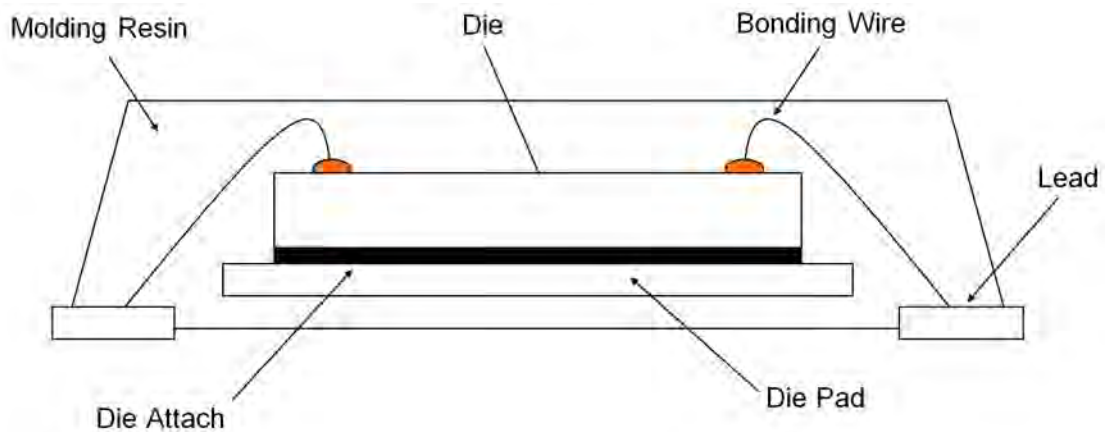


1. Package Information

Package Name	VQFN20
Type	QFN
Pin Count	20
Package Weight [g]	0.04
Lead Finish	Pure Tin
MSL	Level3

2. Package Structure



3. Packing Specification

3.1 Packing form, Quantity, PIN1 Orientation

Packing Form		Tape&Reel
Packing Quantity	[pcs]	2,500
PIN 1 Orientation		E2

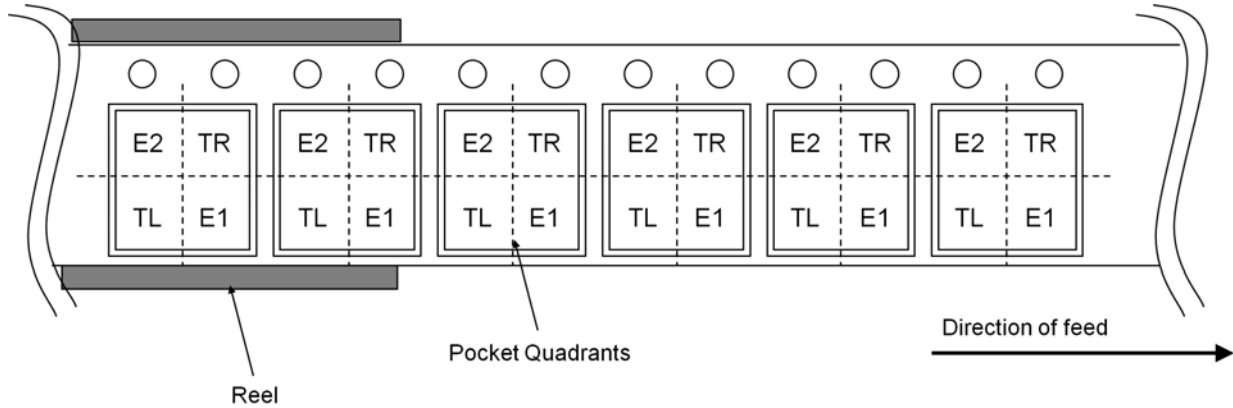


Fig.1 Quadrant Assignments for PIN 1 Orientation in Tape

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
Desiccant	Clay
Envelope	Aluminum-laminated
Unit box	Cardboard
Shipping box	Cardboard

3.3 Leader specification

No component pockets are 200 mm or more.

