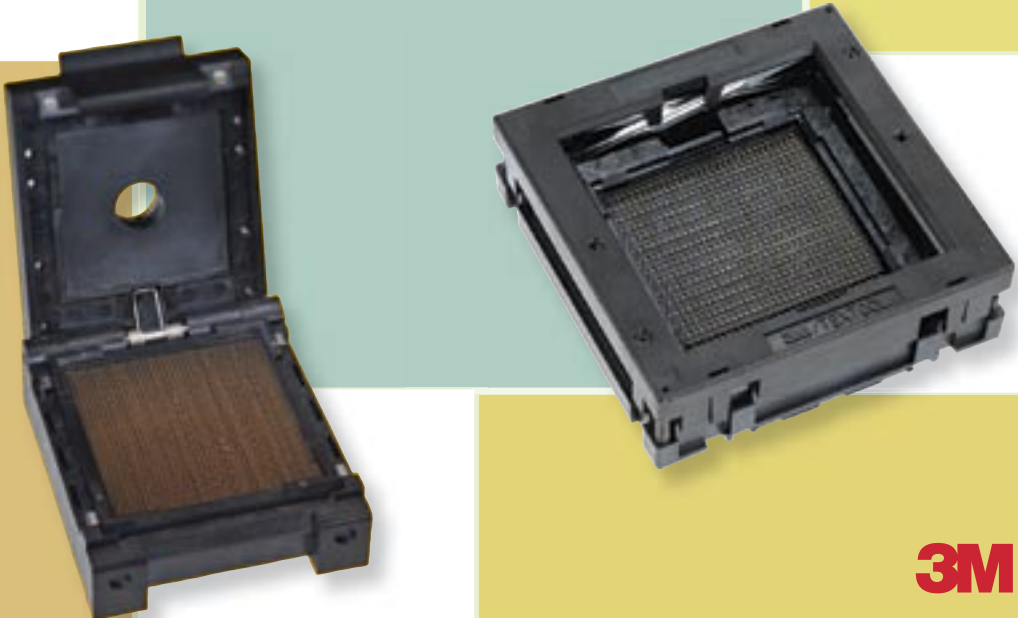
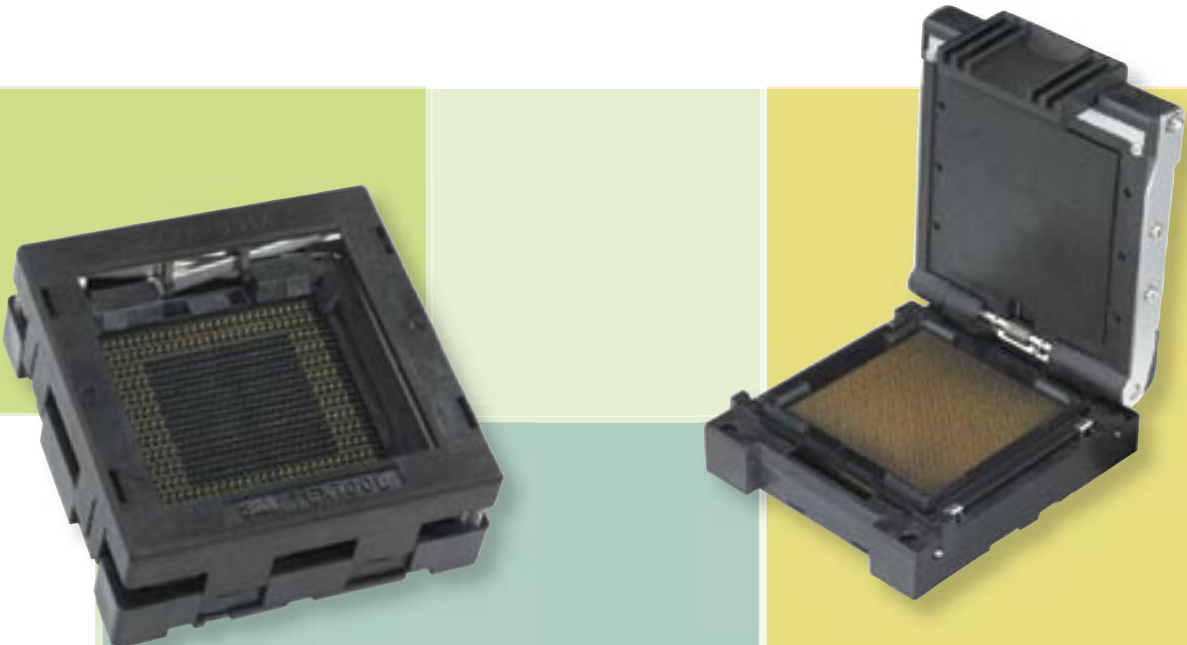


3M™ Textool™ Test and Burn-In Sockets



3M™ Textool™ Test and Burn-In Sockets

Table of Contents

- BGA/LGA 2
- PGA/IPGA/SPGA 12
- DIP/Receptacle 16
- ZIP Strip 19
- SOIC 22
- Discrete 23
- Plastic Properties Information 24

