



ICs

# IC Packages

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IC Packages

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### LAPIS Semiconductor Packages

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\*Please check the dimensions of each products in detail.

LAPIS Semiconductor products and ROHM Semiconductor dimensions products have different although they have a same package name.

Please refer packages from page, A160 for LAPIIS Semiconductor products.

## Part No. Explanation

- When ordering, specify the part number.
- Check each code against the tables shown below.
- Fill in from the left, leaving any extra boxes empty on the right.

B A 4 5 5 8 F — D X E 2

Part No.

Custom Specification code

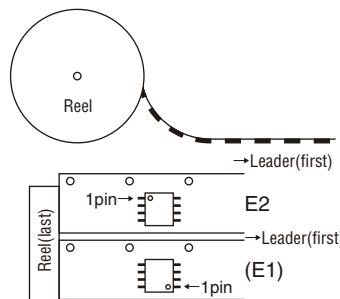
Packaging and forming specification

### Ordering information

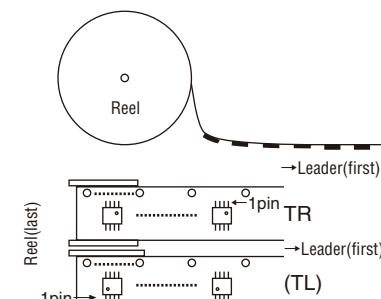
- A packaging specification is not required for packaging other than taping.  
(Ex.) BA4558F or BA4558F-DX
- A packaging specification is required for tape packaging.  
(Ex.) Example of E2-oriented embossed taping: BA4558F-E2 or BA4558F-DXE2

E2	Embossed tape and reel	Pin 1 fed last
(E1)	Embossed tape and reel	Pin 1 fed first
TR	Embossed tape and reel	Pin 1 fed last
(TL)	Embossed tape and reel	Pin 1 fed first

### For example



\*Take E2 as standard if no special request is made.



\*Take TR as standard if no special request is made.



► Package Ordering Units ► Embossed tape packaging <Package specification name : E2(E1)>  
► Tray packaging

Please refer packages from page, A160 for LAPI Semiconductor products.

## Package Ordering Units

### ● Embossed tape packaging <Package specification name : E2(E1)>

Package ordering unit quantity	Non - Lead Gull Wing Packages	SOP Packages	Power Packages	QFP Packages	BGA / QFN
5,000	*SSON004X1216 SSON004X1010	-	-	-	-
4,000	USON016X3315, WSON008X2120	-	-	-	-
3,000	*SOP4, *SSOP5/6, *VSOF5, *HVSOF5/6, *MSOP8, MSOP10, *WSOF5/6/6I, *HSON8, *VSON008V2030, VSON008X2030, VSON010X3020, VSON010X3030, VSON010V3030, USON014X3020, VQFN016X3030, VQFN016V3030, WL-CSP (2.8mm <sup>□</sup> and under)	TSSOP-B8	-	-	3×3mm
2,500	VQFN020V4040, VQFN024V4040, VQFN028V5050, VQFN032V5050, UQFN036V5050, UQFN040V5050, WL-CSP (over 2.81mm <sup>□</sup> )	SOP8/14/16, SSOP-A16, TSSOP-C10J, TSSOP-B14J SSOP-B8/14/16/20, SOP-J8/14, HTSSOP-B20/28, HTSOP-J8, TSSOP-B8J, HTSSOP-B8J, TSSOP-C30	-	-	4×4mm, 5×5mm
2,000	VQFN040V6060, UQFN044V6060, UQFN046V4565, UQFN048V6060	SOP18/20/22/24, HTSSOP-B30, SSOP-A20/24/32, SSOP-B24/28/40, HTSSOP-C48, HTSSOP-B24/40, HSOP25, TSSOP-C44	'HRP5/7, TO252S-3/5, SOT223-4	-	6×6mm
1,500	VQFN048V7070, UQFN048V7070, UQFN056V7070	SOP28, SSOP-A44, HTSSOP-A44/B54/A44R/B54R HSOP28/M28/M36	-	QFP32, VQFP48C, HTQFP48V UQFP64, TQFP64U	7×7mm
1,000	VQFN056V8080, UQFN064V8080, UQFN068V8080, UQFN088V0100	-	-	QFP44, VQFP64, VQFP80, UQFP100, TQFP64V	8×8mm, 9×9mm, 10×10mm
500	-	-	TO220CP-3/V5, TO263-3/5	VQFP100	-

1) \*:Package specification : TR(TL)

2) Specification differ by package size of WL-CSP

3) WL-CSP Package Specification : E2 (standard)

### ● Tray packaging

Pin pitch: 0.8 mm	Pin pitch: 0.65 mm	Pin pitch: 0.5 mm	Pin pitch: 0.4 mm	Dimensions (mm) d × e	Individual package quantity	Tray quantity	Package ordering unit quantity	Tomson Case dimensions (mm) A × B × C
QFP32	-	VQFP48C	-	175×166	100	10	1,000	60×200×200
QFP44	SQFP56, SQFP-T52M, SQFP-T64	VQFP64, VQFP64M, VQFP80, TQFP64V, TQFP80V, HTQFP64V, TQFP48V	UQFP64M, UQFP80, UQFP100, TQFP64U	216×116	50	20	1,000	70×130×510
QFP-A64, QFP80/T80	SQFP80, SQFP-T80C, SQFP100/T100	VQFP100, VQFP128, TQFP100V, HTQFP100V	UQFP120, TQFP128U	256×166	50	10	500	75×200×290
QFP120	SQFP160C	VQFP208	-	322.6×135.9	24	10	240	75×140×338
-	-	VQFP176	-	322.6×135.9	40	10	400	75×140×338
-	-	-	TQFP176U	201.1×141.05	20	10	200	75×200×290
-	-	VQFP144 / T144	UQFP160/184	322.6×135.9	60	10	600	75×140×338

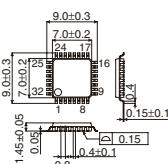
Please refer packages from page, A160 for LAPIIS Semiconductor products.

## QFP Packages

(Unit: mm)

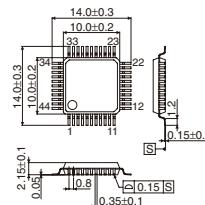
### QFP <Pin Pitch : 0.8mm>

**QFP32**



Tray:1,000pcs  
Embossed carrier tape:1,500pcs

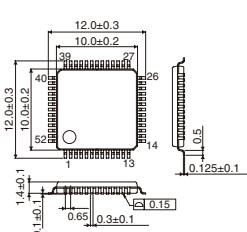
**QFP44**



Tray:1,000pcs  
Embossed carrier tape:1,000pcs

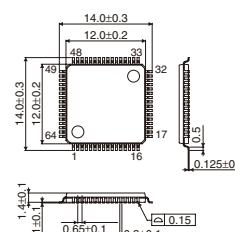
### SQFP <Pin Pitch : 0.65mm>

**SQFP-T52**



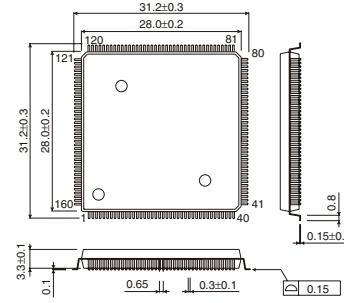
Tray:1,000pcs  
Embossed carrier tape:1,000pcs

**SQFP-T64**



Tray:1,000pcs

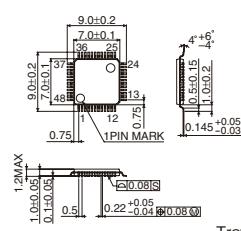
**SQFP160C**



Tray:240pcs

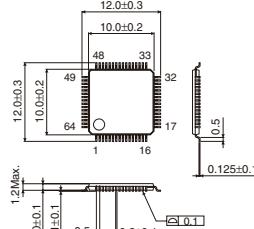
### TQFPV <Pin Pitch : 0.5mm>

**TQFP48V**



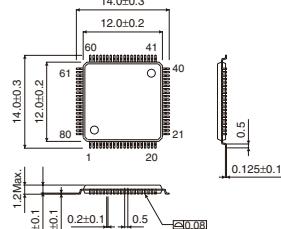
Tray:1,000pcs  
Embossed carrier tape:1,500pcs

**TQFP64V**



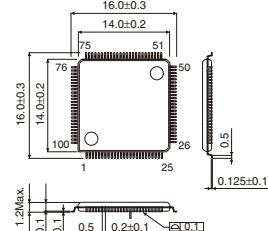
Tray:1,000pcs  
Embossed carrier tape:1,000pcs

**TQFP80V**



Tray:1,000pcs

**TQFP100V**



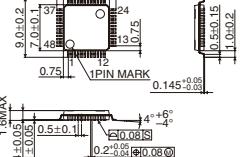
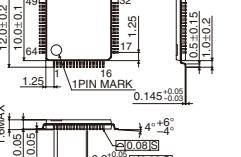
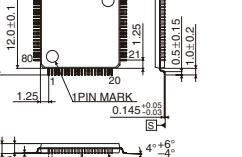
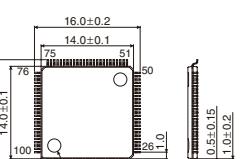
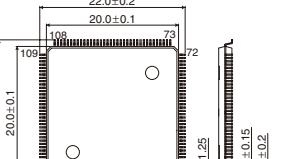
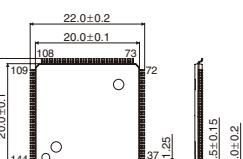
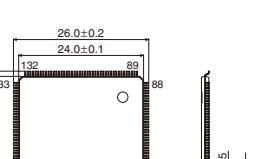
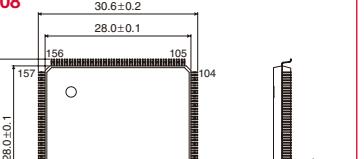
Tray:500pcs  
Embossed carrier tape:500pcs

► **QFP Packages** ►► **VQFP<Pin Pitch:0.5mm>**

**Please refer packages from page, A160 for LAPI Semiconductor products.**

# **QFP Packages**

## VQFP <Pin Pitch : 0.5mm>

<b>VQFP48C</b>	<b>VQFP64</b>	<b>VQFP80</b>
 <p>Tray:1,000pcs Embossed carrier tape:1,500pcs</p>	 <p>Tray:1,000pcs Embossed carrier tape:1,000pcs</p>	 <p>Tray:1,000pcs Embossed carrier tape:1,000pcs</p>
<b>VQFP100</b>	<b>VQFP144</b>	<b>VQFP-T144</b>
 <p>Tray:500pcs Embossed carrier tape:500pcs</p>	 <p>Tray:600pcs</p>	 <p>Tray:600pcs</p>
<b>VQFP176</b>	<b>VQFP208</b>	
 <p>Tray:400pcs</p>	 <p>Tray:240pcs</p>	

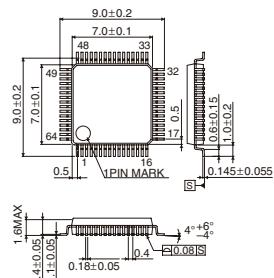
Please refer packages from page, A160 for LAPIS Semiconductor products.

## QFP Packages

(Unit: mm)

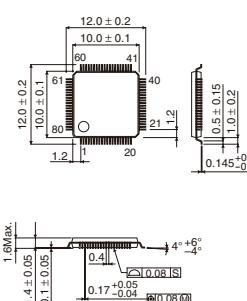
### UQFP <Pin Pitch : 0.4mm>

**UQFP64M**



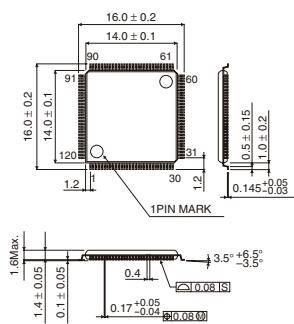
Tray:1,000pcs  
Embossed carrier tape:1,500pcs

**UQFP80**



Tray:1,000pcs  
Embossed carrier tape:1,000pcs

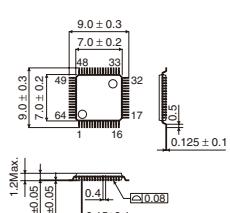
**UQFP120**



Tray:500pcs

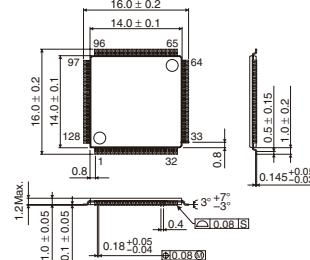
### TQFPU <Pin Pitch : 0.4mm>

**TQFP64U**



Tray:1,000pcs  
Embossed carrier tape:1,500pcs

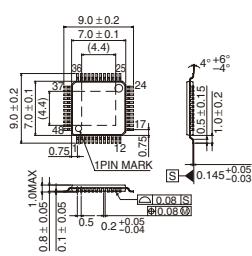
**TQFP128U**



Tray:500pcs

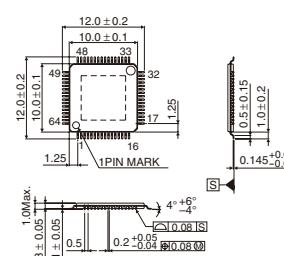
### HTQFPV <Pin Pitch : 0.5mm>

**HTQFP48V**



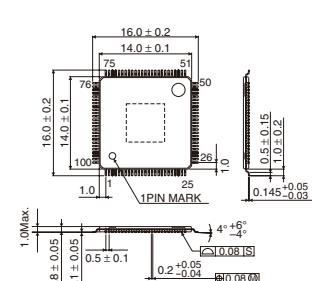
Tray:1,000pcs  
Embossed carrier tape:1,500pcs

**HTQFP64V**



Tray:1,000pcs  
Embossed carrier tape:1,000pcs

**HTQFP100V**



Tray:500pcs

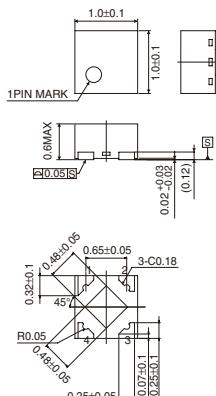
Please refer packages from page, A160 for LAPI Semiconductor products.

