

# <SPECIFICATION>

SPEC.No. ASDIQ-SPE-149(00)

Date: Aug. 20, 2022

To :

CUSTOMER'S PRODUCT NAME

ASDI PRODUCT NAME:

SIPM0502A-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

Xianglong Li

CHECKED

Liang Wang

PREPARED

Jiayin Cai



Xiamen ASDI Electronics Co.,Ltd.



# 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°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.  
SIPM0502A-SERIES

CUSTOMER'S DWG NO.

## 1.Applications

Note PC power system, incl. IMVP-6, Switch and servers,Base stations  
Battery powered devices,SSD modules,DC/DC converter .

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## 3.Manufacturing Location

China

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(1)Features

- Shielded construction.
- Capable of corresponding high frequency .
- Low loss realized with low DCR.
- High performance (Isat) realized by metal dust core.
- Ultra low buzz noise, due to composite construction
- 100% Lead(Pb)-Free and RoHS compliant.

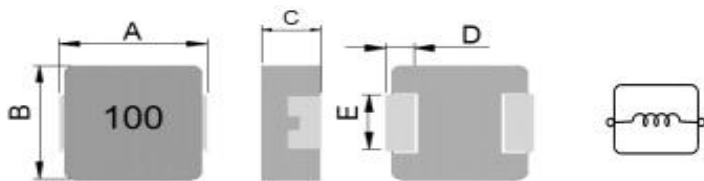


(2)Part Numbering

**SIPM**                  **0502**                  **A**                  -                  **1R0**                  **M**  
 A                                  B                                  C                                  D                                  E

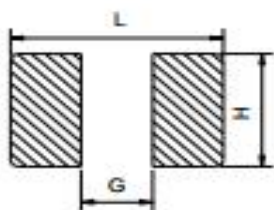
A: Series  
 B: Dimension  
 C: Material                                  Magnetic metal powder  
 D: Inductance                                  1R0=1.0μH  
 E: Inductance Tolerance                                  M=±20%

(3)Dimensions



A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
5.4±0.35	5.2±0.2	1.8±0.2	1.2±0.2	2.2±0.3

(4)Recommend Land Pattern



L(mm)	G(mm)	H(mm)
6	2.2	2.5

(5)Electrical Specifications  
Table 1

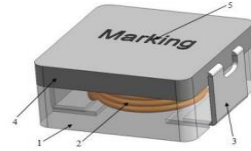
ASDI Part Number	Inductance		I sat (A)	I rms (A)	DCR (mΩ)
	L0(μH)				
	±20% @ 0 A		Typ.	TYP.	Max.@25°C
SIPM0502A-R22M	0.22		19.0	15.0	4.50
SIPM0502A-R47M	0.47		16.0	10.5	9.00
SIPM0502A-R56M	0.56		15.0	9.5	10.0
SIPM0502A-1R0M	1.00		9.50	8.0	17.0
SIPM0502A-1R5M	1.50		8.50	5.5	30.0
SIPM0502A-2R2M	2.20		7.00	5.0	34.0
SIPM0502A-3R3M	3.30		5.50	4.5	58.0
SIPM0502A-4R7M	4.70		4.50	3.5	78.0
SIPM0502A-6R8M	6.80		3.50	2.8	120.0
SIPM0502A-8R2M	8.20		3.30	2.6	150.0
SIPM0502A-100M	10.00		3.00	2.5	175.0

Note:

1. Test frequency : L : 100KHz /1.0V;
2. All test data referenced to 25°C ambient.
3. Testing Instrument : L/Q: HP4284A,CH11025,CH3302,CH1320 ,CH1320S LCR METER / Rdc:CH16502,Agilent33420A MICRO OHMMETER.
4. Heat Rated Current (I rms) will cause the coil temperature rise approximately Δ t of 40°C (keep 1min.).
5. Saturation Current (Isat) will cause L0 to drop 30% typical. (keep quickly).
6. The part temperature (ambient + temp rise) should not exceed 125°C under worst case operating conditions.Circuit design,component,PCB trace size and thickness,airflow and other cooling provisions all affect the part temperature. Pa

## (6)Material List

Symbol	Components	Material
1	Core	Alloy Powder
2	Wire	Polyester Wire or equivalent
3	Solder Plating	100% Pb free solder
4	paint	Epoxy resin
5	Ink	Halogen-free ketone



