

## Package : HTQFP

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### 1. Structure and materials

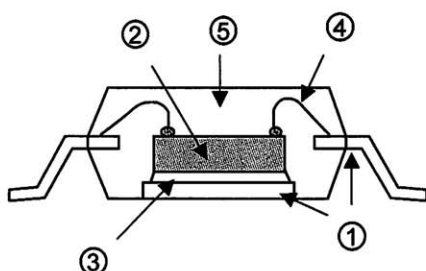


Fig. 1 Structure

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

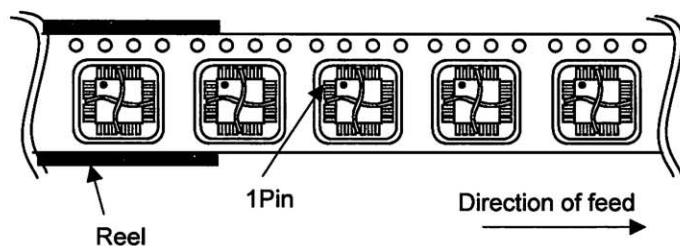


Fig. 2 Typical Tape and Reel configuration

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

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

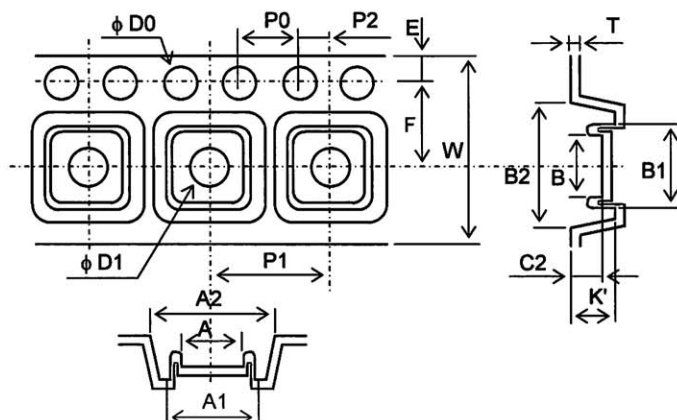


Fig. 3 Tape dimensions

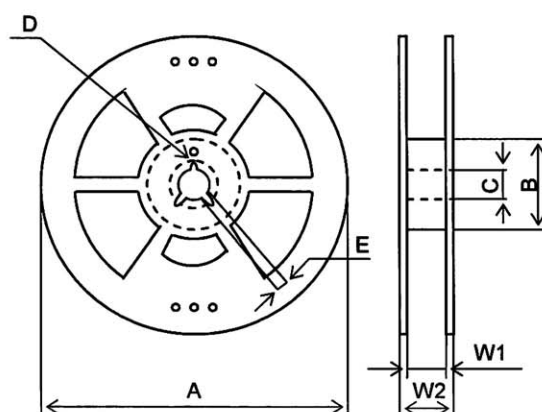


Fig. 4 Reel dimensions

### 2. 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

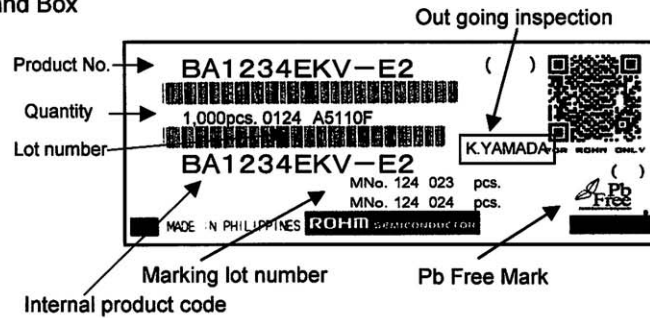


Fig. 5 Label example

### 2. 5. Packing style

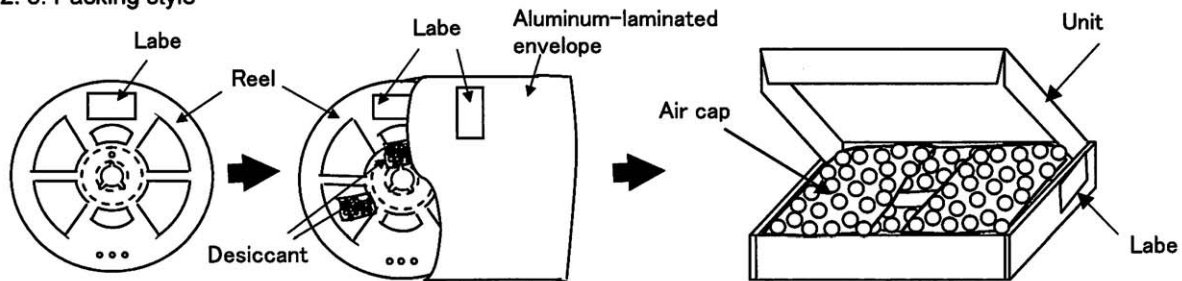
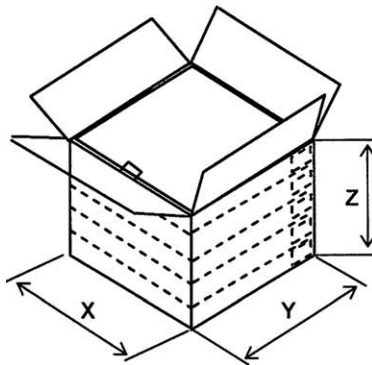


