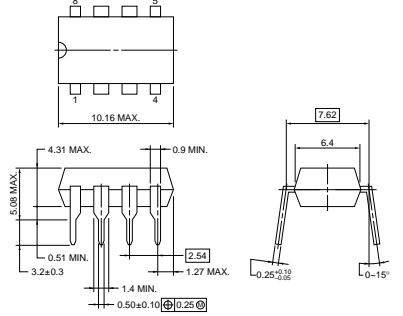
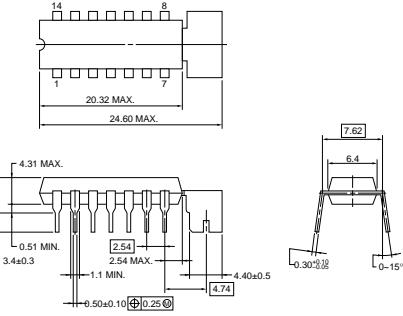
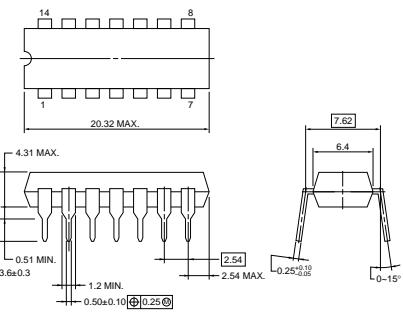
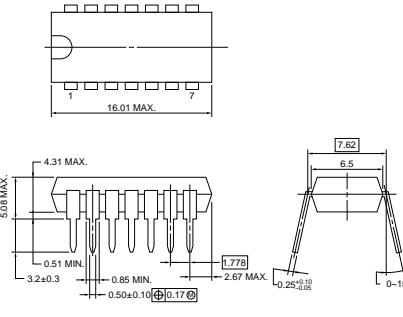
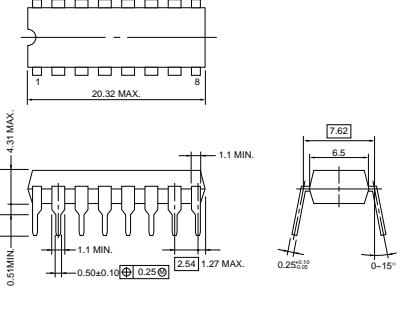
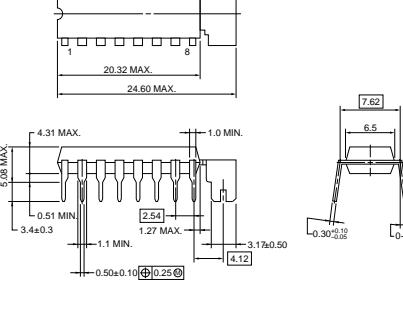
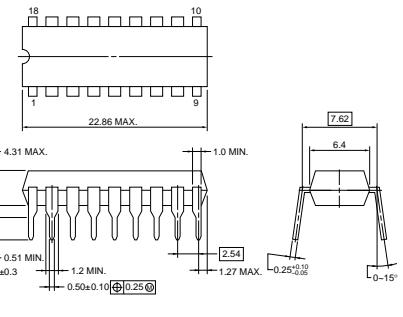
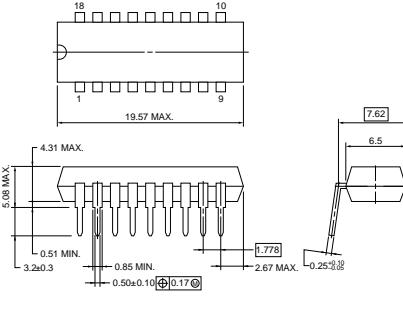


Packages

**Plastic DIP (Dual In-line Package)**

Units in mm

<b>8-pin plastic DIP (300mil)</b>  <p><b>P8C-100-300B, C-1</b></p>	<b>14-pin plastic DIP with TAB (300mil)</b>  <p><b>P14CT-100-300B-1</b></p>
<b>14-pin plastic DIP (300mil)</b>  <p><b>P14C-100-300B1-1</b></p>	<b>14-pin plastic shrink DIP (300mil)</b>  <p><b>P14C-70-300B-1</b></p>
<b>16-pin plastic DIP (300mil)</b>  <p><b>P16C-100-300B-1</b></p>	<b>16-pin plastic DIP with TAB (300mil)</b>  <p><b>P16CT-100-300B-1</b></p>
<b>18-pin plastic DIP (300 mil)</b>  <p><b>P18C-100-300A, C-1</b></p>	<b>18-pin plastic shrink DIP (300mil)</b>  <p><b>P18C-70-300B-1</b></p>

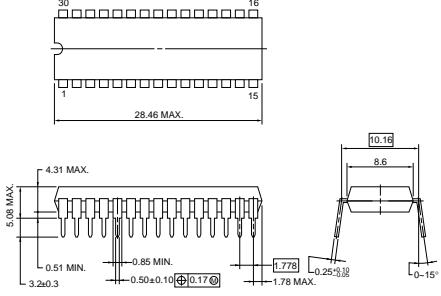
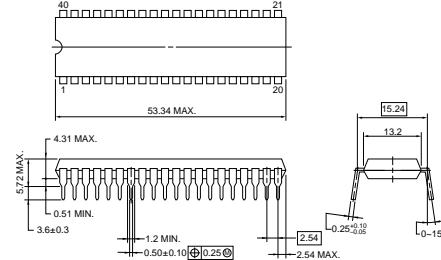
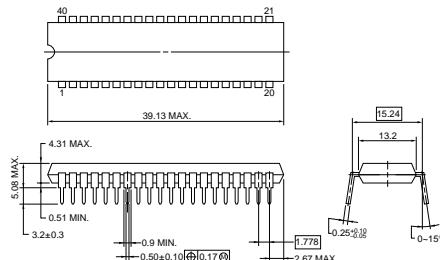
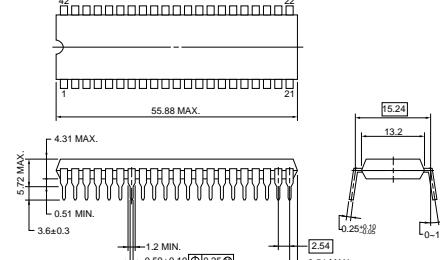
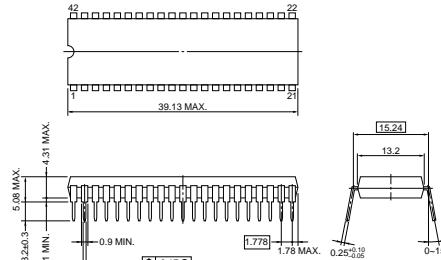
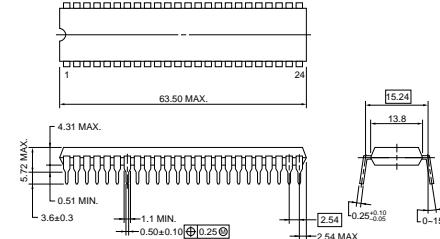
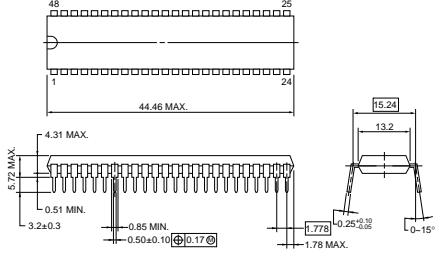
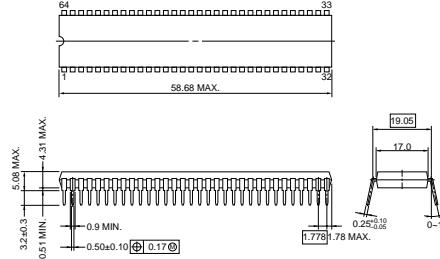
**Plastic DIP (Dual In-line Package)****Units in mm**

<b>20-pin plastic DIP (300mil)</b>	<b>20-pin plastic shrink DIP (300mil)</b>
<p>20-pin plastic DIP (300mil) top view diagram showing pin numbers 1 through 20 and 11. Dimensions include a total width of 25.40 MAX., a lead thickness of 0.9 MIN., and a lead height of 7.62. Pin pitch is 4.31 MAX. and 3.5e0.3. Lead angle is 0-15°.</p>	<p>20-pin plastic shrink DIP (300mil) top view diagram showing pin numbers 1 through 20 and 11. Dimensions include a total width of 19.57 MAX., a lead thickness of 0.9 MIN., and a lead height of 7.62. Pin pitch is 4.31 MAX. and 3.2e0.3. Lead angle is 0-15°.</p>
<b>P20C-100-300A, C-1</b>	<b>P20C-70-300B-1</b>
<b>22-pin plastic DIP (300mil)</b>	<b>22-pin plastic shrink DIP (300mil)</b>
<p>22-pin plastic DIP (300mil) top view diagram showing pin numbers 1 through 22 and 11. Dimensions include a total width of 27.94 MAX., a lead thickness of 0.9 MIN., and a lead height of 7.62. Pin pitch is 4.31 MAX. and 3.2e0.3. Lead angle is 0-15°.</p>	<p>22-pin plastic shrink DIP (300mil) top view diagram showing pin numbers 1 through 22 and 11. Dimensions include a total width of 23.12 MAX., a lead thickness of 0.9 MIN., and a lead height of 7.62. Pin pitch is 4.31 MAX. and 3.2e0.3. Lead angle is 0-15°.</p>
<b>P22C-100-300WA-1</b>	<b>S22C-70-300B-1</b>
<b>24-pin plastic DIP (300mil)</b>	<b>24-pin plastic shrink DIP (300mil)</b>
<p>24-pin plastic DIP (300mil) top view diagram showing pin numbers 1 through 24 and 13. Dimensions include a total width of 33.02 MAX., a lead thickness of 1.0 MIN., and a lead height of 7.62. Pin pitch is 4.31 MAX. and 3.5e0.3. Lead angle is 0-15°.</p>	<p>24-pin plastic shrink DIP (300mil) top view diagram showing pin numbers 1 through 24 and 13. Dimensions include a total width of 23.12 MAX., a lead thickness of 0.85 MIN., and a lead height of 7.62. Pin pitch is 4.31 MAX. and 3.2e0.3. Lead angle is 0-15°.</p>
<b>P24C-100-300A-1</b>	<b>S24C-70-300B-1</b>
<b>28-pin plastic DIP (400mil)</b>	<b>28-pin plastic shrink DIP (400mil)</b>
<p>28-pin plastic DIP (400mil) top view diagram showing pin numbers 1 through 28 and 15. Dimensions include a total width of 35.56 MAX., a lead thickness of 0.9 MIN., and a lead height of 10.16. Pin pitch is 4.31 MAX. and 3.5e0.3. Lead angle is 0-15°.</p>	<p>28-pin plastic shrink DIP (400mil) top view diagram showing pin numbers 1 through 28 and 15. Dimensions include a total width of 28.46 MAX., a lead thickness of 0.85 MIN., and a lead height of 10.16. Pin pitch is 4.31 MAX. and 3.2e0.3. Lead angle is 0-15°.</p>
<b>P28C-100-400-1</b>	<b>S28C-70-400B-1</b>

Packages

**Plastic DIP (Dual In-line Package)**

Units in mm

<b>30-pin plastic shrink DIP (400mil)</b>  <p><b>S30C-70-400B-1</b></p>	<b>40-pin plastic DIP (600mil)</b>  <p><b>P40C-100-600A-1</b></p>
<b>40-pin plastic shrink DIP (600mil)</b>  <p><b>P40C-70-600A-1</b></p>	<b>42-pin plastic DIP (600mil)</b>  <p><b>P42C-100-600A, B-1</b></p>
<b>42-pin plastic shrink DIP (600mil)</b>  <p><b>P42C-70-600A-1</b></p>	<b>48-pin plastic DIP (600mil)</b>  <p><b>P48C-100-600A-1</b></p>
<b>48-pin plastic shrink DIP (600mil)</b>  <p><b>P48C-70-600B-1</b></p>	<b>64-pin plastic shrink DIP (750mil)</b>  <p><b>P64C-70-750A, C-1</b></p>

