<SPECIFICATION>

SPEC.No. ASDIQ-SPE-152(00)
Date： Aug.24,2022

To :

CUSTOMER'S PRODUCT NAME

ASDI PRODUCT NAME:
STPM0503A-SERIES

RECEIPT CONFIRMATION

UNCONDITIONAL CONSENT	CONDITIONAL CONSENT

APPROVED	CHECKED

ASDI SIGNATURE

APPROVED	CHECKED	PREPARED
Xianglong Li	Liang Wang	Jiayin Cai

ASDI Xiamen ASDI Electronics Co.,Ltd.

REV.	DATE	DESCRIPTION	APPROVED	CHECKED	PREPARED
00	Aug.24,2022	New release	Xianglong Li	Liang Wang	Jiayin Cai

CAUTION WHEN HANDLING

Before use the products, please read this specification.

CAUTION FOR SAFETY USING

When use the products, be careful to mentioned below for safety using.

CAUTION

*The product should be used within 12 monthes.
Focus on the storage conditions.
Solderability may become weak if it exceeds the period.
*Do not use and store the product in condition of gas corrosion
(Salt,Acid,Alkaline).
*The products must be preheated before soldering.
The operating temperature including self-generated heat must be within '- 55 ~ +125℃.
*Rework by soldering iron;Please keep the mentioned conditions in this specification.
*In case of insert P.C. Board on chassis, do not add mechanical stress to the product.
*Be careful to arrange of non-magnetic field type inductors.
The error may be caused by magnetic field coupling.
*In case handle the products, please use wrist strap for ground static discharge on human body.
The product keeps away from magnet or magnetized things.
*Do not use the product beyond the mentioned conditions in this specification.
*About an application
The products listed on this specification sheet 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. Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below or for any other use exceeding the range or conditions set forth in this specification sheet.

1)Aerospace/Aviation equipment
2)Military equipment
3)Seabed equipment
4)Safety equipment
5)Medical equipment
6)Transportation control equipment
7)Power-generation control equipment which directly endanger human life
8)Atomic energy-related equipment
9)Other applications that are not considered general-purpose applications

If you intend to use the products in the following applications, please contact our sales office.
Transportation equipment (cars, electric trains, ships, etc.), Public information-processing equipment, Electric heating apparatus / burning equipment, Disaster prevention/crime prevention equipment
When using this product in general-purpose applications, you are kindly requested to take into consideration securing protection circuit/equipment or providing backup circuits, etc., to ensure higher safety.

1.INDEX

2.Manufacturing Location

China

(1)Introduction

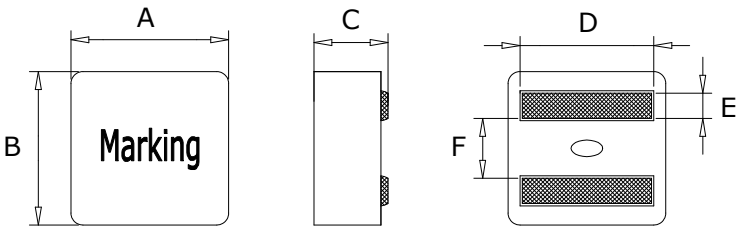
- •Soft saturation.
- •High current，low DCR，high efficiency.
- •Very low acoustic noise and very low leakage flux noise.
- •High reliability.
- •100% Lead(Pb)-Free and RoHS compliant.
- •Operating temperature -55~+125℃(Including self - temperature rise).

