

Package : MSOP

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1. Structure and materials

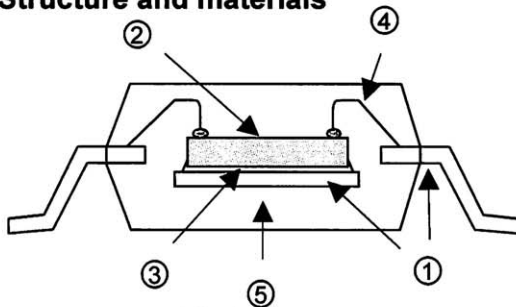


Fig. 1 Structure

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	TR (See Fig. 2)

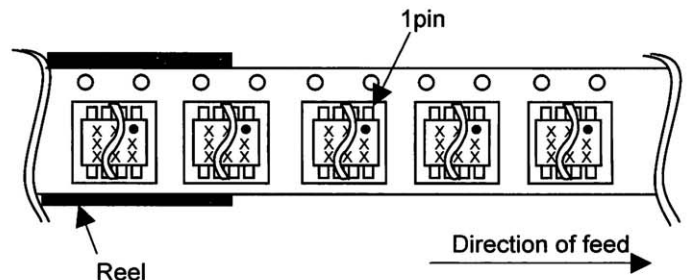


Fig. 2 Typical Tape and Reel configuration

2. 2. Tape and Reel specification

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

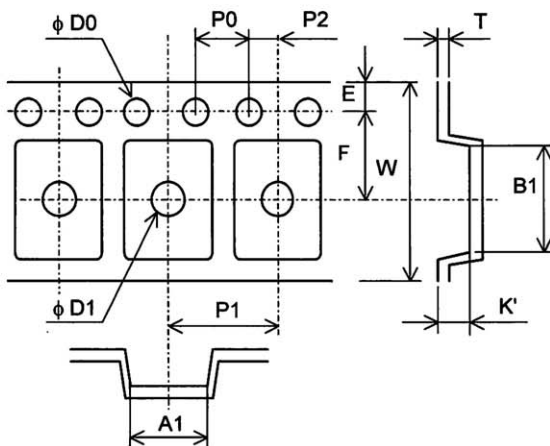


Fig. 3 Tape dimensions

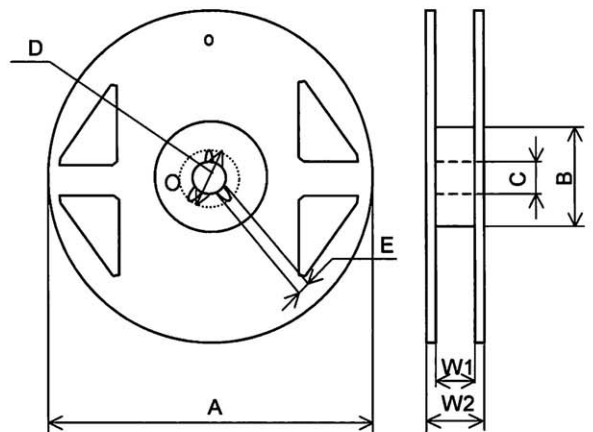


Fig. 4 Reel dimensions

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

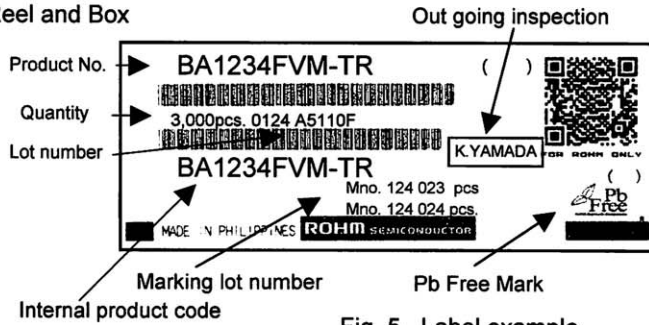


Fig. 5 Label example

2. 5. Packing style

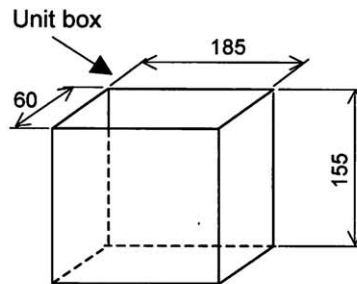
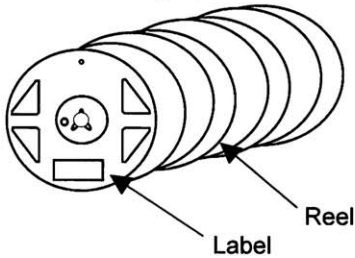
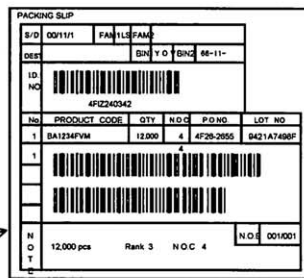
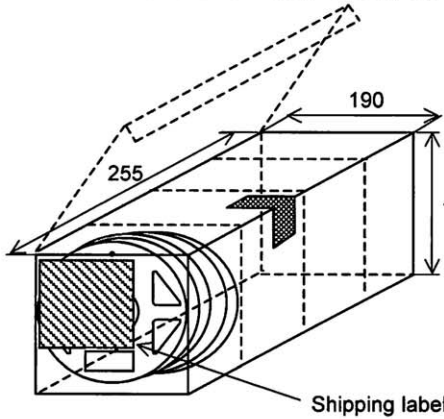