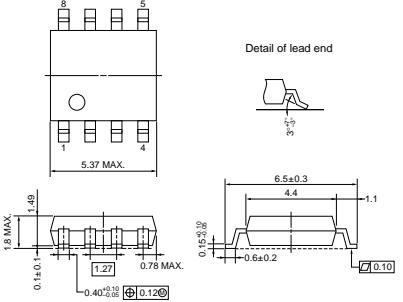
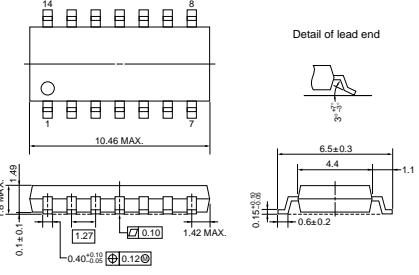
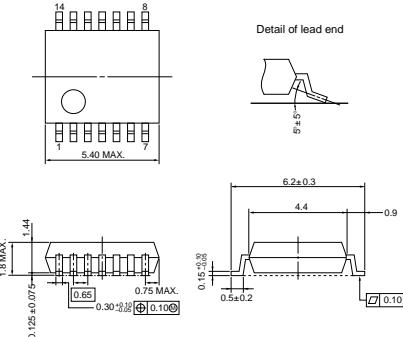
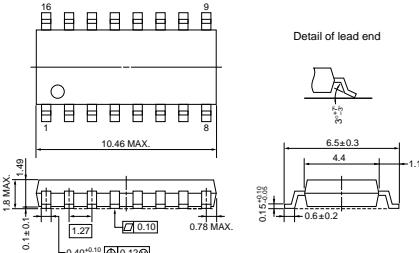
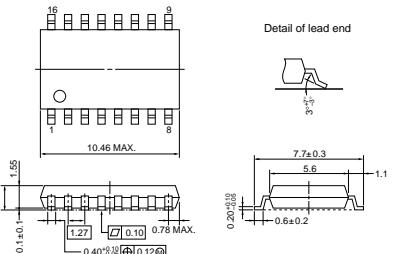
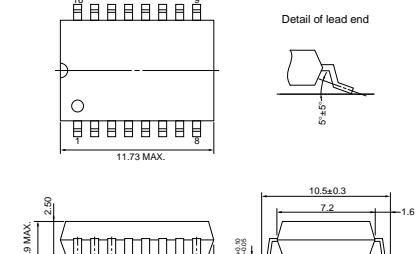
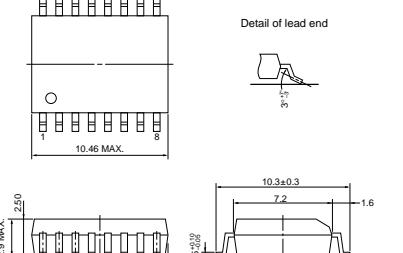
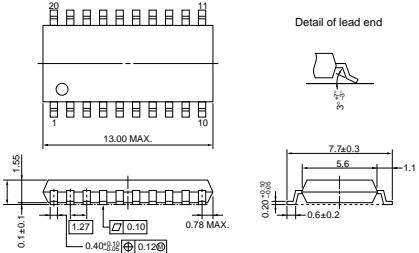
**Ceramic DIP (Dual In-line Package)****Units in mm**

<b>8-pin ceramic DIP (300mil)</b>	<b>14-pin ceramic DIP (300mil)</b>
<p>P8DH-100-300A, B-1</p>	<p>P14DH-100-300A1, B-1</p>
<b>16-pin ceramic DIP (300mil)</b>	<b>24-pin ceramic DIP (600mil)</b>
<p>P16DH-100-300A1-1</p>	<p>P24D-100-600A-1</p>
<b>28-pin ceramic DIP (600mil)</b>	<b>42-pin ceramic DIP (600mil)</b>
<p>P28D-100-600A1-1</p>	<p>P42D-100-600A-1</p>
<b>48-pin ceramic DIP (600mil)</b>	<b>64-pin ceramic DIP (750mil)</b>
<p>P48D-100-600A-1</p>	<p>P64D-70-750A-1</p>

Packages

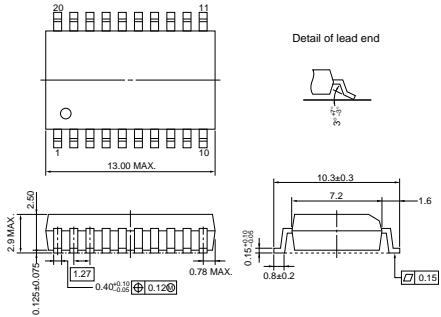
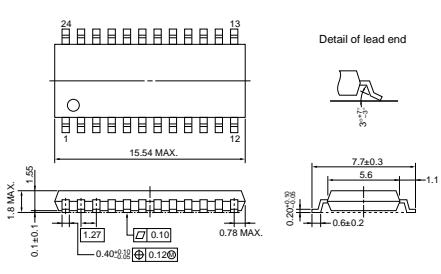
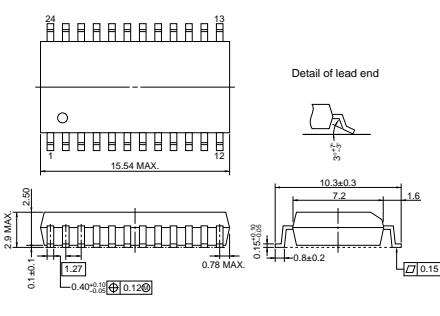
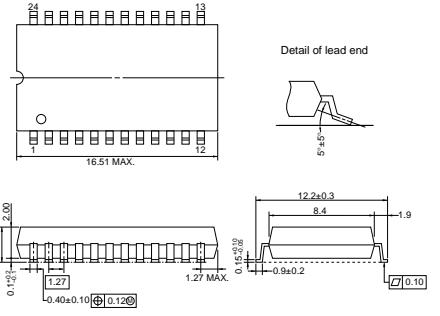
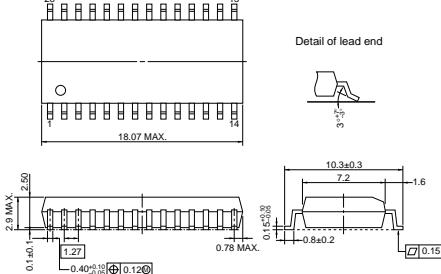
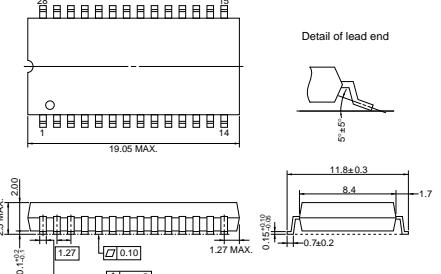
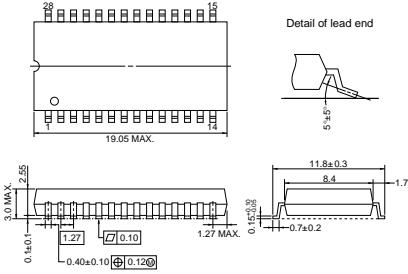
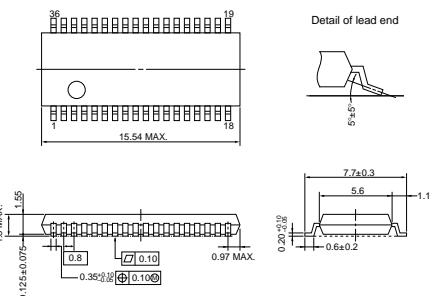
**Plastic SOP (Small Outline Package)**

Units in mm

<b>8-pin plastic SOP (225mil)</b>  <p>Detail of lead end</p> <p>8-pin plastic SOP (225mil) dimensions:</p> <ul style="list-style-type: none"> <li>Width: 5.37 MAX.</li> <li>Height: 1.8 MAX.</li> <li>Pin pitch: 1.27</li> <li>Pin height: 0.78 MAX.</li> <li>Lead thickness: 0.15 ± 0.10</li> <li>Lead width: 0.40 ± 0.10 ⊕ 0.12</li> </ul> <p>S8GM-50-225B-4</p>	<b>14-pin plastic SOP (225mil)</b>  <p>Detail of lead end</p> <p>14-pin plastic SOP (225mil) dimensions:</p> <ul style="list-style-type: none"> <li>Width: 10.46 MAX.</li> <li>Height: 1.8 MAX.</li> <li>Pin pitch: 1.27</li> <li>Pin height: 0.78 MAX.</li> <li>Lead thickness: 0.15 ± 0.10</li> <li>Lead width: 0.40 ± 0.10 ⊕ 0.12</li> </ul> <p>S14GM-50-225B, C-4</p>
<b>14-pin plastic shrink SOP (225mil)</b>  <p>Detail of lead end</p> <p>14-pin plastic shrink SOP (225mil) dimensions:</p> <ul style="list-style-type: none"> <li>Width: 5.40 MAX.</li> <li>Height: 1.8 MAX.</li> <li>Pin pitch: 1.27</li> <li>Pin height: 0.75 MAX.</li> <li>Lead thickness: 0.15 ± 0.05</li> <li>Lead width: 0.30 ± 0.05 ⊕ 0.10</li> </ul> <p>P14GM-65-225B-2</p>	<b>16-pin plastic SOP (225mil)</b>  <p>Detail of lead end</p> <p>16-pin plastic SOP (225mil) dimensions:</p> <ul style="list-style-type: none"> <li>Width: 10.46 MAX.</li> <li>Height: 1.8 MAX.</li> <li>Pin pitch: 1.27</li> <li>Pin height: 0.78 MAX.</li> <li>Lead thickness: 0.15 ± 0.10</li> <li>Lead width: 0.40 ± 0.10 ⊕ 0.12</li> </ul> <p>S16GM-50-225B, C-4</p>
<b>16-pin plastic SOP (300mil)</b>  <p>Detail of lead end</p> <p>16-pin plastic SOP (300mil) dimensions:</p> <ul style="list-style-type: none"> <li>Width: 10.46 MAX.</li> <li>Height: 1.8 MAX.</li> <li>Pin pitch: 1.27</li> <li>Pin height: 0.78 MAX.</li> <li>Lead thickness: 0.15 ± 0.10</li> <li>Lead width: 0.40 ± 0.10 ⊕ 0.12</li> </ul> <p>P16GM-50-300B-4</p>	<b>16-pin plastic SOP (375mil)</b>  <p>Detail of lead end</p> <p>16-pin plastic SOP (375mil) dimensions:</p> <ul style="list-style-type: none"> <li>Width: 11.73 MAX.</li> <li>Height: 2.9 MAX.</li> <li>Pin pitch: 1.27</li> <li>Pin height: 0.78 MAX.</li> <li>Lead thickness: 0.15 ± 0.10</li> <li>Lead width: 0.40 ± 0.10 ⊕ 0.12</li> </ul> <p>P16GM-50-375A-2</p>
<b>16-pin plastic SOP (375mil)</b>  <p>Detail of lead end</p> <p>16-pin plastic SOP (375mil) dimensions:</p> <ul style="list-style-type: none"> <li>Width: 10.46 MAX.</li> <li>Height: 2.9 MAX.</li> <li>Pin pitch: 1.27</li> <li>Pin height: 0.78 MAX.</li> <li>Lead thickness: 0.15 ± 0.10</li> <li>Lead width: 0.40 ± 0.10 ⊕ 0.12</li> </ul> <p>P16GM-50-375B-3</p>	<b>20-pin plastic SOP (300mil)</b>  <p>Detail of lead end</p> <p>20-pin plastic SOP (300mil) dimensions:</p> <ul style="list-style-type: none"> <li>Width: 13.00 MAX.</li> <li>Height: 1.8 MAX.</li> <li>Pin pitch: 1.27</li> <li>Pin height: 0.78 MAX.</li> <li>Lead thickness: 0.15 ± 0.10</li> <li>Lead width: 0.40 ± 0.10 ⊕ 0.12</li> </ul> <p>P20GM-50-300B, C-4</p>

## Plastic SOP (Small Outline Package)

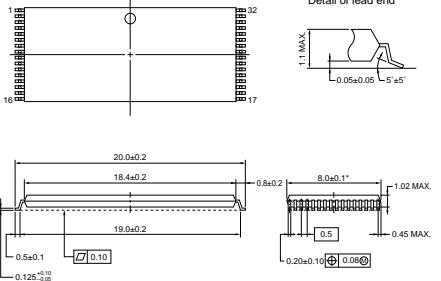
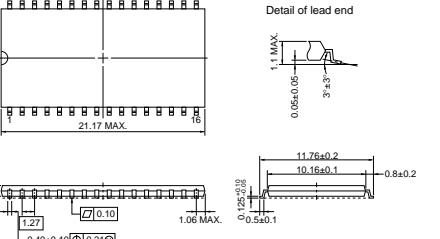
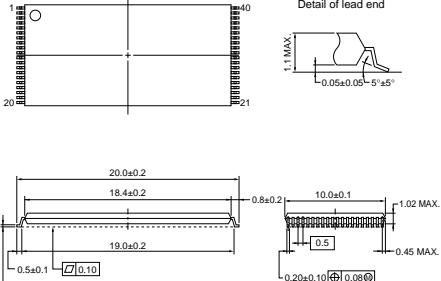
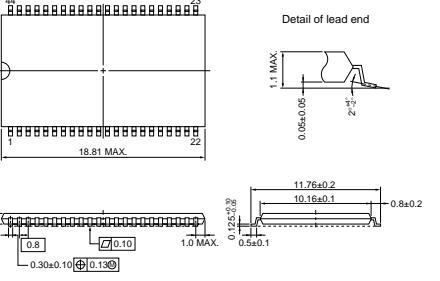
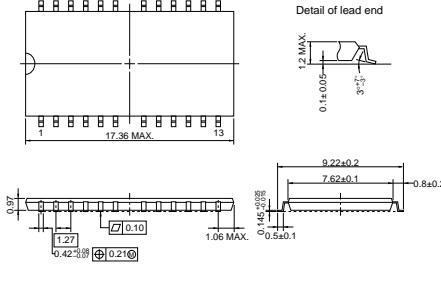
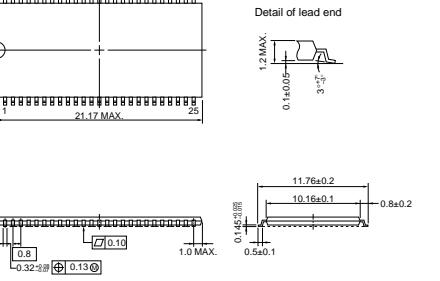
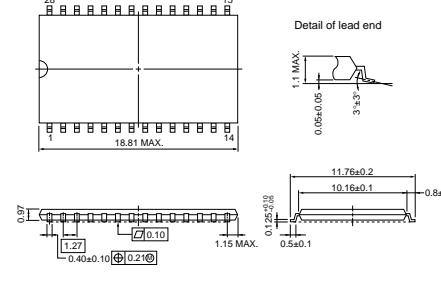
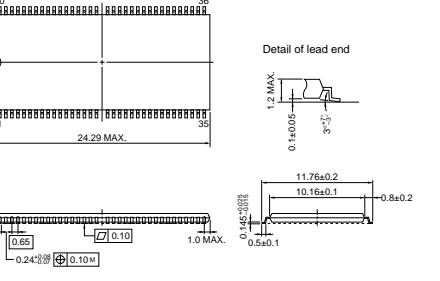
Units in mm

