

# 3M™ Textool™ Test and Burn-In Sockets



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For the most current product and technical information, click on the product names within this PDF, which will take you to the specific 3M Textool Test and Burn-In Sockets product page on the website.

# 3M™ Textool™ Test and Burn-In Sockets

First to market in 1992 with BGA sockets, 3M continues to expand the product range and options available. The versatile product design and six product platforms enable quick-turn and low cost proliferation of new sizes. 3M provides reliable performance for testing and burn-in applications with a design that has been proven with years of customer experience. 3M can provide a socket for most types of BGA or LGA packages, standard or custom, in a variety of pitches. Reference the 3M Textool BGA Socket brochure for more detailed information on BGA sockets. Contact your local distributor or 3M sales representative for information.

## Important Notes About 3M Textool Zero Insertion Pressure (ZIP) Sockets

### 1. Installation Instructions for Lever Actuated Zero Insertion Force Sockets

- When mounting to the PC board, the socket must be soldered with the contacts in the “OPEN” position.

- When mounting into a receptacle, it is recommended that the contacts remain in the “OPEN” position during insertion.
- When fastening sockets to PC boards with screws and nuts, these screws and nuts must be tightened prior to soldering, with the contacts in the “OPEN” position.
- High lead count sockets may have a tendency to rise during soldering operations. Care should be taken to prevent this from occurring.
- If hard wiring is to be used, wire no heavier than 30 gauge multi-strand should be considered to prevent damage to the contacts.
- Care should be taken to reduce the potential for solder flux from entering into the sockets during the soldering process.

### 2. Polyethersulfone Plastic

- Clean only with isopropyl alcohol or water and detergent.

### 3. ⚠ Caution!

- Overheating of product may release vapors which may cause eye and respiratory irritation. Skin contact with heated product may cause burns.

### 4. Precautions

- Provide appropriate local exhaust ventilation when product is heated. Avoid skin contact with hot material. Wear appropriate gloves to prevent burns.
- Consult Material Safety Data Sheet for further information on health hazards, precautions and suggested first aid.

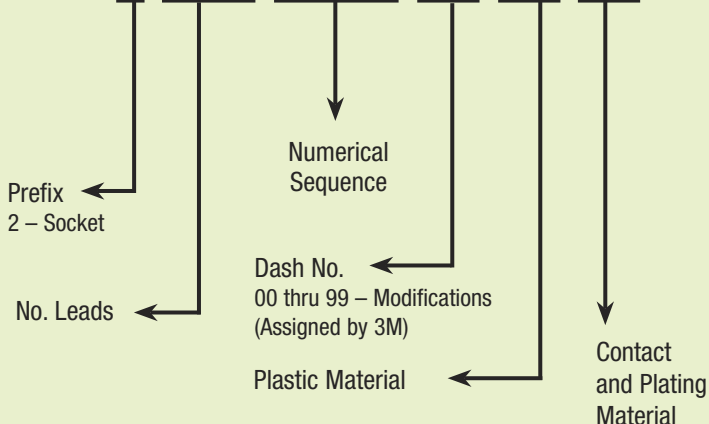
### 5. Product Information Source

#### *For Material Safety Data Sheet contact:*

3M Electronic Solutions Division  
6801 River Place Blvd.  
Austin, TX 78726-9000  
(800) 225-5373

## Typical Part Number Identification

**2 256-1386-00-19 02**



# 3M™ Textool™ BGA/LGA Open-Top Sockets, 0.65 mm

## Open-Top Design

- Accommodates a wide range of package thicknesses without requiring socket adaptations
- Allows excellent air flow around device
- Includes a retractable locating guide for easy board mounting, even with hundreds of leads

## Vertical Actuation

- Compatible with most robotic handlers
- Easy manual operation

## Normally Closed Contact Design

- Dual beam contact delivers balanced, opposing forces to solder ball with minimal shear stress
- Contact tips touch ball above its center plane producing only slight indentations and negligible ball deformation

## Retainer Clip Feature

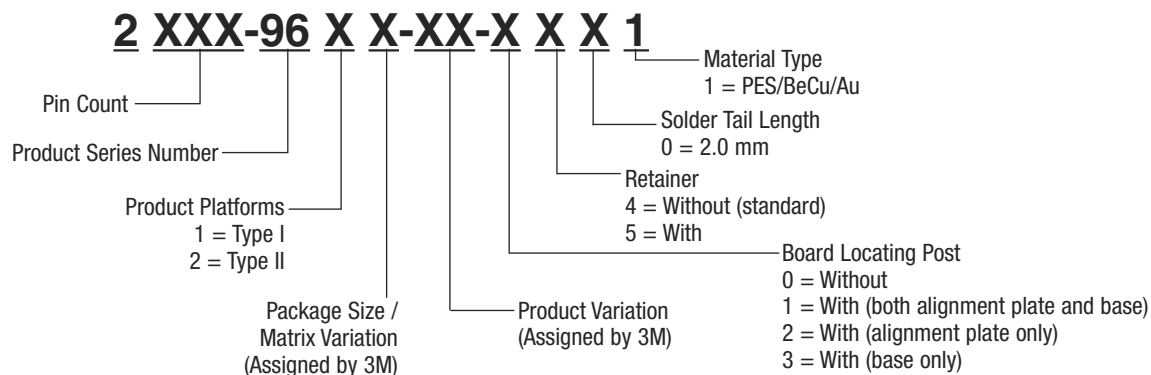
3M Textool Sockets are designed to function properly without the use of retainer clips. The retainer clip feature is desirable for high vibration/shock applications and with small or non-spherical solder balls. The purpose of the retainer clip feature is to retain the DUT in the socket should there be an event or conditions leading to dislodgement of the solder balls from the socket contacts. Retainer clips are custom-designed based on specific package dimensions and should only be considered for stable production applications where package dimensions are not expected to vary. In cases of non-spherical and small solder balls, 3M Technical Service may request package samples for fit analysis.



## 3M Textool BGA Open-Top Sockets, 0.65 mm

| Type | Maximum Body Size (mm) | Maximum Matrix | Maximum Ball Count | Status    |
|------|------------------------|----------------|--------------------|-----------|
| I    | 12 x 12                | 17 x 17        | 289                | Available |
| II   | 17 x 17                | 25 x 25        | 625                | Available |
| III  | 21 x 21                | 31 x 31        | 961                | Inquire*  |

## Ordering Information



\*Note: At time of publication, Type III was not released for sale. Please contact 3M Customer Service for current availability.

# 3M™ Textool™ BGA Open-Top Sockets, 0.80 mm

## Open-Top Design

- Accommodates a wide range of package thicknesses without requiring socket adaptations
- Allows excellent air flow around device
- Includes a retractable locating guide for easy board mounting, even with hundreds of leads

## Vertical Actuation

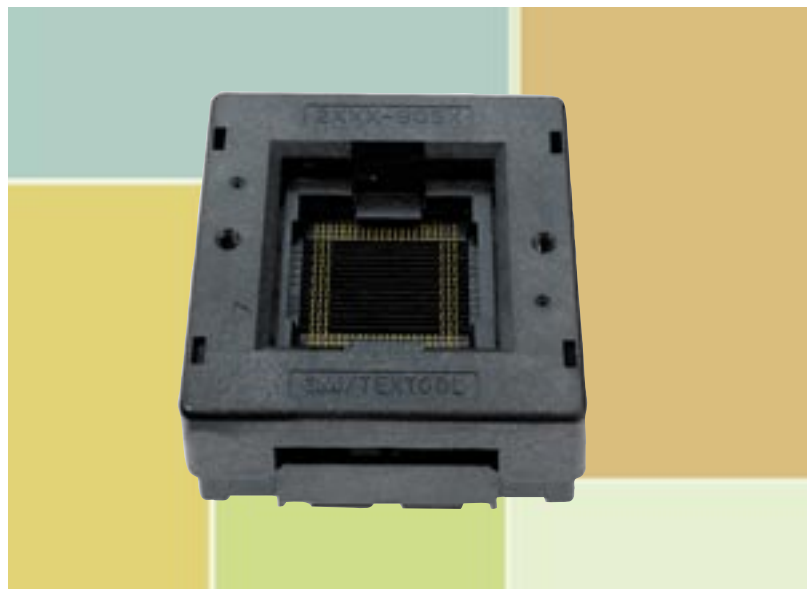
- Compatible with most robotic handlers
- Easy manual operation

## Normally Closed Contact Design

- Dual beam contact delivers balanced, opposing forces to solder ball with minimal shear stress
- Contact tips touch ball above its center plane producing only slight indentations and negligible ball deformation

## Retainer Clip Feature

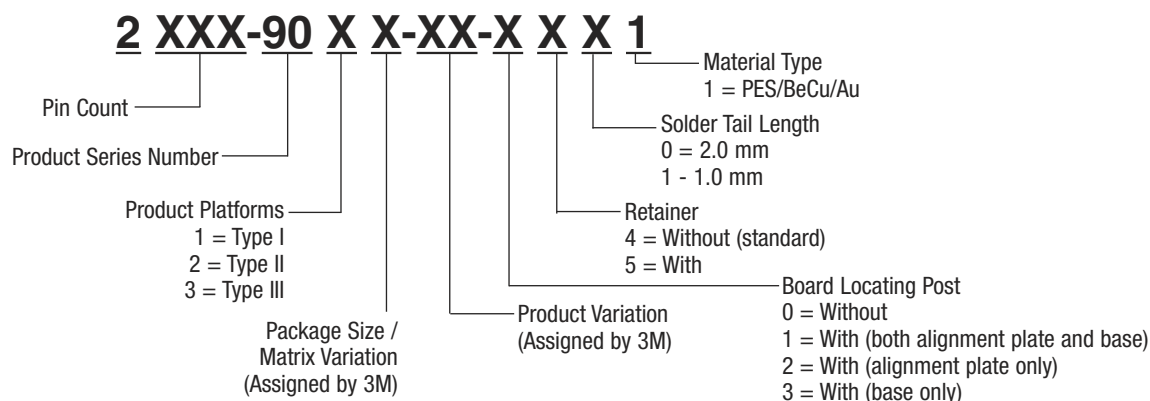
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## 3M Textool BGA Open-Top Sockets, 0.80 mm

| Type | Maximum Body Size (mm) | Maximum Matrix | Maximum Ball Count | Status    |
|------|------------------------|----------------|--------------------|-----------|
| I    | 12 x 12                | 13 x 13        | 169                | Available |
| II   | 17 x 17                | 19 x 19        | 361                | Available |
| III  | 21 x 21                | 25 x 25        | 625                | Available |
| IV   | 24 x 24                | 31 x 31        | 961                | Inquire*  |

## Ordering Information



\*Note: At time of publication, Type IV was not released for sale. Please contact 3M Customer Service for current availability.

