



ICs

IC Packages

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IC 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 LAPIS 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

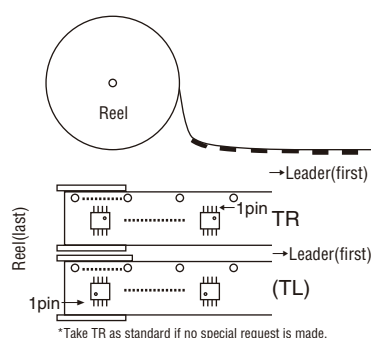
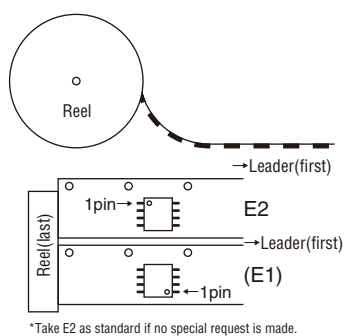
Alphabetical symbols specify custom product. Standard product has no symbols.

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

Ordering information

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

For example



Please refer packages from page, A160 for LAPIS 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, *HSOP8, *VSON008V2030, VSON008X2030, VSON010X3020, VSON010X3030, VSON010V3030, USON014X3020, VQFN016X3030, VQFN016V3030, WL-CSP (2.8mm [□] and under)	TSSOP-B8	-	-	3×3mm
2,500	VQFN020V4040, VQFN024V4040, VQFN028V5050, VQFN032V5050, UQFN036V5050, UQFN040V5050, WL-CSP (over 2.81mm [□])	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 x e	Individual package quantity	Tray quantity	Package ordering unit quantity	Tomson Case dimensions (mm) A x B x 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

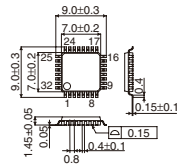
Please refer packages from page, A160 for LAPIS Semiconductor products.

QFP Packages

(Unit: mm)

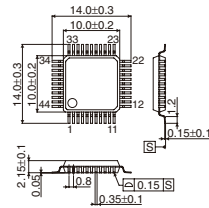
QFP <Pin Pitch : 0.8mm>

QFP32



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

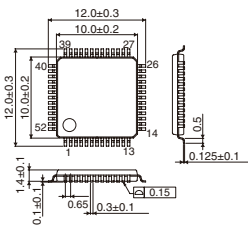
QFP44



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

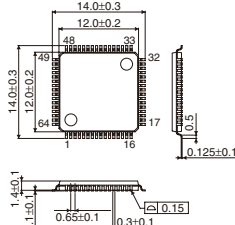
SQFP <Pin Pitch : 0.65mm>

SQFP-T52



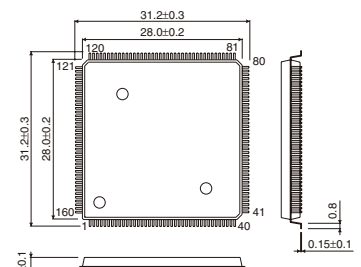
Tray:1,000pcs
Embossed carrier tape:1,000pcs

SQFP-T64



Tray:1,000pcs

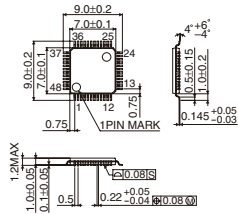
SQFP160C



Tray:240pcs

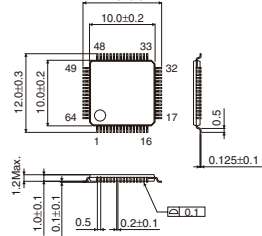
TQFPV <Pin Pitch : 0.5mm>

TQFP48V



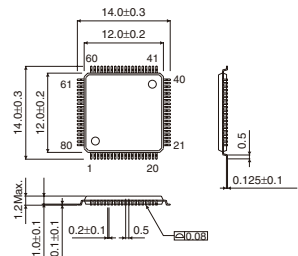
Tray:1,000pcs
Embossed carrier tape:1,500pcs

TQFP64V



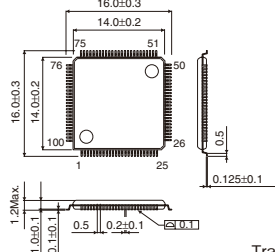
Tray:1,000pcs
Embossed carrier tape:1,000pcs

TQFP80V



Tray:1,000pcs

TQFP100V



Tray:500pcs
Embossed carrier tape:500pcs

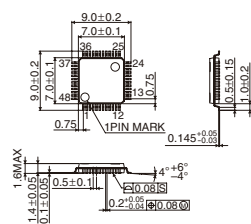
Please refer packages from page, A160 for LAPIS Semiconductor products.

QFP Packages

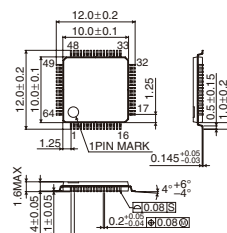
(Unit: mm)

VQFP <Pin Pitch : 0.5mm>

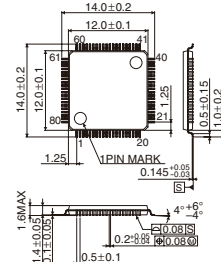
VQFP48C

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

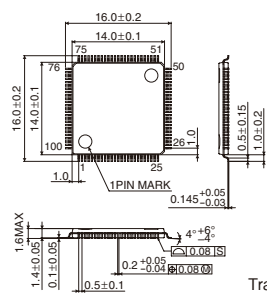
VQFP64

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

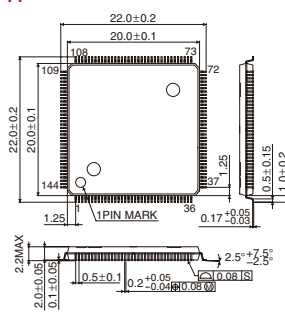
VQFP80

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

VQFP100

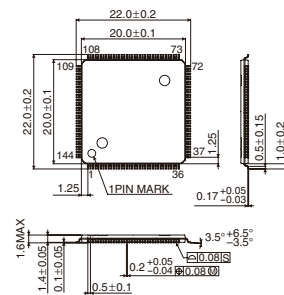
Tray:500pcs
Embossed carrier tape:500pcs

VQFP144



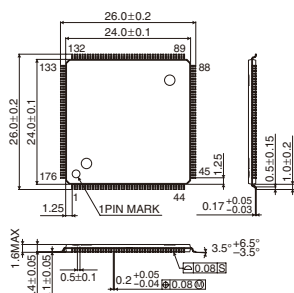
Tray:600pcs

VQFP-T144



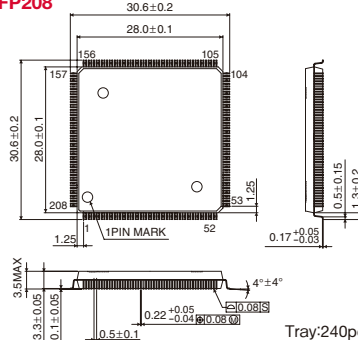
Tray:600pcs

VQFP176



Tray:400pcs

VQFP208



Tray:240pcs

A

IC Packages

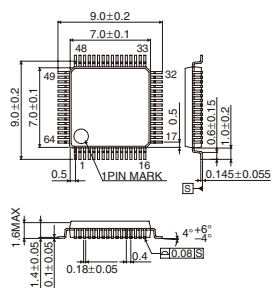
Please refer packages from page, A160 for LAPIS Semiconductor products.

QFP Packages

(Unit: mm)

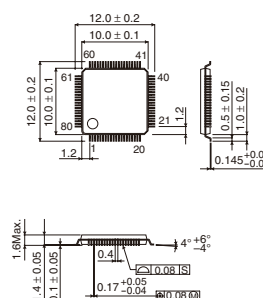
UQFP <Pin Pitch : 0.4mm>

UQFP64M



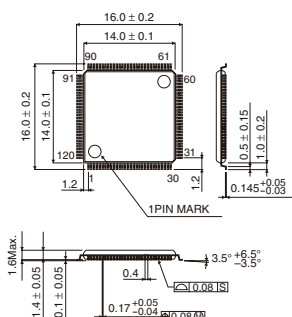
Tray:1,000pcs
Embossed carrier tape:1,500pcs

UQFP80



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

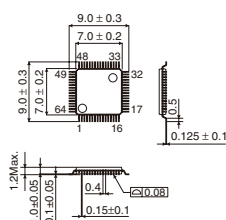
UQFP120



Tray:500pcs

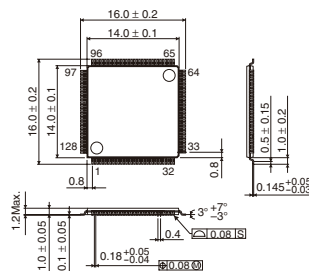
TQFPU <Pin Pitch : 0.4mm>

TQFP64U



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

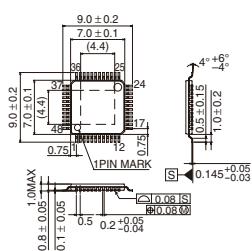
TQFP128U



Tray:500pcs

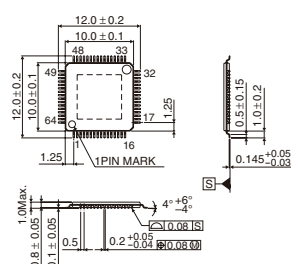
HTQFPV <Pin Pitch : 0.5mm>

HTQFP48V



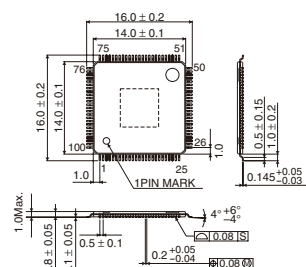
Tray:1,000pcs
Embossed carrier tape:1,500pcs

HTQFP64V



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

HTQFP100V



Tray:500pcs

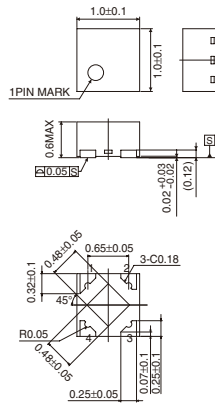
Please refer packages from page, A160 for LAPIS Semiconductor products.

SON / QFN Packages

(Unit: mm)

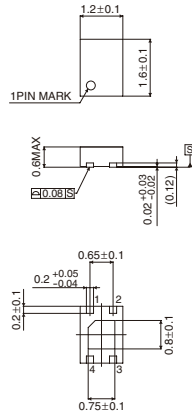
SSON-X <Pin Pitch : 0.65mm>

SSON004X1010



Embossed carrier tape:5,000pcs

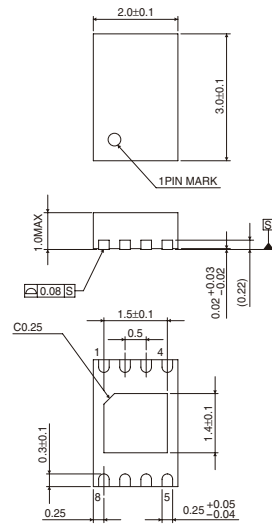
SSON004X1216



Embossed carrier tape:5,000pcs

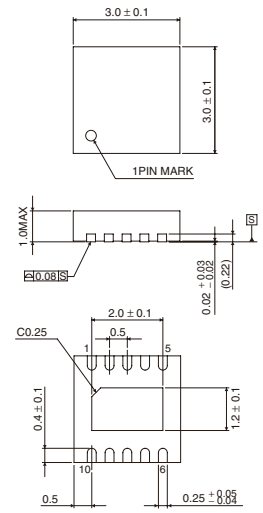
VSON-V <Pin Pitch : 0.5mm>

VSON008V2030



Embossed carrier tape:3,000pcs

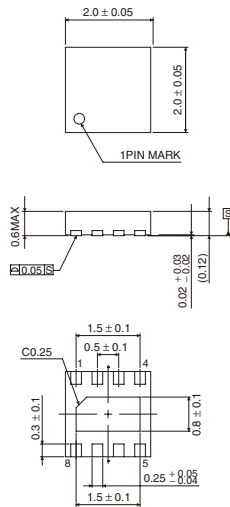
VSON010V3030



Embossed carrier tape:3,000pcs

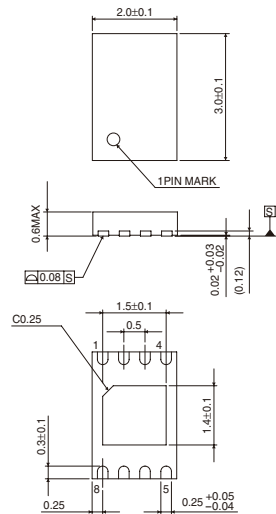
VSON-X <Pin Pitch : 0.5mm> / USON-X <Pin Pitch : 0.4mm>

VSON008X2020



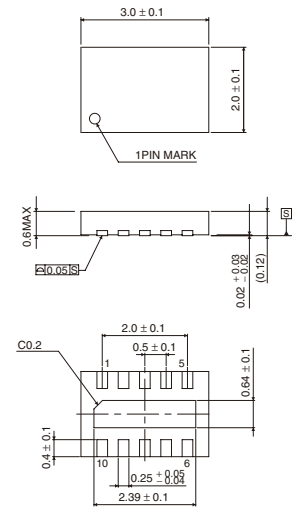
Embossed carrier tape:4,000pcs

VSON008X2030



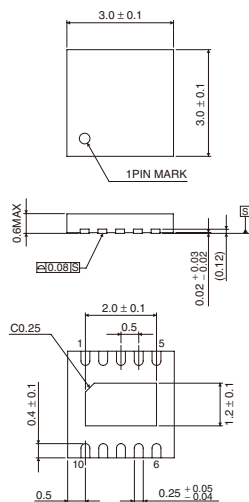
Embossed carrier tape:3,000pcs

VSON010X3020



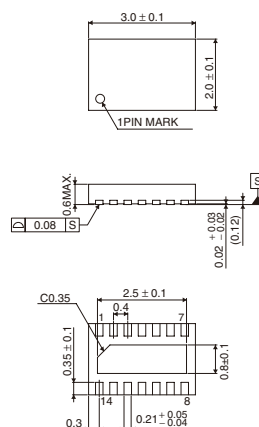
Embossed carrier tape:3,000pcs

VSON010X3030



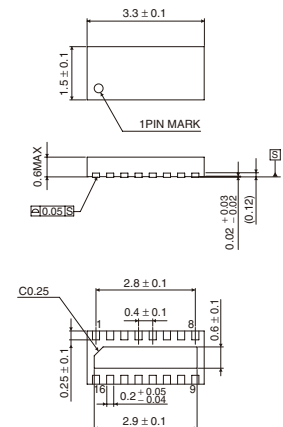
Embossed carrier tape:3,000pcs

USON014X3020



Embossed carrier tape:3,000pcs

USON016X3315



Embossed carrier tape:4,000pcs

A

IC Packages

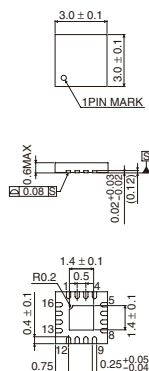
Please refer packages from page, A160 for LAPIS Semiconductor products.

