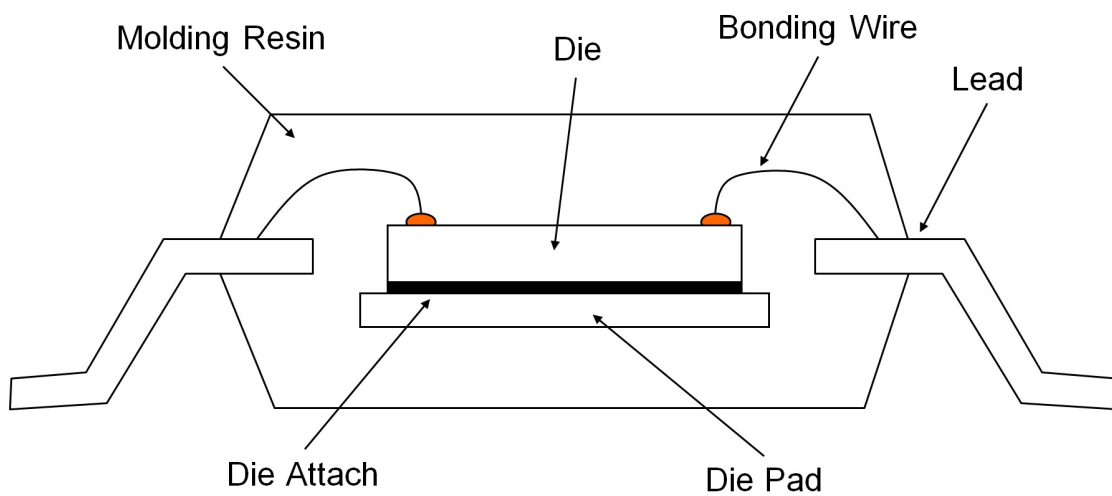


1. Package Information

Package Name	VQFP48C
Type	QFP
Pin Count	48
Outline Dimension	EX259-5001-1
Drawing No.	
Package Weight [g]	0.19
Lead Finish	Pure Tin
MSL Level	Level1

2. Package Structure



3. Packing Specification

3.1 Packing form, Quantity, PIN1 Orientation

Packing Form		Tape&Reel
Packing Quantity	[pcs]	1,500
PIN 1 Orientation		E2

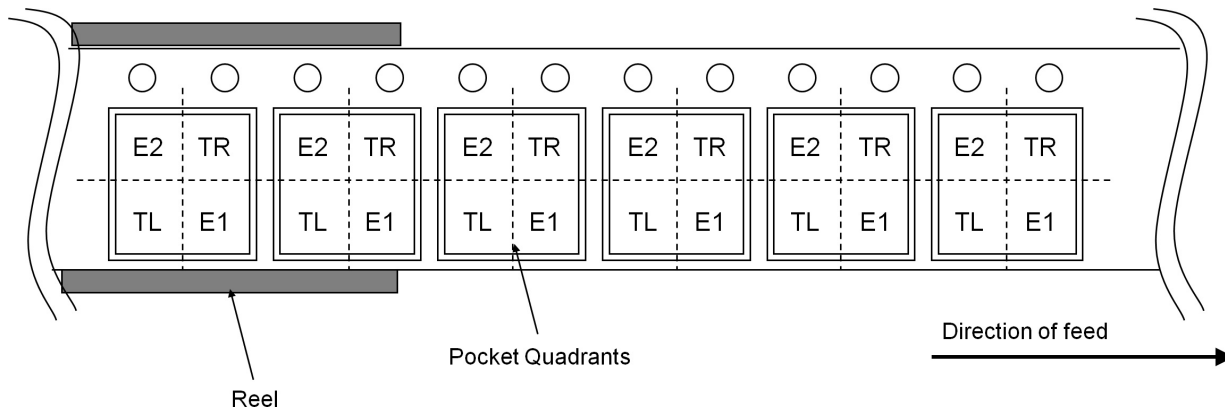


Fig.1 Quadrant Assignments for PIN 1 Orientation in Tape

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
Cover tape	PET+PE
Reel	PS
Air cap	PE
Unit box	Cardboard
Shipping box	Cardboard

3.3 Leader specification

No component pockets are 480 mm or more.

3.4 Trailer specification

No component pockets are 120 mm or more. Tape is free from reel.

3.5 Peelback strength

Cover tape peelback strength is 0.2 N to 0.7 N.