# 3M™ Textool™ BGA Open-Top Sockets, 1.0 mm

## Open-Top Design

- Accommodates a wide range of package thicknesses without requiring socket adaptations
- Allows excellent air flow around device
- Includes a retractable locating guide for easy board mounting, even with hundreds of leads

## Vertical Actuation

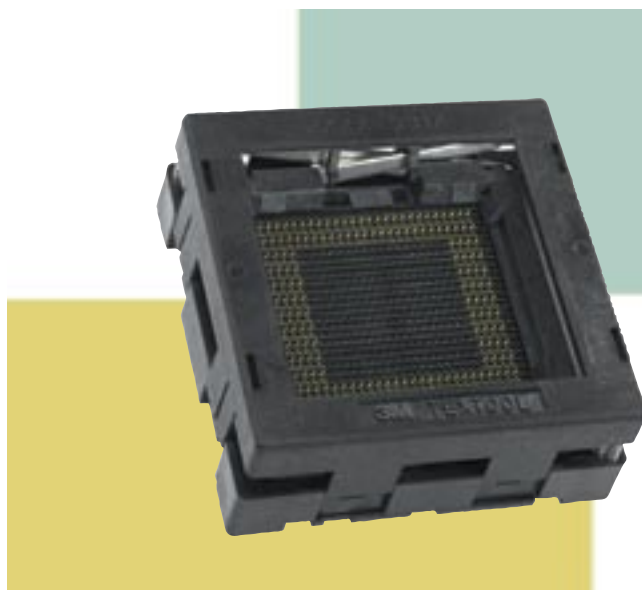
- Compatible with most robotic handlers
- Easy manual operation

## Normally Closed Contact Design

- Dual beam contact delivers balanced, opposing forces to solder ball with minimal shear stress
- Contact tips touch ball above its center plane producing only slight indentations and negligible ball deformation

## Retainer Clip Feature

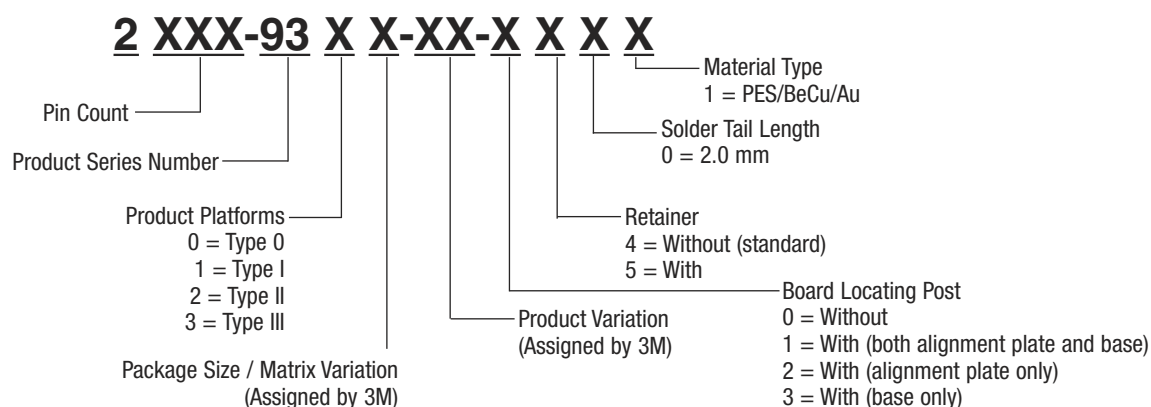
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3M Textool BGA Open-Top Sockets, 1.0 mm

| Type | Maximum Body Size (mm) | Maximum Matrix | Maximum Ball Count | Status    |
|------|------------------------|----------------|--------------------|-----------|
| 0    | 19 x 19                | 17 x 17        | 289                | Available |
| I    | 29 x 29                | 27 x 27        | 729                | Available |
| II   | 40 x 40                | 39 x 39        | 1521               | Available |
| III  | 47.5 x 47.5            | 45 x 45        | 2025               | Available |

## Ordering Information



# 3M™ Textool™ BGA Open-Top Sockets, 1.27 mm

## Open-Top Design

- Accommodates a wide range of package thicknesses without requiring socket adaptations
- Allows excellent air flow around device
- Includes a retractable locating guide for easy board mounting, even with hundreds of leads

## Vertical Actuation

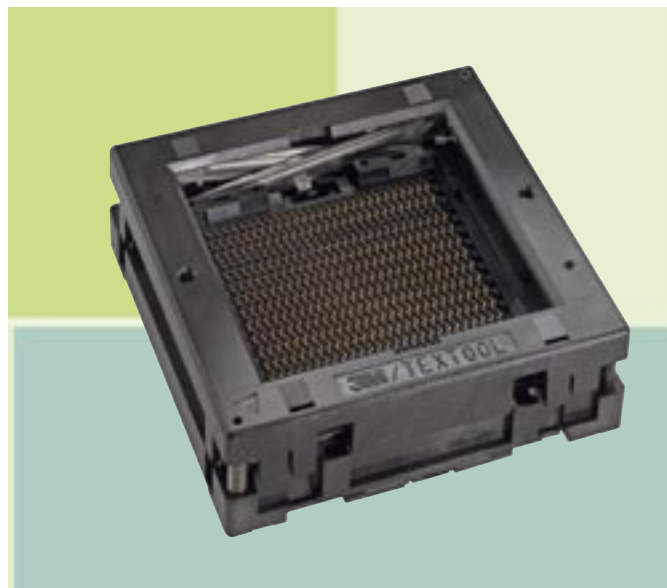
- Compatible with most robotic handlers
- Easy manual operation

## Normally Closed Contact Design

- Dual beam contact delivers balanced, opposing forces to solder ball with minimal shear stress
- Contact tips touch ball above its center plane producing only slight indentations and negligible ball deformation

## Retainer Clip Feature

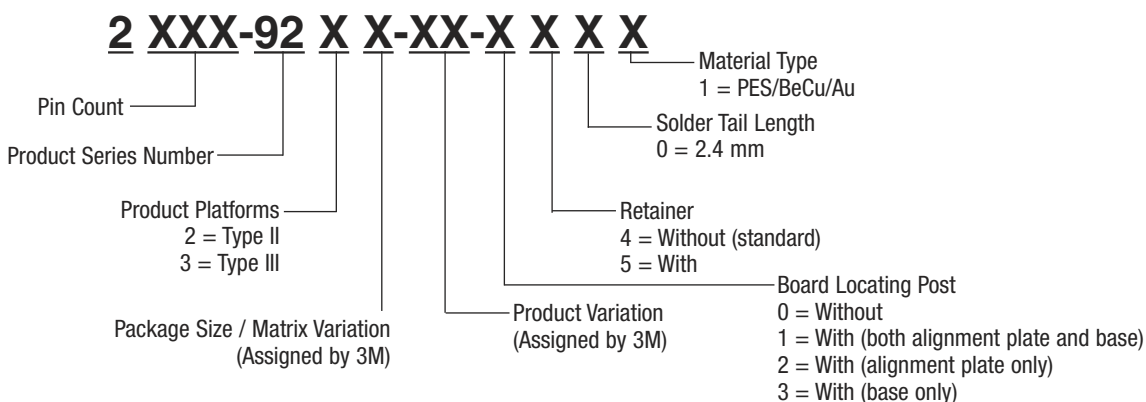
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## 3M Textool BGA Open-Top Sockets, 1.27 mm

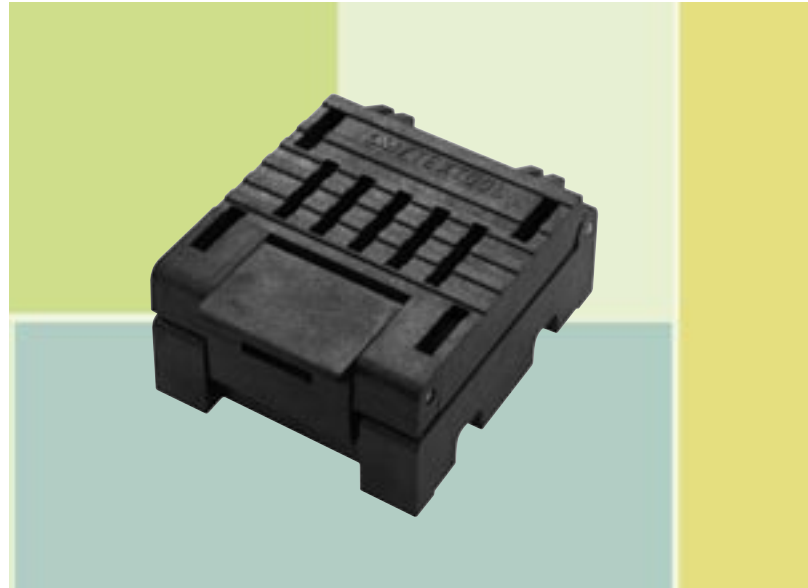
| Type | Maximum Body Size (mm) | Maximum Matrix | Maximum Ball Count | Status    |
|------|------------------------|----------------|--------------------|-----------|
| II   | 35 x 35                | 27 x 27        | 729                | Available |
| III  | 45 x 45                | 35 x 35        | 1225               | Available |

