

Package : VQFN***V3030/4040/5050 series

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1. Structure and materials

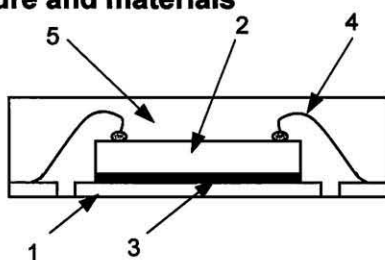


Fig. 1 Structure

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

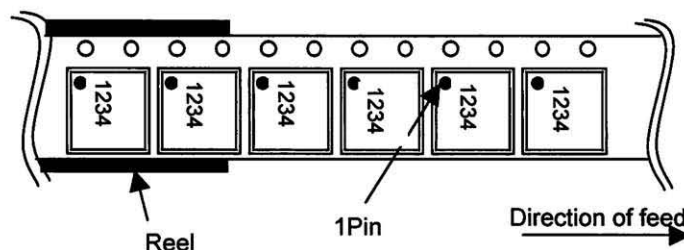


Fig. 2 Typical Tape and Reel configuration

2.2. Tape and Reel specification

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

VQFN020V4040
 VQFN024V4040
 VQFN028V5050
 VQFN032V5050

VQFN016V3030

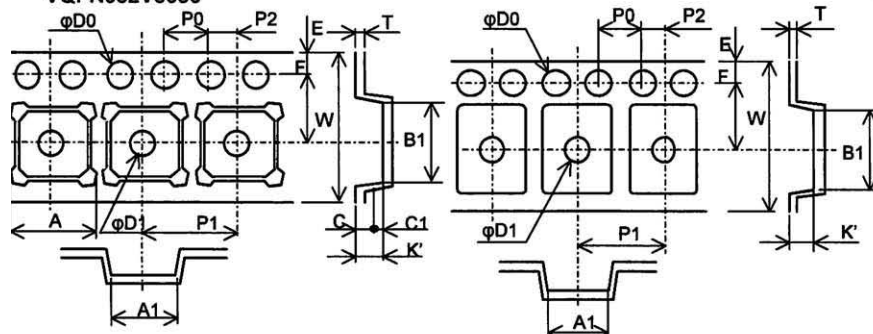


Fig. 3 Tape dimensions

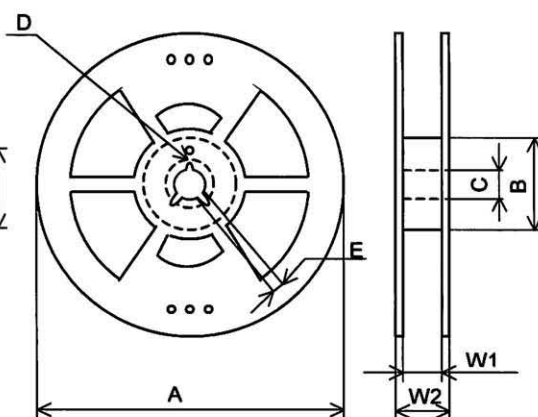