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

Prefix
2 – Socket

Numerical
Sequence

Dash No.
00 thru 99 – Modifications
(Assigned by 3M)

Plastic Material

No. Leads

Contact
and Plating
Material

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

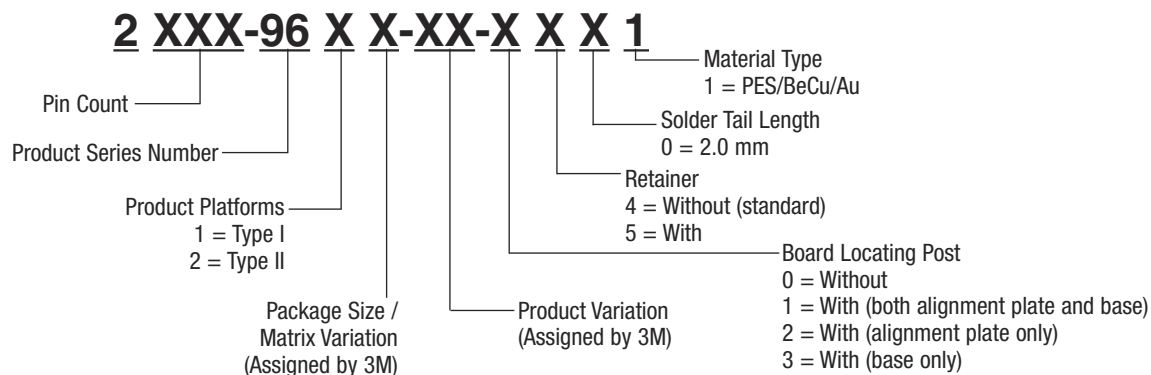
3M Textool Sockets are designed to function properly without the use of retainer clips. The retainer clip feature is desirable for high vibration/shock applications and with small or non-spherical solder balls. The purpose of the retainer clip feature is to retain the DUT in the socket should there be 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

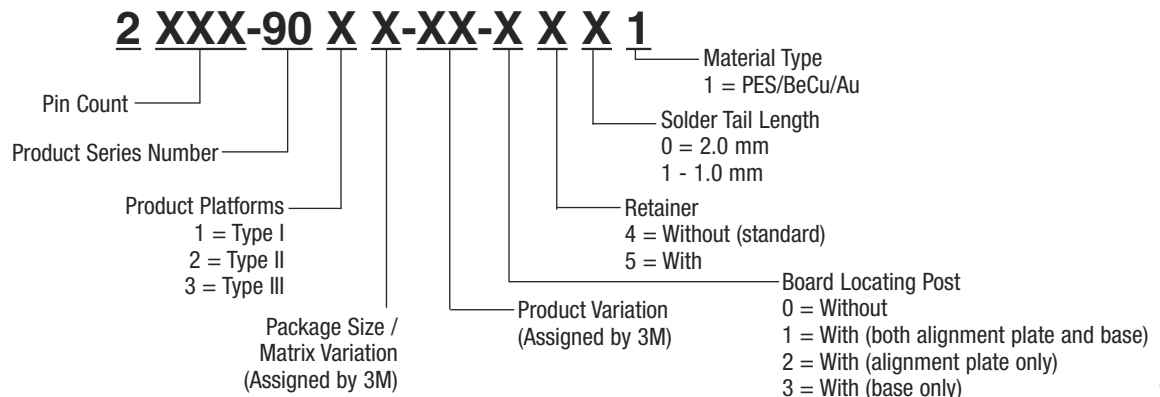
3M Textool Sockets are designed to function properly without the use of retainer clips. The retainer clip feature is desirable for high vibration/shock applications and with small or non-spherical solder balls. The purpose of the retainer clip feature is to retain the DUT in the socket should there be 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, 0.80 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

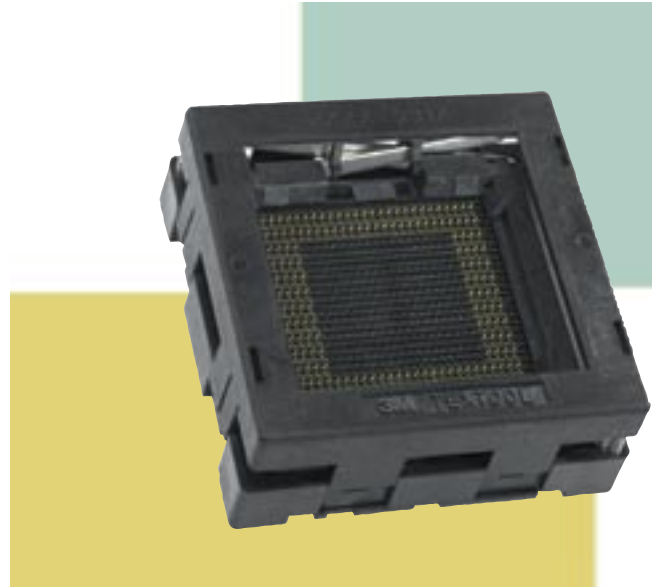
- Compatible with most robotic handlers
- Easy manual operation

