

## Package : VQFN

< A table of contents >

1. Structure and materials	1/4 page
2. Tape and Reel information	1/4 to 3/4 page
3. Storage conditions	3/4 page
4. Marking lot number	3/4 page
5. Footprint dimensions	3/4 page
6. Soldering conditions	3/4 to 4/4 page

### 1. Structure and materials

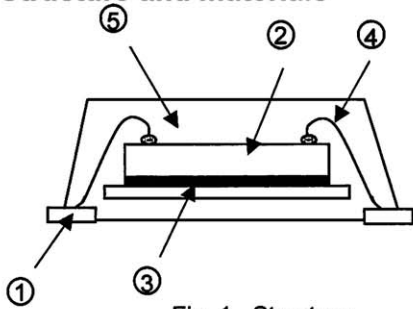


Fig. 1 Structure

No.	Item	Materials
①	Lead Frame	Cu-Alloy (External lead : Pb free solder plating)
②	Die	Silicon
③	Die Attach	Ag Paste
④	Wire	Au
⑤	Molding	Epoxy Resin

### 2. Tape and Reel information

#### 2. 1. Packing specification

Tape	Embossed carrier tape with dry pack
Quantity	See the table on page 4/4
Direction of feed	E2 (See Fig. 2)

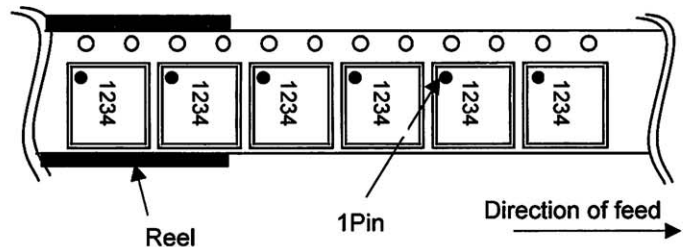


Fig. 2 Typical Tape and Reel configuration

#### 2. 2. Tape and Reel specification

##### 2. 2. 1. Tape and reel dimensions ( See the table on page 4/4 )

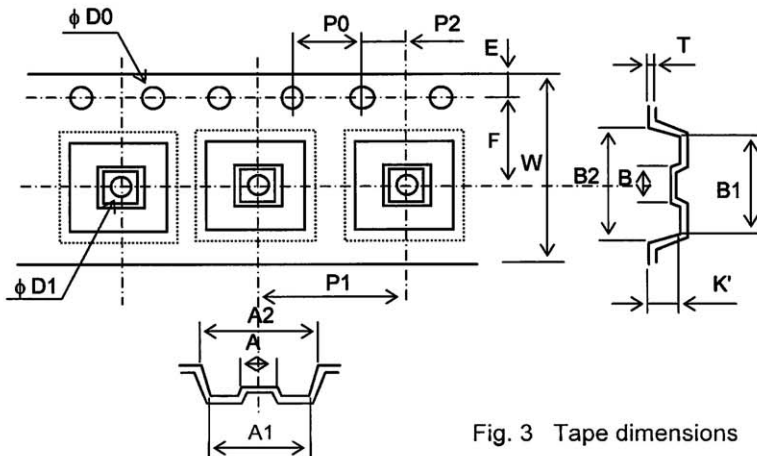


Fig. 3 Tape dimensions

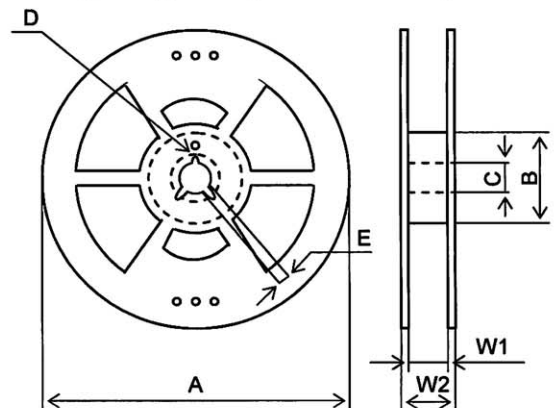


Fig. 4 Reel dimensions

2. 8. 2. Missing lcs

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

3. Storage conditions

3. 1. Storage environment

Recommended storage conditions are as follows :

- Temperature : 5 to 30°C
- Humidity : 40 to 70% RH

3. 2. Storage period

-Specified storage period : 1 year

3.3. Specified storage period until soldering

Regarding the dry packed packages , assemble package within 24hours , after dry pack is opened .

