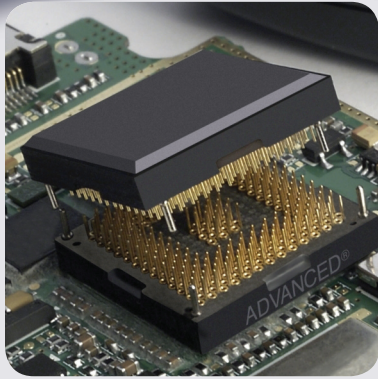


# BGA Socket Adapter Systems

# Micro-BGA Socket Adapter System 0.50mm and 0.65mm Pitch



### Features

- Advanced's field-proven screw-machined terminals with multi-finger contacts, arranged in an interstitial male/female pin pattern are gold plated for gold/gold interconnect.
- Small overall size & same footprint as device - only 2.00mm larger than device.
- No external hold-downs required.
- Unique alignment pins protect pin field and aid in hand placement with optional stand-offs available.
- Sockets and Adapters are provided with protective covers which facilitate automated pick & place.
- Superior electrical performance - very low signal attenuation.

### Specifications

**Terminals:**  
Brass - Copper Alloy (C36000)

**Contacts:**  
Beryllium Copper (C17200)

**Solder Ball:**  
Lead-free:  
0.50mm Pitch: 96.5Sn/3.0Ag/0.5Cu  
0.65mm Pitch: 95.5Sn/4.0Ag/0.5Cu  
Tin/Lead: 63Sn/37Pb

**Plating:**  
G - Gold over Nickel  
Note: Alignment pins are Nickel plated



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### Table of Models

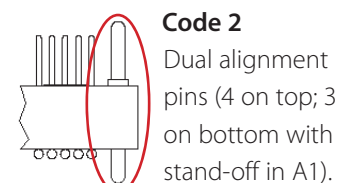
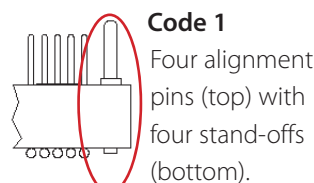
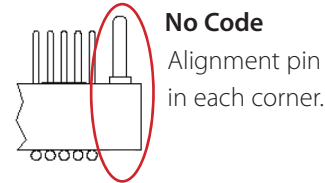
	Description: <b>Standard Adapter (A)</b> Material: FR-4 Fiberglass Epoxy Board Note: Mates with Standard Socket for BGA device socketing.	Insulator Size: BGA device body +.079/(2.00)
	Description: <b>SMT Adapter (A)</b> Material: FR-4 Fiberglass Epoxy Board Note: Mates with Standard Socket for LGA socketing or Board to Board applications.	Insulator Size: LGA device body +.079/(2.00)
	Description: <b>Standard Socket (S)</b> Material: FR-4 Fiberglass Epoxy Board Note: Mates with either Standard Adapter or SMT Adapter.	Insulator Size: BGA/LGA device body +.079/(2.00)

Note: Mated Height 0.214/(5.44)\* approx.  
(\*will vary based on reflow profile, paste volume, and PC board pad size)

### Options

#### Alignment Pin Options

Note: Alignment pins are Nickel plated.



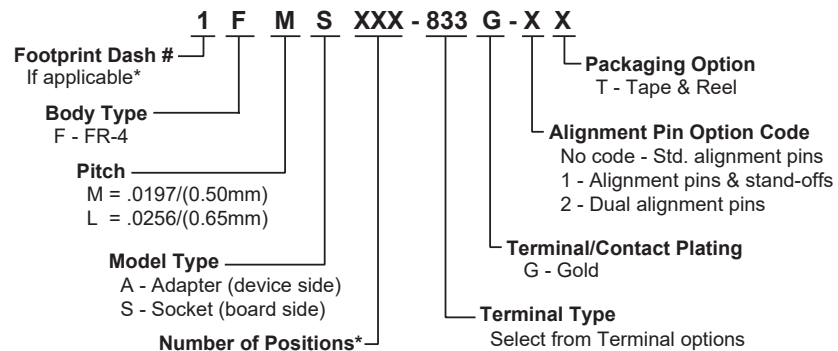
#### Packaging Options



#### Tape and Reel Packaging

- Conforms to EIA-481 Standard.
- Pick-up caps included.
- Add T to end of part number when ordering.