SON / QFN Packages

(Unit: mm)

VQFN-X <Pin Pitch : 0.5mm>

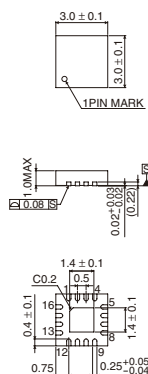
VQFN016X3030



Embossed carrier tape: 3,000pcs

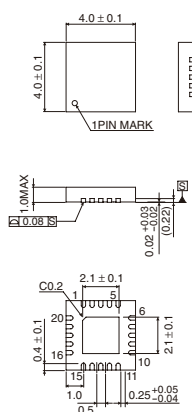
VQFN-V <Pin Pitch : 0.5mm>

VQFN016V3030



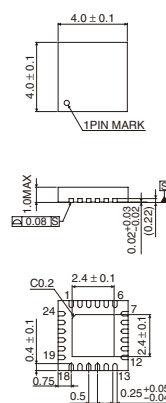
Embossed carrier tape: 3,000pcs

VQFN020V4040



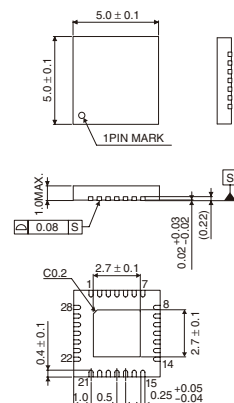
Embossed carrier tape: 2,500pcs

VQFN024V4040



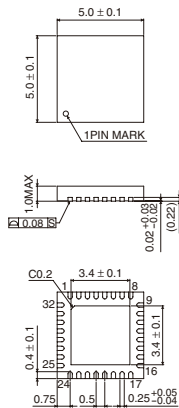
Embossed carrier tape: 2,500pcs

VQFN028V5050



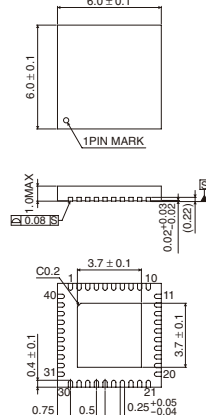
Embossed carrier tape: 2,500pcs

VQFN032V5050



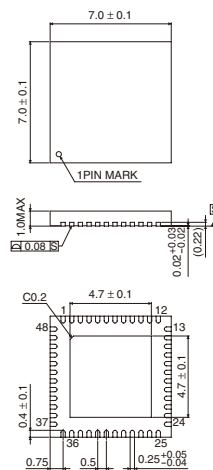
Embossed carrier tape: 2,500pcs

VQFN040V6060



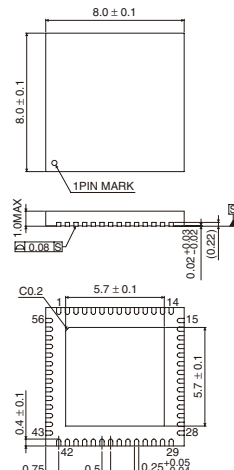
Embossed carrier tape: 2,000pcs

VQFN048V7070



Embossed carrier tape: 1,500pcs

VQFN056V8080


Under Development
Embossed carrier tape: 1,000pcs

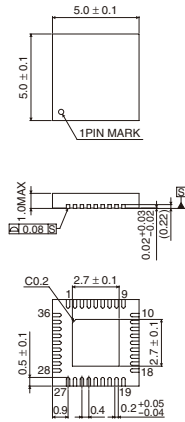
Please refer packages from page, A160 for LAPIS Semiconductor products.

SON / QFN Packages

(Unit: mm)

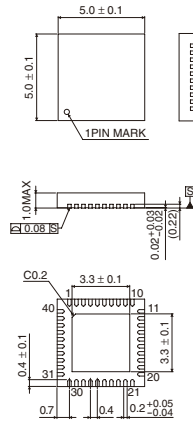
UQFN-V <Pin Pitch : 0.4mm>

UQFN036V5050



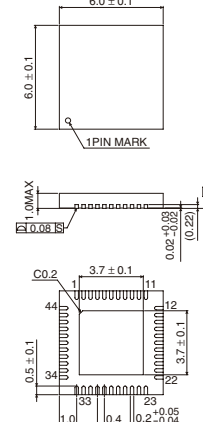
Embossed carrier tape: 2,500 pcs

UQFN040V5050



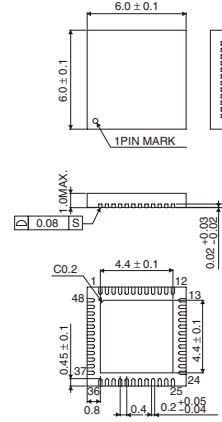
Embossed carrier tape: 2,500 pcs

UQFN044V6060



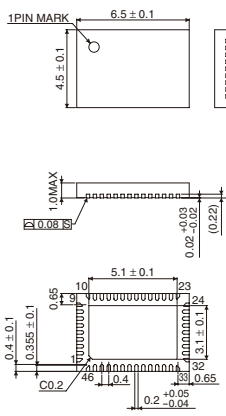
Embossed carrier tape: 2,000 pcs

UQFN048V6060



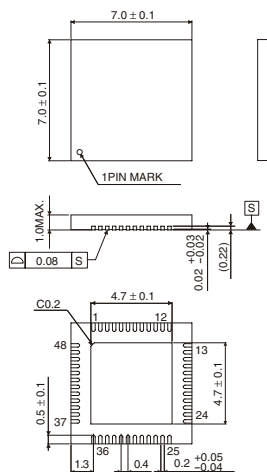
Embossed carrier tape: 2,000 pcs

UQFN046V4565



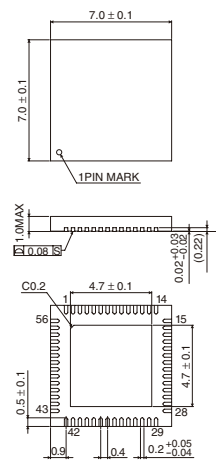
Embossed carrier tape: 2,000 pcs

UQFN048V7070



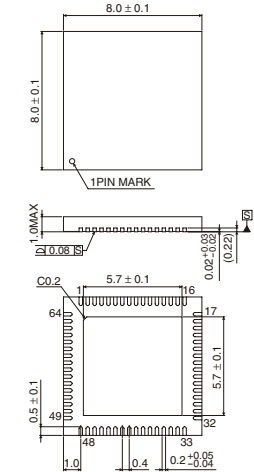
Embossed carrier tape: 1,500 pcs

UQFN056V7070



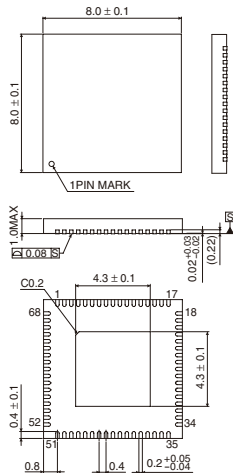
Embossed carrier tape: 1,500 pcs

UQFN064V8080



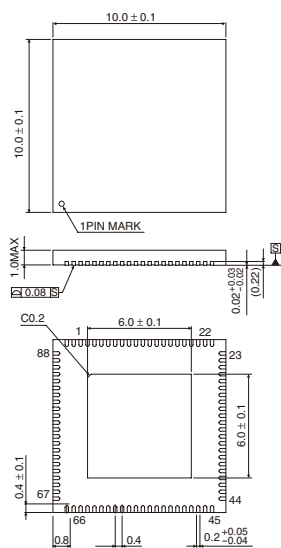
Embossed carrier tape: 1,000 pcs

UQFN068V8080



Embossed carrier tape: 1,000 pcs

UQFN088V0100

Under Development
Embossed carrier tape: 1,000 pcs

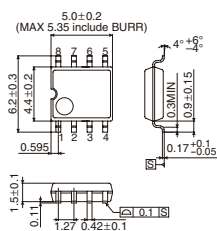
Please refer packages from page, A160 for LAPIS Semiconductor products.

SOP Packages

(Unit: mm)

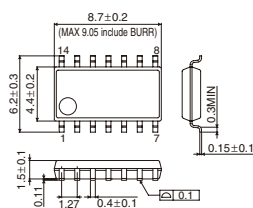
SOP <Pin Pitch : 1.27mm>

SOP8



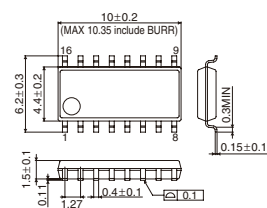
Embossed carrier tape:2,500pcs

SOP14



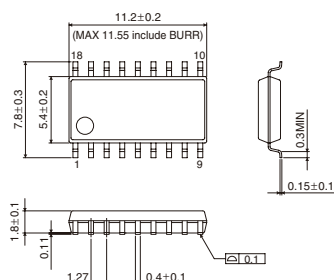
Embossed carrier tape:2,500pcs

SOP16



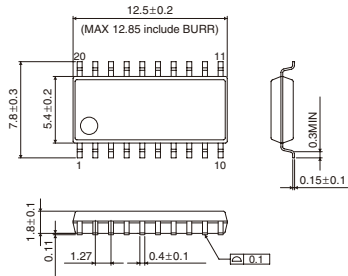
Embossed carrier tape:2,500pcs

SOP18



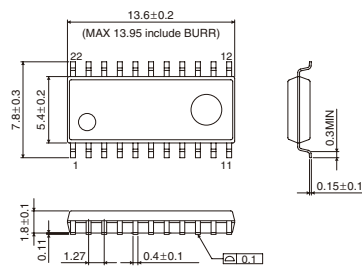
Embossed carrier tape:2,000pcs

SOP20



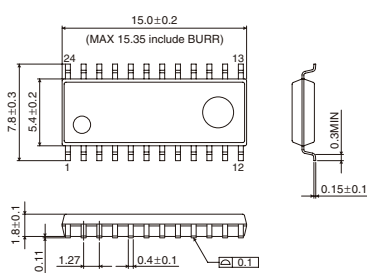
Embossed carrier tape:2,000pcs

SOP22



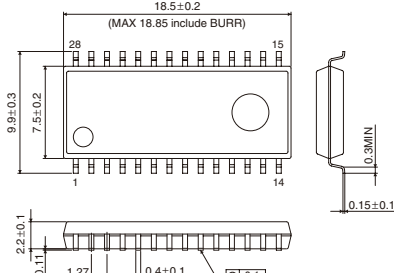
Embossed carrier tape:2,000pcs

SOP24



Embossed carrier tape:2,000pcs

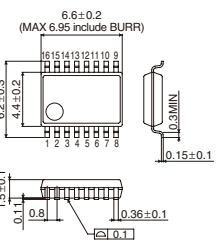
SOP28



Embossed carrier tape:1,500pcs

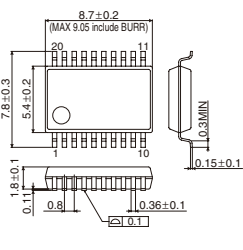
SSOP-A <Pin Pitch : 0.8mm>

SSOP-A16



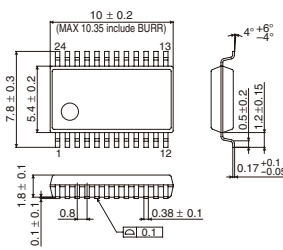
Embossed carrier tape:2,500pcs

SSOP-A20



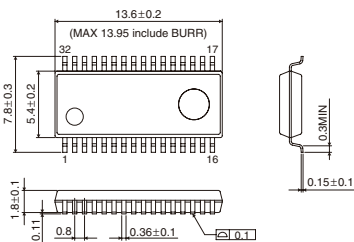
Embossed carrier tape:2,000pcs

SSOP-A24



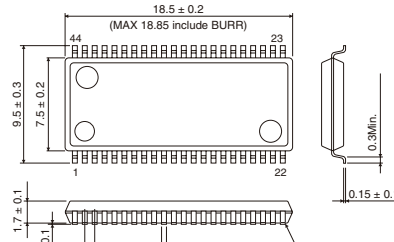
Embossed carrier tape:2,000pcs

SSOP-A32



Embossed carrier tape:2,000pcs

SSOP-A44



Embossed carrier tape:1,500pcs

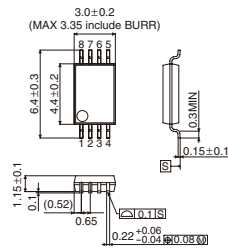
Please refer packages from page, A160 for LAPIS Semiconductor products.

