

# <SPECIFICATION>

SPEC.No. ASDIQ-SPE-273(01)

Date: Feb.2,2024

To :

CUSTOMER'S PRODUCT NAME

ASDI PRODUCT NAME:

STPM201610A-Series

## RECEIPT CONFIRMATION

UNCONDITIONAL CONSENT

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CONDITIONAL CONSENT

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APPROVED

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CHECKED

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## ASDI SIGNATURE

APPROVED	CHECKED	PREPARED
Xianglong Li	Liang Wang	Huarong Luo



Xiamen ASDI Electronics Co.,Ltd.

REV.	DATE	DESCRIPTION	APPROVED	CHECKED	PREPARED
00	Feb.2,2024	New release	Xianglong Li	Liang Wang	Huarong Luo
01	Mar.2,2024	Add STPM201610A-4R7M	Xianglong Li	Liang Wang	Huarong Luo

# 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 months.

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  $-55 \sim +125^{\circ}\text{C}$ .

\*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 | 6) Transportation control equipment   |
| 2) Military equipment           | 7) Power-generation control equipment<br>which directly endanger human life   |
| 3) Seabed equipment             | 8) Atomic energy-related equipment  |
| 4) Safety equipment             | 9) Other applications that are not<br>considered general-purpose applications |
| 5) Medical equipment            |   |

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.

CUSTOMER	ASDI PART No. STPM201610A-Series	CUSTOMER'S DWG NO.
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2.Manufacturing Location

China

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Xiamen ASDI Electronics Co.,Ltd.

(1)Features

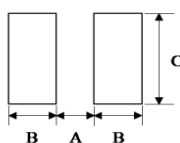
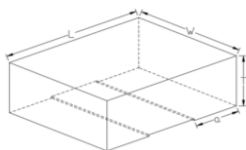
- 1.Soft saturation.
- 2.High current, low DCR, high efficiency.
- 3.Very low acoustic noise and very low leakage flux noise.
- 4.High reliability.
- 5.100% Lead (Pb)-Free and RoHS compliant.
6. Operating temperature -55~+125℃(Including self-temperature rise)



(2)Applications

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

(3)Dimensions



Series	L(mm)	W(mm)	T(mm)	a(mm)	A	B	C
STPM201610A	2.0±0.2	1.6±0.2	1.0Max	0.6±0.2	0.8~1.2	0.8~1.2	1.2~2.0

(4)Part Numbering

STPM      201610      A      -      2R2      M  
A      B      C      D      E

A: Series

B: Dimension

C: Type

D: Inductance      2R2=2.2μH

E: Inductance Tolerance      M=±20%

(5)Electrical Specification

ASDI Part Number	Inductance (μH)	DCR(mΩ) Typ.	DCR(mΩ) Max.	Isat (A) Typ.	Isat (A) Max.	I rms (A) Typ.	I rms (A) Max.	Test Frequency	SRF (MHz)	Thickness (mm)
STPM201610A-R24M	0.24	12.5	15	7.8	7.0	5.5	5.0	1	84	1.0Max
STPM201610A-R33M	0.33	16.0	19	6.7	6.0	5.2	4.8	1	80	1.0Max
STPM201610A-R47M	0.47	19.0	22	6.2	5.6	4.8	4.4	1	57	1.0Max
STPM201610A-1R0M	1.00	38.0	42	3.9	3.5	3.4	3.2	1	34	1.0Max
STPM201610A-1R5M	1.50	80.0	100	3.2	2.9	2.6	2.3	1	45	1.0Max
STPM201610A-2R2M	2.20	100.0	110	3.1	2.8	2.7	2.5	1	28	1.0Max
STPM201610A-4R7M	4.70	185	206	1.5	1.3	1.3	1.1	1	21	1.0Max

Note:

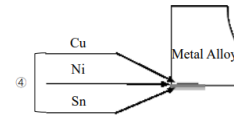
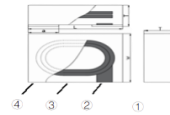
1. Inductance tolerance code (M=±20%).
2. Rated current: Isat or Irms, whichever is smaller.
3. Isat: Max.Value, DC current at which the inductance drops less than 30% from its value without current;  
Typ. Value, DC current at which the inductance drops 30% from its value without current.
4. Irms: DC current that will cause the temperature rise (ΔT) from 22°C ambient.
5. For Max. Value, ΔT<40°C; for Typ. Value, ΔT is approximate 40°C.

