



SL1616AQ Series



1. Features of SL1616AQ Series :

- AEC-Q200 Compliant .
- Ferrite based SMD inductor with lower core loss.
- Inductance range: 50.0nH to 100.0 nH, custom values are welcomed.
- High current output chokes , up to 29.0 Amp with approx. 20% roll off.
- Low profile 4.00 mm Max. height.
- 4.00 x 4.00 mm Foot Print.
- Ideal for Buck Converter, VRM & High Density Board Design.
- Operating frequency of up to 1.0MHz.
- Operating temperature range of -55° C to + 130° C.
- RoHS & HF compliant.
- T & R Qty's: 2000pcs, 13" Reel.

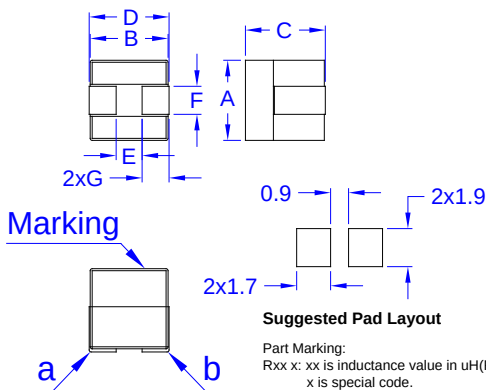


2. Electrical Characteristic of SL1616AQ Series:

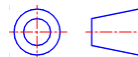
Part Number	OCL ¹ (nH) ± 15% / 20%	DCR ³ (mΩ) ± 9.0%	Isat1 ⁴ (A) @25°C	Isat2 ⁴ (A) @45°C	Isat3 ⁴ (A) @100°C	Irms ⁵ (A) @25°C
SL1616AQ-R05LHF	50 , 15%	0.32	29.00	28.00	26.00	19.00
SL1616AQ-R06LHF	65 , 15%	0.32	26.00	25.00	22.00	19.00
SL1616AQ-R08MHF	80 , 20%	0.32	22.00	21.00	17.00	19.00
SL1616AQ-R10MHF	100 , 20%	0.32	17.00	15.00	13.00	19.00

3. Mechanical Dimension(Unit : mm):

A	B	C	D	E	F	G
Max.	Max.	Max.	Max.	Nom.	Nom.	Nom.
4.00	3.90	4.00	4.00	1.30	1.40	1.30



Third Angle Projection:



Notes:

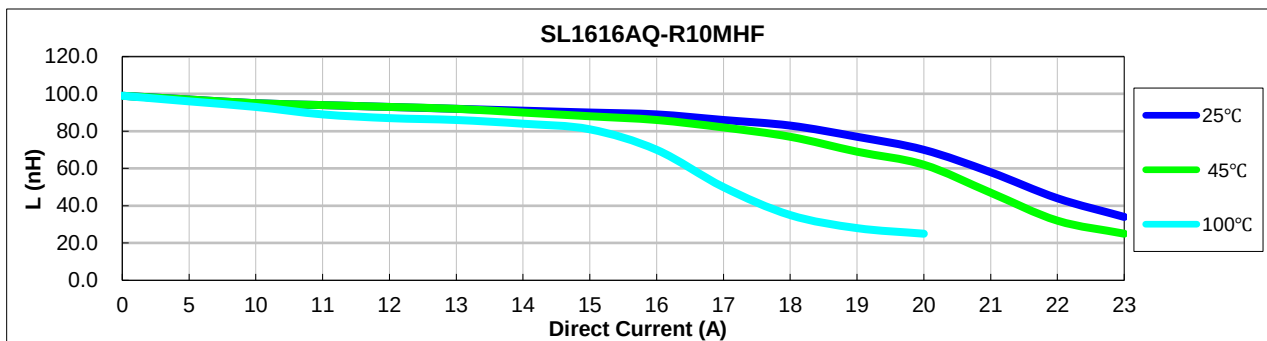
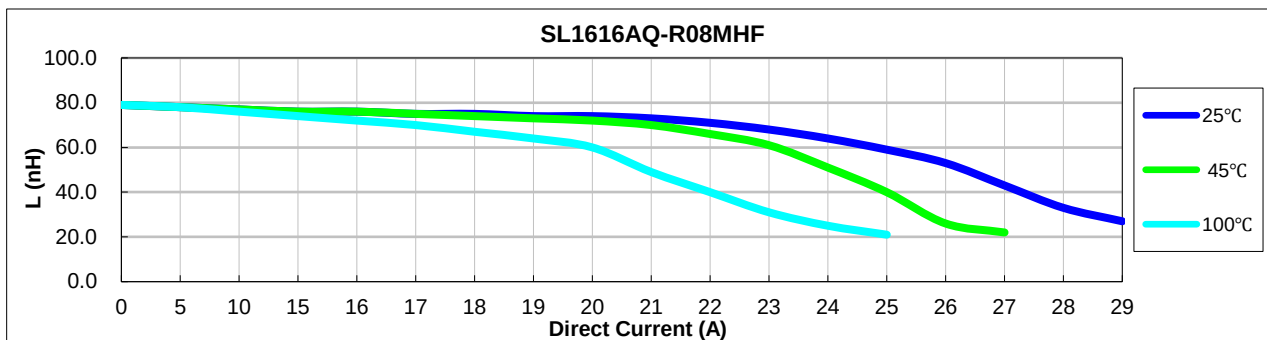
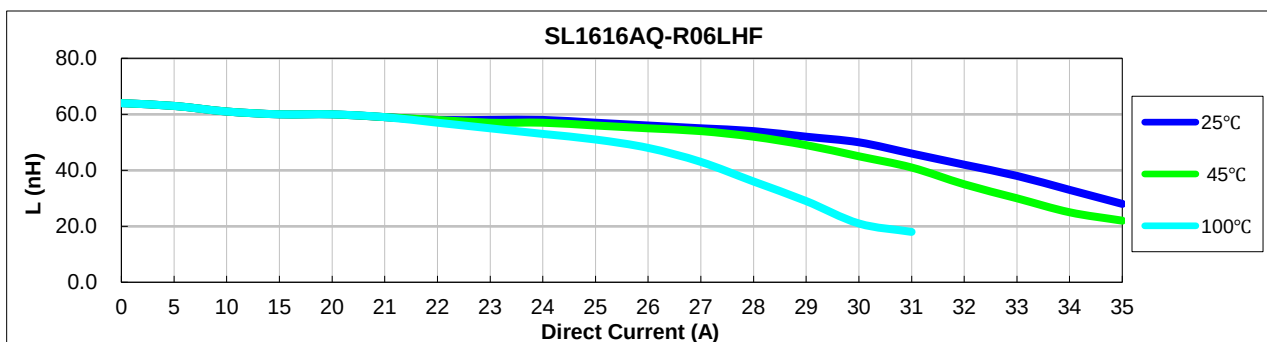
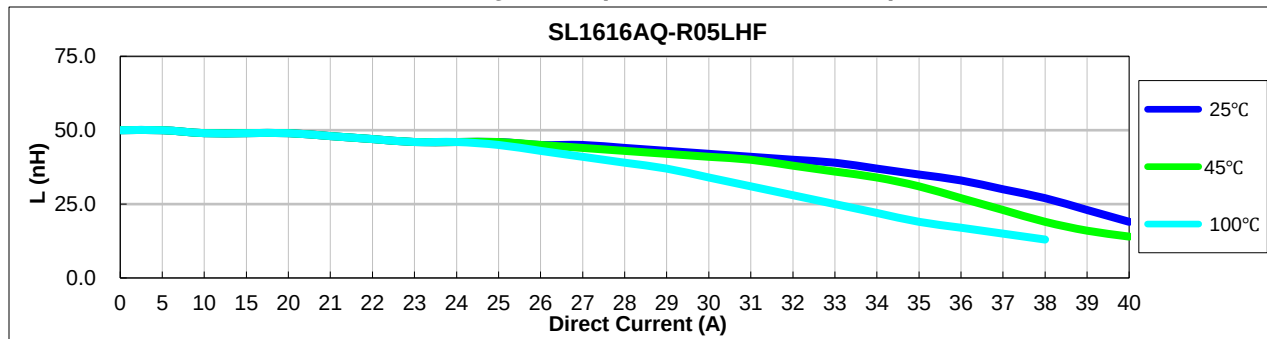
1. Open Circuit Inductance (OCL) test condition:100KHz,0.1Vrms,0A_{dc} ,at 25 °C.
2. L @ Isat and L @ Irms Test condition:100KHz,0.1Vrms (Ta=25 °C).
3. The nominal DCR is measured from point "a" to point "b", as shown above on the mechanical drawing (Ta=25°C).
4. Isat1, Isat2 & Isat3 : DC current that will cause inductance to drop approximately by 20%.
5. Irms: DC current for an approximate temperature rise of 40°C without core loss , Derating is necessary for AC currents. PCB pad layout , trace thickness and width , air-flow and proximity of other heat generating components will affect the temperature rise. It is recommended the part temperature not exceed 130 °C under worst case operating conditions verified in the end application.



