<SPECIFICATION>

SPEC.No. ASDIQ-SPE-056(02)
Date: Oct.30,2020

To :

CUSTOMER'S PRODUCT NAME

ASDI PRODUCT NAME:
SIPM0503C-SERIES

RECEIPT CONFIRMATION

UNCONDITIONAL CONSENT	CONDITIONAL CONSENT

APPROVED	CHECKED

ASDI SIGNATURE

APPROVED	CHECKED	PREPARED
Xianglong Li	Liang Wang	Jiayin Cai

REV.	DATE	DESCRIPTION	APPROVED	CHECKED	PREPARED
00	Mar.28,2019	New release	Xianglong Li	Liang Wang	Jiayin Cai
01	May.28,2020	Increased inductance value 5R6M	Xianglong Li	Liang Wang	Jiayin Cai
02	Oct.30,2020	ncreased inductance value 150M/220M	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)Features

- 100% Lead(Pb)-Free and RoHS compliant.
- High current，low DCR，high efficiency.
- 6.0×5.4×3.0mm maximum surface mount package .
- Operating temperature -55℃~+125℃(Including self - temperature rise) .

Applications

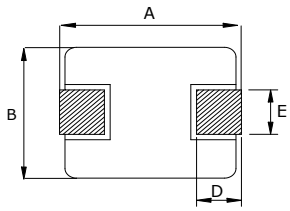
- Note PC power system .
- DC/DC converter

(2)Part Numbering

SIPM	0503	C	-	1R5	M
A	B	C		D	E

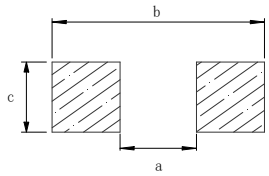
A: Series
B: Dimension
C: Material
D: Inductance 1R5 = 1.5μH
E: Inductance Tolerance M=±20%

(3)Dimensions



A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
5.7±0.3	5.2±0.2	2.8±0.2	1.2±0.2	2.0±0.3

(4)Recommend Land Pattern



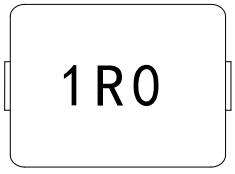
a typ	b typ	c typ
2.2	6.0	2.5

Marking

The inductor is marked with a 3-digit code

Nominal Inductance	
Example	Nominal Value
1R0	1.0μH
100	10μH
101	100 μH

Note：Using Ink for marking



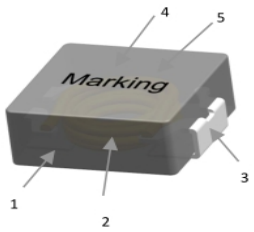
(5)Electrical Specifications
Table 1

ASDI Part Number	Inductance	DC Resistance	Saturation Current	Heating Rating Current
	L0(μH)	DCR (mΩ)	I sat(A)	Irms (A)
	±20% 100 kHz/1V	MAX.	TYP.	TYP.
SIPM0503C-R22M	0.22	4.40	21.0	15.5
SIPM0503C-R33M	0.33	5.00	18.0	14.0
SIPM0503C-R47M	0.47	7.40	16.0	12.0
SIPM0503C-R68M	0.68	12.0	14.0	8.50
SIPM0503C-R82M	0.82	13.0	12.5	8.00
SIPM0503C-1R0M	1.00	14.0	11.0	7.00
SIPM0503C-1R5M	1.50	25.0	10.0	6.00
SIPM0503C-2R2M	2.20	35.0	9.00	5.50
SIPM0503C-3R3M	3.30	38.0	8.00	5.00
SIPM0503C-4R7M	4.70	53.0	6.00	4.60
SIPM5030-5R6M	5.60	63.0	4.50	4.25
SIPM0503C-6R8M	6.80	76.2	4.30	4.00
SIPM0503C-100M	10.0	128	3.50	2.75
SIPM0503C-150M	15.0	190	2.60	2.10
SIPM0503C-220M	22.0	250	1.70	1.90

Notes:
1. All test data is referenced to 25 °C ambient
2. Irms (A):DC current (A) that will cause an approximate ΔT of 40 °C(reference ambient temperature is 25 °C)
3. Isat(A):DC current (A) that will cause L0 to drop approximately 30 %
4. The part temperature (ambient + temp rise) should not exceed 125 °C under worst case operating conditions.
   Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions
   all affect the part temperature. Part temperature should be verified in the end application.