## SON / QFN Packages

(Unit: mm)

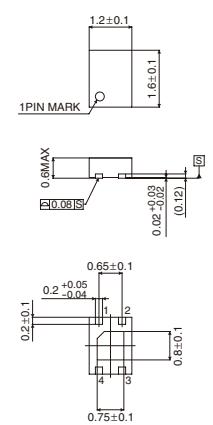
### SSEN-X <Pin Pitch : 0.65mm>

SSEN004X1010



Embossed carrier tape:5,000pcs

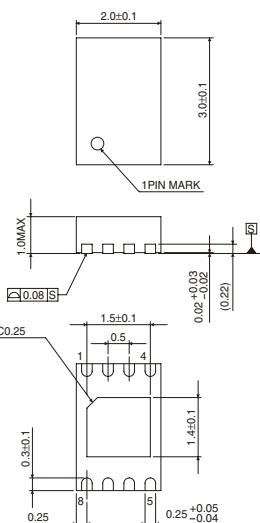
SSEN004X1216



Embossed carrier tape:5,000pcs

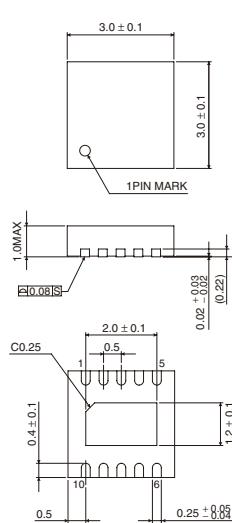
### VSON-V <Pin Pitch : 0.5mm>

VSON008V2030



Embossed carrier tape:3,000pcs

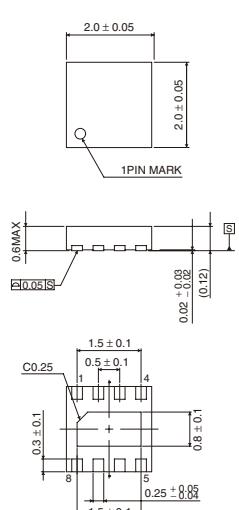
VSON010V3030



Embossed carrier tape:3,000pcs

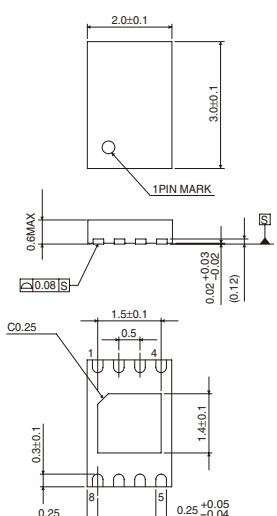
### VSON-X <Pin Pitch : 0.5mm> / USON-X <Pin Pitch : 0.4mm>

VSON008X2020



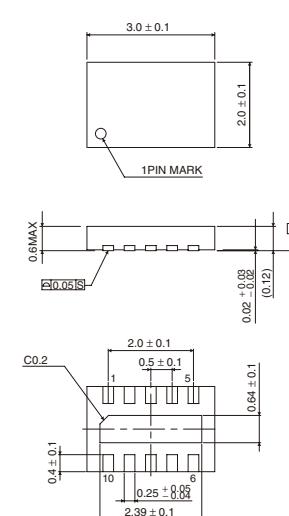
Embossed carrier tape:4,000pcs

VSON008X2030



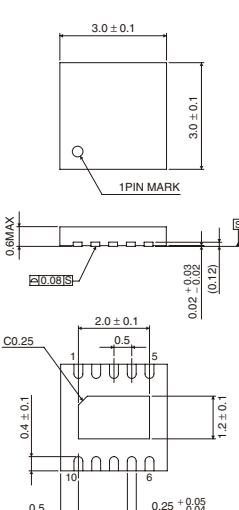
Embossed carrier tape:3,000pcs

VSON010X3020



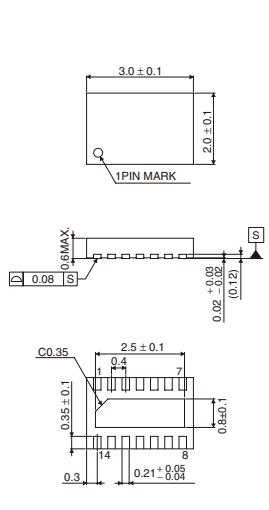
Embossed carrier tape:3,000pcs

VSON010X3030



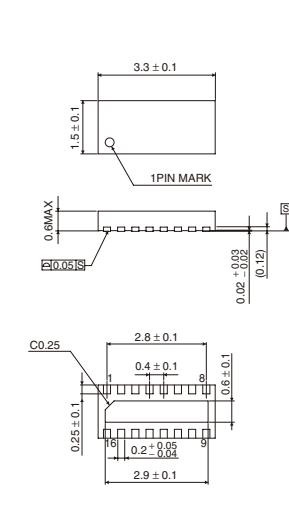
Embossed carrier tape:3,000pcs

USON14X3020



Embossed carrier tape:3,000pcs

USON16X3315



Embossed carrier tape:4,000pcs

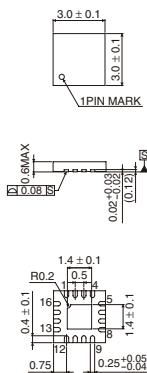
Please refer packages from page, A160 for LAPIIS Semiconductor products.

## SON / QFN Packages

(Unit: mm)

### VQFN-X <Pin Pitch : 0.5mm>

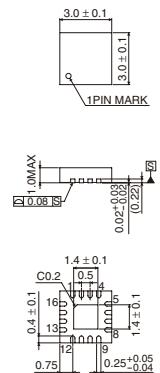
VQFN016X3030



Embossed carrier tape:3,000pcs

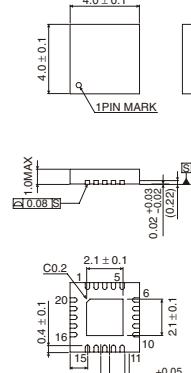
### VQFN-V <Pin Pitch : 0.5mm>

VQFN016V3030



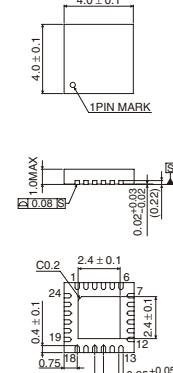
Embossed carrier tape:3,000pcs

VQFN020V4040



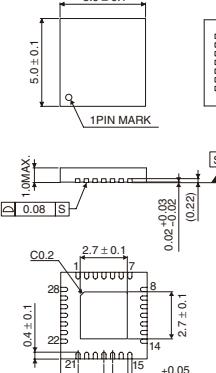
Embossed carrier tape:2,500pcs

VQFN024V4040



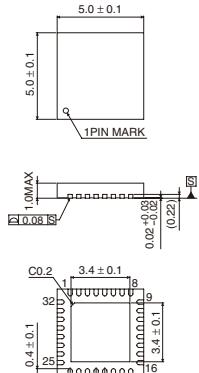
Embossed carrier tape:2,500pcs

VQFN028V5050



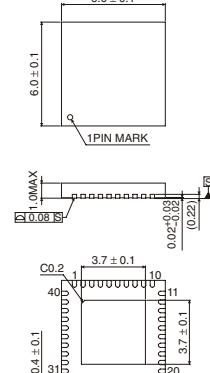
Embossed carrier tape:2,500pcs

VQFN032V5050



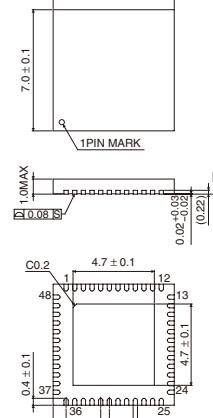
Embossed carrier tape:2,500pcs

VQFN040V6060



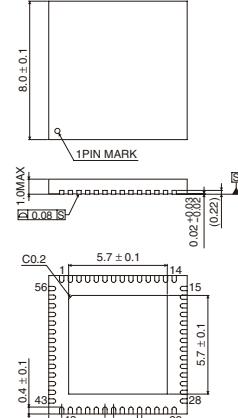
Embossed carrier tape:2,000pcs

VQFN048V7070



Embossed carrier tape:1,500pcs

VQFN056V8080

Under Development  
Embossed carrier tape:1,000pcs

▶ SON / QFN Packages ▶ UQFN-V&lt;Pin Pitch:0.4mm&gt;

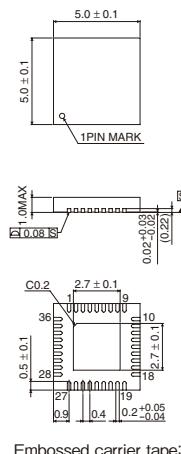
Please refer packages from page, A160 for LAPI Semiconductor products.

## SON / QFN Packages

(Unit: mm)

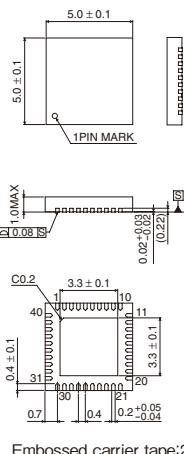
### UQFN-V <Pin Pitch : 0.4mm>

UQFN036V5050



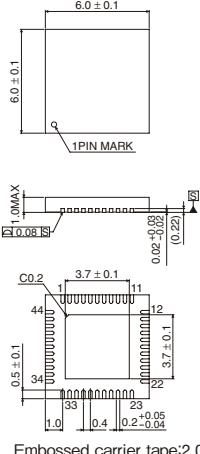
Embossed carrier tape:2,500pcs

UQFN040V5050



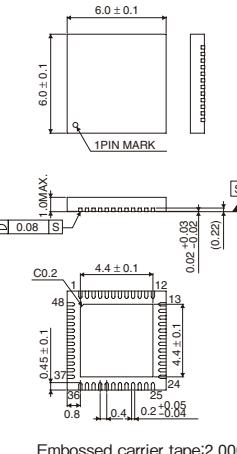
Embossed carrier tape:2,500pcs

UQFN044V6060



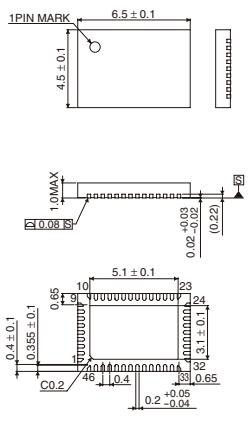
Embossed carrier tape:2,000pcs

UQFN048V6060



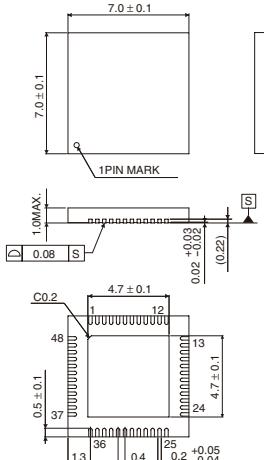
Embossed carrier tape:2,000pcs

UQFN046V4565



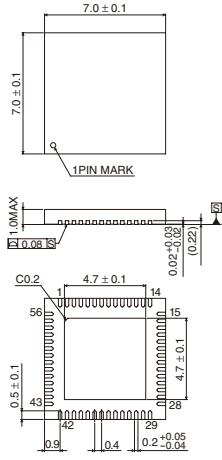
Embossed carrier tape:2,000pcs

UQFN048V7070



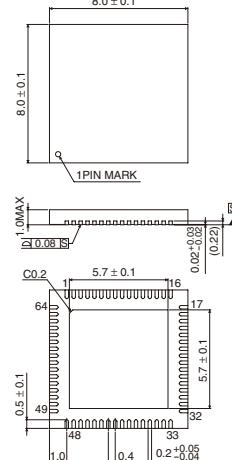
Embossed carrier tape:1,500pcs

UQFN056V7070



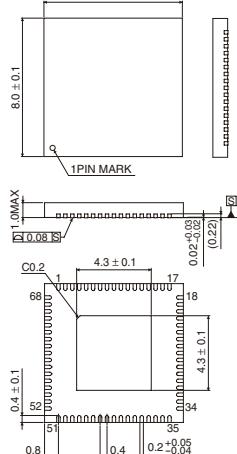
Embossed carrier tape:1,500pcs

UQFN064V8080



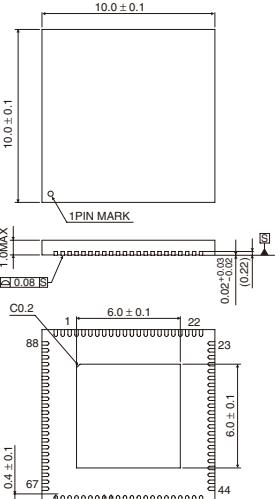
Embossed carrier tape:1,000pcs

UQFN068V8080



Embossed carrier tape:1,000pcs

UQFN088V0100

Embossed carrier tape:1,000pcs  
Under Development

A

IC Packages

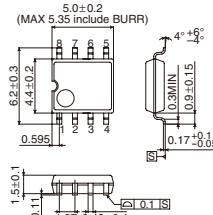
Please refer packages from page, A160 for LAPIIS Semiconductor products.

## SOP Packages

(Unit: mm)

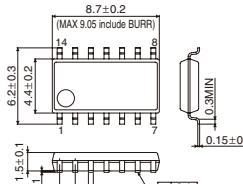
### SOP <Pin Pitch : 1.27mm>

SOP8



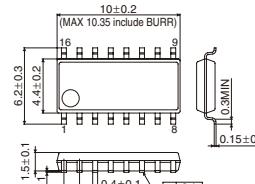
Embossed carrier tape:2,500pcs

SOP14



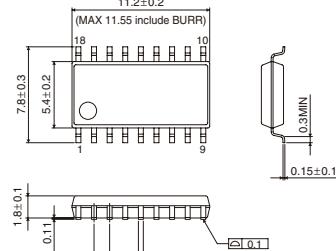
Embossed carrier tape:2,500pcs

SOP16



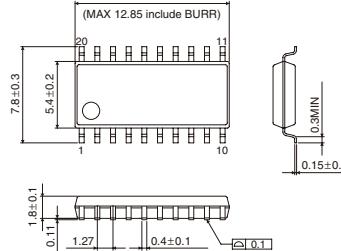
Embossed carrier tape:2,500pcs

SOP18



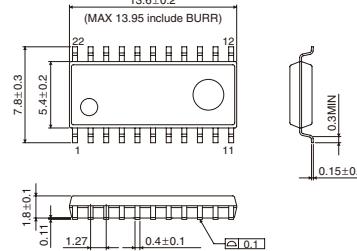
Embossed carrier tape:2,000pcs

SOP20



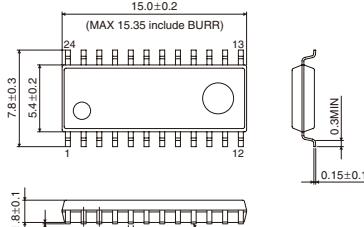
Embossed carrier tape:2,000pcs

SOP22



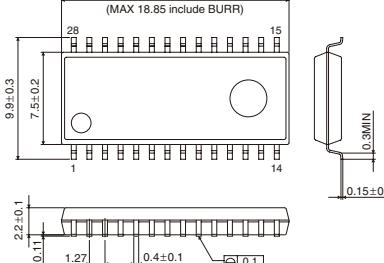
Embossed carrier tape:2,000pcs

SOP24



Embossed carrier tape:2,000pcs

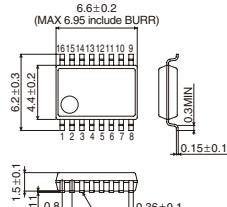
SOP28



Embossed carrier tape:1,500pcs

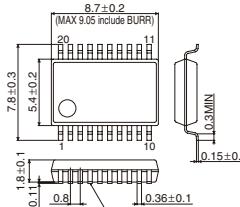
### SSOP-A <Pin Pitch : 0.8mm>

SSOP-A16



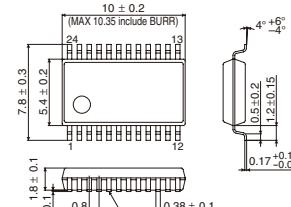
Embossed carrier tape:2,500pcs

SSOP-A20



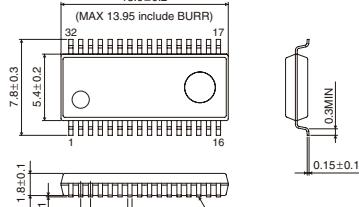
Embossed carrier tape:2,000pcs

SSOP-A24



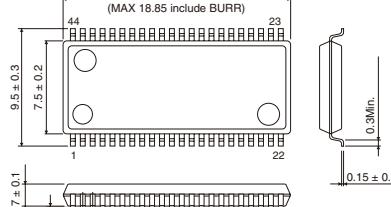
Embossed carrier tape:2,000pcs

SSOP-A32



Embossed carrier tape:2,000pcs

SSOP-A44



Embossed carrier tape:1,500pcs

► SOP Packages ► SSOP-B &lt;Pin Pitch: 0.65mm&gt;

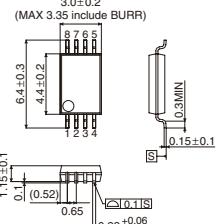
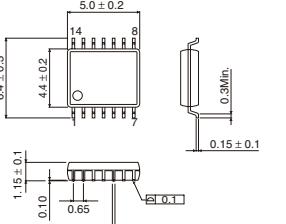
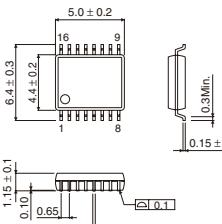
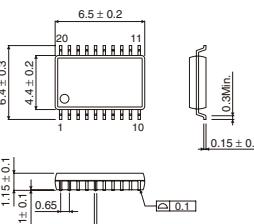
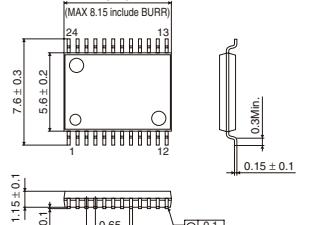
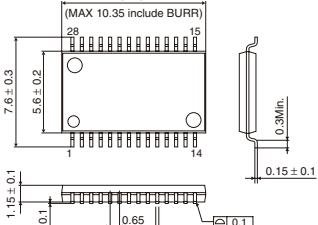
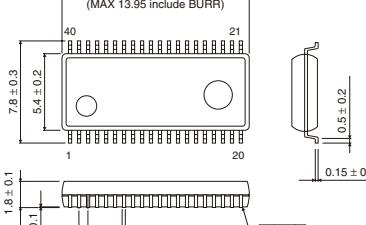
► JEDEC &lt;Pin Pitch: 1.27mm/0.65mm/0.5mm&gt;

Please refer packages from page, A160 for LAPI Semiconductor products.