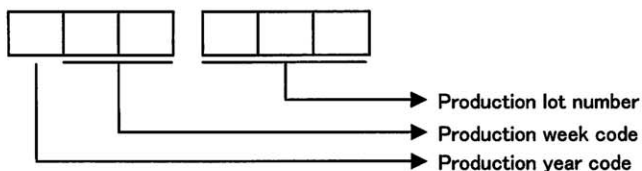
If the storage period has expired , the products must be baked 125°C for 24hours.

Maximum 2times baking for keeping solderability.

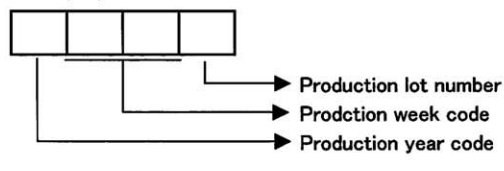
Execute baking by 60°C/48hours while put in the embossed tape.

4. Marking lot number

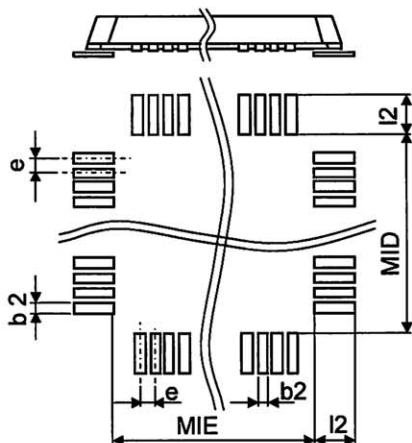
VQFN36



VQFN16,20,28



5. Footprint dimensions (Optimize footprint dimensions to the board design and soldering condition)



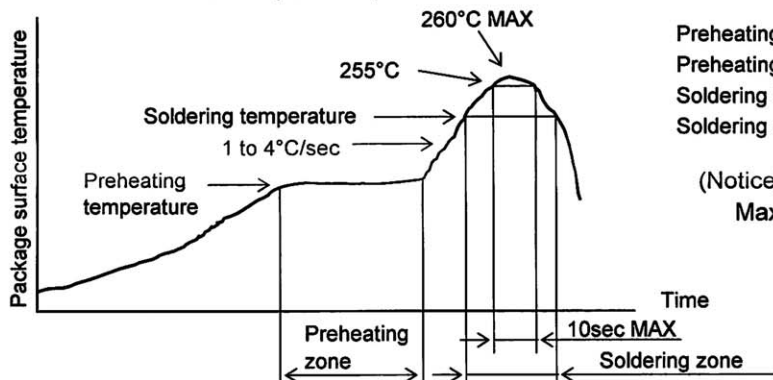
(all dimensions in mm)

Package	Land pitch e	Land space MIE	Land space MID	Land length ≥ l2	Land width b2
VQFN16,20	0.5	2.6	2.6	1.10	0.25
VQFN28	0.5	3.6	3.6	1.10	0.25
VQFN36	0.5	4.6	4.6	1.10	0.25

• The lead toe and lead side fillet may not be achieved because of non-lead packages.

6. Soldering conditions

6. 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 2-times soldering

2. 3. Leader and Trailer

2. 3. 1. Leader

No component pockets are 40 pockets or more.

2. 3. 2. Trailer

No component pockets are 10 pockets or more.

Tape is free from reel.

