

Package : HQFN

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1. Structure and materials

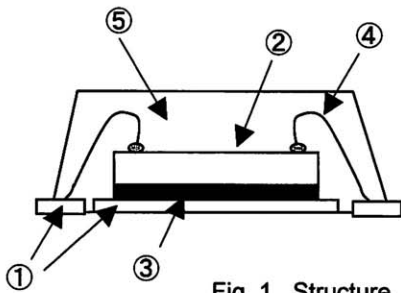


Fig. 1 Structure

No.	Item	Materials
1	Lead Frame	Cu-Alloy (External lead : Pb free solder plating)
2	Die	Silicon
3	Die Attach	Solder
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)

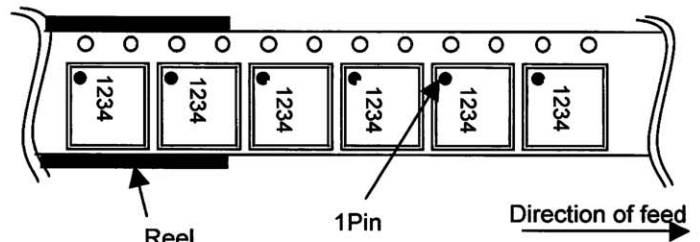


Fig. 2 Typical Tape and Reel configuration

2.2. Tape and Reel specification

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

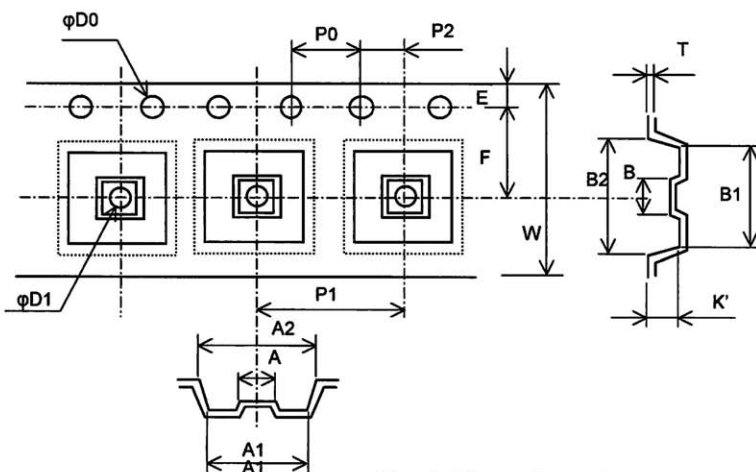


Fig. 3 Tape dimensions

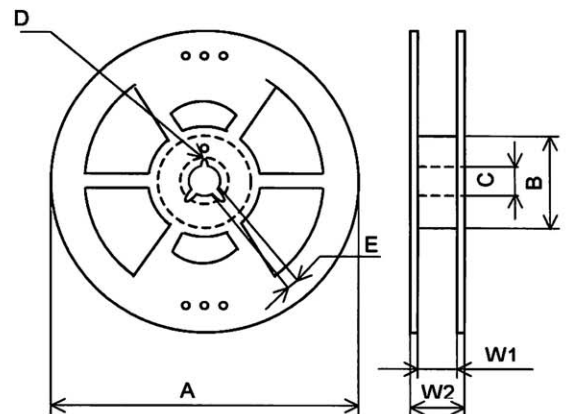


Fig. 4 Reel dimensions

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