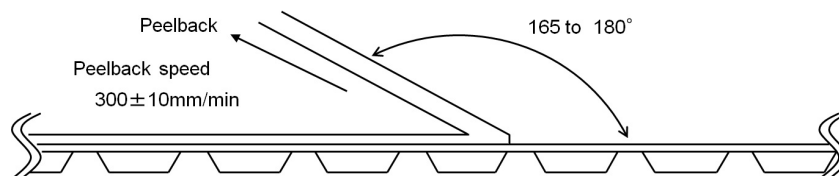


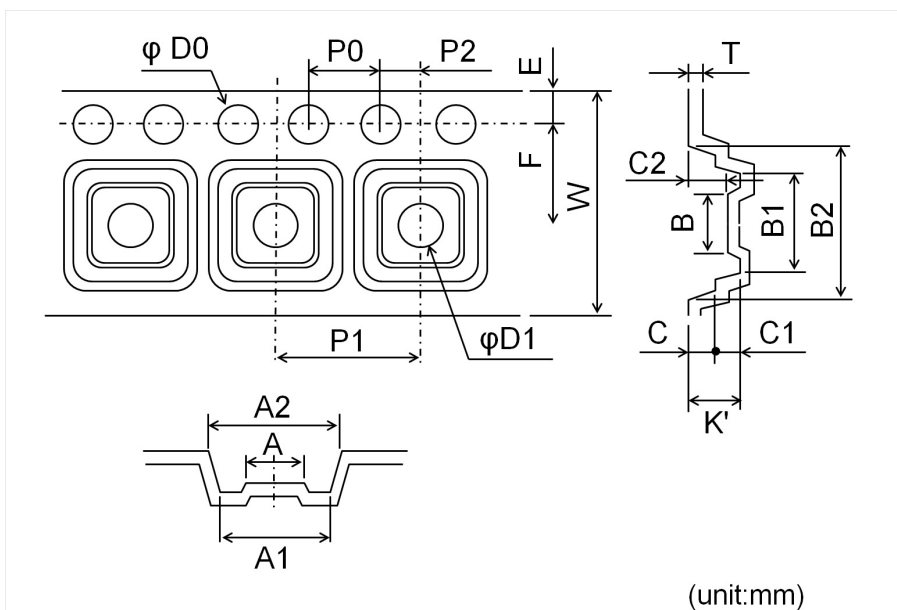
Fig. 2 Test method

3.6 Missing lcs

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

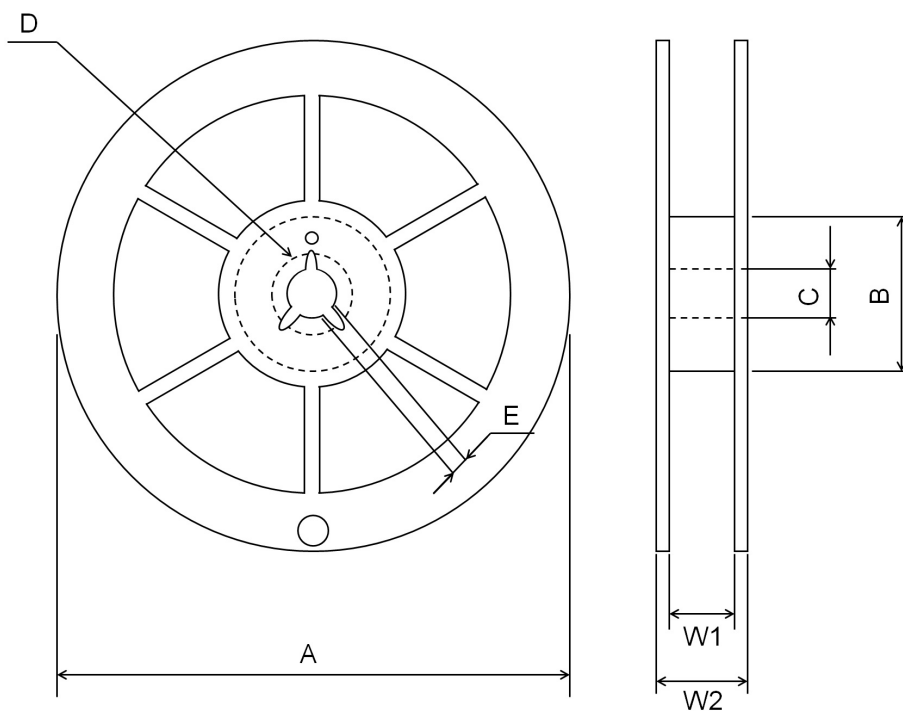
3.7 Tape and Reel Specification

3.7.1 Tape Dimension



	Tape Dimension	Tape Tolerance
A	6.00	-
A1	9.50	± 0.1
A2	9.80	± 0.1
B	6.00	-
B1	9.50	± 0.1
B2	10.8	± 0.1
