

To: FREESCALE

Date of application

<u>2013</u>	<u>07</u>	<u>11</u>
(year)	(month)	(day)

Approval Sheet

■ Part number : ESMIT-4180/A

■ Document attached ☐ No ☒ Yes(See Below)

* Scope and general stipulations S-074-1511	*
* Heat endurance test S-074-1516	*
* Recommended reflow condition S-074-1518	*
* Packing spec.S-074-5215	*

■ Tick the relevant box “ ☒ ”.

- ☒ New product / New specification
☐ New part(s) is added to approved specification
☐ Revision of approved specification

■ Note

This specification will be considered accepted upon receipt of your order.

Approved by	Sales
	Sumida America Components Inc.
	Approval: _____ Salesman: _____
	 Check: _____  Design: _____

Customer: FREESCALE		Specification (Revisions)		Type C B M 5 D 3 3
Symbol	Date	No.	Revisions	Client

Note:					
Made: 1 1 t h. J u l. , 2 0 1 3			Part No.	E S M I T - 4 1 8 Ø / A	
Chk.	Chk.	Drg.	SUMIDA Code	0 5 1 2 5	
ZHANG XIANBING	PENG WEI	ZHENG HUAJUAN JZ	Sample No.	0 5 1 2 5 - T 0 1 4	Spec. No. S - 0 2 2 7 - 6 0 4 6 1 / 4
			First issue	2013.07.11	

Specification

Type

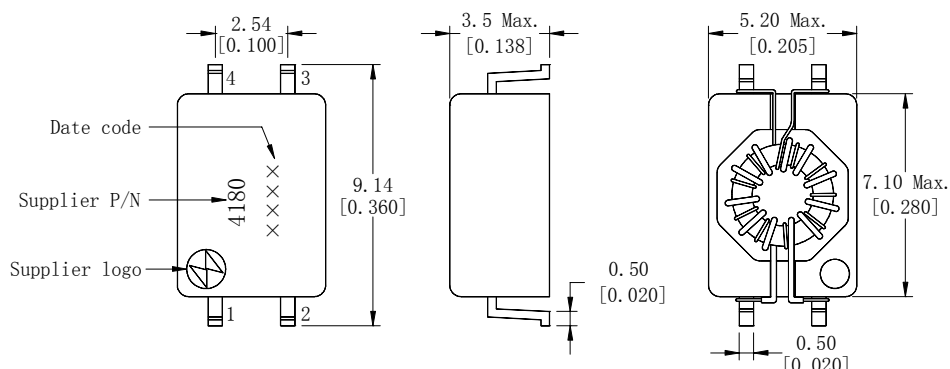
C B M 5 D 3 3

1. Scope and general stipulations

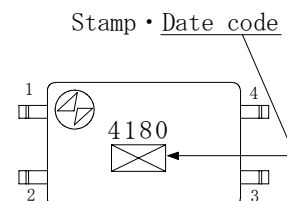
Ref. to S-074-1511.

2. Appearance

2-1. Dimension (mm) [inch]



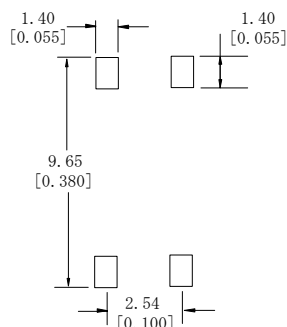
2-2. Stamp



* Dimension does not include solder used on coil.

* Unless otherwise specified, all tolerances are ± 0.25 [0.010].

2-3. Recommended land patterns dimension (mm) [inch]

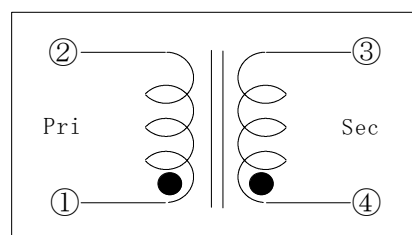


RoHS

compliance
Cd:Max. 0.01wt%
others:Max. 0.1wt%

3. Coil specification

3-1. Connection (Bottom view)



3-2. Electrical characteristics (@ 25C)

Parameter	Conditions	Value	Units	Tolerance
Inductance (OCL)	100kHz, 0.1V, (1-2)	120	μ H	Min
Turns ratio (T/R)	(1-2) : (4-3)	1:1	N/A	$\pm 2\%$
DC resistance (DCR)	(1-2)	0.25	Ω	Max.
	(4-3)	0.25	Ω	Max.
Dielectric breakdown Isolation (Equivalent to 1 min, 3000 Vrms)	1sec, (1-4)	3750	Vrms	Min.

* Complies CAN/CSA C22.2 No. 60950-1, EN 60950-1, IEC 60950-1, and UL 60950-1 supplementary insulation requirements at working voltages up to 250 VAC.

