

## Package : VQFNxxxV6060/7070/8080 series

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### 1. Structure and materials

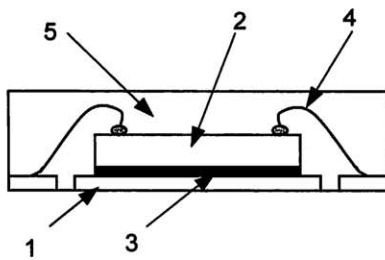


Fig. 1 Structure

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
Quantity	See the table on page 5/5
Direction of feed	E2(See Fig. 2)

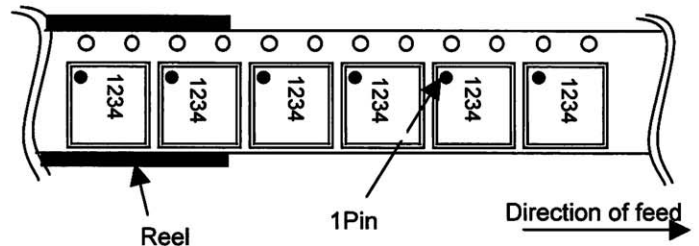


Fig. 2 Typical Tape and Reel configuration

#### 2.2. Tape and Reel specification

##### 2.2.1. Tape and reel dimensions (See the table on page 5/5)

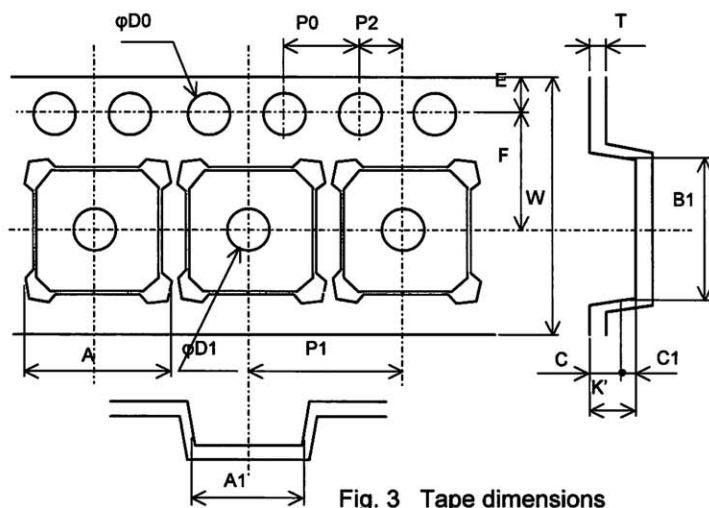


Fig. 3 Tape dimensions

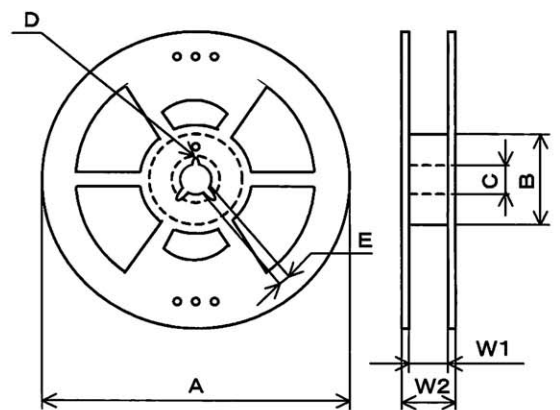


Fig. 4 Reel dimensions

2.3. Leader and Trailer

2.3.1. Leader

No component pockets are 25 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