(2)Applications

- • Note PC power system，incl. IMVP-6
- • DC/DC converter

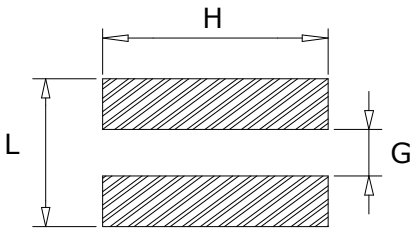
(3)Dimensions

Code	Dimensions(mm)
A	5.5±0.2
B	5.3±0.2
C	2.9±0.2
D	4.3±0.3
E	1.1±0.3
F	2.3±0.3



Recommend Land Pattern Unit : mm

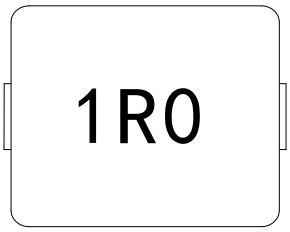
L	4.5ref
H	4.7ref
G	2.0ref



Marking

Note：Using Ink for marking

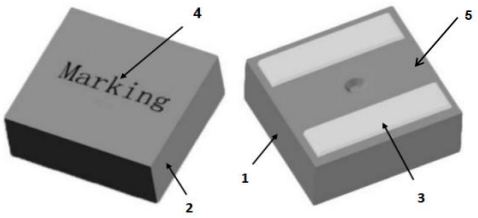
Marking：



Example	Nominal Value
0.18μH	R18
1.2 μH	1R2
4.5 μH	4R5

(4)Structure and Components

No.	Components	Material
1	Core	Alloy Powder
2	Wire	Polyester Wire or equivalent
3	Clip	100% Pb free solder
4	Ink	Halogen-free ketone
5	paint	Epoxy resin



(5)Specification

ASDI Part No.	L0	DCR	Isat （A）		Irms (A)Typ	
	(μH)±20%	(mΩ)MAX	Max	Typ	20℃ rise	40℃ rise
STPM0503A-R15M	0.15	2.31	32.5	36.0	14.3	22.2
STPM0503A-R16M	0.16	2.33	32.0	35.0	14.2	22.2
STPM0503A-R33M	0.33	3.52	26.0	28.0	13.8	19.2
STPM0503A-R47M	0.47	4.13	24.0	26.0	13.7	18.4
STPM0503A-R56M	0.56	4.52	20.2	22.2	13.6	17.7
STPM0503A-R60M	0.60	4.52	20.0	22.0	13.6	17.7
STPM0503A-R80M	0.80	5.65	18.0	20.0	10.1	13.1
STPM0503A-R82M	0.82	5.78	17.6	19.7	9.9	12.9
STPM0503A-1R0M	1.00	7.60	14.3	16.5	9.0	12.2
STPM0503A-1R2M	1.20	9.70	13.5	15.0	8.5	11.0
STPM0503A-1R5M	1.50	11.2	12.5	14.0	8.0	10.5
STPM0503A-1R8M	1.80	12.7	11.3	12.3	7.6	10.1
STPM0503A-2R2M	2.20	14.5	9.0	10.0	7.2	9.7
STPM0503A-3R3M	3.30	23.1	8.7	9.5	5.9	8.1
STPM0503A-4R7M	4.70	36.3	7.0	8.2	4.3	5.9

Notes：
1. Test frequency : L : 100KHz /0.1V;
2. All test in 25 °C temperature.
3.Testing Instrument:L:HP4285A,CH11025,CH3302,CH1320,CH1320SLCR METER / Rdc:CH16502, MICRO OHMMETER.
4.Heating Rating Current (Irms) will cause the coil temperature rise of 40℃ approximately (Δt)；
5.Saturation Current (Isat) will cause L0 to drop 30% approximately.
6.The part temperature (ambient + temp rise) should not exceed 125℃ under the worst case operating condition. Circuit design, component,PCB trace size and thickness airflow and other cooling provisions all could affect the part temperature. Part temperature should be verified in the end application.
7.Special inquiries besides the above common used types can be met on your requirement.