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

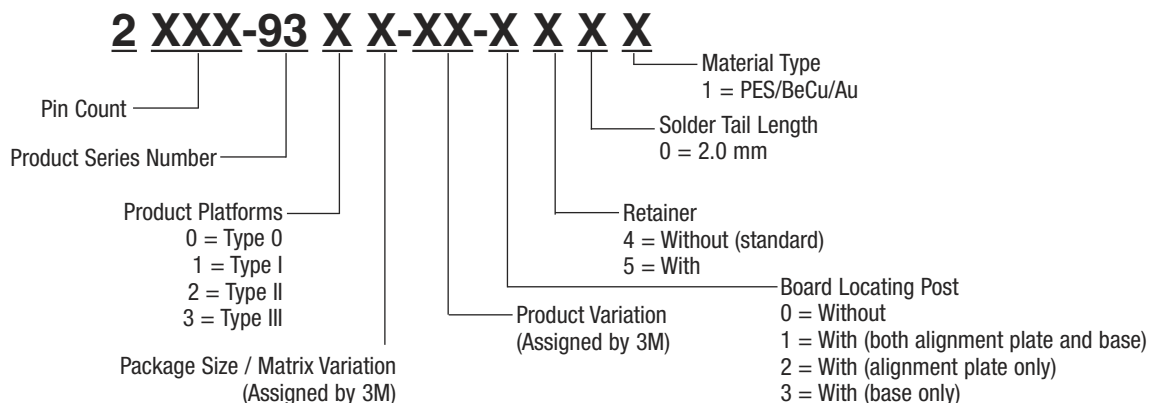
3M Textool Sockets are designed to function properly without the use of retainer clips. The retainer clip feature is desirable for high vibration/shock applications and with small or non-spherical solder balls. The purpose of the retainer clip feature is to retain the DUT in the socket should there be 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, 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

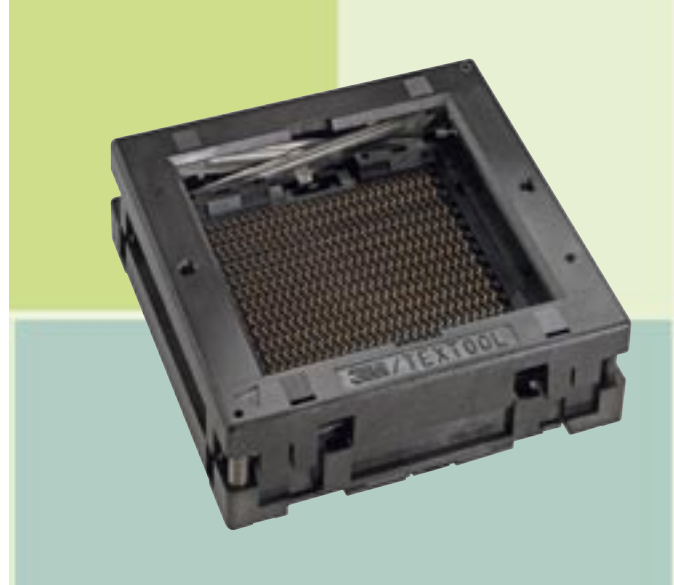
- Compatible with most robotic handlers
- Easy manual operation

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

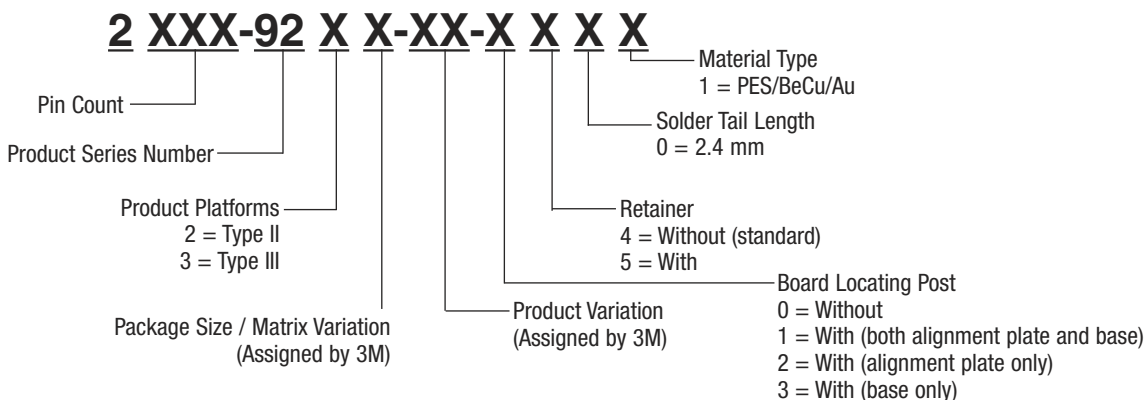
3M Textool Sockets are designed to function properly without the use of retainer clips. The retainer clip feature is desirable for high vibration/shock applications and with small or non-spherical solder balls. The purpose of the retainer clip feature is to retain the DUT in the socket should there be 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, 1.27 mm