## Ordering Information



# 3M™ Textool™ BGA/LGA Standard Lidded Sockets, 1.27 mm Type II

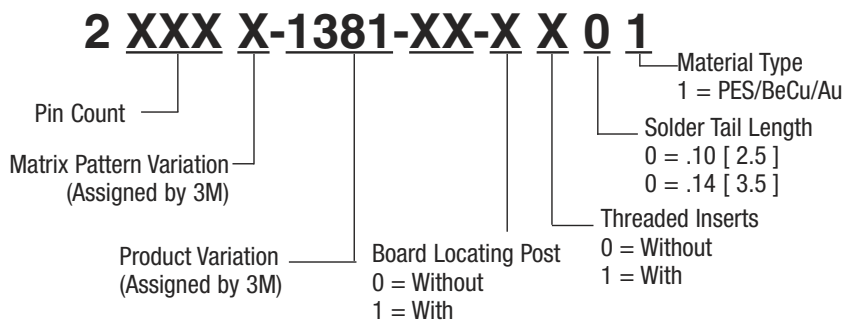
- Modular construction allows for cost effective socket proliferation for standard and custom packages
- Coarse alignment on device body followed by a secondary fine alignment to the solder balls (BGA only)
- Flat contact head that provides for minimum solder ball deformation
- Can be adapted to either BGA or LGA formats
- Available with inserts for mounting screws (screws not included with socket)



**3M Textool BGA/LGA Lidded Sockets, 1.27 mm**

| Type     | Pitch   | Matrix  | Maximum Lead Count | Maximum Pins Size | Maximum Package Thickness | Maximum Package Lid Style |
|----------|---------|---------|--------------------|-------------------|---------------------------|---------------------------|
| TYPE II  | 1.27 mm | 27 x 27 | 729                | 38 x 38 mm        | 5.00 mm                   | Standard                  |
| TYPE II  | 1.27 mm | 27 x 27 | 729                | 38 x 38 mm        | 3.50 mm                   | Low Force & Low Profile   |
| TYPE III | 1.27 mm | 39 x 39 | 1521               | 50 x 50 mm        | 8.00 mm                   | Low Force                 |
| TYPE III | 1.27 mm | 39 x 39 | 700                | 50 x 50 mm        | 4.00 mm                   | Low Force & Low Profile   |

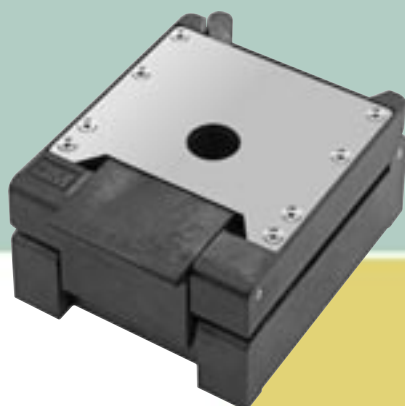
## Ordering Information



# 3M™ Textool™ BGA/LGA Standard Lidded Sockets, 1.27 mm Type II

| 3M Textool BGA/LGA Standard Lidded Sockets, 1.27 mm Type II |                    |                   |               |                  |                   |
|-------------------------------------------------------------|--------------------|-------------------|---------------|------------------|-------------------|
| Device Pitch (mm)                                           | Device Length (mm) | Device Width (mm) | Device Matrix | Alignment Method | Type Accepted     |
| 1.27                                                        | 19.00              | 19.00             | 12 x 12       | BALL             | BALL              |
| 1.27                                                        | 20.95              | 24.07             | 14 x 17       | BALL             | BALL              |
| 1.27                                                        | 20.95              | 24.70             | 16 x 19       | BODY             | BALL or PAD (LGA) |
| 1.27                                                        | 21.00              | 21.00             | 16 x 16       | BALL             | BALL              |
| 1.27                                                        | 23.00              | 23.00             | 15 x 15       | BODY             | BALL or PAD (LGA) |
| 1.27                                                        | 23.00              | 23.00             | 17 x 17       | BALL             | BALL              |
| 1.27                                                        | 23.00              | 23.00             | 18 x 18       | BALL             | BALL              |
| 1.27                                                        | 24.70              | 24.70             | 19 x 19       | BALL             | BALL              |
| 1.27                                                        | 25.00              | 25.00             | 19 x 19       | BALL             | BALL              |
| 1.27                                                        | 27.00              | 27.00             | 19 x 19       | BODY             | BALL or PAD (LGA) |
| 1.27                                                        | 27.00              | 27.00             | 20 x 20       | BALL             | BALL              |
| 1.27                                                        | 27.00              | 27.00             | 21 x 21       | BALL             | BALL              |
| 1.27                                                        | 29.00              | 29.00             | 21 x 21       | BALL             | BALL              |
| 1.27                                                        | 29.00              | 29.00             | 22 x 22       | BALL             | BALL              |
| 1.27                                                        | 30.00              | 30.00             | 23 x 23       | BALL             | BALL              |
| 1.27                                                        | 31.00              | 31.00             | 22 x 22       | BALL             | BALL              |
| 1.27                                                        | 31.00              | 31.00             | 23 x 23       | BALL             | BALL              |
| 1.27                                                        | 31.00              | 31.00             | 24 x 24       | BALL             | BALL              |
| 1.27                                                        | 32.00              | 32.00             | 24 x 24       | BODY             | BALL or PAD (LGA) |
| 1.27                                                        | 32.33              | 32.33             | 25 x 25       | BALL             | BALL              |
| 1.27                                                        | 32.33              | 32.33             | 25 x 25       | BODY             | BALL or PAD (LGA) |
| 1.27                                                        | 33.00              | 33.00             | 25 x 25       | BALL             | BALL              |
| 1.27                                                        | 33.00              | 33.00             | 26 x 26       | BALL             | BALL              |
| 1.27                                                        | 33.71              | 33.71             | 24 x 24       | BALL             | BALL              |
| 1.27                                                        | 35.00              | 35.00             | 24 x 24       | BODY             | BALL              |
| 1.27                                                        | 35.00              | 35.00             | 25 x 25       | BALL             | BALL              |
| 1.27                                                        | 35.00              | 35.00             | 26 x 26       | BALL             | BALL              |
| 1.27                                                        | 35.00              | 35.00             | 27 x 27       | BALL             | BALL              |

# 3M™ Textool™ BGA/LGA Low Closing Force Lidded Sockets, 1.27 mm Type II



## Ordering Information

|                                       |  |                                                |  |                                                |  |
|---------------------------------------|--|------------------------------------------------|--|------------------------------------------------|--|
| <b>2 XXX X-1386-XX-X X 0 1</b>        |  |                                                |  |                                                |  |
| Pin Count                             |  | Matrix Pattern Variation<br>(Assigned by 3M)   |  | Material Type<br>1 = PES/BeCu/Au               |  |
| Product Variation<br>(Assigned by 3M) |  | Board Locating Post<br>0 = Without<br>1 = With |  | Solder Tail Length<br>0 = 2.5 mm<br>0 = 3.6 mm |  |
|                                       |  |                                                |  | Threaded Inserts<br>0 = Without<br>1 = With    |  |

## Low Profile Version

- Modular construction allows for cost effective socket proliferation for standard and custom packages
- Coarse alignment on device body followed by a secondary fine alignment to the solder balls
- Flat contact head that provides for minimum solder ball deformation
- Can be adapted to either BGA or LGA formats
- Built-in alignment plates
- Available with screw inserts (screws not included)
- Lid closing force reduction ratio of 13-to-1
- Accepts maximum pin count of 729 and maximum package thickness of 3.50 mm
- Low profile lid reduces total socket height
- Recommended for sockets with lead counts of >300

## 3M Textool BGA/LGA Low Closing Force Lidded Sockets, 1.27 mm Type II

| Device Pitch (mm) | Device Length (mm) | Device Width (mm) | Device Matrix | Next Alignment Method | Device Type Accepted |
|-------------------|--------------------|-------------------|---------------|-----------------------|----------------------|
| 1.27              | 19.00              | 19.00             | 12 x 12       | BALL                  | BALL                 |
| 1.27              | 20.95              | 24.07             | 14 x 17       | BALL                  | BALL                 |
| 1.27              | 20.95              | 24.70             | 16 x 19       | BODY                  | BALL or PAD (LGA)    |
| 1.27              | 21.00              | 21.00             | 16 x 16       | BALL                  | BALL                 |
| 1.27              | 23.00              | 23.00             | 15 x 15       | BODY                  | BALL or PAD (LGA)    |
| 1.27              | 23.00              | 23.00             | 17 x 17       | BALL                  | BALL                 |
| 1.27              | 23.00              | 23.00             | 18 x 18       | BALL                  | BALL                 |
| 1.27              | 24.70              | 24.70             | 19 x 19       | BALL                  | BALL                 |
| 1.27              | 25.00              | 25.00             | 19 x 19       | BALL                  | BALL                 |
| 1.27              | 27.00              | 27.00             | 19 x 19       | BODY                  | BALL or PAD (LGA)    |
| 1.27              | 27.00              | 27.00             | 20 x 20       | BALL                  | BALL                 |
| 1.27              | 27.00              | 27.00             | 21 x 21       | BALL                  | BALL                 |
| 1.27              | 29.00              | 29.00             | 21 x 21       | BALL                  | BALL                 |
| 1.27              | 29.00              | 29.00             | 22 x 22       | BALL                  | BALL                 |
| 1.27              | 30.00              | 30.00             | 23 x 23       | BALL                  | BALL                 |
| 1.27              | 31.00              | 31.00             | 22 x 22       | BALL                  | BALL                 |
| 1.27              | 31.00              | 31.00             | 23 x 23       | BALL                  | BALL                 |
| 1.27              | 31.00              | 31.00             | 24 x 24       | BALL                  | BALL                 |
| 1.27              | 32.00              | 32.00             | 24 x 24       | BODY                  | BALL or PAD (LGA)    |
| 1.27              | 32.33              | 32.33             | 25 x 25       | BALL                  | BALL                 |
| 1.27              | 32.33              | 32.33             | 25 x 25       | BODY                  | BALL or PAD (LGA)    |
| 1.27              | 33.00              | 33.00             | 25 x 25       | BALL                  | BALL                 |
| 1.27              | 33.00              | 33.00             | 26 x 26       | BALL                  | BALL                 |
| 1.27              | 33.71              | 33.71             | 24 x 24       | BALL                  | BALL                 |
| 1.27              | 35.00              | 35.00             | 24 x 24       | BODY                  | BALL                 |
| 1.27              | 35.00              | 35.00             | 25 x 25       | BALL                  | BALL                 |
| 1.27              | 35.00              | 35.00             | 26 x 26       | BALL                  | BALL                 |
| 1.27              | 35.00              | 35.00             | 27 x 27       | BALL                  | BALL                 |