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4. Inductance Characteristics of SL1616AQ Series (Inductance vs Current):





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5.1 RELIABILITY TEST:

TEST ITEMS	SPECIFICATIONS	TEST METHOD AND REMARKS
Solderability	The electrodes shall be at least 95% covered with new solder coating	According to J-STD-002 Method D category 3 1. Soldering temperature: 260±5℃ 2. Solder: 99.3%Sn/0.7%Cu 3. Flux:Rosin 4. Immersion time: 5 ± 1Sec
Resistance to Soldering Heat	1. Appearance : No damage 2. Inductance change: within ±10% of initial value	According to MIL-STD-202 Method 210 1. Preheat temperature:150℃ 2. Preheat time:1min 3. Solder temperature:260±5℃ 4. Dipping time:10±1Sec 5. Measured at room temperature after placing for 24hours
Humidity resistance	1. Appearance: No damage 2. All Electrical and mechanical parameters within tolerance	According to IEC68-2-3 Method Ca 1. Temp. : 40±2℃ 2. Humidity: 93+2/-3 % RH 3. Test time: 500 ± 2H 4. The component should be stabilized at normal condition for 24 Hours before test
High temperature resistance	1. Appearance: No damage 2. All Electrical and mechanical parameters within tolerance	According to IEC68-2-2 Method B(Bd) 1. Temperature: 125 ± 3℃ 2. Test time: 96 +24H / -0H 3. The component should be stabilized at normal condition for 24hours before test
Low Temperature resistance	1. Appearance: No damage 2. All Electrical and mechanical parameters within tolerance	According to IEC68-2-1 Method A(Ad) 1. Temperature: -40 ± 3℃ 2. Test time: 96 +24H / -0H 3. The component should be stabilized at normal condition for 24hours before test
Temperature cycles	1. Appearance: No damage 2. All Electrical and mechanical parameters within tolerance	According to IEC68-2-14 Method N(Nb) 1. Low-temp: -40±3℃ duration 30min 2. room -temp: 25±2℃ duration 3H 3. High-temp: 125±3℃ duration 30min 4. room-temp: 25±2℃ duration 3H 5. Number of cycle: 10 cycles 6. The component should be stabilized at normal condition for 24hours before test



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5.2 RELIABILITY TEST (AEC-Q200 Test List):

Stress	NO	Reference	Additional Requirements	Remark
Pre- and Post-Stress Electrical Test	1	User Spec.	Test is performed except as specified in the applicable stress reference and the additional requirements in Table 5.	Not Applicable
High Temperature Exposure (Storage)	3	MIL-STD-202 Method 108	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.	OK
Temperature Cycling	4	JESD22 Method JA-104	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. 1 min. maximum transition time.	OK
Biased Humidity	7	MIL-STD-202 Method 103	1000 hours 85 °C/85%RH. Unpowered. Measurement at 24±4 hours after test conclusion.	OK
Operational Life	8	MIL-PRF-27	1000 hrs. @ 105 °C. If 85 °C or 125 °C part will be tested at that temperature. Measurement at 24±4 hours after test conclusion.	OK
External Visual	9	MIL-STD-883 Method 2009	Inspect device construction, marking and workmanship. Electrical Test not required.	Follow SPEC
Physical Dimension	10	JESD22 Method JB-100	Verify physical dimensions to the applicable device detail specification. Note: User(s) and Suppliers spec. Electrical Test not required.	Follow SPEC
Terminal Strength (Leaded)	11	MIL-STD-202 Method 211	Test leaded device lead integrity only. Conditions: A (910 g), C (1.13 kg), E (1.45 kg-mm)	Not Applicable
Resistance to Solvents	12	MIL-STD-202 Method 215	Note: Add Aqueous wash chemical. OKEM Clean or equivalent. Do not use banned solvents.	OK
Mechanical Shock	13	MIL-STD-202 Method 213	Figure 1 of Method 213. Condition C	OK
Vibration	14	MIL-STD-202 Method 204	5g's for 20 minutes, 12 cycles each of 3 orientations. Note: Use 8"X5" PCB, .031" thick, 7 secure points on one long side and 2 secure points at corners of opposite sides. Parts mounted within 2" from any secure point. Test from 10-2000 Hz.	OK
Resistance to Soldering Heat	15	MIL-STD-202 Method 210	Condition B No pre-heat of samples. Note: Single Wave Solder - Procedure 2 for SMD and Procedure 1 for Leaded with solder within 1.5mm of device body.	OK
ESD	17	AEC-Q200-002 or ISO/DIS10605		Not Applicable
Solderability	18	J-STD-002	For both Leaded & SMD. Electrical Test not required. Magnification 50X. Conditions: Leaded: Method A @ 235 °C, category 3. SMD: a) Method B, 4 hrs @ 155 °C dry heat @ 235 °C. b) Method B @ 215 °C category 3. c) Method D category 3 @ 260 °C.	OK
Electrical Characterization	19	User Spec.	Parametrically test per lot and sample size requirements, summary to show Min, Max, Mean and Standard deviation at room as well as Min and Max operating temperatures.	Follow SPEC
Flammability	20	UL-94	V-0 or V-1 Acceptable	OK/UL Card
Board Flex	21	AEC-Q200-005	60 sec minimum holding time.	OK
Terminal Strength (SMD)	22	AEC-Q200-006		OK