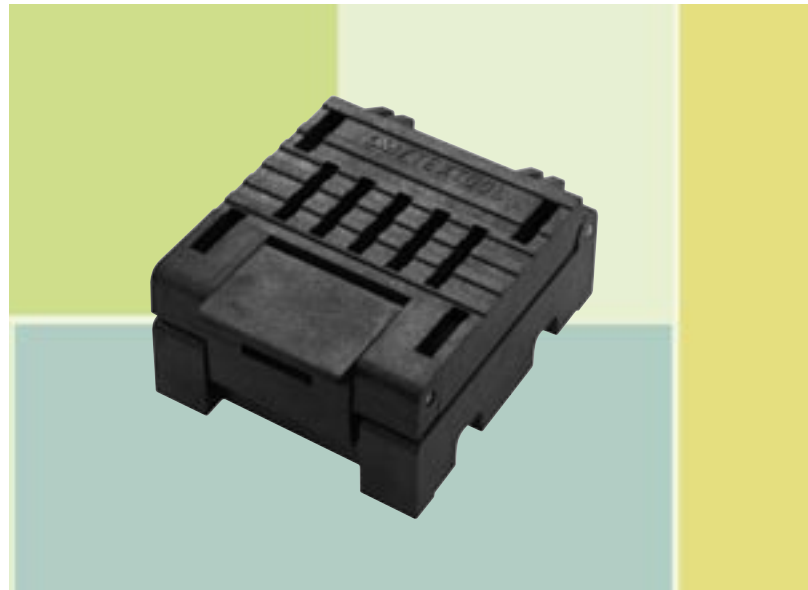
Type	Maximum Body Size (mm)	Maximum Matrix	Maximum Ball Count	Status
II	35 x 35	27 x 27	729	Available
III	45 x 45	35 x 35	1225	Available

Ordering Information



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

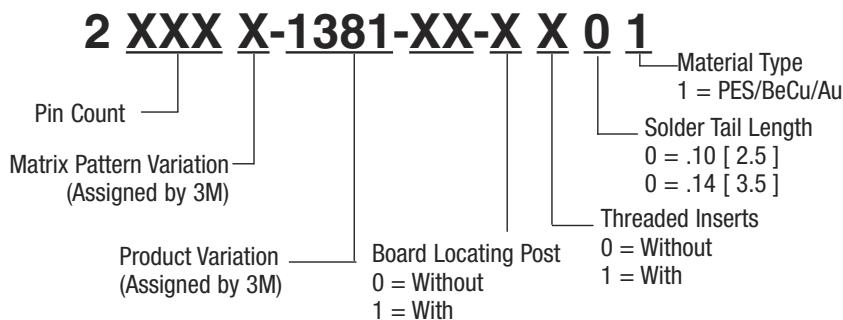
- Modular construction allows for cost effective socket proliferation for standard and custom packages
- Coarse alignment on device body followed by a secondary fine alignment to the solder balls (BGA only)
- Flat contact head that provides for minimum solder ball deformation
- Can be adapted to either 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

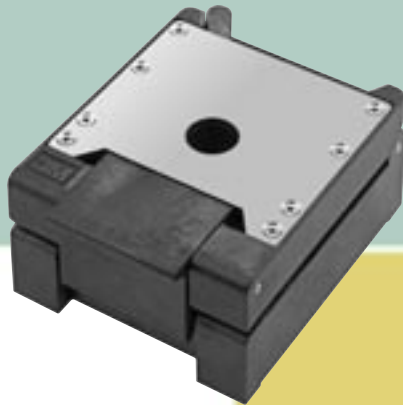
Ordering Information



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	

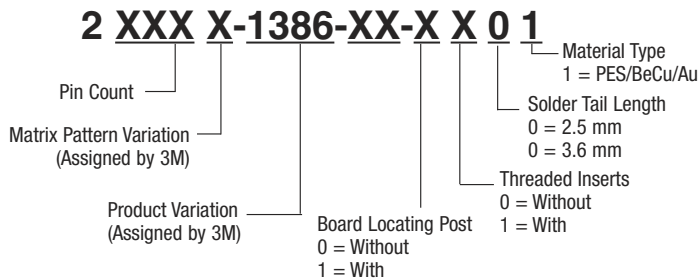
3M™ Textool™ BGA/LGA Low Closing Force Lidded Sockets, 1.27 mm Type II



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

Ordering Information



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

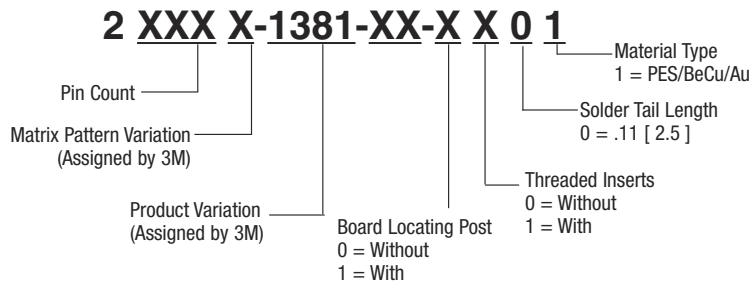
3M™ Textool™ BGA/LGA Low Closing Force Lidded Sockets, 1.27 mm Type III