Fig. 4 Reel dimensions

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

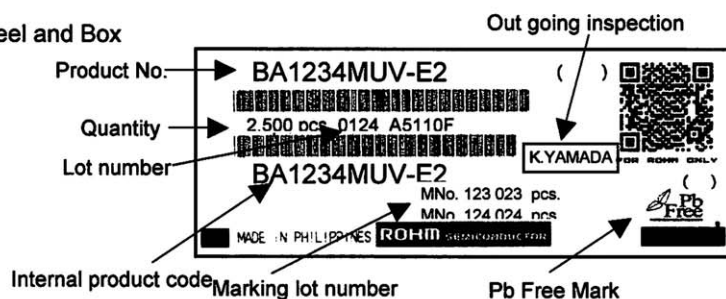


Fig. 5 Label example

2.5.Packing style

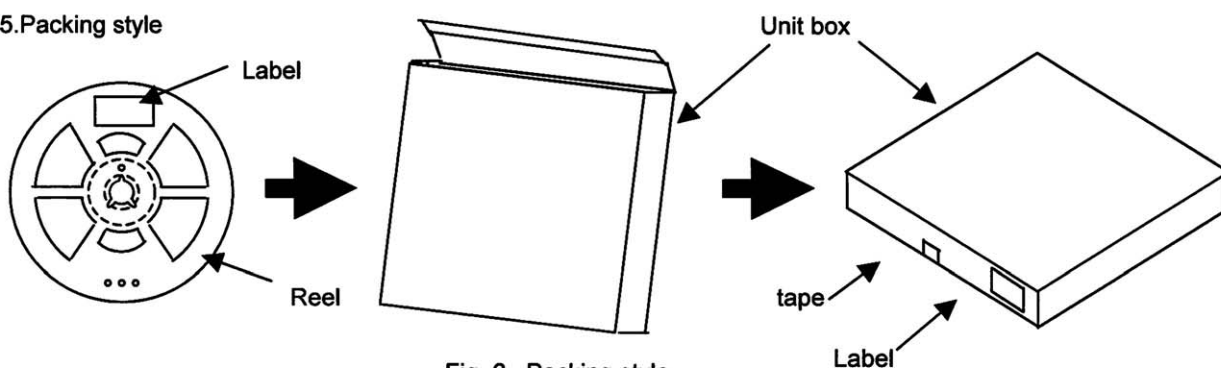
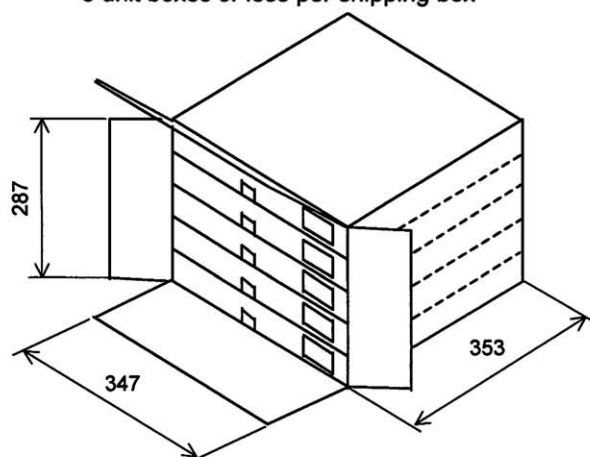


Fig. 6 Packing style

2.6.Shipping style

5 unit boxes or less per shipping box



2.7.Packing materials

Item	Material
Embossed carrier tape	PS
Cover tape	PET + PE
Reel	PS
Unit box	Cardboard
Shipping box	Cardboard

(all dimensions in mm)

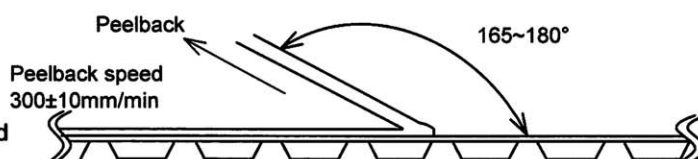
Fig. 7 Shipping box dimensions and Shipping style