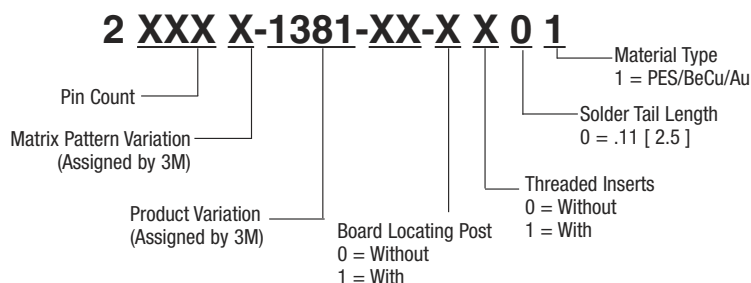
# 3M™ Textool™ BGA/LGA Low Closing Force Lidded Sockets, 1.27 mm Type III



## Standard Profile Version

- Modular construction allows for cost effective socket proliferation for standard and custom packages
- Coarse alignment on device body followed by a secondary fine alignment to the solder balls
- Flat contact head that provides for minimum solder ball deformation
- Can be adapted to either BGA or LGA formats
- Built-in alignment plates
- Available with screw inserts as standard option
- Lid closing force reduction ratio of 50-to-1
- Accepts maximum pin count of 1521 and maximum device thickness of 8.00 mm

## Ordering Information



## 3M Textool BGA/LGA Lidded Sockets, 1.27 mm Type III

| Device Pitch (mm) | Device Length (mm) | Device Width (mm) | Device Matrix | Next Alignment Method | Device Type Accepted |
|-------------------|--------------------|-------------------|---------------|-----------------------|----------------------|
| 1.27              | 37.50              | 37.50             | 27 x 27       | BALL                  | BALL                 |
| 1.27              | 37.50              | 37.50             | 29 x 29       | BALL                  | BALL                 |
| 1.27              | 40.00              | 40.00             | 29 x 29       | BALL                  | BALL                 |
| 1.27              | 40.00              | 40.00             | 30 x 30       | BALL                  | BALL                 |
| 1.27              | 40.00              | 40.00             | 31 x 31       | BALL                  | BALL                 |
| 1.27              | 41.00              | 41.00             | 31 x 31       | BALL                  | BALL                 |
| 1.27              | 42.00              | 42.00             | 32 x 32       | BODY                  | BALL or PAD (LGA)    |
| 1.27              | 42.50              | 42.50             | 31 x 31       | BALL                  | BALL                 |
| 1.27              | 42.50              | 42.50             | 32 x 32       | BALL                  | BALL                 |
| 1.27              | 42.50              | 42.50             | 33 x 33       | BALL                  | BALL                 |
| 1.27              | 43.00              | 43.00             | 33 x 33       | BALL                  | BALL                 |
| 1.27              | 45.00              | 45.00             | 33 x 33       | BALL                  | BALL                 |
| 1.27              | 45.00              | 45.00             | 34 x 34       | BALL                  | BALL                 |
| 1.27              | 45.00              | 45.00             | 35 x 35       | BALL                  | BALL                 |
| 1.27              | 47.50              | 47.50             | 35 x 35       | BALL                  | BALL                 |
| 1.27              | 47.50              | 47.50             | 36 x 36       | BALL                  | BALL                 |
| 1.27              | 47.50              | 47.50             | 37 x 37       | BALL                  | BALL                 |
| 1.27              | 50.00              | 50.00             | 39 x 39       | BALL                  | BALL                 |

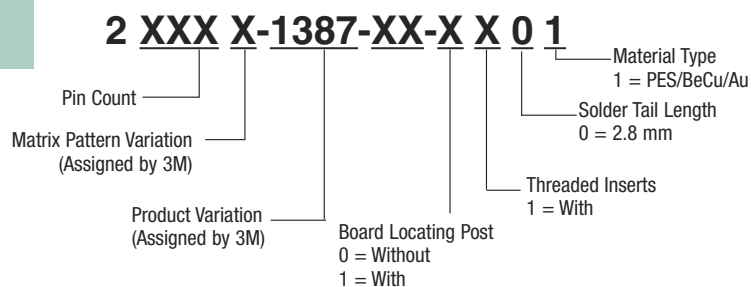
# 3M™ Textool™ BGA/LGA Low Closing Force Lidded Sockets, 1.27 mm Type III



## Low Profile Version

- Modular construction allows for cost effective socket proliferation for standard and custom packages
- Coarse alignment on device body followed by a secondary fine alignment to the solder balls (BGA only)
- Flat contact head that provides for minimum solder ball deformation
- Can be adapted to either BGA or LGA formats
- Built-in alignment plates
- Available with screw inserts as standard option
- Lid closing force reduction ratio of 50-to-1
- Accepts maximum pin count of 700 and maximum device thickness of 4.00 mm

## Ordering Information

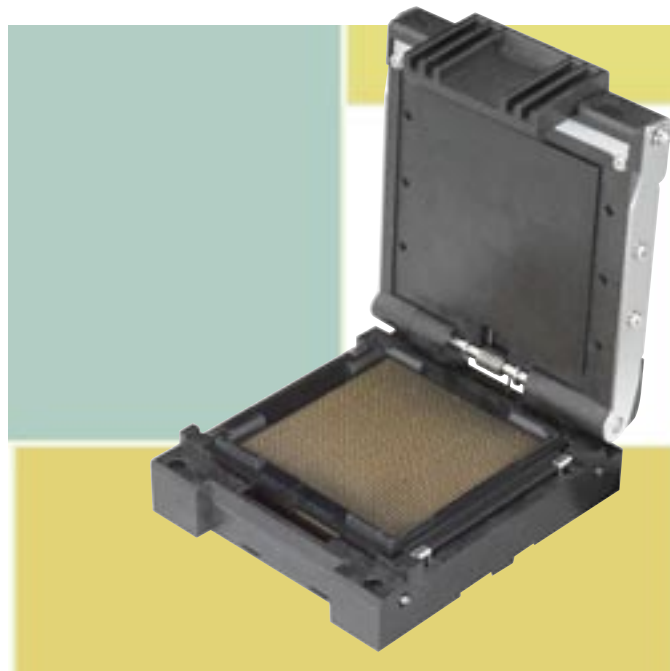


## 3M Textool BGA/LGA Low Profile Lidded Sockets, 1.27 mm Type III

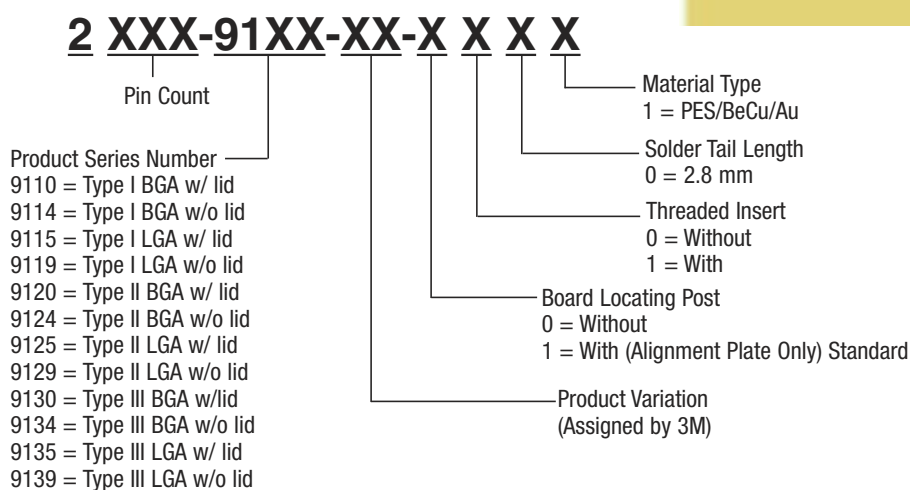
| Device Pitch (mm) | Device Length (mm) | Device Width (mm) | Device Matrix | Next Alignment Method | Device Type Accepted |
|-------------------|--------------------|-------------------|---------------|-----------------------|----------------------|
| 1.27              | 37.50              | 37.50             | 27 x 27       | BALL                  | BALL                 |
| 1.27              | 37.50              | 37.50             | 29 x 29       | BALL                  | BALL                 |
| 1.27              | 40.00              | 40.00             | 29 x 29       | BALL                  | BALL                 |
| 1.27              | 40.00              | 40.00             | 30 x 30       | BALL                  | BALL                 |
| 1.27              | 40.00              | 40.00             | 31 x 31       | BALL                  | BALL                 |
| 1.27              | 41.00              | 41.00             | 31 x 31       | BALL                  | BALL                 |
| 1.27              | 42.00              | 42.00             | 32 x 32       | BODY                  | BALL or PAD (LGA)    |
| 1.27              | 42.50              | 42.50             | 31 x 31       | BALL                  | BALL                 |
| 1.27              | 42.50              | 42.50             | 32 x 32       | BALL                  | BALL                 |
| 1.27              | 42.50              | 42.50             | 33 x 33       | BALL                  | BALL                 |
| 1.27              | 43.00              | 43.00             | 33 x 33       | BALL                  | BALL                 |
| 1.27              | 45.00              | 45.00             | 33 x 33       | BALL                  | BALL                 |
| 1.27              | 45.00              | 45.00             | 34 x 34       | BALL                  | BALL                 |
| 1.27              | 45.00              | 45.00             | 35 x 35       | BALL                  | BALL                 |
| 1.27              | 47.50              | 47.50             | 35 x 35       | BALL                  | BALL                 |
| 1.27              | 47.50              | 47.50             | 36 x 36       | BALL                  | BALL                 |
| 1.27              | 47.50              | 47.50             | 37 x 37       | BALL                  | BALL                 |
| 1.27              | 50.00              | 50.00             | 39 x 39       | BALL                  | BALL                 |

# 3M™ Textool™ BGA/LGA Lidded Sockets, 1.0 mm

The modular design of the 3M Textool BGA/LGA Lidded Socket, 1.0 mm enables 3M to cost effectively provide a socket that mates with almost any 1.0 mm pitch package. The nest "Package Guide" can be adjusted to match the specific body size and matrix of your particular package. The socket contacts are inserted to match the ball count and pattern of your package.