SOP Packages

(Unit: mm)

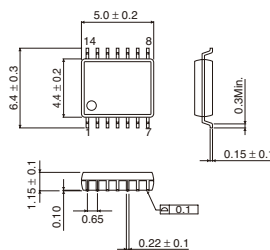
SSOP-B <Pin Pitch : 0.65mm>

SSOP-B8



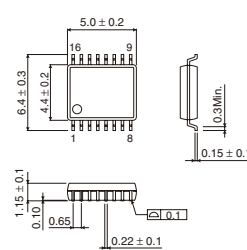
Embossed carrier tape: 2,500 pcs

SSOP-B14



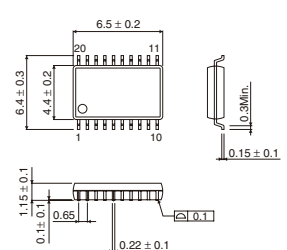
Embossed carrier tape: 2,500 pcs

SSOP-B16



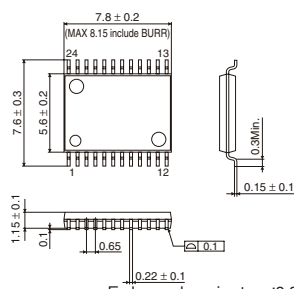
Embossed carrier tape: 2,500 pcs

SSOP-B20



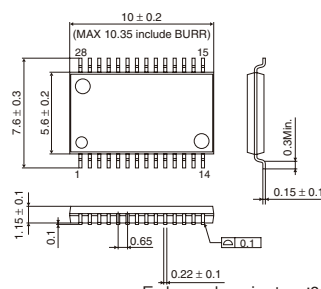
Embossed carrier tape: 2,500 pcs

SSOP-B24



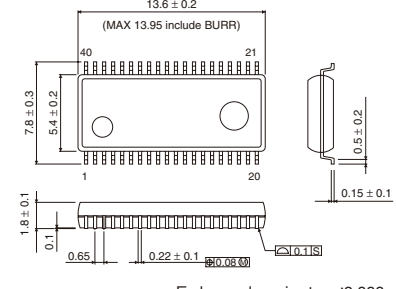
Embossed carrier tape: 2,000 pcs

SSOP-B28



Embossed carrier tape: 2,000 pcs

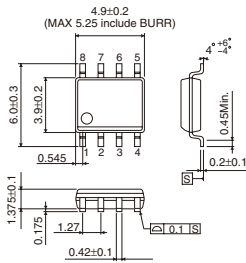
SSOP-B40



Embossed carrier tape: 2,000 pcs

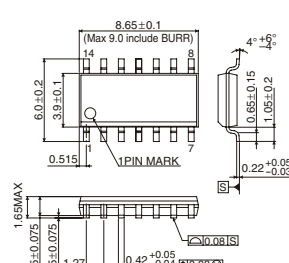
JEDEC <Pin Pitch : 1.27mm/0.65mm/0.5mm>

SOP-J8



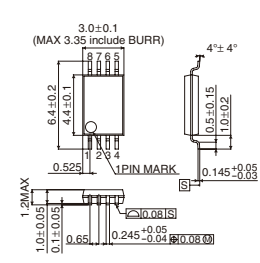
Embossed carrier tape: 2,500 pcs

SOP-J14



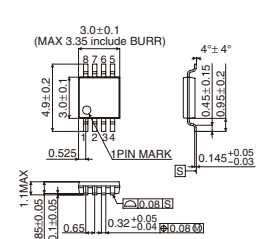
Embossed carrier tape: 2,500 pcs

TSSOP-B8



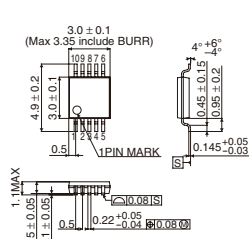
Embossed carrier tape: 3,000 pcs

TSSOP-B8J



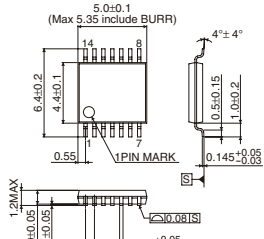
Embossed carrier tape: 2,500 pcs

TSSOP-C10J



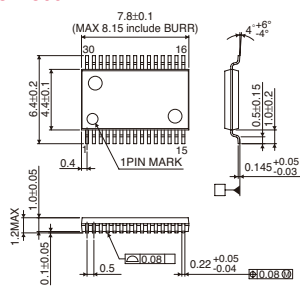
Embossed carrier tape: 2,500 pcs

TSSOP-B14J



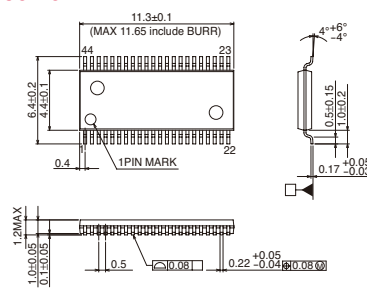
Embossed carrier tape: 2,500 pcs

TSSOP-C30



Embossed carrier tape: 2,500 pcs

TSSOP-C44



Embossed carrier tape: 2,000 pcs

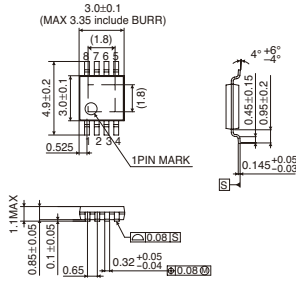
Please refer packages from page, A160 for LAPIS Semiconductor products.

HSOP Packages

(Unit: mm)

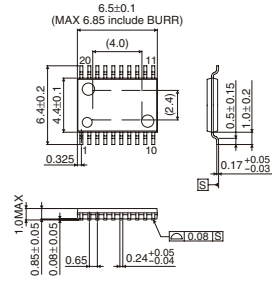
HTSSOP-B <Pin Pitch : 0.65mm>

HTSSOP-B8J



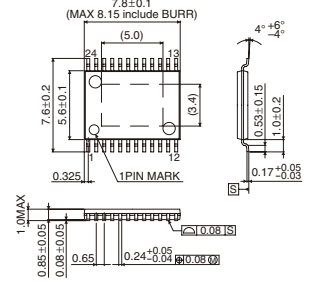
Embossed carrier tape: 2,500pcs

HTSSOP-B20



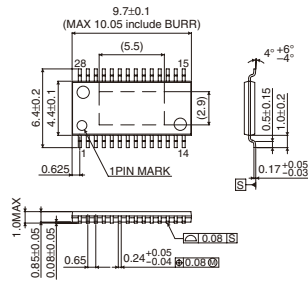
Embossed carrier tape: 2,500pcs

HTSSOP-B24



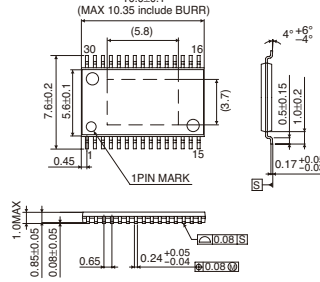
Embossed carrier tape: 2,000pcs

HTSSOP-B28



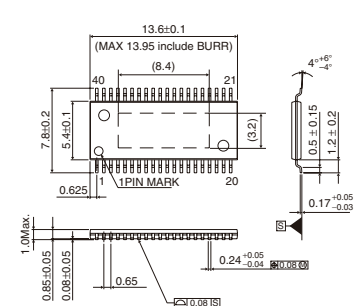
Embossed carrier tape: 2,500pcs

HTSSOP-B30



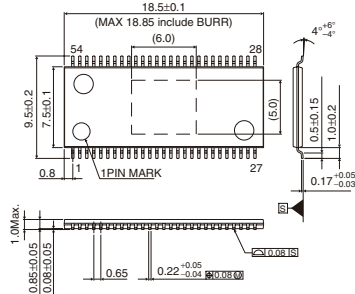
Embossed carrier tape: 2,000pcs

HTSSOP-B40



Embossed carrier tape: 2,000pcs

HTSSOP-B54



Embossed carrier tape: 1,500pcs

A

IC Packages

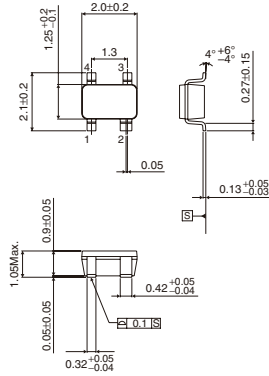
Please refer packages from page, A160 for LAPIS Semiconductor products.

Small Packages

(Unit: mm)

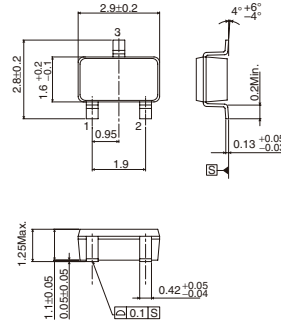
SOP Type

SOP4

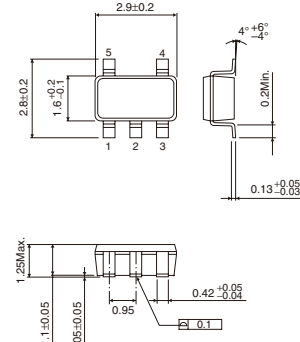


Embossed carrier tape:3,000pcs

SSOP3

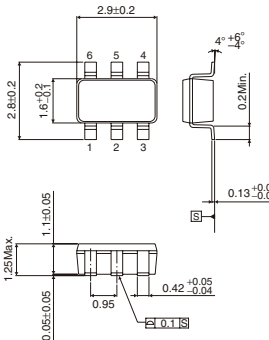


SSOP5



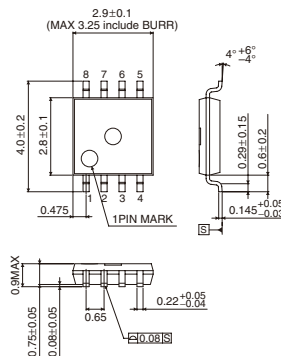
Embossed carrier tape:3,000pcs

SSOP6



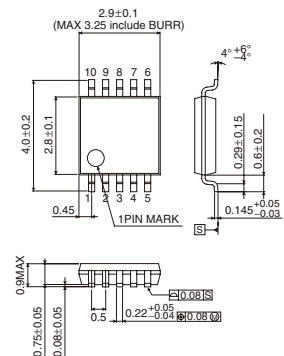
Embossed carrier tape:3,000pcs

MSOP8



Embossed carrier tape:3,000pcs

MSOP10



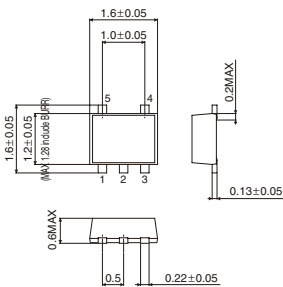
Embossed carrier tape:3,000pcs

Non-Lead Packages

(Unit: mm)

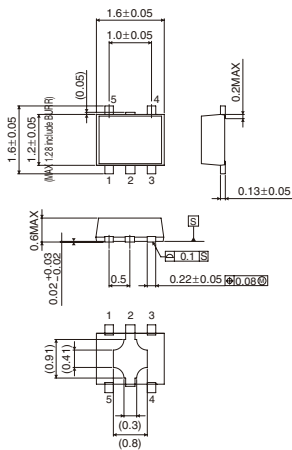
Non-Lead

VSO5



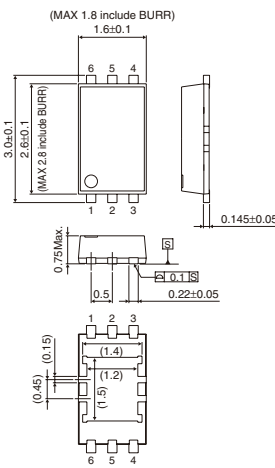
Embossed carrier tape:3,000pcs

HVSO5



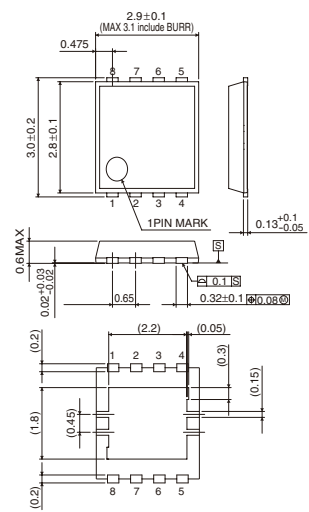
Embossed carrier tape:3,000pcs

HVSO6



Embossed carrier tape:3,000pcs

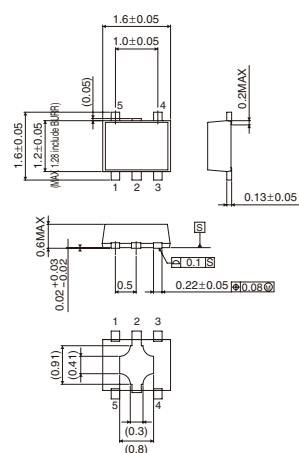
HSO8



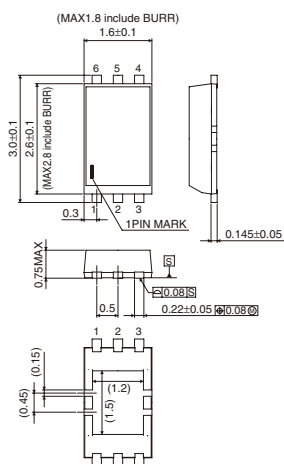
Embossed carrier tape:3,000pcs

Non-Lead Packages

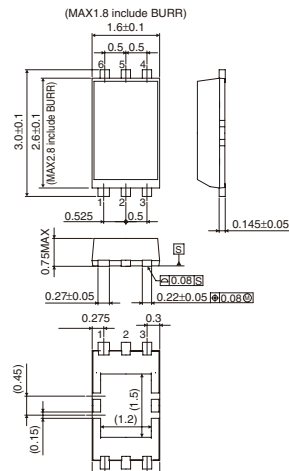
WSOF5(Clear Type)



