

## Package : HQFN

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### 1. Structure and materials

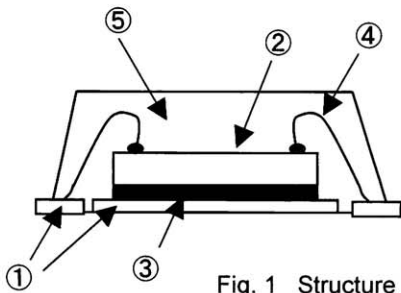


Fig. 1 Structure

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 4/4
Direction of feed	E2(See Fig. 2)

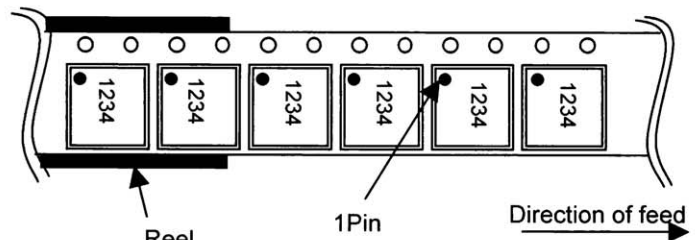


Fig. 2 Typical Tape and Reel configuration

#### 2.2. Tape and Reel specification

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

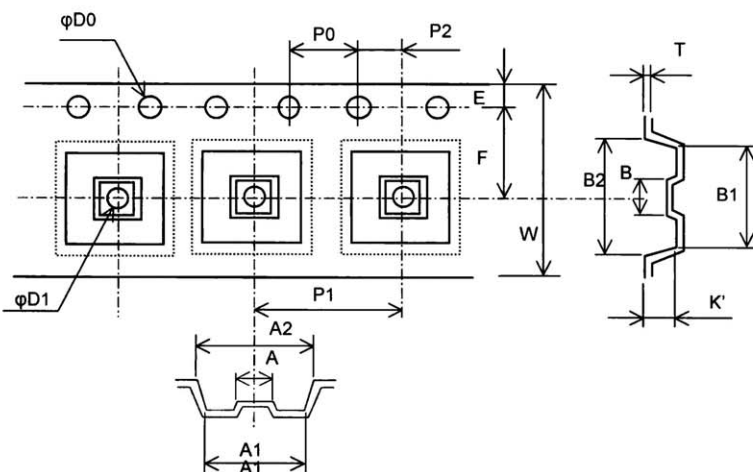


Fig. 3 Tape dimensions

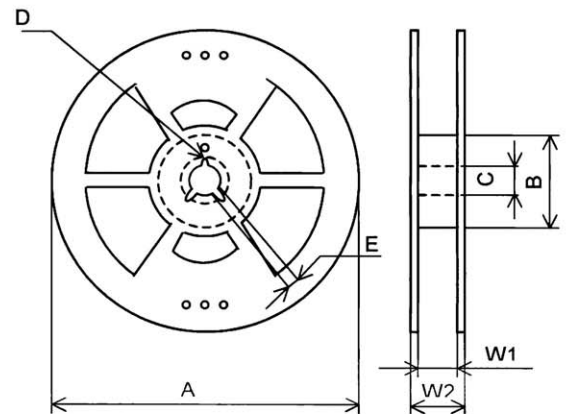


Fig. 4 Reel dimensions

2.3. 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

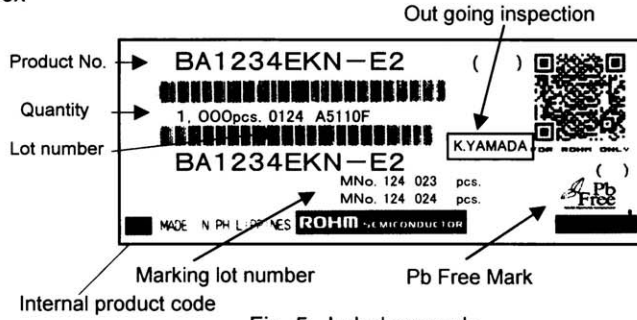


Fig. 5 Label example

2.5. Packing style

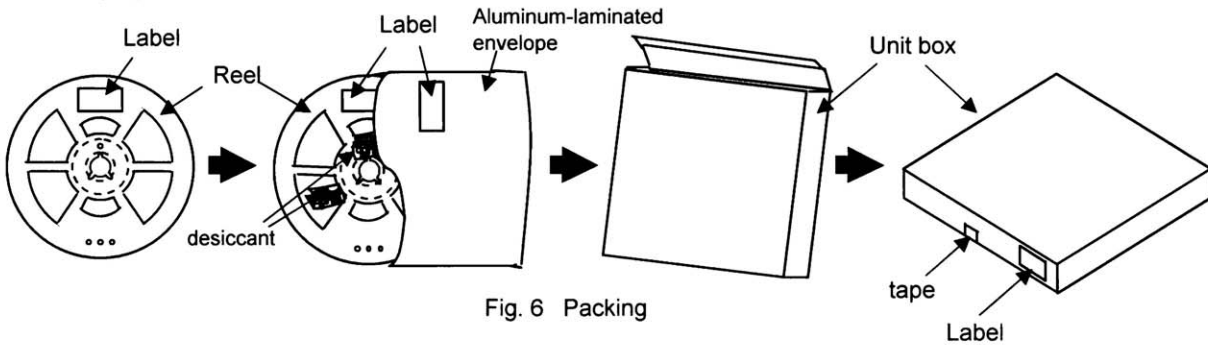