Note :

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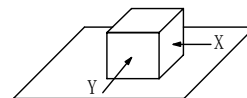
4. General characteristics

4-1.Storage temperature range : $-40^{\circ}\text{C} \sim +105^{\circ}\text{C}$

4-2.Operating temperature range : $-40^{\circ}\text{C} \sim +105^{\circ}\text{C}$ (Including coil's self temperature rise)

4-3.External appearance : No external defects can be found in the visual inspection.

4-4.Fixing strength : No electrode detachment should be found when the device is pushed in two directions of X and Y with the force of 5.0N for 60 ± 5 seconds after soldering between copper plate and the electrodes.
(Refer to figure at right)



4-5.Heat endurance test : Refer to S-074-1516.

4-6.Recommended reflow condition : Refer to S-074-1518.

4-7. Insulation resistance: The insulation resistance should be over $100\text{M}\Omega$ when 100V DC is applied to the coil-core, meanwhile no structure and electric defects should be found for 1 minute.

4-8.Vibration test : 5g's for 20 minutes, 12 cycles each of 3 orientations. Test from 10-2000 Hz. No abnormity should be found.

4-9. Humidity test : Kept in a chamber of temperature $85 \pm 2^{\circ}\text{C}$ at relative humidity 80~85% for 1000 ± 12 hours. then left in room temperature for 1 to 2 hours.
No abnormity should be found.

4-10.High Temperature Exposure : Kept in a chamber of temperature $105 \pm 2^{\circ}\text{C}$ for 1000 ± 12 hours. then left in room temperature for 1 to 2 hours. No abnormity should be found.

4-11.Resistance to solvents: Immersed in solvents stipulated in MIL-STD-202 (Method 215) for 3 minutes, then wash the specimen with a brush for 10 times in normal speed. Repeat above process twice. No mechanical damage and distinct damage in appearance.

4-12.Mechanical Shock : Dropped with 981m/S² (100G) peak acceleration and duration in 6ms using the rubber block shock test method, 3 times in each of 6 mutually perpendicular directions. No abnormity should be found.

4-13.Thermal Shock : Specimen is subjected to -40 ± 3 for 30 minutes, then subjected to $105 \pm 2^{\circ}\text{C}$ for 30 minutes. (transfer time is 60 seconds maximum.) This constitutes one cycle. After 1000 cycles. then left in room temperature for 1 to 2 hours.
No abnormity should be found.

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4-14. Solderability Terminals shall be immersed in flux for 5 sec then in molten solder for 5 ± 0.5 sec. at temperature of 245°C .

(flux: non-activated flux, solder: Sn-3.0Ag-0.5Cu)

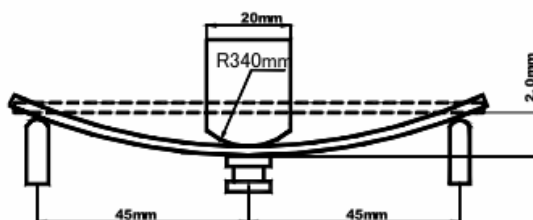
PCT Condition: 105°C 、100%RH、0.12MPa、8 hrs.

The immersed area shall exhibit at least 95% new solder.

4-15. Terminal Strength: Specimen shall be mounted onto a P.C. board then subjected to a static force 1.8kg for 60 ± 5 S from the one mutually perpendicular directions individually.

No distinguished terminal peeling off or wire broken should be found.

4-16. Board Flex: Inductance deviation is within $\pm 10\%$ Specimen shall be soldered on a P.C. board, apply pressure at a rate of about 0.5mm/sec in the direction of the arrow until bent width reaches 2mm and held for 30 seconds. then left in room temperature for 1 to 2 hours. No abnormality should be found.

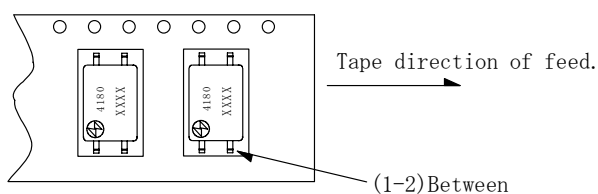


4-17. ESD test: According to AEC-Q200, test voltage 25KV Air Discharge. No abnormality should be found.

4-18 Electrical Characterization test: This is the inductance values under -40°C , 25°C and 105°C .

5. Packing specification

5-1. Enclosing condition of coils.



The mark side is upward as the up illustration.

5-2. Carrier tape packing specification in detail. (S-074-5215)

6. Note

- * When place the coil, please avoid touching terminal.
- * That part meet AEC-Q200.