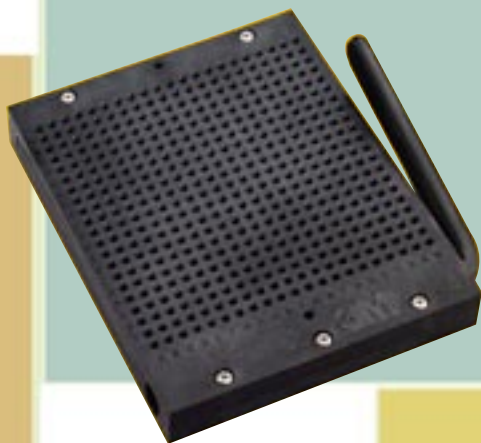
## Ordering Information



## 3M Textool BGA/LGA Lidded Sockets, 1.0 mm

| Socket Type | Max. Package Body Size | Max. Matrix | Max. Pin Count | Lid Feature | Series Product Number |      | Status    |
|-------------|------------------------|-------------|----------------|-------------|-----------------------|------|-----------|
|             |                        |             |                |             | BGA                   | LGA  |           |
| I           | 23 x 23                | 21 x 21     | 441            | with Lid    | 9110                  | 9115 | Available |
|             | 23 x 23                | 21 x 21     | 441            | w/o Lid     | 9114                  | 9119 | Available |
| II          | 40 x 40                | 39 x 39     | 1521           | with Lid    | 9120                  | 9125 | Available |
|             | 40 x 40                | 39 x 39     | 1521           | w/o Lid     | 9124                  | 9129 | Available |
| III         | 47.5 x 47.5            | 45 x 45     | 2025           | with Lid    | 9130                  | 9135 | Available |
|             | 47.5 x 47.5            | 45 x 45     | 2025           | w/o Lid     | 9134                  | 9139 | Available |

# 3M™ Textool™ PGA Sockets



3M Textool PGA Sockets are well known for their durability and reliability in test or burn-in of devices in PGA packages or other packages with pin outs in a matrix format. They are available in matrices from 10 x 10 through 25 x 25 on .100" (2.54 mm) centers. 3M also offers three interstitial, staggered, .100" (2.54 mm) centers (effective pitch 70.7 mil). One with 17 x 17 outer matrix and an inner matrix of 16 x 16, one with an outer matrix of 19 x 19 and an inner matrix of 18 x 18 and the other with an outer matrix of 23 x 23 and an inner matrix of 22 x 22. In addition, we offer an SPGA socket with 37 x 37 matrix with .050" (1.27 mm).

- Lever actuated zero insertion force mechanism
- Rugged 3-plate construction for durability and electrical reliability
- Available with flush handle option for use with test probes and ease of board stacking
- Available in 10 x 10 through 25 x 25 matrices
- Contacts, handles, top-plate and cam plate are replaceable

**Note:** Additional ten hole plugs can be ordered separately, part #200-4660-14-1900

## Ordering Information

### 2 XXX-63XX-XXX-1902

Number of Contacts

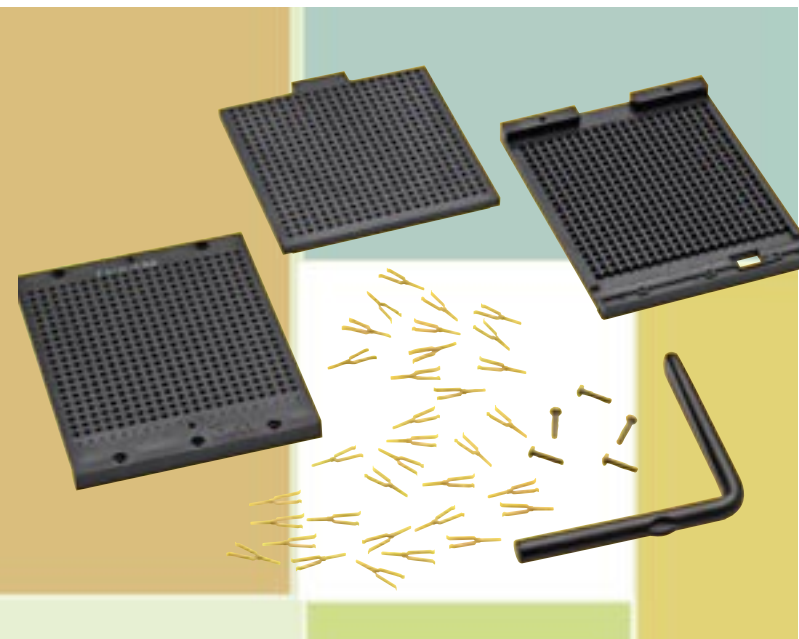
6310 – 10 x 10  
6311 – 11 x 11  
6313 – 13 x 13  
6315 – 15 x 15  
6317 – 17 x 17  
6319 – 19 x 19  
6321 – 21 x 21  
6325 – 25 x 25

1902 PES with / 30 μ" Au/Ni  
on BeCu

0UA = Molded Pattern,  
Standard Handle

9UA = All holes open,  
Standard Handle

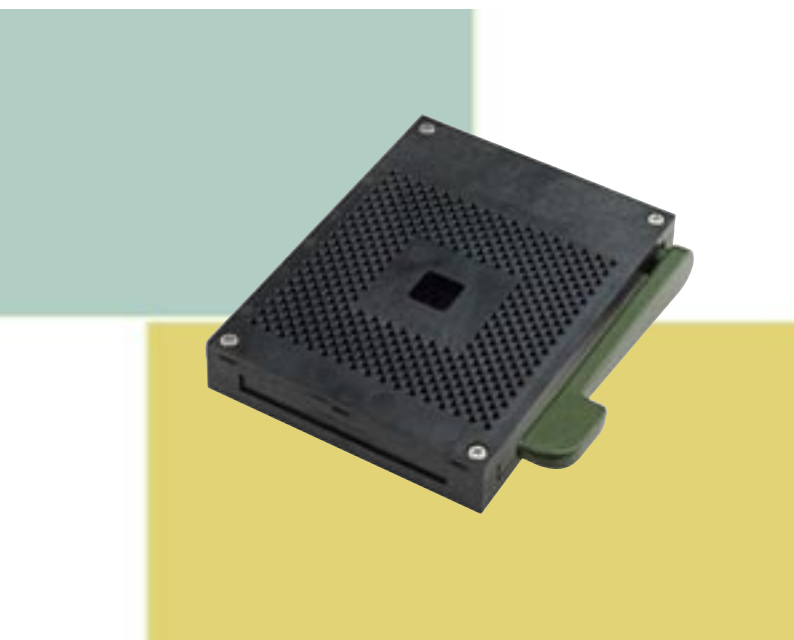
# 3M™ Textool™ PGA Kit Sockets



- Available in 10 x 10 matrix through 25 x 25 matrix
- Used when only a few test sockets are needed
- Provides individual components ready for assembly
- Open pattern top plate; load only those contacts needed for your specific device pin pattern

| Part Number        | Matrix Size | Description              |
|--------------------|-------------|--------------------------|
| 200-6310-9UN-1900  | 10 x 10     | Socket Kit w/o Contacts  |
| 200-6311-9UN-1900  | 11 x 11     |                          |
| 200-6313-9UN-1900  | 13 x 13     |                          |
| 200-6315-9UN-1900  | 15 x 15     |                          |
| 200-6317-9UN-1900  | 17 x 17     |                          |
| 200-6319-9UN-1900  | 19 x 19     |                          |
| 200-6321-9UN-1900  | 21 x 21     |                          |
| 200-6325-9UN-1900  | 25 x 25     |                          |
| 300-6300-CNA-0002B | Each        | Contact - BeCu/Au Plated |
| 200-4660-14-1900   | Set of 10   | Extra Hole Plugs         |

# 3M™ Textool™ Interstitial PGA Sockets



## Interstitial PGA Socket Outer Matrix 17 x 17

- 17 x 17 outer matrix with 16 x 16 inner staggered matrix holds up to 432 leads
- Lever actuated zero insertion force mechanism
- Rugged 3-plate construction for durability and electrical reliability
- Accommodates two lead diameter variations  
.25 - .40 mm (.010" - .016") and  
.35 - .51 mm (.014" - .020")

## Ordering Information

**2 XXX-1353-XX-3302**

Number of Contacts  
(432 maximum)

Lead Diameter Tail Variations:

00 = 0.25 mm - 0.40 mm - 3.3 mm tail  
50 = 0.35 mm - 0.51 mm - 3.3 mm tail  
60 = 0.35 mm - 0.51 mm - 7.0 mm tail  
70 = 0.35 mm - 0.51 mm - 7.8 mm tail  
80 = 0.35 mm - 0.51 mm - 3.5 mm tail

# 3M™ Textool™ Interstitial PGA Sockets



## Interstitial PGA Socket Outer Matrix 19 x 19

- 19 X 19 outer matrix with 18 X 18 inner staggered matrix holds up to 685 leads
  - Lever actuated, zero insertion force mechanism
  - Rugged, 3-plate construction for durability and electrical reliability
  - Accommodates two lead diameter variations  
.25 - .40 mm (.010" - .016") inquire\*  
.35 - .51 mm (.014" - .020") available
- \*Note: Please contact 3M Customer Service for availability.