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

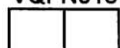
-Humidity : 40~70% RH

3.2. Storage period

-Specified storage period : 1 year

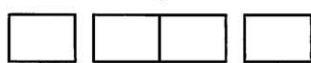
4. Marking lot number

VQFN016V3030



Production lot number

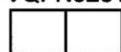
Production month code

2 row marking of
VQFN020V4040, VQFN024V4040,
VQFN028V5050, VQFN032V5050

Production lot number

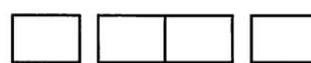
Production week code

Production year code

3 row marking of
VQFN020V4040, VQFN024V4040

Production lot number

Production month code

3 row marking of
VQFN028V5050, VQFN032V5050

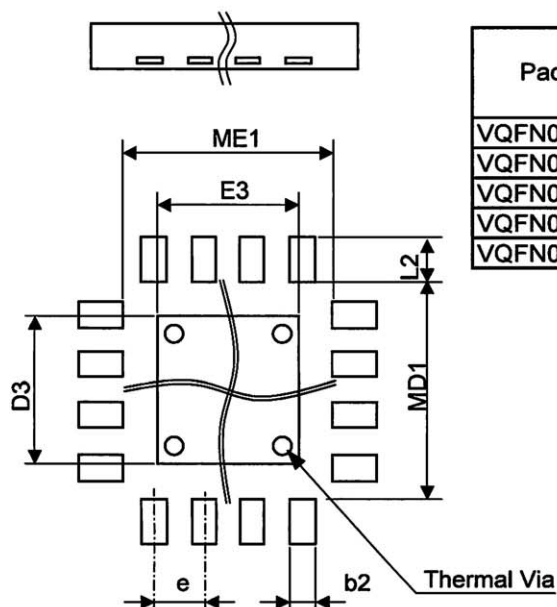
Production lot number

Production week code

Production year code

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

(all dimensions in mm)



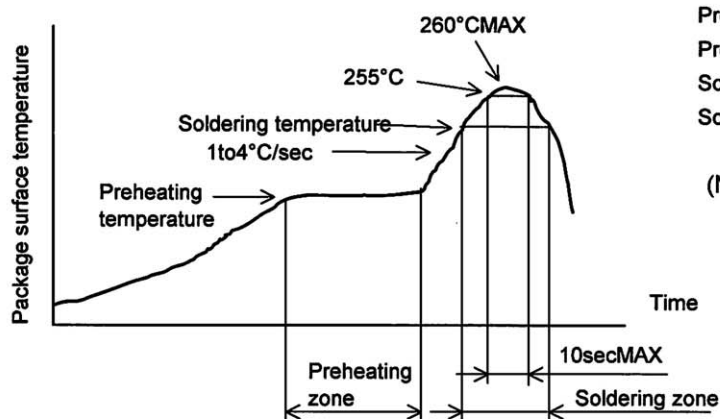
Package	Land pitch e	Land			
		space		length	width
		MD1	ME1	L2	b 2
VQFN016V3030	0.50	2.00	2.00	0.80	0.27
VQFN020V4040	0.50	3.00	3.00	0.80	0.27
VQFN024V4040	0.50	3.00	3.00	0.80	0.27
VQFN028V5050	0.50	4.00	4.00	0.80	0.27
VQFN032V5050	0.50	4.00	4.00	0.80	0.27

Package	Radiation land		Thermal Via	
	length	width	Pitch	Diameter
	D3	E3		
VQFN016V3030	1.00	1.00	—	φ0.300
VQFN020V4040	2.00	2.00	1.20	φ0.300
VQFN024V4040	2.00	2.00	1.20	φ0.300
VQFN028V5050	3.00	3.00	1.20	φ0.300
VQFN032V5050	3.00	3.00	1.20	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