<p><b>20-pin plastic SOP (375mil)</b></p>  <p>Detail of lead end</p> <p>P20GM-50-375B-4</p>	<p><b>24-pin plastic SOP (300mil)</b></p>  <p>Detail of lead end</p> <p>P24GM-50-300B-4</p>
<p><b>24-pin plastic SOP (375mil)</b></p>  <p>Detail of lead end</p> <p>P24GM-50-375B-3</p>	<p><b>24-pin plastic SOP (450mil)</b></p>  <p>Detail of lead end</p> <p>P24GM-50-450A-2</p>
<p><b>28-pin plastic SOP (375mil)</b></p>  <p>Detail of lead end</p> <p>P28GM-50-375B-3</p>	<p><b>28-pin plastic SOP (450mil)</b></p>  <p>Detail of lead end</p> <p>P28GM-50-450A1-2</p>
<p><b>28-pin plastic SOP (450mil)</b></p>  <p>Detail of lead end</p> <p>P28GM-50-450A2-2</p>	<p><b>36-pin plastic shrink SOP (300mil)</b></p>  <p>Detail of lead end</p> <p>P36GM-80-300B-3</p>

Packages

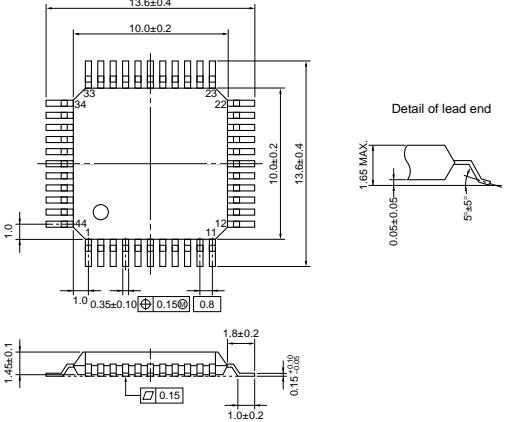
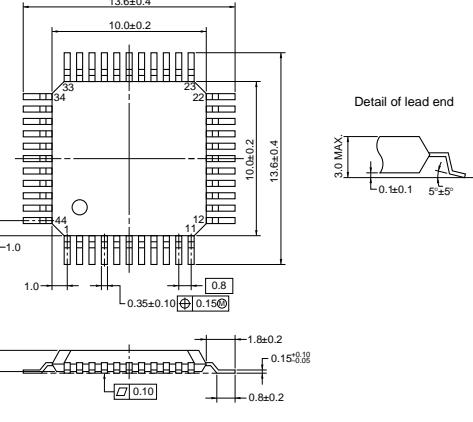
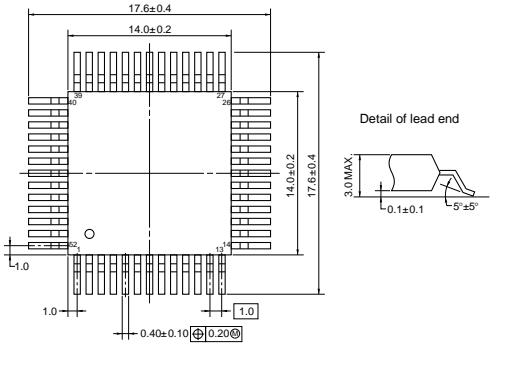
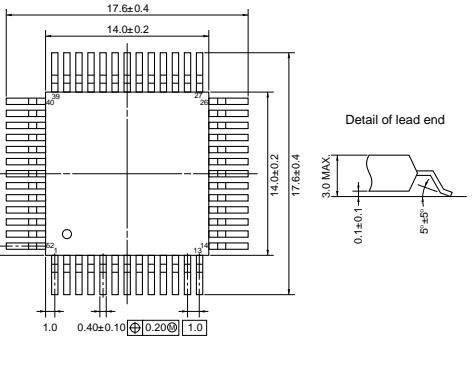
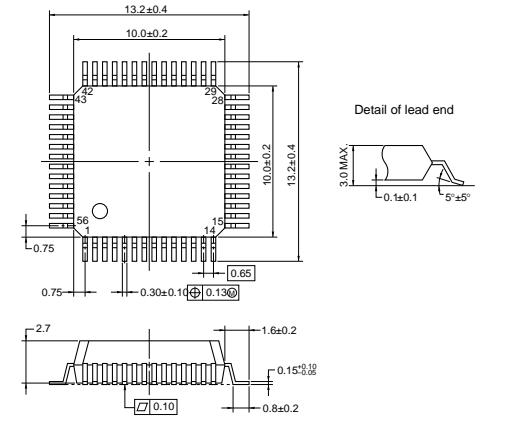
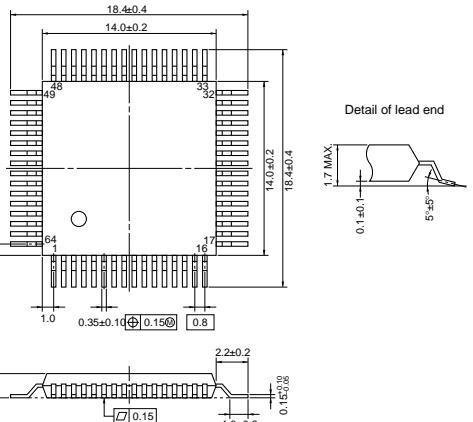
**Plastic TSOP (Thin Small Outline Package)**

Units in mm

<p><b>32-pin plastic TSOP(I) (8 × 20)</b></p>  <p>Detail of lead end</p> <p>Dimensions: 20.0x0.2, 18.4x0.2, 0.8x0.2, 8.0x0.1*, 1.02 MAX., 0.5x0.1, 0.20x0.10⊕0.08⊖, 0.45 MAX., 0.125±0.05, 0.10.</p> <p><b>S32GZ-50-KJH-3</b></p>	<p><b>32-pin plastic TSOP(II) (400mil)</b></p>  <p>Detail of lead end</p> <p>Dimensions: 21.17 MAX., 17, 1.1 MAX., 0.05±0.05, 3±5°, 1.1 MAX., 0.05±0.05, 3±3°.</p> <p><b>S32G5-50-7JD-2</b></p>
<p><b>40-pin plastic TSOP(I) (10 × 20)</b></p>  <p>Detail of lead end</p> <p>Dimensions: 20.0x0.2, 18.4x0.2, 0.8x0.2, 10.0x0.1, 1.02 MAX., 0.5x0.1, 0.20x0.10⊕0.08⊖, 0.45 MAX., 0.125±0.05, 0.10.</p> <p><b>S40GZ-50-LJH-2</b></p>	<p><b>44-pin plastic TSOP(II) (400mil)</b></p>  <p>Detail of lead end</p> <p>Dimensions: 18.81 MAX., 23, 1.1 MAX., 0.05±0.05, 2±3°, 1.1 MAX., 0.05±0.05, 2±3°.</p> <p><b>S44G5-80-7JF1-1</b></p>
<p><b>26-pin plastic TSOP(II) (300mil)</b></p>  <p>Detail of lead end</p> <p>Dimensions: 17.36 MAX., 14, 1.2 MAX., 0.1±0.05, 3±5°.</p> <p><b>S26G3-50-7JD1</b></p>	<p><b>50-pin plastic TSOP(II) (400mil)</b></p>  <p>Detail of lead end</p> <p>Dimensions: 21.17 MAX., 26, 1.2 MAX., 0.1±0.05, 3±5°.</p> <p><b>S50G5-80-7JF2</b></p>
<p><b>28-pin plastic TSOP(II) (400mil)</b></p>  <p>Detail of lead end</p> <p>Dimensions: 18.81 MAX., 15, 1.1 MAX., 0.05±0.05, 3±5°.</p> <p><b>S28G5-50-7JD-2</b></p>	<p><b>70-pin plastic TSOP(II) (400mil)</b></p>  <p>Detail of lead end</p> <p>Dimensions: 24.29 MAX., 35, 1.2 MAX., 0.1±0.05, 3±5°.</p> <p><b>S70G5-65-7JG</b></p>

## Plastic QFP (Quad Flat Package)

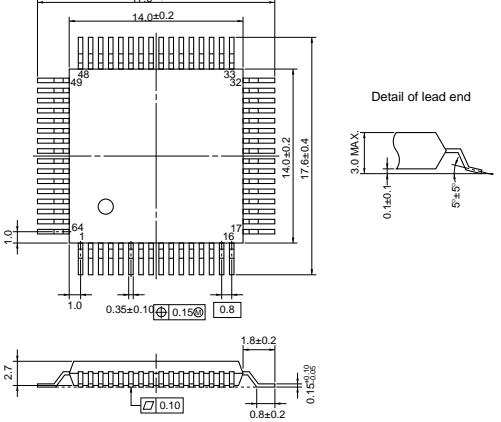
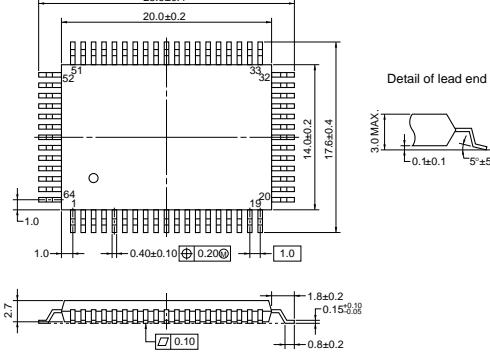
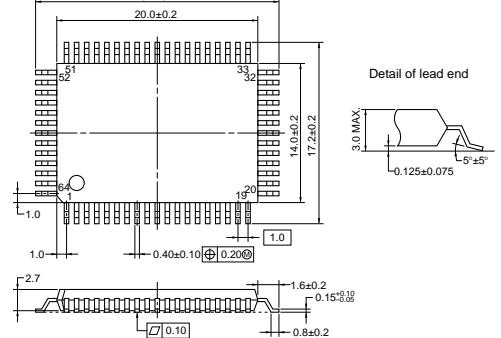
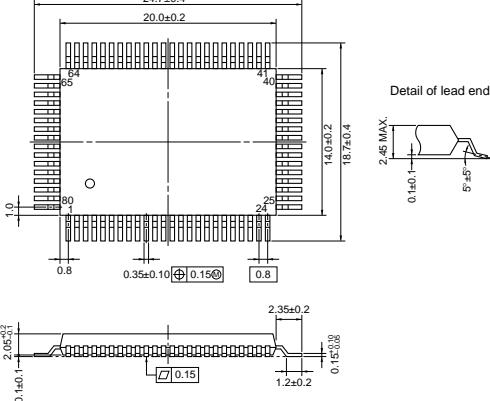
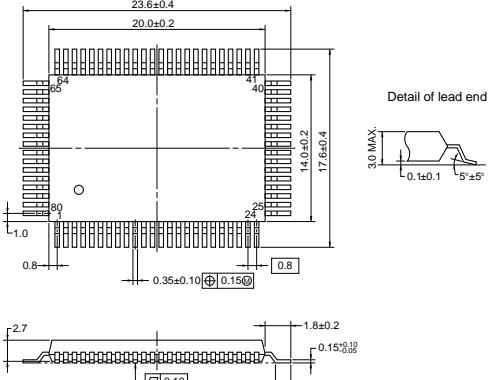
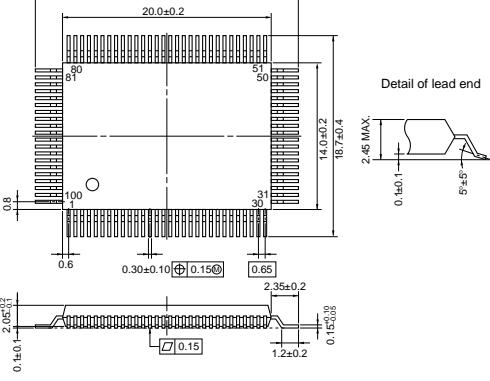
Units in mm

