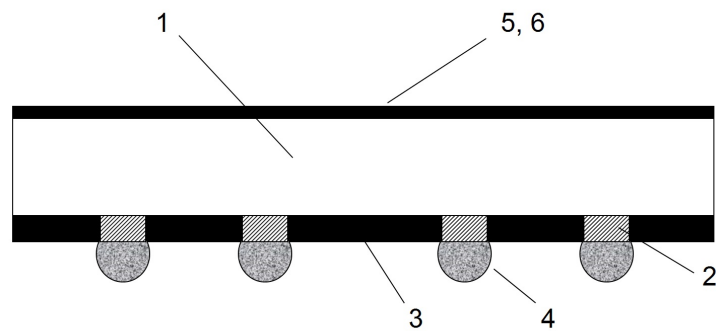


## 1. Package Information

Package Name		VCSP60N1
Outline Dimension Drawing No.		EX910-5017
Package Weight	[mg]	1
MSL Level (Note 1)		MSL1

Note 1 : The MSL Level are determined based on the JEDEC J-STD-020D.

## 2. Package Structure



No.	Item	Materials
1	Die	Silicon
2	Cu Post	Cu
3	Mold Compound	Epoxy Resin
4	Ext. terminal	Sn-3Ag-0.5Cu Solder
5	Mold Compound	Polyamide-imide Resin
6	Marking	Laser Marking

3. Packing Specification

3.1 Packing form, Quantity, PIN1 Orientation and Weight

Packing Form		Tape&Reel
Packing Quantity	[pcs/Reel]	3,000
PIN 1 Orientation		E2

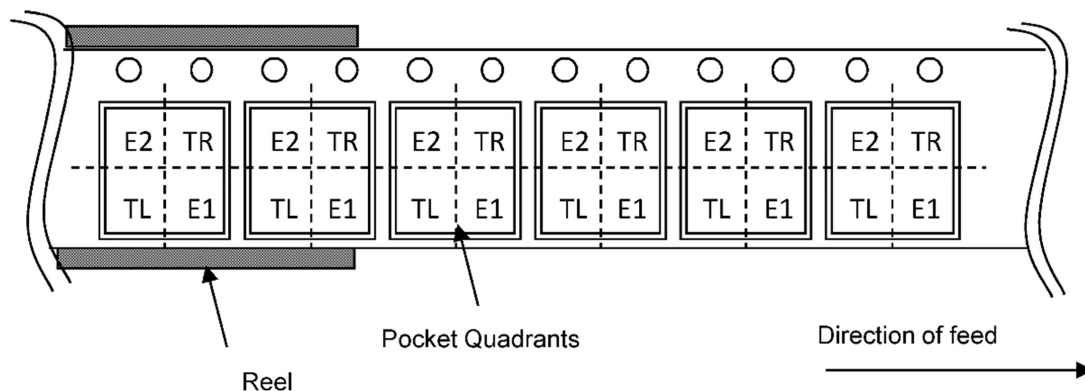


Fig.1 Quadrant Assignments for PIN 1 Orientation in Tape

E2 : PIN1 is placed to the top left corner.      TR : PIN1 is placed to the top right corner.  
 TL : PIN1 is placed to the lower left.          E1 : PIN1 is placed to the lower right.

3.2 Use material

Item	Material
Embossed carrier tape	PS (antistatic)
Cover tape	PET+PE (antistatic)
Reel	PS (antistatic)
Unit box	Cardboard
Shipping box	Cardboard

3.3 Leader specification

No component pockets are 90 pockets ( 360 mm) or more.

3.4 Trailer specification

No component pockets are 10 pockets ( 40 mm) or more. Tape is free from reel.

3.5 Peelback strength

Cover tape peelback strength is 0.2 N to 0.7 N.