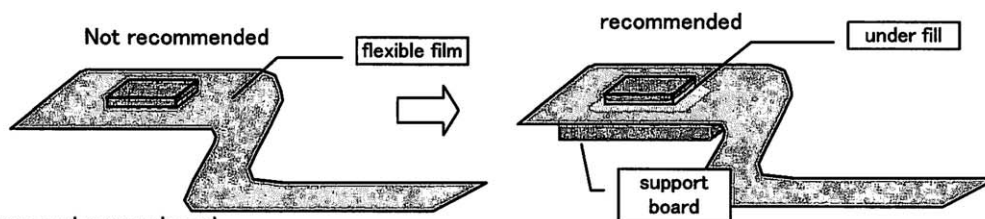
(Notice)
 Maximum 2-times soldering

6.2. The wave soldering method is not supported.

6.3 Notice information of board mounting

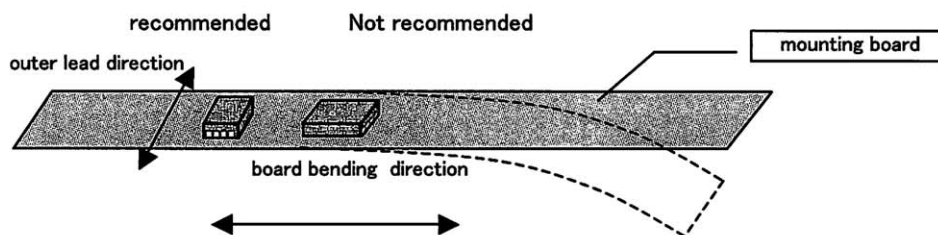
Mounting on flexible film

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

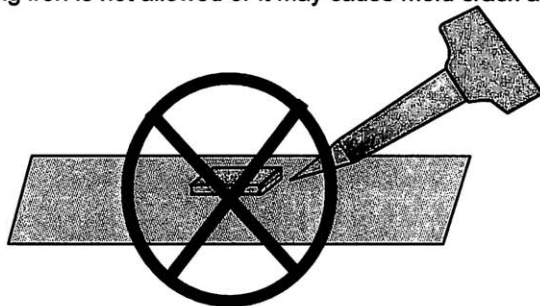


Mounting on long and narrow board

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 soldering iron is not allowed or it may cause mold crack and terminal open.



< Tape dimensions >

Package	Quantity (pcs)	Tape dimensions (all dimensions in mm)													
		A1	B1	C	C1	D0	D1	E	F	K'	P0	P1	P2	T	W
VQFN016V3030	3000	3.2	3.2	-	-	φ1.5	φ1.1	1.75	5.5	1.05	4.0	4.0	2.0	0.3	12.0
Tolerance		±0.1	±0.1	-	-	+0.1/-0	±0.1	±0.1	±0.05	±0.1	±0.1	±0.1	±0.05	±0.05	±0.2

Package	Quantity (pcs)	Tape dimensions (all dimensions in mm)													
		A1	B1	C	C1	D0	D1	E	F	K'	P0	P1	P2	T	W
VQFN020V4040	2500	4.2	4.2	(1.15)	(0.65)	φ1.5	φ1.5	1.75	5.5	1.80	4.0	8.0	2.0	0.3	12.0
VQFN024V4040	2500	4.2	4.2	(1.15)	(0.65)	φ1.5	φ1.5	1.75	5.5	1.80	4.0	8.0	2.0	0.3	12.0
VQFN028V5050	2500	5.2	5.2	(1.15)	(0.65)	φ1.5	φ1.5	1.75	5.5	1.80	4.0	8.0	2.0	0.3	12.0
VQFN032V5050	2500	5.2	5.2	(1.15)	(0.65)	φ1.5	φ1.5	1.75	5.5	1.80	4.0	8.0	2.0	0.3	12.0
Tolerance		±0.05	±0.05	-	-	+0.1/-0	±0.1	±0.1	±0.05	±0.1	±0.1	±0.1	±0.05	±0.05	±0.2