3.4 Trailer specification

No component pockets are 80 mm or more. Tape is free from reel.

3.5 Peelback strength

Cover tape peelback strength is 0.2 N to 0.7 N.

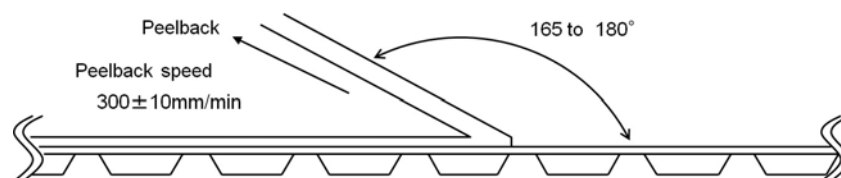


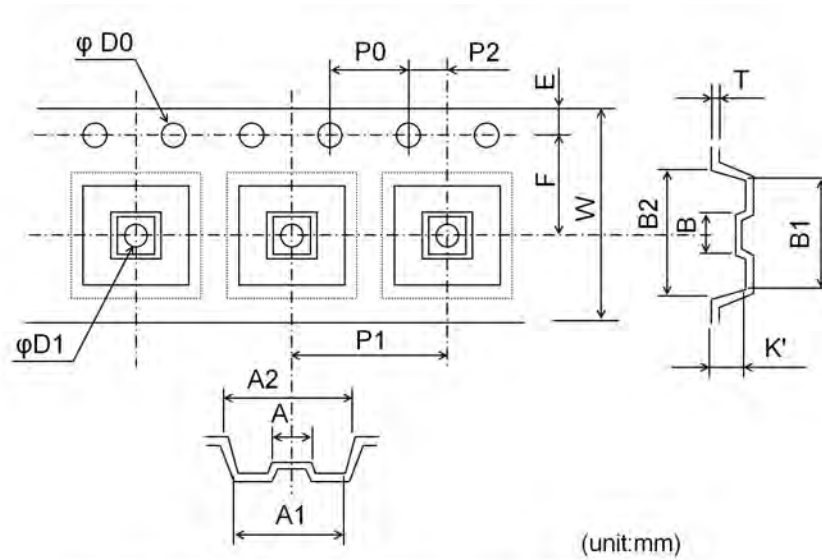
Fig. 2 Test method

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

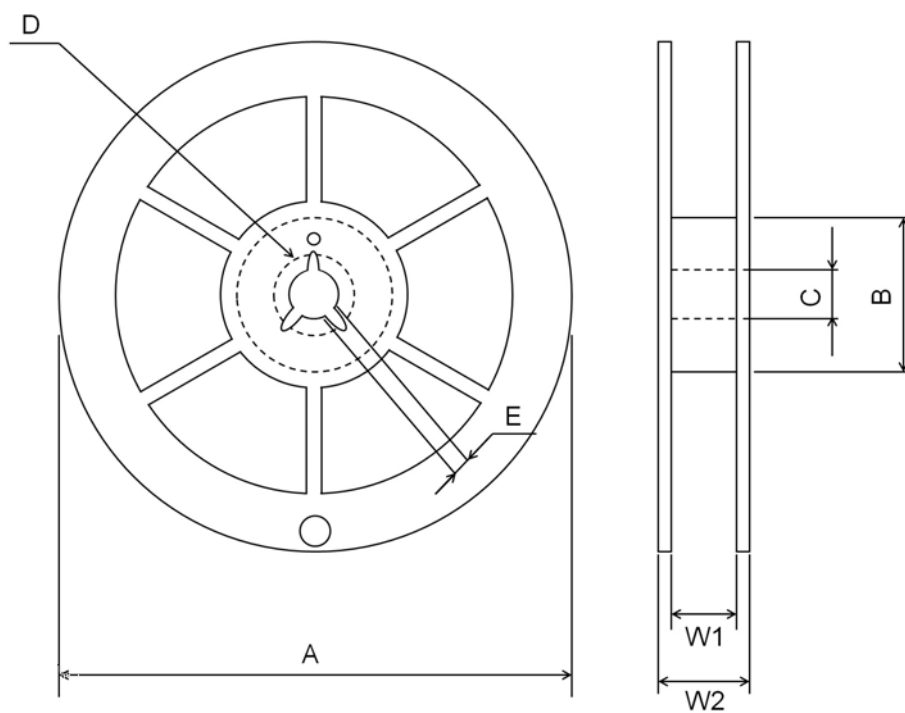
3.7.1 Tape Dimension



(unit:mm)

	Tape Dimension	Tape Tolerance