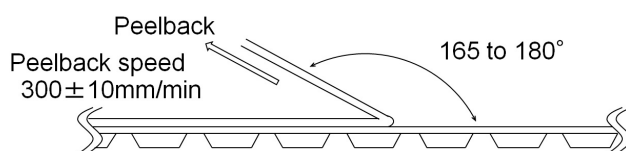


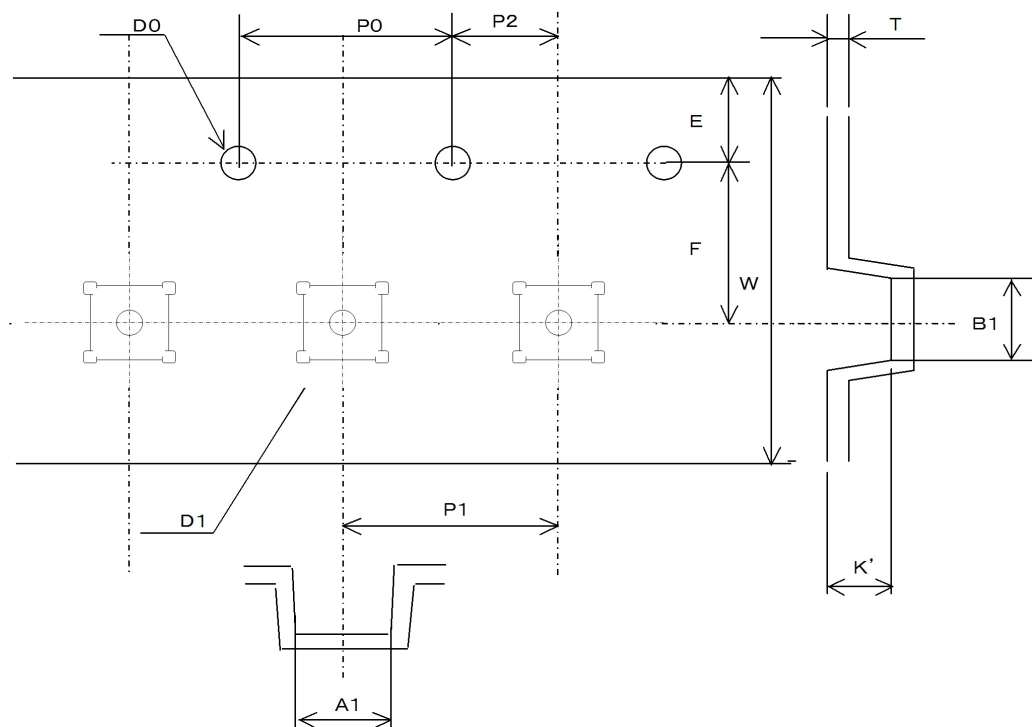
Fig.2 Test method

3.6 Missing ICs

- (1) No consecutive dropouts.
- (2) A maximum 0.1 % of specified number of products in each packing may be missing.

3.7 Tape and Reel Specification

3.7.1 Tape Dimension

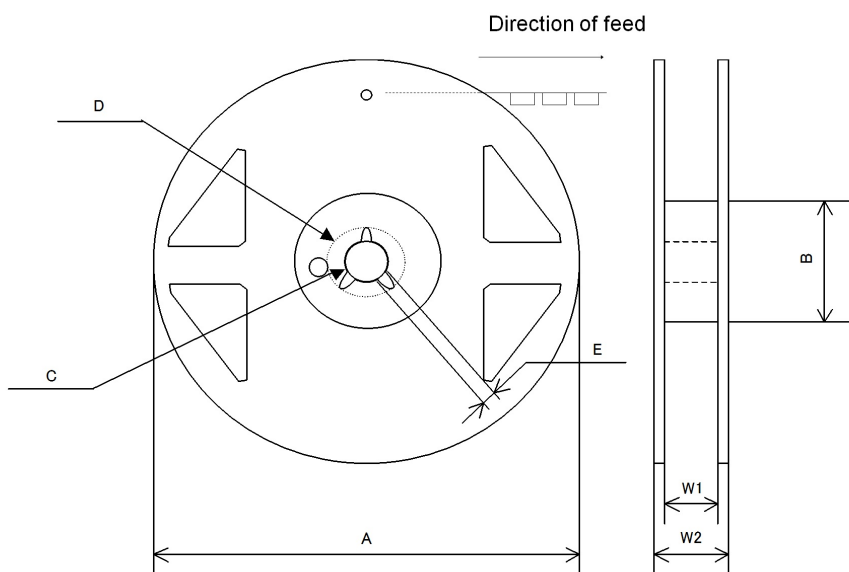


Symbol	Dimension	Tolerance
A1	1.04	±0.1
B1	1.04	±0.1
D0	φ 1.5	+0.1 -0
D1	φ 0.5	±0.1
E	1.75	±0.1
F	3.5	±0.1
K'	0.75	±0.1
P0	4.0	±0.1
P1	4.0	±0.1
P2	2.0	±0.1
T	0.25	±0.05
W	8.0	±0.3

(mm)



