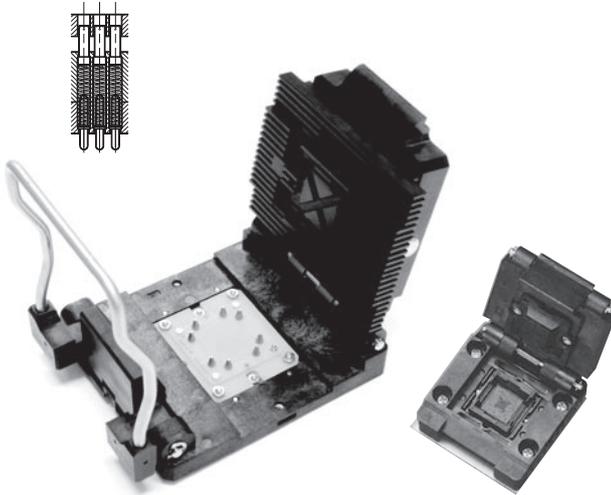


BGA/LGA

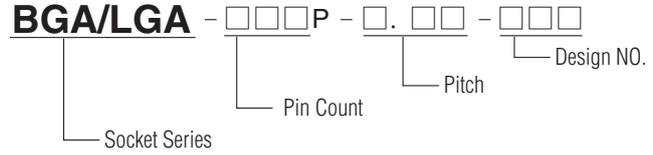
BALL/LAND GRID ARRAY

APS-series



※RoHS compliant

ORDERING PROCEDURE

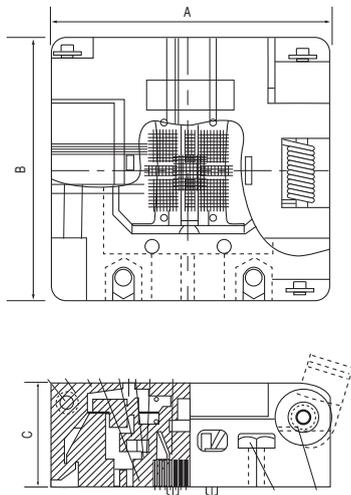


	Specification / 仕様				
	0.4mm Pitch		0.5mm Pitch		0.65mm Pitch
	APS	BPS	APS	BPS	PS
Contact resistance 接触抵抗 (初期値) (at initial, at 10mA)	400mΩ	200mΩ	400mΩ	200mΩ	500mΩ
Maximum voltage 耐電圧	AC300V RMS (for 1 minute)				
Insulation resistance 絶縁抵抗 at DC 500V	1,000 MΩ or higher				
Rated current 許容電流値	0.7A	1.4A	0.6A	2.4A	0.2A
Operating temperature range 使用温度	-65°C ~ +150°C				
Insertion 機械寿命	Min 10,000 times (Mechanical)				

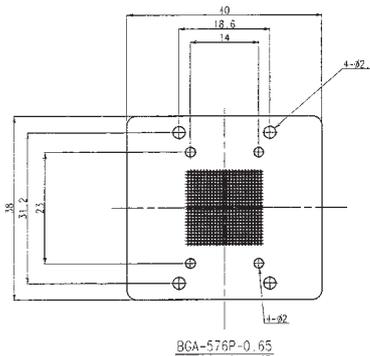
MATERIAL / 材質	
Body 本体	PEI, PES
Contact コンタクト	BeCu, Au plating (Ni-base)

APPLICABLE IC DIMENSIONS & SOCKET DIMENSIONS

BGA/LGA 0.65mm PITCH



PCB PATTERN



BGA-576P SERIES (0.65mm PITCH)