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(6)Material List

No.	Description	Specification
①	Metal Alloy Body	Metal Alloy Powder
②	Inner Wire	Enameled Copper Wire
③	Pull-out Electrode	Cu
④	Terminal	Electro-Plating:Cu,Ni,Sn



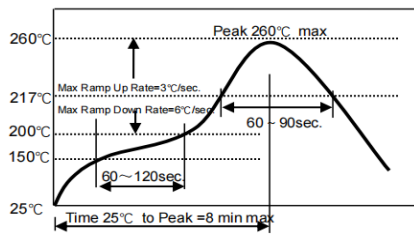
(7)Electrical Tests

Test Item	Performance	Test Condition
Direct current resistance (DCR)		Measuring instrument: High precision m-ohm ammeter ADEX-1152D
L	Reference electrical characteristics	a. Measuring instrument: Precision impedance analyzer WK 6500B. b. Measure signal voltage :1V. c. Refer to the electrical characteristics requirements for the measurement frequency
Temperature rise (Irms)	$\Delta T \leq 40^{\circ}C$ .	a. Set the initial current to 0mA b. Measure the initial surface temperature of the inductor c. Gradually increase the voltage and measure the temperature of the inductor surface under the corresponding current d. Temperature rise current definition (Irms) : current applied when the surface temperature of the inductor rises by 40°C
Saturation current (Isat)	$\Delta L \leq 30\%$ typical.	a. Measuring instrument: Precision impedance analyzer WK 6500B. b. Measurement frequency: 1MHz. c. Definition of Saturation current (Isat) : current when the inductance decreases by 30%
SRF	Reference electrical characteristics	a. Measuring instrument: Precision impedance analyzer WK 6500B. b. Measure signal voltage :1V.

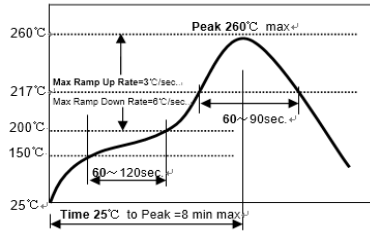
(8)Reliability Tests

Strength of terminal	No apparent mechanical damage  Fig. 8.1-1	Two reflow pretreatment, 1608 series 5N; 2012, 2016, 2520 and 4040 series are 10N; The maximum thrust value is reached within 5s, and the maintenance time is 10±1s.
Bending strength	No obvious damage such as dark crack/electrode crack/missing Angle $\Delta L_s, \Delta DCR$ within ±10% OK	Test substrate: glass epoxy resin substrate Thickness :0.8mm Bend 2mm, hold time 30s
Vibration	No obvious damage such as dark crack/electrode crack/missing Angle $\Delta L_s, \Delta DCR$ within ±10% OK	The frequency is 10Hz~2kHz~10Hz, one cycle is 20min, the amplitude is 1.52mm, the acceleration is 15G, and the X and Y axis directions are tested for 4h.

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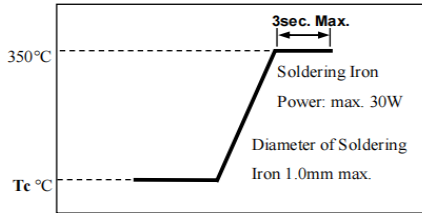
Test Item	Performance	Test Condition
Drop	No obvious damage such as dark crack/electrode crack/missing Angle $\Delta L_s$ , $\Delta DCR$ within $\pm 10\%$ OK	Height: 1 m; Number of drops: 6 times per surface
Soldering	Upper tin area $\geq 95\%$ $\Delta DCR$ is OK within $\pm 10\%$	Steam aging treatment $93^\circ\text{C}$ , 100%RH, 2h Leaching temperature $245\pm 5^\circ\text{C}$ , leaching time $3\pm 1\text{s}$
Heat-resisting	Upper tin area $\geq 95\%$ $\Delta DCR$ is OK within $\pm 10\%$	Tin immersion temperature : $260\pm 5^\circ\text{C}$ Tin immersion time : $10\pm 0.5\text{s}$
Reflow soldering	There is no obvious damage such as dark crack, rust and overflow in reflow welding $\Delta DCR$ is OK within $\pm 10\%$	Max. $260^\circ\text{C}/10\text{s}$ , reflow welding for 3 times 
Thermal shock	There is no obvious damage such as dark crack, rust and overflow in reflow welding $\Delta DCR$ is OK within $\pm 10\%$	$-40\pm 2^\circ\text{C}$ (30 min) $\rightarrow$ $125\pm 2^\circ\text{C}$ (30 min), 100Cycle
Long-term low temperature	No obvious damage such as dark crack/rust/glue overflow $\Delta L_s$ , $\Delta DCR$ within $\pm 10\%$ OK	$-55\pm 2^\circ\text{C}$ for 1000(+4/-0)h
Long-term high temperature	No obvious damage such as dark crack/rust/glue overflow $\Delta L_s$ , $\Delta DCR$ within $\pm 10\%$ OK	$125\pm 2^\circ\text{C}$ for 1000(+4/-0) h
Long-term moisture resistance	No obvious damage such as dark crack/rust/glue overflow $\Delta L_s$ , $\Delta DCR$ within $\pm 10\%$ OK	$60\pm 2^\circ\text{C}/95\pm 5\%\text{RH}$ , test 1000(+4/-0)h
Long-term durability	No obvious damage such as dark crack/rust/glue overflow $\Delta L_s$ , $\Delta DCR$ within $\pm 10\%$ OK	$85\pm 2^\circ\text{C}$ / rated current /1000(+4/-0)h