C	0.80	-
C1	1.40	-
C2	1.70	± 0.1
D0	$\phi 1.5$	$+0.1/-0$
D1	$\phi 1.6$	$+0.1/-0$
E	1.75	± 0.1
F	7.50	± 0.1
K'	2.20	± 0.1
P0	4.00	± 0.1
P1	12.0	± 0.1
P2	2.00	± 0.1
T	0.30	± 0.05
W	16.0	± 0.3

3.7.2 Reel Dimension

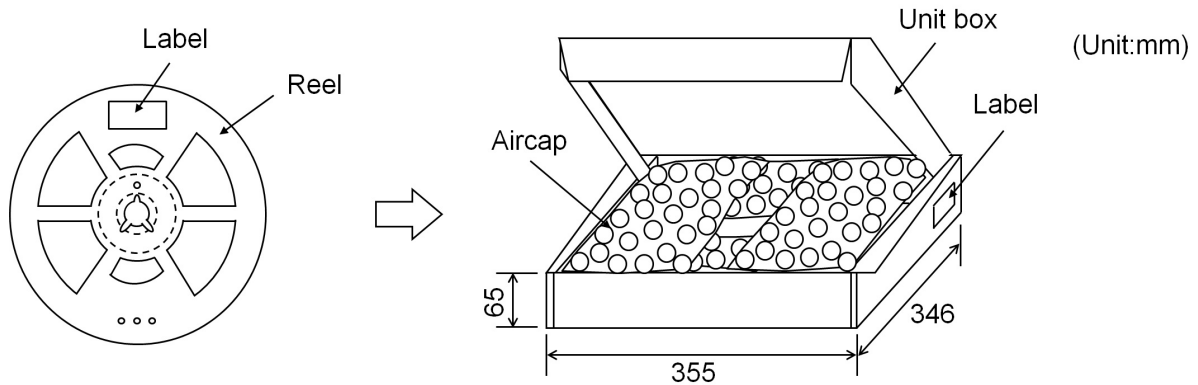


(unit:mm)

	Reel Dimension	Reel Tolerance
A	330	±2.0
B	80	±1.0
C	13	±0.2
D	21	±0.8
E	2	±0.5
W1	17.5	±1.0
W2	21.5	±1.0

