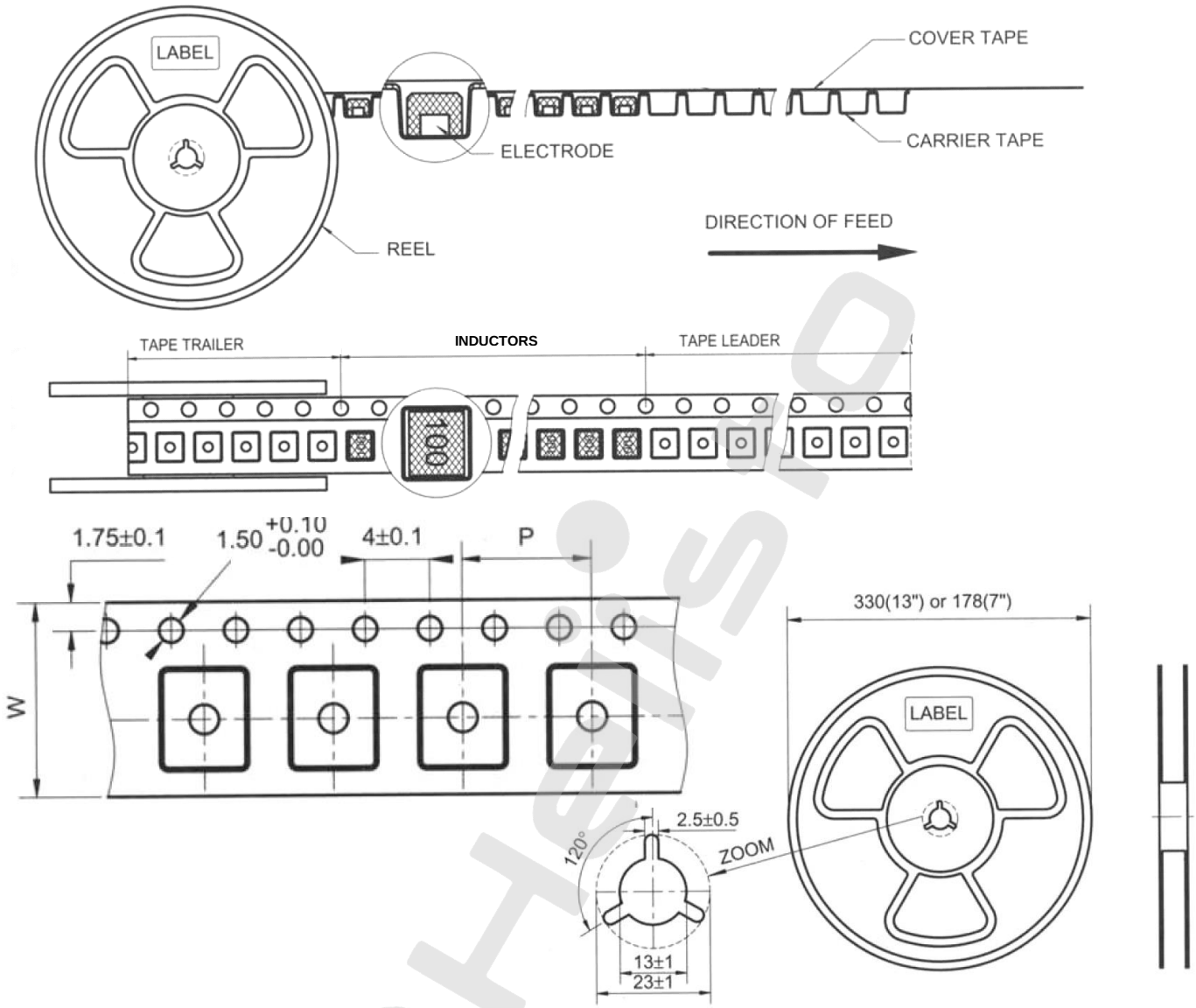
SDIA0418-GA Type(□: Tolerance)