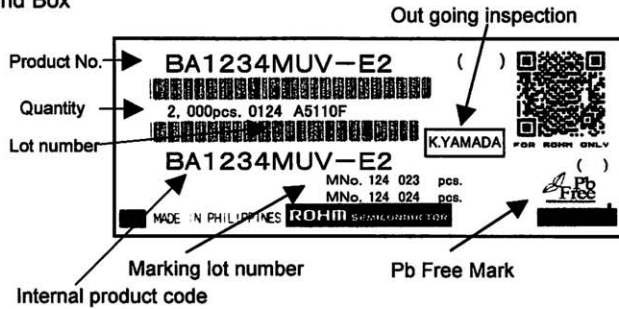


Fig. 5 Label example

2.5. Packing style

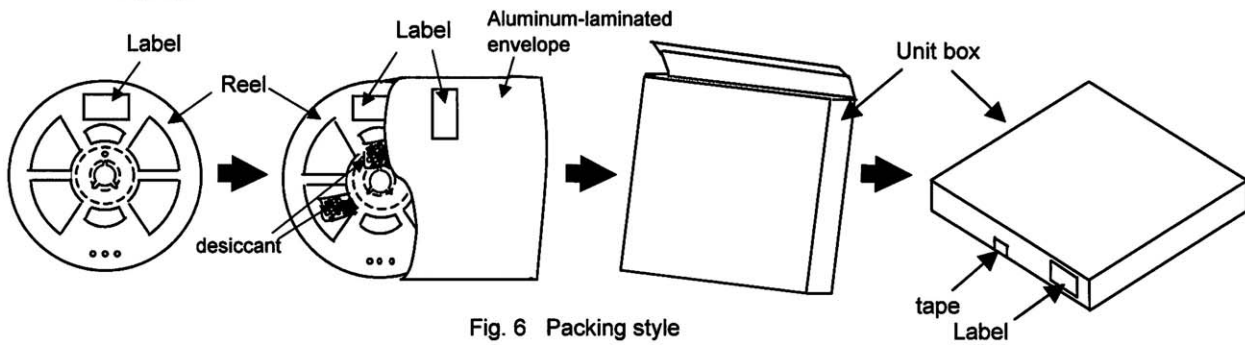
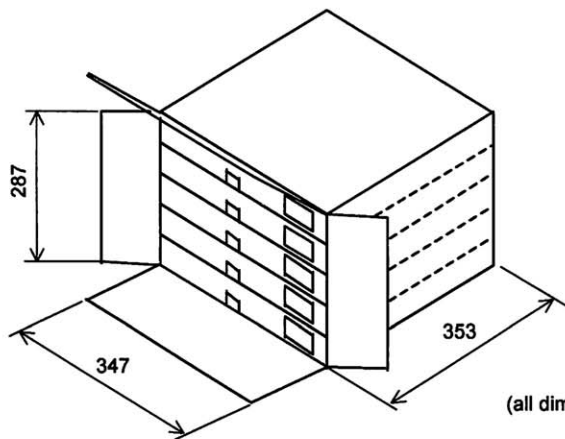


Fig. 6 Packing style

2.6. Shipping style

5 unit boxes or less per shipping box



(all dimensions in mm)

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 0.2~0.7N.

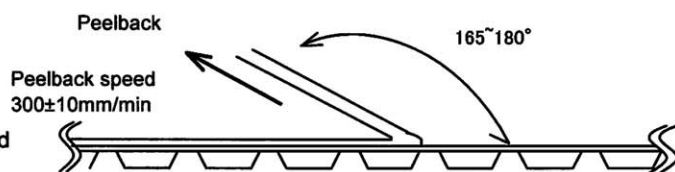


Fig. 8 Test method

2.8.8.Missing ICs

- (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 :5to30°C
- Humidity :40to70 RH

3.2.Storage period

- Specified storage period :1year

3.3.Specified storage period until soldering

Dry process before mounting is necessary in the following two case.

- 1.After the package is opened , the product is left unused over 168 hours.
- 2.Before the package is opened , the product is left in the package unused over 1 year.

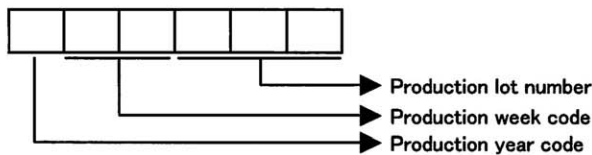
Please execute dry processing in a reel state with 60°C for 72 hours.

At this time, peelback strength of cover tape become 0.2N -0.9N.

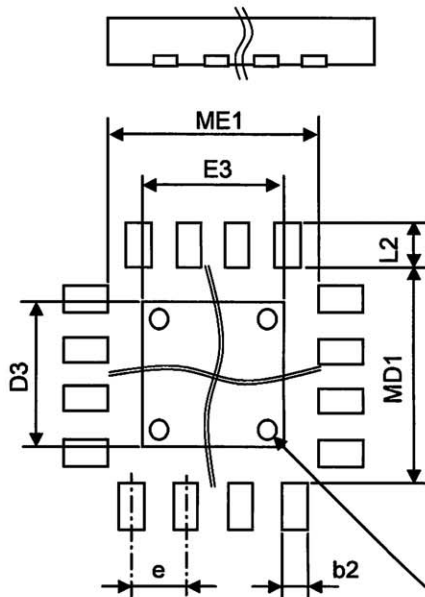
Case of transferring to heatproof container such as trays, execute dry processing with 125°C for 24 hours.

In addition, the dry processing should be max, 2 times due to influence on the product's solderability.

4.Marking lot number



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



(all dimensions in mm)

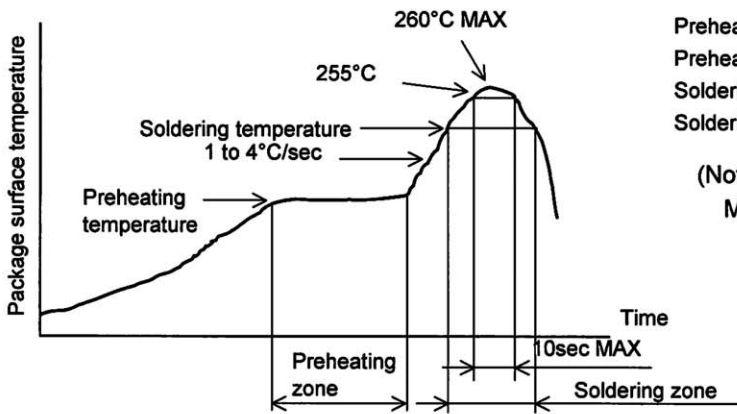
Package	Land pitch e	Land			
		space		length	width
		MD1	ME1	L2	b 2
VQFN040V6060	0.50	5.00	5.00	0.80	0.27
VQFN048V7070	0.50	6.00	6.00	0.80	0.27
VQFN48AV7070	0.50	6.00	6.00	0.80	0.27
VQFN48SV7070	0.50	6.00	6.00	0.80	0.27
VQFN56AV8080	0.50	7.00	7.00	0.80	0.27