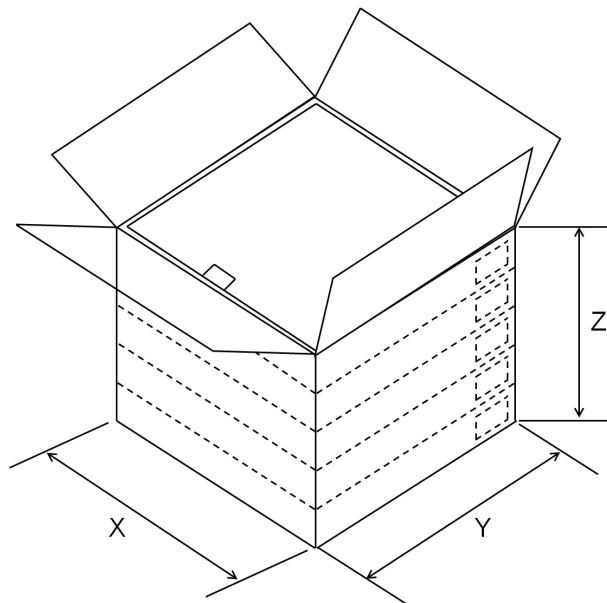
3.8 Packing Method

1 reel(s) or less per unit box



3.9 Packing Style

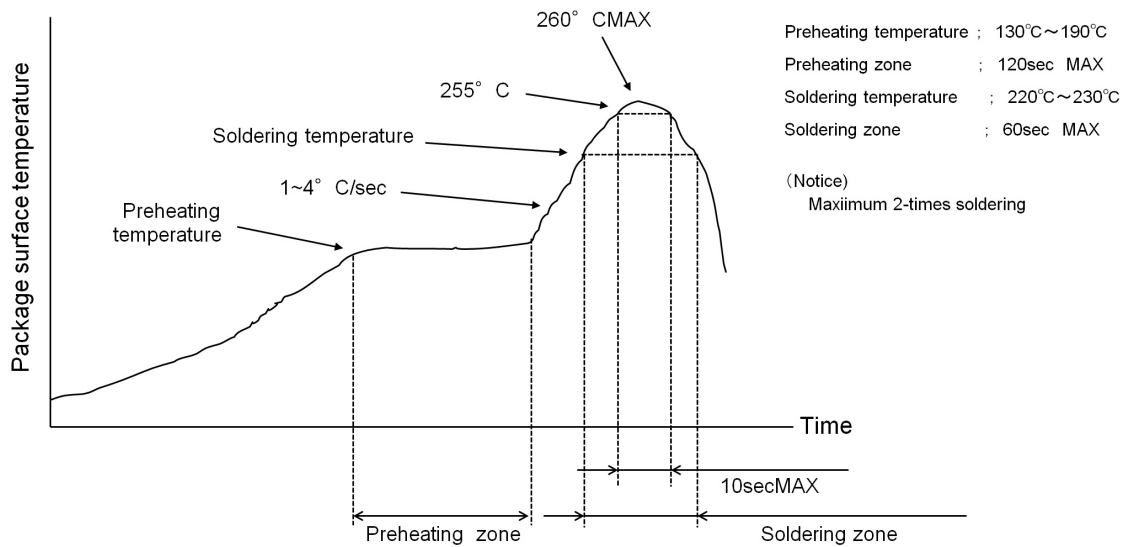
5 unit boxes or less per shipping box



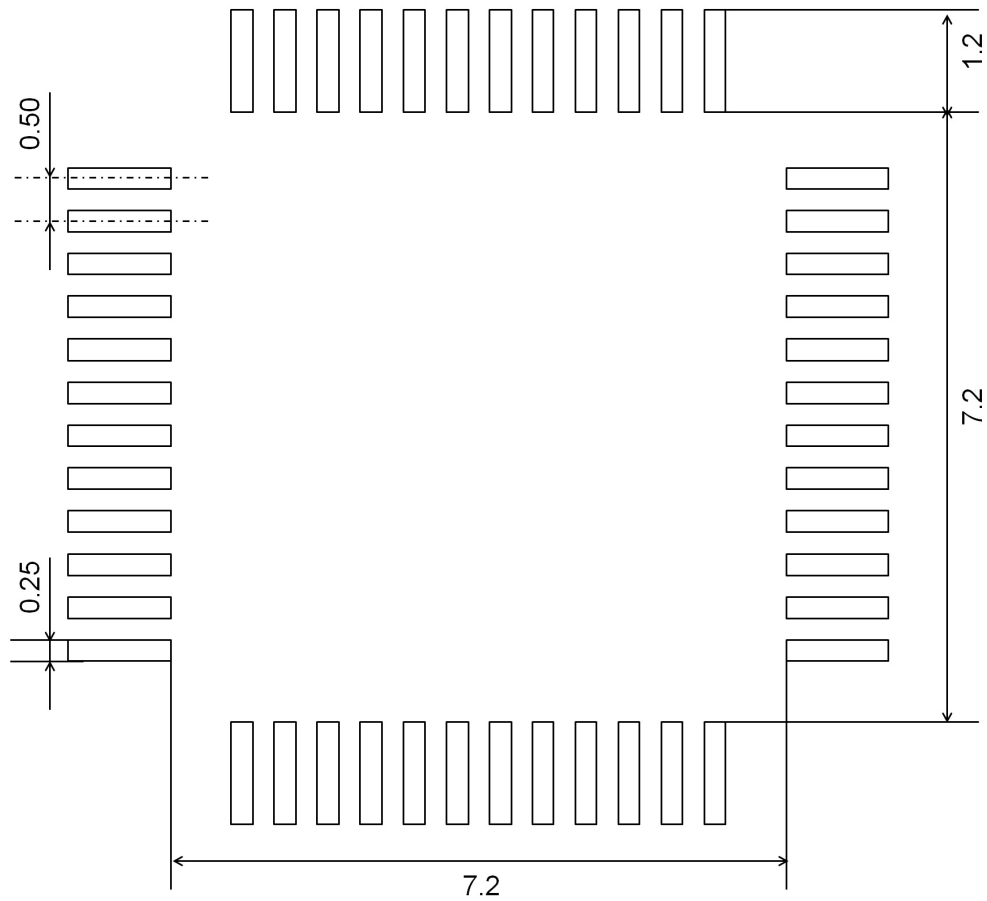
(unit:mm)

