Specification for Approval
产品承认书

Customer:

Customer P/N:

VOOHU P/N: WHAL-1513A- Series

Version No.: V0.1

Description: Automotive Power Line Choke

SUZHOU VOOHU Company Approval		Customer Approval (客户承认签章)
DRAWN	Geoffrey.Song	
CHECKED	Sunny.Xu	
APPROVED	Elvis. Song	
日期DATE:2025/9/04		日期DATE: 2025/9/04

Please Return One Copy to Us After Approved,TKs!（承认后请回寄一份,谢谢）

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Revision History

Revision	Changed Date	Request By	Change Content
V0.1	2025/9/04	Leo	New Version Release

1 Features And Benefits

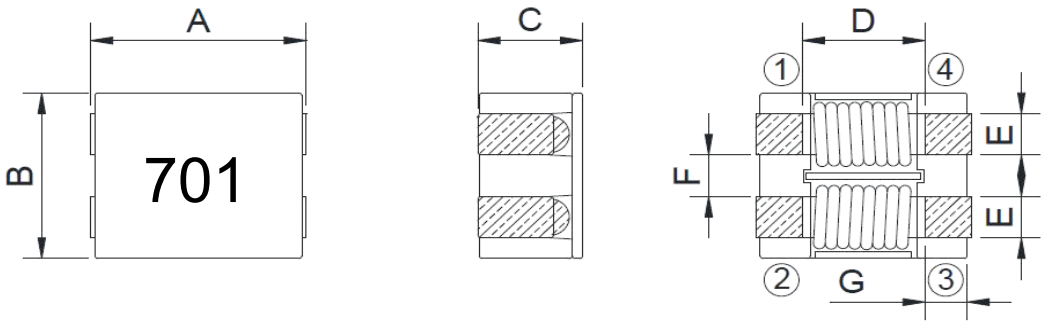


- Wire wound constructure common mode choke with best EMI suppression effect high impedance but very high rated current and low DCR
- Preventive measure against common mode noise radiation emissions from power line or else.
- Best for high current circuit such as car, wireless charging and power devicedesign.
- Dimensions L x W x H = 15.0 x 13.0 x 6.6mm
- Operating Temperature: -40℃ to +125℃
- Compatible with RoHS Directive and AEC-Q200

2 Electrical Specifications @ 25°C

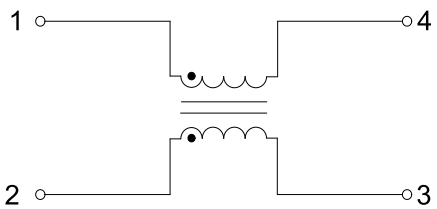
Part Number	Common Mode Impedance (100MHZ)		DCR (mΩ)Max	Rated Current (A)	Insulation Resistance (MΩ) Min	Rated Voltage (V) Max
	（Ω） Min	（Ω） Typ				
WHAL-1513A-101T0	60	100	2	20.0	10	80
WHAL-1513A-301T0	225	300	3	18.0	10	80
WHAL-1513A-501T0	400	500	4	16.0	10	80
WHAL-1513A-551T0	400	550	4	16.0	10	80
WHAL-1513A-701T0	500	700	6	15.0	10	80
WHAL-1513A-102T0	800	1000	8	12.0	10	80
WHAL-1513A-152T0	1200	1500	10	10.0	10	80
WHAL-1513A-222T0	1700	2200	14	8.0	10	80
WHAL-1513A-302T0	2500	3000	18	5.0	10	80