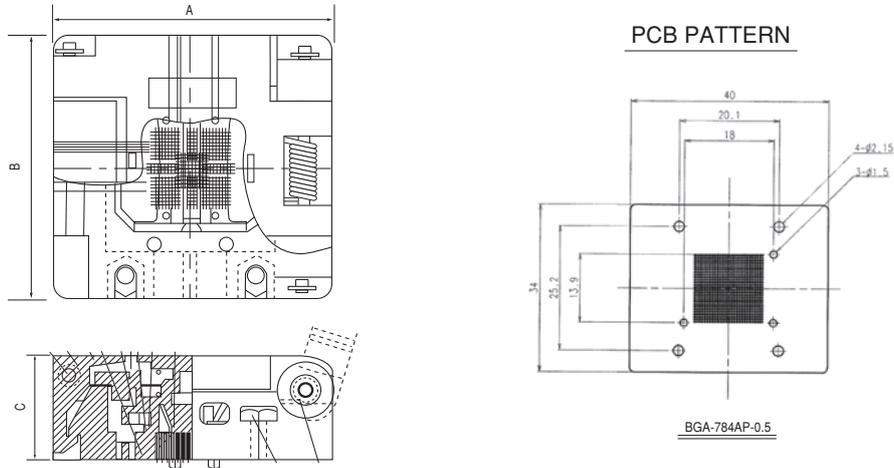
Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)				OUTSIDE DIMENSIONS (REF.)			REMARKS	
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B		C
BGA-100(576P)-0.65-16	7×7	10×10	Fully Array	100	0.65	40	38	15	
BGA-174(576P)-0.65-17	10×10	14×14	Depopulated	174					
BGA-204(576P)-0.65-10	12×12	18×18	Depopulated	204					
BGA-188(576P)-0.65-11	13×13	18×18	Depopulated	188					
BGA-232(576P)-0.65-04	14×14	20×20	Depopulated	232					
BGA-352(576P)-0.65-39	15×15	22×22	Depopulated	352					
BGA-324(576P)-0.65-07	16×16	22×22	Depopulated	324					
BGA-304(576P)-0.65-14	16×16	23×23	Depopulated	304					

-Max.16×16mm Package can be accommodated

Applicable IC/BGA · LGA Clam Shell Surface Mount Type Socket

BGA/LGA 0.5mm PITCH



BGA-1575BP SERIES (0.5mm PITCH) — Bypass Type —

Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-1089(1575BP)-0.5-***-00	14×14	33×33	Depopulated	1089	0.5	68.5	57.5	22.6	
BGA-1225(1575BP)-0.5-***-00	18×18	35×35	Depopulated	1225					

BGA-1521P SERIES (0.5mm PITCH)

Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-724(1521P)-0.5-***-00	16×17	30×30	Depopulated	724	0.5	49	41.5	21	

BGA-784AP SERIES (0.5mm PITCH)

Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-64(784AP)-0.5-***	5×5	8×8	Fully Array	64	0.5	40	34	20	
BGA-81(784AP)-0.5-***	5×5	9×9	Fully Array	81					
BGA-73(784AP)-0.5-***	6×6	9×9	Depopulated	73					
BGA-100(784AP)-0.5-***	6×6	10×10	Fully Array	100					
BGA-128(784AP)-0.5-***	7×7	12×12	Depopulated	128					
BGA-137(784AP)-0.5-***	7×7	13×13	Depopulated	137					
BGA-132(784AP)-0.5-***	8×8	14×14	Depopulated	132					
BGA-193(784AP)-0.5-***	8×8	15×15	Depopulated	193					
BGA-255(784AP)-0.5-***	9×9	16×16	Depopulated	255					
BGA-284(784AP)-0.5-***	10×10	18×18	Depopulated	284					
BGA-361(784AP)-0.5-***	10×10	19×19	Depopulated	361					
BGA-280(784AP)-0.5-***	11×11	20×20	Depopulated	280					
BGA-328(784AP)-0.5-***	11×11	21×21	Depopulated	328					
BGA-483(784AP)-0.5-***	12×12	22×22	Depopulated	483					
BGA-433(784AP)-0.5-***	12×12	23×23	Depopulated	433					
BGA-465(784AP)-0.5-***	13×13	24×24	Depopulated	465					
BGA-517(784AP)-0.5-***	13×13	25×25	Depopulated	517					
BGA-617(784AP)-0.5-***	14×14	26×26	Depopulated	617					
BGA-440(784AP)-0.5-***	14×14	27×27	Depopulated	440					
BGA-440(784AP)-0.5-***	15×15	27×27	Depopulated	440					
BGA-412(784AP)-0.5-***	15×15	28×28	Depopulated	412					