Fig. 6 Packing style

(all dimensions in mm)

2. 6. Shipping style

4 unit boxes or less per shipping box



(all dimensions in mm)

Fig. 7 Shipping box dimensions and Shipping style

2. 7. Packing materials

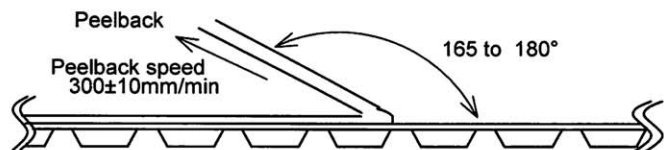
Item	Material
Embossed carrier tape	PS
Cover tape	PET + PE
Reel	PS
Unit box	Cardboa
Shipping box	Cardboa

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 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

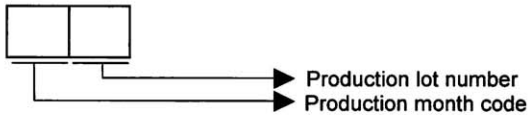
Recommended storage conditions are as follows :

- Temperature : 5 to 30°C
- Humidity : 40 to 70% RH

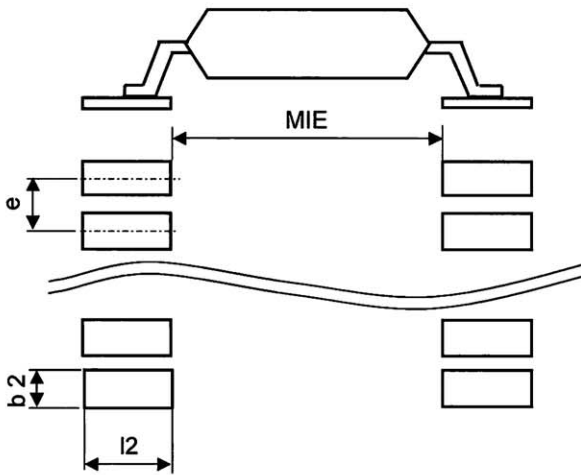
3. 2. Storage period

-Specified storage period : 1 year

4. Marking lot number



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

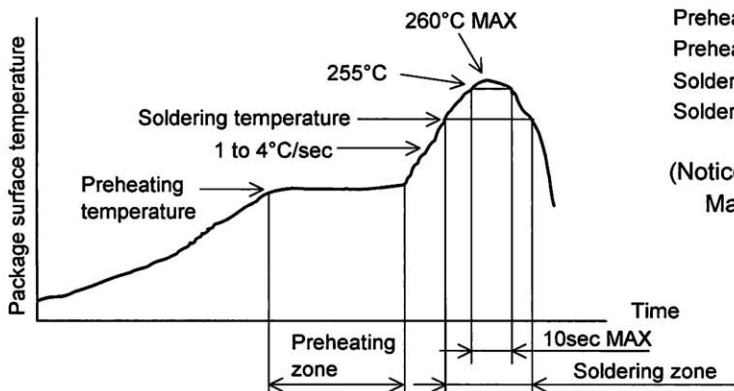


(all dimensions in mm)

Package	Land pitch e	Land space MIE	Land length ≥ l2	Land width b2
MSOP8	0.65	2.62	0.99	0.35
MSOP10	0.50	2.62	0.99	0.25

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) Do not use other soldering methods with wave soldering.
- (2) Recommend to clean the board to eliminate flux, solder waste, and other impurities for reliability, after soldering.
- (3) 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

< Tape dimensions >

Package	Quantity (pcs)	Tape dimensions (all dimensions in mm)												
		A1	B1	D0	D1	E	F	K'	P1	P2	T	W	P0	
MSOP8	3000	3.25	4.6	φ1.5	φ1.1	1.75	5.5	1.1	4.0	2.0	0.3	12.0	4.0	
MSOP10	3000	3.25	4.6	φ1.5	φ1.1	1.75	5.5	1.1	4.0	2.0	0.3	12.0	4.0	
Tolerance		±0.1	±0.1	$\begin{smallmatrix} +0.1 \\ -0 \end{smallmatrix}$	±0.1	±0.05	±0.1	±0.1	±0.1	±0.1	±0.05	±0.05	±0.2	±0.1

< Reel dimensions >

Package	Reel dimensions (all dimensions in mm)							
	A	B	C	D	E	W1	W2	
MSOP8	φ180	φ50	φ13.0	φ22.0	2.0	13.0	15.4	
MSOP10	φ180	φ50	φ13.0	φ22.0	2.0	13.0	15.4	
Tolerance		MAX	MIN	±0.5	—	±0.5	±0.5	±1.0

< Dehydrated weight >

Dehydrated weight dimensions in g
0.02
0.02

Notes

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