Part No	L (μH)	Tolerance	Test Condition	DCR (Ω) ±30%	Isat (A)	Irms (A)
SDIA0418□T1R0-GA	1.0	M,N	100KHz, 0.5V	0.030	4.30	2.00
SDIA0418□T1R5-GA	1.5	M,N	100KHz, 0.5V	0.040	3.35	1.80
SDIA0418□T2R2-GA	2.2	M,N	100KHz, 0.5V	0.045	2.70	1.65
SDIA0418□T3R3-GA	3.3	M,N	100KHz, 0.5V	0.070	2.00	1.23
SDIA0418□T4R7-GA	4.7	M,N	100KHz, 0.5V	0.090	1.70	1.20
SDIA0418□T6R8-GA	6.8	M,N	100KHz, 0.5V	0.110	1.45	1.06
SDIA0418□T8R2-GA	8.2	M,N	100KHz, 0.5V	0.160	1.35	0.90
SDIA0418□T100-GA	10	M,N	100KHz, 0.5V	0.180	1.30	0.84
SDIA0418□T150-GA	15	M,N	100KHz, 0.5V	0.250	0.94	0.65
SDIA0418□T220-GA	22	M,N	100KHz, 0.5V	0.360	0.80	0.59
SDIA0418□T330-GA	33	M,N	100KHz, 0.5V	0.530	0.65	0.49
SDIA0418□T470-GA	47	M,N	100KHz, 0.5V	0.650	0.57	0.42
SDIA0418□T560-GA	56	M,N	100KHz, 0.5V	0.900	0.51	0.38
SDIA0418□T680-GA	68	M,N	100KHz, 0.5V	1.000	0.47	0.32
SDIA0418□T820-GA	82	M,N	100KHz, 0.5V	1.300	0.43	0.28
SDIA0418□T101-GA	100	M,N	100KHz, 0.5V	1.500	0.40	0.25

SDIA0645-GA Type(□: Tolerance)

Part No	L (μH)	Tolerance	Test Condition	DCR (Ω) ±30%	Isat (A)	Irms (A)
SDIA0645□T1R0-GA	1.0	M,N	100KHz, 0.5V	0.014	8.50	5.14
SDIA0645□T1R3-GA	1.3	M,N	100KHz, 0.5V	0.016	8.00	5.05
SDIA0645□T1R8-GA	1.8	M,N	100KHz, 0.5V	0.018	7.00	4.95
SDIA0645□T2R2-GA	2.2	M,N	100KHz, 0.5V	0.021	6.00	4.60
SDIA0645□T3R3-GA	3.3	M,N	100KHz, 0.5V	0.024	5.00	3.70
SDIA0645□T4R7-GA	4.7	M,N	100KHz, 0.5V	0.031	4.00	3.30
SDIA0645□T6R8-GA	6.8	M,N	100KHz, 0.5V	0.038	3.80	3.00
SDIA0645□T8R2-GA	8.2	M,N	100KHz, 0.5V	0.043	3.50	2.70
SDIA0645□T100-GA	10	M,N	100KHz, 0.5V	0.047	3.20	2.45
SDIA0645□T150-GA	15	M,N	100KHz, 0.5V	0.077	2.50	2.05
SDIA0645□T220-GA	22	M,N	100KHz, 0.5V	0.115	2.05	1.80
SDIA0645□T330-GA	33	M,N	100KHz, 0.5V	0.145	1.65	1.45
SDIA0645□T470-GA	47	M,N	100KHz, 0.5V	0.220	1.40	1.20
SDIA0645□T560-GA	56	M,N	100KHz, 0.5V	0.260	1.30	1.10
SDIA0645□T680-GA	68	M,N	100KHz, 0.5V	0.330	1.20	1.00
SDIA0645□T820-GA	82	M,N	100KHz, 0.5V	0.450	1.05	0.90
SDIA0645□T101-GA	100	M,N	100KHz, 0.5V	0.500	0.95	0.80