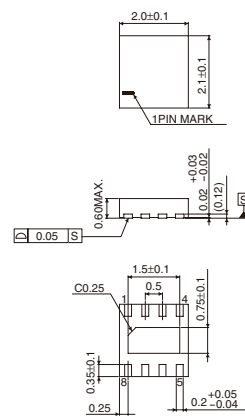
Embossed carrier tape:3,000pcs



Embossed carrier tape:3,000pcs



Embossed carrier tape:3,000pcs

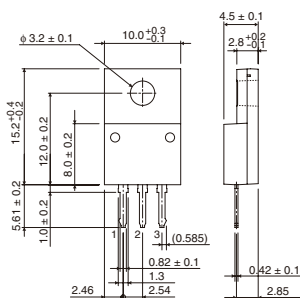


Embossed carrier tape:4,000pcs

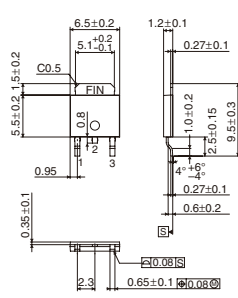
Power Packages

(Unit: mm)

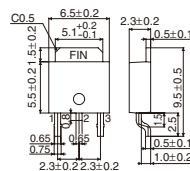
TO220CP-3



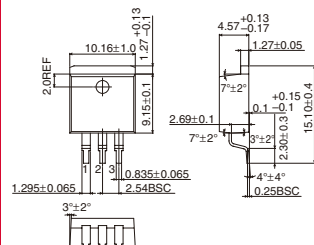
Embossed carrier tape:500pcs



Embossed carrier tape:2,000pcs

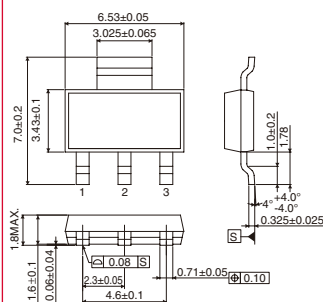


Embossed carrier tape:2,000pcs



Embossed carrier tape:500pcs

SOT223-4



Embossed carrier tape:2,000pcs

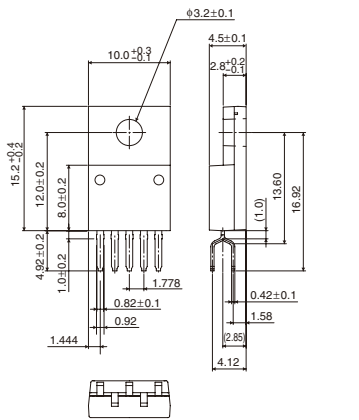
Please refer packages from page, A160 for LAPIS Semiconductor products.

Power Packages

(Unit: mm)

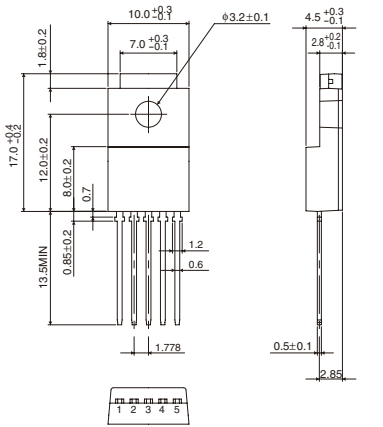
POWER-5PIN

TO220CP-V5



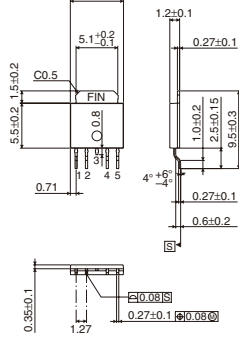
Embossed carrier tape:500pcs

TO220FP-5



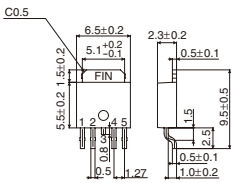
Container tube:500pcs

TO252S-5



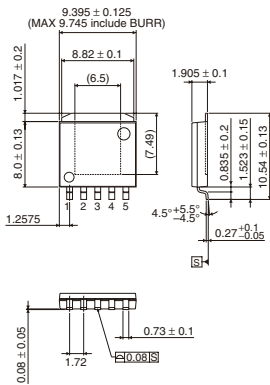
Embossed carrier tape:2,000pcs

TO252-5



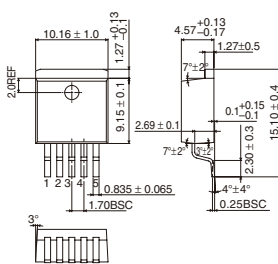
Embossed carrier tape:2,000pcs

HRP5



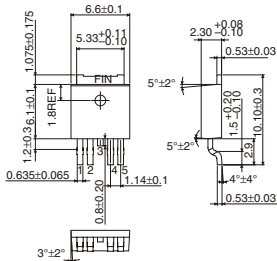
Embossed carrier tape:2,600pcs

TO263-5



Embossed carrier tape:500pcs

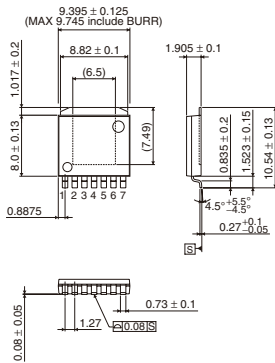
TO252-J5



Embossed carrier tape:2,000pcs

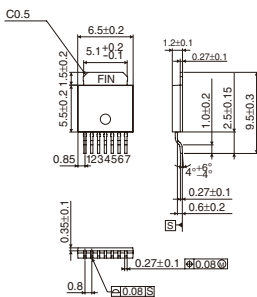
POWER-7PIN

HRP7



Embossed carrier tape:2,000pcs

TO252S-7+



Embossed carrier tape:2,000pcs

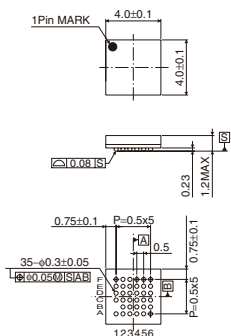
Please refer packages from page, A160 for LAPIS Semiconductor products.

BGA Packages

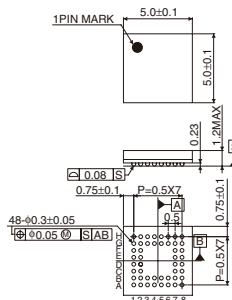
(Unit: mm)

VBGA-T <Pin Pitch : 0.5mm>

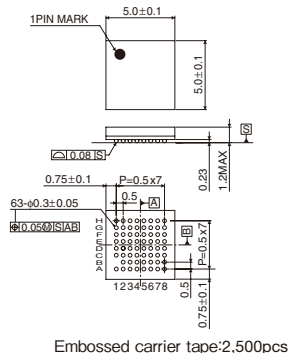
VBGA035T040



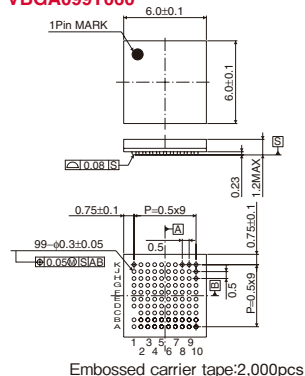
VBGA048T050



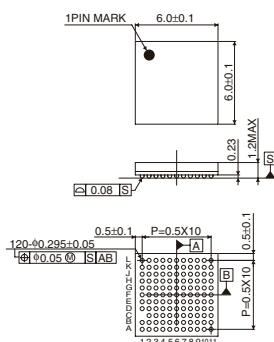
VBGA063T050



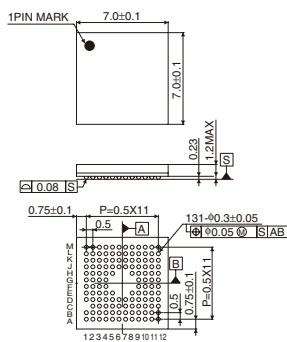
VBGA099T060



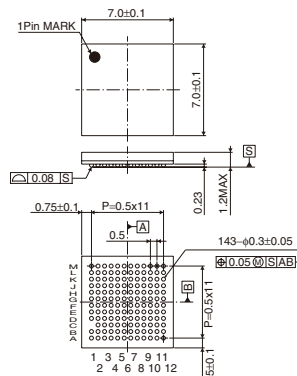
VBGA120T060



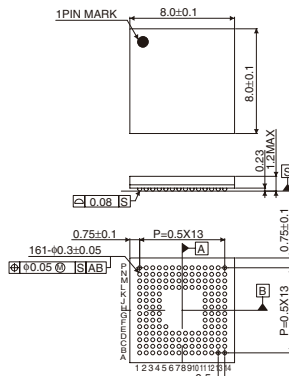
VBGA131T070



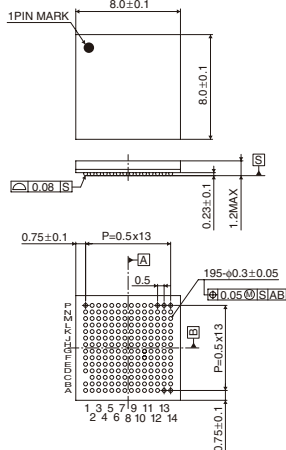
VBGA143T070



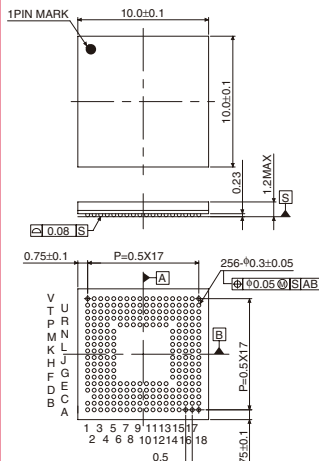
VBGA161T080



VBGA195T080

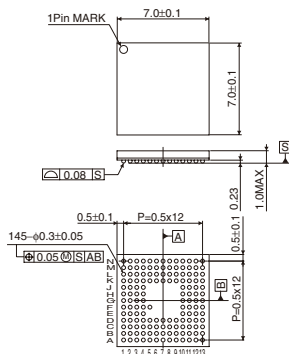


VBGA256T100



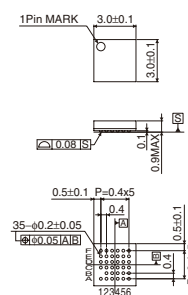
VBGA-B <Pin Pitch : 0.5mm>

VBGA145B070



UBGA-W <Pin Pitch : 0.4mm>

UBGA035W030



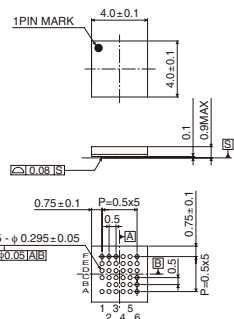
Embossed carrier tape: 3,000pcs

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

BGA Packages

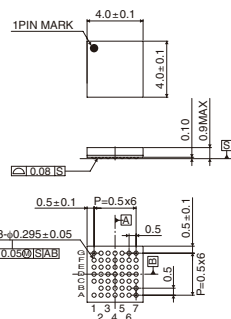
VBGA-W <Pin Pitch : 0.5mm>

VBGA035W040

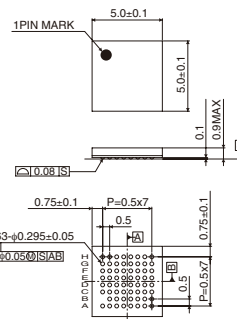


Embossed carrier tape:2,500pcs

VBGA048W040

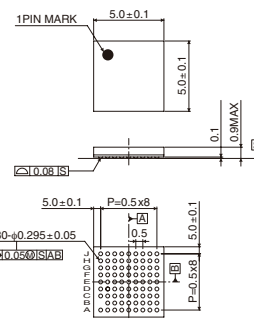


Embossed carrier tape:2,500pcs

VBGA063W050

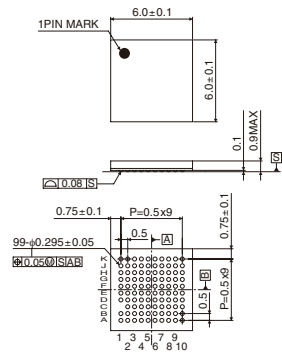
Embossed carrier tape:2,500pcs

VBGA080W050



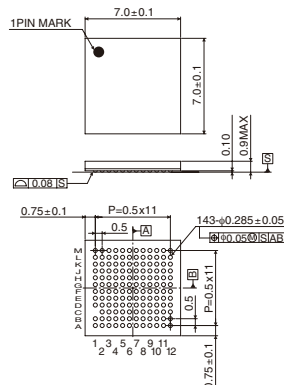
Embossed carrier tape:2,500pcs

VBGA099W060



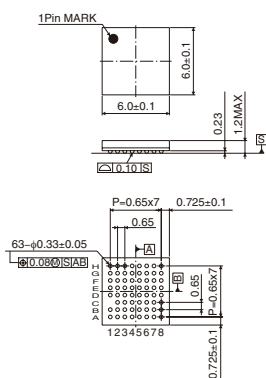
Embossed carrier tape:2,000pcs

VBGA143W070

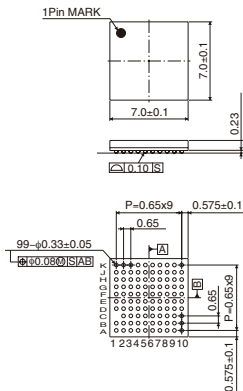


SBGA-T <Pin Pitch : 0.65mm>

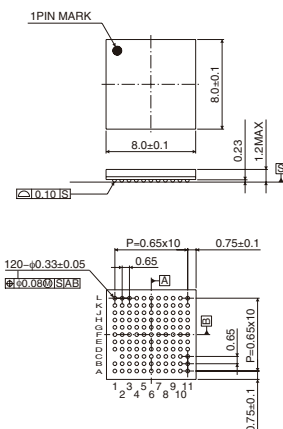
SBGA063T060



SBGA099T070



SBGA120T080



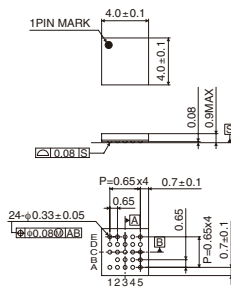
Please refer packages from page, A160 for LAPIS Semiconductor products.