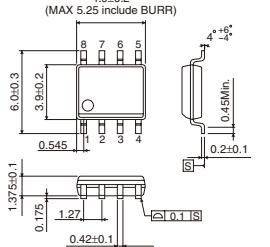
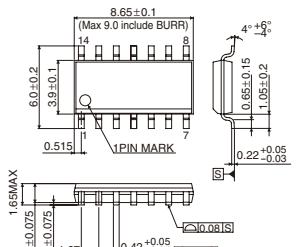
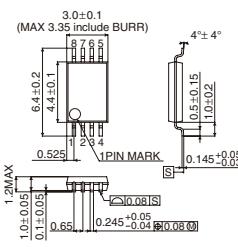
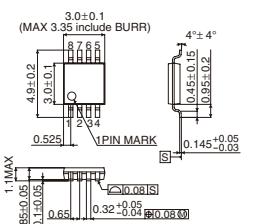
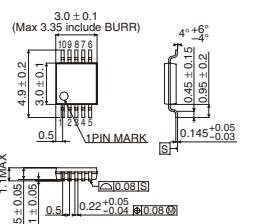
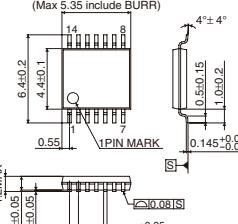
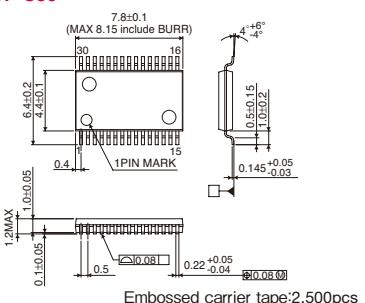
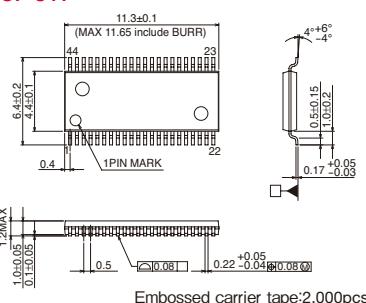
## SOP Packages

(Unit: mm)

### SSOP-B <Pin Pitch : 0.65mm>

<b>SSOP-B8</b>	<b>SSOP-B14</b>	<b>SSOP-B16</b>	<b>SSOP-B20</b>
 Embossed carrier tape: 2,500pcs	 Embossed carrier tape: 2,500pcs	 Embossed carrier tape: 2,500pcs	 Embossed carrier tape: 2,500pcs
<b>SSOP-B24</b>	<b>SSOP-B28</b>	<b>SSOP-B40</b>	
 Embossed carrier tape: 2,000pcs	 Embossed carrier tape: 2,000pcs	 Embossed carrier tape: 2,000pcs	

### JEDEC <Pin Pitch : 1.27mm/0.65mm/0.5mm>

<b>SOP-J8</b>	<b>SOP-J14</b>	<b>TSSOP-B8</b>
 Embossed carrier tape: 2,500pcs	 Embossed carrier tape: 2,500pcs	 Embossed carrier tape: 3,000pcs
<b>TSSOP-B8J</b>	<b>TSSOP-C10J</b>	<b>TSSOP-B14J</b>
 Embossed carrier tape: 2,500pcs	 Embossed carrier tape: 2,500pcs	 Embossed carrier tape: 2,500pcs
<b>TSSOP-C30</b>	<b>TSSOP-C44</b>	
 Embossed carrier tape: 2,500pcs	 Embossed carrier tape: 2,000pcs	

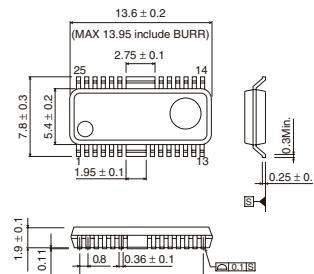
Please refer packages from page, A160 for LAPIIS Semiconductor products.

## HSOP Packages

(Unit: mm)

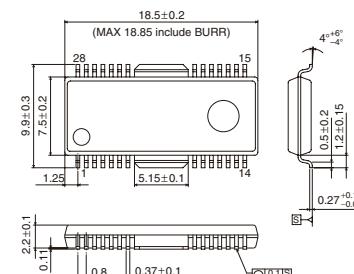
### HSOP <Pin Pitch : 0.8mm>

**HSOP25**



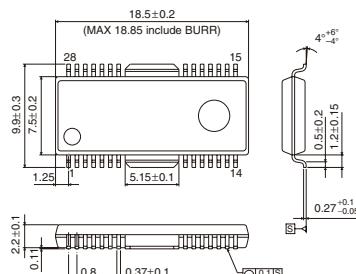
Embossed carrier tape:2,000pcs

**HSOP28**



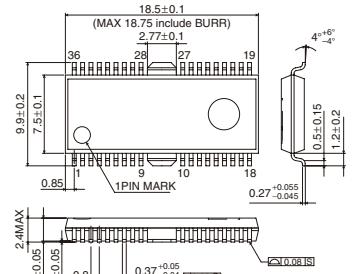
Embossed carrier tape:1,500pcs

**HSOP-M28**



Embossed carrier tape:1,500pcs

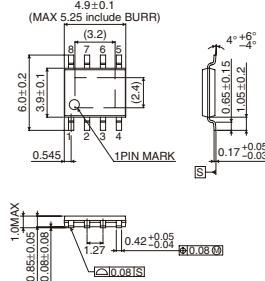
**HSOP-M36**



Embossed carrier tape:1,500pcs

### HTSOP-J <Pin Pitch : 1.27mm>

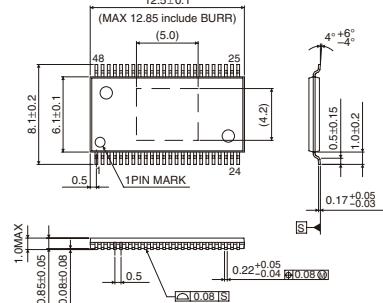
**HTSOP-J8**



Embossed carrier tape:2,500pcs

### HTSSOP-C <Pin Pitch : 0.5mm>

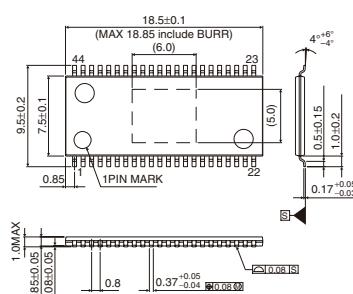
**HTSSOP-C48**



Embossed carrier tape:2,000pcs

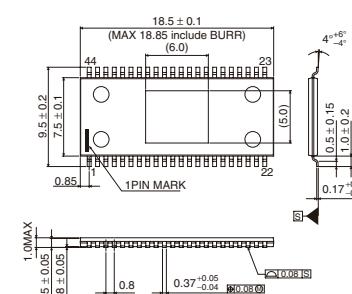
### HTSSOP-A <Pin Pitch : 0.8mm>

**HTSSOP-A44**



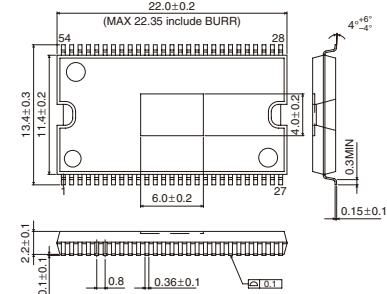
Embossed carrier tape:1,500pcs

**HTSSOP-A44R**



Embossed carrier tape:1,500pcs

**HSSOP-A54**

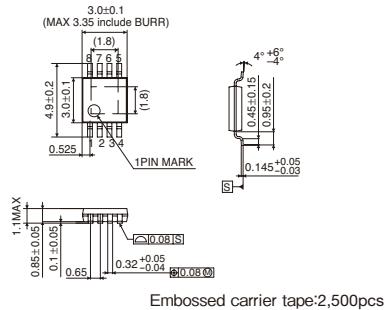
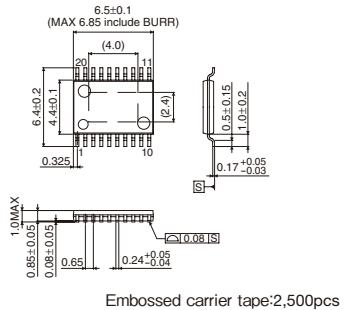
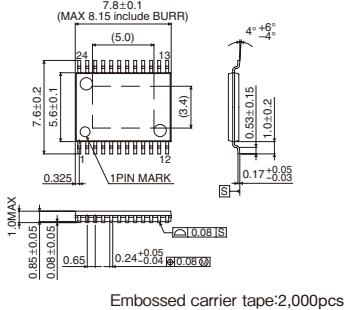
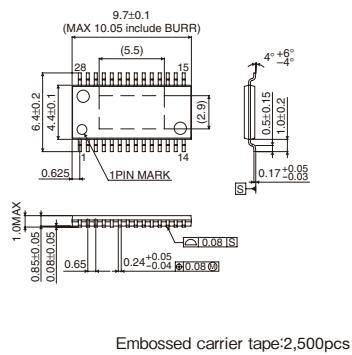
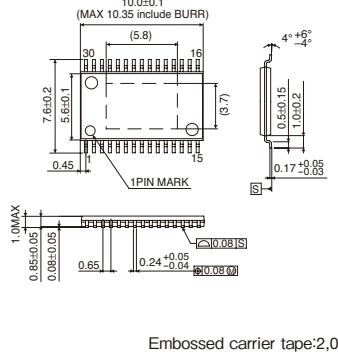
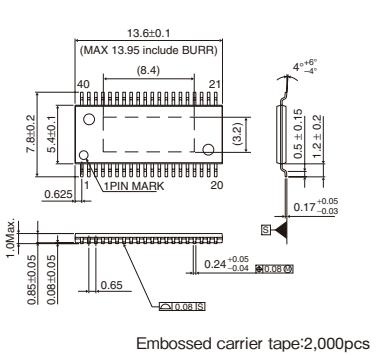
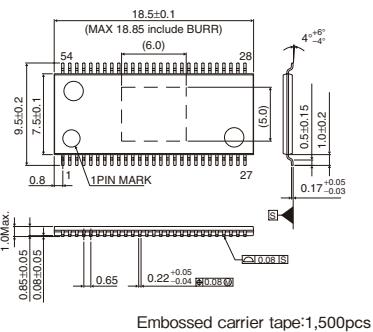


Please refer packages from page, A160 for LAPIS Semiconductor products.

## HSOP Packages

(Unit: mm)

### HTSSOP-B <Pin Pitch : 0.65mm>

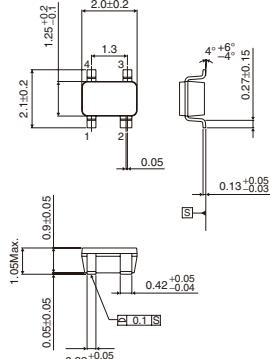
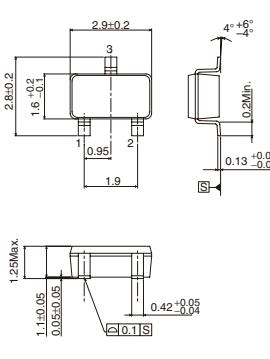
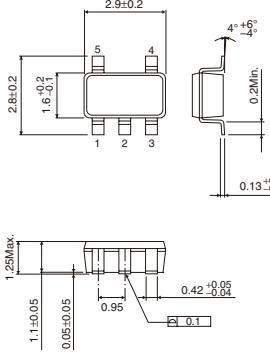
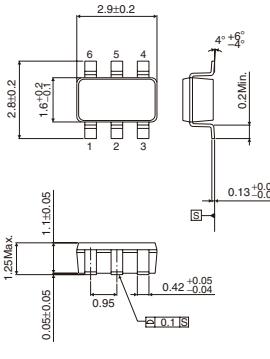
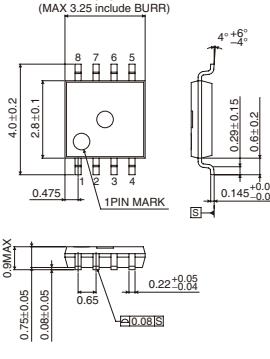
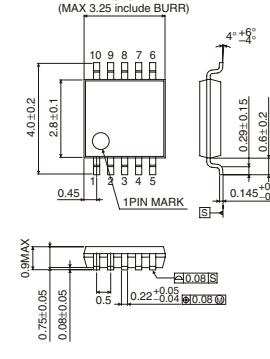
**HTSSOP-B8J****HTSSOP-B20****HTSSOP-B24****HTSSOP-B28****HTSSOP-B30****HTSSOP-B40****HTSSOP-B54**

Please refer packages from page, A160 for LAPIIS Semiconductor products.