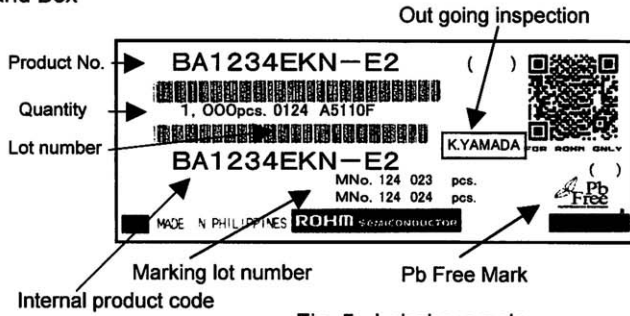


Fig. 5 Label example

2.5. Packing style

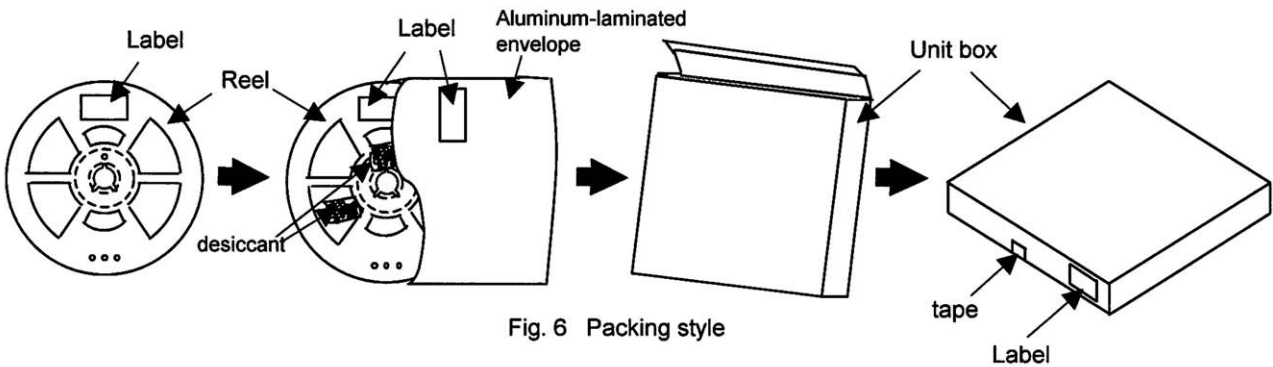
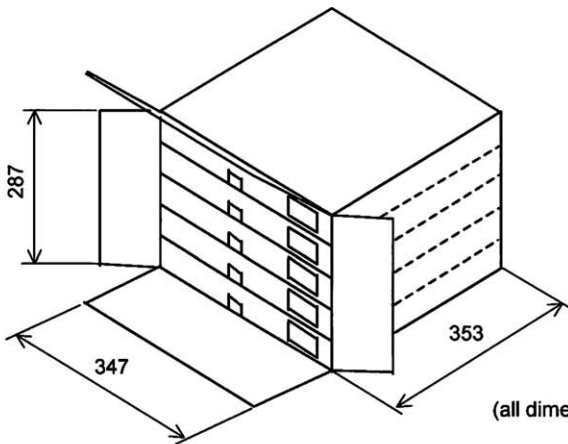


Fig. 6 Packing style

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

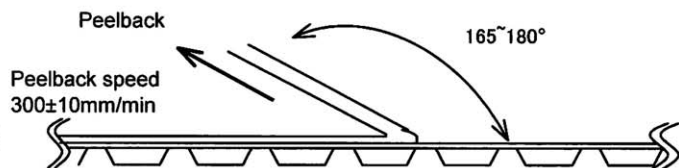
Item	Material
Embossed carrier tape	PS
Cover tape	PET + PE
Reel	PS
Desiccant	Silicagel
Envelop	Aluminume-laminated
Unit box	Cardboard
Shipping box	Cardboard

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

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 1year.

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

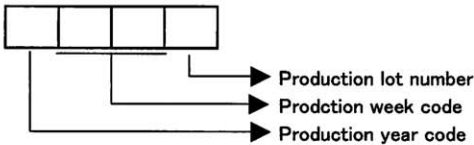
At this time, peelback strength of cover tape become 0.2N -0.9N.