DCR Test

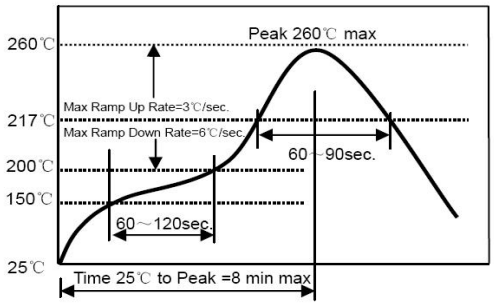
(6)Reliability Tests

Mechanical Reliability		
Test item	**Performance**	**Test details**
Solderability	1. No case deformation 2. New solder coverage More than 95% or change in visual	1.Preheat：155℃±5℃，60S±2S 2.Tin: lead-free. 3.Temperature:240℃±5℃，flux 3.0S±0.5S.
Mechanical shock	1. No case deformation or change in visual 2. △L/Lo≦±10%	1. Acceleration： 100G 2. Pulse time:：6ms 3. 3 times in each positive and negative direction of 3 mutual perpendicular directions
Mechanical vibration	1. No case deformation or change in visual 2. △L/Lo≦±10%	1. Reflow: 2times 2. Frequency: 10HZ～50HZ～10HZ，20 Min/Cycles 3. Amplitude: 1.52 mm±10% 4. Directions: X,Y,Z 5. Time: 12 cycle / direction
Endurance Reliability		
Test item	**Performance**	**Test details**
Thermal Shock	Inductance change: Within ± 10% Without distinct damage in visual	1. First -55℃ for 30 minutes,last 125℃ for 30 minutes as 1 cycle. Go through 1000 cycles. 2. Max transfer time is 3 minutes. 3. Measured at room temperature after placing for 24±2 hours
Humidity Resistance	Inductance change: Within ± 10% Without distinct damage in visual	1.Reflow 2 times, 2.85℃±3℃,85%±3%RH,1000 hours 3.Measured at room temperature after placing for 24±2 hours
Low temperature storage	Inductance change: Within ± 10% Without distinct damage in visual	Inductance change: Within ± 10% Without distinct damage in visual 1. Temperature：-55 ± 2℃ 2. Time：1000 hours 3. Measured at room temperature after placing for 24±2 hours
High temperature storage	Inductance change: Within ± 10% Without distinct damage in visual	1. Temperature：+125 ± 2℃ 2. Time：1000 hours 3. Measured at room temperature after placing for 24±2 hours

(7)Recommended Soldering Technologies

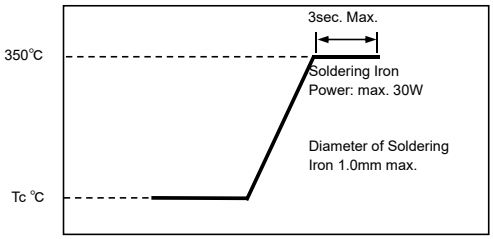
7-1,Re-flowing Profile

Preheat condition: 150 ~200℃/60~120sec.
Allowed time above 217℃: 60~90sec.
Peak temp: 260℃
Max time at Peak temp: 10 sec.
Solder paste: Sn/3.0Ag/0.5Cu
Allowed Reflow time: 2x max



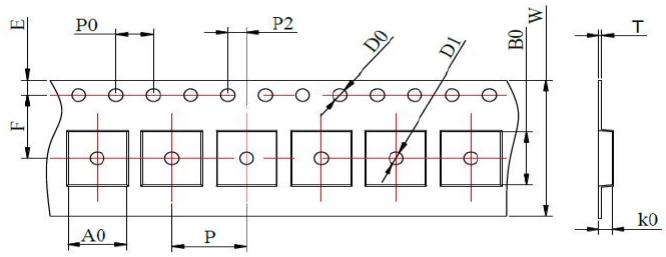
7-2,Iron Soldering Profile

Iron soldering power: Max. 30W
Pre-heating: 150℃/60sec.
Soldering Tip temperature: 350℃ Max.
Soldering time: 3sec. Max.
Solder paste: Sn/3.0Ag/0.5Cu
Max.1 times for iron soldering