<b>44-pin plastic QFP</b>  <p>Detail of lead end</p> <p>Dimensions (mm):</p> <ul style="list-style-type: none"> <li>Overall width: <math>13.6 \pm 0.4</math></li> <li>Pin pitch: <math>1.0 \pm 0.2</math></li> <li>Pin height: <math>1.0 \pm 0.2</math></li> <li>Pin thickness: <math>0.35 \pm 0.10 \oplus 0.15 \ominus 0.05</math></li> <li>Pin width: <math>0.8 \pm 0.2</math></li> <li>Lead end thickness: <math>0.15 \pm 0.05</math></li> <li>Lead end width: <math>1.0 \pm 0.2</math></li> <li>Lead end height: <math>0.05 \pm 0.05</math></li> <li>Lead end angle: <math>5^\circ \pm 5^\circ</math></li> </ul>	<b>44-pin plastic QFP</b>  <p>Detail of lead end</p> <p>Dimensions (mm):</p> <ul style="list-style-type: none"> <li>Overall width: <math>13.6 \pm 0.4</math></li> <li>Pin pitch: <math>1.0 \pm 0.2</math></li> <li>Pin height: <math>1.0 \pm 0.2</math></li> <li>Pin thickness: <math>0.35 \pm 0.10 \oplus 0.15 \ominus 0.05</math></li> <li>Pin width: <math>0.8 \pm 0.2</math></li> <li>Lead end thickness: <math>0.10 \pm 0.05</math></li> <li>Lead end width: <math>0.8 \pm 0.2</math></li> <li>Lead end height: <math>0.15 \pm 0.10</math></li> <li>Lead end angle: <math>5^\circ \pm 5^\circ</math></li> </ul>
<b>52-pin plastic QFP</b>  <p>Detail of lead end</p> <p>Dimensions (mm):</p> <ul style="list-style-type: none"> <li>Overall width: <math>17.6 \pm 0.4</math></li> <li>Pin pitch: <math>1.4 \pm 0.2</math></li> <li>Pin height: <math>1.4 \pm 0.2</math></li> <li>Pin thickness: <math>0.40 \pm 0.10 \oplus 0.20 \ominus 0.10</math></li> <li>Pin width: <math>1.0 \pm 0.2</math></li> <li>Lead end thickness: <math>0.15 \pm 0.05</math></li> <li>Lead end width: <math>1.0 \pm 0.2</math></li> <li>Lead end height: <math>0.1 \pm 0.1</math></li> <li>Lead end angle: <math>5^\circ \pm 5^\circ</math></li> </ul>	<b>52-pin plastic QFP</b>  <p>Detail of lead end</p> <p>Dimensions (mm):</p> <ul style="list-style-type: none"> <li>Overall width: <math>17.6 \pm 0.4</math></li> <li>Pin pitch: <math>1.4 \pm 0.2</math></li> <li>Pin height: <math>1.4 \pm 0.2</math></li> <li>Pin thickness: <math>0.40 \pm 0.10 \oplus 0.20 \ominus 0.10</math></li> <li>Pin width: <math>1.0 \pm 0.2</math></li> <li>Lead end thickness: <math>0.10 \pm 0.05</math></li> <li>Lead end width: <math>0.8 \pm 0.2</math></li> <li>Lead end height: <math>0.15 \pm 0.05</math></li> <li>Lead end angle: <math>5^\circ \pm 5^\circ</math></li> </ul>
<b>56-pin plastic QFP</b>  <p>Detail of lead end</p> <p>Dimensions (mm):</p> <ul style="list-style-type: none"> <li>Overall width: <math>13.2 \pm 0.4</math></li> <li>Pin pitch: <math>1.0 \pm 0.2</math></li> <li>Pin height: <math>1.0 \pm 0.2</math></li> <li>Pin thickness: <math>0.30 \pm 0.10 \oplus 0.13 \ominus 0.05</math></li> <li>Pin width: <math>0.65 \pm 0.2</math></li> <li>Lead end thickness: <math>0.10 \pm 0.05</math></li> <li>Lead end width: <math>0.8 \pm 0.2</math></li> <li>Lead end height: <math>0.1 \pm 0.1</math></li> <li>Lead end angle: <math>5^\circ \pm 5^\circ</math></li> </ul>	<b>64-pin plastic QFP</b>  <p>Detail of lead end</p> <p>Dimensions (mm):</p> <ul style="list-style-type: none"> <li>Overall width: <math>18.4 \pm 0.4</math></li> <li>Pin pitch: <math>1.4 \pm 0.2</math></li> <li>Pin height: <math>1.4 \pm 0.2</math></li> <li>Pin thickness: <math>0.35 \pm 0.10 \oplus 0.15 \ominus 0.05</math></li> <li>Pin width: <math>0.8 \pm 0.2</math></li> <li>Lead end thickness: <math>0.15 \pm 0.05</math></li> <li>Lead end width: <math>1.0 \pm 0.2</math></li> <li>Lead end height: <math>0.15 \pm 0.05</math></li> <li>Lead end angle: <math>5^\circ \pm 5^\circ</math></li> </ul>

Packages

**Plastic QFP (Quad Flat Package)**

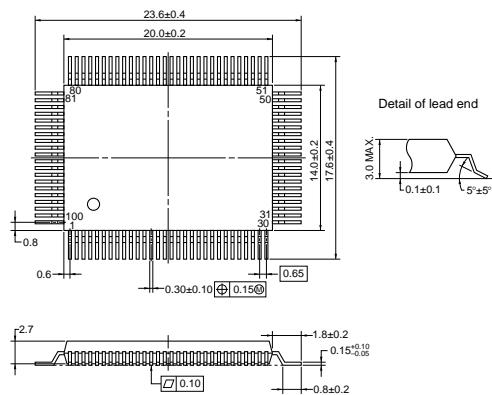
Units in mm

<p><b>64-pin plastic QFP</b></p>  <p><b>P64GC-80-3BE-2</b></p>	<p><b>64-pin plastic QFP</b></p>  <p><b>P64GF-100-3B8, 3BE, 3BR-2</b></p>
<p><b>64-pin plastic QFP</b></p>  <p><b>S64GF-100-3B8, 3BE-3</b></p>	<p><b>80-pin plastic QFP</b></p>  <p><b>P80G-80-12-2</b></p>
<p><b>80-pin plastic QFP</b></p>  <p><b>P80GF-80-3B9-3</b></p>	<p><b>100-pin plastic QFP</b></p>  <p><b>P100G-65-12-2</b></p>

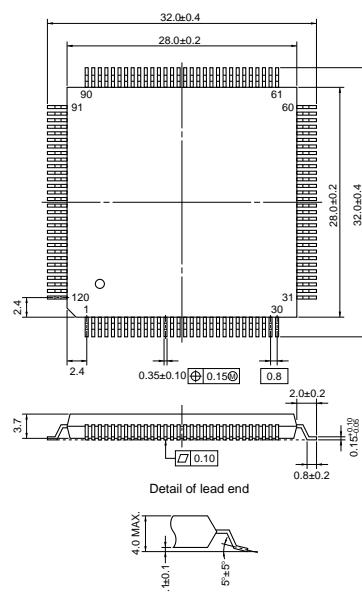
## Plastic QFP (Quad Flat Package)

Units in mm

100-pin plastic QFP



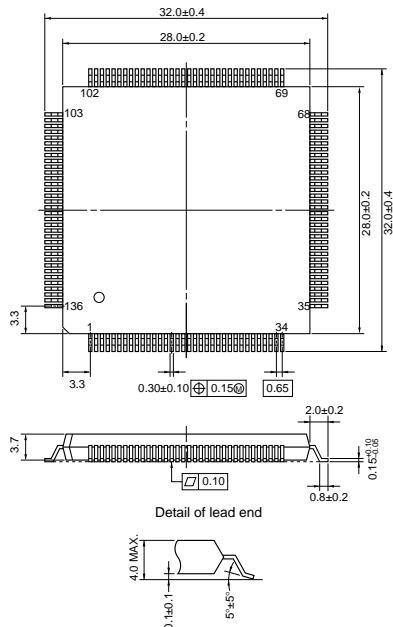
120-pin plastic QFP



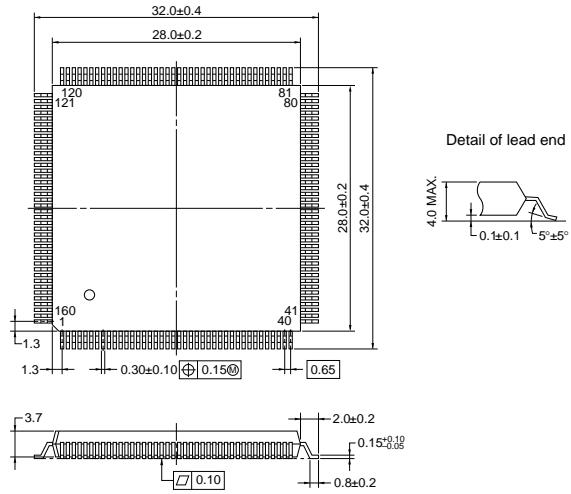
P100GF-65-3BA-3

P120GD-80-5BB-3

136-pin plastic QFP



160-pin plastic QFP

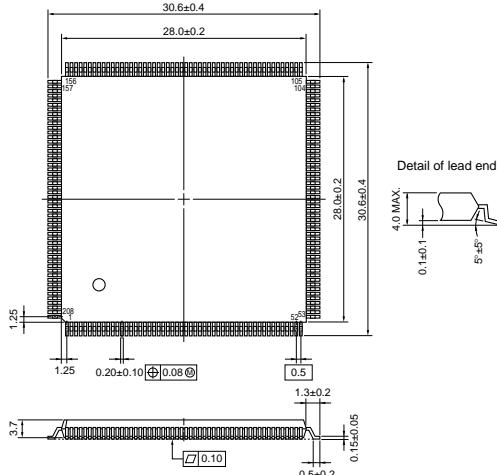
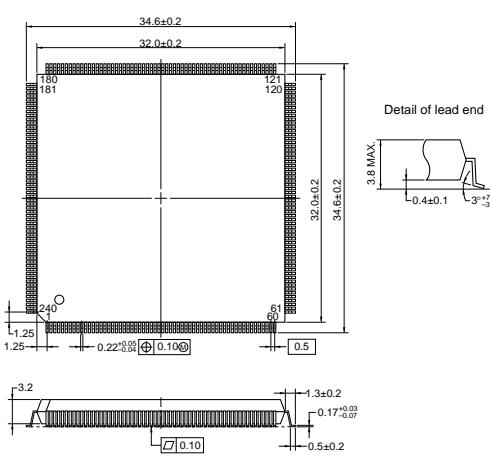
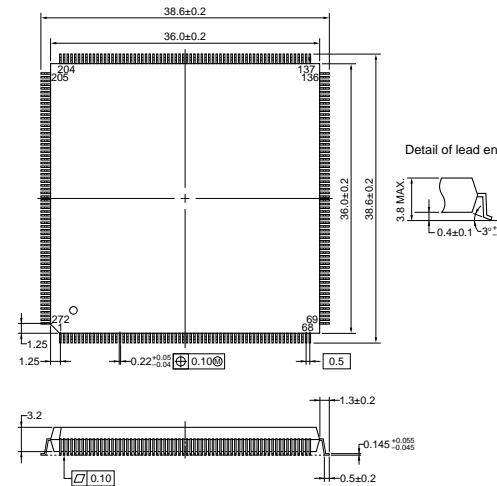
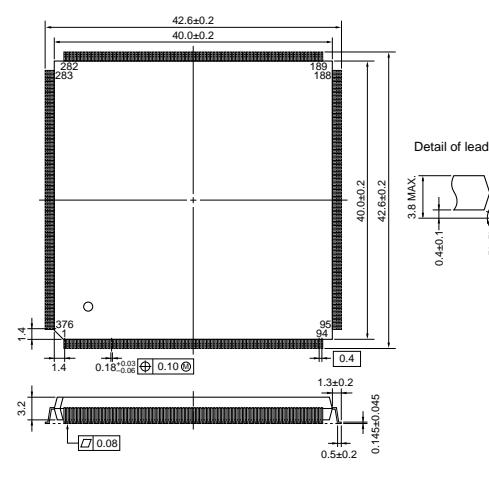