2. 4. Label for Reel and Box

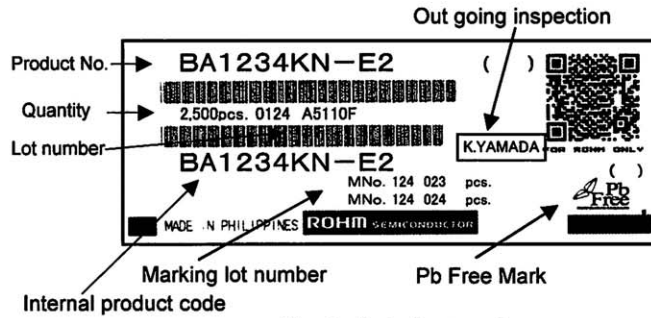


Fig. 5 Label example

2. 5. Packing style

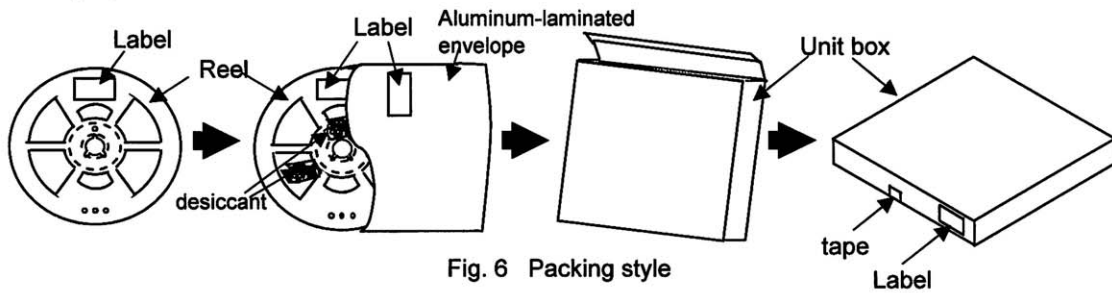


Fig. 6 Packing style

2. 6. Shipping style

5 unit boxes or less per shipping box

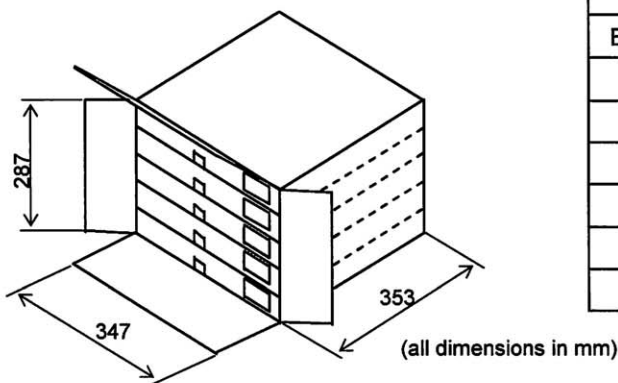


Fig. 7 Shipping box dimensions and Shipping style

2. 7. Packing materials

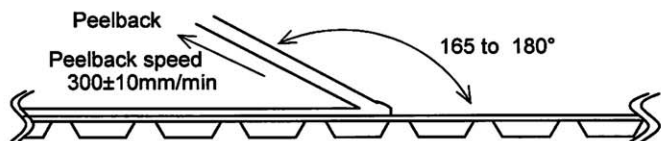
Item	Material
Embossed carrier tape	PS
Cover tape	PET + PE
Reel	PS
Desiccant	Silicagel
Envelope	Aluminume-laminated
Unit box	Cardboard
Shipping box	Cardboard

2. 8. Others

2. 8. 1. Peelback strength

Cover tape peelback strength is 0.2 to 0.7N.

Fig. 8 Test method



6. 2. The wave soldering method is not supported.

< Tape dimensions >

Package	Quantity (pcs)	Tape dimensions (all dimensions in mm)															
		A	B	A1	B1	A2	B2	D0	D1	E	F	K'	P0	P1	P2	T	W
VQFN16	2500	2.1	2.1	4.46	4.46	4.63	4.63	φ1.5	φ1.0	1.75	5.5	1.6	4.0	8.0	2.0	0.3	12.0
VQFN20	2500	2.1	2.1	4.46	4.46	4.63	4.63	φ1.5	φ1.0	1.75	5.5	1.6	4.0	8.0	2.0	0.3	12.0
VQFN28	2500	3.1	3.1	5.46	5.46	5.63	5.63	φ1.5	φ1.5	1.75	5.5	1.6	4.0	8.0	2.0	0.3	12.0
VQFN36	2500	4.1	4.1	6.46	6.46	6.63	6.63	φ1.5	φ1.5	1.75	5.5	1.6	4.0	8.0	2.0	0.3	12.0
Tolerance		±0.2	±0.2	±0.1	±0.1	±0.2	±0.2	$\begin{smallmatrix} +0.1 \\ -0 \end{smallmatrix}$	$\begin{smallmatrix} +0.1 \\ -0 \end{smallmatrix}$	±0.1	±0.1	±0.2	±0.1	±0.1	±0.1	±0.05	±0.3

< Reel dimensions >

Package	Reel dimensions (all dimensions in mm)							
	A	B	C	D	E	W1	W2	
VQFN16	φ330	50	13.0	20.2	1.5	13.4	17.4	
VQFN20	φ330	50	13.0	20.2	1.5	13.4	17.4	
VQFN28	φ330	50	13.0	20.2	1.5	13.4	17.4	
VQFN36	φ330	50	13.0	20.2	1.5	13.4	17.4	
Tolerance		-	MIN	±0.2	MIN	MIN	±1.0	±1.0

< Dehydrated weight >

Dehydrated weight dimensions in g
0.03
0.04
0.05
0.08

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