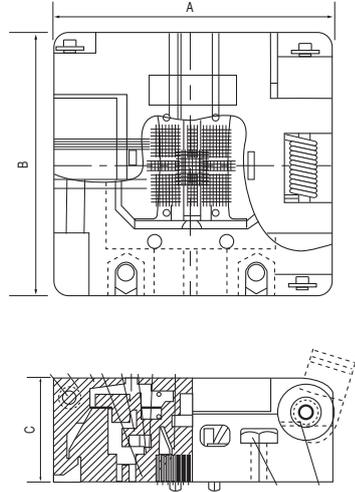
-Max.16×16mm Package can be accommodated

BGA-784BP SERIES (0.5mm PITCH) — Bypass Type —

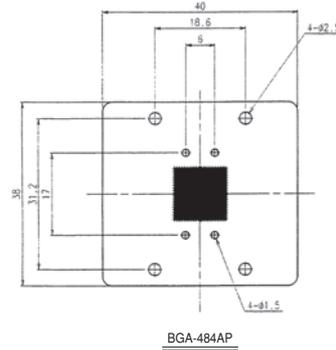
Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-81(784BP)-0.5-004	5×5	9×9	Fully Array	81	0.5	40	34	20.1	
BGA-121(784BP)-0.5-02	6×6	11×11	Fully Array	121					
BGA-137(784BP)-0.5-017	7×7	13×13	Depopulated	137					
BGA-280(784BP)-0.5-002	11×11	20×20	Depopulated	280					
BGA-364(784BP)-0.5-012	12×12	23×23	Depopulated	364					

BGA/LGA 0.5mm PITCH



PCB PATTERN



BGA-484AP SERIES (0.5mm PITCH)

Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-48(484AP)-0.5-***	4×4	7×7	Depopulated	48	0.5	40	38	15	
BGA-48(484AP)-0.5-***	5×5	8×8	Depopulated	48					
BGA-57(484AP)-0.5-***	5×5	9×9	Depopulated	57					
BGA-89(484AP)-0.5-***	6×6	10×10	Depopulated	89					
BGA-96(484AP)-0.5-***	6×6	11×11	Depopulated	96					
BGA-144(484AP)-0.5-***	7×7	12×12	Depopulated	144					
BGA-144(484AP)-0.5-***	7×7	13×13	Depopulated	144					
BGA-132(484AP)-0.5-***	8×8	14×14	Depopulated	132					
BGA-161(484AP)-0.5-***	8×8	15×15	Depopulated	161					
BGA-156(484AP)-0.5-***	9×9	17×17	Depopulated	156					
BGA-277(484AP)-0.5-***	10×10	18×18	Depopulated	277					
BGA-240(484AP)-0.5-***	10×10	19×19	Depopulated	240					
BGA-223(484AP)-0.5-***	11×11	20×20	Depopulated	223					
BGA-256(484AP)-0.5-***	11×11	21×21	Depopulated	256					
BGA-244(484AP)-0.5-***	12×12	21×21	Depopulated	244					

-Max. 12×12mm Package can be accommodated

Shrink BGA-361APS SERIES (0.5mm PITCH)

Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-80(361APS)-0.5-***	5×5	9×9	Depopulated	80	0.5	25	25	15	
BGA-113(361APS)-0.5-***	6×6	11×11	Depopulated	113					
BGA-100(361APS)-0.5-***	7×7	12×12	Depopulated	100					
BGA-132(361APS)-0.5-***	10×10	8×8	Depopulated	132					

BGA-1521APS SERIES (0.5mm PITCH)

Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-*** (1521AP)-0.5-***	19.5×19.5	39×39		***	0.5	47	41.5	24.7(*)	

(*) Depends on Heat sink height

BGA-1876APS SERIES (0.4mm PITCH)

Unit : mm

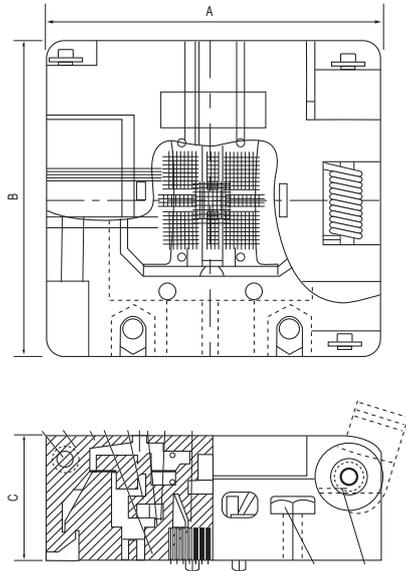
PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-*** (1876AP)-0.4-***	19.5×19.5	48×48		***	0.5	47	41.5	24.7(*)	