P136GD-65-5BC-3

P160GD-65-5BD-3

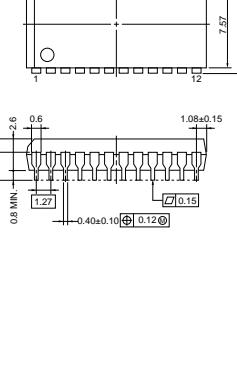
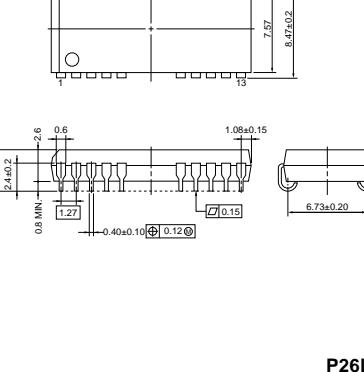
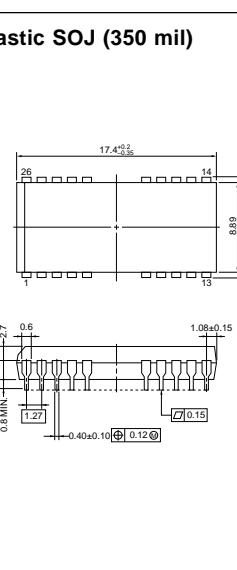
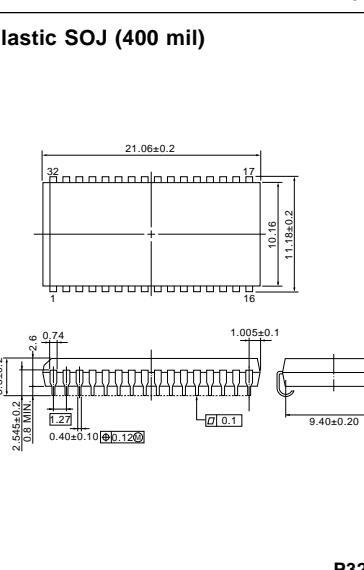
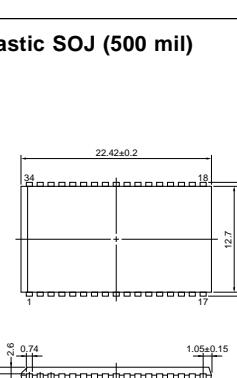
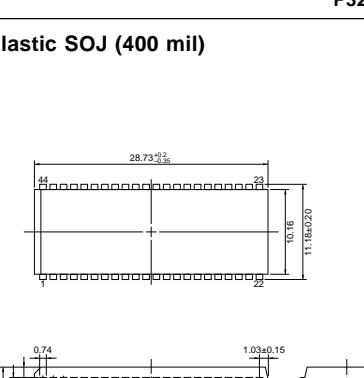
**Plastic QFP (Quad Flat Package)**

**Units in mm**

<p><b>208-pin plastic QFP</b></p>  <p>Detail of lead end</p> <p>Dimensions (mm):</p> <ul style="list-style-type: none"> <li>Total width: <math>30.6 \pm 0.4</math></li> <li>Width between pins: <math>28.0 \pm 0.2</math></li> <li>Height: <math>30.5 \pm 0.4</math></li> <li>Lead thickness: <math>0.5 \pm 0.2</math></li> <li>Lead pitch: <math>1.3 \pm 0.2</math></li> <li>Pin height: <math>3.7 \pm 0.05</math></li> <li>Pin diameter: <math>0.5 \pm 0.2</math></li> <li>Pin spacing: <math>0.20 \pm 0.10 \oplus 0.08 \ominus</math></li> <li>Pin thickness: <math>0.15 \pm 0.05</math></li> <li>Pin lead angle: <math>4.0 \pm 0.1</math></li> <li>Pin lead length: <math>5 \pm 0.5</math></li> </ul>	<p><b>240-pin plastic QFP</b></p>  <p>Detail of lead end</p> <p>Dimensions (mm):</p> <ul style="list-style-type: none"> <li>Total width: <math>34.6 \pm 0.2</math></li> <li>Width between pins: <math>32.0 \pm 0.2</math></li> <li>Height: <math>34.5 \pm 0.2</math></li> <li>Lead thickness: <math>0.5 \pm 0.2</math></li> <li>Lead pitch: <math>1.3 \pm 0.2</math></li> <li>Pin height: <math>3.8 \pm 0.05</math></li> <li>Pin diameter: <math>0.5 \pm 0.2</math></li> <li>Pin spacing: <math>0.22 \pm 0.04 \oplus 0.10 \ominus</math></li> <li>Pin thickness: <math>0.17 \pm 0.03</math></li> <li>Pin lead angle: <math>3.8 \pm 0.1</math></li> <li>Pin lead length: <math>4.0 \pm 0.1</math></li> </ul>
<p><b>S208GD-50-5EL-1</b></p> <p><b>272-pin plastic QFP</b></p>  <p>Detail of lead end</p> <p>Dimensions (mm):</p> <ul style="list-style-type: none"> <li>Total width: <math>38.6 \pm 0.2</math></li> <li>Width between pins: <math>36.0 \pm 0.2</math></li> <li>Height: <math>38.6 \pm 0.2</math></li> <li>Lead thickness: <math>0.5 \pm 0.2</math></li> <li>Lead pitch: <math>1.3 \pm 0.2</math></li> <li>Pin height: <math>3.8 \pm 0.05</math></li> <li>Pin diameter: <math>0.5 \pm 0.2</math></li> <li>Pin spacing: <math>0.22 \pm 0.04 \oplus 0.10 \ominus</math></li> <li>Pin thickness: <math>0.145 \pm 0.045</math></li> <li>Pin lead angle: <math>3.8 \pm 0.1</math></li> <li>Pin lead length: <math>4.0 \pm 0.1</math></li> </ul>	<p><b>P240GN-50-LMU, MMU-1</b></p> <p><b>376-pin plastic QFP</b></p>  <p>Detail of lead end</p> <p>Dimensions (mm):</p> <ul style="list-style-type: none"> <li>Total width: <math>42.6 \pm 0.2</math></li> <li>Width between pins: <math>40.0 \pm 0.2</math></li> <li>Height: <math>42.5 \pm 0.2</math></li> <li>Lead thickness: <math>0.4 \pm 0.2</math></li> <li>Lead pitch: <math>1.3 \pm 0.2</math></li> <li>Pin height: <math>3.8 \pm 0.05</math></li> <li>Pin diameter: <math>0.5 \pm 0.2</math></li> <li>Pin spacing: <math>0.18 \pm 0.04 \oplus 0.10 \ominus</math></li> <li>Pin thickness: <math>0.145 \pm 0.045</math></li> <li>Pin lead angle: <math>3.8 \pm 0.1</math></li> <li>Pin lead length: <math>4.0 \pm 0.1</math></li> </ul>
<p><b>S272GP-50-LMU, MMU-1</b></p>	<p><b>S376GL-40-LMV, MMV</b></p>

## **Plastic SOJ (Small Outline J-Leaded Package)**

**Units in mm**

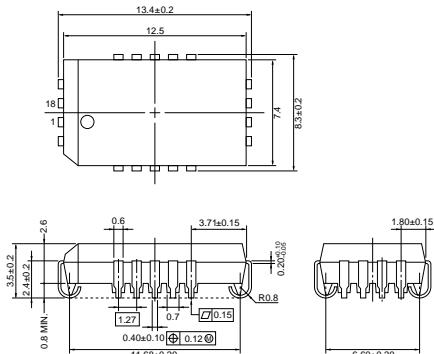
<p><b>24-pin plastic SOJ (300 mil)</b></p> 	<p><b>26-pin plastic SOJ (300 mil)</b></p> 
<p><b>P24LA-50A-2</b></p> <p><b>26-pin plastic SOJ (350 mil)</b></p> 	<p><b>P26LA-50A-2</b></p> <p><b>32-pin plastic SOJ (400 mil)</b></p> 
<p><b>P26LA-350A-2</b></p> <p><b>34-pin plastic SOJ (500 mil)</b></p> 	<p><b>P32LE-400A</b></p> <p><b>44-pin plastic SOJ (400 mil)</b></p> 
<p><b>S34LG-500A</b></p>	<p><b>P44LE-400A</b></p>

Packages

**Plastic QFJ (Quad Flat J-Leaded Package)**

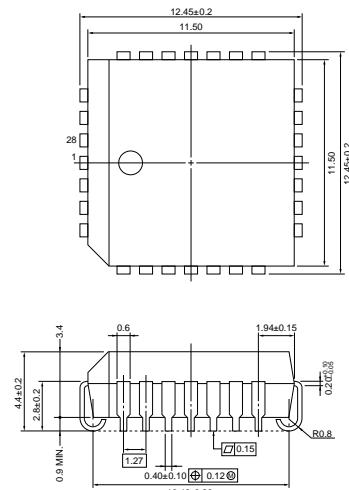
Units in mm

18-pin QFJ



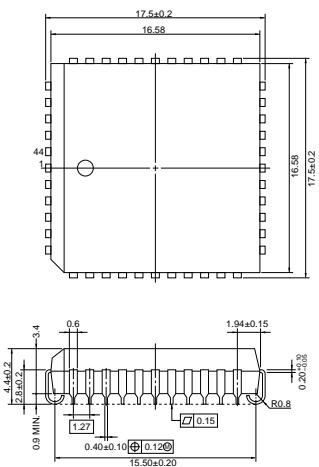
P18L-50A-2

28-pin QFJ



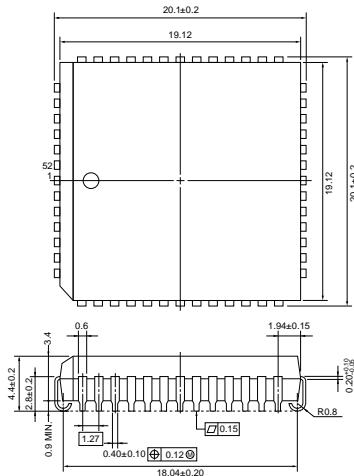
P28L-50A1-2

44-pin QFJ



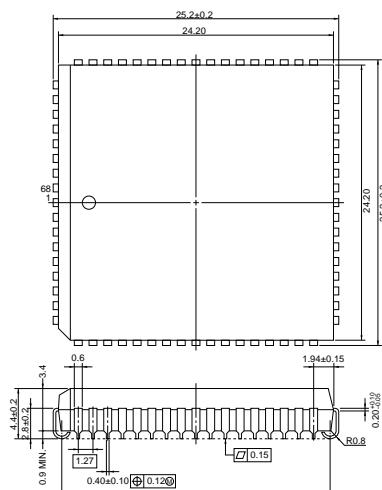
P44L-50A1-2

52-pin QFJ



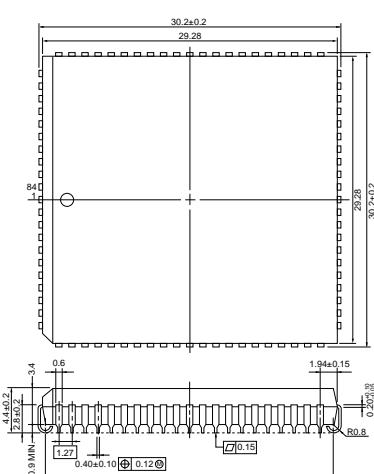
P52L-50A1-2

68-pin QFJ



P68L-50A1-2

84-pin QFJ



P84L-50A3-2

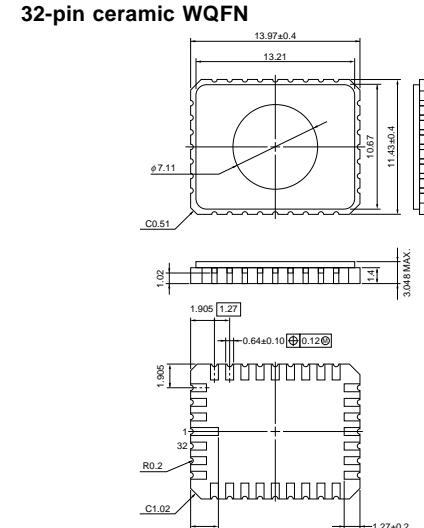
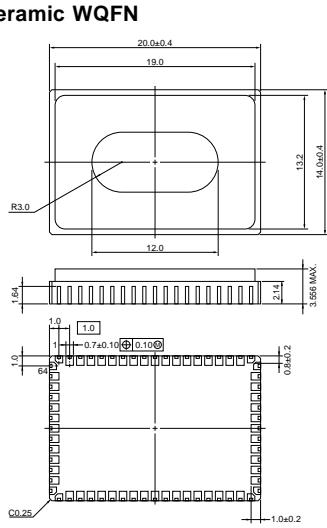
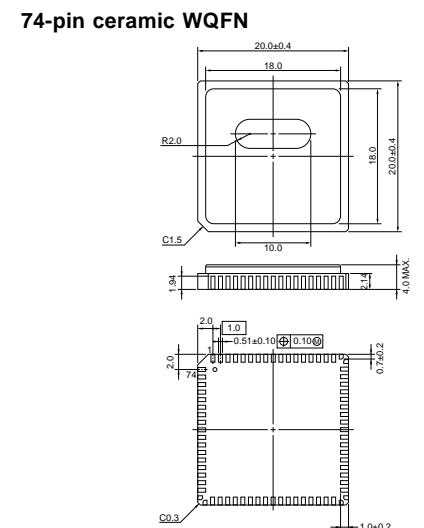
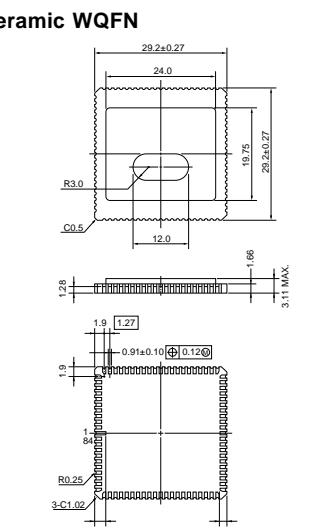
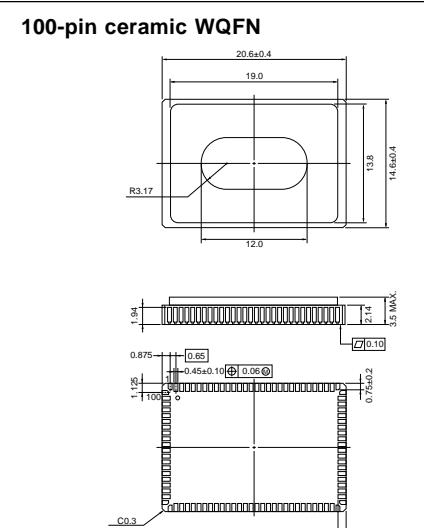
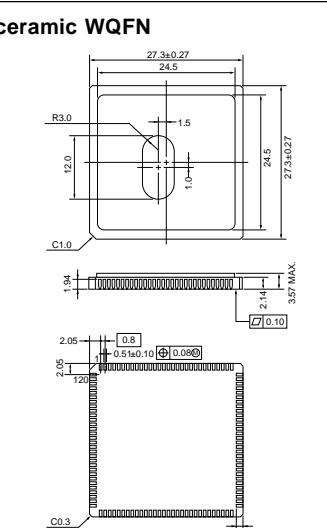
**Ceramic QFN (Quad Flat Non-leaded Package)****Units in mm**