Shipping Box Dimension	
X	372
Y	368
Z	355

3.10 Label Specification



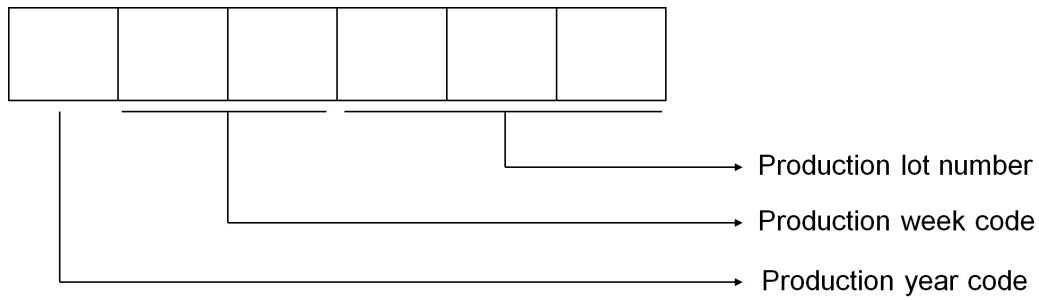
4. Footprint dimensions



(unit: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

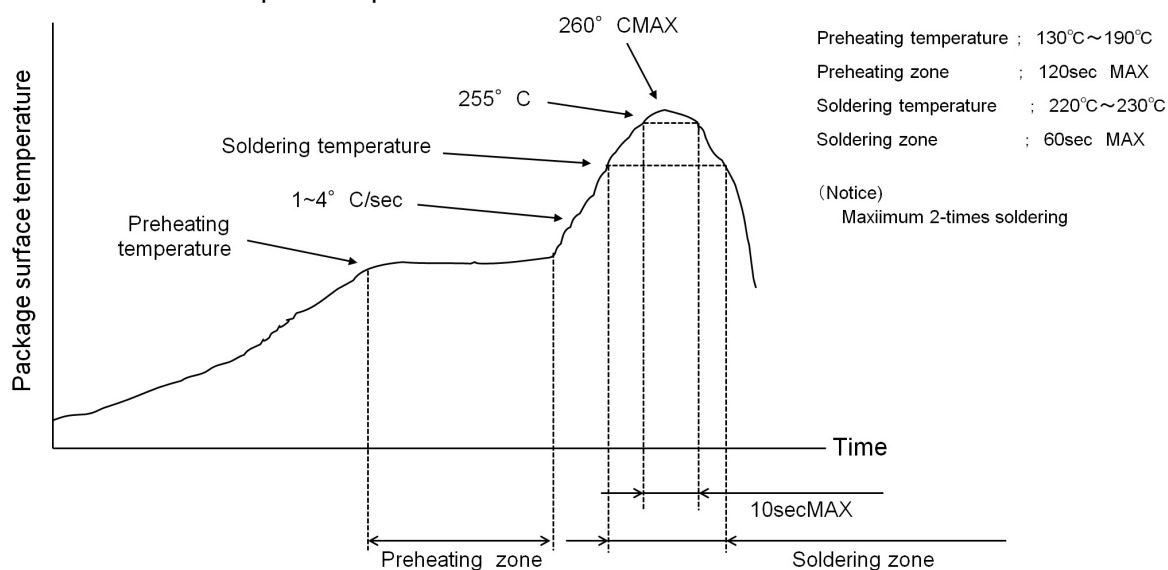
	Min.	Max.	Unit
Temperature	5	30	°C
Humidity	40	70	% RH

6.2 Storage period

	Min.	Max.	Unit
Storage period	-	1	year

7. Soldering conditions

7.1 Recommended temperature profile for reflow



7.2 Recommended condition for wave soldering

Preheating temperature	:	120 °C to 150 °C
Preheating time	:	60 sec MAX
Soldering temperature	:	260 °C ± 3 °C
Soldering time	:	12 sec MAX

Notes for wave soldering

- (1) Soldering time is provided for total soldering time in case of dual wave soldering.
- (2) Do not use other soldering methods with wave soldering.
- (3) Recommend to clean the board to eliminate flux, solder waste, and other impurities for reliability, after soldering.
- (4) Optimize soldering condition to prevent solder bridging.

7.3 Recommended condition for solder iron

Solder iron temperature	:	380 °C or less
Mounting time	:	4 sec or less

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- 3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.
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