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

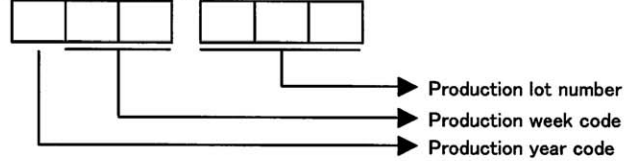
In addition, the dry processing should be max, 2 times due to influence on the product's solderability.

4.Marking lot number

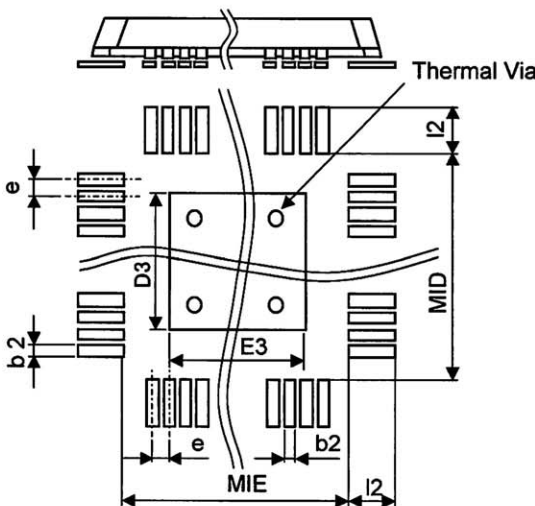
HQFN20V



HQFN28V, HQFN36V, HQFN48U



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



(all dimensions in mm)

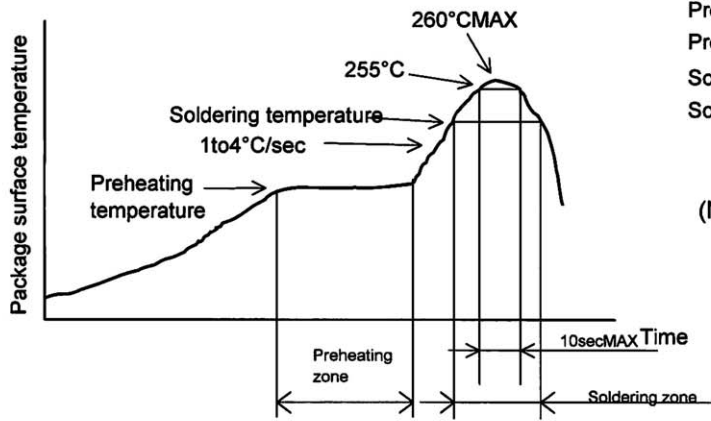
PKG	Land pitch e	Land space MIE	Land space MID	Land length ≥l2	Land width b2
HQFN20V	0.50	2.60	2.60	1.10	0.25
HQFN28V	0.50	3.60	3.60	1.10	0.25
HQFN36V	0.50	4.60	4.60	1.10	0.25
HQFN48U	0.40	5.60	5.60	1.10	0.25

PKG	Radiation land length D3	Radiation land width E3	Thermal Via	
			Pitch	Diameter
HQFN20V	1.60	1.60	—	φ0.30
HQFN28V	2.60	2.60	1.20	φ0.30
HQFN36V	3.60	3.60	1.20	φ0.30
HQFN48U	4.60	4.60	1.20	φ0.30

*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	^{+0.1} ₋₀	±0.1	±0.1	±0.05	±0.2	±0.1	±0.1	±0.05	±0.05	±0.2

