

# 3M™ Textool™ Test & Burn-In Ball Grid Array Sockets

0.80 mm pitch, Types I, II, III and IV

9000 Series



- Double-beam normally-closed contact delivers balanced, opposing forces to solder ball with minimal shear stress
- Contact tips touch ball above its center plane moving ball deformation away from seating plane
- Designed to allow excellent air flow around device
- Includes a retractable locating guide for easy board mounting even with hundreds of leads
- Compatible with most robotic handlers
- Helps provide easy manual operation
- See Regulatory Information Index (RIA) for chemical compliance information

Date Modified: March 9, 2007

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## Physical

Body Material:	Polyethersulfone (PES)
Body Flammability:	UL 94V-0
Body Color:	Black
Alignment Plate Material:	Liquid Crystal Polymer (LCP)
Alignment Plate Flammability:	UL 94V-0
Alignment Plate Color:	Black
Contact Material:	Beryllium Copper
Contact Plating:	30µ" [ 0.76 µm ] Gold over 50µ" [ 1.27 µm ] Nickel
Other Metal Parts:	Stainless Steel
Marking:	3M Logo/Textool

## Electrical

<b>Current Rating:</b>	0.5 A max at 25°C
<b>Initial Contact Resistance:</b>	<50 mΩ measured at 1.0 mA applied current
<b>Insulation Resistance:</b>	>700 MΩ at 500 V <sub>DC</sub>
<b>Withstanding Voltage:</b>	500 V <sub>RMS</sub> at sea level

## Environmental

<b>Operating Temperature Rating:</b>	-55°C to +150°C
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## Mechanical

<b>Durability:</b>	20,000 actuations (10,000 devices load/unload) at room temperature
<b>Initial Contact Force:</b>	12 gf [ 0.12N ] normal for 0.4 mm diameter solder ball 15 gf [ 0.15N ] normal for 0.5 mm diameter solder ball
<b>Initial Actuation Force:</b>	Type I-3 Kg max at full pin count Type II-5 Kg max at full pin count Type III-7 Kg max at full pin count Type IV-11 Kg max at full pin count
<b>Contact Wiper Gap - Fully Open:</b>	0.65 mm normal

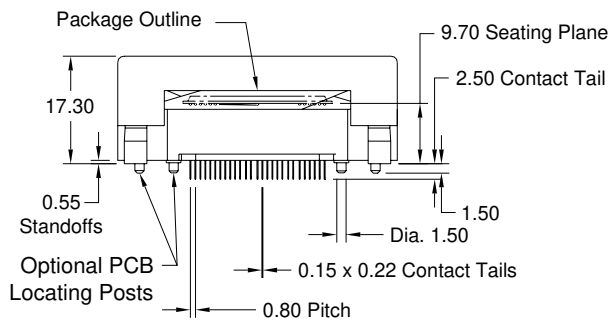
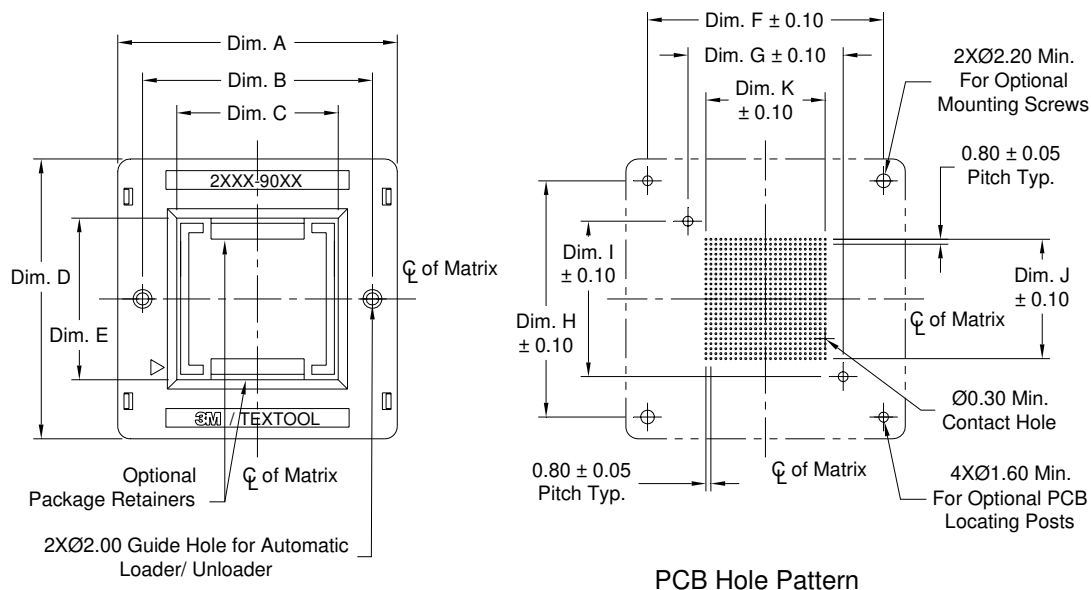
Textool is a trademark of 3M company.