## Small Packages

(Unit: mm)

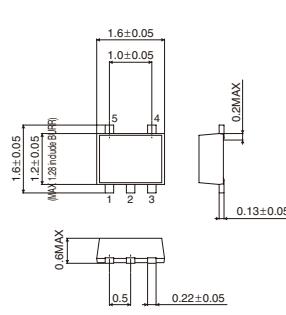
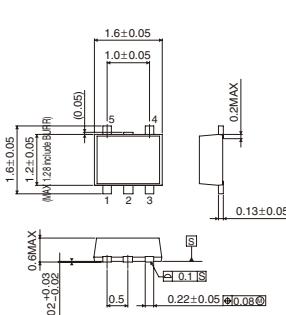
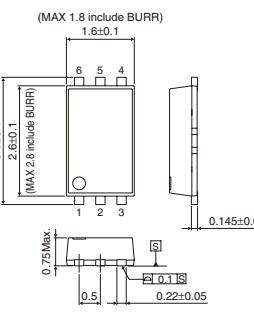
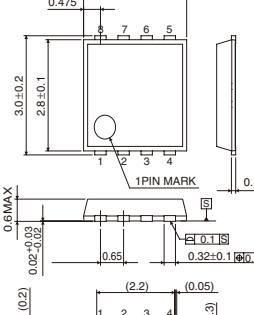
### SOP Type

<b>SOP4</b>  <p>Embossed carrier tape:3,000pcs</p>	<b>SSOP3</b>  <p>Embossed carrier tape:3,000pcs</p>	<b>SSOP5</b>  <p>Embossed carrier tape:3,000pcs</p>
<b>SSOP6</b>  <p>Embossed carrier tape:3,000pcs</p>	<b>MSOP8</b>  <p>Embossed carrier tape:3,000pcs</p>	<b>MSOP10</b>  <p>Embossed carrier tape:3,000pcs</p>

## Non-Lead Packages

(Unit: mm)

### Non-Lead

<b>VSOF5</b>  <p>Embossed carrier tape:3,000pcs</p>	<b>HVSOF5</b>  <p>Embossed carrier tape:3,000pcs</p>	<b>HVSOF6</b>  <p>Embossed carrier tape:3,000pcs</p>	<b>HSON8</b>  <p>Embossed carrier tape:3,000pcs</p>
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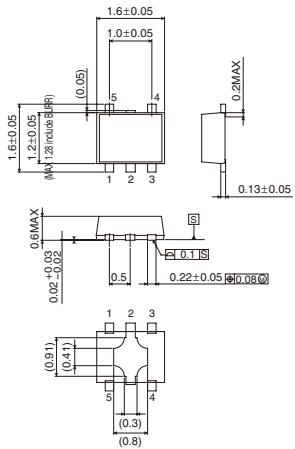
Please refer packages from page, A160 for LAPI Semiconductor products.

## Non-Lead Packages

(Unit: mm)

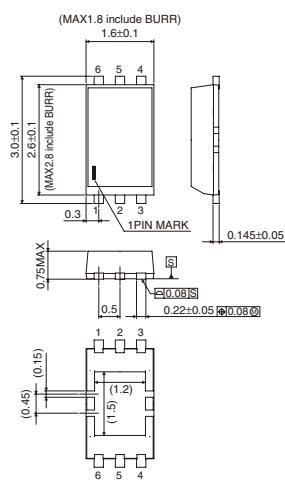
### Optical Non-Lead

**WSOF5(Clear Type)**



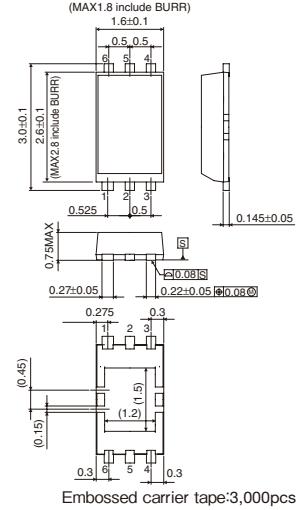
Embossed carrier tape:3,000pcs

**WSOF6 (Clear Type)**



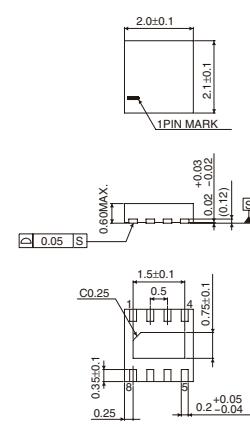
Embossed carrier tape:3,000pcs

**WSOF6I**



Embossed carrier tape:3,000pcs

**WSON008X2120 (Clear Type)**



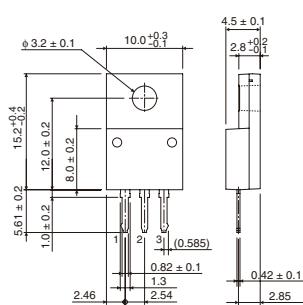
Embossed carrier tape:4,000pcs

## Power Packages

(Unit: mm)

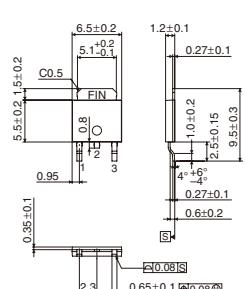
### POWER-3PIN

**TO220CP-3**



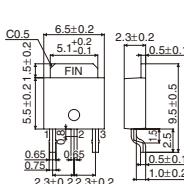
Embossed carrier tape:500pcs

**TO252S-3**



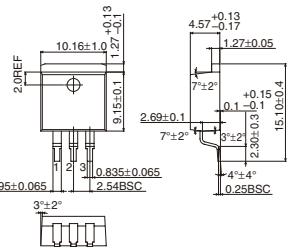
Embossed carrier tape:2,000pcs

**TO252-3**



Embossed carrier tape:2,000pcs

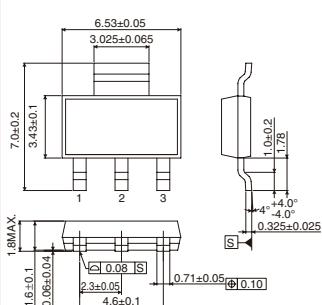
**TO263-3**



Embossed carrier tape:500pcs

### POWER-4PIN

**SOT223-4**



Embossed carrier tape:2,000pcs

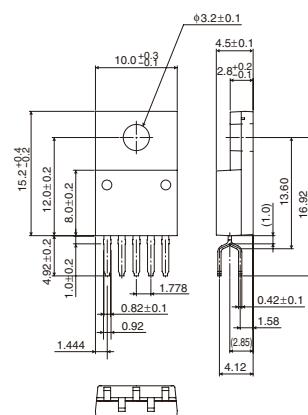
Please refer packages from page, A160 for LAPIS Semiconductor products.

## Power Packages

(Unit: mm)

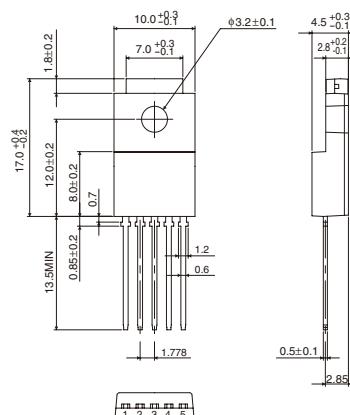
### POWER-5PIN

TO220CP-V5



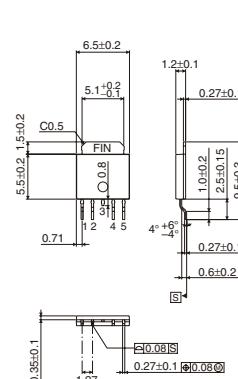
Embossed carrier tape: 500pcs

TO220FP-5



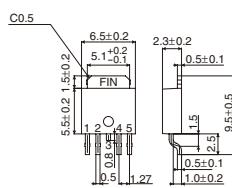
Container tube: 500pcs

TO252S-5



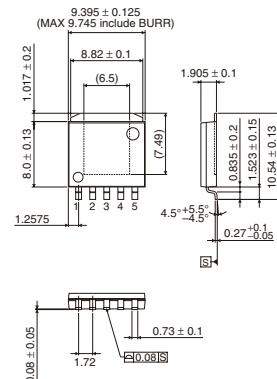
Embossed carrier tape: 2,000pcs

TO252-5



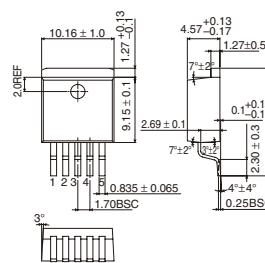
Embossed carrier tape: 2,000pcs

HRP5



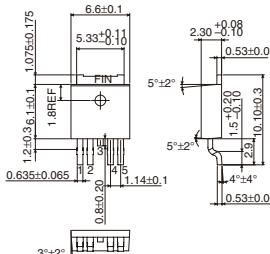
Embossed carrier tape: 2,600pcs

TO263-5



Embossed carrier tape: 500pcs

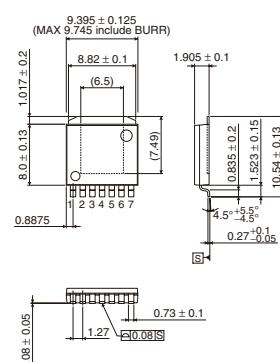
TO252-J5



Embossed carrier tape: 2,000pcs

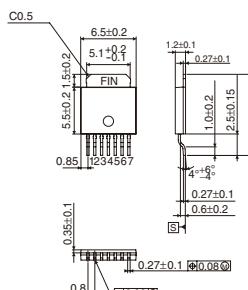
### POWER-7PIN

HRP7



Embossed carrier tape: 2,000pcs

TO252S-7+

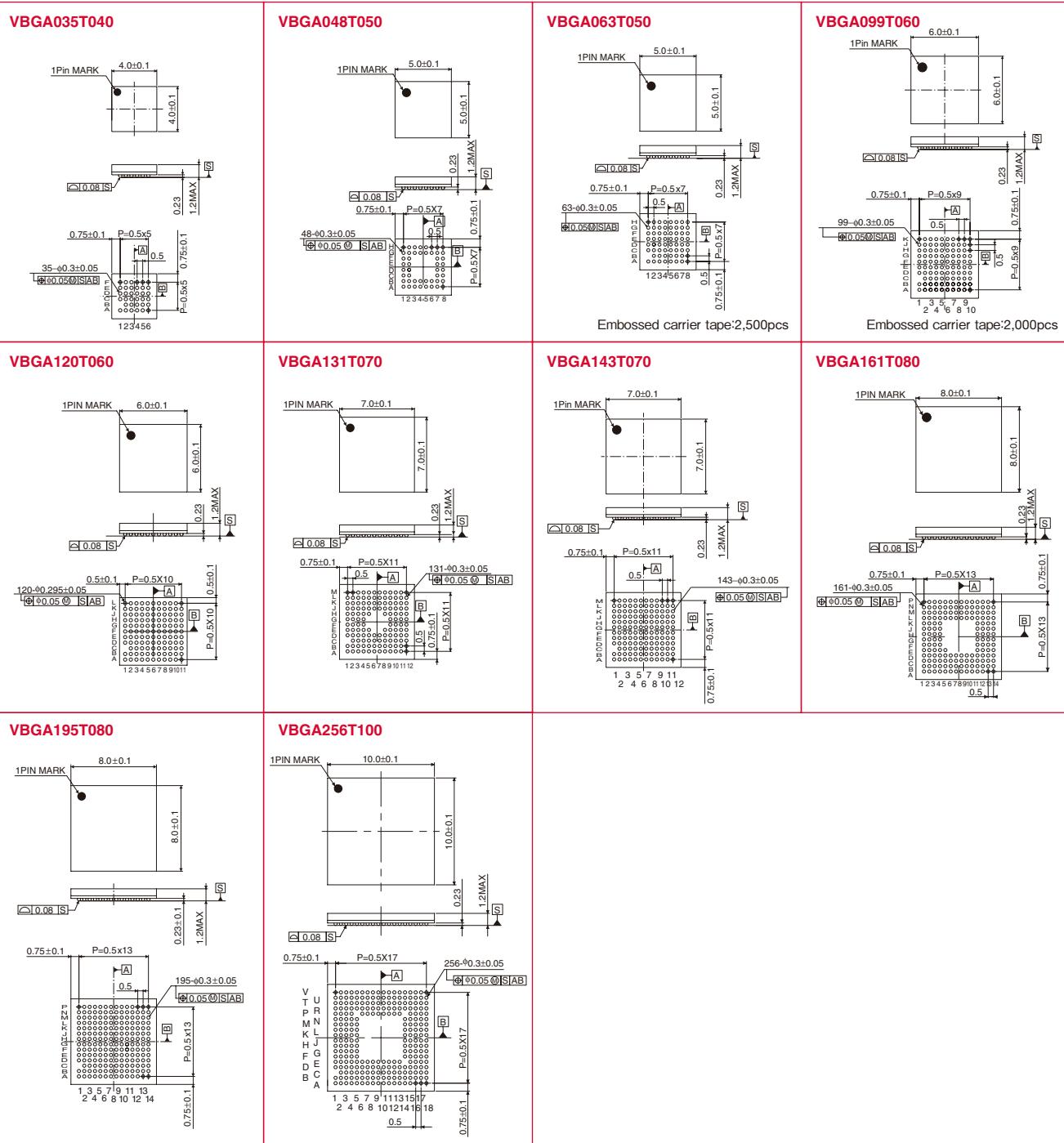


Embossed carrier tape: 2,000pcs

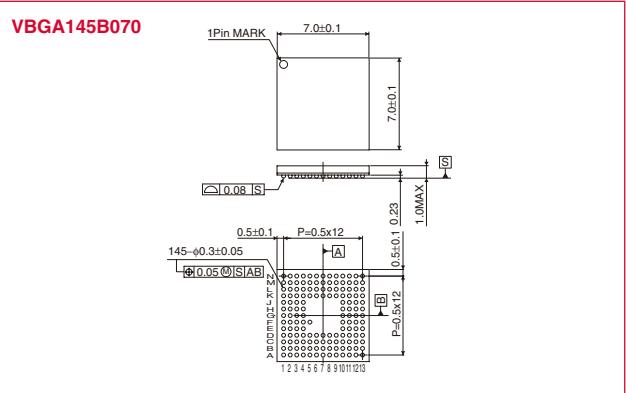
**Please refer packages from page, A160 for LAPI Semiconductor products.**

# BGA Packages

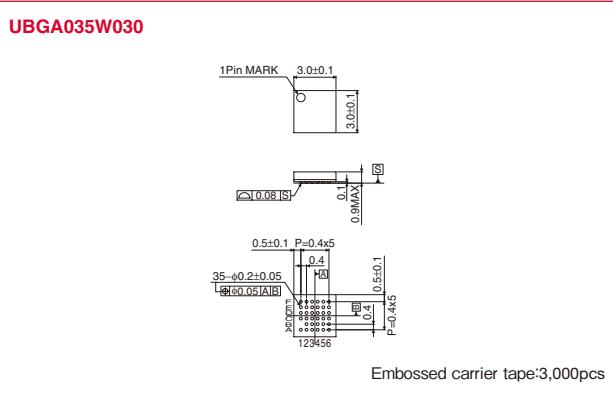
**VBGA-T <Pin Pitch : 0.5mm>**



## **VBGA-B <Pin Pitch : 0.5mm>**



## **UBGA-W <Pin Pitch : 0.4mm>**



Please refer packages from page, A160 for LAPIS Semiconductor products.