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

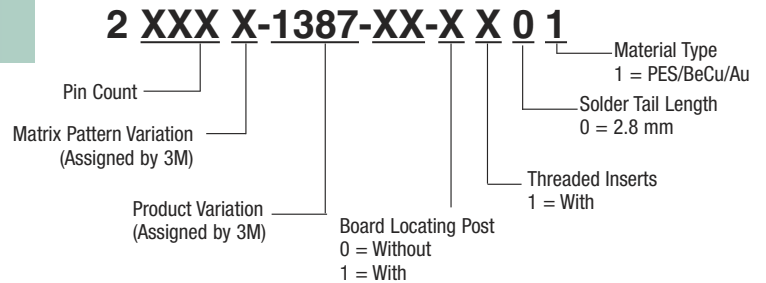
3M™ Textool™ BGA/LGA Low Closing Force Lidded Sockets, 1.27 mm Type III



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

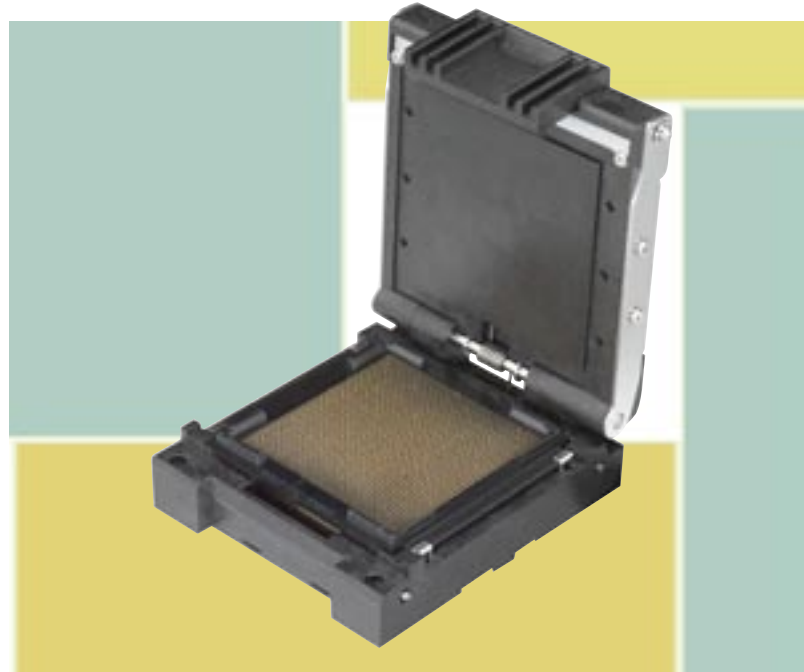


3M Textool BGA/LGA Low Profile Lidded Sockets, 1.27 mm Type III

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

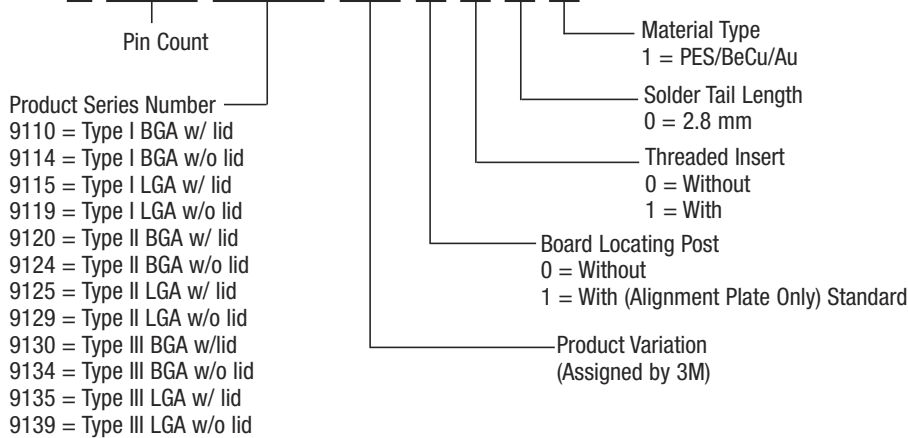
3M™ Textool™ BGA/LGA Lidded Sockets, 1.0 mm