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## Type I, II and III



Dimension	Type I	Type II	Type III
Dim. A	33.00	40.00	45.00
Dim. B	27.00	32.00	37.00
Dim. C	17.00	21.00	26.00
Dim. D	33.00	40.00	45.00
Dim. E	17.00	21.00	26.00
Dim. F	26.00	33.00	38.00
Dim. G	15.00	20.00	25.00
Dim. H	26.00	33.00	38.00
Dim. I	15.00	20.00	25.00
Dim. J	9.60	14.40	19.20
Dim. K	9.60	14.40	19.20

Tolerance Unless Noted		
	.0	.00
mm	±.3	±.13

Note: For package specifications and P.C.B. recommendations, see table on sheet 3.

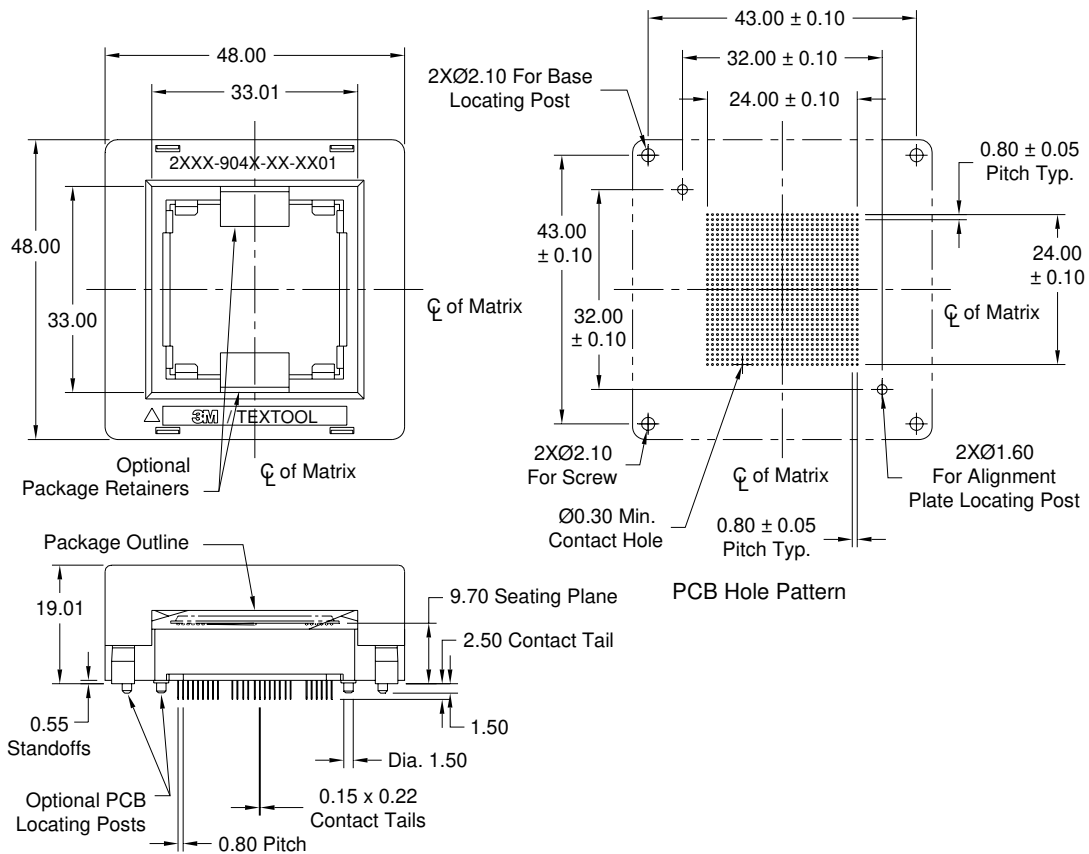
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# 3M™ Textool™ Test & Burn-In Ball Grid Array Sockets