## BGA Packages

(Unit: mm)

### VBGA-W <Pin Pitch : 0.5mm>

<b>VBGA035W040</b>	<b>VBGA048W040</b>	<b>VBGA063W050</b>	<b>VBGA080W050</b>
Embossed carrier tape:2,500pcs	Embossed carrier tape:2,500pcs	Embossed carrier tape:2,500pcs	Embossed carrier tape:2,500pcs

<b>VBGA099W060</b>	<b>VBGA143W070</b>

Embossed carrier tape:2,000pcs

### SBGA-T <Pin Pitch : 0.65mm>

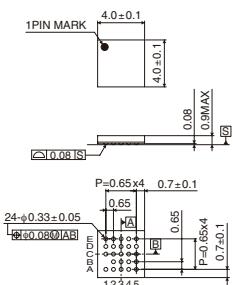
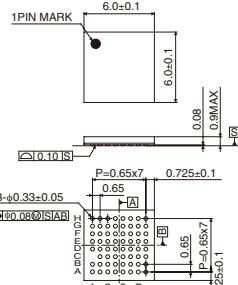
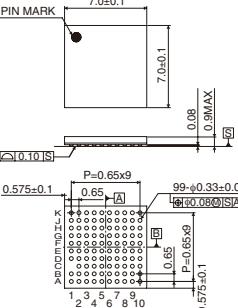
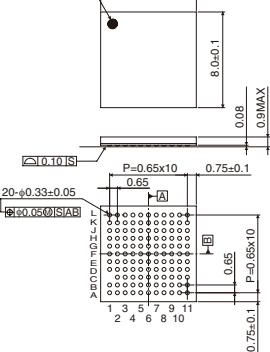
<b>SBGA063T060</b>	<b>SBGA099T070</b>	<b>SBGA120T080</b>

Please refer packages from page, A160 for LAPI Semiconductor products.

## BGA Packages

(Unit: mm)

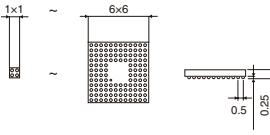
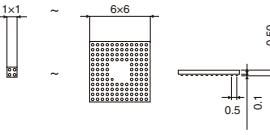
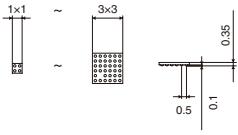
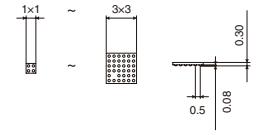
### SBGA-W <Pin Pitch : 0.65mm>

SBGA024W040	SBGA063W060	SBGA099W070	SBGA120W080
			

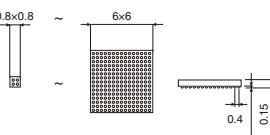
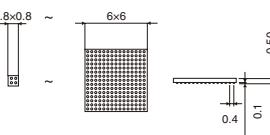
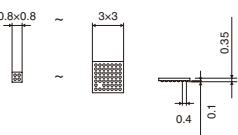
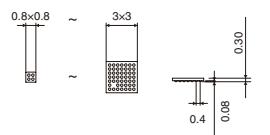
## WL-CSP Packages

(Unit: mm)

### VCSP <Pin Pitch : 0.5mm>

VCSP85H	VCSP50L	VCSP35L	VCSP30L
 2.8mm <sup>□</sup> and under : 3,000pcs Over 2.8mm <sup>□</sup> : 2,500pcs	 2.8mm <sup>□</sup> and under : 3,000pcs Over 2.8mm <sup>□</sup> : 2,500pcs	 2.8mm <sup>□</sup> and under : 3,000pcs Over 2.8mm <sup>□</sup> : 2,500pcs	 2.8mm <sup>□</sup> and under : 3,000pcs Over 2.8mm <sup>□</sup> : 2,500pcs

### UCSP <Pin Pitch : 0.4mm>

UCSP75M	UCSP50L	UCSP35L	UCSP30L
 2.8mm <sup>□</sup> and under : 3,000pcs Over 2.8mm <sup>□</sup> : 2,500pcs	 2.8mm <sup>□</sup> and under : 3,000pcs Over 2.8mm <sup>□</sup> : 2,500pcs	 2.8mm <sup>□</sup> and under : 3,000pcs Over 2.8mm <sup>□</sup> : 2,500pcs	 2.8mm <sup>□</sup> and under : 3,000pcs Over 2.8mm <sup>□</sup> : 2,500pcs

These package size are an example. For details, please inquire to the sales.

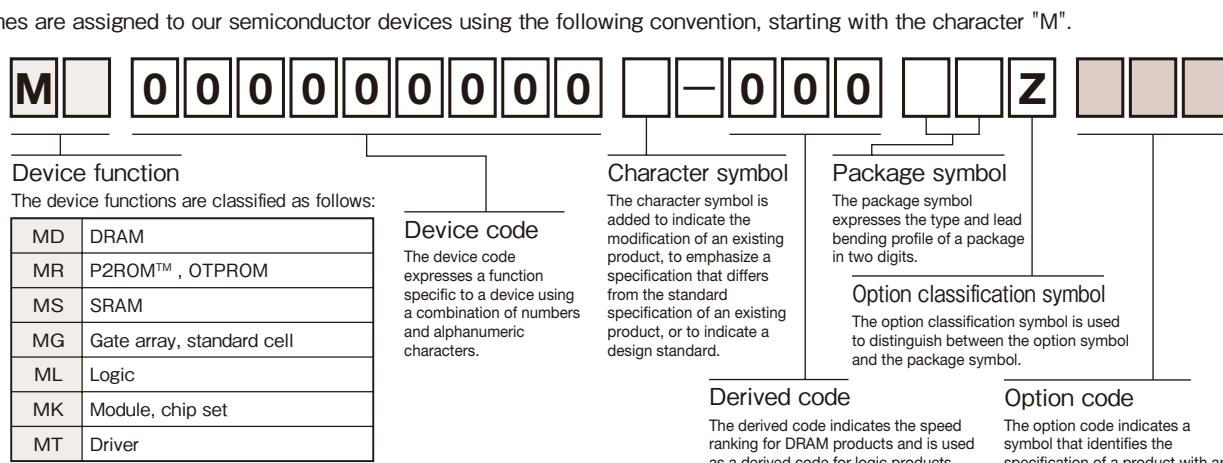
## LAPIS Semiconductor LSI package list

No	PKG type	Title	TRAY	T&R	TUBE
1	SOP	SOP8		2500	
2	SOP	SOP16	1600	1000	
3	SOP	SOP24	1280	1000	3000
4	SOP	SOP44	400	600	1700
5	SSOP	SSOP16	4760	2500	
6	SSOP	SSOP20	3600	2500	
7	SSOP	SSOP30-56-0.65	2000	2000	
8	SSOP	SSOP32	1280	1000	3000
9	SSOP	SSOP60	600	600	
10	SSOP	SSOP70	630	600	
11	SSOP	TSSOP20	4160		
12	TSOP	TSOP (I) 28	1950		
13	TSOP	TSOP (I) 32	800	1000	
14	TSOP	TSOP (I) 48	960	1000	
15	TSOP	TSOP (I) 56	960	1000	
16	TSOP	TSOP (II) 26/20	1600	1600	
17	TSOP	TSOP (II) 26/24	1600	1000	
18	TSOP	TSOP (II) 28	800	1000	
19	TSOP	TSOP (II) 44/40	1350	1000	
20	TSOP	TSOP (II) 44	1350	1000	
21	TSOP	TSOP (II) 50/44	1170	1000	
22	TSOP	TSOP (II) 50	1170	1000	
23	TSOP	TSOP (II) 54	1080	1000	
24	TSOP	TSOP (II) 70	1350	1000	
25	TSOP	TSOP (II) 86	1080	1000	
26	QFP	QFP44	1440	1000	
27	QFP	QFP56	1440	1000	
28	QFP	QFP64-1420-1.00	600		
29	QFP	QFP64-1414-0.80	840		
30	QFP	P-QFP80-1414-0.65	840		
31	QFP	QFP80-1420-0.80	600		
32	QFP	QFP100-1420-0.65	600		
33	QFP	QFP100-1414-0.50	750		
34	QFP	QFP128-1420-0.50	420		
35	QFP	QFP128-2828-0.80	240		

\*Regarding an unstated package, please inquire to the sales.

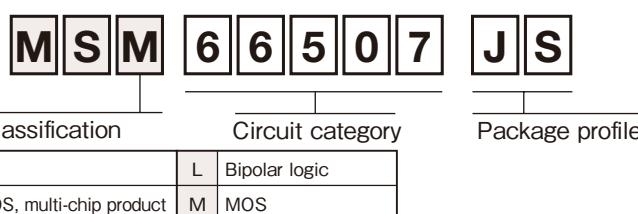
No	PKG type	Title	TRAY	T&R	TUBE
36	QFP	QFP208	240		
37	QFP	LQFP144	600		
38	QFP	LQFP176	400		
39	QFP	TQFP44	1600		
40	QFP	TQFP52	1600	1000	
41	QFP	TQFP80-1414-0.65	900		
42	QFP	TQFP100	900		
43	QFP	TQFP120	750		
44	QFP	TQFP128	900	1500	
45	QFN	WQFN12	6240	1000	
46	QFN	WQFN16-0303-0.50	6240	1000	
47	QFN	WQFN16-0404-0.50	4900	1000	
48	QFN	WQFN20	4900	1000	
49	QFN	WQFN24	4900	1000	
50	QFN	WQFN28-0404-0.40	4900	1000	
51	QFN	WQFN28-0404-0.50	4900	1000	
52	QFN	WQFN32-0505-0.50	4030	1000	
53	QFN	WQFN36	4900	2000	
54	QFN	WQFN40-0505-0.40	4030	1000	
55	QFN	WQFN40-0606-0.50	4900	2500	
56	QFN	WQFN48	2500	2000	
57	QFN	WQFN52	2500	2000	
58	QFN	WQFN64	2600	3000	
59	QFN	WQFN80	2600	3000	
60	QFN	C-TQFN18	4030	1000	
61	BGA	LFBGA48	4160		
62	BGA	LFBGA84	2600		
63	BGA	LFBGA144	1760		
64	BGA	LFBGA324	840		
65	BGA	TFBGA60	3360		
66	BGA	TFBGA64	4160		
67	BGA	TFBGA90	1710		
68	BGA	P-TFBGA144	1760		
69	BGA	TFBGA208-0909-0.50	2600		
70	BGA	TFBGA208-1212-0.65	1680		

Product names are assigned to our semiconductor devices using the following convention, starting with the character "M".



The following shows the convention of item name assignment for conventional products.

- The actual package profile is not shown here.

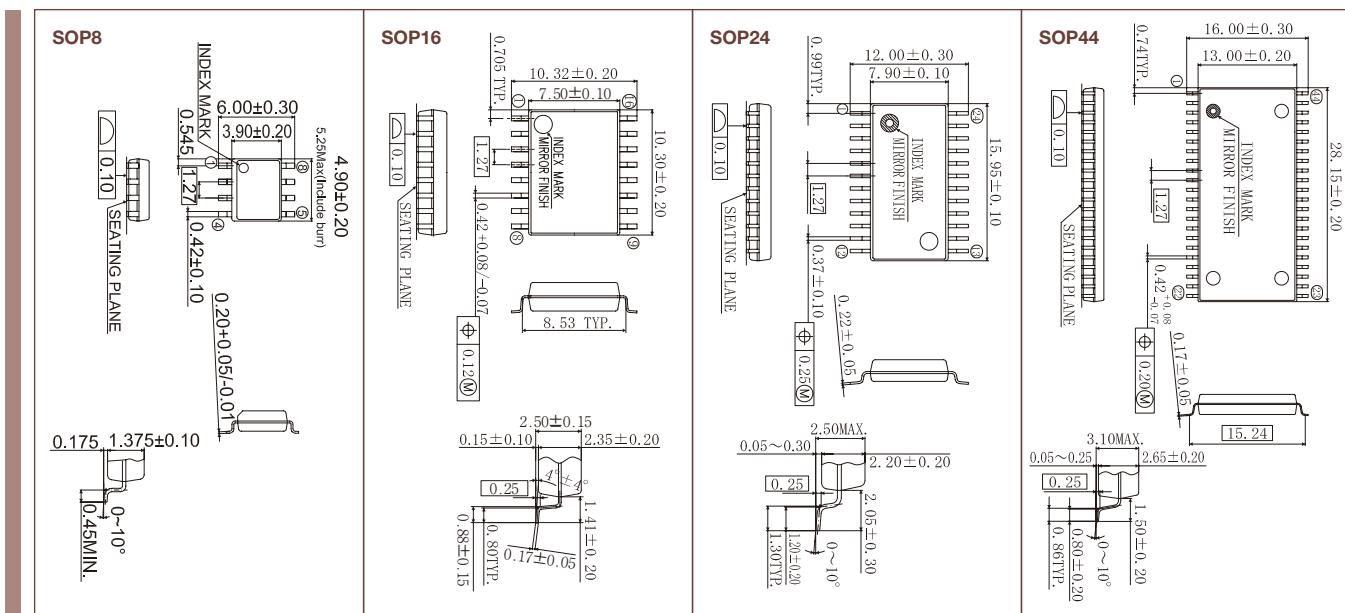


These package size are an example. For details, please inquire to the sales.

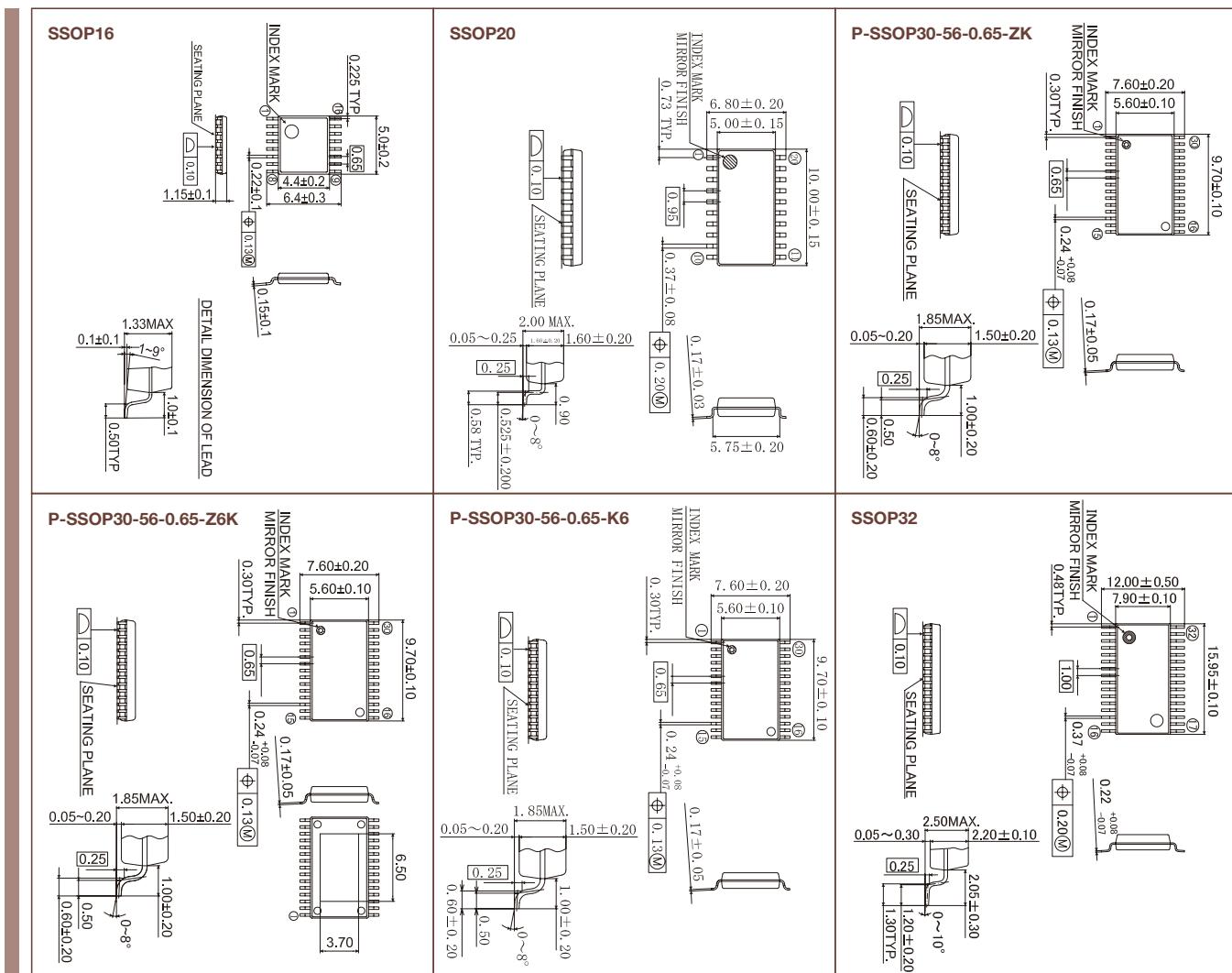
# SOP Packages

(Unit: mm)