(9) Soldering and Mounting  
9-1, Reflow Profile



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

9-1, Reflow Profile

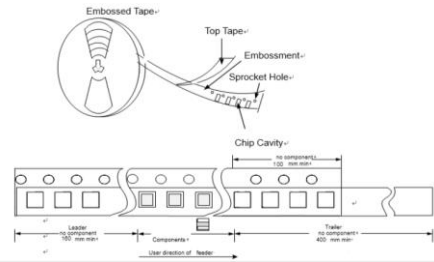


Iron soldering power	Max.30W
Pre-heating	150 °C / 60sec
Soldering Tip temperature	350°CMax
Soldering time	3sec Max
Solder paste	Sn/3.0Ag/0.5Cu
Max	1 times for iron soldering

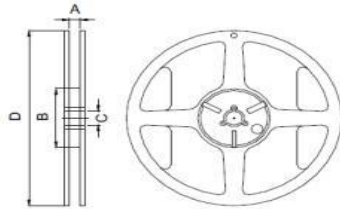
(10) Packaging Information

10-1, Reflow Profile

- a. The stripping force of the cap is 10g.f~70g.f
- b. The stripping speed is 300±10mm/min

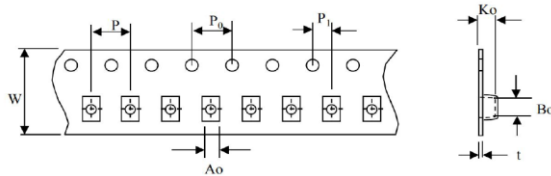


10-2, Reel Dimension



Type	A	B	C	D
201610	8.4+1.5/-0	58±2.0	13.5±0.2	178±2.0

10-3, Tape Dimension



Type	Ao	Bo	P	Po	P1	Ko max	t max	W
201610	1.90±0.1	2.30±0.1	4.0±0.1	4.0±0.1	2.0±0.05	1.3	0.3	8.0±0.1

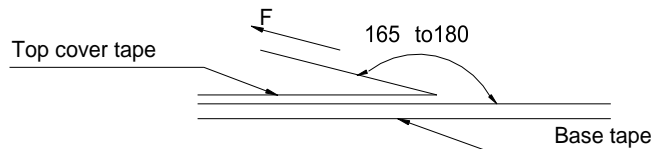
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#### 10-4, Packaging Quantity

STPM	201610
Thickness	1.0Max
Quantity	4K

#### 10-5, Tearing Off Force



The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions (referenced ANSI/EIA-481-C-2003 of 4.11 standard).

#### (1)Note

##### ·Storage Conditions

To maintain the solderability of terminal electrodes:

1. ASDI products meet IPC/JEDEC J-STD-020D standard-MSL, level 1.
2. Temperature and humidity conditions: Temperature: 5 to 30deg.C, Humidity: 75% Max.
3. Recommended products should be used within 12 months form the time of delivery.
4. The packaging material should be kept where no chlorine or sulfur exists in the air.

##### ·Transportation

1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
3. Bulk handling should ensure that abrasion and mechanical shock are minimized.

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单击下面可查看定价，库存，交付和生命周期等信息

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