<Reel dimensions >

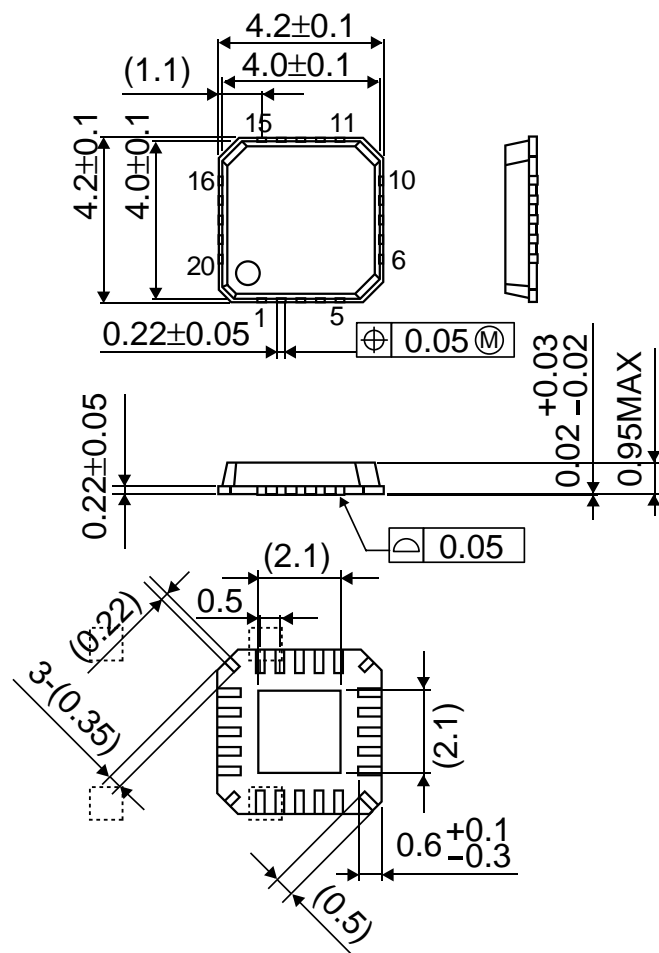
Package	Reel dimensions (all dimensions in mm)						
	A	B	C	D	E	W1	W2
HQFN20V	φ330	50	13.0	20.2	1.5	13.4	17.4
HQFN28V	φ330	50	13.0	20.2	1.5	13.4	17.4
HQFN35V	φ330	50	13.0	20.2	1.5	13.4	17.4
HQFN48U	φ330	50	13.0	20.2	1.5	17.4	21.4
Tolerance	-	MIN	±0.2	MIN	MIN	±1.0	±1.0

<Dehydrated weight >

Dehydrated weight dimensions in g
0.035
0.06
0.10
0.12

Package Dimensions

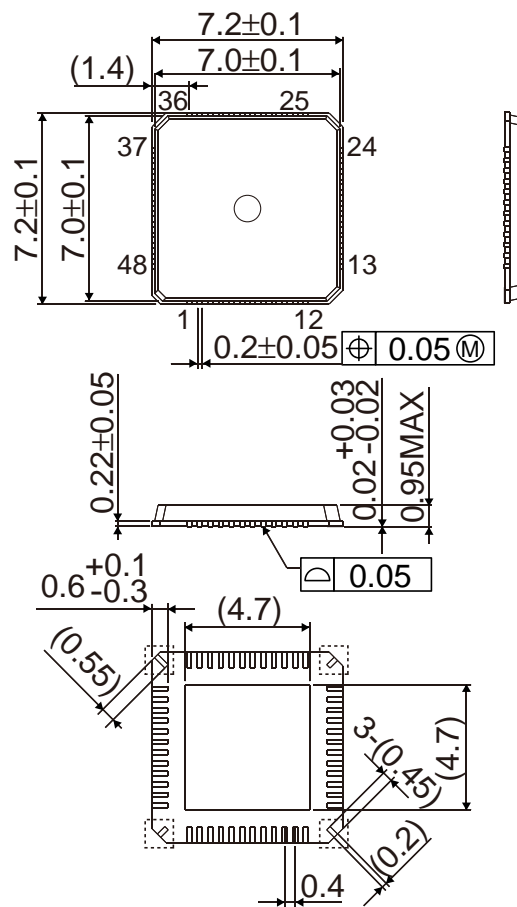
HQFN20V



(Unit : mm)

Package Dimensions

HQFN48U



(Unit : mm)

Notes

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