Note :

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共 用 仕 様 書 COMMON SPECIFICATION

SUMIDA製品の適用範囲
Scope of SUMIDA products

1. 当製品は、A V機器、家電製品、O A機器、通信機器、計測機器、工作機器などの一般電子機器に使用されることを前提に製造、販売されております。

The component is manufactured and promoted to be used in general electronic of AV., home appliance, OA, communication, measurement equipments and machine tools.

2. 人命や財産に影響を与える可能性のある航空宇宙機器、医療機器、輸送機器、防災機器または同等と思われる機器に使用される場合は、必ず弊社営業部門にお問い合わせ下さい。

また、使用条件を満たさない場合や超えた場合による搭載機器に何らかの事故、損害が発生した場合でも弊社は一切その責を負いませんので、予めご了承下さい。

In the event the product is used in aerospace equipment, medical equipment, transportation equipment, disaster preventing equipment or an equivalent which may affect human health or property, please do not fail to consult with our business headquarters, branch or business office.

When the usage conditions are not satisfied or exceeded, Sumida Group shall not be liable for any trouble in, or damage to, the equipment with which the product is used.

	仕様書番号 SPEC. NO.
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共用仕様書 COMMON SPECIFICATION

コイル使用上の共通注意事項

General stipulations for coil use

1. 製品は高温、多湿、塵埃、腐食性ガスの無い環境で保管して下さい。
Products should not be kept in unsuitable storage conditions such as areas susceptible to high temperatures, high humidity, dust or corrosion.
2. 製品の落下や乱雑な取り扱い、バラ積みは、破損の恐れがありますので注意して下さい。
Always handle our products with care.
3. 手脂によりはんだ付け性が劣化しますので、端子に直接手を触れないで下さい。
Don't touch electrodes directly with bare hands as oil secretions may inhibit soldering.
Always ensure optimum conditions for soldering.
4. 端子への過度なストレスは断線の原因になりますので、端子は折り曲げないで下さい。
Don't bend the terminals or subject them to excessive stress.
5. 端子及びケースのラグ部は、全てプリント基板にはんだ付けをして下さい。
Please ensure that all terminals and case lugs are completely fixed with solder onto PCB.
6. 調整コアがはんだ付けフラックスにより固定されないよう、生産工程に注意して下さい。
Ensure the tuning slug or cap is not fixed by solder flux during your production process.
7. コイルの洗浄はしないで下さい。もし、洗浄が必要な場合は連絡下さい。
Refrain from rinsing coils. If it is necessary, please consult with our company.
8. プリント基板設計の際は、コイルは端面部への配置を避けて下さい。
Avoid placing coils near the edge of the PCB.
9. 面実装コイルは自動実装を基準に設計されていますので、手はんだの場合は取り扱いに注意して下さい。
Our SMT coils are designed for automatic mounting. Please be careful if soldering by hand.
10. コイルを自動実装される場合は、巻線露出部分への接触を避けて下さい。また、端子をガイドとして使用しないで下さい。
Don't touch any exposed winding part and avoid coming into contact with the guide of electrode in automatic mounting.
11. 当納入仕様書は、部品単体での品質を規定するものです。ご使用に際しては、御社製品に実装された状態で必ず評価、ご確認をお願い致します。
This specification limits the quality of the component as a single unit.
Please insure the component is thoroughly evaluated in your application circuit.
12. 高電圧を発生させるインバータトランスでは、導体はトランスから2mm以上離す設計をして下さい。
When using our high voltage inverter transformers, please place 2mm away from electric conductor.
13. 結露する環境での使用はお避けください。
Please do not use this component in a place where dew condenses .
14. 密閉状態の環境で使用する場合は温度変化により結露する恐れがありますので注意をお願いします。
Since dew condensation may be caused by temperature change, please pay special attention when using this component in a sealed condition.