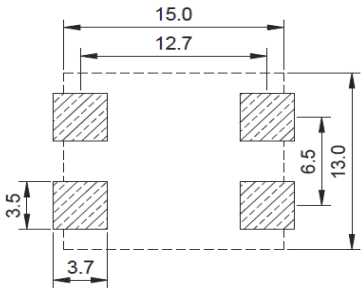
3 Dimensions (mm)& recommend layout



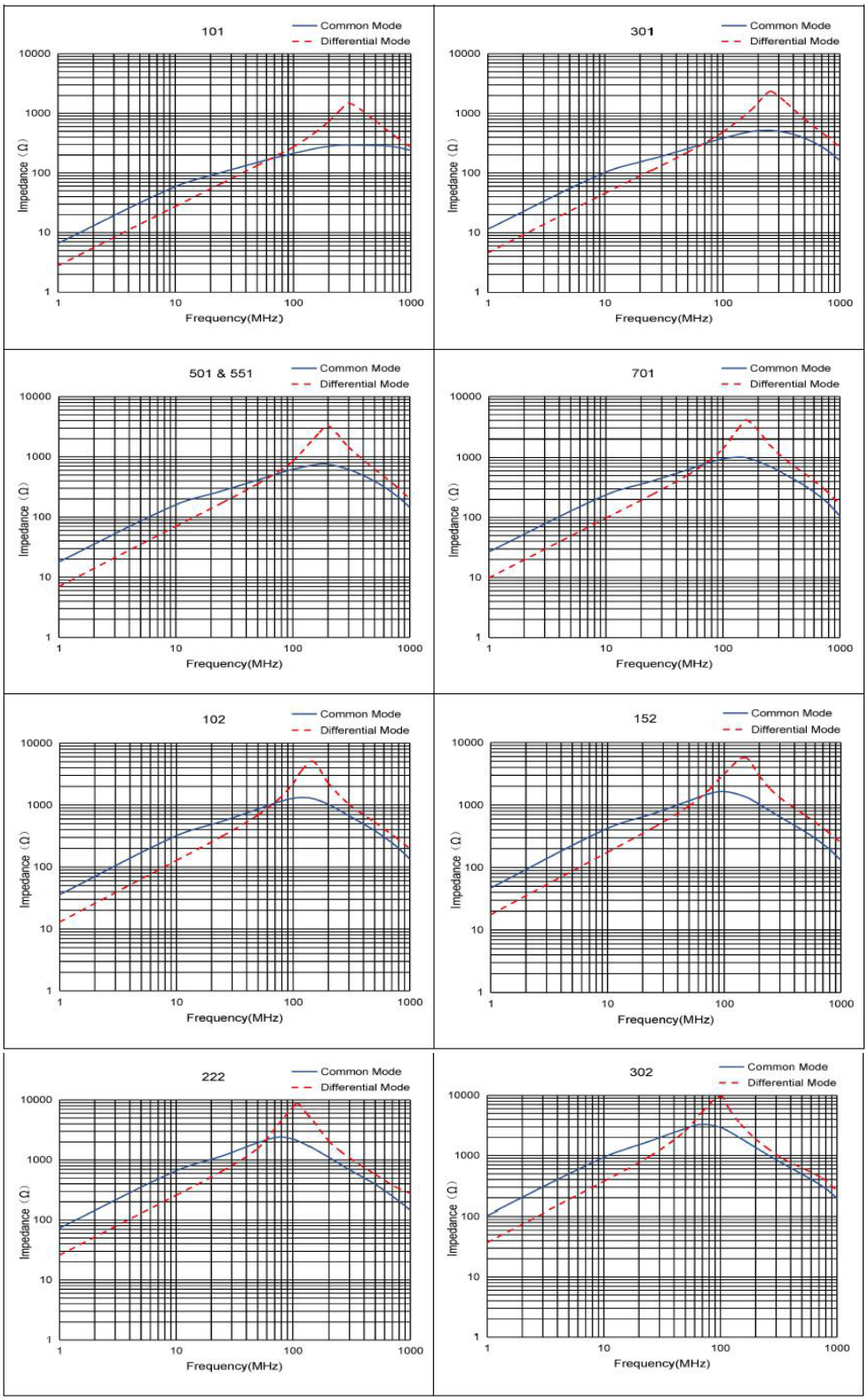
Dim	15.6	13.0	6.2	10.2	2.6	3.9	2.5
Tole	±0.5	±0.4	Max	Typ	±0.2	Typ	±0.2