<b>16-pin ceramic QFN</b>	<b>20-pin ceramic QFN</b>
<p><b>X16KH-A-1</b></p>	<p><b>X20KH-50A-1</b></p>
<b>24-pin ceramic QFN</b>	<b>28-pin ceramic QFN</b>
<p><b>X24KH-50A1-1</b></p>	<p><b>X28KH-50A2-1</b></p>
<b>48-pin ceramic QFN</b>	<b>64-pin ceramic QFN</b>
<p><b>X48KH-40A-1</b></p>	<p><b>X64KH-40A-1</b></p>
<b>24-pin ceramic QFN</b>	<b>28-pin ceramic QFN</b>
<p><b>X24K-50A2-1</b></p>	<p><b>X28K-50A2-1</b></p>

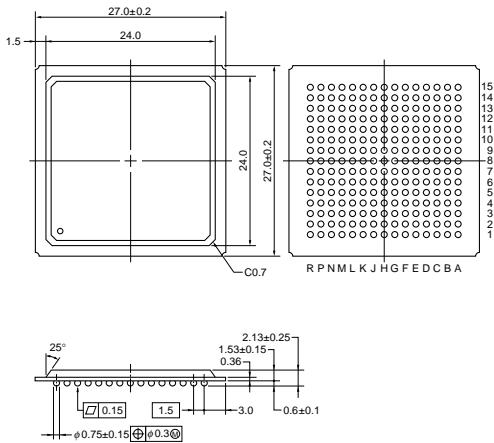
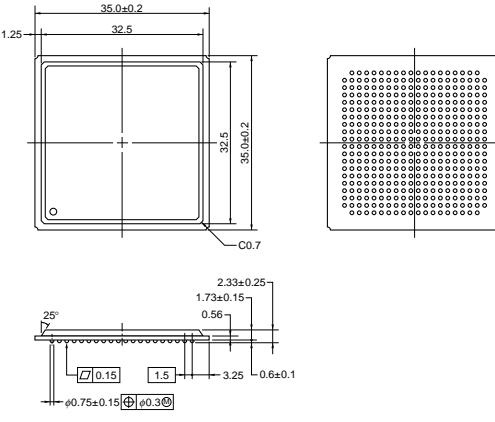
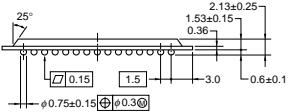
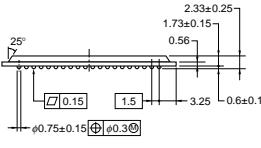
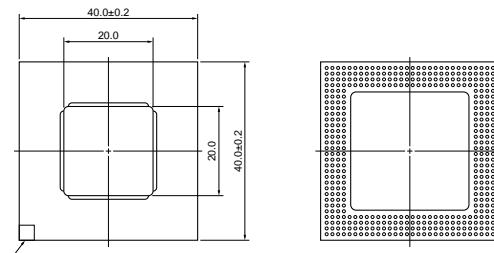
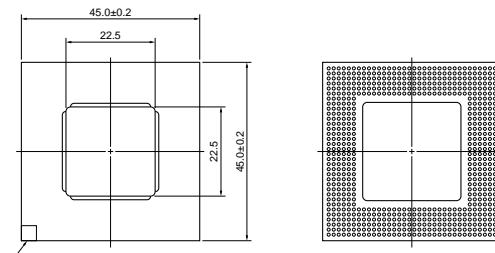
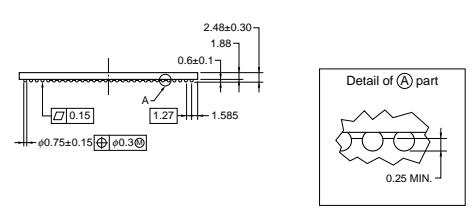
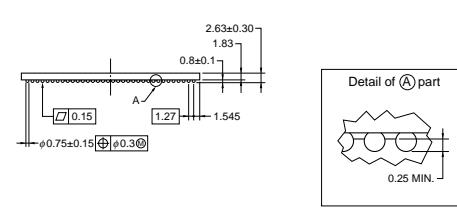
Packages

Ceramic WQFN (Quad Flat Non-leaded Package with window)

Units in mm

<p><b>32-pin ceramic WQFN</b></p>  <p>X32KW-50A-1</p>	<p><b>64-pin ceramic WQFN</b></p>  <p>X64KW-100A-2</p>
<p><b>74-pin ceramic WQFN</b></p>  <p>X74KW-100A-1</p>	<p><b>84-pin ceramic WQFN</b></p>  <p>X84KW-50A1-1</p>
<p><b>100-pin ceramic WQFN</b></p>  <p>X100KW-65A-1</p>	<p><b>120-pin ceramic WQFN</b></p>  <p>X120KW-80A-1</p>

**Plastic BGA (Ball Grid Array)****Units in mm**

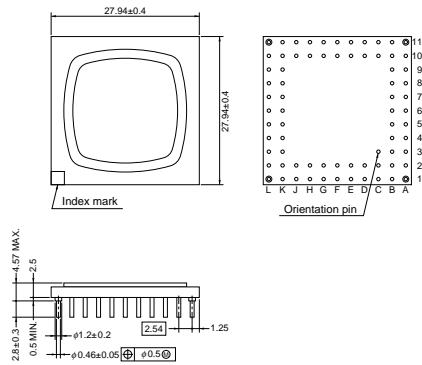
<b>225-pin plastic BGA</b>	<b>396-pin plastic BGA</b>
 <p>Top view diagram of a 225-pin plastic BGA. Dimensions: Total width 27.0±0.2, Total height 27.0±0.2, Pin pitch 1.5, Pin height 24.0, Pin width 1.0, Pad diameter Ø0.7. Pin grid array diagram with pins numbered 1 to 15 from bottom-left to top-right.</p>	 <p>Top view diagram of a 396-pin plastic BGA. Dimensions: Total width 35.0±0.2, Total height 35.0±0.2, Pin pitch 1.25, Pin height 32.5, Pin width 1.0, Pad diameter Ø0.7. Pin grid array diagram with pins numbered 1 to 15 from bottom-left to top-right.</p>
 <p>Bottom view diagram of a 225-pin plastic BGA showing lead dimensions: Lead angle 25°, Lead height 1.53±0.15, Lead width 0.36, Lead thickness 0.6±0.1, Lead pitch 1.5, Lead height from base 2.13±0.25, and Lead width from base 3.0. Hole diameter Ø0.75±0.15 and Ø0.3Ø.</p>	 <p>Bottom view diagram of a 396-pin plastic BGA showing lead dimensions: Lead angle 25°, Lead height 1.73±0.15, Lead width 0.56, Lead thickness 0.6±0.1, Lead pitch 1.5, Lead height from base 2.33±0.25, and Lead width from base 3.25. Hole diameter Ø0.75±0.15 and Ø0.3Ø.</p>
<b>P225S1-B1-1</b>	<b>P396S1-F1</b>
<b>416-pin plastic BGA</b>	<b>672-pin plastic BGA</b>
 <p>Top view diagram of a 416-pin plastic BGA. Dimensions: Total width 40.0±0.2, Total height 40.0±0.2, Pin pitch 20.0, Pin height 20.0, Pad diameter Ø0.7. Index mark indicated.</p>	 <p>Top view diagram of a 672-pin plastic BGA. Dimensions: Total width 45.0±0.2, Total height 45.0±0.2, Pin pitch 22.5, Pin height 22.5, Pad diameter Ø0.7. Index mark indicated.</p>
 <p>Bottom view diagram of a 416-pin plastic BGA showing lead dimensions: Lead height 2.48±0.30, Lead width 1.88, Lead thickness 0.6±0.1, Lead pitch 1.27, Lead height from base 1.585, and Lead width from base 1.585. Hole diameter Ø0.75±0.15 and Ø0.3Ø. Detail A shows a lead cross-section with a minimum gap of 0.25 MIN.</p>	 <p>Bottom view diagram of a 672-pin plastic BGA showing lead dimensions: Lead height 2.63±0.30, Lead width 1.83, Lead thickness 0.8±0.1, Lead pitch 1.27, Lead height from base 1.545, and Lead width from base 1.545. Hole diameter Ø0.75±0.15 and Ø0.3Ø. Detail A shows a lead cross-section with a minimum gap of 0.25 MIN.</p>
<b>S416S2-H6</b>	<b>S672S2-K6-1</b>

Packages

Ceramic PGA (Pin Grid Array)