	仕様書番号 SPEC. NO.
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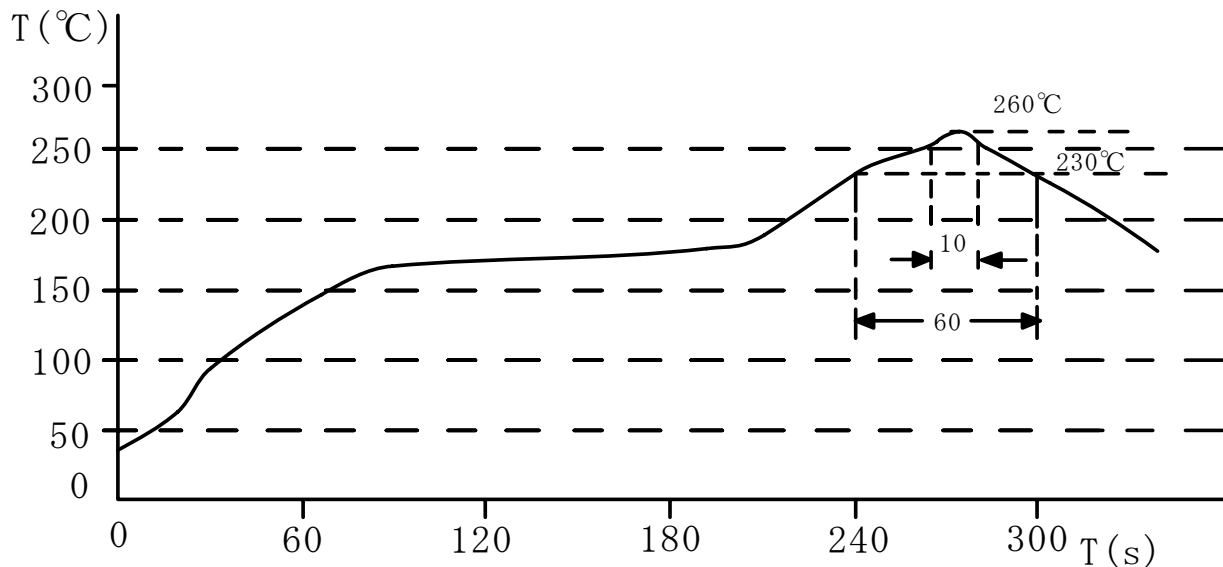
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共用仕様書 COMMON SPECIFICATION

リフロー耐熱 HEAT ENDURANCE

リフロー耐熱試験条件 HEAT ENDURANCE TEST



- * 上記の様なチャートの試験をし、常温常湿中に2時間放置後測定し、電氣的、機構的異常のないこと。
THE TEST SHOULD BE MADE UNDER THE CONDITIONS ACCORDING TO THE CHART, AFTER THE TEST IT IS KEPT FOR 2 HOURS UNDER THE NORMAL TEMPERATURE AND HUMIDITY. THEN, NO MECHANICAL AND ELECTRICAL DEFECT SHOULD BE FOUND OUT.
- * 2回リフロー可とする。(但し、1回目と2回目の間隔は常温常湿中に1時間以上放置後とする。)
THE REFLOW TEST CAN BE DONE TWICE, BUT THE INTERVAL SHOULD BE MORE THAN ONE HOUR UNDER THE NORMAL CONDITIONS.
- * リフロー耐熱試験条件は、弊社に於て使用しております装置によるものです。
THE REFLOW TEST CONDITIONS ARE BASED ON THE TESTING INSTRUMENTS AVAILABLE IN SUMIDA.

鉛フリーはんだ用
FOR LEAD FREE SOLDERING

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S-074-1516

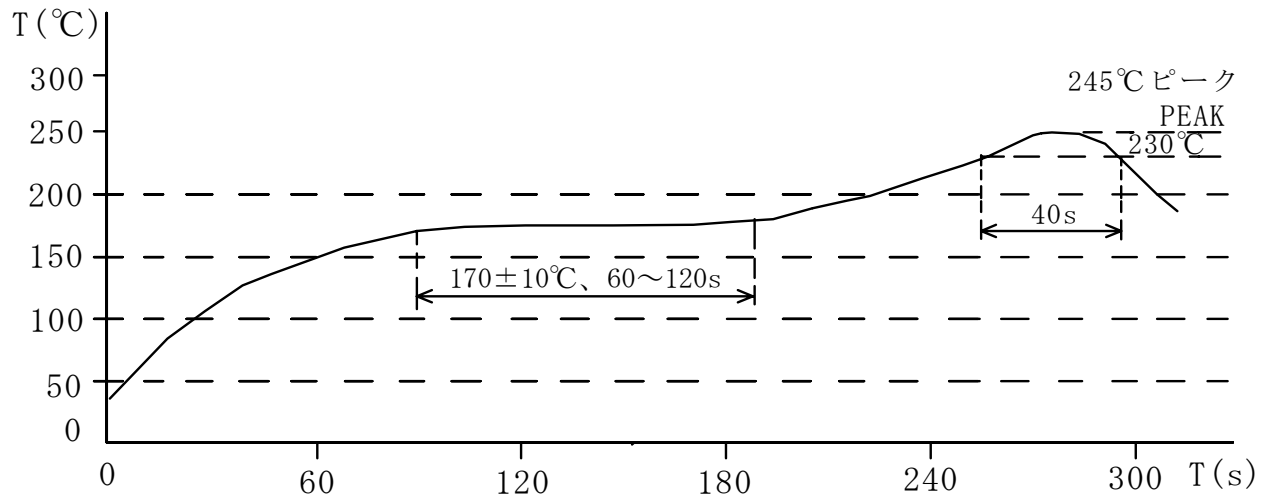
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共用仕様書 COMMON SPECIFICATION