### How To Order



\*Select Footprint number online or submit device mechanical specs



Note: If no packaging code is indicated, parts are supplied in standard trays.  
Sockets and adapters are supplied with pre-attached protective covers. One extraction tool (P/N 8794) is included with each order. Additional extraction tools may be ordered separately.

# Micro-BGA Socket Adapter System

## 0.50mm and 0.65mm Pitch



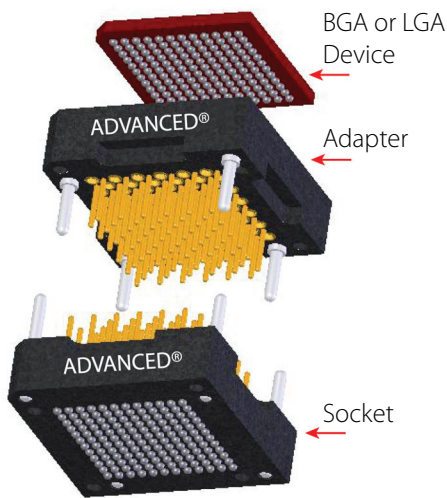
# BGA Socket Adapter Systems

### Standard Terminals

Type -834	Tin/Lead: Type -832	Tin/Lead: Type -832
	Lead-free: Type -833	Lead-free: Type -833
<p><b>Standard Adapter</b></p>	<p><b>SMT Adapter</b></p>	<p><b>Standard Socket</b></p>

Note: Solder ball diameter is 0.012/(0.30mm) on 0.50mm pitch models and 0.014/(0.36mm) on 0.65mm pitch models.

### How It Works



- Adapter matches footprint of BGA/LGA device and plugs into mating socket using unique male/female terminals in an interstitial pattern.
- Socket matches footprint of BGA/LGA device. Use alignment pins to align Device/Adapter assembly during insertion into board-mounted Socket.
- Generic reflow profiles available online.
- One extraction tool (P/N 8794) is supplied with each order.



### Performance

#### Superior Electrical Performance

Even with adjacent Aggressor excitation, our socket system provides a Differential Data path of +/- 175mV @ 100psec and a Single-ended Data path of +/- 125mV @ 140psec.

Proprietary hybrid design ensures that adjacent terminal electromagnetic coupling is trivial; greatly reducing NeXT & FeXT, while creating a pseudo-matched impedance environment; stabilizing the Insertion & Return Loss response rates.

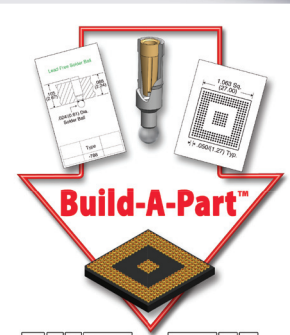
	0.50mm Pitch	0.65mm Pitch
<b>Differential Insertion Loss</b>	-0.40dB @ 1.0 GHz -0.55dB @ 1.9 GHz	-0.25dB @ 3.5 GHz
<b>Differential Return Loss</b>	-15.0dB @ 1.0 GHz -10.0dB @ 1.9 GHz	-14.0dB @ 3.5 GHz

#### Insertion/Extraction Force

35g avg. Insertion & 30g Withdrawal (per pin)

Additional electrical performance, signal integrity data, and models available online.

For details relating to proprietary information protected by patents, see Pat. [www.advanced.com/patents](http://www.advanced.com/patents). Specifications subject to change without notice. inch/(mm)



Design your own BGA Adapter or Socket using our online tools or submit your device mechanical specs and we will provide the matching part numbers.

#### BGA Footprint Finder

[www.advanced.com/bga](http://www.advanced.com/bga)

- Thousands of footprints available online
- Search by pitch, device size, etc.
- Select matching image for footprint dash number

#### Build-A-Part™ Product Configurator

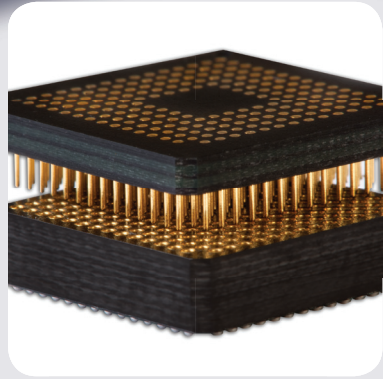
[www.advanced.com/bap](http://www.advanced.com/bap)

- Build a complete part number online
- Built-in footprint selector
- Download a product drawing (PDF)
- Check Stock
- Request a Quote
- Print a Spec Sheet



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# BGA Socket Adapter Systems



## Features

- Soldering BGA Device to adapter subjects BGA to less thermal stress than soldering BGA directly to a PCB due to the adapter's lower mass.
- Uses same footprint as BGA device.
- Custom adapters available for heat sink attachment.
- Gold plated screw-machined terminals for superior durability.
- Unique SMT Adapter provides reliable solution for mounting or socketing LGA or re-worked BGA devices.
- SMT Adapters mate with our BGA Sockets for LGA to BGA conversion or SMT Board to Board applications.