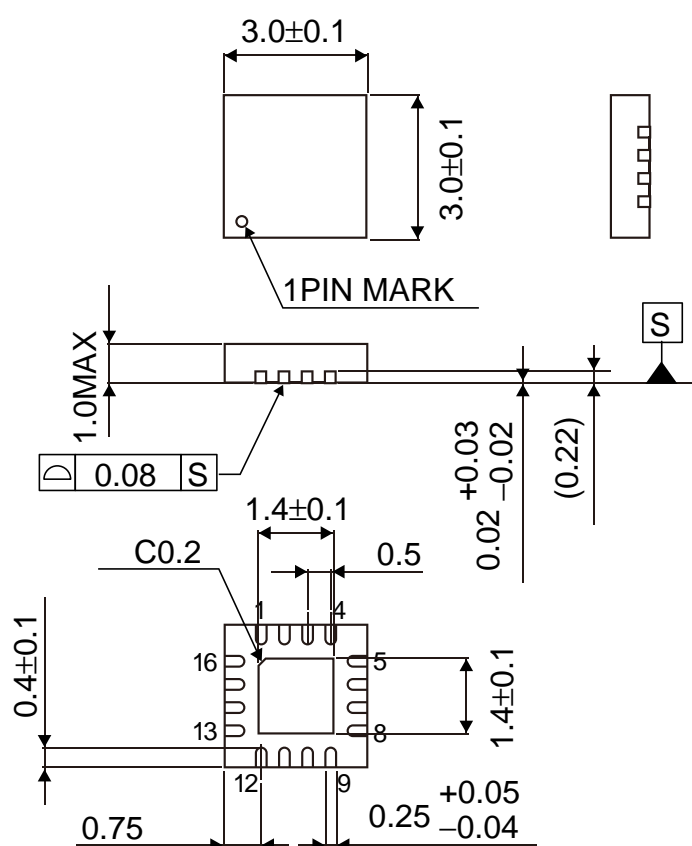
<Reel dimensions >

<Dehydrated weight >

Package	Reel dimensions (all dimensions in mm)							Dehydrated weight (g)
	A	B	C	D	E	W1	W2	
VQFN016V3030	φ180	φ60	φ13.0	φ20.2	1.5	13.0	15.4	0.022
VQFN020V4040	φ330	φ60	φ13.0	φ20.2	1.5	13.0	17.4	0.039
VQFN024V4040	φ330	φ60	φ13.0	φ20.2	1.5	13.0	17.4	0.041
VQFN028V5050	φ330	φ60	φ13.0	φ20.2	1.5	13.0	17.4	0.066
VQFN032V5050	φ330	φ60	φ13.0	φ20.2	1.5	13.0	17.4	0.066
Tolerance	-	+1.0/0	±0.2	MIN	MIN	+1.0/0	±1.0	

Package Dimensions

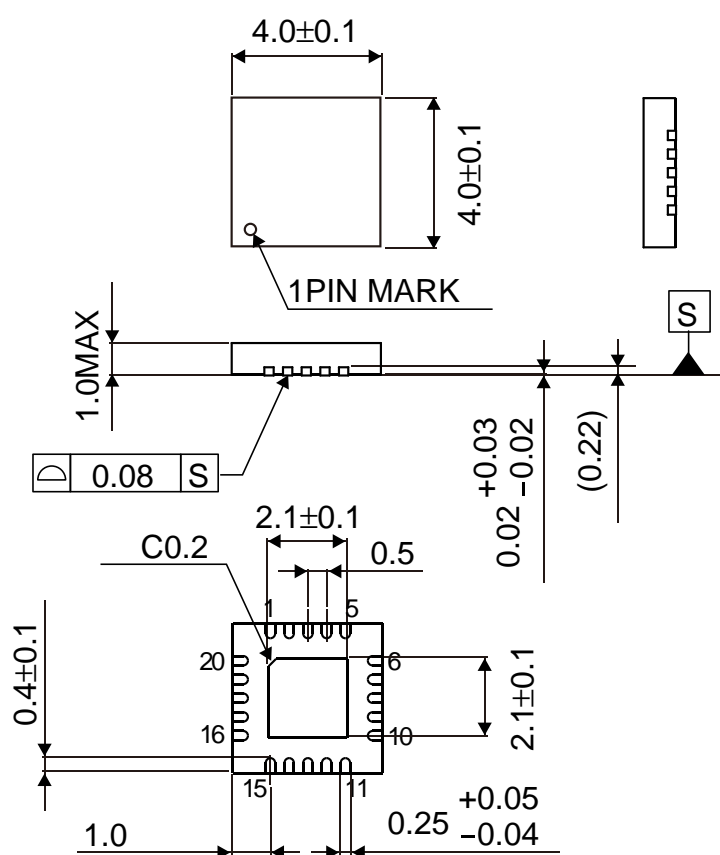
VQFN016V3030



(Unit : mm)

Package Dimensions

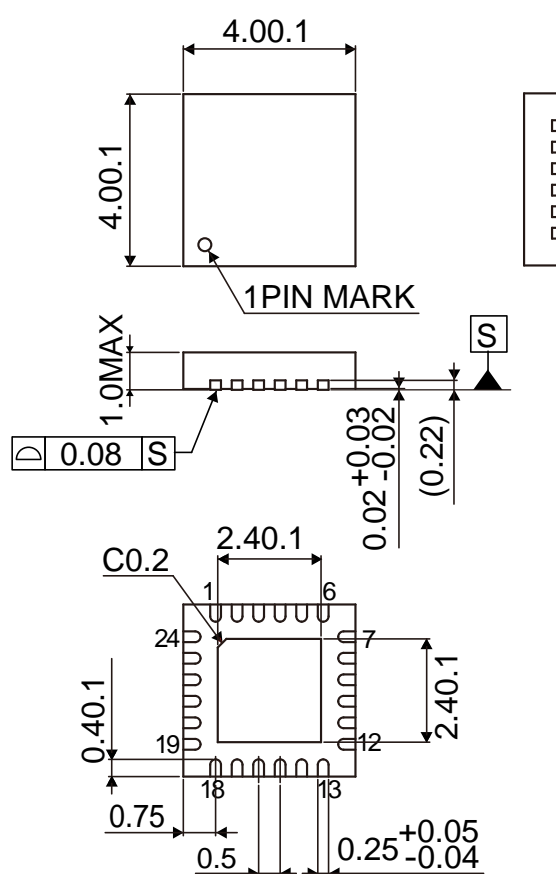
VQFN020V4040



(Unit : mm)