推奨リフロー条件（温度チャート）

THE RECOMMENDED REFLOW CONDITION (TEMPERATURE CHART)

A R Y - 4 3 0 T Y P E



* 上記推奨リフロー条件は、弊社に於いて使用しておりますリフロー装置に依るものです。

付きましては、はんだ付け性は装置の種類、リフローの条件、方法等により大きく異なる場合がありますので、リフロー条件の設定に付きましては、十分な確認の上設定願います。

THE REFLOW CONDITION RECOMMENDED ABOVE IS ACCORDING TO THE MACHINE USED BY OUR COMPANY. BIG DIFFERENCES WILL ARISE AS A RESULT OF THE TYPE OF MACHINE, REFLOW CONDITIONS, METHOD, ETC USED. HENCE, BEFORE SETTING UP YOUR REFLOW CONDITIONS, PLEASE CONFIRM WITH THE ABOVE.

* 尚、不明な点がございましたら事前にお問い合わせ下さい。

MOREOVER, PLEASE CLEAR ALL DOUBTS WITH OUR COMPANY BEFORE STARTING.

鉛フリーはんだ用
FOR LEAD FREE SOLDERING

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REV I S I O N S

SYMBOL	DATE	NO.	REVISIONS	CLIENT
△ ₁	13th. Jan. , 2009	PD16-09-043	APPLICATION (TYPES) : CBM5D33B ADDED (P. 2/6) TAPE DIMENSION : A DIMENSION ← 9.8 ± 0.2 CHANGED (P. 5/6)	C-LAB HEISEN

NOTE :

SPEC. NO.

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CARRIER TAPE PACKING SPECIFICATION (BE IN CONFORMITY WITH IEC 60286-3)
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1. APPLICATION OF THIS SPECIFICATION

- 1) APPLIES TO SUMIDA ELECTRIC CO., LTD. CARRIER TAPE PACKING.
- 2) FOR ITEMS NOT LISTED IN THIS SPECIFICATION , REFERENCE TO BE MADE TO THE SPECIFICATION OF THE INDIVIDUAL PART.

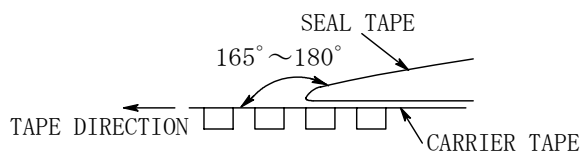
2. APPLICATION(TYPES) : CBM5D33、CBM5D33B $\triangle$

3. TAPING SPECIFICATION

- 1) REEL DIMENSIONS.....FIGURE 1
- 2) TAPE DIMENSIONS.....FIGURE 2
- 3) TAPE DIRECTION.....FIGURE 3

4. TAPING

- 1) THE CARRIER TAPE AND SHIELD TAPE IS WOUND IN ONE CONTINUOUS REEL WITHOUT ANY CONNECTED PORTIONS. SHOULD ANY PIECE OF COIL BE MISSING FROM THE CARRIER TAPE, A "CROSS(X)" SLIT WOULD BE MADE ON THE SHIELD OF THE CARTRIDGE AND A COIL REPLACED. AFTER WHICH, CELLOPHANE TAPE IS USED TO RESEAL THE CARTRIDGE.
- 2) THE ANGLE BETWEEN THE SEAL TAPE DURING PEELOFF AND THE DIRECTION OF UNREELING SHALL BE 165° TO 180° . THE SEAL TAPE SHALL ADHERE UNIFORMLY TO THE CARRIER TAPE ALONG BOTH SIDES IN THE DIRECTION OF UNREELING . THE PEEL FORCE WITH A PEEL SPEED OF 300mm/MIN $\pm$ 10mm/MIN SHALL BE AS FOLLOWS:
0. 1N TO 1.3N FOR A 12mm $\sim$ 56mm TAPE WIDTH.



- 3) PRECAUTION : COMPLETED REELS WITH RADIUS LESS THAN 40mm WILL RESULT IN THE FOLLOWING.
 - (I) CRACKS ON THE CARRIER TAPE
 - (II) SHIELD TAPE TEARING OFF

5. PACKING

- 1) POSITION OF COILS IN THE CARRIER TAPE : REFER TO THE SPECIFICATION OF THE INDIVIDUAL PART.
- 2) THERE SHOULD NOT BE :
 - (I) WRONG POSITION OF GOODS IN THE CARRIER TAPE
 - (II) REJECTED GOODS IN THE CARRIER TAPE
 - (III) MISSING GOODS FROM THE CARRIER TAPE
- 3) ONE REEL CONSISTS OF 500pcs OF COIL.
- 4) ON THE COMPLETED END OF THE REEL, THE CARRIER TAPE IS FIXED WITH A DRIVING TAPE.