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

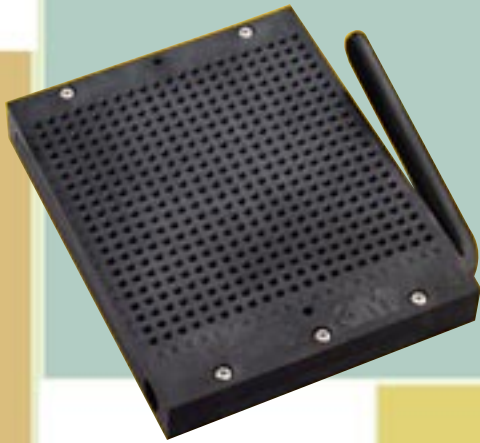
2 XXX-91XX-XX-X X X X



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

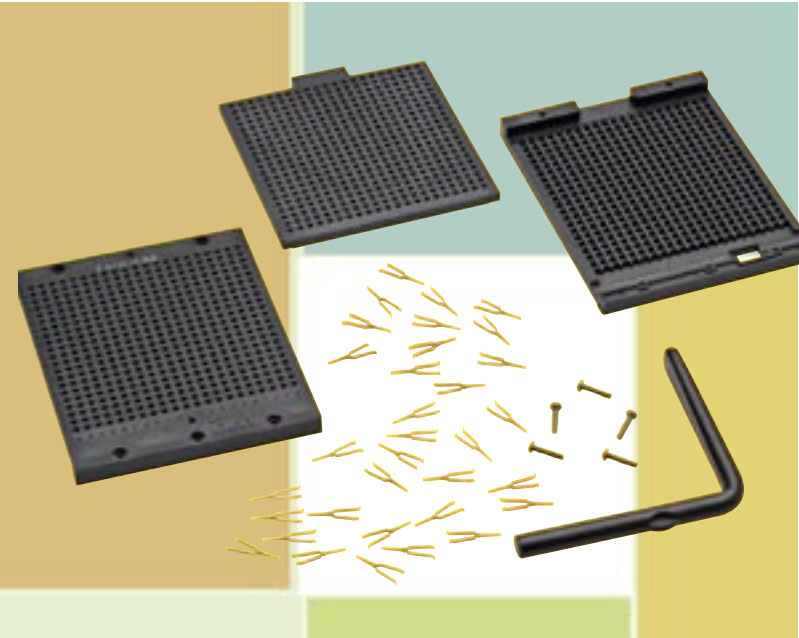
- 6310 – 10 x 10
- 6311 – 11 x 11
- 6313 – 13 x 13
- 6315 – 15 x 15
- 6317 – 17 x 17
- 6319 – 19 x 19
- 6321 – 21 x 21
- 6325 – 25 x 25

1902 PES with / 30 μ" Au/Ni on BeCu

OUA = Molded Pattern, Standard Handle

9UA = All holes open, Standard Handle

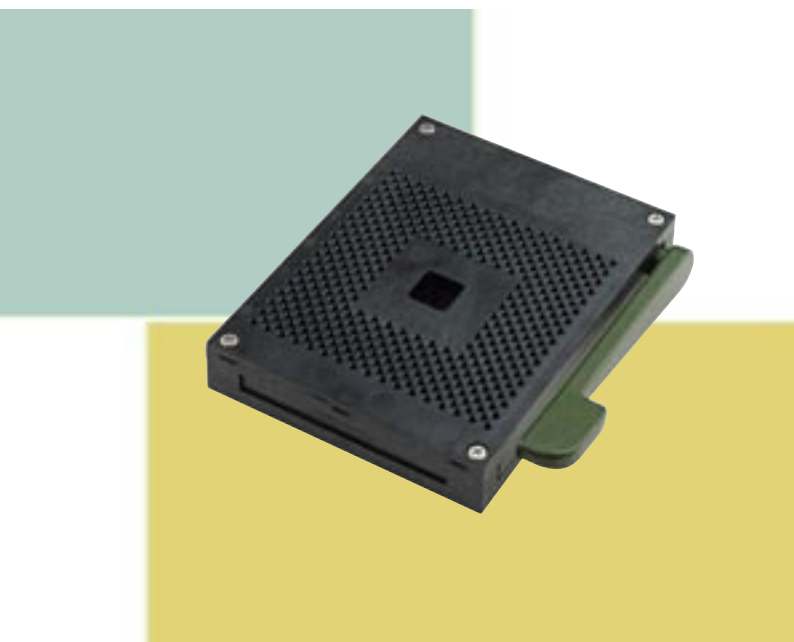
3M™ Textool™ PGA Kit Sockets



- 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.