Package	Radiation land		Thermal Via	
	length	width	Pitch	Diameter
	D3	E3		
VQFN040V6060	4.00	4.00	1.2	φ0.300
VQFN048V7070	5.00	5.00	1.2	φ0.300
VQFN48AV7070	3.50	3.50	1.2	φ0.300
VQFN48SV7070	3.50	3.50	1.2	φ0.300
VQFN56AV8080	3.70	3.70	1.2	φ0.300

\*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

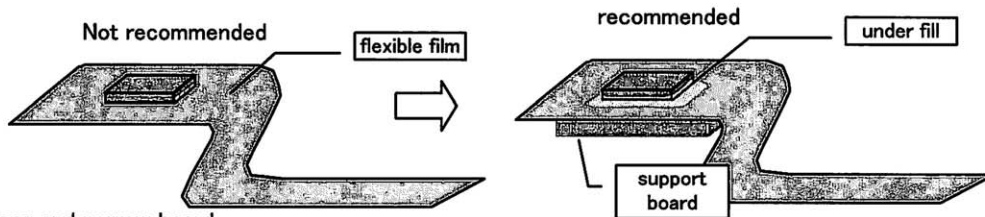
(Notice)  
Maximum 2-times soldering

6.2.The wave soldering method is not supported.

6.3 Notice information of board mounting

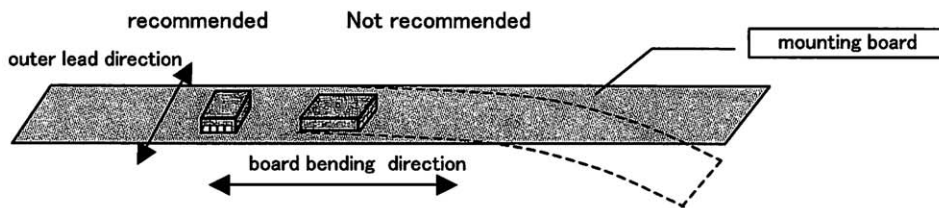
Mounting on flexible film

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

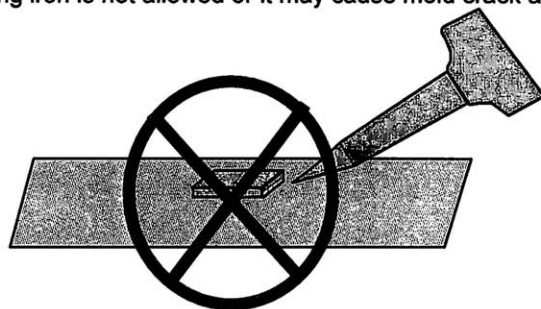


Mounting on long and narrow board

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.



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



(Tape dimensions)

Package	Quantity	Tape dimensions (all dimensions in mm)													
	(pcs)	A1	B1	C	C1	D0	D1	E	F	K'	P0	P1	P2	T	W
VQFN040V6060	2000	6.2	6.2	(1.15)	(0.65)	φ1.5	φ1.5	1.75	5.5	1.80	4.0	8.0	2.0	0.3	12.0
VQFN048V7070	1500	7.2	7.2	(1.15)	(0.65)	φ1.5	φ1.5	1.75	7.5	1.80	4.0	12.0	2.0	0.3	16.0
VQFN48AV7070	1500	7.2	7.2	(1.15)	(0.65)	φ1.5	φ1.5	1.75	7.5	1.80	4.0	12.0	2.0	0.3	16.0
VQFN48SV7070	1500	7.2	7.2	(1.15)	(0.65)	φ1.5	φ1.5	1.75	7.5	1.80	4.0	12.0	2.0	0.3	16.0
VQFN56AV8080	1000	8.2	8.2	(1.15)	(0.65)	φ1.5	φ1.5	1.75	7.5	1.80	4.0	12.0	2.0	0.3	16.0
Tolerance		±0.05	±0.05	-	-	+0.1/0	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.05	±0.3

(Reel dimensions )

Package	Reel dimensions (all dimensions in mm)							Dehydrated weight
	A	B	C	D	E	W1	W2	(g)
VQFN040V6060	φ330	φ60	φ13.0	φ20.2	1.5	13.4	17.4	0.094
VQFN048V7070	φ330	φ60	φ13.0	φ20.2	1.5	17.4	21.4	0.130
VQFN48AV7070	φ330	φ60	φ13.0	φ20.2	1.5	17.4	21.4	0.130
VQFN48SV7070	φ330	φ60	φ13.0	φ20.2	1.5	17.4	21.4	0.130
VQFN56AV8080	φ330	φ80	φ13.0	φ20.2	1.5	17.4	21.4	0.141
Tolerance		-	+1.0/0	±0.2	MIN	MIN	+1.0/0	±1.0

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