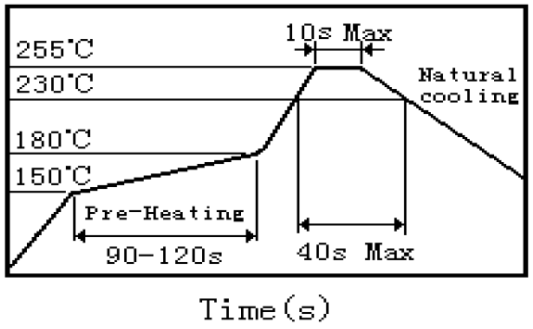
■Tape and Reel specifications



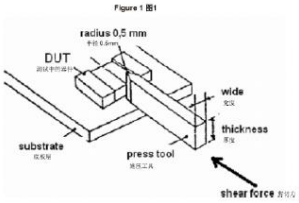
Unit: mm

Type	Tape size		Parts Per Reel	
	W	P	7"	13"
SDIA0418-GA	12	8	-	3,000
SDIA0645-GA	12	8	-	1,500

■Recommended Soldering Profile



■SMT Power Inductor Environmental Specifications

Test Items	Specifications	Test Methods
High Temperature Exposure (Storage)	No visible damage ΔL/L within ±10%.	Temperature 125℃; Unpowered; Duration 1000h; Examination at 250h ,500h and 1000h; Measurement at 24±4 hours after test conclusion.
Temperature Cycling		High Temperature +125℃; low temperature -40℃; Duration at each temperature 30 min; Transition time ≤ 1 min. Severity 1000 cycles; Measurement at 24±4 hours after test conclusion.
Biased Humidity		Temperature 85℃;Relative humidity 85%; Duration 1000 h; Unpowered. Examination at 250h ,500h and 1000h; Measurement at 24±4 hours after test conclusion.
Operational Life		Temperature 125℃; Test current: half of Rated current at normal temperature ; Duration 1000 h; Measurement at 24±4 hours after test conclusion.
Mechanical Shock		Half sine wave. Peak value 100g. Normal duration 6 ms; Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks)
Vibration		The entire frequency range of 10 to 2000 Hz and return to 10 Hz shall be traversed in 20 minutes. This cycle shall be preformed 12 time in each of three mutually perpendicular directions (total of 36 times), so that the motion shall be applied for a total period of approximately 12 hours. Peak value 5g.
Resistance to Soldering Heat		Solder bath Temperature: 260±5℃ Immersion timer: 10±1 seconds.
ESD		Direct contact discharge; Indicated voltage 2000V; Two discharges shall be applied to each PUT within a sample group and at each stress voltage level, one with a positive polarity and one with a negative polarity.
Solderability	95%or more of electrode area shall be coated by new solder.	Solder bath; Lead-free solder; Temperature: 245±5℃; Immersion timer: 3±0.3 seconds.
Flammability	After the first application of the test flame, the test specimens shall not be consumed completely. After any application of the test flame, the duration of the burning of any specimen shall not exceed 15 s, while the average burning tie shall not exceed 10 s, the tissue paper shall not ignite and the board shall not scorch.	The test flame is applied for 10 s. if a self-sustaining flame does applied again for 1 min at the same point or at any other point. If again a self-sustaining flame does not last longer than 15 s, the test flame is then applied for 2 min at the same point or at any other point.
Terminal Strength (SMD)	No visible damage ΔL/L within ±10%.	The testing samples shall be mounted on the testing boards, apply a 17.7N force to the side of a device being tested. Duration 60s ±1s. 

■Storage Temperature: -10~40℃; Humidity: 30~70%RH

■Shelf life: 6 months Max

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version A1	Apr 14,2025		-Add Shelf life.