Fig. 6 Packing style

### 2. 6. Shipping style

5 unit boxes or less per shipping box



Package	box dimensions (all dimensions in mm)		
	X	Y	Z
HTQFP64V	372	368	355

(all dimensions in mm)

### 2. 7. Packing materials

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

\*Please obey the indication of top side in a shipping box.

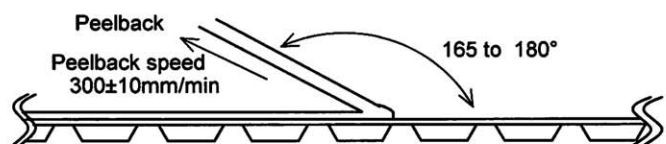
Fig. 7 Shipping box dimensions and Shipping style

### 2. 8. Others

#### 2. 8. 1. Peelback strength

Cover tape peelback strength is 0.2 to 0.7N.

Fig. 8 Test method



## 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

After dry pack is opened , assemble package within 168hours.

If the storage period has expired , dry process before mounting is necessary

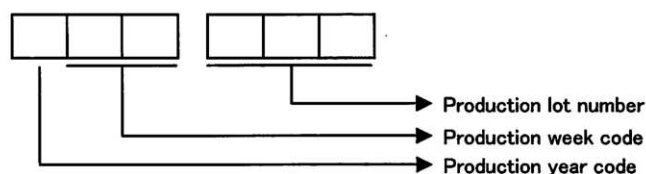
Please excute dry processing in a reel state with 60 for 48 hours.

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

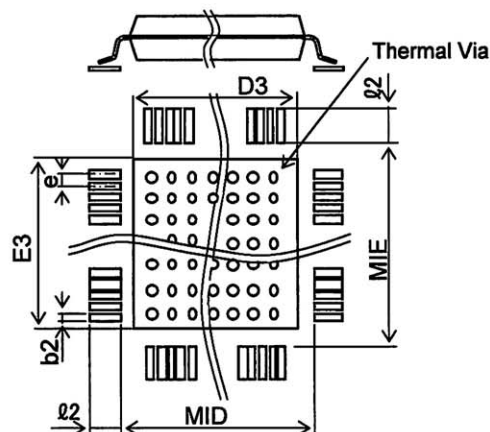
Case of transferring to heatproof container such as trays, excute dry processing with 125 for 24 hours.

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)



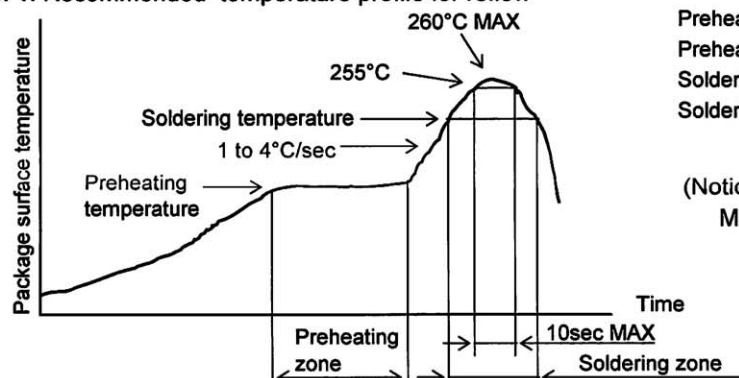
(all dimensions in mm)

Package	Land pitch e	Land space		Land length ≥ l2	Land width b2
		MIE	MID		
HTQFP64V	0.50	10.20	10.20	1.20	0.25

Package	Radiation land length D3	Radiation land width E3	Thermal via	
			Pitch	Diameter
HTQFP64V	9.20	9.20	1.20	φ0.3

## 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. Recommended condition for wave soldering

Process	Conditions	
	Temperature	Time
Preheating	120°C to 150°C	60sec MAX
Soldering	260°C ± 3°C	12sec MAX

(Notice) Soldering time is provided for total soldering time in case of dual wave soldering.