3.7.2 Reel Dimension

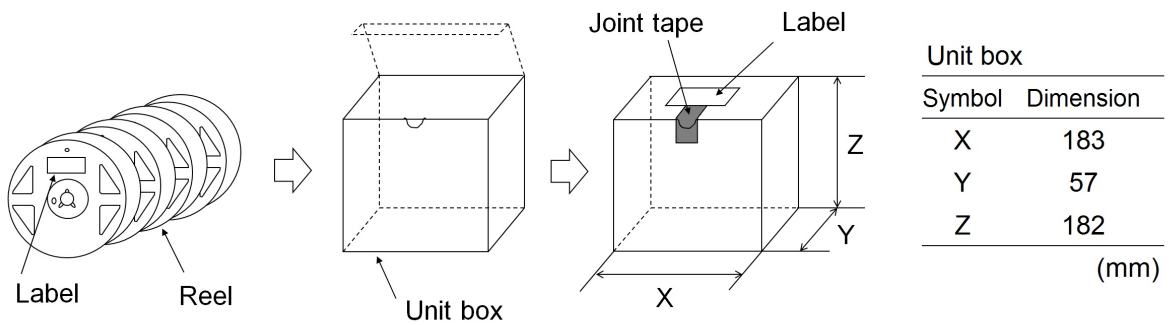


Symbol	Dimension	Tolerance
A	$\phi 180$	+0 -1.5
B	60	MIN
C	$\phi 13.0$	$\pm 0.2$
D	$\phi 20.2$	MIN
E	1.5	MIN
W1	9.0	+1.0 -0
W2	11.4	$\pm 1.0$

(mm)

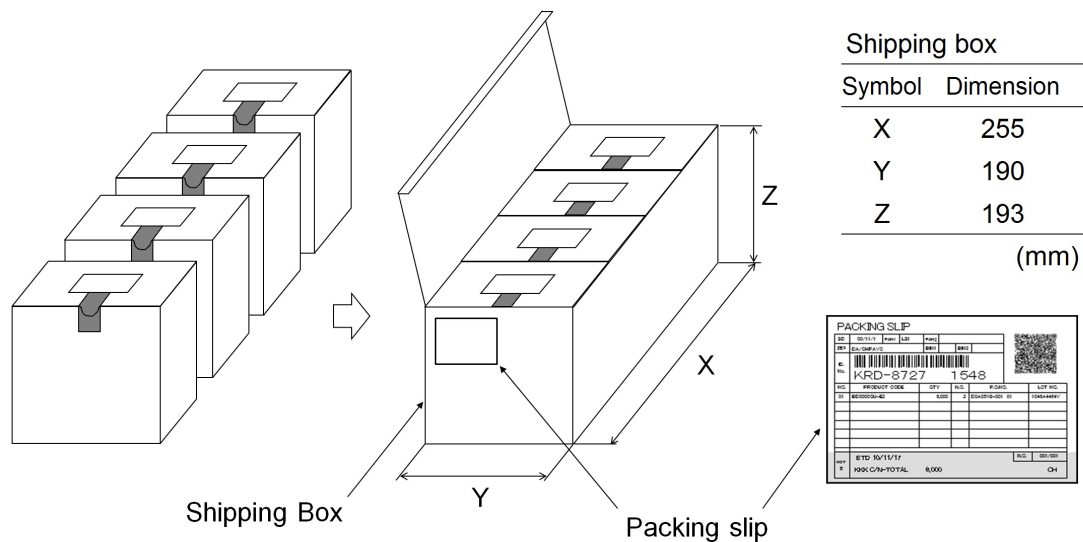
3.8 Packing Method

4 reels or less per unit box.



3.9 Packing Style

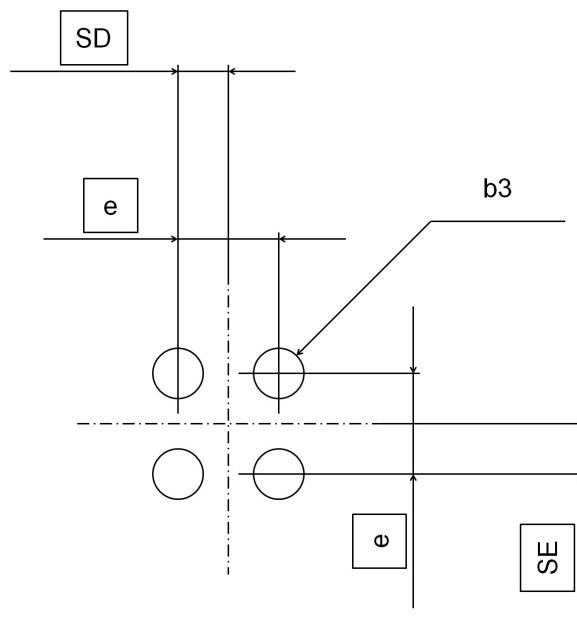
4 unit boxes or less per shipping box.