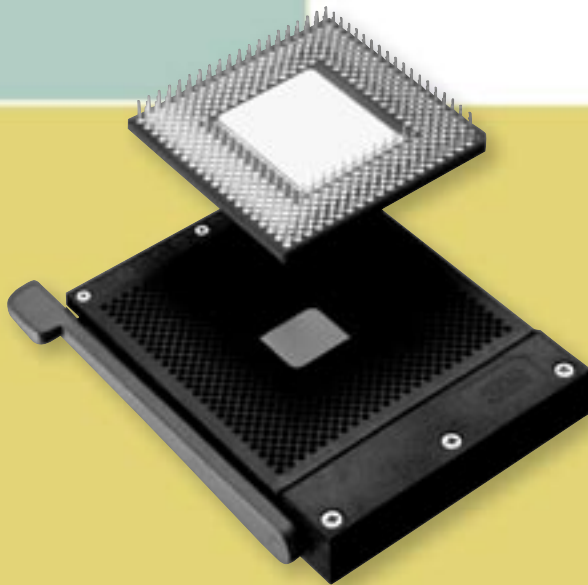
Ordering Information

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

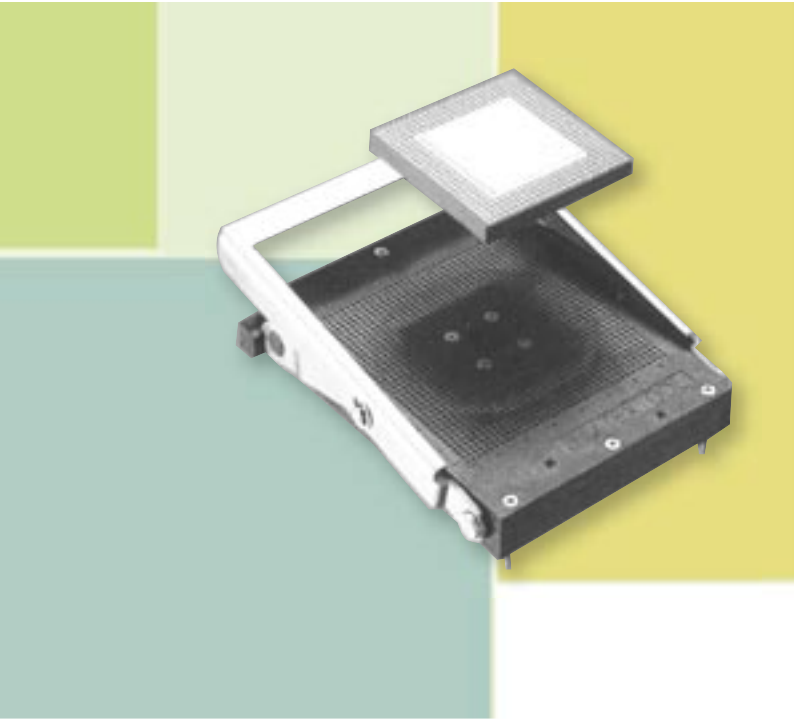
2 XXX-1357-XX-1902

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

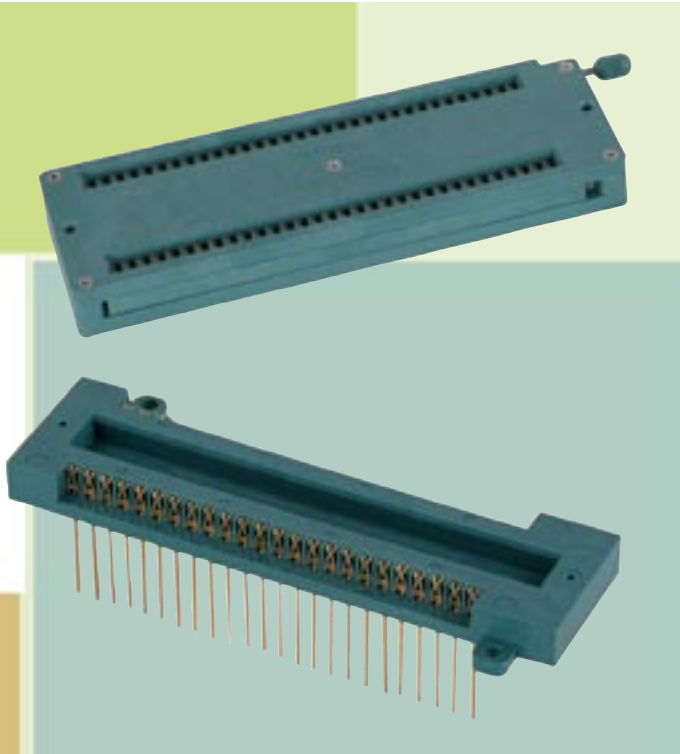
Ordering Information

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

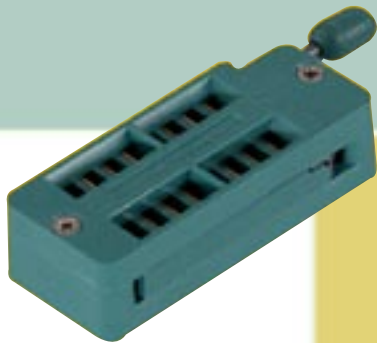
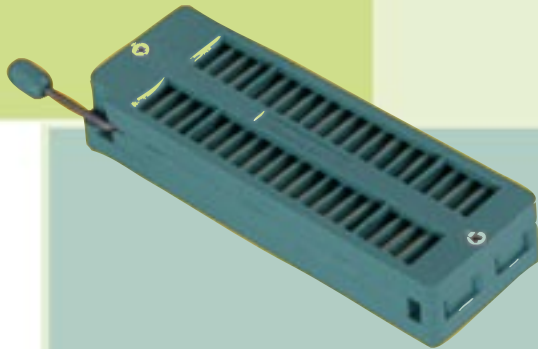
Ordering Information

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]

*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)

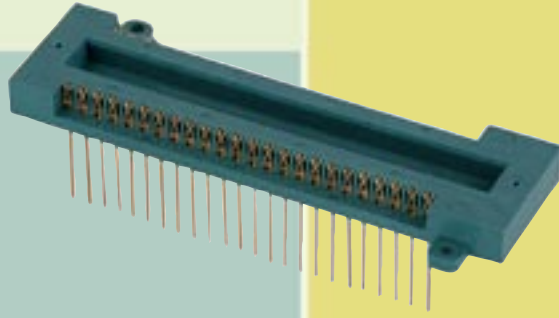
- For DIPs with .070" (1.78 mm) lead spacing
- Pin counts from 28 through 90 leads
- Lever actuated zero insertion force mechanism
- Socket contact point of .090" (2.29 mm) below top surface of socket