A	2.10	± 0.2
A1	4.46	± 0.1
A2	4.63	± 0.2
B	2.10	± 0.2
B1	4.46	± 0.1
B2	4.63	± 0.2
D0	$\phi 1.5$	+0.1/-0
D1	$\phi 1.0$	± 0.1
E	1.75	± 0.1
F	5.50	± 0.05
K'	1.60	± 0.2
P0	4.00	± 0.1
P1	8.00	± 0.1
P2	2.00	± 0.05
T	0.30	± 0.05
W	12.0	± 0.2

3.7.2 Reel Dimension

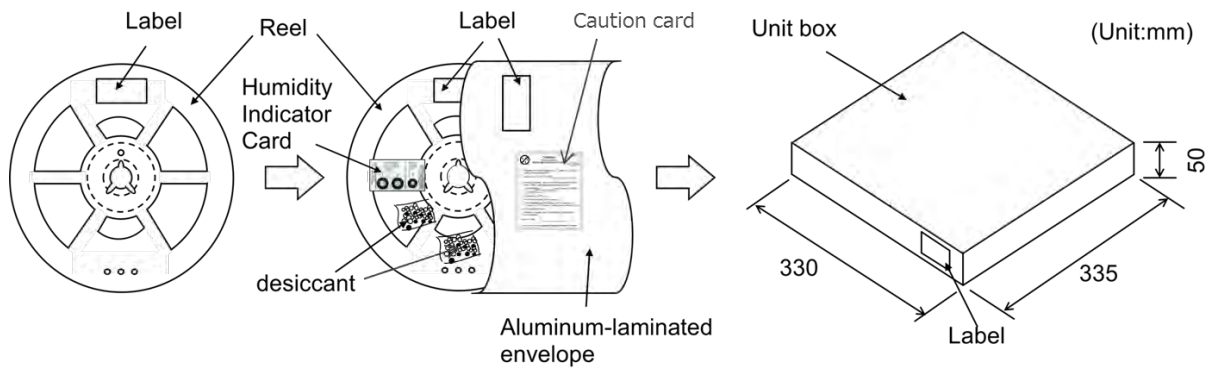


(unit:mm)

	Reel Dimension	Reel Tolerance
A	330	-
B	50	MIN
C	13	±0.2
D	20.2	MIN
E	1.5	MIN
W1	13.4	±1.0
W2	17.4	±1.0