SOP



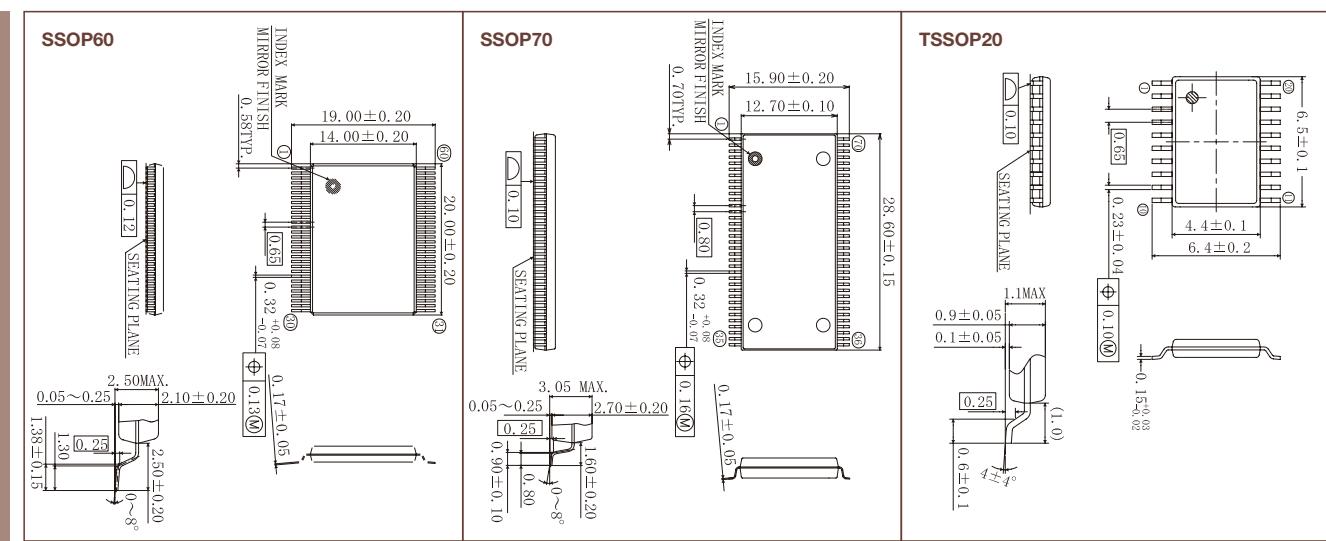
SSOP



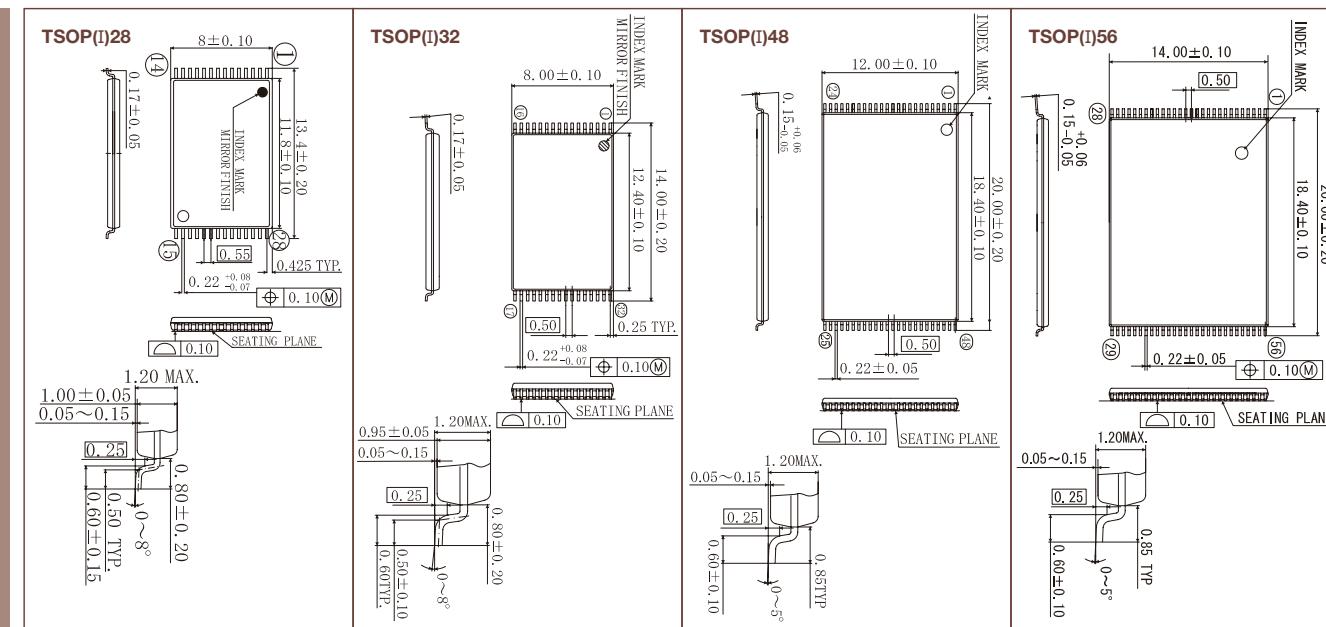
These package size are an example. For details, please inquire to the sales.

## SOP Packages

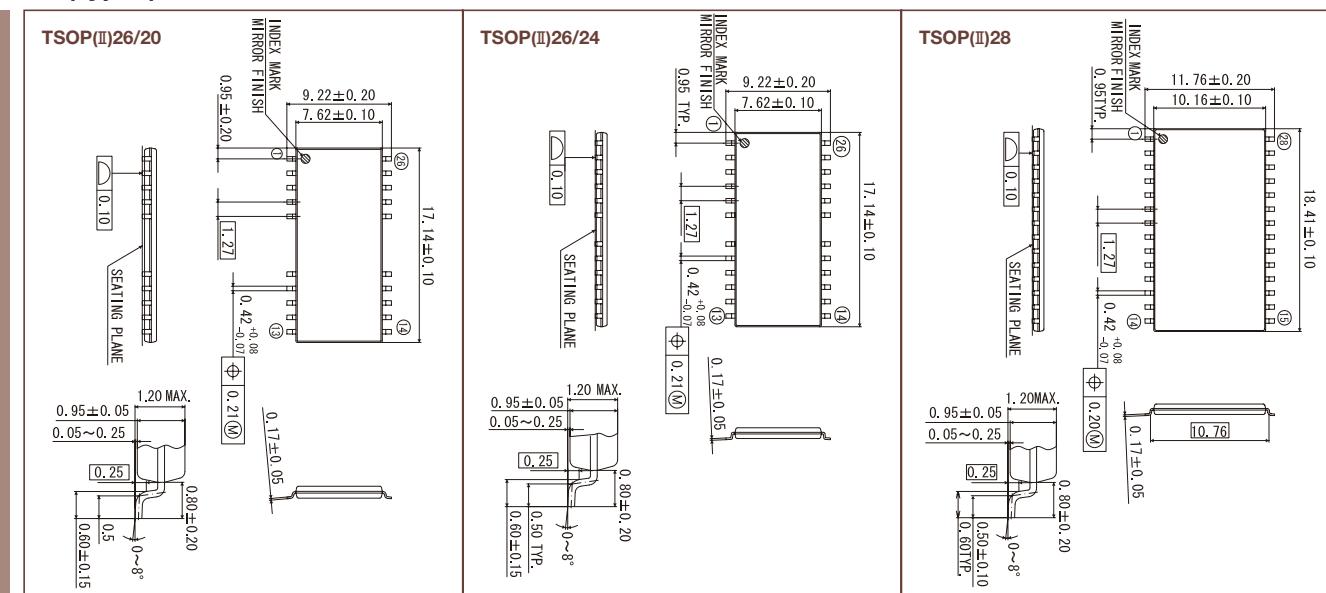
### SSOP



### TSOP(TypeI)



### TSOP(TypeII)



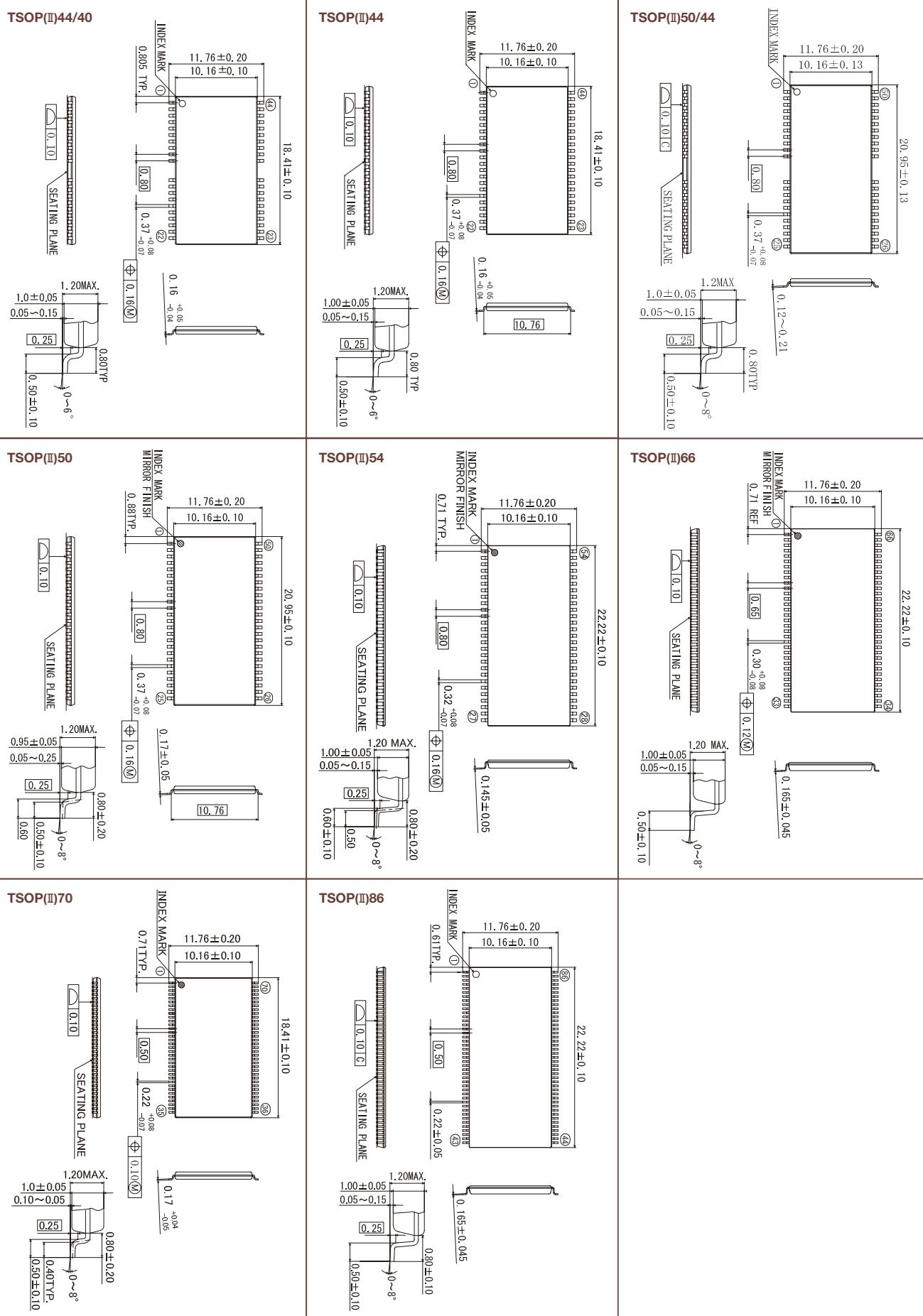
▶ SOP Packages ▶ TSOP (TypeII)

These package size are an example. For details, please inquire to the sales.

## TSOP Packages

(Unit: mm)

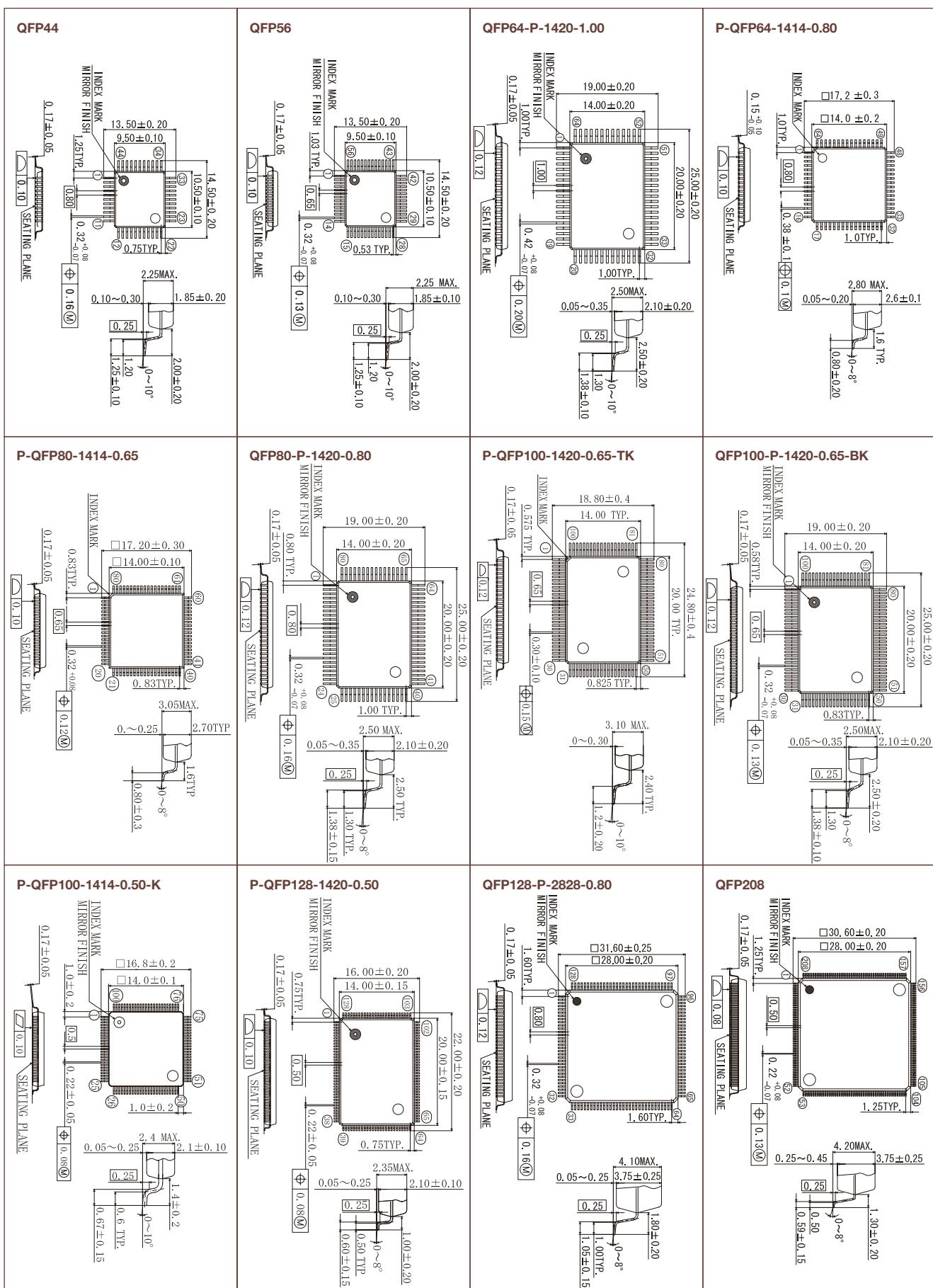
### TSOP(TypeII)



These package size are an example. For details, please inquire to the sales.