## Specifications

**Terminals:**  
Brass - Copper Alloy (C36000)

**Solder Ball:**  
Lead-free: 95.5Sn/4.0Ag/0.5Cu  
Tin/Lead: 63Sn/37Pb

**Plating:**  
G - Gold over Nickel

# Ball Grid Array (BGA) Adapters 0.80mm, 1.00mm, and 1.27mm Pitch



## Table of Models

	Description: <b>Standard Adapter (A)</b> Material: FR-4 Fiberglass Epoxy Board Note: Mates with Standard Socket (S)	Insulator Size: BGA device body +.079/(2.00)
	Description: <b>Extraction Slot Adapter (AX)</b> Material: FR-4 Fiberglass Epoxy Board Note: Mates with Extraction Socket (SB)	Insulator Size: BGA device body +.157/(4.00)

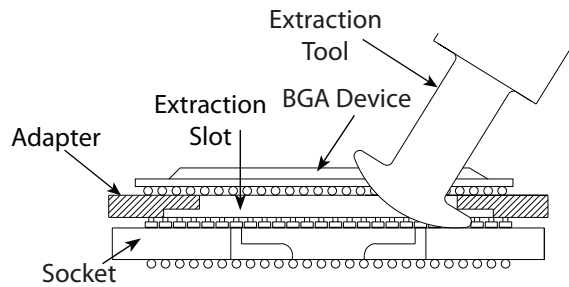
Note: For use with LGA or reworked BGA devices, select surface mount (SMT) terminals which feature solder balls on device side. SMT Adapter terminals may also be used for surface mount board to board applications.

## Options

### Extraction Tool

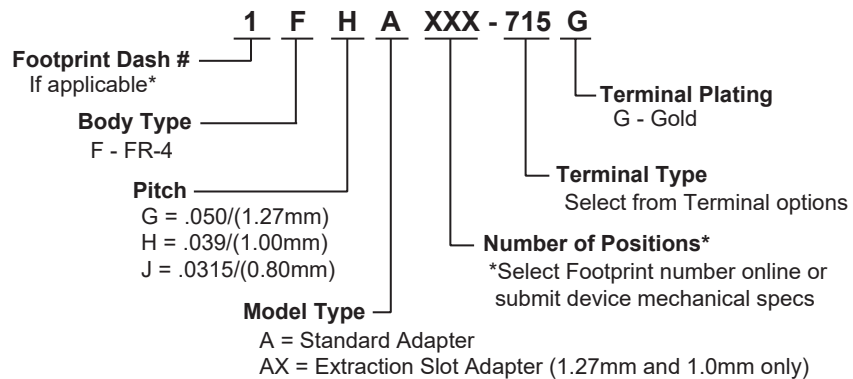


P/N 8125



- Insert "T" bar end of tool into extraction slot adapter.
- Slide tool to end of slot and pry adapter from socket.
- Repeat in additional slots until adapter is separated from socket.
- Works with Molded or FR-4 sockets.

## How To Order



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Consult factory for custom 0.75mm pitch designs.

For SMT Adapters, select Model Type A or AX and appropriate SMT Terminal Type from page 5.

# Ball Grid Array (BGA) Adapters

For use with mating BGA Adapter Sockets

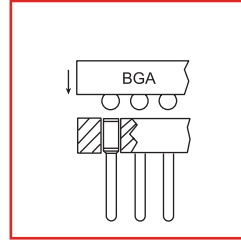
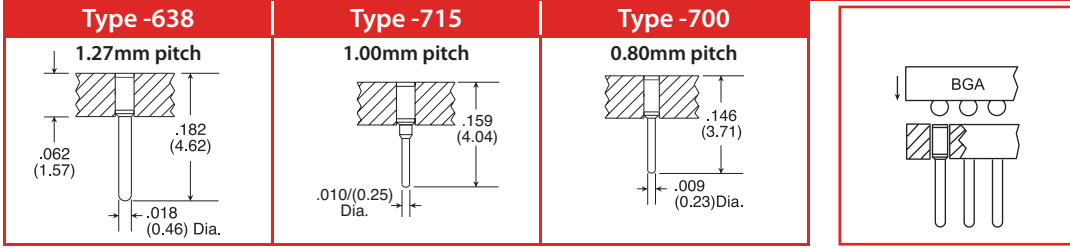