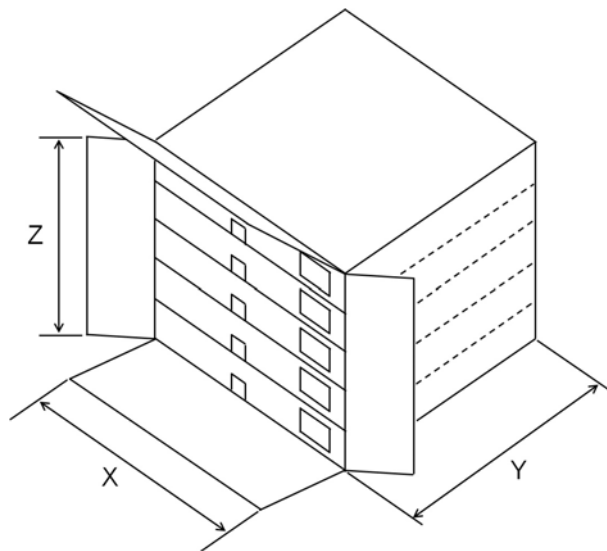
3.8 Packing Method

1 reel(s) or less per unit box



3.9 Packing Style

5 unit boxes or less per shipping box



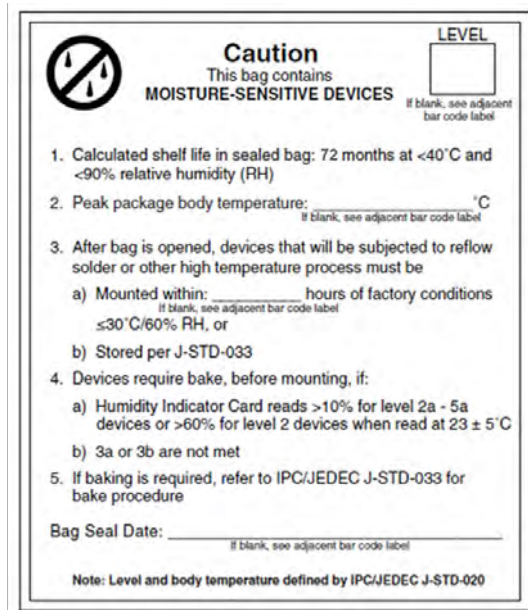
(unit:mm)