MADE: 1 s t . S e p . , 2 0 0 3			PART NO.		
CHK.	CHK.	DRG.	SUMIDA CODE		
CHEN WEIMING	ZHONG ZIJIAN	XU ZHIDONG L	SAMPLE NO.		SPEC. NO. S - 0 7 4 - 5 2 1 5 2 / 6
			FIRST ISSUE		

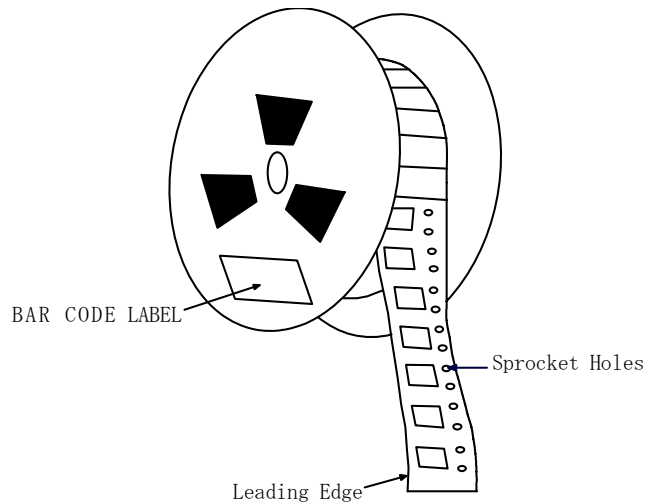
6. INDICATION

1) THE FOLLOWING WILL BE INDICATED ON ONE SIDE OF THE REEL :

CUSTOMER PART NO.	}	BAR-CODE LABEL USED
QUANTITY		
LOT NO.		
SUPPLIER		
SUPPLIER SPECIFICATION NO.		
SUPPLIER TYPE NAME		

2) POSITION OF INDICATION : UNFIXED THE POSITION

LEFTHAND SIDE FROM
LEADING EDGE



7. HANDLING PRECAUTION

THE SURFACE OF THE PRODUCT CANNOT WITHSTAND A WEIGHT/FORCE EXCEEDING 9.8N.

8. STORAGE

GOODS SHOULD BE STORED BETWEEN 0°C AND 60°C (TEMPERATURE), NOT EXCEEDING 90% (HUMIDITY), WITHOUT A DROP OF WATER, AND REEL SHOULD BE REWOUND IN CASE OF LONGTIME STORAGE.

9. OTHERS

UNIT OF MEASURE USED WHEN PLACING ORDERS : 1REEL.

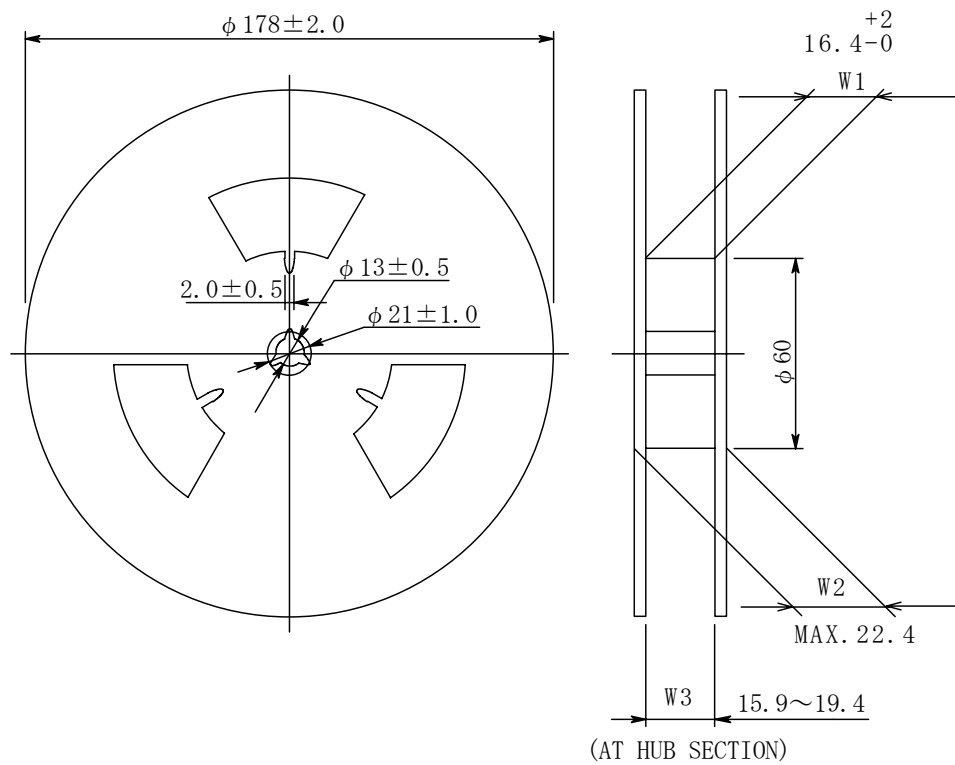
NOTE :