BGA Packages

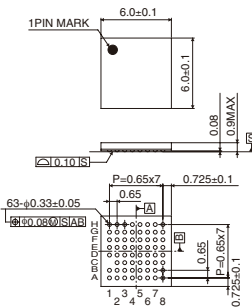
(Unit: mm)

SBGA-W <Pin Pitch : 0.65mm>

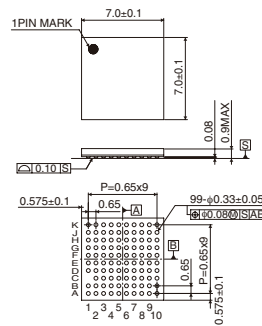
SBGA024W040



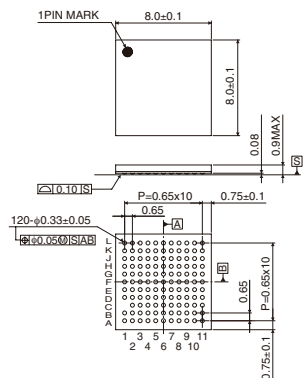
SBGA063W060



SBGA099W070



SBGA120W080

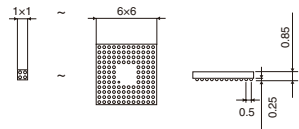


WL-CSP Packages

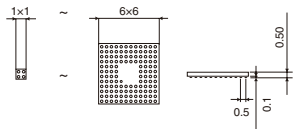
(Unit: mm)

VCSP <Pin Pitch : 0.5mm>

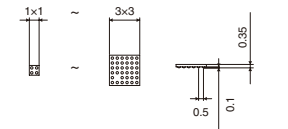
VCSP85H



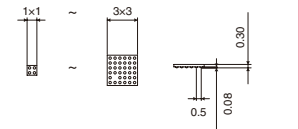
VCSP50L



VCSP35L

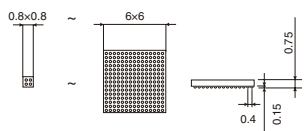


VCSP30L

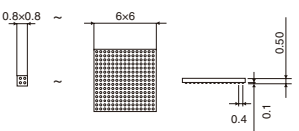


UCSP <Pin Pitch : 0.4mm>

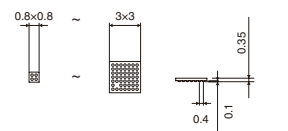
UCSP75M



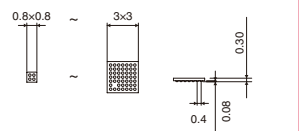
UCSP50L



UCSP35L



UCSP30L



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

LAPIS Semiconductor LSI package list

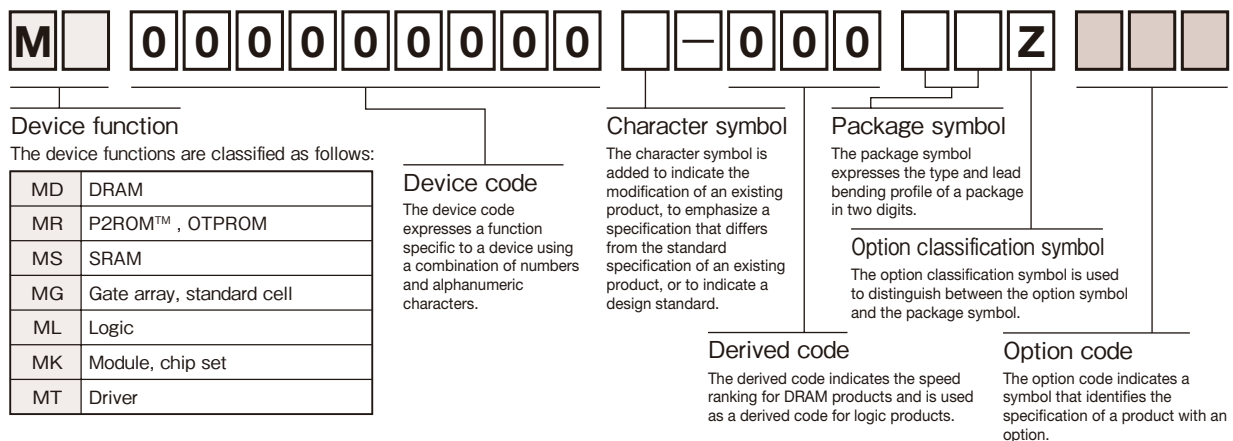
No	PKG type	Title	TRAY	T&R	TUBE
1	SOP	SOP8		2500	
2	SOP	SOP16	1600	1000	
3	SOP	SOP24	1280	1000	3000
4	SOP	SOP44	400	600	1700
5	SSOP	SSOP16	4760	2500	
6	SSOP	SSOP20	3600	2500	
7	SSOP	SSOP30-56-0.65	2000	2000	
8	SSOP	SSOP32	1280	1000	3000
9	SSOP	SSOP60	600	600	
10	SSOP	SSOP70	630	600	
11	SSOP	TSSOP20	4160		
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		

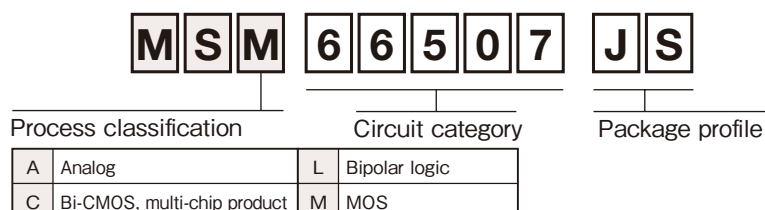
LAPIS Semiconductor LSI Part No. Explanation

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.

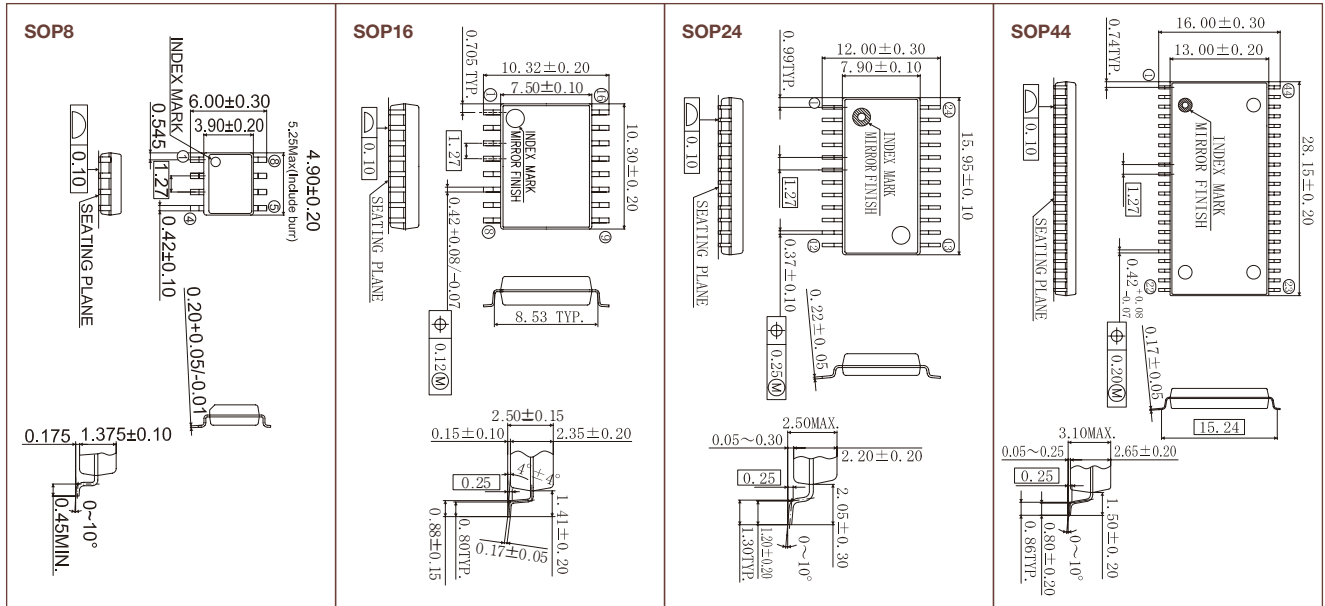


These package size are an example. For details, please inquire to the sales.

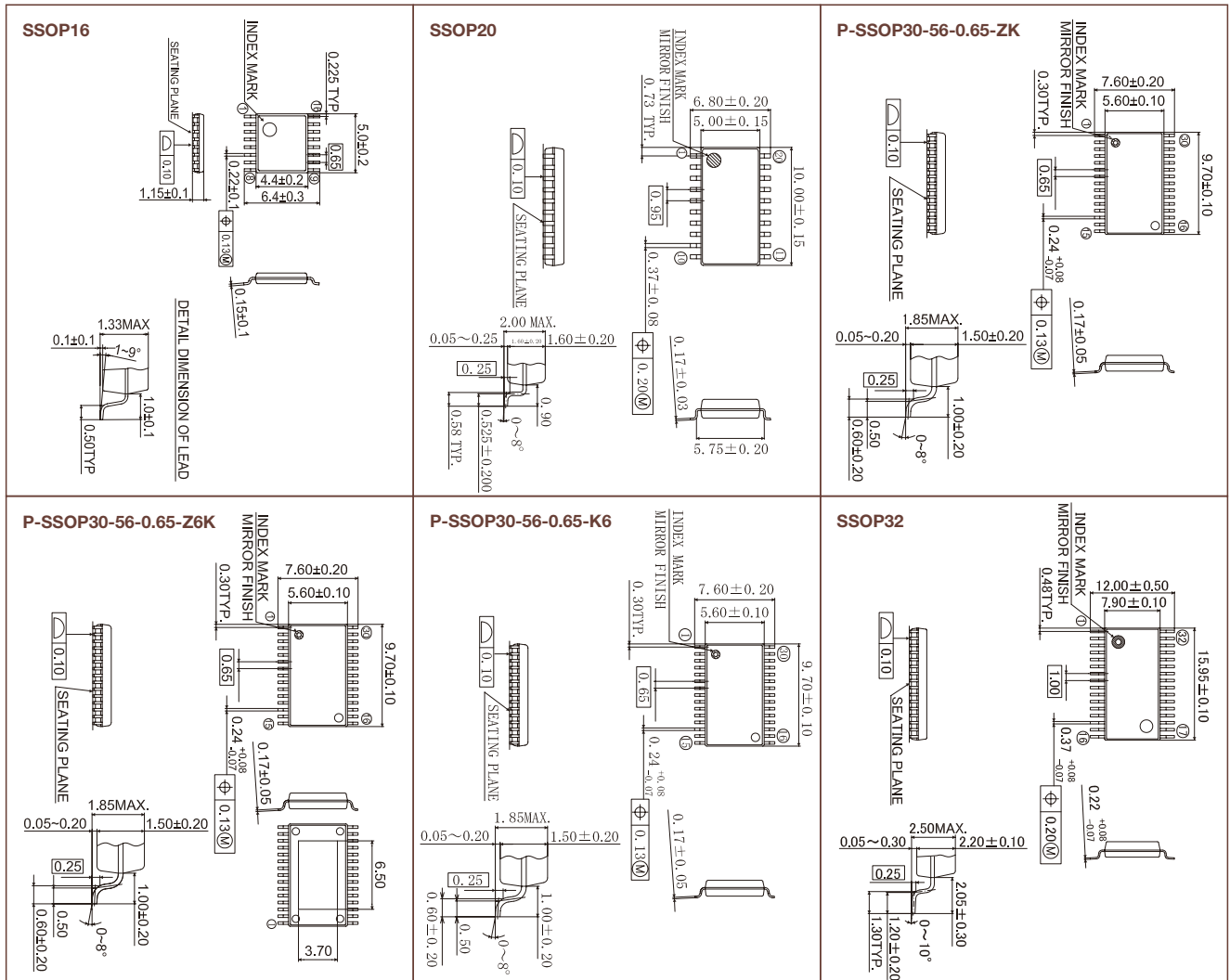
SOP Packages

(Unit: mm)