4 Schematics

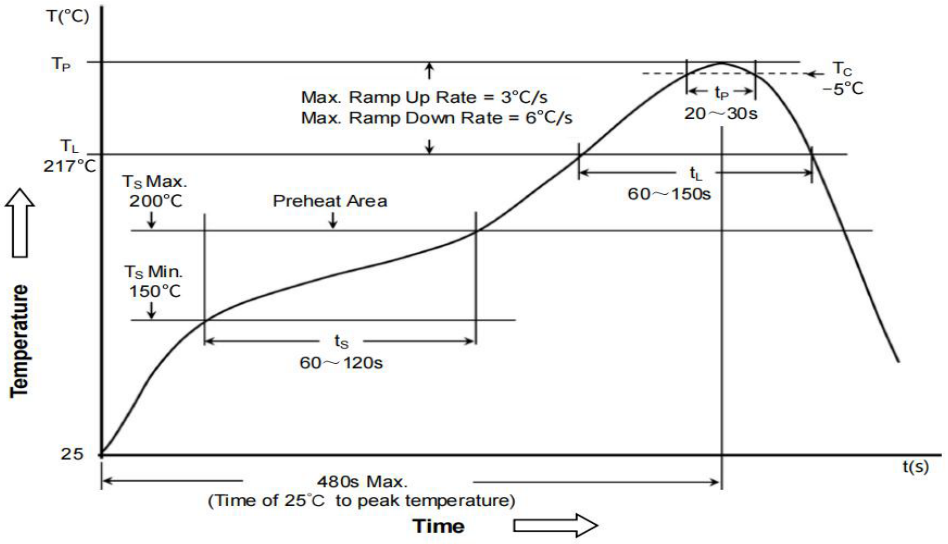




5 Impedance VS. Frequency

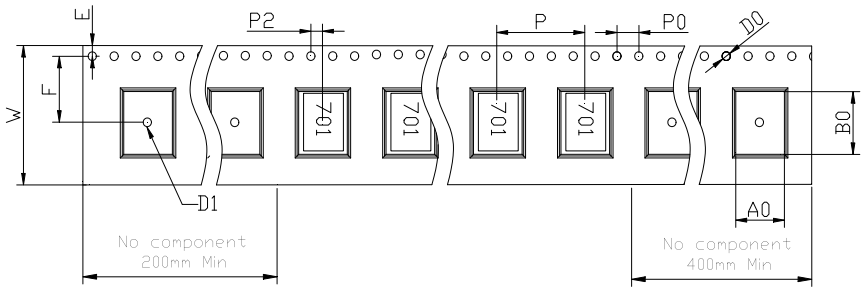


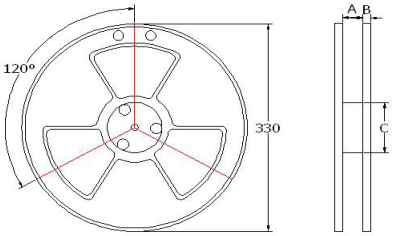
6 Recommended Reflow Profile



	Package Thickness	Package Volume		
		<350 mm3	350~2000 mm3	>2000 mm3
PB-Free Assembly	<1.6mm	260℃	260℃	260℃
	1.6~2.5mm	260℃	250℃	245℃
	≥2.5mm	250℃	245℃	245℃

7 Packaging specification





TYPE	A	B	C
1513	24.5	2.3	100

TYPE	W	A0	B0	K0	P	P0	P2	F	E	D0	D1	REEL (PCS)
WHAL-1513A	24.0	14.00	16.00	6.60	20.0	4.00	2.0	11.50	1.75	1.50	1.50	350

Package Quantity:
One Reel=350 Pcs
One Inner Carton=350*2=700 Pcs
One Export Carton=700*3=2100 Pcs