## Ordering Information

**2 XXX-1358-XX-1902**

Number of Contacts  
(685 maximum)

Lead Diameter Variations:

00 = 0.10" - .016"

[0.25 mm - 0.40 mm] - 2.0 mm tail

50 = 0.14" - .020"

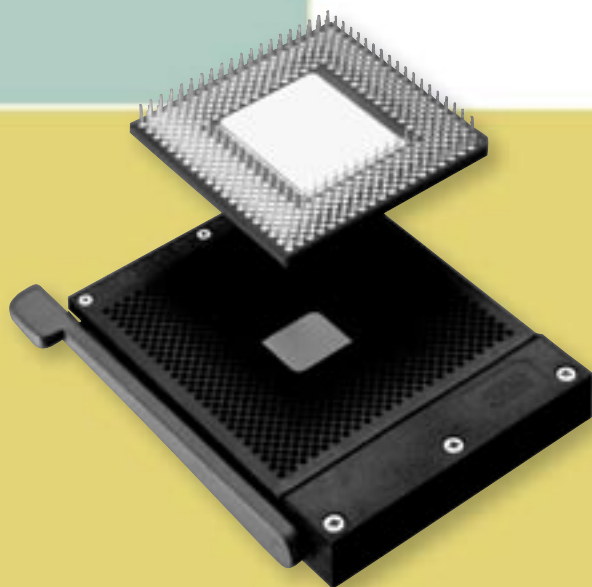
[0.25 mm - 0.51 mm] - 2.0 mm tail

70 = 0.14" - .020"

[0.25 mm - 0.51 mm] - 2.8 mm tail

80 = 0.14" - .020"

[0.35 mm - 0.51 mm] - 3.5 mm tail



## Interstitial PGA Socket Outer Matrix 23 x 23

- 23 x 23 outer matrix with 22 x 22 inner staggered matrix holds up to 792 leads
- Lever actuated zero insertion force mechanism
- Rugged 3-plate construction for durability and electrical reliability
- Accommodates two lead diameter variations  
.25 - .40 mm (.010" - .016")  
.35 - .51 mm (.014" - .020")

## Ordering Information

**2 XXX-1357-XX-1902**

Number of Contacts  
(792 maximum)

Lead Diameter Variations:

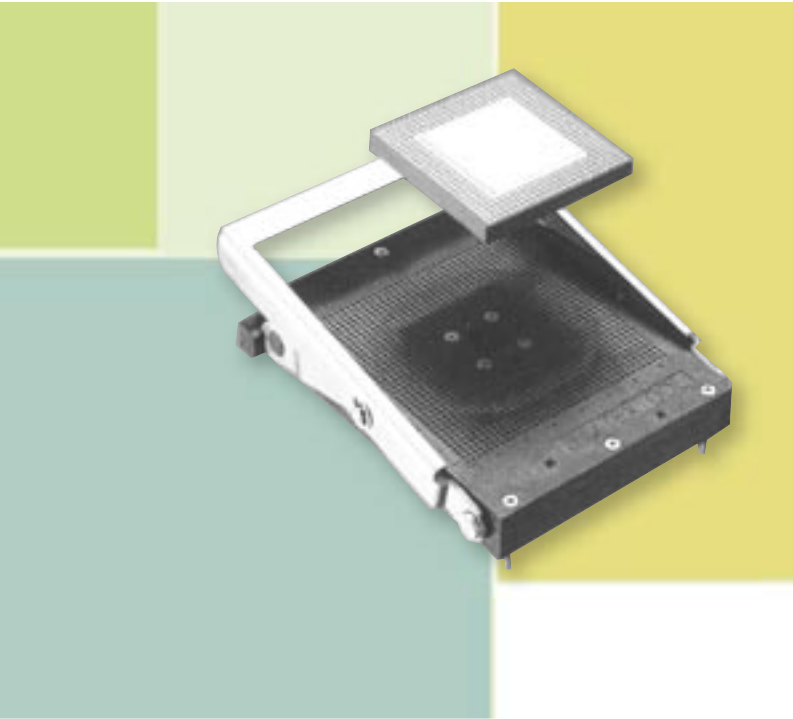
00 = 0.10" - .016"

[0.25 mm - 0.40 mm] - 3.3 mm tail

50 = 0.14" - .020"

[0.35 mm - 0.51 mm] - 3.3 mm tail

# 3M™ Textool™ Shrink PGA Sockets



- Applicable package for 1.27 mm (.050") pitch PGA
- Zero insertion force
- Double mating contact
- Lever actuation mechanism
- Maximum grid 37 x 37 and lead count of 600

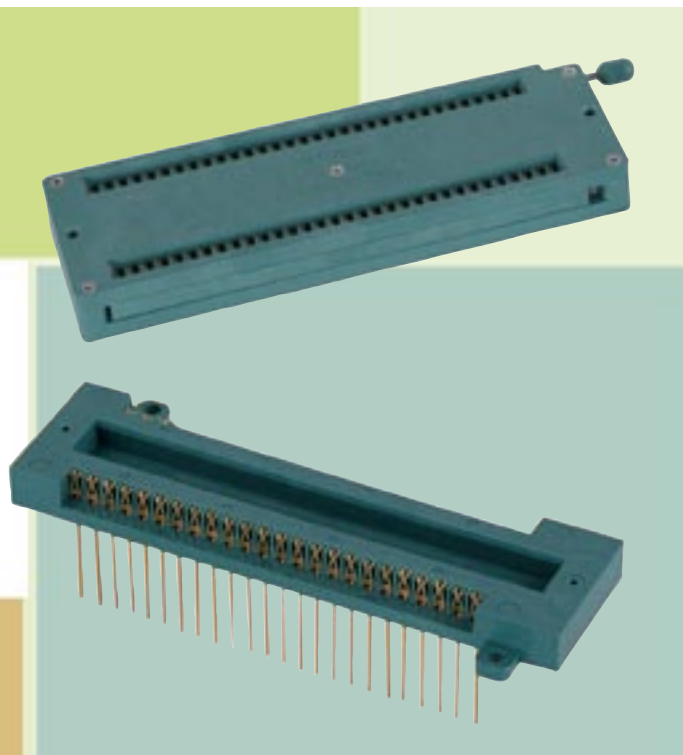
## Ordering Information

**2 XXX-1361-SX-3302**

Number of Contacts

Solder Tail Length:  
A = 2.8 mm  
B = 4.3 mm  
C = 6.0 mm

# 3M™ Textool™ DIP Sockets and Receptacles



The classic 3M Textool ZIP DIP Sockets have reliably served the needs of semiconductor producers and users for over twenty years. For test, burn-in or programming of devices in dual-in-line packages, the lever actuated zero insertion force mechanism allows easy insertion and withdrawal without lead damage. Companion receptacles allow easy socket replacement for high use applications such as DUT boards and programming.

Use of receptacles can be a very cost-effective and practical approach for high-use applications such as programming. A worn-out or damaged socket can be simply unplugged and replaced with a new one without the expense of downtime or replacing the entire board.

## DIP Sockets .100" (2.54 mm)

- For DIPs with .100" (2.54 mm) lead spacing
- Pin counts for 14-64 leads
- Lever actuated zero insertion force mechanism
- Socket contact point of .110" (2.79 mm) below top surface of socket

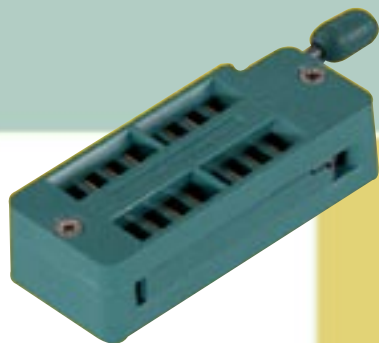
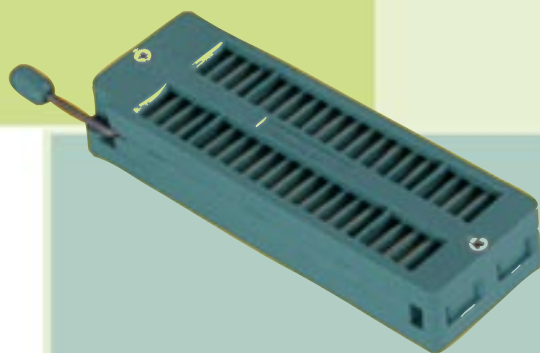
## Ordering Information

| Socket Part Number | Contact Quantity | Distance Between Rows | Mating Receptacle Part Number |
|--------------------|------------------|-----------------------|-------------------------------|
| 214-3339-00-0602J  | 14               | .300 [ 7.62 ]         | 214-3339-XX-0602J             |
| 216-3340-00-0602J  | 16               |                       | 216-3340-XX-0602J             |
| 218-3341-00-0602J  | 18               |                       | 218-3341-XX-0602J             |
| 220-3342-00-0602J  | 20               |                       | 220-3342-XX-0602J             |
| 222-3343-00-0602J  | 22               | .400 [ 10.16 ]        | 222-3334-XX-0602J             |
| 224-1275-00-0602J  | 24               | .600 [ 15.24 ]        | *224-1275-XX-0602J            |
| 224-5248-00-0602J  |                  | .300 [ 7.62 ]         | 224-5248-XX-0602J             |
| 228-1277-00-0602J  | 28               | .600 [ 15.24 ]        | *228-1277-XX-0602J            |
| 228-4817-00-0602J  |                  | .400 [ 10.16 ]        | 228-4817-XX-0602J             |
| 232-1285-00-0602J  | 32               | .600 [ 15.24 ]        | *232-1285-XX-0602J            |
| 240-1280-00-0602J  | 40               |                       | 240-1280-XX-0602J             |
| 240-3639-00-0602J  |                  |                       | 1.00 [ 25.4 ]                 |
| 242-1281-00-0602J  | 42               | .600 [ 15.24 ]        | *242-1281-XX-0602J            |
| 248-1282-00-0602J  | 48               |                       | *248-1282-XX-0602J            |
| 264-4493-00-0602J  | 64               | .900 [ 22.86 ]        | 264-4493-XX-0602J             |

\*Only these P/N's available with -09, -19, -29, and -39 receptacle options.  
All others only available with -09, and -19 options.