SOP



SSOP



A

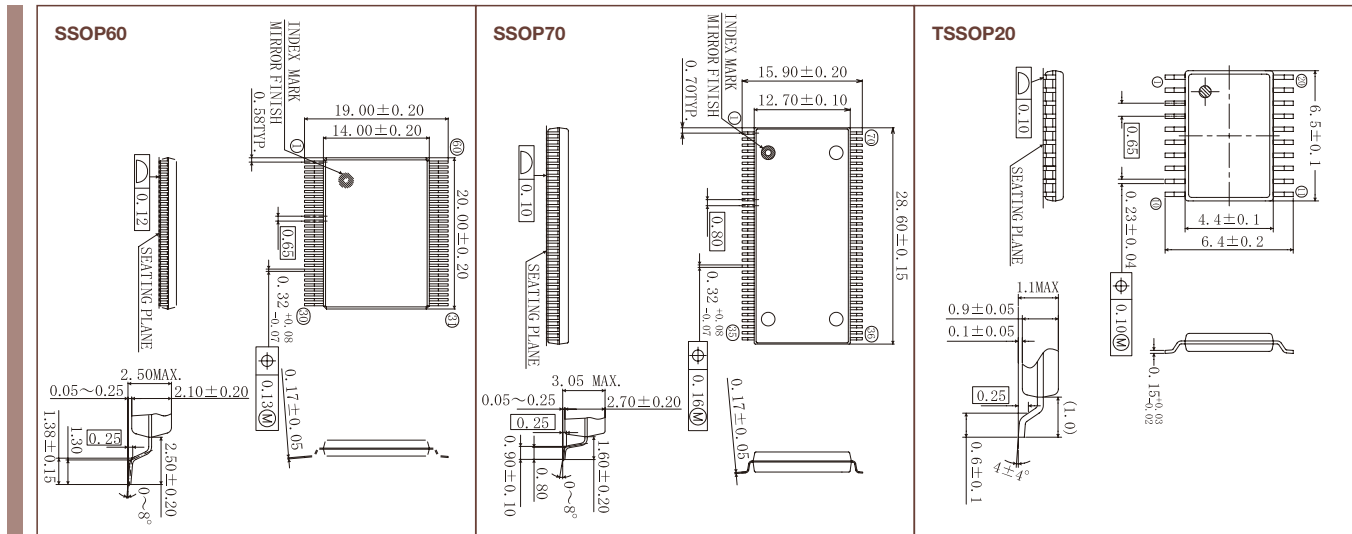
IC Packages

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

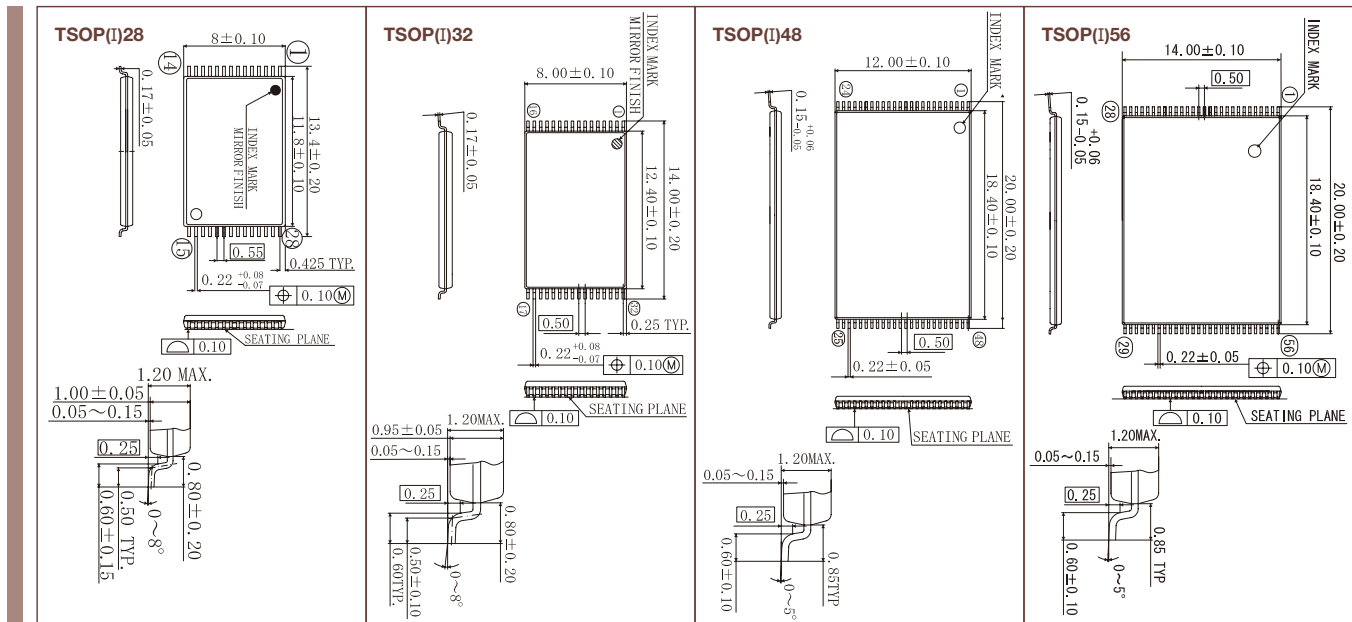
SOP Packages

(Unit: mm)

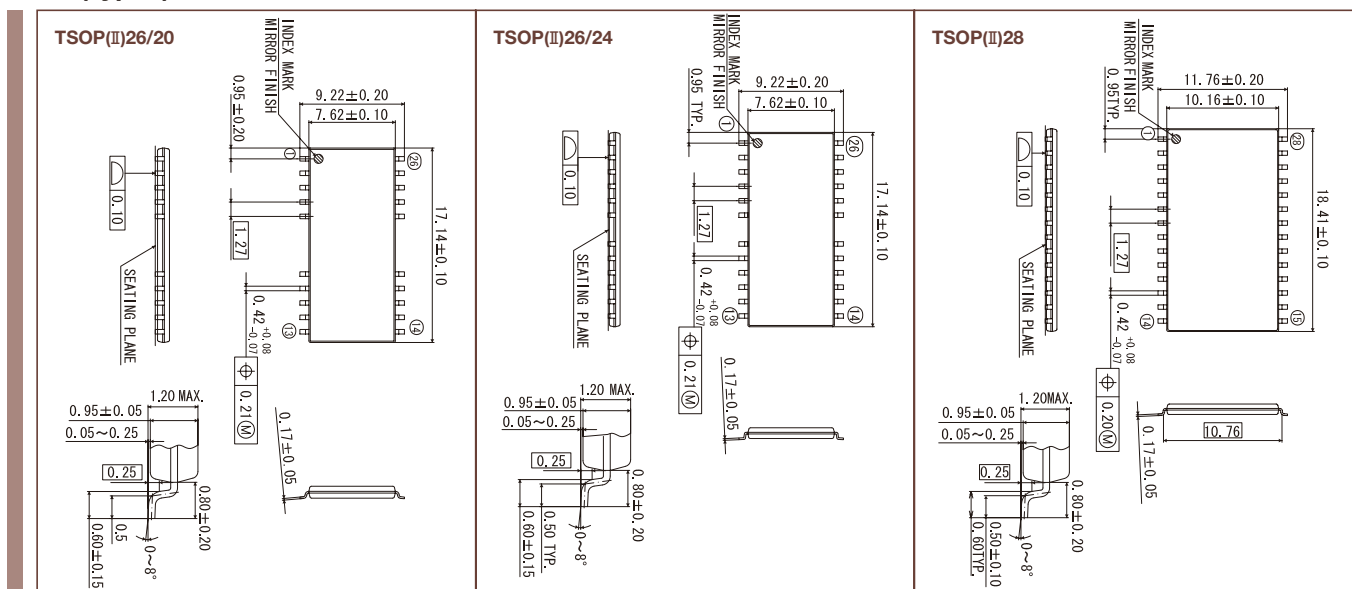
SSOP



TSOP (Type I)



TSOP (Type II)



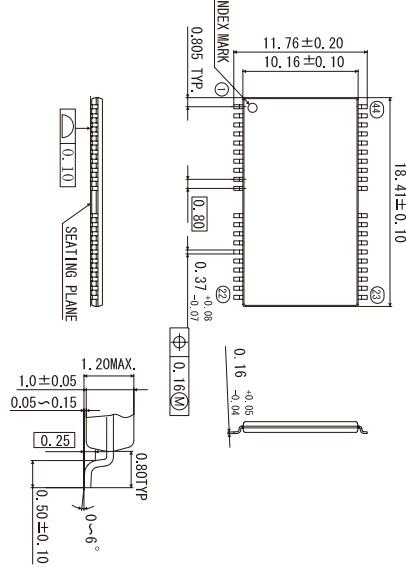
These package size are an example. For details, please inquire to the sales.

TSOP Packages

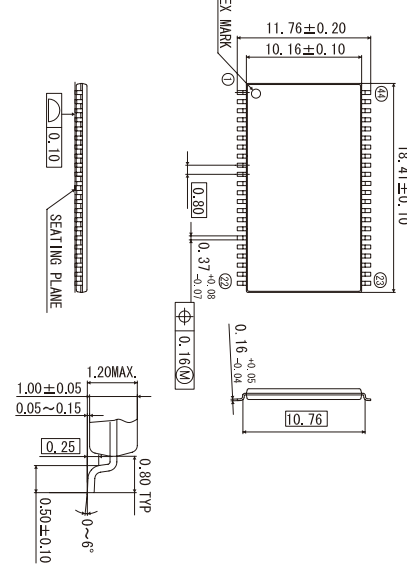
(Unit: mm)

TSOP (Type II)

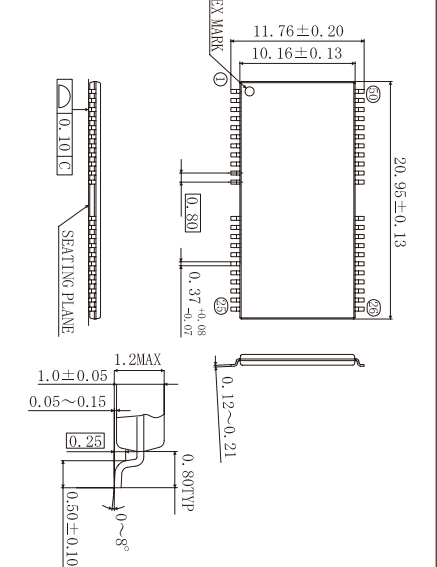
TSOP (II) 44/40



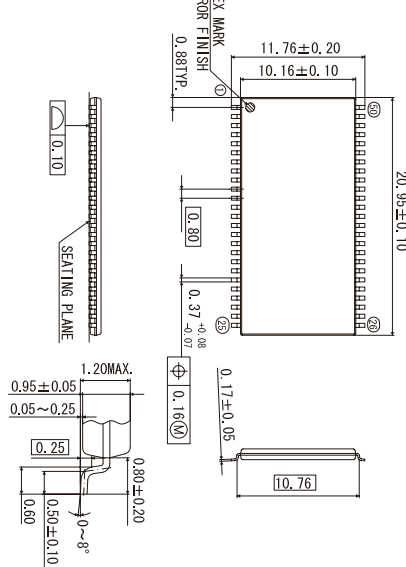
TSOP (II) 44



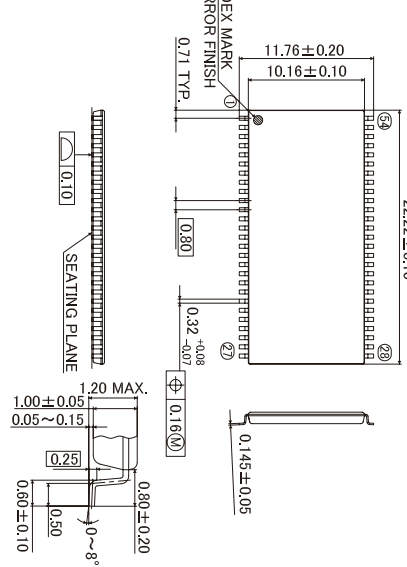
TSOP (II) 50/44



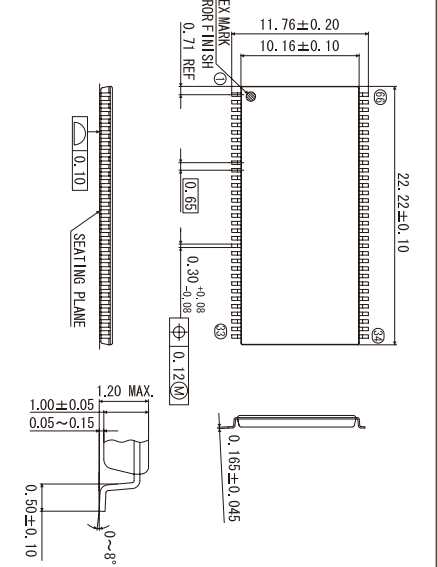
TSOP (II) 50



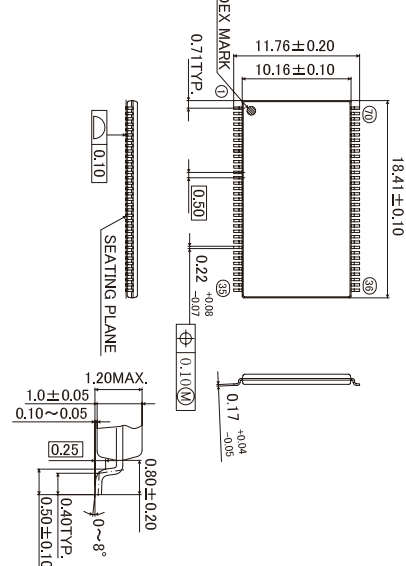
TSOP (II) 54



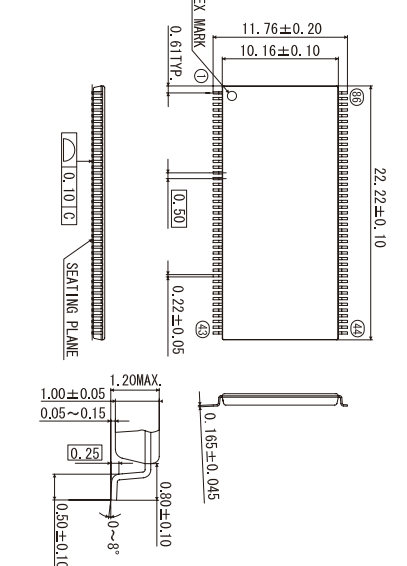
TSOP (II) 66



TSOP (II) 70



TSOP (II) 86



A

IC Packages

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

QFP Packages

(Unit: mm)

QFP

QFP44	QFP56	QFP64-P-1420-1.00	P-QFP64-1414-0.80
P-QFP80-1414-0.65	QFP80-P-1420-0.80	P-QFP100-1420-0.65-TK	QFP100-P-1420-0.65-BK
P-QFP100-1414-0.50-K	P-QFP128-1420-0.50	QFP128-P-2828-0.80	QFP208

QFP Packages

LQFP

Technical drawing of a mirror assembly showing front, side, and detail views with dimensions and tolerances.