## 6. 2. 1. Notes for wave soldering

- (1) The heatsink may not be connected using wave soldering methods.  
Solder can stick to the exposed pad on HTSSOP-A44R.
- (2) Do not use other soldering methods with wave soldering.
- (3) Recommend to clean the board to eliminate flux, solder waste, and other impurities for reliability, after soldering.
- (4) Optimize soldering condition to prevent solder bridging.

## 6. 3. Recommended condition for solder iron

Recommended condition for solder iron

-Solder iron temperature : 380°C or less

-Mounting time : 4sec or less

(Notice) The heatsink may not be connected using solder iron.

## &lt; Tape dimensions &gt;

Package	Quantity (pcs)	Tape dimensions (all dimensions in mm)										
		A	A1	A2	B	B1	B2	C2	D0	D1	E	F
HTQFP64V	1000	9.95	(10.75)	13.1	9.95	(10.75)	13.1	-	φ1.5	φ2.0	1.75	11.5
Tolerance		±0.1	—	±0.1	±0.1	—	±0.1	±0.1	$\begin{smallmatrix} +0.1 \\ -0 \end{smallmatrix}$	$\begin{smallmatrix} +0.1 \\ -0 \end{smallmatrix}$	±0.1	±0.1

Package	Tape dimensions (all dimensions in mm)					
	K'	P0	P1	P2	T	W
HTQFP64V	1.15	4.0	16.0	2.0	0.3	24.0
Tolerance		±0.1	±0.1	±0.1	±0.05	±0.3

## &lt; Reel dimensions &gt;

Package	Reel dimensions (all dimensions in mm)						
	A	B	C	D	E	W1	W2
HTQFP64V	φ330	φ100	φ13.0	φ20.2	1.5	25.5	30.5
Tolerance		-	-	±0.2	MIN	MIN	±1.0

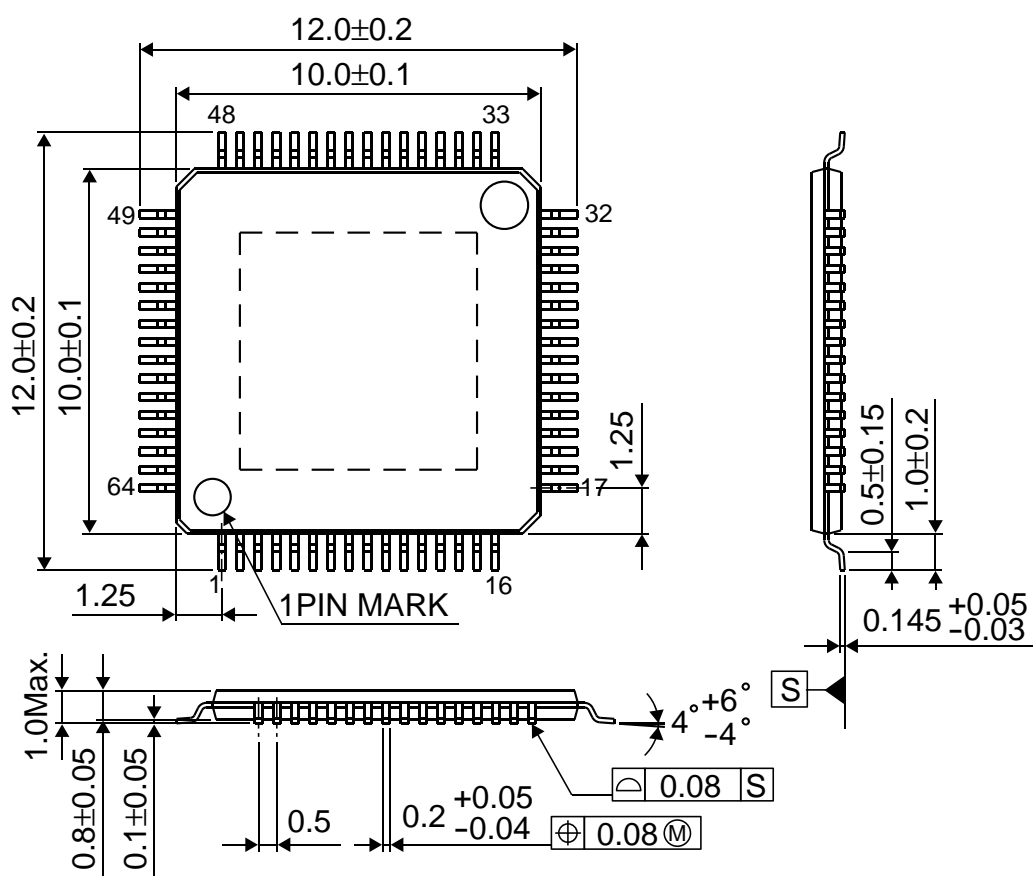
## &lt; Dehydrated weight &gt;

Dehydrated weight dimensions in g
0.24



# Package Dimensions

## HTQFP64V



(Unit : mm)

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