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## Type IV

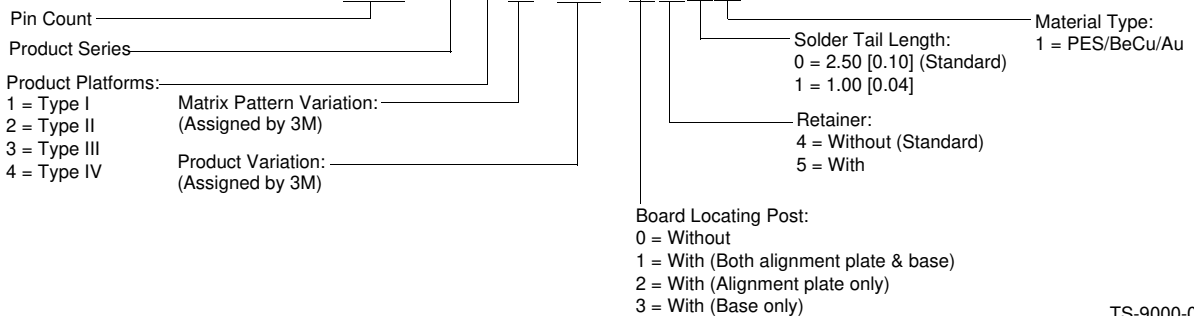


Tolerance Unless Noted		
	.0	.00
mm	±.3	±.13

Type	Package Specifications			P.C.B. Recommendations	
	Max. Package Size	Max. Matrix	Ball Diameter	Board Thickness	Through Hole Diameter
I	12.0 ± 0.1 SQ Max.	13 x 13 Max.	0.35 - 0.55	0.8 - 1.6	0.30 Min.
II	17.0 ± 0.1 SQ Max.	19 x 19 Max.	0.35 - 0.55	0.8 - 1.6	0.30 Min.
III	21.0 ± 0.1 SQ Max.	25 x 25 Max.	0.35 - 0.55	0.8 - 1.6	0.30 Min.
IV	27.0 ± 0.1 SQ Max.	31 x 31 Max.	0.35 - 0.55	0.8 - 1.6	0.30 Min.

## Ordering Information

**2 XXX - 90 X X - XX - X X X 1** (RIA E1 & C1 apply)



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## Regulatory Information Appendix

### 3M Electronic Solutions Division/Interconnect

#### EUROPE

##### **Appendix E1: European Union RoHS**

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

**This product is RoHS Compliant 2005/95/EC.**

“RoHS Compliant 2005/95/EC” means that the product or part (“Product”) does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

##### **Appendix E2: European Union RoHS**

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC

**This product contains lead in the compliant pin area in excess of the maximum concentration value allowed but is compliant by exemption under EU Commission Decision 2005/747/EC.**

“RoHS Compliant 2005/95/EC” means that the product or part (“Product”) does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

##### **Appendix E3: European Union RoHS**

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment as amended by Commission Decision 2005/618/EC.

**This product contains lead in the solder tail area in excess of the maximum concentration value allowed.**

Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

##### **Appendix E4: European Union RoHS**

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

This product contains decaBDE in the insulating material in excess of the maximum concentration value allowed but is compliant by exemption under EU Commission Decision 2005/17/EC.

“RoHS Compliant 2005/95/EC” means that the product or part (“Product”) does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.



## Appendix C1: China RoHS

Electronic Industry Standard of the People's Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part **does not** contain any of the following substances in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers; or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.



## Appendix C2: China RoHS

Electronic Industry Standard of the People's Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part **does** contain a substance, as detailed in the chart below, in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers; or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

The numerical reference in the symbol above should not be construed as a representation regarding the product's life or an extension of a product warranty. The product warranty is stated below. In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the product Warranty stated below.

产品中有毒有害物质或元素的名称及含量 Name and Content of Hazardous Substances or Elements

部件名称 (Part or Component Name)	有毒有害物质或元素 (Hazardous Substances or Elements)					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr(VI))	多溴联苯(PBB)	多溴二苯醚(PBDE)
端子镀层(contact plating)	×	○	○	○	○	○
○：表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 标准规定的限量要求以下。(Indicates that this hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.)						
×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。(Indicates that this hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.)						

### 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 (1) 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.**



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