# BGA Socket Adapter Systems

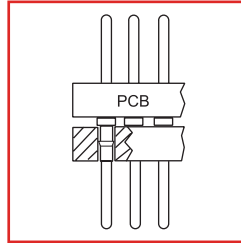
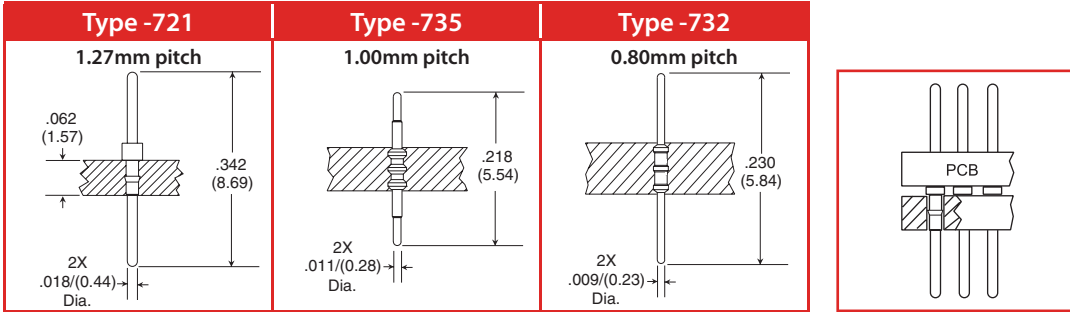
Consult factory for additional terminals.

## Standard Terminals

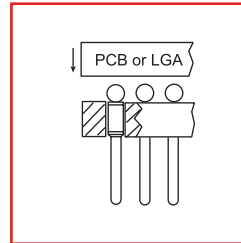
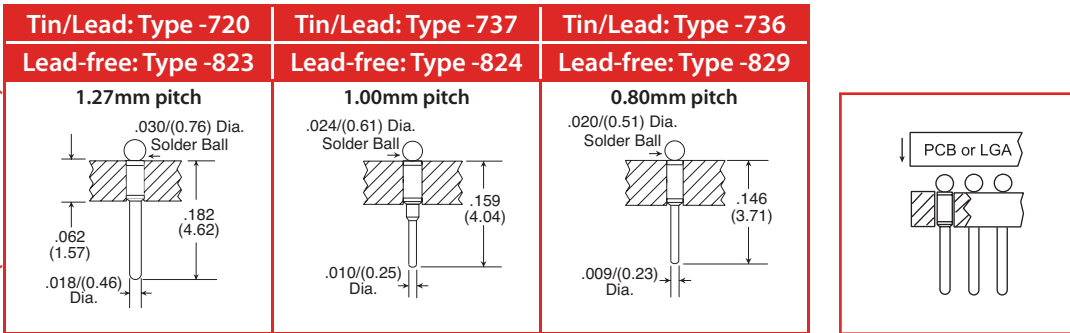
Standard



Male to Male



SMT (Surface Mount)



Design your own BGA Adapter or Socket using our online tools or submit your device mechanical specs and we will provide the matching part numbers.

### BGA Footprint Finder

[www.advanced.com/bga](http://www.advanced.com/bga)

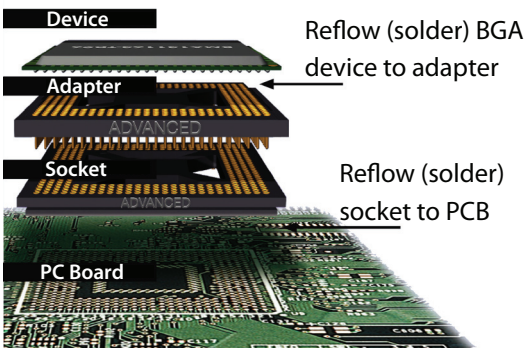
- Thousands of footprints available online
- Search by pitch, device size, etc.
- Select matching image for footprint dash number

### Build-A-Part™ Product Configurator

[www.advanced.com/bap](http://www.advanced.com/bap)