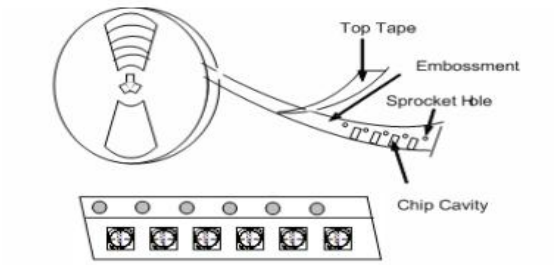
(8)Packaging Information

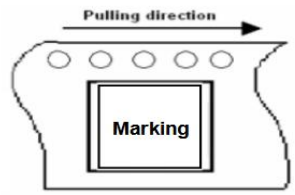
8-1,Tape Packaging Dimensions（Unit：mm）



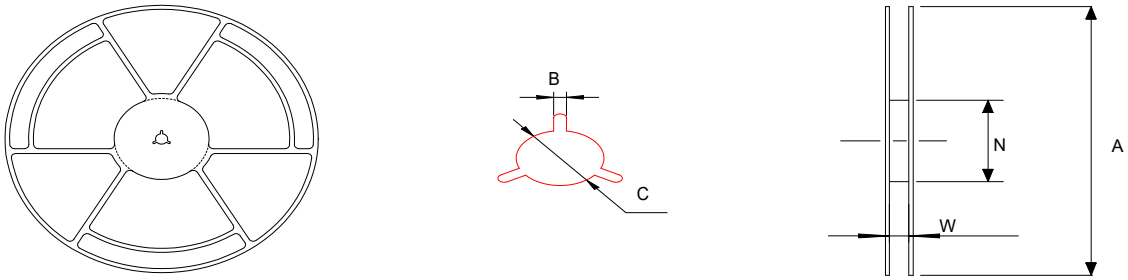
Tape dimensions (mm)											
W	P	P0	P2	D0	D1	T	A0	B0	K0	E	F
16±0.3	8±0.1	4±0.1	2±0.1	1.5±0.1	1.5±0.1	0.35±0.05	6±0.1	5.7±0.1	3.3±0.1	1.75±0.1	7.5±0.1

Taping Drawings (UNIT:mm)





8-2,Reel Dimensions（Unit：mm）



A	W	N	B	C
330+2.0	16.8+0.2	97+0.5	2.2+0.5	13.2±0.2

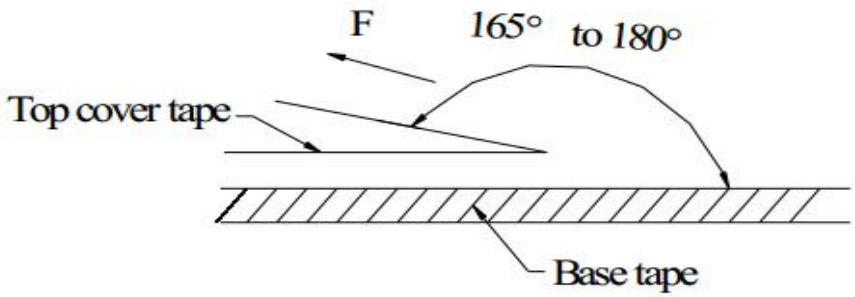
8-3,Packaging Quantity(PCS)

Standard Quantity		
Reel	Inner box	Carton box
2000 pcs / reel	3Reel / box (6000 pcs)	4 Middle boxes (24,000 pcs)

8-4,Peel force of top cover tape

The peel speed shall be about 300mm/minute

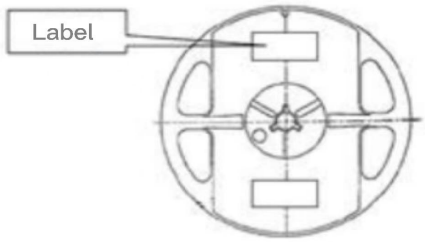
The peel force of top cover tape shall be between 0.1 to 1.3 N



8-5,Reel Label

Label on the reel

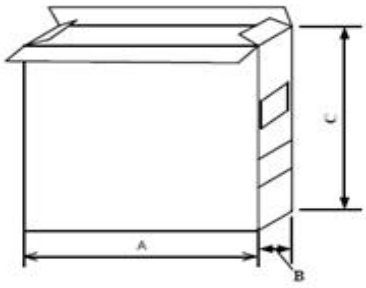
- Customer's part Number
- Lot Number
- Quantity
- date code