Shipping Box Dimension	
X	347
Y	353
Z	287

3.10 Label Specification

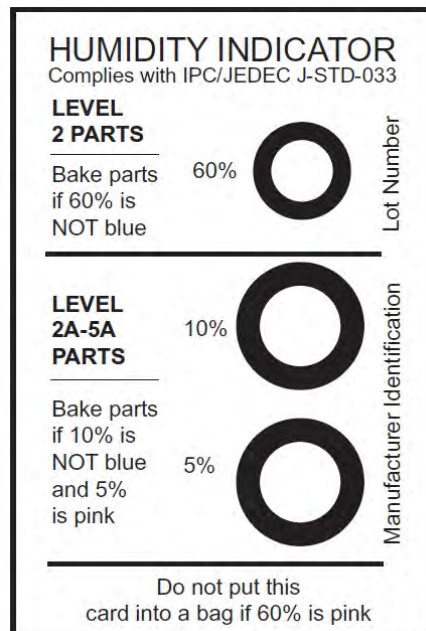


3.11 Caution card specification

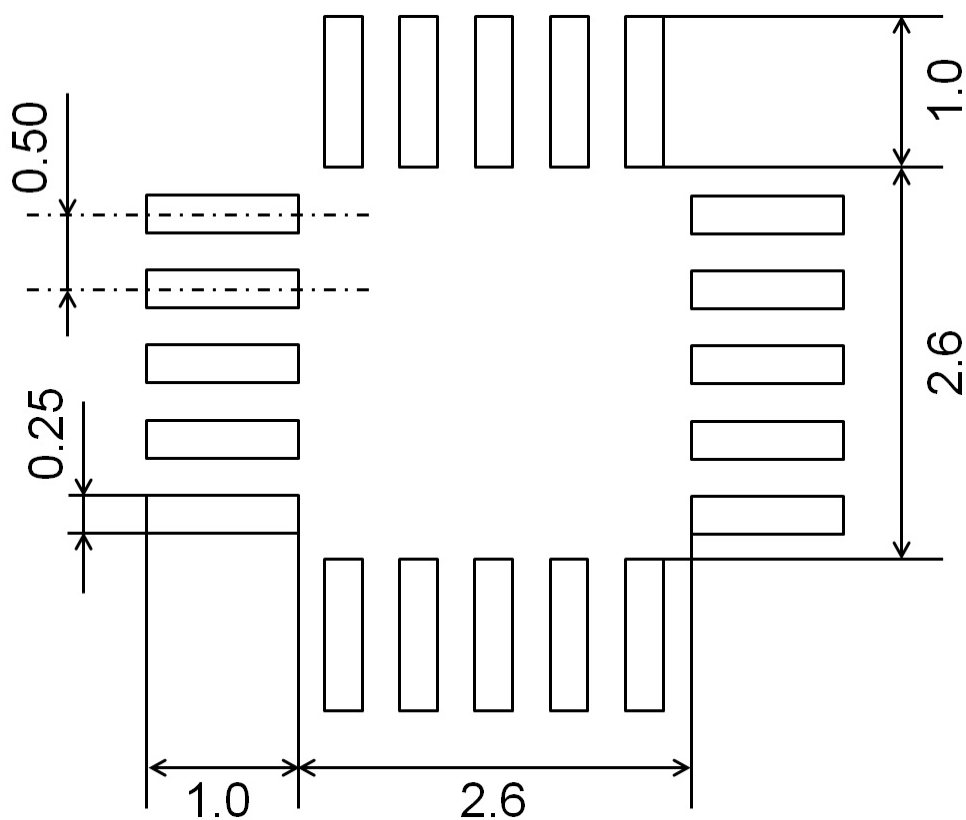


Remark) Standard item 1. calculated shelf life in caution card is not applied for MSL1 product.

3.12 Indicator card specification



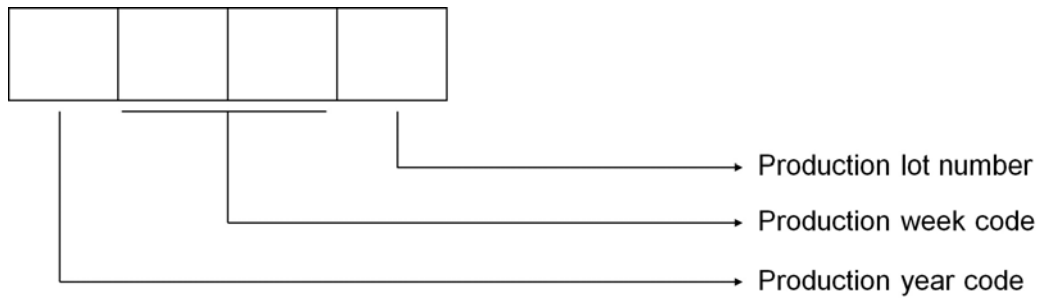
4. Footprint dimensions



(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	-	70	% RH

6.2 Storage period(Start to count since delivery date)

	Min.	Max.	Unit
Storage period	-	1	year

6.3 Specified storage period until soldering

	Min.	Max.	Unit
Acceptable time	-	168	h

The above value is a time from opening the moisture-proof packaging until the soldering. Cases where it is necessary to perform the drying process is the following.

Case 1 : in excess of the above-mentioned "Acceptable time"

Case 2 : it has passed more than 6 years not open

Recommended the dry process conditions

	Temperature [°C]	Time [h]
Reel (Note1)	60	72
Other Heat-proof container	125	24

(Note1) When carrying out the dry process in a "Reel" state, the peelback strength will change. Please refer to the following values:

	Min.	Max.	Unit
Peelback strength	0.2	0.9	N

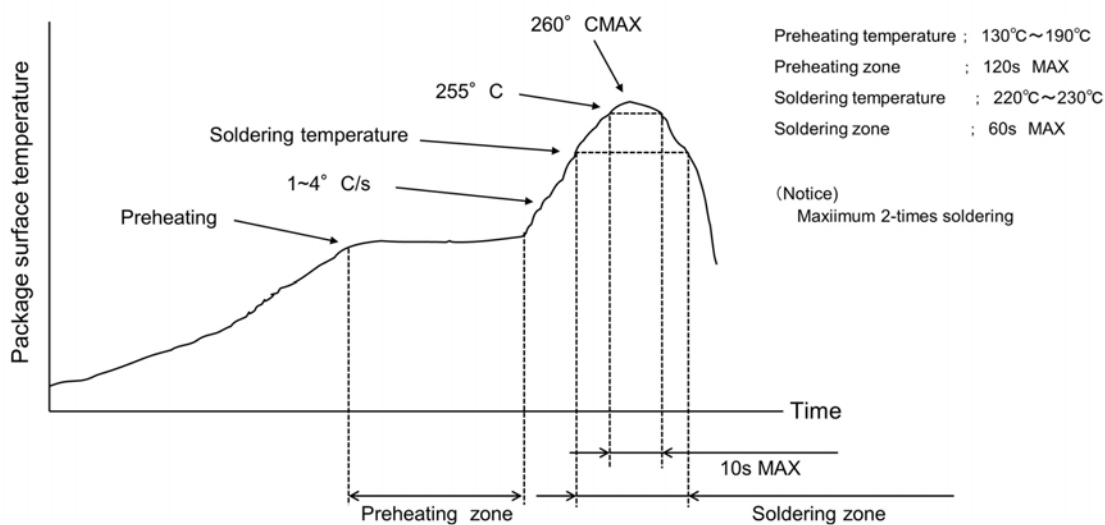
The drying process is the impact on the solderability because the oxidation of the terminal portion will occur. Therefore, specify the maximum times of the dry processing as follows:

Recommended execution count of the dry process

		Unit
Reel	1	times
Other Heat-proof container	2	times

7. Soldering conditions

7.1 Recommended temperature profile for reflow

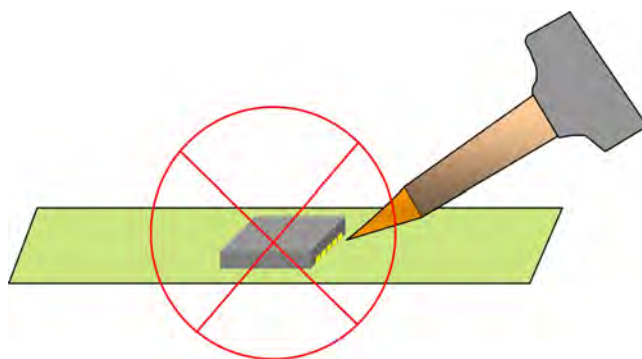


7.2 For wave soldering

The wave soldering method is not supported.

7.3 For solder iron

Rework by soldering iron is not allowed or it may cause mold crack and terminal open.



7.4 Caution for solder mounting

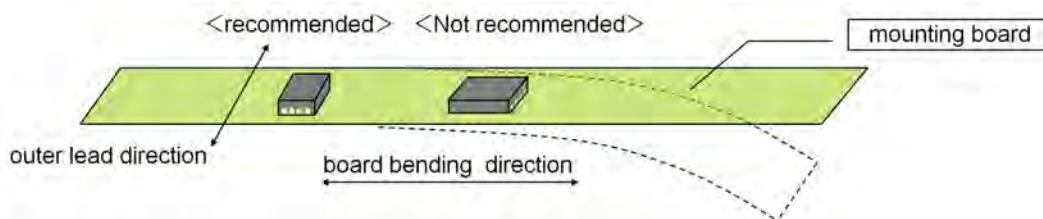
7.4.1 For mounting on flexible film

Mounting on flexible film, film bend may occur lack of lead from package, usage of support board and under fill is recommended.



7.4.2 For Mounting long and narrow board

Mounting on long and narrow board, bending stress may occur a lack of lead from package, bending board direction and outer lead direction is recommended as drawing (vertically layout) and under fill usage is recommended.



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