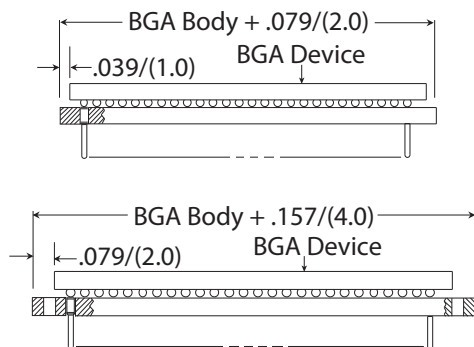
- Build a complete part number online
- Built-in footprint selector
- Download a product drawing (PDF)
- Check Stock
- Request a Quote
- Print a Spec Sheet

## How It Works



- Either Tin/Lead or Lead-free device packages can be attached to our RoHS Compliant Adapters.
- PC boards can be processed with Tin/Lead BGA sockets in standard profiles, or Lead-free BGA sockets in RoHS Compliant, high temperature profiles.
- Generic reflow profiles available online

## Dimensional Information



### Standard Adapter (A)

- Mates with Standard Socket (S)
- Adapter size equals BGA Device body + .079/(2.00)

### Extraction Slot Adapter (AX)

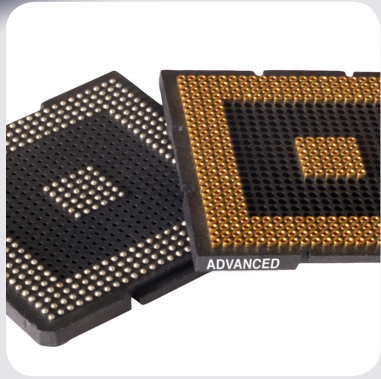
- Slots allow AIC extraction tool (sold separately) to easily remove device/adapter assembly from socket
- Mates with Extraction Socket (SB)
- Adapter size equals BGA Device body + .157/(4.00)



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# BGA Socket Adapter Systems

# Ball Grid Array (BGA) Adapter Sockets 0.80mm, 1.00mm, and 1.27mm Pitch



## Features

- Advanced® exclusive solder ball terminals offer superior SMT processing.
- Same footprint as BGA device.
- Proven long-term performance in vigorous temperature cycling applications - solder ball terminal absorbs CTE mismatch.
- Closed bottom socket terminal for 100% anti-wicking of solder.
- Gold contacts allow gold/gold interconnections to Adapter pins.
- Low insertion force socket with multi-finger high reliability Beryllium Copper contacts.
- Coplanarity consistently better than the .006/(0.152mm) industry standard.
- Custom designs available.

## Specifications

**Terminals:**  
Brass - Copper Alloy (C36000)

**Contacts:**  
Beryllium Copper (C17200)

**Solder Ball:**  
Lead-free: 95.5Sn/4.0Ag/0.5Cu  
Tin/Lead: 63Sn/37Pb

**Plating:**  
G - Gold over Nickel

## Table of Models

	Description: <b>Standard Socket (S)</b> Material: High Temp. Liquid Crystal Polymer (LCP)* or FR-4	Insulator Size: Same size as BGA device body
	Description: <b>Extraction Socket (SB)</b> Material: High Temp. Liquid Crystal Polymer (LCP)* or FR-4	Insulator Size: 1.27mm Pitch: BGA device body +.079/(2.00) 1.00mm Pitch: BGA device body +.138/(3.50)

RGS/RGSB replaces MGS/MGSB.

\* Some sizes may only be available in FR-4. See How To Order section or consult factory.

## Options



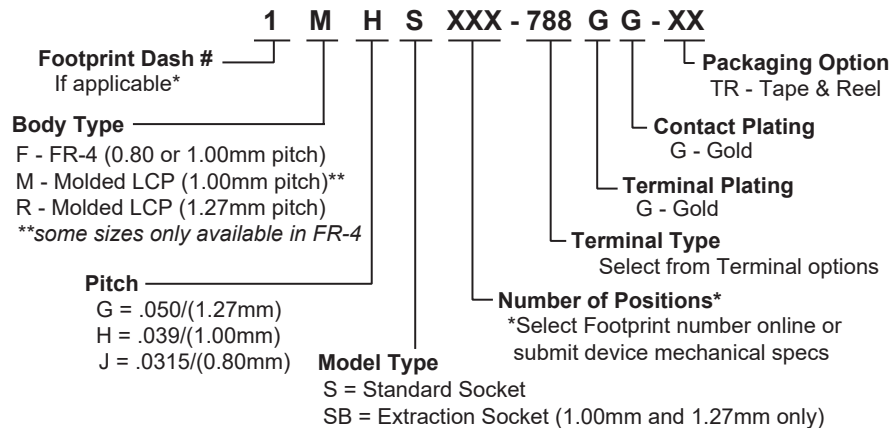
### Tape and Reel Packaging

- Conforms to EIA-481 Standard.
- Pick-up tape included.
- Add -TR to end of part number when ordering.
- Custom packaging available.
- If -TR is not specified, standard tray packs are used.