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FIGURE 1 REEL DIMENSION (UNIT:mm)



※ THE DIMENSION OF W1 AND W2 AND W3 IS BASED ON JIS C0806.

* DIMENSION WITHOUT TOLERANCE IS APPROX.

	MATERIAL
REEL SECTION	CARDBOARD OR POLYSTYRENE
HUB SECTION	POLYFOAM OR POLYSTYRENE

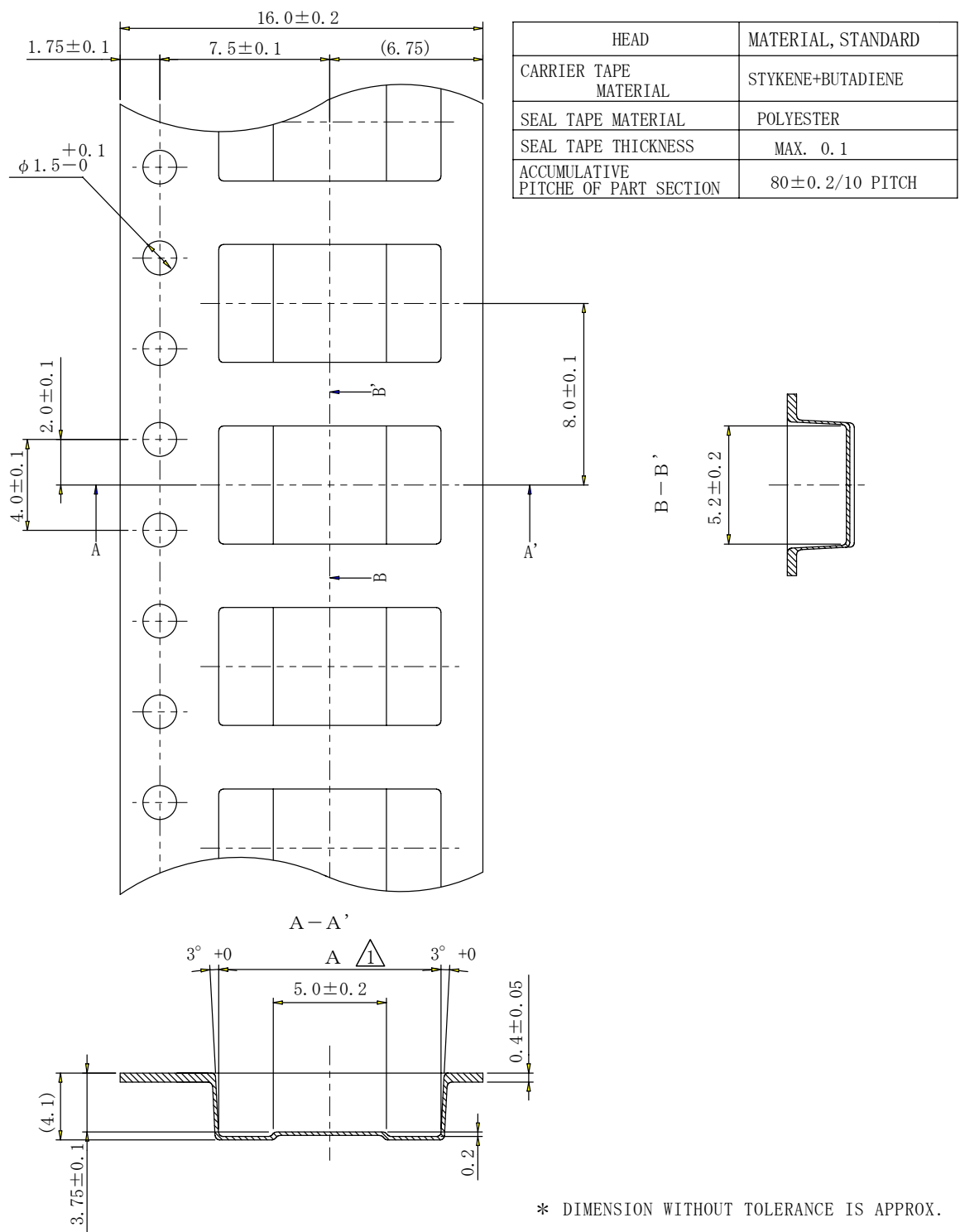
NOTE :

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FIGURE 2 TAPE DIMENSION (UNIT:mm)



* DIMENSION WITHOUT TOLERANCE IS APPROX.