Shipping Label

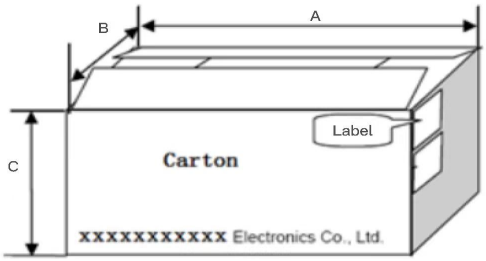
- Customer's part Number
- Manufacturer's part Number
- Quantity
- date code

8-6,Inner Box



Packaging Type	A(mm)	B(mm)	C(mm)
Inner box	335	70	340

8-7,Inner Box

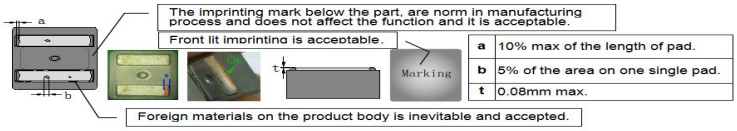


Packing Type	A (mm)	B (mm)	C (mm)
Type	360	360	360

(9)Appearance criterion

9-1,PAD residual powder,inner wire exposed,imprinting

The residual powder on both side of pad is norm and within following criteria are acceptable.



a	10% max of the length of pad.
b	5% of the area on one single pad.
t	0.08mm max.

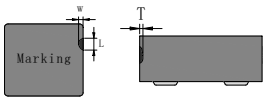
9-2,Defects

Chip off is generated during molding and manufacturing process.

Chip off acceptance limits subjected to the product size.

Our current Defect limit is based on the IPC-A-610.

Some chip off does not impact the product function, see the IPC standard 1 & 2.



T	≤10% of the thickness	Each surface can only accept one minor chip off，and more than 3 chip off problems are not allowed on the same product.
W	≤10 % of the width	
L	≤10 % of the length	

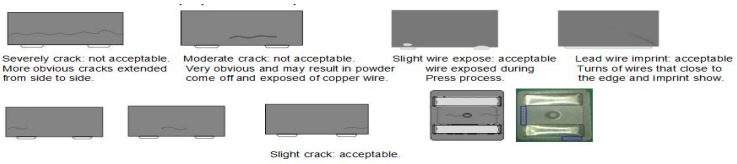
Defects usually occur at the corners and edges of the product,There will be a slight defect black and rough, but not exposed copper, and does not affect the product performance and reliability.

9-3,Crack

Production process of cracks appearing in the body is inevitable, some slight crack is caused because the molding,

is not oxidized, crack on the product will not affect product performance.

We have done a reliability test of crack products, even if cracks is more than 0.13mm also will notaffect the electrical properties of the product, crack limits as follows：



Products from a slight crack in the baking process due to thermal expansion, and it is not obvious by visual inspection

(Must not exceed the blue square area).

Cracks on the same side surface are not allowed to exceed 1/2 of the length of the side and the crack width cannot exceed 0.13mm,

and only 1 crack is allowed on the same side.

Bottom cracks are not allowed to exceed 1/2 of the length (or width) of the corresponding body nor the Non-manufacturability swelling, and the crack width cannot be exceed 0.13mm, and less than 2 cracks are allowed and judged as good products.

Visible cracks and non-manufacturability bulging are not allowed on the front side.

9-4,Oxidation(rust)

The contains iron composite, although the resin has a protective effect of oxidation,but there will be small amount of product that may occur oxidation, The oxidation area of each surface is allowed to be about 25% (in the case of non-reliability test)，it is recommend that customer use this product in humidity controlled environment.The basic steps should be to protect the surface oxidation, including the sealed packages to PCB mount inductors. To avoid the adverse effects caused by oxidation.

Oxidation occurs at the surface only allows the internal oxidation is not allowed, oxidized surface will not affect the reliability of the product.

4sides slightly oxidized side: Acceptable

Top and bottom slightly oxidized side: Acceptable

Spray printing effect : can be accepted if recognizable

Visual inspection: Examination with the naked eye, to distinguish from more technical modes of analysis employing tools or apparatus.

单击下面可查看定价，库存，交付和生命周期等信息

>>ASDI