**QFP Packages**

(Unit: mm)

**QFP****A****IC Packages**

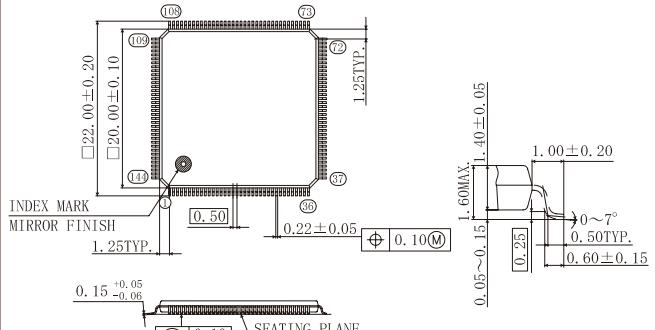
These package size are an example. For details, please inquire to the sales.

## QFP Packages

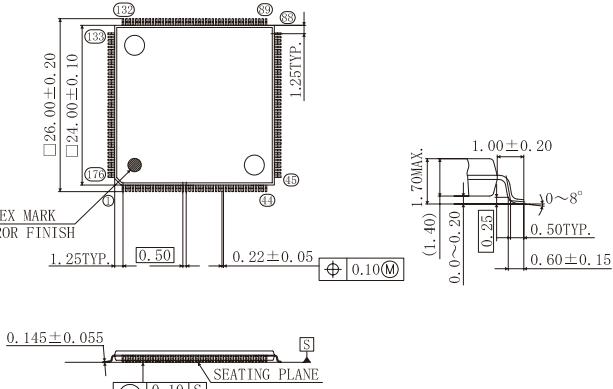
(Unit: mm)

### LQFP

**LQFP144**

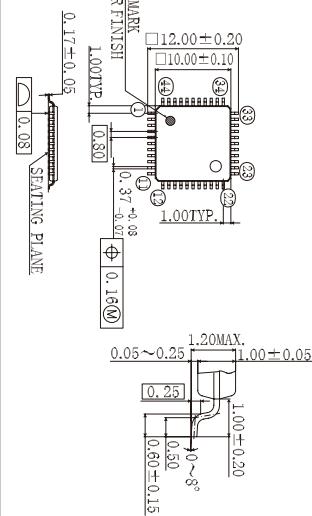


**LQFP176**

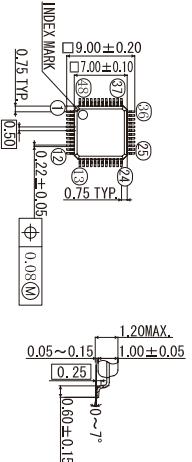


### TQFP

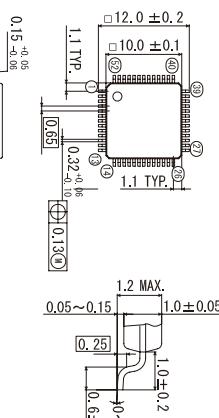
**TQFP44**



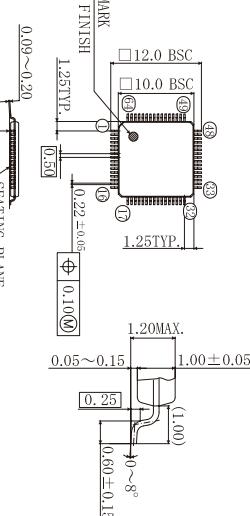
**TQFP48**



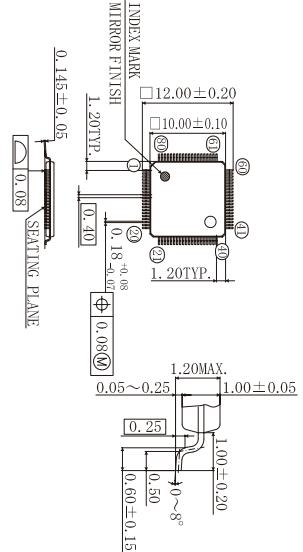
**TQFP52**



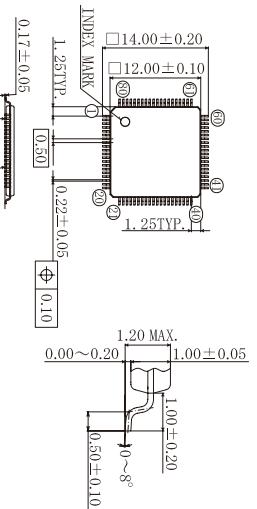
**TQFP64**



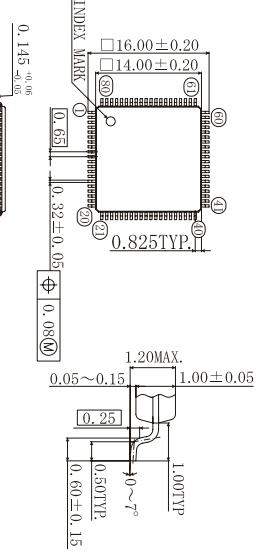
**P-TQFP80-1010-0.40**



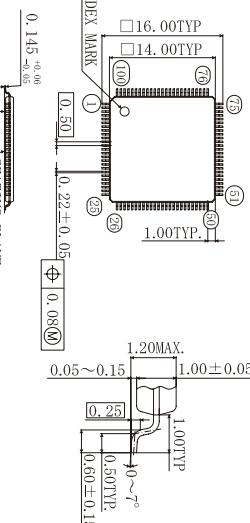
**P-TQFP80-1212-0.50**



**P-TQFP-80-1414-0.65**



**TQFP100**

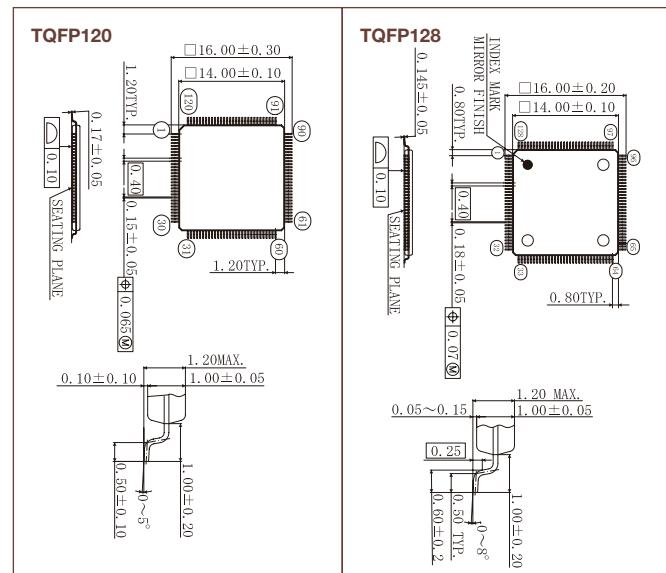


**These package size are an example. For details, please inquire to the sales.**

# **QFP Packages**

(Unit: mm)

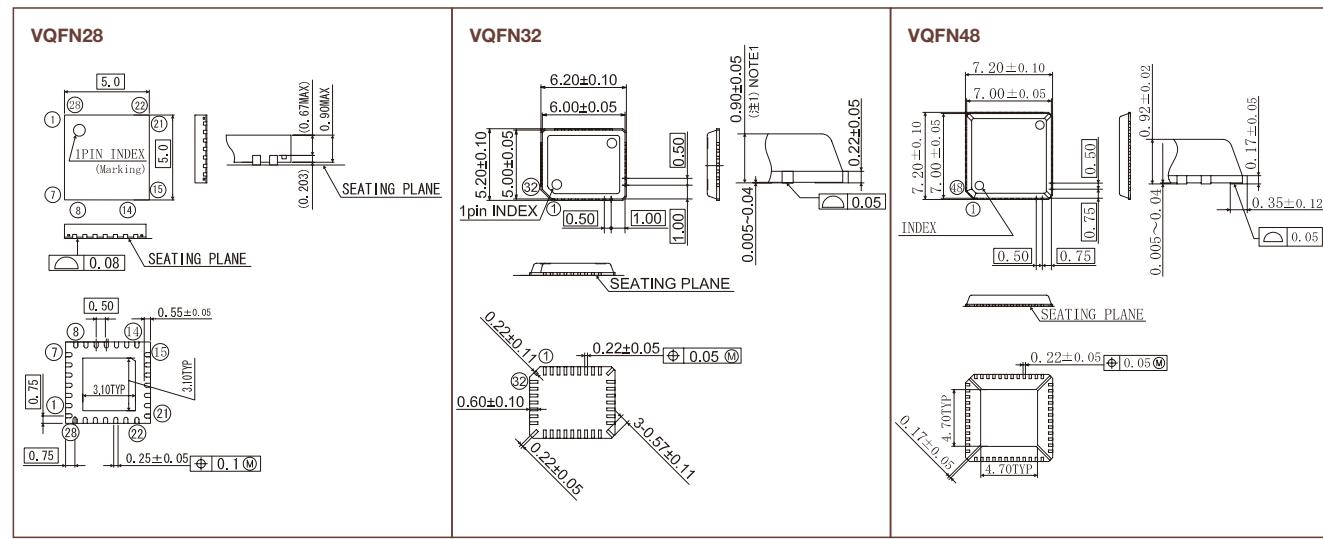
TQFP



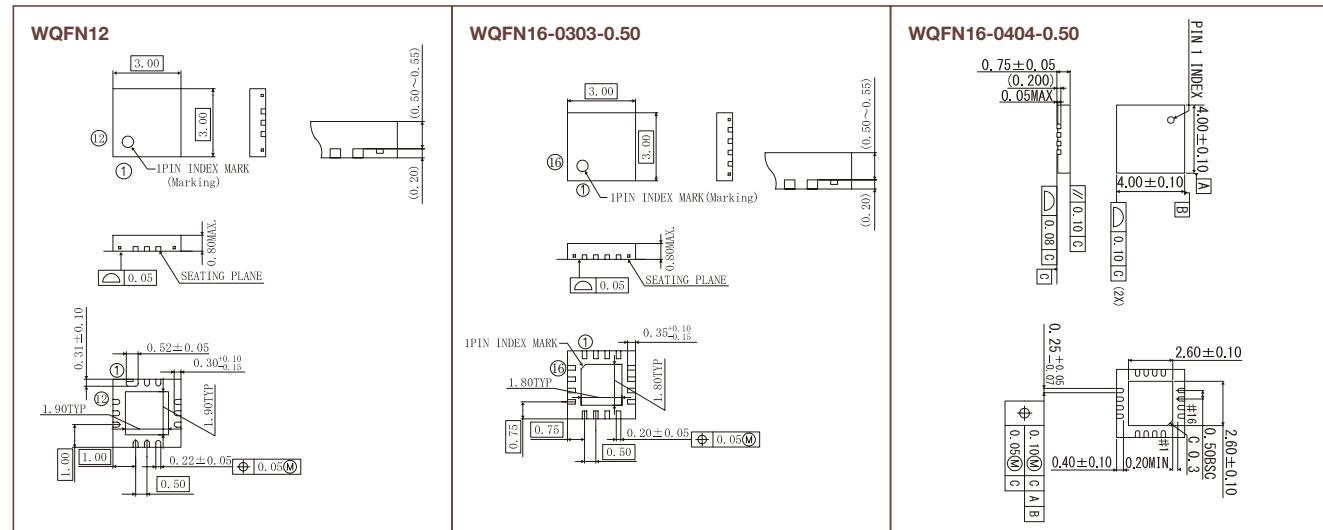
## **QFN Packages**

(Unit: mm)

VQFN



WQFN





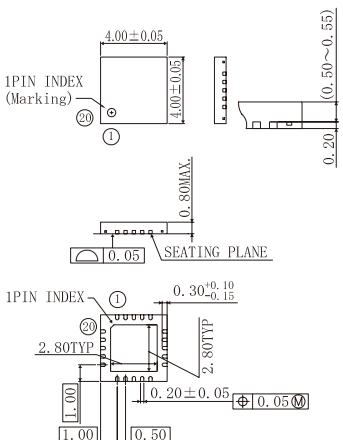
These package size are an example. For details, please inquire to the sales.

## QFN Packages

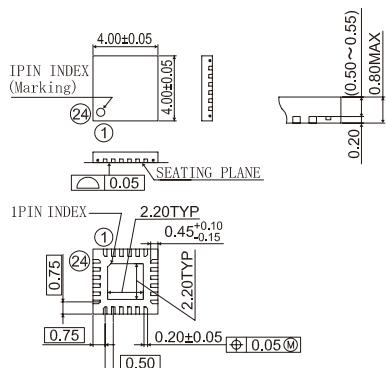
(Unit: mm)