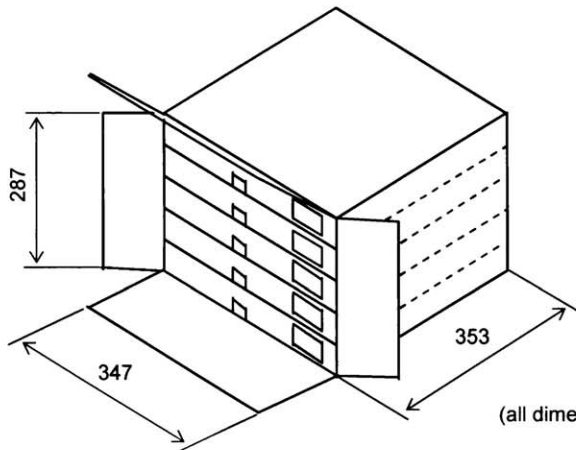


Fig. 6 Packing

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

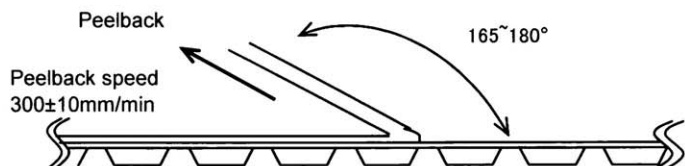
Item	Material
Embossed carrier tape	PS
Cover tape	PET + PE
Reel	PS
Desiccant	Silicagel
Envelop	Aluminume-laminated
Unit box	Cardboard
Shipping box	Cardboard

2.8. Others

2.8.1. Peelback strength

Cover tape peelback strength is 0.2~0.7N.

Fig. 8 Test method



2.8.2.Dropouts

- (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 : 5~30°C
- Humidity : 40~70% RH

3.2.Storage period

-Specified storage period : 1year

3.3.Specified storage period until soldering

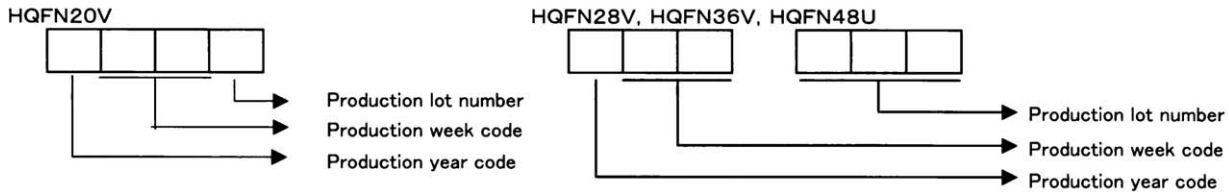
After dry pack is opened , assemble package within 24hours.