### Extraction Tool

- Extraction tool (P/N 8125) is available separately.
- Works with Extraction Slot Adapters.

## How To Order



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# Ball Grid Array (BGA) Adapter Sockets

For use with mating BGA Adapters



# BGA Socket Adapter Systems

## Standard Terminals

SMT (Surface Mount)

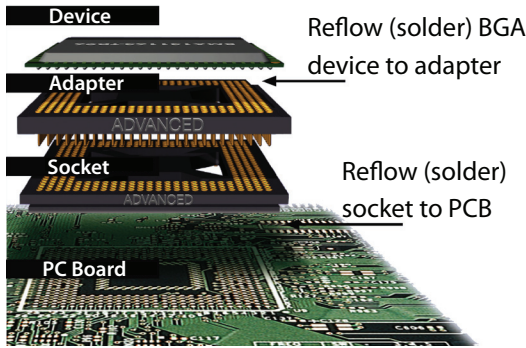
Tin/Lead: Type -636	Tin/Lead: Type -790	Tin/Lead: Type -716	Tin/Lead: Type -702
Lead-free: Type -819	Lead-free: Type -788	Lead-free: Type -816	Lead-free: Type -828
1.27mm pitch	1.00mm pitch	1.00mm pitch	0.80mm pitch

Thru-Hole

Tin/Lead: Type -673	Tin/Lead: Type -789	Tin/Lead: Type -769	Tin/Lead: Type -731
1.27mm pitch	1.00mm pitch	1.00mm pitch	0.80mm pitch

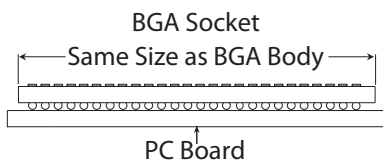
Additional standard and custom terminals available. See Terminals section or consult factory.

## How It Works



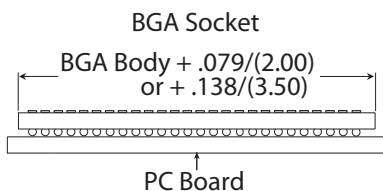
- Either Tin/Lead or Lead-free device packages can be attached to our RoHS Compliant Adapters.
- PC boards can be processed with Tin/Lead BGA sockets in standard profiles or Lead-free BGA sockets in RoHS Compliant, high temperature profiles.
- Generic Reflow Profiles available online.

## Dimensional Information



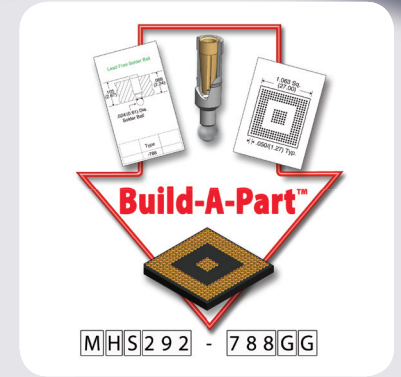
### Standard Socket (S)

- Mates with Standard Adapter (A)
- Socket size same as BGA device body
- Use with SMT Adapter for LGA and reworked BGA device socketing (or board to board applications)



### Extraction Slot (SB)

- Mates with Extraction Slot Adapter (AX)
- Socket size equals BGA body + .079/(2.00) for 1.27mm pitch or BGA body + .138/(3.50) for 1.00mm pitch
- Protects valuable PCB during device/adapter extraction - tool never touches PCB
- Available in 1.00 and 1.27mm pitch only



Design your own BGA Adapter or Socket using our online tools or submit your device mechanical specs and we will provide the matching part numbers.

### BGA Footprint Finder

[www.advanced.com/bga](http://www.advanced.com/bga)

- Thousands of footprints available online
- Search by pitch, device size, etc.
- Select matching image for footprint dash number

### Build-A-Part™ Product Configurator

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