8 Reliability test

NO.	Test Item	Standard Reference	Test Condition
1	High temperature storage test	MIL-STD-202 Method 108	1、1000 hrs. at rated temperature (e.g. 85°C part can be stored for 1000 hrs. at 85°C. Same applies for 125°C part. Unpowered. 2、Remeasure the parameters at 250hrs & 500hrs in addition to measuring them 3、Measurement at 24±4 hours after test conclusion.
2	Temperature Cycling	JESD22 Method JA-104	1、1000 cycles (-40°C to +125°C). Note: If 85°C part or 105°C part the 1000 cycles will be at that temperature. 2、Sock Time : 30min 3、Measurement at 24±4 hours after test conclusion. 30min maximum dwell time at each temperature extreme. 1 min. maximum transition time
3	Biased Humidity	MIL-STD-202 Method 103	1、Time: 1000 hours, Temperature: 85±2℃ / humidity:85±2%RH 2、Measurement at 24±4 hours after test conclusion.
4	Operational Life	MIL-STD-202 Method 108	1、1000 hrs. @ 105°C. If 85°C or 125°C part will be tested at that temperature.（Refer to DS） 2、Remeasure the parameters at 250hrs & 500hrs in addition to measuring them at the end of the test. 3、Measurement at 24±4 hours after test conclusion.
5	Resistance to Solvents	MIL-STD-202 Method 215	1、It is applicable to marked and/or coated components. 2、Add Aqueous wash chemical OKEMCLEAN (A 6% concentrated Oakite cleaner) or equivalent. Notes: Do not use banned solvents.
6	Mechanical Shock	MIL-STD-202 Method 213	1、Figure 1 of Method 213. Condition C : Peak value:100g's; Normal duration(D):6ms; Waneform:Half-sine; Velocity change(Vi)ft/sec:12.3 2、18 cycles each of 6 orientatios at 1500g's
7	Vibration	MIL-STD-202 Method 204	5g's for 20 min., 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.(12 cycles each of 3 orientations at 5g's/ 0.5" / 10-2000 Hz.)
8	Resistance to Soldering Heat	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. Condition B include the follow conditions: 1.Temperature(℃)：260±5（soldertemp）; 2.Time(s):10±1; 3.Temperature ramp/immersion and emersion rate:25mm/s±6mm/s;

9	Solderability	J-STD-002	1、For both Leaded & SMD. Electrical Test not required. Magnification 50 X. Conditions: Leaded: Method A @ 235°C. SMD: a) Method B, 4 hrs @155°C dry heat @235°C b) Method B @ 215°C category 3(8 hrs steam). c) Method D category 3(8 hrs steam). @ 260°C.
10	Electrical Characterization	User Spec	1、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. a) High Temp. TR at 125°C (Refer to DS) b) Room Temp. TR at 25°C c) Low Temp. TR at -40°C
11	Flammability	UL-94	V-0 or V-1 Acceptable. Test is applicable tocomponents having a resin case.
12	Board Flex	AEC-Q200-005	Required for MLCCs only. 60 sec minimum holding time.
13	Terminal Strength(SMD)	AEC-Q200-006	1、Unless otherwise specified, the SMD shall be tested while mounted onto a .062 inch thick FR-4 PCB using 1 ounce of Copper. 2、Apply a 17.7 N (1.8 Kg) force to the side of a device being tested. This force shall be applied for 60 +1 seconds.
14	External Visual	MIL-STD-883 Method 2009	Inspect device construction,marking and workmanship.Elextrical Test not required.
15	Physical Dimension	JESD22 Method JB-100	Verify physical dimensions to the applicable device specification. Note: User(s) and Suppliers spec, electrical Test not required.

REMINDERS

- The best assembly quality guarantee period of product: 12 months (From shipment date)
  Storage condition : seal in packaging, (temperature: 5 to 40°C, humidity: 10 to 75% RH or less).
- If taking out for use, the remaining products should be sealed in plastic bags and preserved in accordance with the above conditions, to avoid oxidation of electrodes and affect soldering status.
- 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.
- Always handle products with care to avoid damage.
- Do not touch electrodes with bare hands directly, as oil secretions may inhibit soldering.
  Always ensure optimum conditions for soldering.
- 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.
- 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.