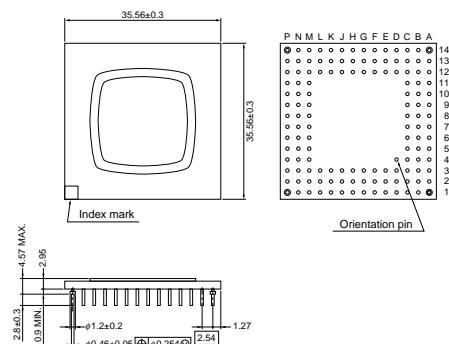
Units in mm

72-pin ceramic PGA



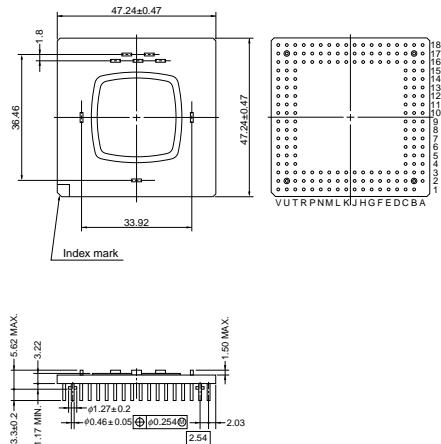
X72R-100A-1

132-pin ceramic PGA



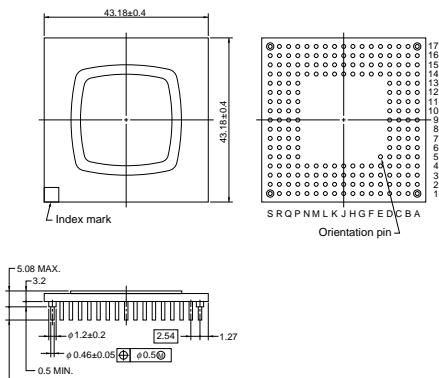
X132R-100A-1

179-pin ceramic PGA



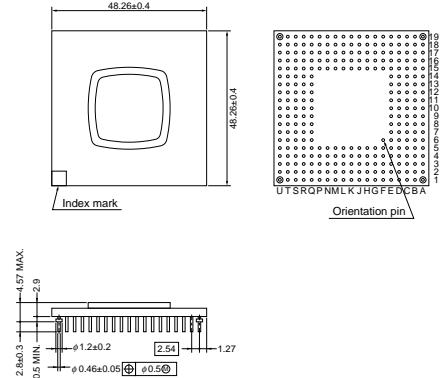
X179R-100A

208-pin ceramic PGA



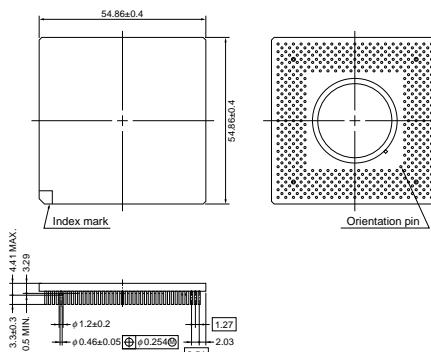
X208R-100A-1

280-pin ceramic PGA



X280R-100A-1

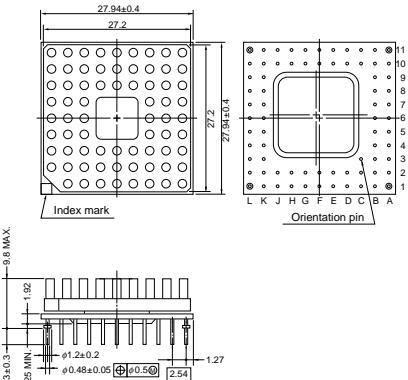
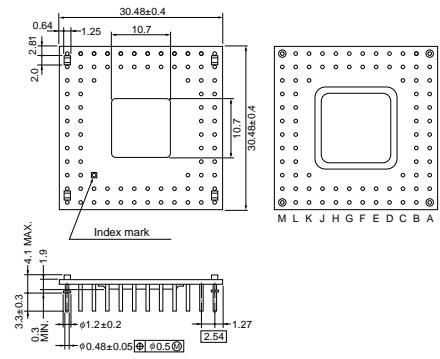
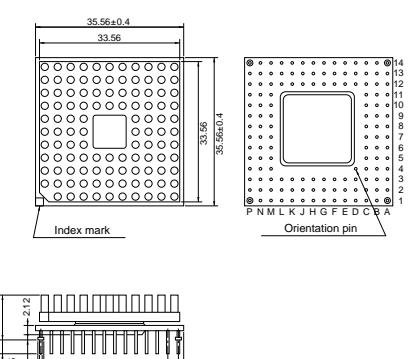
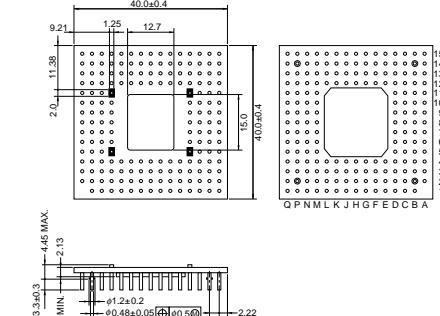
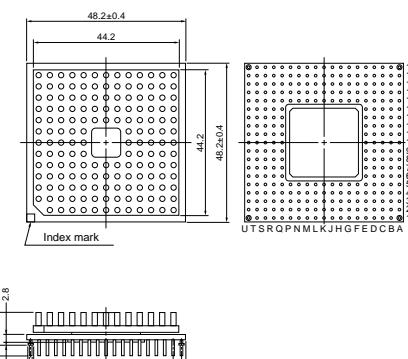
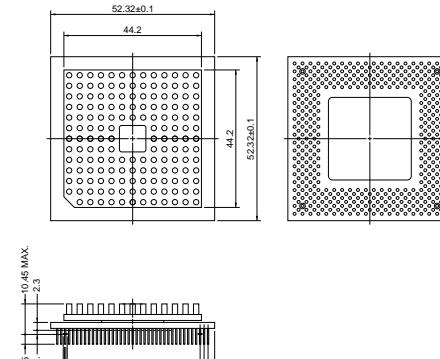
528-pin ceramic PGA



X528R-50A1

## Plastic PGA (Pin Grid Array)

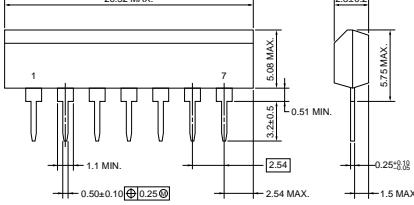
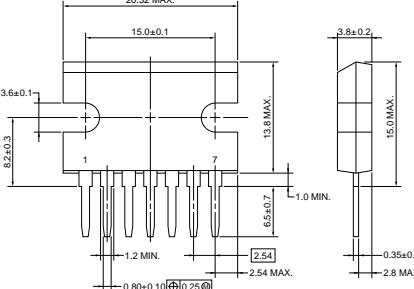
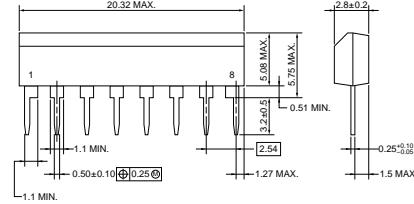
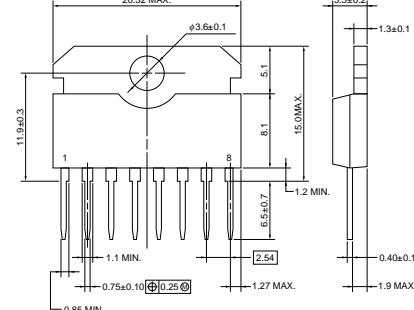
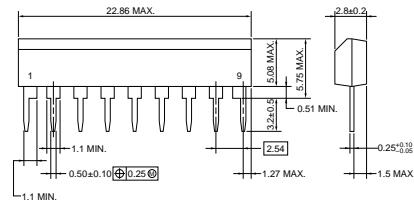
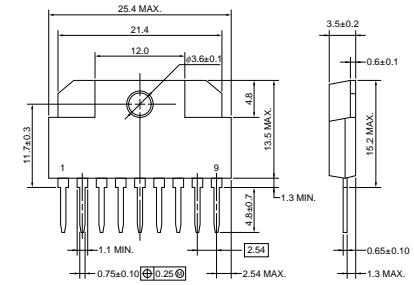
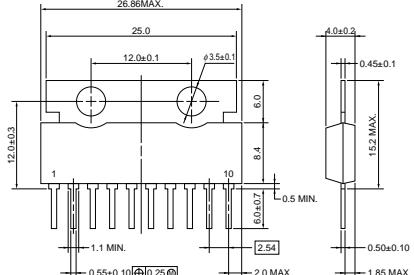
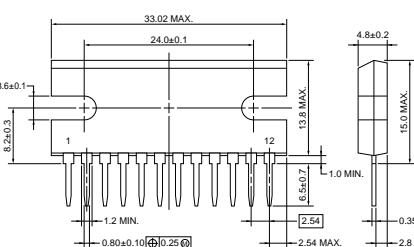
Units in mm

<p><b>72-pin plastic PGA</b></p>  <p><b>X72SF-100A</b></p>	<p><b>84-pin plastic PGA</b></p>  <p><b>X84S-100A</b></p>
<p><b>132-pin plastic PGA</b></p>  <p><b>X132SF-100A-1</b></p>	<p><b>175-pin plastic PGA</b></p>  <p><b>X175S-100A1</b></p>
<p><b>280-pin plastic PGA</b></p>  <p><b>X280SF-100A</b></p>	<p><b>447-pin plastic PGA</b></p>  <p><b>X447SF-100A</b></p>

Packages

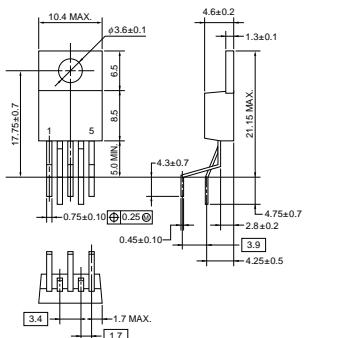
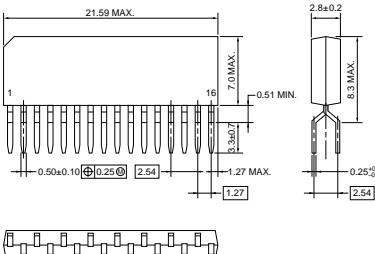
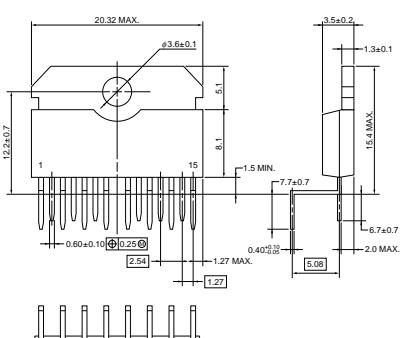
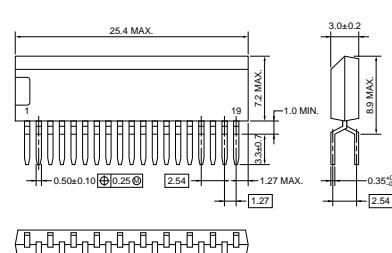
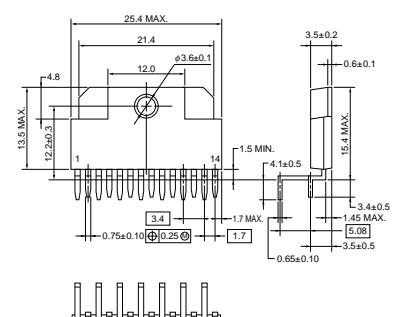
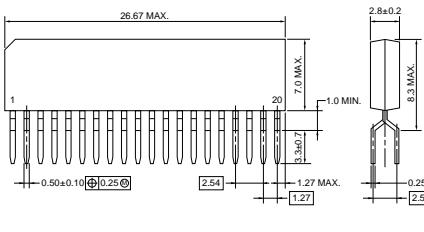
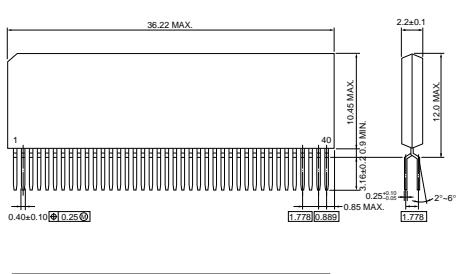
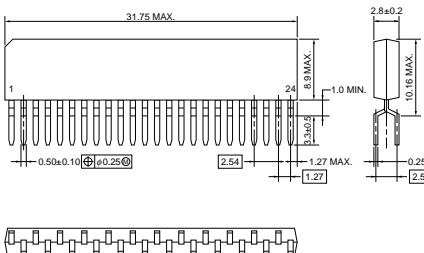
**Plastic SIP (Single In-line Package)**

Units in mm

<b>7-pin plastic slim SIP</b>  <p>P7HA-254B-1</p>	<b>7-pin plastic power SIP</b>  <p>P7HP-254B-1</p>
<b>8-pin plastic slim SIP</b>  <p>P8HA-254B-1</p>	<b>8-pin plastic power SIP</b>  <p>P8HP-254B-1</p>
<b>9-pin plastic slim SIP</b>  <p>P9HA-254B-1</p>	<b>9-pin plastic power SIP</b>  <p>P9HP-254B-2</p>
<b>10-pin plastic power SIP</b>  <p>P10HP-254B1-1</p>	<b>12-pin plastic power SIP</b>  <p>P12HP-154B2-1</p>

**Plastic V-DIP (Vertical Dual In-line Package)**  
**Plastic ZIP (Zigzag In-line Package)**

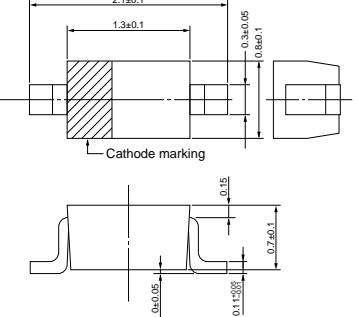
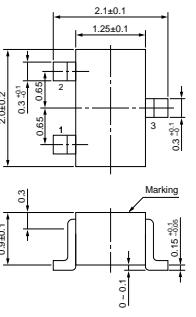
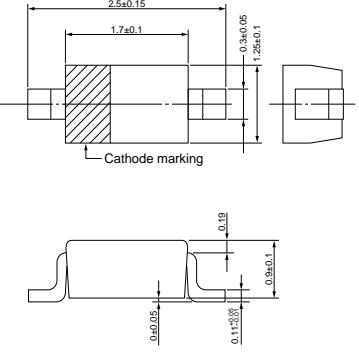
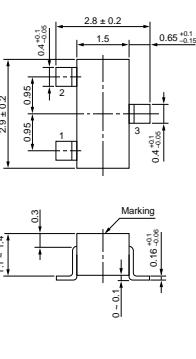
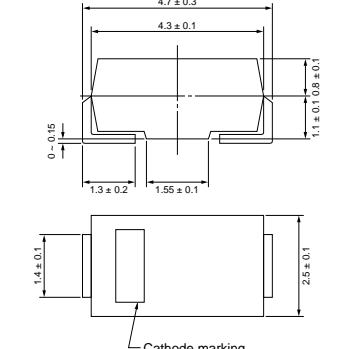
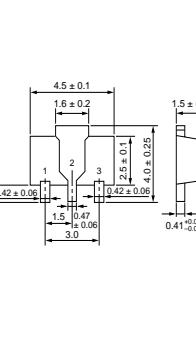
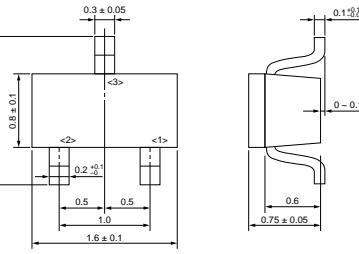
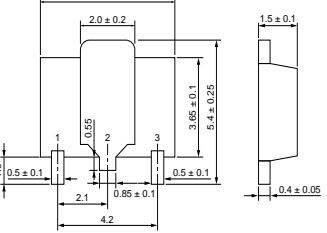
Units in mm

<p><b>5-pin plastic power V-DIP</b></p>  <p>P5VP-340B3-2</p>	<p><b>16-pin plastic ZIP</b></p>  <p>P16V-254A-2</p>
<p><b>14-pin plastic power V-DIP</b></p>  <p>P15VP-254B-1</p>	<p><b>19-pin plastic ZIP</b></p>  <p>P19V-254B-2</p>
<p><b>14-pin plastic power V-DIP</b></p>  <p>P14VP-340B-1</p>	<p><b>20-pin plastic ZIP</b></p>  <p>P20V-254A-2</p>
<p><b>40-pin plastic shrink ZIP</b></p>  <p>P40VF-70-475A</p>	<p><b>24-pin plastic ZIP</b></p>  <p>P24V-254-400A-2</p>