	A DIMENSION	CTP NAME	TYPE NAME
	9.8 ± 0.1	CTP224-0540S-RL	CBM5D33
	10.0 ± 0.1	CTP655-0540S-RL	CBM5D33B

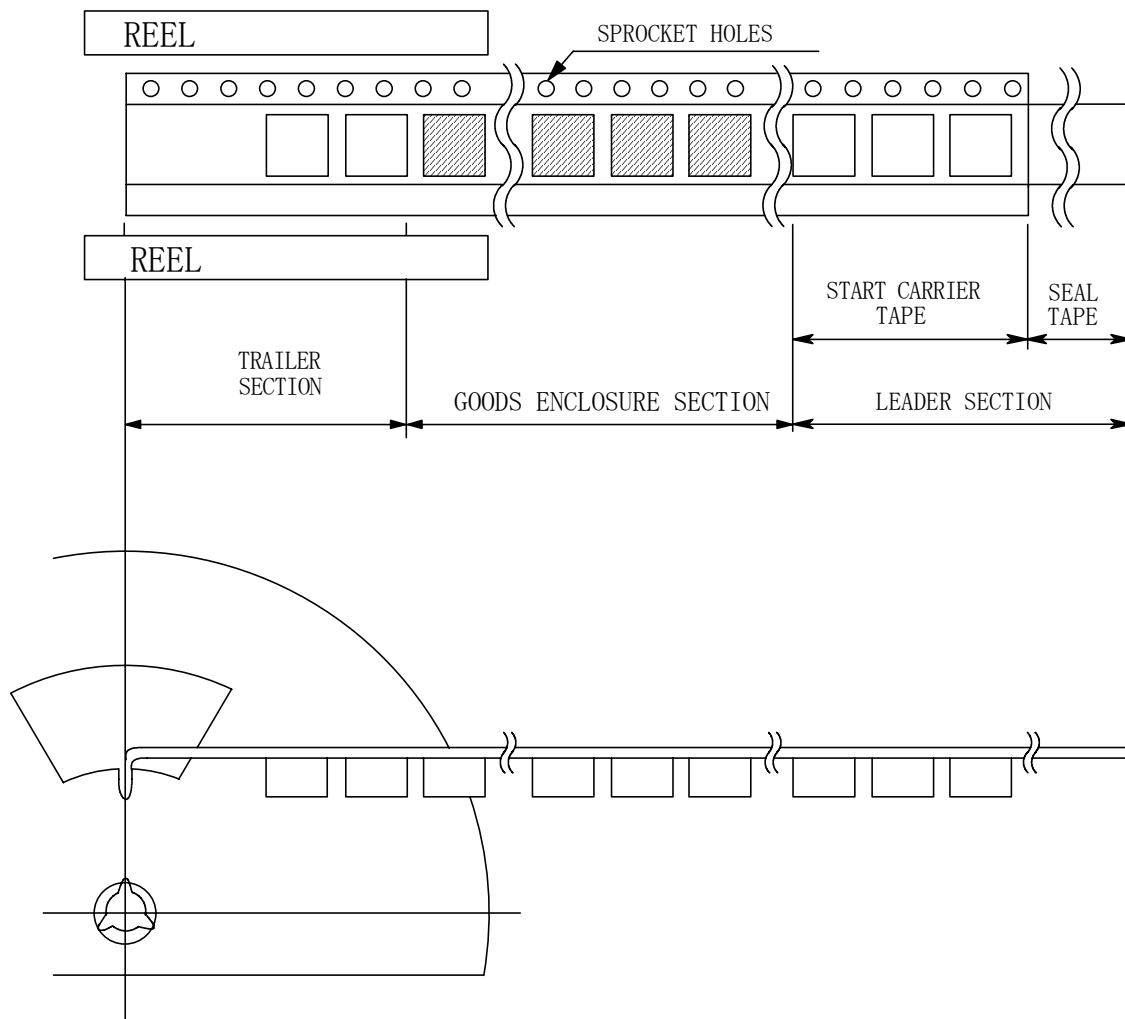
NOTE :

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FIGURE 3 TAPE DIRECTION, LEADER, TRAILER SECTION DIMENSION

LEADER SECTION	MIN. 400 mm
CARRIER TAPE START SIZE	MIN. 100 mm
TRAILER SECTION SIZE	MIN. 160 mm
QUANTITY	500pcs

CARRIER TAPE SIZE



NOTE :

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