(*) Depends on Heat sink height

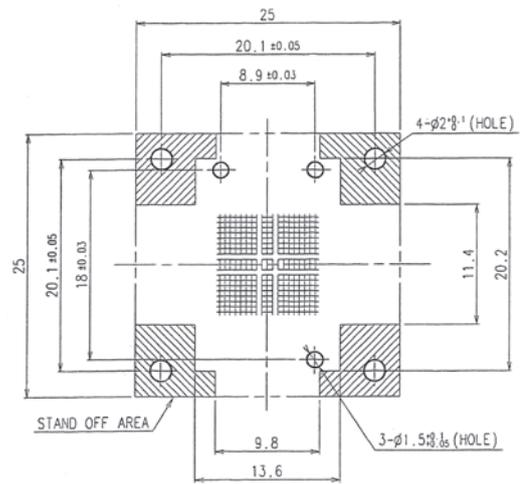
Applicable IC/BGA·LGA

Clam Shell Surface Mount Type Socket

BGA/LGA 0.4mm PITCH



PCB PATTERN



BGA-484APS, BGA-361APS

BGA-484AP SERIES (0.4mm PITCH)

Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-25(484AP)-0.4-***	3×3	5×5	Fully Array	25	0.4	40	34	19.5	
BGA-32(484AP)-0.4-***	3×3	6×6	Depopulated	32					
BGA-64(484AP)-0.4-***	4×4	8×8	Depopulated	64					
BGA-81(484AP)-0.4-***	4×4	9×9	Fully Array	81					
BGA-97(484AP)-0.4-***	5×5	11×11	Depopulated	97					
BGA-132(484AP)-0.4-***	6×6	12×12	Depopulated	132					
BGA-145(484AP)-0.4-***	6×6	13×13	Depopulated	145					
BGA-176(484AP)-0.4-***	7×7	15×15	Depopulated	176					

-Max.10×10mm Package can be accommodated

BGA-484BP SERIES (0.4mm PITCH) — Bypass Type —

Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-141(484BP)-0.4-***	6×6	13×13	Depopulated	141	0.4	40	34	19.9	

Shrink BGA-484APS SERIES (0.4mm PITCH)

Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-40(484APS)-0.4-***	3×3	7×7	Depopulated	40	0.4	25	25	15	
BGA-47(484APS)-0.4-***	10×10	7×7	Depopulated	47					

BGA-1444AP SERIES (0.4mm PITCH)

Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-974(1444AP)-0.4-001S-00	13.5×13.5	32×32	Depopulated	974	0.4	68.5	57.5	22.6	
BGA-1096(1444AP)-0.4-002S-00	14×14	32×32	Depopulated	1096					

BGA-1444APH SERIES (0.4mm PITCH)

Unit : mm

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)			REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	
BGA-974(1444APH)-0.4-001S-00	13.5×13.5	32×32	Depopulated	974	0.4	35	31	53.4	
BGA-1096(1444APH)-0.4-002S-00	14×14	34×34	Depopulated	1096					

BGA/LGA

BALL/LAND GRID ARRAY

AM-series



ORDERING PROCEDURE

BGA - □□□AM - □. □□ - □□□AM Type

BGA - □□□AMZ - □. □□ - □□□AMZ Type

Specification / 仕様	
Contact resistance (Initial) 接触抵抗 (初期値)	400mΩ or less (At 10 mA)
Maximum voltage 耐電圧	AC300V RMS (for 1 minute)
Insulation resistance 絶縁抵抗	1,000MΩ or higher (At DC 500V)
Operating temperature range 使用温度	-65°C ~ +150°C
Insertion 機械寿命	Min. 5,000 times