Front View Dimensions:

- Overall width: 22.00 ± 0.20
- Overall height: 20.00 ± 0.10
- Inner width: 1.25 TYP.
- Inner height: 1.25 TYP.
- Top edge features: 108, 79, 109, 12
- Bottom edge features: 143, 87, 56
- Center mark: INDEX MARK
- Surface finish: MIRROR FINISH
- Bottom center feature: 0.50
- Bottom center feature tolerance: 0.22 ± 0.05
- Bottom center feature symbol: $\oplus$ 0.10 (M)

Side View Dimensions:

- Overall height: 1.60 MAX.
- Top edge features: 1.00 ± 0.20
- Bottom edge features: $0.05 \sim 0.15$
- Bottom edge features: 0.50 TYP.
- Bottom edge features: 0.60 ± 0.15
- Bottom edge features: 0.25
- Bottom edge features: $0 \sim 7^\circ$

Detail View Dimensions:

- Overall width: 10.10
- Seating Plane: SEATING PLANE
- Seating Plane tolerance: $0.15^{+0.05}_{-0.06}$

The technical drawing illustrates a rectangular mirror assembly. The front view shows a square mirror with a mirror finish, indicated by a cross-hatched pattern. It features four corner fasteners labeled 129, 130, 131, and 132. A central circular feature is labeled 170. Dimensions include a total width of 26.00 ± 0.20 , a central opening width of 24.00 ± 0.10 , and a mounting bracket height of 1.25 TYP. . A tolerance of 0.22 ± 0.05 is specified for the mounting base. A circular feature at the bottom center has a diameter of $\varnothing 0.50$. A circular feature at the bottom right has a diameter of $\varnothing 0.10 \text{ (M)}$. The side view shows a profile with a maximum height of 1.70 MAX. , a top flange thickness of 1.00 ± 0.20 , a central opening height of 0.50 TYP. , and a base thickness of 0.60 ± 0.15 . A chamfer angle of $0 \sim 8^\circ$ is indicated. A dimension of 1.40 is shown for the distance from the top edge to the start of the central opening. A circular feature at the bottom left has a diameter of $\varnothing 0.25$. A circular feature at the bottom right has a diameter of $\varnothing 0.10 \text{ (S)}$. A circular feature at the bottom center has a diameter of $\varnothing 10 \text{ (S)}$. A circular feature at the bottom right has a diameter of $\varnothing 0.145 \pm 0.055$. A circular feature at the bottom right has a diameter of $\varnothing 0.145 \pm 0.055$.

Technical drawing of a mechanical part, showing a top view and a side view.

Top View Dimensions:

- Overall width: 12.00 ± 0.20
- Overall height: 10.00 ± 0.10
- Central hole diameter: 0.37 ± 0.08
- Small hole diameter: $0.16 (M)$
- Slot width: 0.08
- Distance from top edge to slot: 0.17 ± 0.05
- Distance from left edge to slot: 0.17 ± 0.05
- Distance from bottom edge to slot: 0.30
- Distance from right edge to slot: 0.30
- Distance from center to slot: 0.37 ± 0.08
- Distance from center to small hole: 0.37 ± 0.08
- Distance from center to slot: 1.00 TYP.

Side View Dimensions:

- Maximum height: 1.20 MAX.
- Base width: 1.00 ± 0.05
- Fillet radius: 0.25
- Distance from base to fillet: 0.50
- Distance from base to slot: 0.60 ± 0.15
- Slot width: 0.25
- Slot depth: 0.50
- Slot angle: $0 \sim 8^\circ$

Other Labels:

- STAIR PLANE
- MARK
- R.FINISH
- 1.00 TYP.

0.09~0.20

SEATING PLANE

INDEX MARK

9.00 ± 0.20

7.00 ± 0.10

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

0.75 TYP.

0.50

0.22 ± 0.05

$\Phi 0.8^{+0.08}_{-0}$

1.20 MAX.

$0.05 \sim 0.15$

1.00 ± 0.05

0.25

0.60 ± 0.15

10 ~ 7°

Figure 1: Dimensions of the package. The figure consists of two views: a top view and a side view. The top view shows a square package with dimensions 12.0 ± 0.2 mm (width) and 10.0 ± 0.1 mm (height). It features a central square area with a 1.1 TYP. dimension. The side view shows the package height with dimensions 0.15 ~ 0.08 mm, 0.10 mm, 0.65 mm, 0.22 ~ 0.06 mm, and 0.130 mm. The side view also shows a SEATING PLANE and a 1.2 MAX. dimension. The bottom view shows a 1.0 ± 0.05 mm dimension and a 1.0 ~ 0.2 mm dimension. The bottom view also shows a 0.25 mm dimension and a 0.6 ± 0.15 mm dimension.

Technical drawing of a mechanical part with dimensions and tolerances. The drawing includes a cross-section view on the left and a top view on the right. The cross-section view shows a part with a diameter of $\varnothing 0.08$ and a length of 0.145 ± 0.05 . The top view shows a square part with dimensions 12.00 ± 0.20 and 10.00 ± 0.10 . The part has a mirror finish and a 1.20TYP. feature. The drawing also includes a sectioning plane and a 0.08 feature. The bottom view shows a part with dimensions $0.05 \sim 0.25$ and 1.00 ± 0.05 . The part has a 1.20MAX. feature and a $0 \sim 8^\circ$ angle. The drawing also includes a 0.25 feature and a 0.60 ± 0.12 dimension.

Technical drawing of a seat cushion assembly. The top view shows a rectangular cushion with dimensions 1.25TYP. by 1.25TYP. and a central rectangular area of 1.00 ± 0.10 by 1.00 ± 0.10. The side view shows a cross-section of the cushion with a height of 0.17 ± 0.05 and a base width of 0.10. The cushion is mounted on a SEATING PLANE. The drawing includes a legend for dimensions: 14.00 ± 0.20 (white box), 12.00 ± 0.10 (light gray box), and 1.25TYP. (dark gray box). The side view also shows a 1.20 MAX. dimension for the top surface and a 0.00 ~ 0.20 dimension for the base. The bottom view shows a 1.00 ± 0.20 dimension for the base and a 0.50 ± 0.10 dimension for the side. The bottom view also shows a 10° angle for the base and a 0.50 ± 0.10 dimension for the side.

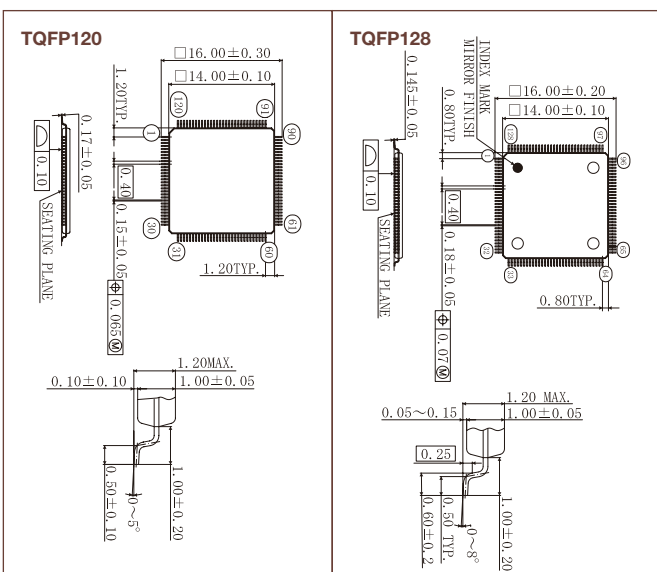
[illegible]

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

QFP Packages

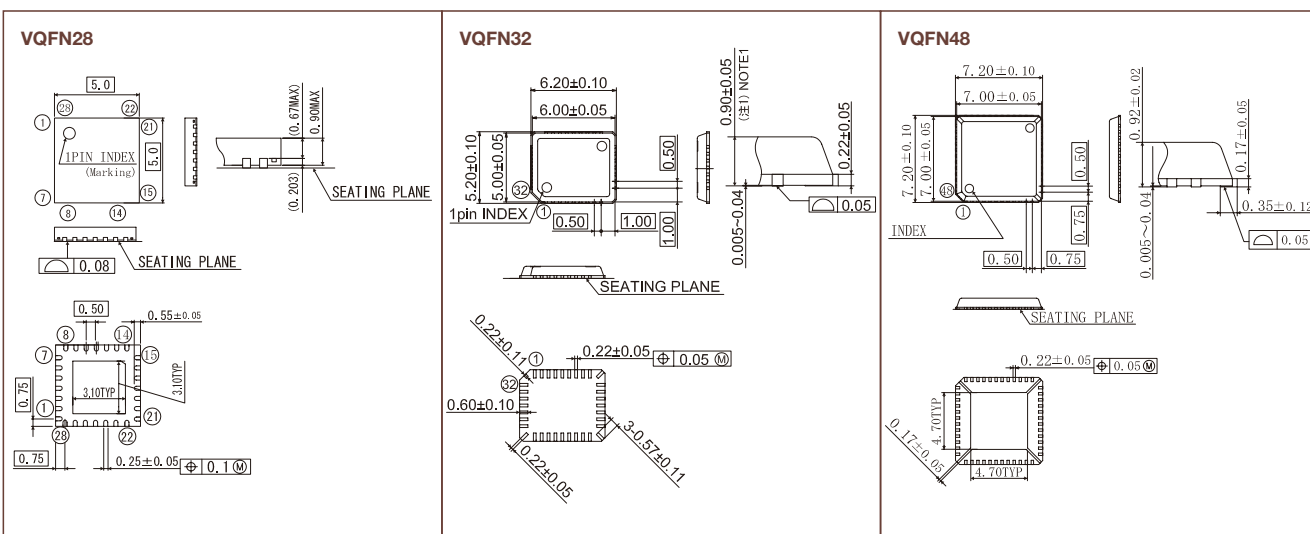
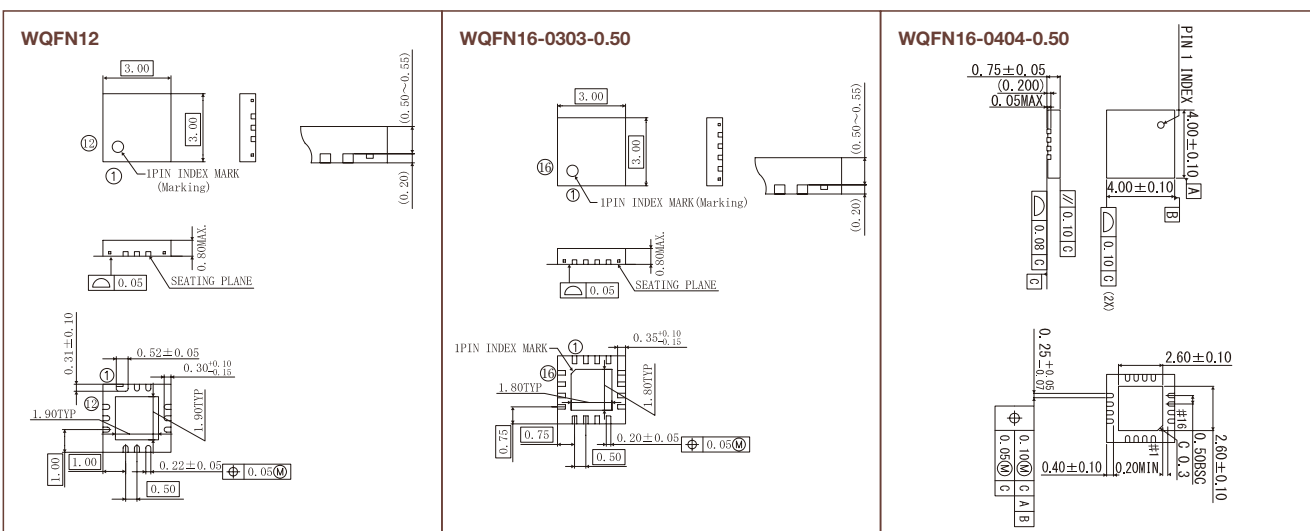
(Unit: mm)

TQFP



QFN Packages

(Unit: mm)

VQFN**WQFN**

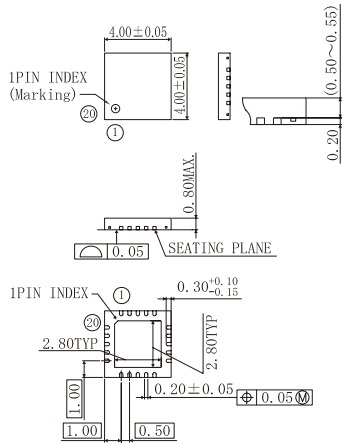
These package size are an example. For details, please inquire to the sales.