(6)Structure and Components

No.	Components	Material
1	Core	Carbonyl Powder
2	Wire	Polyester Wire or equivalent.
3	Clip	100% Pb free solder(Ni+Sn---Plating)
4	Paint	Epoxy resin
5	Ink	Halogen-free ketone



(7)Reliability Tests

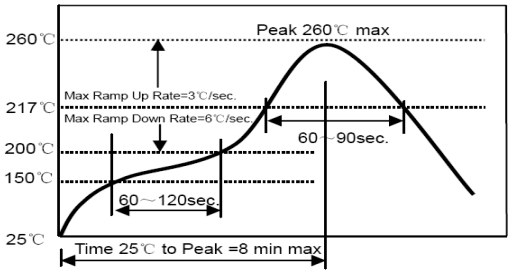
Mechanical Reliability			
No.	**Test item**	**Performance**	**Test details**
1	Solderability	1. No case deformation or change in apperarance 2. New solder coverage more than 95%	1.Preheat：155℃±5℃，60S±2S 2.Solder: lead-free. 3.Temperature: 240℃±5℃, flux 3.0S±0.5S.
2	Mechanical shock	1. No case deformation or change in apperarance 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
3	Mechanical vibration	1.No case deformation or change in apperarance 2. △L/Lo≦±10%	1. Reflow: 2times 2. Frequency: 10HZ～55HZ～10HZ，20 Min/Cycles 3. Amplitude: 1.52 mm 4. Directions: X,Y,Z 5. Time: 12 cycle / direction
Endurance and Reliability Test			
No.	**Test item**	**Performance**	**Test details**
4	Thermal shock test	Inductance change: Within ± 10% Without distinct damage in appearance	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
5	Humidity Resistance	Inductance change: Within ± 10% Without distinct damage in appearance	1.Reflow 2 times, 2.85℃,85%RH,1000 hours 3.Measured at room temperature after placing for 24±2 hours
6	Low temperature storage	Inductance change: Within ± 10% Without distinct damage in appearance	1. Temperature：-55 ± 2℃ 2. Time：1000 hours 3. Measured at room temperature after placing for 24±2 hours
7	High temperature storage	Inductance change: Within ± 10% Without distinct damage in appearance	1. Temperature：+125 ± 2℃ 2. Time：1000 hours 3. Measured at room temperature after placing for 24±2 hours