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

	Receptacle 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	.100 [2.54]	.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	.070 [1.78]	.800 [20.32]
②	264-1300-XX-0602J	64		
③	264-4493-XX-0602J		.100 [2.54]	.900 [22.86]
②	290-1294-XX-0602J	90	.070 [1.78]	

Contact Tail Length/Flanges:

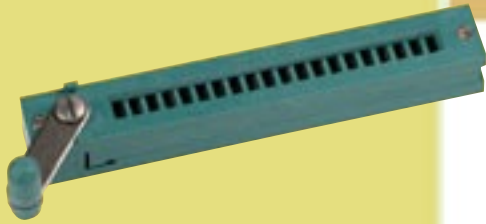
XX = 09, .13 [3.3] Solder Tail w/ flanges
 = 19, .62 [15.8] Wire Wrap w/ flanges
 = 29, .13 [3.3] Solder Tail w/out flanges
 = 39, .62 [15.8] Wire Wrap w/out flanges

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



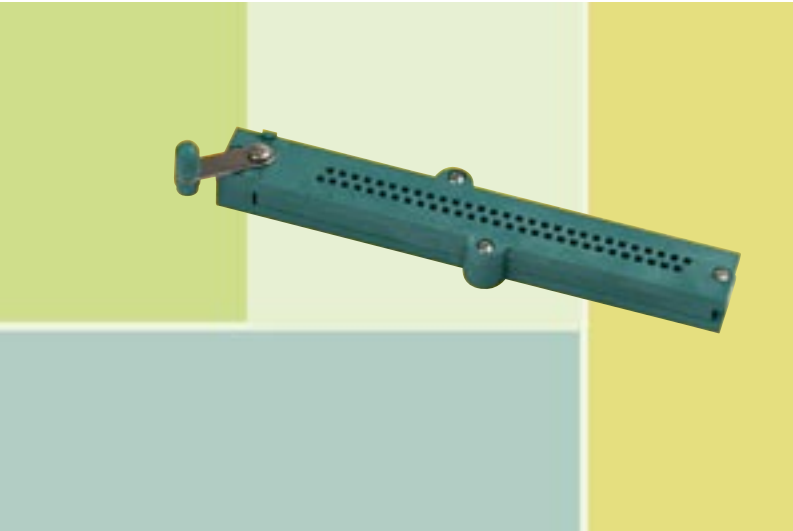
3M Textool ZIP Strip/Flat Pack Sockets are a very versatile family of sockets available in a variety of formats. Used singly, they mate with single-in-line or staggered-in-line packages. Used in pairs, they will interconnect a variety of non-standard package formats with leads extending from two sides 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)

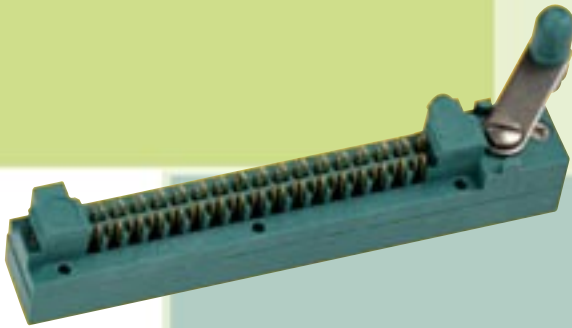
- For devices with .050" (1.27 mm) lead centers formed in staggered rows with .100" (2.54 mm) between centers and rows
- Socket with top-plate cover requires vertical insertion of leads
- Frequently used in pairs to handle devices with standard leads on opposite sides of the package
- Order left- and 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 (TEXTTOOL PART I.D.)		*POLYSULFONE (-006)	POLYETHER- SULFONE (-019)	POLYPHENYLENE- SULFIDE (-011)	POLYETHERIMIDE (-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 ⁶ Hz	—	3.49	4.17	3.80	3.5	—
Dissipation Factor 10 ⁶ Hz	—	0.0049	0.0094	0.0013	.0015	—
Arc Resistance	SECS	115	121	50	85	—
Volume Resistivity	OHMS-CM	10 ¹⁷	10 ¹⁵ - 10 ¹⁶	10 ¹⁶	3 x 10 ¹⁶	10 ¹⁷

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 ⁻⁵	—	1.5 x 10 ⁻⁵	1.1 x 10 ⁻⁵	1.7 x 10 ⁻⁵
Flammability	—	94V-0	94V-0	94V-0	94V-0	94V-0

For technical, sales or ordering information,
contact your local 3M distributor or
3M Customer Service at:

Phone 1-800-225-5373

Fax 1-800-932-9373

3M and Textool are trademarks of 3M.

Important Notice

All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product which are not contained in 3M's current publications, or any contrary statements contained on your purchase order shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.

Warranty; Limited Remedy; Limited Liability.

This product will be free from defects in material and manufacture for a period of one year from the time of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. **Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.**



Electronics

6801 River Place Blvd.
Austin, TX 78726-9000
www.3M.com/electronics
1-800-225-5373
1-800-932-9373 (fax)