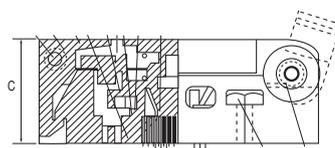
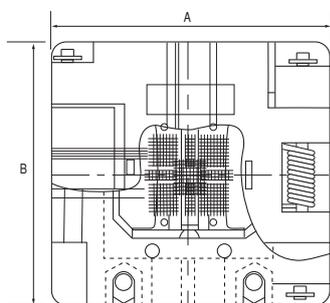
MATERIAL / 材質	
Body 本体	PES
Contact コンタクト	Plunger / BS, ES plating Spring / SUS, Au plating

KEY CONCEPTS

- Compression mount type
- Replaceable contact module
- RoHS compliant
- Any custom BGA PKG available
- Flexible Pitch minimum 0.4mm pitch
- Rectangular shape PKG
- Dual row pad PKG

- 表面実装タイプ
- 交換可能なコンタクトモジュール
- RoHS対応
- BGAのカスタムパッケージに対応
- 0.4mmピッチ以上のマルチピッチパッケージ
- 長方形パッケージ
- デュアルパッド配置パッケージ

APPLICABLE IC DIMENSIONS & SOCKET DIMENSIONS



SOCKET LINE UP

APPLICABLE IC DIMENSIONS			OUTSIDE DIMENSIONS (REF.)			REMARKS
BODY SIZE	ROW/ARRAY	PITCH	A	B	C	
12×12	Multi	MIN 0.4mm	25	25	15	
15×15	Multi	MIN 0.4mm	40	34	19.5	
19.5×19.5	Multi	MIN 0.4mm	48.4	41.5	24.7	Z Type

Applicable IC/BGA · LGA Clam Shell Surface Mount Type Socket

VS-series



ORDERING PROCEDURE

BGA - □□□VS - □. □□ - □□□VS Type

BGA - □□□VSZ - □. □□ - □□□VSZ Type

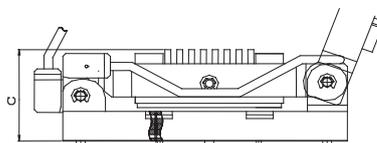
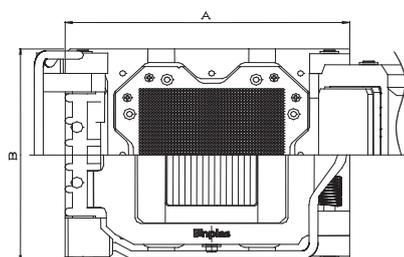
Specification / 仕様		
PITCHI ピッチ	0.35mm	0.4mm
Contact resistance (Initial) 接触抵抗 (初期値)	200mΩ	200mΩ
Maximum voltage 耐電圧	AC50V (for 1 minute)	AC50V (for 1 minute)
Insulation resistance 絶縁抵抗	1,000MΩ or more (At DC 250V)	1,000MΩ or more (At DC 250V)
Rated current 許容電流値	1.1A	1.4A
Operating temperature range 使用温度	-65°C ~ +150°C	
Insertion 機械寿命	Min. 5,000 times	Min. 10,000 times

MATERIAL / 材質	
Body 本体	Al/PES
Contact コンタクト	BeCu / ES Plating

KEY CONCEPTS

- Compression mount
- Replaceable contact module
- RoHS compliant
- Heat-sink with high thermal performance available
- RTD sensor and heater available for thermal control
- 表面実装
- 交換可能なコンタクトモジュール
- RoHS対応
- 熱解析技術に基づいた最適なヒートシンク設計
- ヒーター・センサーの設置による温度コントロールに対応

APPLICABLE IC DIMENSIONS & SOCKET DIMENSIONS



SOCKET LINE UP

APPLICABLE IC DIMENSIONS				OUTSIDE DIMENSIONS (REF.)			REMARKS
BODY SIZE		PITCH	GRID	MAX PIN COUNT	A	B	
~16	S	0.35	42×44	1848	68.5	57.5	Depending on HS design
	SS				48.4	41.5	
~15 16×17	S	0.4	34×34	1156	68.5	57.5	
			39×42	1638			
~15 16×17	SS	0.4	34×34	1156	48.4	41.5	
			39×42	1638			