Recommended Soldering Technologies

(8)Soldering and Mounting

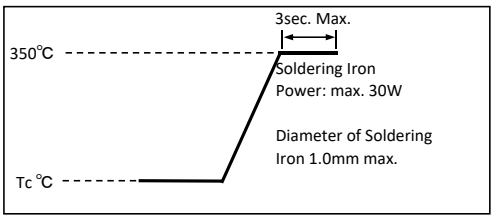
8-1,Re-flowing Profile

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



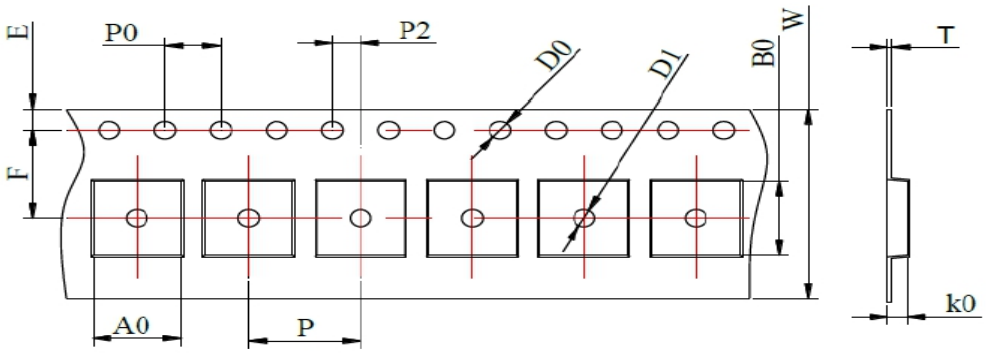
8-2,Iron Soldering Profile

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



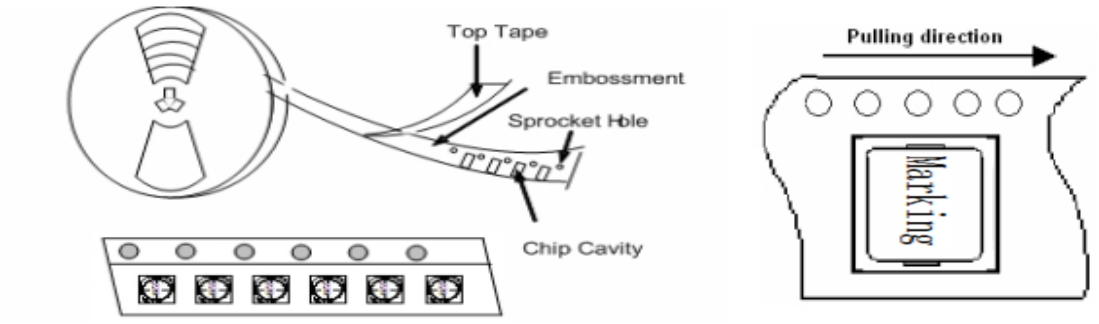
(9)Packaging Information

9-1,Tape Packaging Dimensions(Unit: mm)

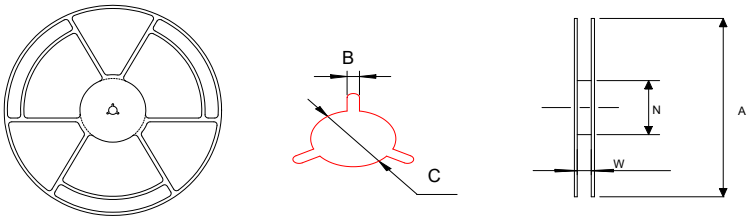


Type	Tape Dimensions (mm)											
	W	P	P0	P2	D0	D1	T	A0	B0	K0	E	F
SIPM0503C	12±0.30	8.0±0.10	4.0±0.10	2.0±0.10	1.5±0.10	1.5±0.10	0.35±0.05	5.5±0.10	5.9±0.10	3.3±0.10	1.75±0.10	5.5±0.10

Taping Drawings (UNIT:mm)



9-2,Reel Dimensions(Unit: mm)



A	W	N	B	C
330+2.0	12.8±0.2	97.0±0.5	2.20+0.5	13.2±0.2

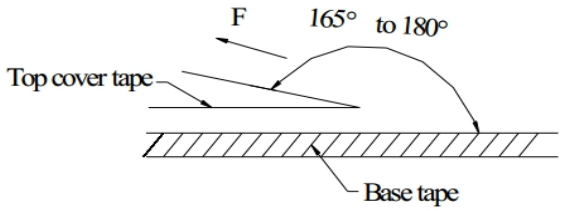
9-3,Packaging Quantity

Type	Standard Quantity		
	Reel	Inner box	Carton box
SIPM0503C	2000 pcs / reel	4Reel / box (8000 pcs)	4 Middle boxes, (32,000 pcs)

9-4,Peel force of top cover tape

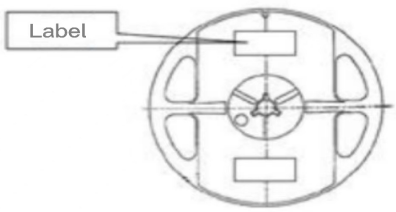
The peel speed shall be about 300mm/minute

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



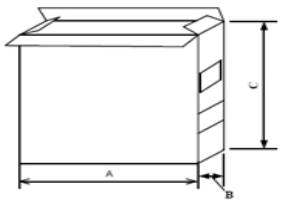
9-5,Reel Label

Label on the reel
·Customer's part Number
·Lot Number
·Quantity
·Date code



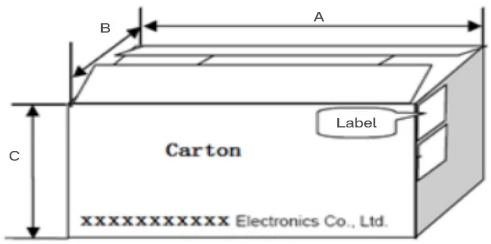
Shipping Label
·Customer's part Number
·Manufacturer's part Number
·Quantity
·Date code

9-6,Inner Box



Packing Type	A (mm)	B (mm)	C (mm)
Inner Box	335	70	340

9-7,Carton



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

(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 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.