**Contact Tail Length:**   
 XX = 09 Solder Tail .13 [ 3.3 ] w/ flanges  
      = 19 Wire Wrap Tail .62 [ 15.8 ] w/ flanges  
      = 29 Solder Tail .13 [ 3.3 ] w/out flanges  
      = 39 Wire Wrap Tail .62 [ 15.8 ] w/out flanges

# 3M™ Textool™ DIP Sockets



## Universal DIP Sockets .100" (2.54 mm)

- For DIPs with .100" (2.54 mm) lead spacing
- Extra-wide contact zone allows insertion of any DIP package with distance between rows from .300" (7.62 mm) through .600" (15.24 mm)
- Lever actuated zero insertion force mechanism
- Socket contact point of .090" (2.29 mm) below top surface of socket

| Socket Part Number | Contact Quantity | Mating Receptacle Part Number |
|--------------------|------------------|-------------------------------|
| 224-1286-00-0602J  | 24               | 224-1275-XX-0602J             |
| 224-1371-00-0602J  | 28               | 224-1277-XX-0602J             |
| 224-1287-00-0602J  | 32               | 224-1285-XX-0602J             |
| 224-1288-00-0602J  | 40               | 224-1280-XX-0602J             |
| 224-1289-00-0602J  | 42               | 224-1281-XX-0602J             |

### Contact Tail Length/Mounting Flanges:

XX = 09 Solder Tail .13 [ 3.3 ] w/flanges  
= 19 Wire Wrap Tail .62 [ 15.8 ] w/flanges  
= 29 Solder Tail .13 [ 3.3 ] w/out flanges  
= 39 Wire Wrap Tail .62 [ 15.8 ] w/out flanges

## DIP Sockets .070" (1.78 mm)

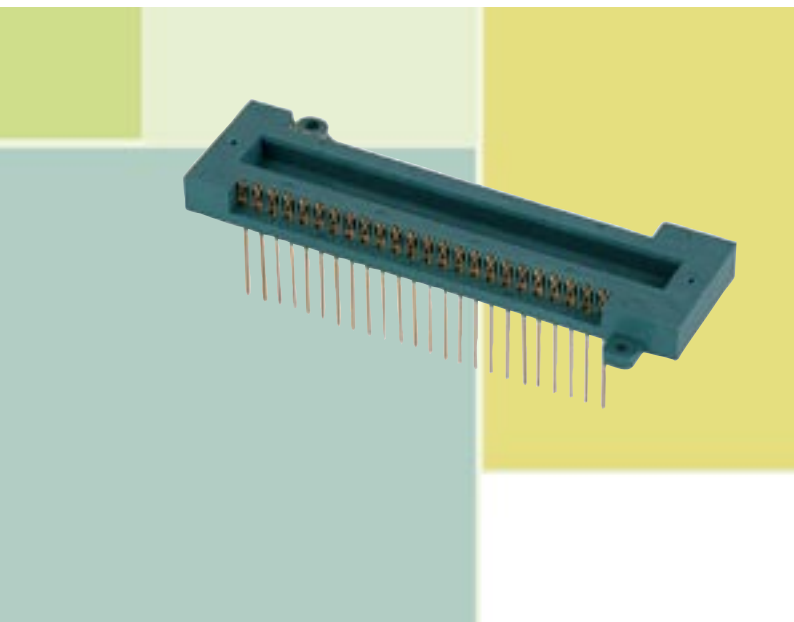
- For DIPs with .070" (1.78 mm) lead spacing
- Pin counts from 28 through 90 leads
- Lever actuated zero insertion force mechanism
- Socket contact point of .090" (2.29 mm) below top surface of socket

| Socket Part Number | Contact Quantity | Mating Receptacle Part Number |
|--------------------|------------------|-------------------------------|
| 228-1290-00-0602J  | 28               | 228-1290-XX-0602J             |
| 232-1291-00-0602J  | 32               | NOT AVAILABLE                 |
| 242-1293-00-0602J  | 42               | 242-1293-XX-0602J             |
| 256-1292-00-0602J  | 56               | NOT AVAILABLE                 |
| 264-1300-00-0602J  | 64               | 264-1300-XX-0602J             |
| 290-1294-00-3302J  | 90               | 290-1294-XX-0602J             |

### Contact Tail Length/Mounting Flanges:

XX = 09 Solder Tail w/flanges  
= 29 Solder Tail w/flanges

# 3M™ Textool™ DIP Sockets



## DIP Socket Receptacles

- Matching receptacle for most available ZIP DIP Socket, including Universal DIP and Shrink DIP
- Mounting flanges hold receptacle to board
- Pre-tapped holes in receptacle body mate with screw-hole in socket to hold socket firmly to receptacle (two screws provided with each receptacle)
- Available in wire-wrap and solder-tail options, with and without mounting flanges

## Ordering Information

|   | Receptable Part Numbers | Contact Quantity | Dimensions      |                       |
|---|-------------------------|------------------|-----------------|-----------------------|
|   |                         |                  | Contact Spacing | Distance Between Rows |
| 3 | 214-3339-XX-0602J       | 14               | .100 [ 2.54 ]   | .300 [ 7.62 ]         |
| 3 | 216-3340-XX-0602J       | 16               |                 |                       |
| 3 | 218-3341-XX-0602J       | 18               |                 |                       |
| 3 | 220-3342-XX-0602J       | 20               |                 |                       |
| 3 | 222-3343-XX-0602J       | 22               |                 |                       |
| 1 | 224-1275-XX-0602J       | 24               |                 | .600 [ 15.24 ]        |
| 3 | 224-5248-XX-0602J       |                  |                 | .300 [ 7.62 ]         |
| 1 | 228-1277-XX-0602J       | 28               |                 | .600 [ 15.24 ]        |
| 3 | 228-4817-XX-0602J       |                  |                 | .400 [ 10.16 ]        |
| 2 | 228-1290-XX-0602J       |                  |                 |                       |
| 1 | 232-1285-XX-0602J       | 32               | .100 [ 2.54 ]   | .600 [ 15.24 ]        |
| 3 | 240-3639-XX-0602J       | 40               |                 | 1.000 [ 25.40 ]       |
| 1 | 240-1280-XX-0602J       |                  | 42              | .070 [ 1.78 ]         |
| 2 | 242-1293-XX-0602J       |                  |                 |                       |
| 1 | 242-1281-XX-0602J       | .100 [ 2.54 ]    |                 |                       |
| 1 | 248-1282-XX-0602J       |                  | 48              |                       |
| 2 | 264-1300-XX-0602J       | 64               | .070 [ 1.78 ]   | .800 [ 20.32 ]        |
| 3 | 264-4493-XX-0602J       |                  | .100 [ 2.54 ]   | .900 [ 22.86 ]        |
| 2 | 290-1294-XX-0602J       | 90               | .070 [ 1.78 ]   |                       |

Contact Tail Length/Flanges:

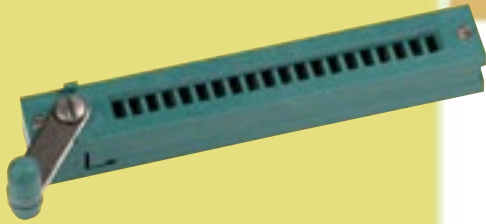
XX = 09, .13 [ 3.3 ] Solder Tail w/ flanges  
 = 19, .62 [ 15.8 ] Wire Wrap w/ flanges  
 = 29, .13 [ 3.3 ] Solder Tail w/out flanges  
 = 39, .62 [ 15.8 ] Wire Wrap w/out flanges

1 Available with -09, -19, -29 and -39 options

2 Only available with the -09 & -29 option for the .070" [ 1.78 mm ] spacing

3 Only available with -09 and -19 options

# 3M™ Textool™ ZIP Strip/Flat Pack Sockets



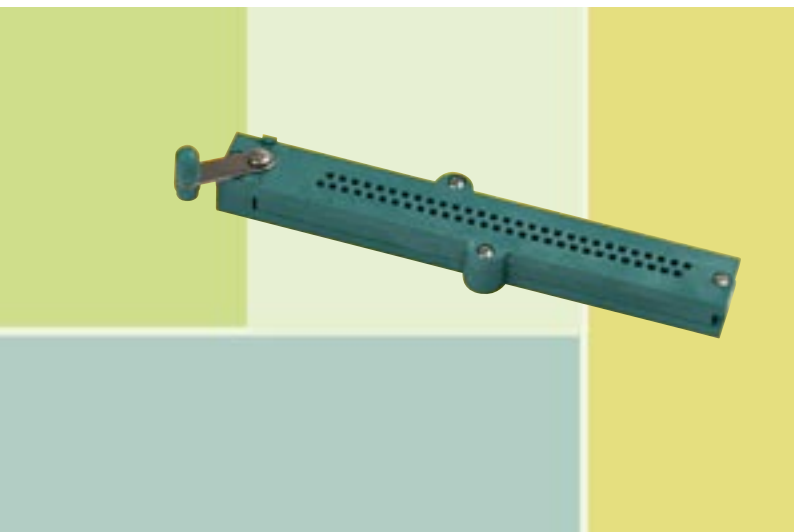
3M Textool ZIP Strip/Flat Pack Sockets are a very versatile family of sockets available in a variety of formats. Used singly, they mate with single-in-line or staggered-in-line packages. Used in pairs, they will interconnect a variety of non-standard package formats with leads extending from two sides of the package, in axial or radial lead configurations, or in-line or staggered pin outs. The lever actuated zero insertion force mechanism allows easy insertion and withdrawal without lead damage.