## (7)Reliability Tests

No.	Test item	Performance	Test details
1	Operating temperature	-55~+125℃	
2	Storage temperature and Humidity range	-55~+125℃,50~60%RH (Product without taping)	
<b>Electrical Performance Test</b>			
3	Inductance	Refer to standard electrical characteristics list.	HP4284A,CH11025,CH3302,CH1320,CH1320S LCR Meter.
4	DCR		CH16502,Agilent33420A Micro-Ohm Meter.
5	Saturation Current (Isat)	△ L20% typical.	Saturation DC Current (Isat) will cause L0 to drop △ L(%) (keep quickly).
6	Heat Rated Current (Irms)	Approximately △ T ≦ 40℃	Heat Rated Current (Irms) will cause the coil temperature rise △ T(℃) without core loss. 1.Applied the allowed DC current(keep 1 min.). 2.Temperature measured by digital surface thermometer
<b>Reliability Test</b>			
7	High Temperature Exposure Test	Electric specifications should be satisfied	Temperature:125±2℃. Duration:1000±12hrs. Measured at room temperature after placing for 2 to 3hrs. (MIL-PRF-27)
8	Biased Humidity Test		Humidity:85±3%RH. Temperature:85±2℃. Duration:1000±12hrs. Measured at room temperature after placing for 2 to 3hrs (AEC-Q200-REV C)
9	Thermal shock test		Condition for 1 cycle Step1:-40+0 / -2℃ 15±1 min. Step2:Room temperature within ≦ 0.2 min. Step3:+125+2 / -0℃ 15±1min. Number of cycles:300 Measured at room temperature after placing for 2 to 3 hrs. (AEC-Q200-REV C)
			Frequency: 10-2000-10Hz for 20 min. Amplitude: Parts mounted within 2" from any secure point. Directions and times: X, Y, Z directions for 20 min. This cycle shall be performed 12 times in each of three mutually perpendicular directions (Total 12hours). (MIL-STD-202 Method 204 D Test condition B)
11	Reflow test		Pre-heat: 150±5℃ Duration: 5 minutes Temperature: 260±5℃, 20~40 seconds
12	Solder test		Terminals should be covered by over 95% solder on visual inspection

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(8)Soldering and Mounting  
8-1,Soldering

Mildly activated rosin fluxes are preferred. ASDI terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

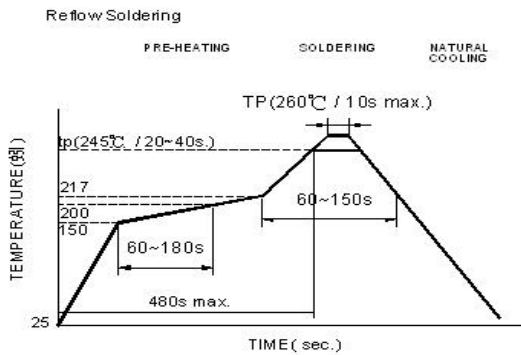
8-3,Solder re-flow:

Recommended temperature profiles for re-flow soldering in Figure 1.

8-4,Soldering Iron

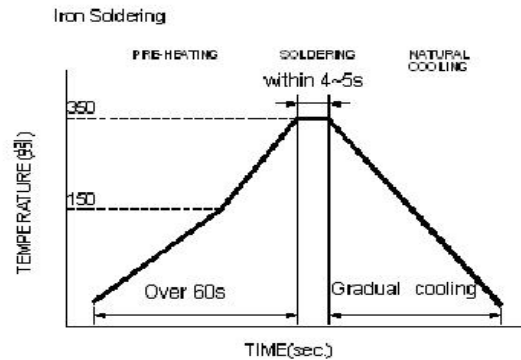
Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

- Preheat circuit and products to 150°C
- Never contact the ceramic with the iron tip
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- 355°C tip temperature (max)
- 1.0mm tip diameter (max)



Reflow times: 3 times max.

Fig.1



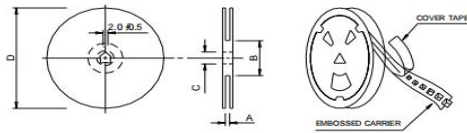
Iron Soldering times: 1 times max.

Fig.2



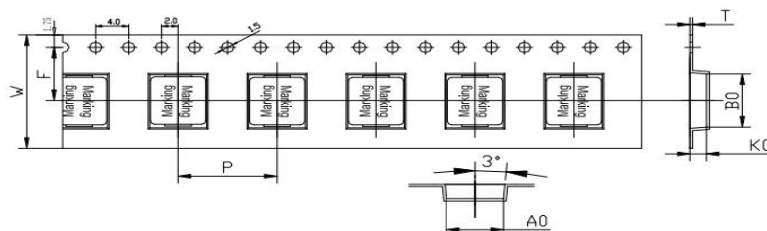
(9)Packaging Information

9-1,Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
13"x12mm	12.0±0.5	100±2	13.5±0.5	330.0

9-2,Tape Dimension

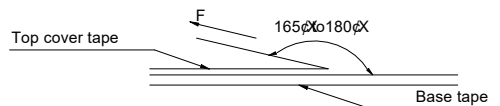


Type	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	W(mm)	F(mm)	t(mm)
SIPM0502	6.2±0.1	5.6±0.1	2.1±0.1	8.0±0.1	12±0.3	5.5±0.1	0.35±0.05

9-3,Packaging Quantity

Chip size	502
Chip / Reel	2000

9-4,Tearing Off Force



The force for tearing off cover tape is 15 to 80 grams in the arrow direction under the following conditions.

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed mm/min
5~35	45~85	860~1060	300

(10)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 from 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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