3.10 Label Specification



4. Footprint dimensions

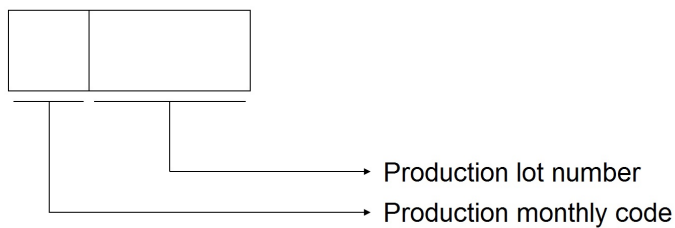


Symbol	Reference Value
e	0.50
b3	0.25
SD	0.25
SE	0.25

(mm)

In actual design, please optimize in accordance with the situation of your board design and soldering condition.

5. Marking Specification



6. Storage conditions

6.1. Storage environment

Recommended storage conditions

	Min.	Max.	Unit
Temperature	5	30	°C
Humidity	40	70	% RH

6.2. Storage period

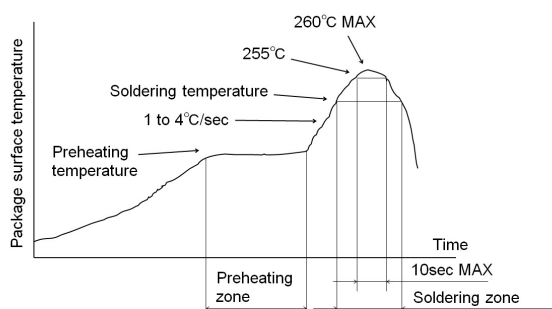
	Min.	Max.	Unit
Storage period	-	1	year

6.3. Specified storage period until soldering

This package does not require additional drying treatment as long as the moisture condition at the mounting process is within our recommended mounting condition.

7. Soldering conditions

7.1. Recommended temperature profile for reflow



Preheating temperature : 130°C to 190°C  
 Preheating zone : 120sec MAX  
 Soldering temperature : 220°C to 230°C  
 Soldering zone : 60sec MAX

(Notice)

Maximum 3-times soldering

7.2. About mounting with Sn-Pb solder paste

Mounting Sn-Pb solder paste is not recommended because it has a possibility of reducing reliability to connect with Sn-3.0Ag-0.5Cu solder balls.

7.3. The wave soldering method is not supported.

7.4. Partial heat supply method (by soldering iron) is not supported.



## 8. Precautions

### 8.1. Caution for handling

Silicon substrate surface is exposing to the side of this package.

Therefore, please pay careful attention to chip and crack, and handle without touching the side of package.

### 8.2. Regarding the underfill material

In some case, the underfill material is applied in order to reinforce the solder junction of package.

Since there is a case that solder joint reliability may deteriorate according to the resin material or coating condition, please evaluate it sufficiently for its application.

In term of the coating condition, it is preferable that there is an enough material beyond the each four sides of package.

<Preferable example>



There is a Underfill resin evenly at each four sides.

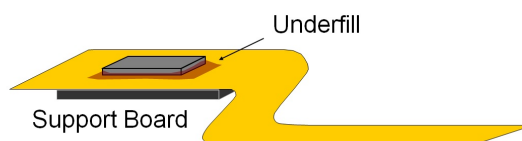
<Non Preferable example>



There is little Underfill resin at one or two sides.

### 8.3. Mounting on Flexible film

Since film bending stress may occur open failure of solder junction, usage of support board or under fill is recommended.



### 8.4. Regarding the jisso form

When it is used under the special conditions such as embedded PCB, please evaluate it sufficiently for its application.

### 8.5. Regarding the solder terminal

Due to the solder terminal of this package is formed by screen printing method, there may be void observed inside of terminal. Although the void after mounting may not affect solder joint reliability or strength, the size of the void may be increased depending on board and mounting condition, thus ROHM hereby states that the void after mounting will not be guaranteed.

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