Package Dimensions

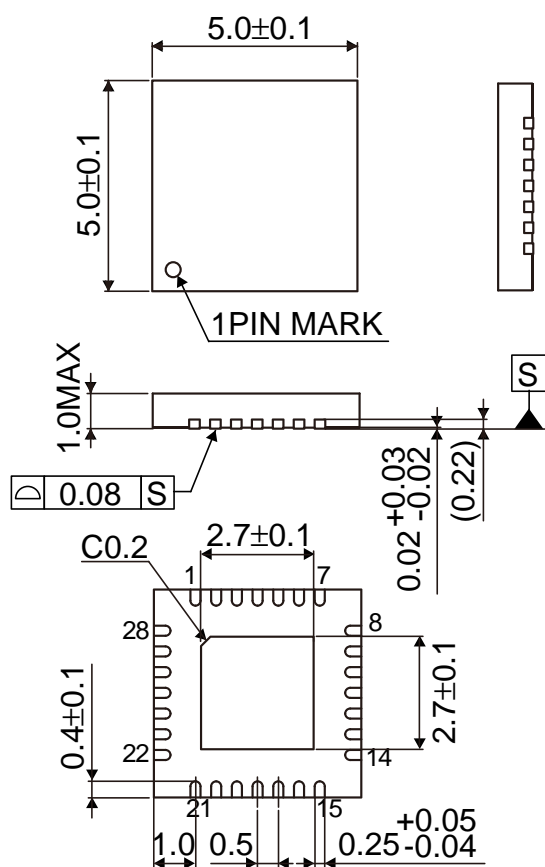
VQFN024V4040



(Unit : mm)

Package Dimensions

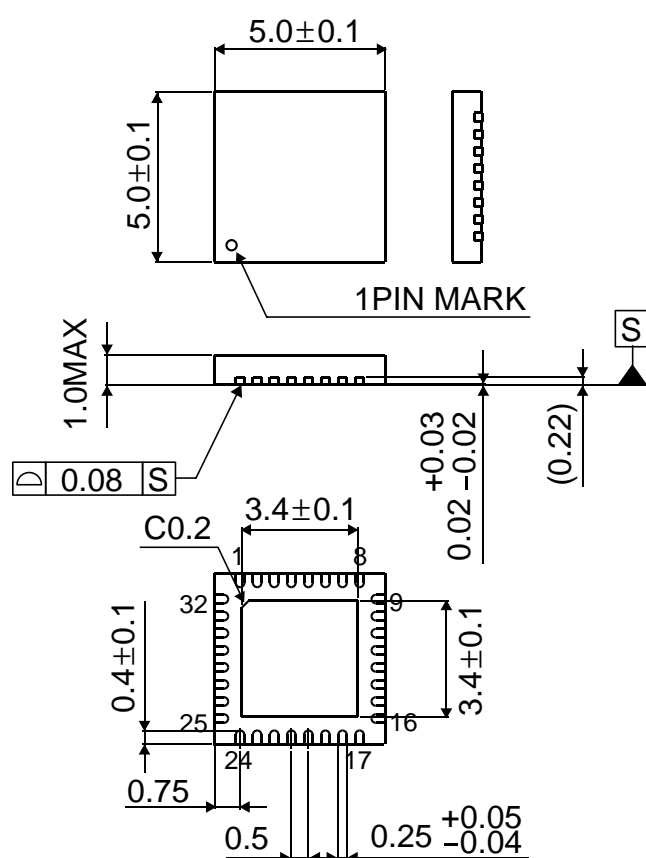
VQFN028V5050



(Unit : mm)

Package Dimensions

VQFN032V5050



(Unit : mm)

Notes

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