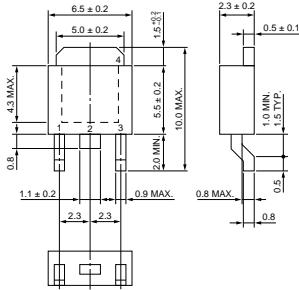
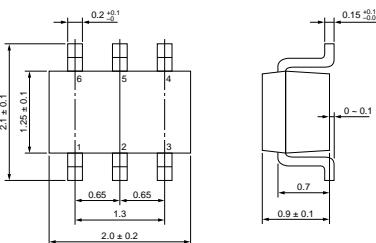
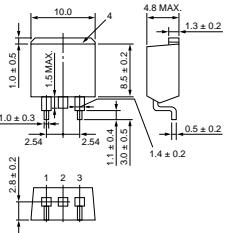
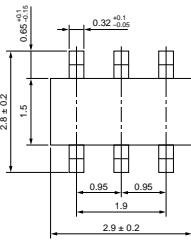
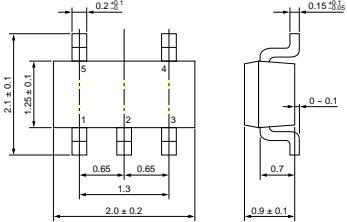
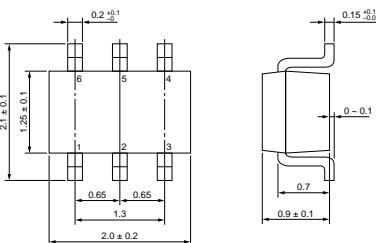
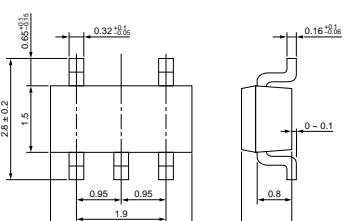
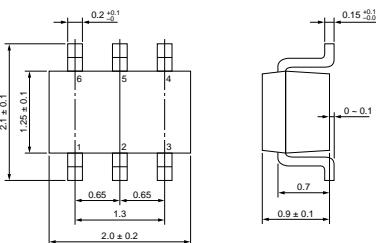
Packages

**Plastic Mold**

Units in mm

<b>2-pin ultra super mini mold</b>  <p>Dimensions (mm):      Top View: 2.1 ± 0.1 (width), 1.3 ± 0.1 (pin width), 0.3 ± 0.05 (pin height), 0.8 ± 0.1 (body height).      Side View: 0.11 ± 0.05 (pin thickness), 0.7 ± 0.1 (body thickness), 0.15 (cathode marking thickness).</p>	<b>3-pin super mini mold (SC-70)</b>  <p>Dimensions (mm):      Top View: 2.1 ± 0.1 (width), 1.25 ± 0.1 (pin width), 2.0 ± 0.2 (height), 0.3 ± 0.1 (pin height).      Side View: 0.9 ± 0.1 (body thickness), 0.15 ± 0.05 (cathode marking thickness).</p>
<b>2-pin super mini mold</b>  <p>Dimensions (mm):      Top View: 2.5 ± 0.15 (width), 1.7 ± 0.1 (pin width), 0.3 ± 0.05 (pin height), 1.25 ± 0.1 (body height).      Side View: 0.11 ± 0.05 (pin thickness), 0.9 ± 0.1 (body thickness), 0.19 (cathode marking thickness).</p>	<b>3-pin mini mold (SC-59)</b>  <p>Dimensions (mm):      Top View: 2.8 ± 0.2 (width), 1.5 (pin width), 2.9 ± 0.2 (height), 0.65 ± 0.1 (pin height).      Side View: 1.1 ± 0.1 (body thickness), 0.16 ± 0.06 (cathode marking thickness).</p>
<b>2-pin power mini mold</b>  <p>Dimensions (mm):      Top View: 4.7 ± 0.3 (width), 4.3 ± 0.1 (pin width), 1.1 ± 0.1 (pin height), 0.6 ± 0.1 (body height).      Side View: 1.3 ± 0.2 (pin thickness), 1.55 ± 0.1 (body thickness), 0.15 (cathode marking thickness).</p>	<b>3-pin power mini mold (SC-62)</b>  <p>Dimensions (mm):      Top View: 4.5 ± 0.1 (width), 1.6 ± 0.2 (pin width), 2.2 ± 0.1 (pin height), 4.0 ± 0.25 (body height).      Side View: 0.9 MN (pin thickness), 1.5 (body thickness), 0.4 (cathode marking thickness).</p>
<b>3-pin ultra super mini mold</b>  <p>Dimensions (mm):      Top View: 1.6 ± 0.1 (width), 0.8 ± 0.1 (pin width), 0.3 ± 0.05 (pin height).      Side View: 0.5 (pin thickness), 0.6 (body thickness), 0.1 ± 0.05 (cathode marking thickness).</p>	<b>MP-2</b>  <p>Dimensions (mm):      Top View: 5.7 ± 0.1 (width), 2.0 ± 0.2 (pin width), 5.4 ± 0.25 (height), 0.5 ± 0.1 (pin height).      Side View: 1.0 (pin thickness), 0.55 (body thickness), 0.4 ± 0.05 (cathode marking thickness).</p>

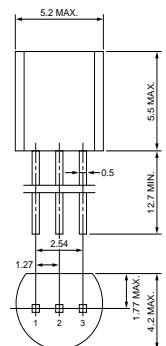
**Plastic Mold****Units in mm**

<b>MP-3Z (SC-64)</b>  <p>Technical drawing of MP-3Z (SC-64) plastic mold showing top view dimensions and pin layout. Key dimensions include:</p> <ul style="list-style-type: none"> <li>Pin 1: 6.5 ± 0.2 mm</li> <li>Pin 2: 5.0 ± 0.2 mm</li> <li>Pin 3: 1.5 ± 0.2 mm</li> <li>Pin 4: 5.5 ± 0.2 mm</li> <li>Pin 5: 2.3 ± 0.2 mm</li> <li>Pin 6: 0.5 ± 0.1 mm</li> <li>Pin 7: 1.0 MIN. 1.5 MAX.</li> <li>Pin 8: 0.8 MAX. 0.8 MIN.</li> <li>Pin 9: 0.5 ± 0.1 mm</li> <li>Pin 10: 0.8 MAX.</li> <li>Pin 11: 1.1 ± 0.2 mm</li> <li>Pin 12: 2.3 ± 0.2 mm</li> <li>Pin 13: 2.3 ± 0.2 mm</li> <li>Pin 14: 0.9 MAX.</li> <li>Pin 15: 0.8 MAX.</li> <li>Pin 16: 0.8 MIN.</li> <li>Pin 17: 0.5 ± 0.1 mm</li> <li>Pin 18: 0.8 MAX.</li> <li>Pin 19: 0.5 ± 0.1 mm</li> <li>Pin 20: 0.8 MAX.</li> </ul>	<b>6-pin super mini mold</b>  <p>Technical drawing of 6-pin super mini mold showing top view dimensions and pin layout. Key dimensions include:</p> <ul style="list-style-type: none"> <li>Pin 1: 0.2 ± 0.1 mm</li> <li>Pin 2: 1.25 ± 0.1 mm</li> <li>Pin 3: 1.25 ± 0.1 mm</li> <li>Pin 4: 1.25 ± 0.1 mm</li> <li>Pin 5: 1.25 ± 0.1 mm</li> <li>Pin 6: 2.1 ± 0.1 mm</li> </ul>
<b>MP-25Z</b>  <p>Technical drawing of MP-25Z plastic mold showing top view dimensions and pin layout. Key dimensions include:</p> <ul style="list-style-type: none"> <li>Pin 1: 10.0 mm</li> <li>Pin 2: 1.5 MAX. mm</li> <li>Pin 3: 4.8 MAX. mm</li> <li>Pin 4: 1.3 ± 0.2 mm</li> <li>Pin 5: 0.5 ± 0.2 mm</li> <li>Pin 6: 8.5 ± 0.2 mm</li> <li>Pin 7: 1.0 ± 0.3 mm</li> <li>Pin 8: 2.54 mm</li> <li>Pin 9: 2.54 mm</li> <li>Pin 10: 1.1 ± 0.4 mm</li> <li>Pin 11: 3.0 ± 0.5 mm</li> <li>Pin 12: 1.4 ± 0.2 mm</li> <li>Pin 13: 0.5 ± 0.2 mm</li> <li>Pin 14: 1.4 ± 0.2 mm</li> <li>Pin 15: 0.5 ± 0.2 mm</li> <li>Pin 16: 1.4 ± 0.2 mm</li> <li>Pin 17: 0.5 ± 0.2 mm</li> <li>Pin 18: 1.4 ± 0.2 mm</li> <li>Pin 19: 0.5 ± 0.2 mm</li> <li>Pin 20: 1.4 ± 0.2 mm</li> </ul>	<b>6-pin mini mold</b>  <p>Technical drawing of 6-pin mini mold showing top view dimensions and pin layout. Key dimensions include:</p> <ul style="list-style-type: none"> <li>Pin 1: 0.65 ± 0.15 mm</li> <li>Pin 2: 0.32 ± 0.05 mm</li> <li>Pin 3: 0.32 ± 0.05 mm</li> <li>Pin 4: 0.32 ± 0.05 mm</li> <li>Pin 5: 0.32 ± 0.05 mm</li> <li>Pin 6: 0.32 ± 0.05 mm</li> </ul>
<b>5-pin super mini mold</b>  <p>Technical drawing of 5-pin super mini mold showing top view dimensions and pin layout. Key dimensions include:</p> <ul style="list-style-type: none"> <li>Pin 1: 2.1 ± 0.1 mm</li> <li>Pin 2: 1.25 ± 0.1 mm</li> <li>Pin 3: 1.25 ± 0.1 mm</li> <li>Pin 4: 1.25 ± 0.1 mm</li> <li>Pin 5: 0.2 ± 0.1 mm</li> </ul>	 <p>Technical drawing of 5-pin super mini mold showing side view dimensions. Key dimensions include:</p> <ul style="list-style-type: none"> <li>Width: 0.9 ± 0.1 mm</li> <li>Height: 0.7 mm</li> <li>Length: 2.0 ± 0.2 mm</li> </ul>
<b>5-pin mini mold</b>  <p>Technical drawing of 5-pin mini mold showing top view dimensions and pin layout. Key dimensions include:</p> <ul style="list-style-type: none"> <li>Pin 1: 2.8 ± 0.2 mm</li> <li>Pin 2: 1.5 mm</li> <li>Pin 3: 0.65 ± 0.15 mm</li> <li>Pin 4: 0.32 ± 0.15 mm</li> <li>Pin 5: 0.32 ± 0.15 mm</li> </ul>	 <p>Technical drawing of 5-pin mini mold showing side view dimensions. Key dimensions include:</p> <ul style="list-style-type: none"> <li>Width: 0.8 mm</li> <li>Height: 0.8 mm</li> <li>Length: 1.1 – 1.4 mm</li> </ul>

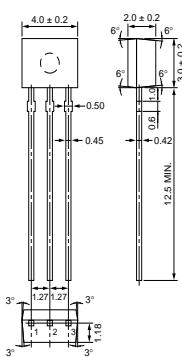
## **Plastic Mold**

**Units in mm**

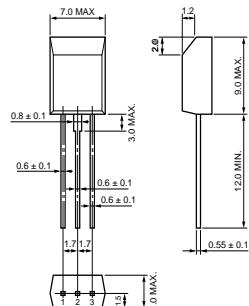
TO-92



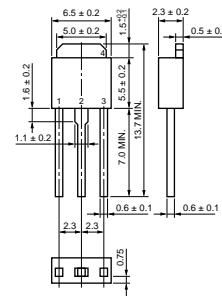
SST



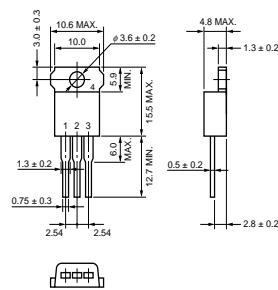
SP-8



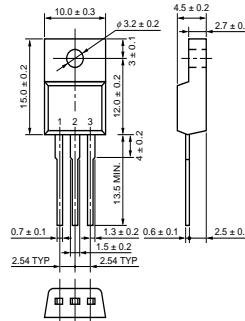
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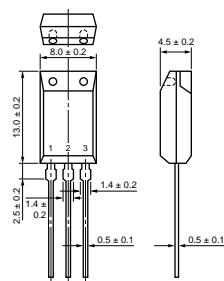
MP-25 (TO-220)



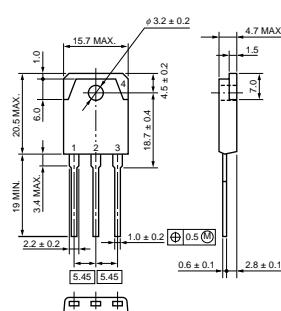
MP-45F



MP-10



MP-88



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