### WQFN

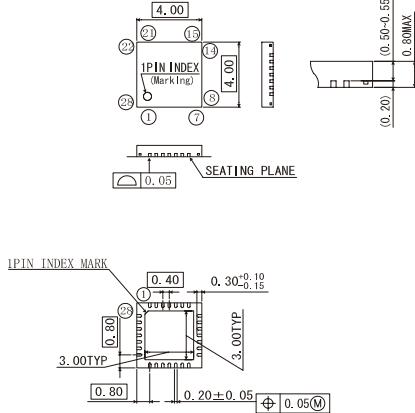
WQFN20



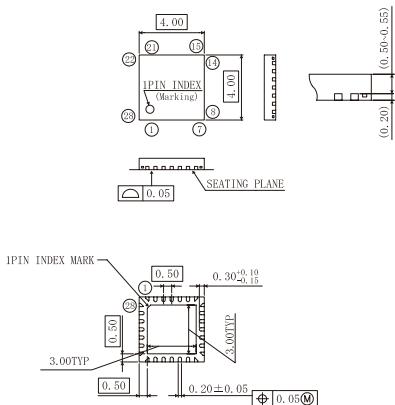
WQFN24



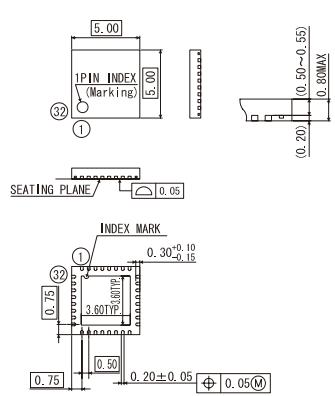
P-WQFN28-0404-0.40-63



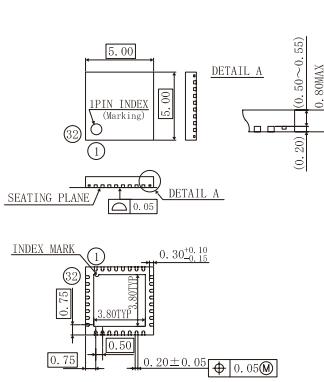
P-WQFN28-0404-0.50-63



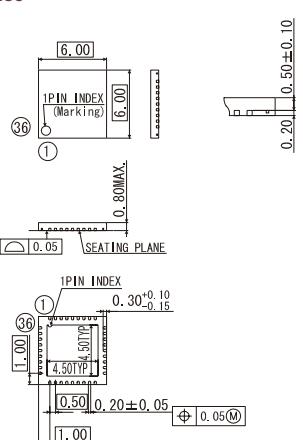
P-WQFN32-0505-0.50-63



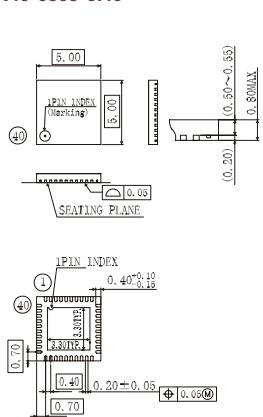
P-WQFN32-0505-0.50-A63



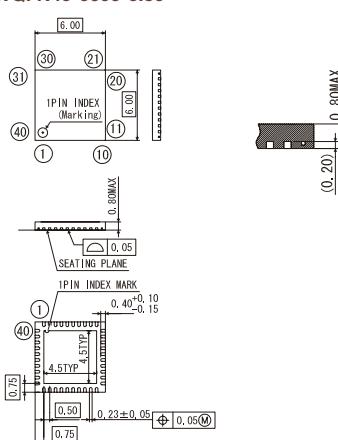
WQFN36



P-WQFN40-0505-0.40



P-WQFN40-0606-0.50

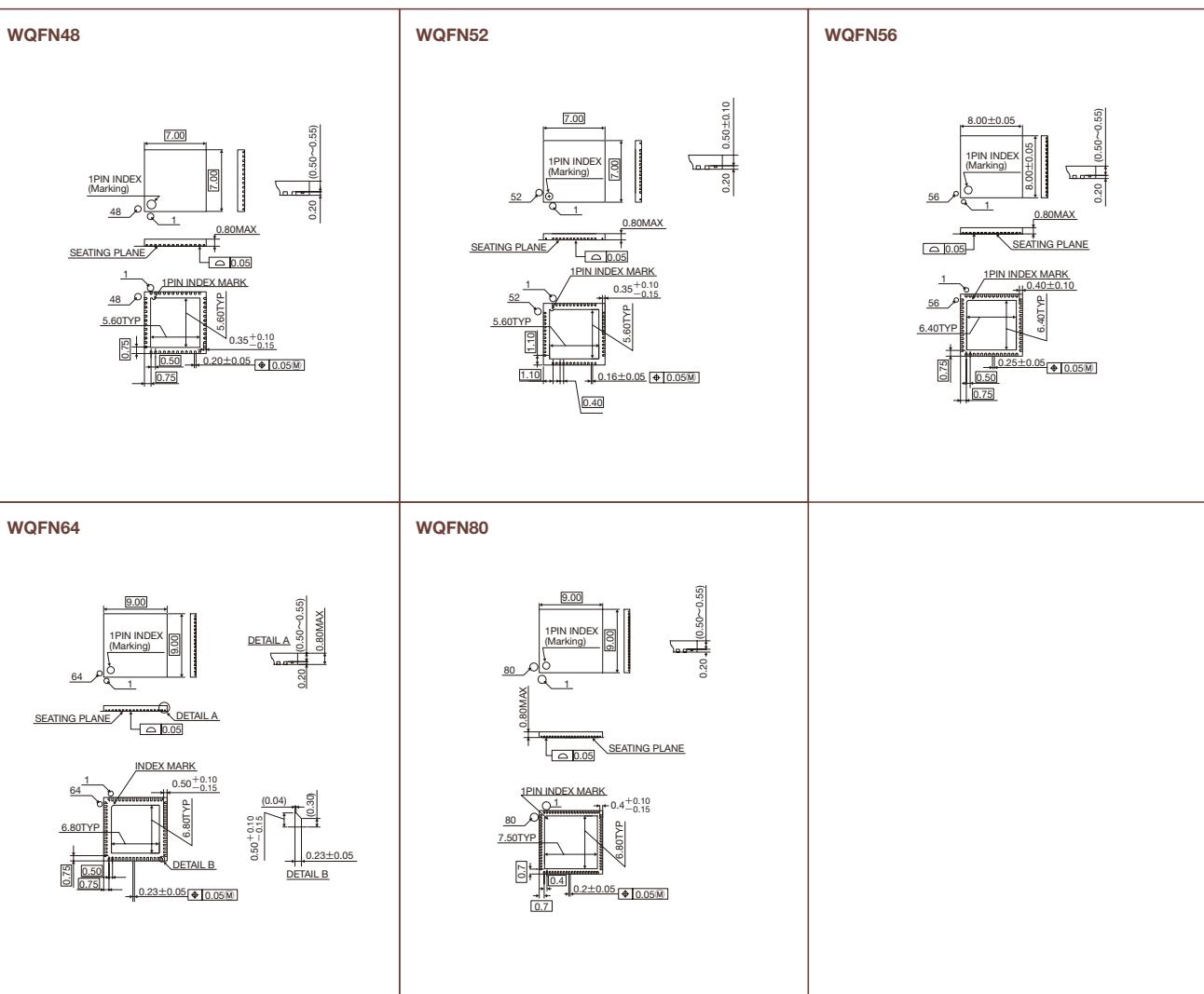


These package size are an example. For details, please inquire to the sales.

## QFN Packages

(Unit: mm)

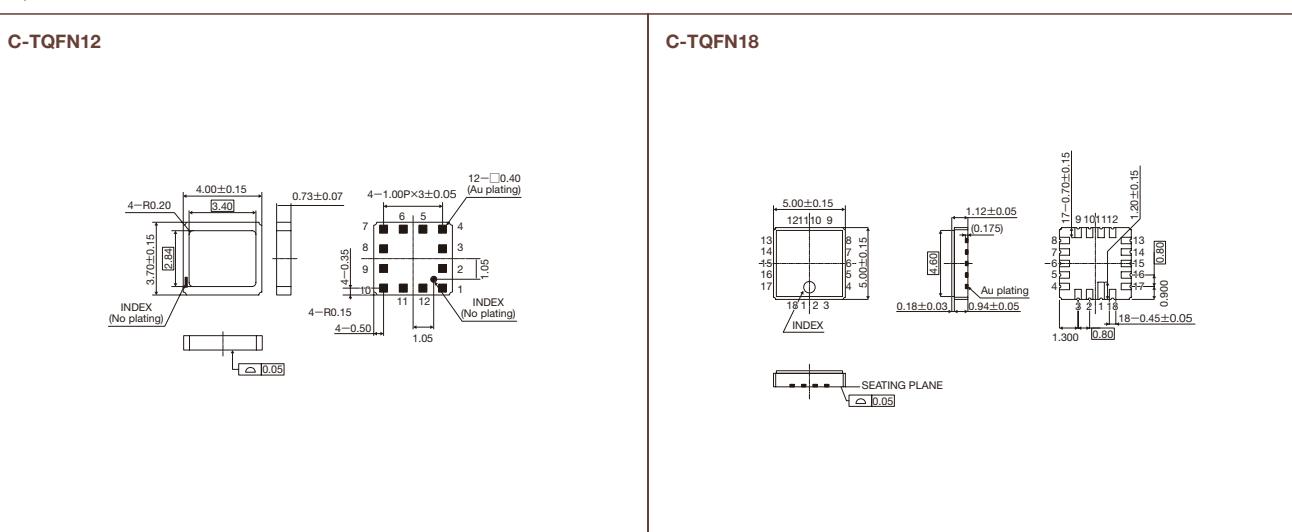
### WQFN



A

IC Packages

### C-TQFN



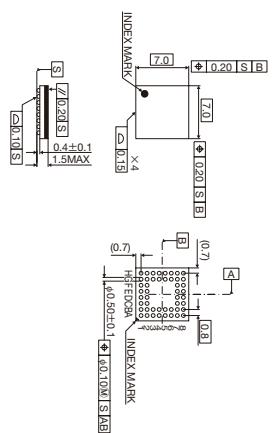
These package size are an example. For details, please inquire to the sales.

## BGA Packages

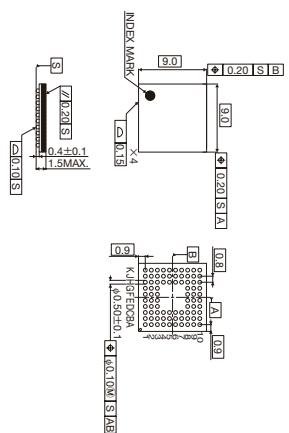
(Unit: mm)

### LFBGA

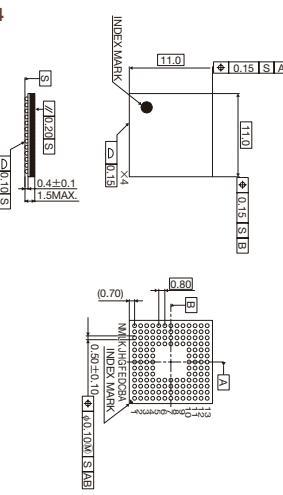
**LFBGA48**



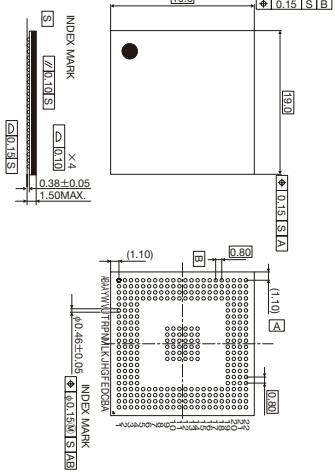
**LFBGA84**



**LFBGA144**

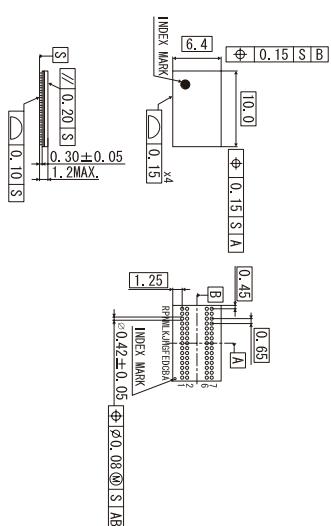


**LFBGA324**

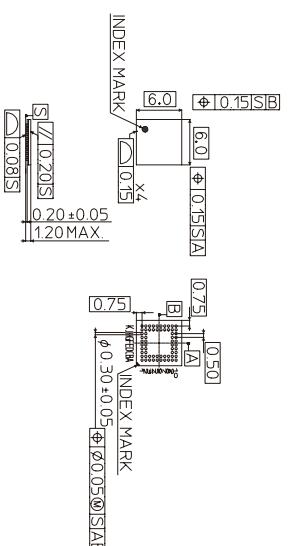


### TFBGA

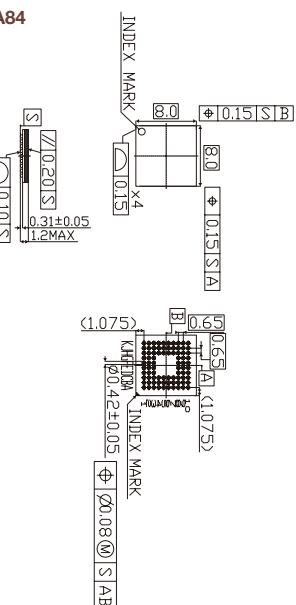
**TFBGA60**



**TFBGA64**



**TFBGA84**

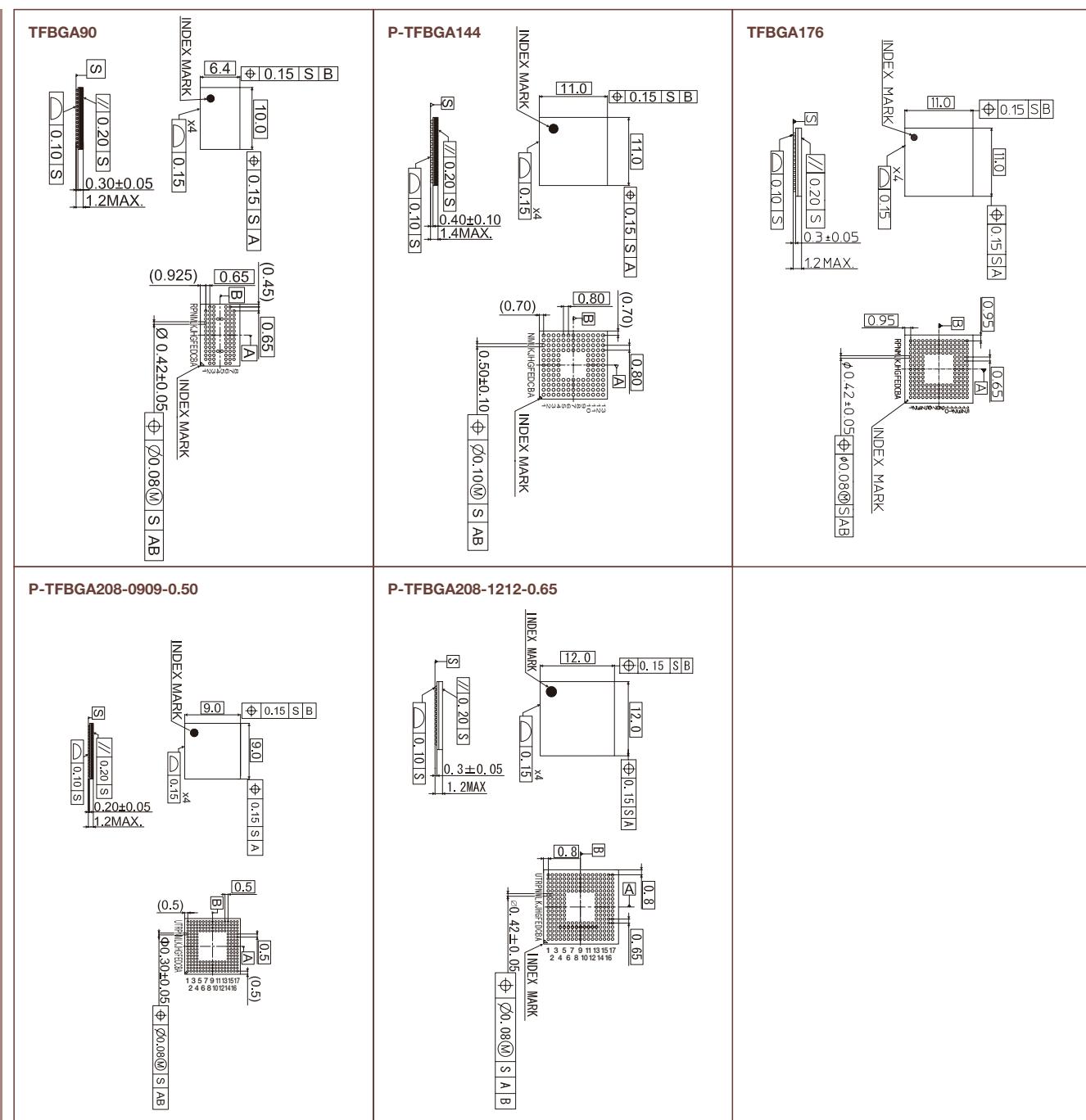


These package size are an example. For details, please inquire to the sales.

## BGA Packages

(Unit: mm)

### TFBGA



A

IC Packages