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

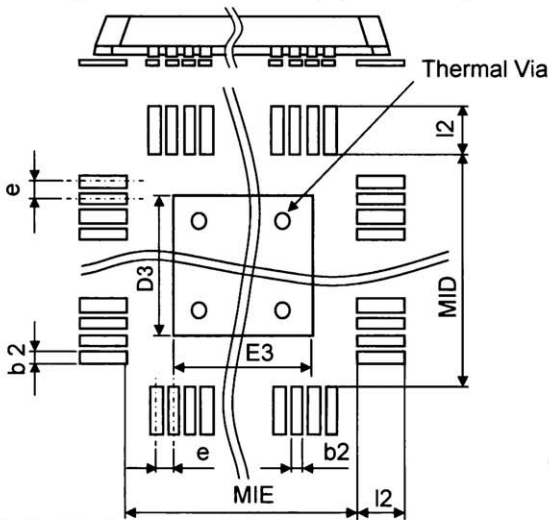
Maximum 2times baking for keeping solderability.

Use heat resist material (ex. tray) for baking because the embossed tape maximum storage temperature is 60°C.

4.Marking lot number



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



(all dimensions in mm)

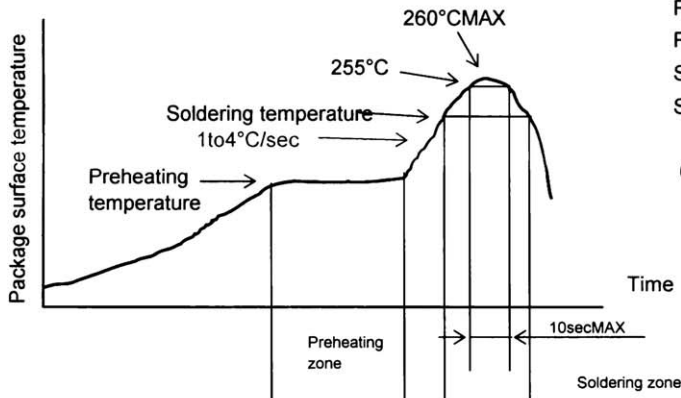
PKG	Land pitch e	Land space MIE	Land space MID	Land length $\geq 12$	Land width b2
HQFN20V	0.50	2.60	2.60	1.10	0.25
HQFN28V	0.50	3.60	3.60	1.10	0.25
HQFN36V	0.50	4.60	4.60	1.10	0.25
HQFN48U	0.40	5.60	5.60	1.10	0.25

PKG	Radiation land length D3	Radiation land width E3	Thermal Via	
			Pitch	Diameter
HQFN20V	1.60	1.60	—	$\phi 0.30$
HQFN28V	2.60	2.60	1.20	$\phi 0.30$
HQFN36V	3.60	3.60	1.20	$\phi 0.30$
HQFN48U	4.60	4.60	1.20	$\phi 0.30$

\*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°Cto190°C
- Preheating zone ; 120sec MAX
- Soldering temperature ; 220°Cto230°C
- Soldering zone: ; 60sec MAX

(Notice)  
Maximum 2-timessoldering

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
HQFN20V	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
HQFN28V	2500	2.1	2.1	4.46	4.46	4.63	4.63	φ1.5	φ1.5	1.75	5.5	1.6	4.0	8.0	2.0	0.3	12.0
HQFN35V	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
HQFN48U	2500	4.5	4.5	7.7	7.7	8.0	8.0	φ1.5	φ1.5	1.75	7.5	1.5	4.0	12.0	2.0	0.3	16.0
Tolerance		±0.2	±0.2	±0.1	±0.1	±0.2	±0.2	<sup>+0.1</sup> <sub>0</sub>	±0.1	±0.1	±0.05	±0.2	±0.1	±0.1	±0.05	±0.05	±0.2

<Reel dimensions >

Package	Reel dimensions (all dimensions in mm)						
	A	B	C	D	E	W1	W2
HQFN20V	φ330	50	13.0	20.2	1.5	13.4	17.4
HQFN28V	φ330	50	13.0	20.2	1.5	13.4	17.4
HQFN35V	φ330	50	13.0	20.2	1.5	13.4	17.4
HQFN48U	φ330	50	13.0	20.2	1.5	17.4	21.4
Tolerance	-	MIN	±0.2	MIN	MIN	±1.0	±1.0

<Dehydrated weight >

Dehydrated weight dimensions in g
0.035
0.06
0.10
0.12

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