## In-Line ZIP Strip 100" (2.54 mm)

- For single-in-line packages on .100" (2.54 mm) centers
- Can be used in sets of two or more to create a socket for non-standard leaded packages on .100" (2.54 mm) centers
- ZIP Strip pin counts from 10 through 36 leads
- Lever actuated zero insertion force mechanism
- Accepts pins up to .025" (0.6 mm) square
- Socket contact point of .085" (2.2 mm) below top surface of socket

| Socket Part Number | Contact Quantity |
|--------------------|------------------|
| 210-2599-00-0602   | 10               |
| 220-2600-00-0602   | 20               |
| 224-5809-00-0602   | 24               |
| 232-2601-00-0602   | 32               |
| 236-6225-00-0602   | 36               |

# 3M™ Textool™ ZIP Strip Sockets



## Staggered ZIP Strip Sockets, .050" (1.27 mm) x .100" (2.54 mm)

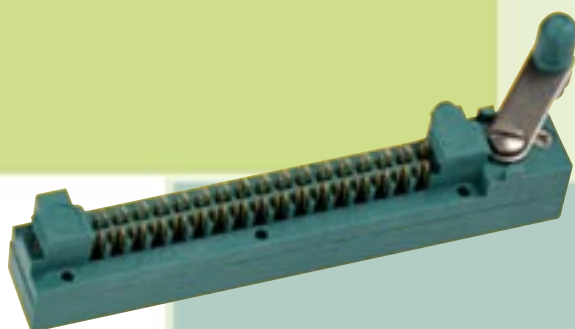
- For devices with .050" (1.27 mm) lead centers formed in staggered rows with .100" (2.54 mm) between centers and rows
- Socket with top-plate cover requires vertical insertion of leads
- Frequently used in pairs to handle devices with standard leads on opposite sides of the package
- Order left- and right-hand strips separately to obtain a complete pair
- Lever actuated zero insertion force mechanism

## Ordering Information

| Socket Part Number | Contact Quantity |
|--------------------|------------------|
| 232-1270-01-0602J  | 32               |
| 232-1270-02-0602J  | 32               |

Contact Pattern: See Tech Sheet

# 3M™ Textool™ ZIP Strip Sockets



## Axial Lead ZIP Strip/Flat Pack Sockets, .050" (1.27 mm) x .100" (2.54 mm)

- For devices with .050" (1.27 mm) lead centers unformed or extending axially from package
- Socket without top-plate cover enables horizontal insertion of leads
- Frequently used in pairs to handle any non-standard flat pack with leads on .050" (1.27 mm) centers
- Order left- and right-hand versions separately to obtain a complete pair
- Lever actuated zero insertion force mechanism
- Accepts pins up .014" (0.36 mm) to .025" (0.64 mm) square

### Ordering Information

| Socket Part Number | Contact Quantity |
|--------------------|------------------|
| 234-3034-01-0602   | 34               |
| 234-3034-02-0602   | 34               |
| 235-3019-01-0602   | 35               |
| 235-3019-02-0602   | 35               |
| 251-5949-01-0602   | 51               |
| 251-5949-02-0602   | 51               |

Contact Pattern: See Tech Sheet



## Staggered ZIP Strip Sockets

- For devices with .050" (1.27 mm) lead centers formed in staggered rows with .100" (2.54 mm) between centers (in same rows) and .075" (1.90 mm) between rows
- Frequently used in pairs to handle devices with staggered leads on opposite sides of the package
- Order left- and right-hand strips to obtain a complete pair
- Lever actuated zero insertion force mechanism

### Ordering Information

| Socket Part Number | Contact Quantity |
|--------------------|------------------|
| 239-5605-01-0602   | 39               |
| 239-5605-02-0602   | 39               |
| 255-7322-01-0602   | 55               |
| 255-7322-02-0602   | 55               |

Contact Pattern: See Tech Sheet

# 3M™ Textool™ SOIC Sockets



A user friendly, compact size 3M Textool Lidded Socket is available for SOIC gull wing packages on 50 mil centers.

- Lid can be actuated from top or front and is compatible with automated load/unload equipment
- Compact envelope and side-to-side stackability maximize board density
- Tweezer slot for easy manual loading/unloading
- Lid applies 80 grams normal force per lead for maximum electrical reliability
- Accepts Gull Wing JEDEC device sizes in .150" (3.81 mm) and .300" (7.62 mm) body widths

## Ordering Information

| Part Number      | Leads | SOIC Body Width |
|------------------|-------|-----------------|
| 208-7391-55-1902 | 8     | .150 [ 3.81 ]   |
| 214-7390-55-1902 | 14    | .150 [ 3.81 ]   |
| 216-7383-55-1902 | 16    | .150 [ 3.81 ]   |
| 216-7224-55-1902 | 16    | .300 [ 7.62 ]   |
| 218-7223-55-1902 | 18    | .300 [ 7.62 ]   |
| 220-7201-55-1902 | 20    | .300 [ 7.62 ]   |
| 224-7397-55-1902 | 24    | .300 [ 7.62 ]   |
| 228-7396-55-1902 | 28    | .300 [ 7.62 ]   |
| 228-7474-55-1902 | 28    | .330 [ 8.38 ]   |

# 3M™ Textool™ Discrete Sockets



## Laser Diode Sockets

- Compact miniature socket size for maximum board density
- Accommodates most TO package formats with pin circle options of .079" (2.0 mm) or .100" (2.54 mm), including popular laser diode devices with .018" (0.46 mm) diameter leads
- Three and four lead options available
- Funneled entry holes to assist lead insertion

| Part Number       | Contact Qty. | Pin Circle    | Mounting Flange |
|-------------------|--------------|---------------|-----------------|
| 203-6585-00-0602J | 3            | .100 [ 2.54 ] | Yes             |
| 203-6585-50-0602J | 3            | .100 [ 2.54 ] | No              |
| 203-6970-00-0602J | 3            | .079 [ 2.0 ]  | Yes             |
| 203-6970-50-0602J | 3            | .079 [ 2.0 ]  | No              |
| 204-6585-00-0602J | 4            | .100 [ 2.54 ] | Yes             |
| 204-6585-50-0602J | 4            | .100 [ 2.54 ] | No              |
| 204-6585-00-0602J | 4            | .079 [ 2.0 ]  | Yes             |
| 204-6970-50-0602J | 4            | .079 [ 2.0 ]  | No              |

## Power In-Line Sockets

- Accepts a wide variety of in-line devices up to three leads including TO-220 with lead cross sections that fit within a diameter range of .020"-.045" (0.51-1.14 mm)
- Kelvin contacts
- Body and contacts are repairable
- Two slotted-out entry ports accept devices with .075" (1.90 mm) to .200" (5.1 mm) between leads
- Must be mounted to board with screws
- Temperature rating 125°C

## Ordering Information

**203-2737-55-1102**

# 3M™ Textool™ Typical Plastic Properties

| PLASTIC MATERIAL<br>(TEXTTOOL PART I.D.)                                     |       | *POLYSULFONE<br>(-006)                  | POLYETHER-<br>SULFONE<br>(-019) | POLYPHENYLENE-<br>SULFIDE<br>(-011) | POLYETHERIMIDE<br>(-033) |
|------------------------------------------------------------------------------|-------|-----------------------------------------|---------------------------------|-------------------------------------|--------------------------|
| Physical                                                                     | Units |                                         |                                 |                                     |                          |
| Specific Gravity                                                             | —     | 1.45                                    | 1.60                            | 1.65                                | 1.51                     |
| Water Absorption 24 Hours 73°F                                               | %     | 0.20                                    | .34                             | .01                                 | .18                      |
| Operating Temperature                                                        | °C    | Consult the specific Product Data Sheet |                                 |                                     |                          |
| *Clean polysulfone material only with methyl alcohol or water and detergent. |       |                                         |                                 |                                     |                          |

| MECHANICAL           |           |           |           |           |           |
|----------------------|-----------|-----------|-----------|-----------|-----------|
| Tensile Strength     | PSI       | 18,000    | 18,000    | 23,000    | 24,500    |
| Elongation           | %         | 3.0       | 1-3       | 3-4       | 3         |
| Flexural Strength    | PSI       | 24,000    | 27,000    | 32,000    | 37,000    |
| Flexural Modulus     | PSI       | 1,200,000 | 1,220,000 | 1,800,000 | 1,230,000 |
| Compressive Strength | PSI       | 24,000    | —         | 24,700    | 23,500    |
| Izod Impact Notched  | FT-LBS/IN | 1.8       | 1.4       | 1.5       | 1.7       |
| Rockwell Hardness    | —         | M-92      | —         | R-123     | M-125     |

| ELECTRICAL                             |           |                  |                                     |                  |                      |                  |
|----------------------------------------|-----------|------------------|-------------------------------------|------------------|----------------------|------------------|
| Dielectric Strength S/T                | VOLTS/MIL | 480              | 440                                 | 375              | 630                  | 560              |
| Dielectric Constant 10 <sup>6</sup> Hz | —         | 3.49             | 4.17                                | 3.80             | 3.5                  | —                |
| Dissipation Factor 10 <sup>6</sup> Hz  | —         | 0.0049           | 0.0094                              | 0.0013           | .0015                | —                |
| Arc Resistance                         | SECS      | 115              | 121                                 | 50               | 85                   | —                |
| Volume Resistivity                     | OHMS-CM   | 10 <sup>17</sup> | 10 <sup>15</sup> - 10 <sup>16</sup> | 10 <sup>16</sup> | 3 x 10 <sup>16</sup> | 10 <sup>17</sup> |

| THERMAL                      |                   |                        |       |                        |                        |                        |
|------------------------------|-------------------|------------------------|-------|------------------------|------------------------|------------------------|
| Heat Deflection Temp 264 PSI | °F                | 365                    | 420   | 505                    | 410                    | 530                    |
| Thermal Conductivity         | BTU-IN HR. FT. °F | 2.2                    | 1.1   | 3.1                    | 1.5                    | —                      |
| Coeff. of Linear Exp.        | IN/IN/F           | 1.4 x 10 <sup>-5</sup> | —     | 1.5 x 10 <sup>-5</sup> | 1.1 x 10 <sup>-5</sup> | 1.7 x 10 <sup>-5</sup> |
| Flammability                 | —                 | 94V-0                  | 94V-0 | 94V-0                  | 94V-0                  | 94V-0                  |

For technical, sales or ordering information,  
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