QFN Packages

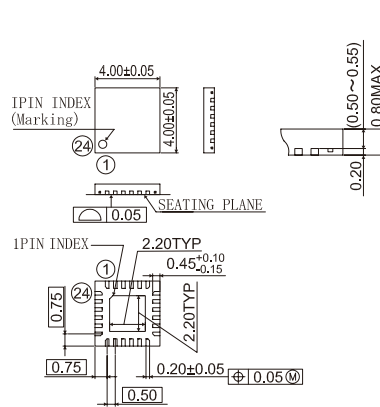
(Unit: mm)

WQFN

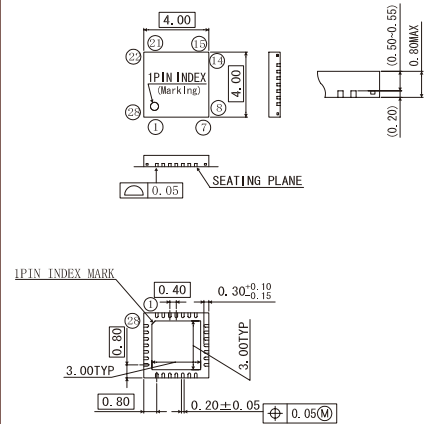
WQFN20



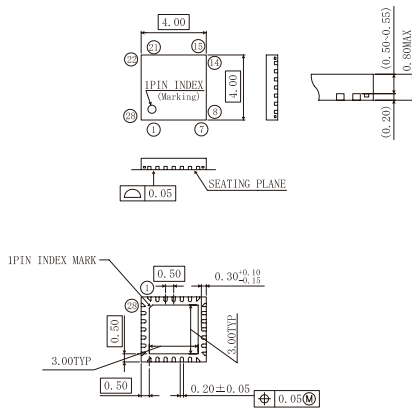
WQFN24



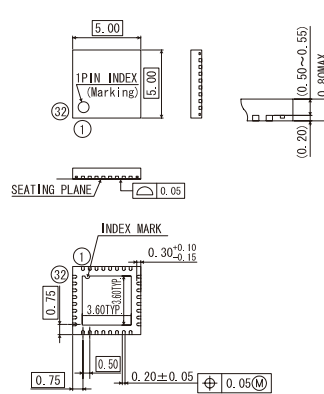
P-WQFN28-0404-0.40-63



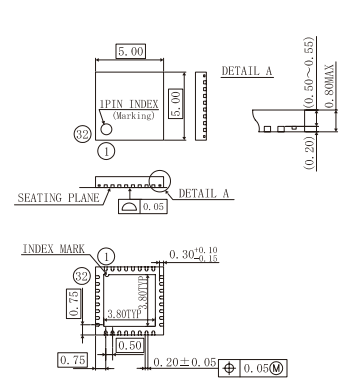
P-WQFN28-0404-0.50-63



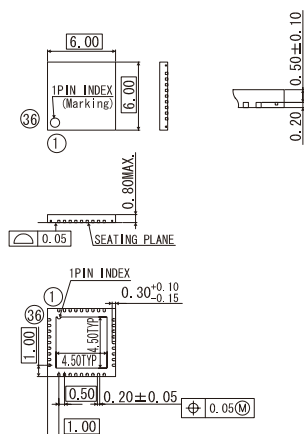
P-WQFN32-0505-0.50-63



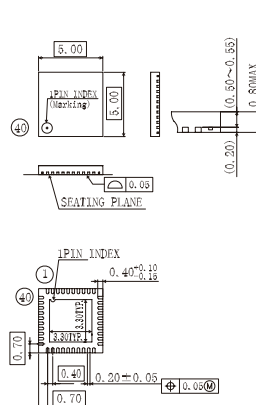
P-WQFN32-0505-0.50-A63



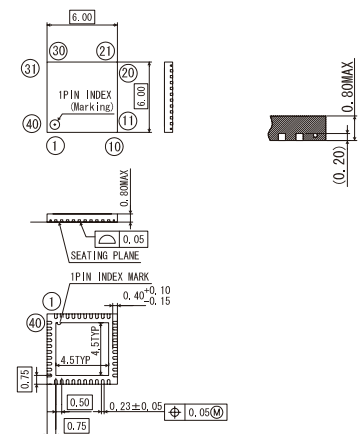
WQFN36



P-WQFN40-0505-0.40



P-WQFN40-0606-0.50



A

IC Packages

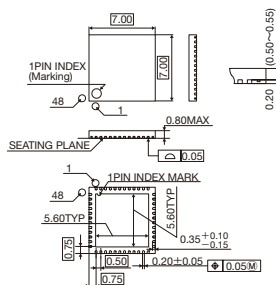
These package size are an example. For details, please inquire to the sales.

QFN Packages

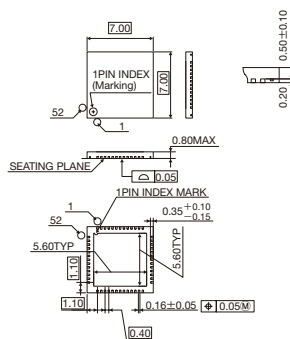
(Unit: mm)

WQFN

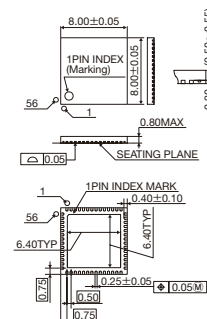
WQFN48



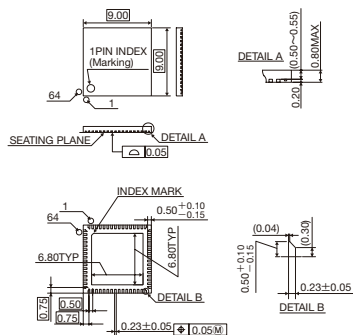
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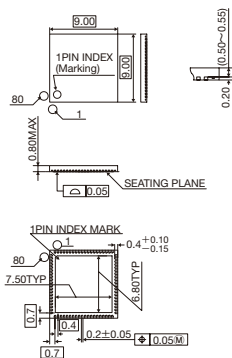
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WQFN64

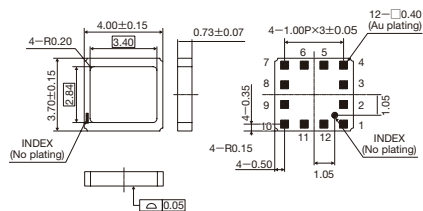


WQFN80

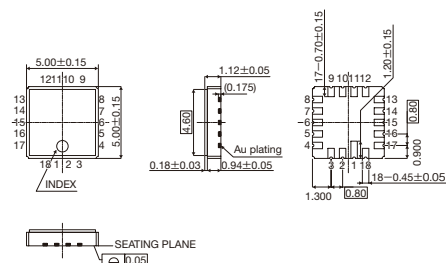


C-TQFN

C-TQFN12



C-TQFN18



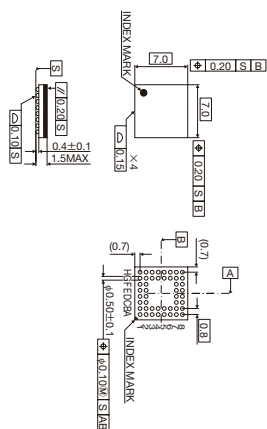
These package size are an example. For details, please inquire to the sales.

BGA Packages

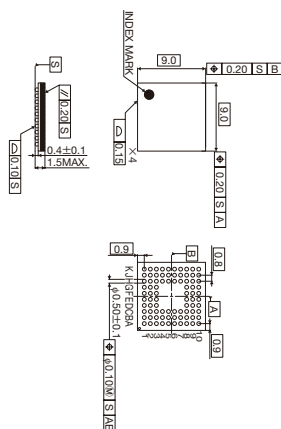
(Unit: mm)

LFBGA

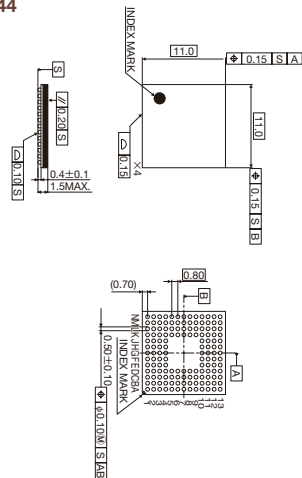
LFBGA48



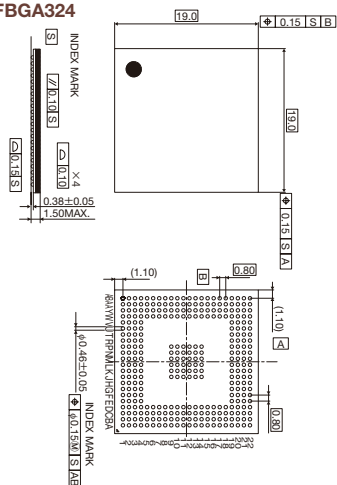
LFBGA84



LFBGA144

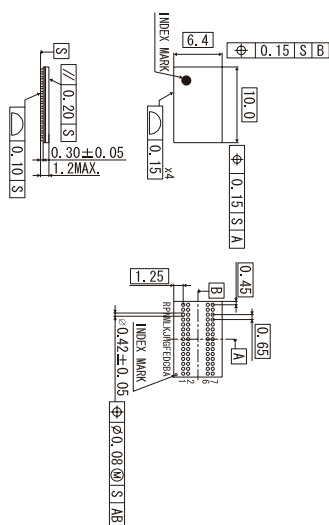


LFBGA324

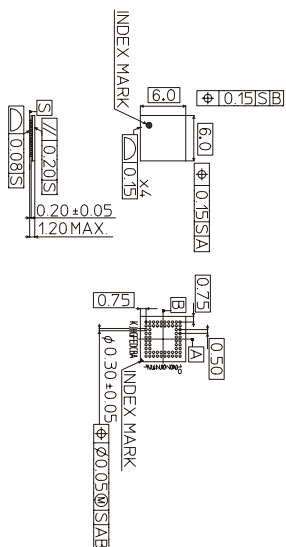


TFBGA

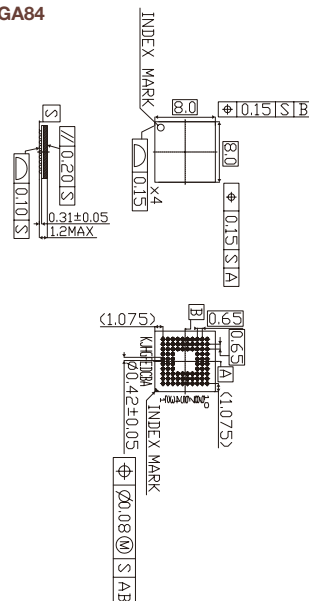
TFBGA60



TFBGA64



TFBGA84



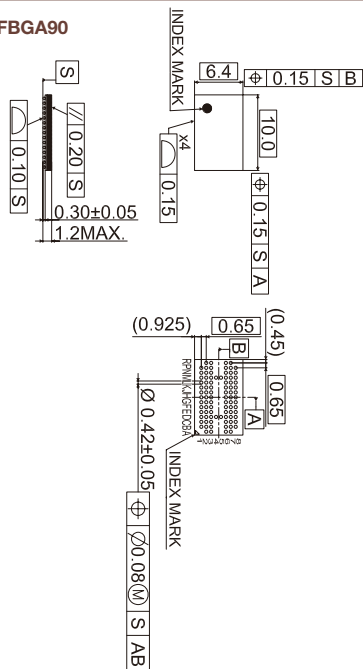
These package size are an example. For details, please inquire to the sales.

BGA Packages

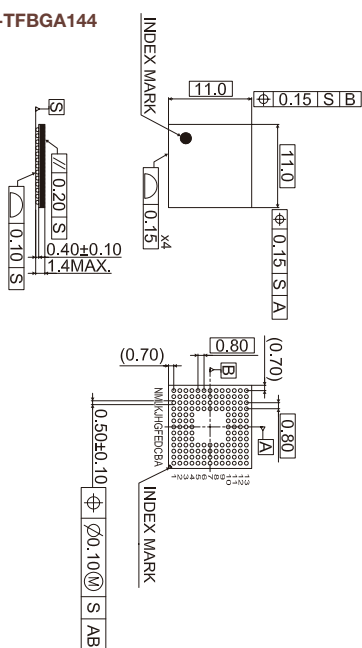
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TFBGA

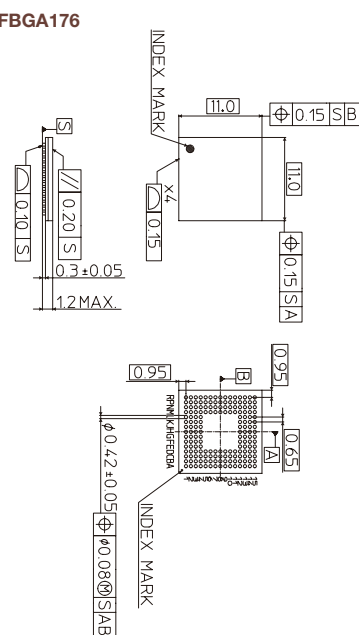
TFBGA90



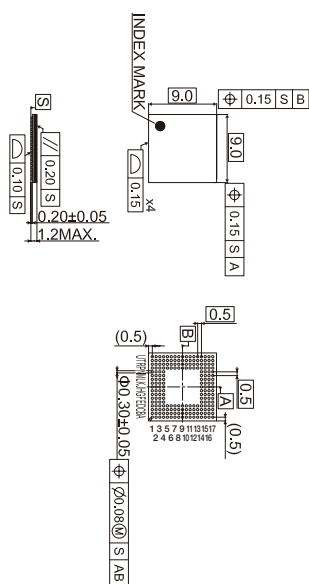
P-TFBGA144



TFBGA176



P-TFBGA208-0909-0.50



P-TFBGA208-1212-0.65

