OVERVIEW
The sercalo MEMS 3D mirrors are used for precise optical beam steering. To avoid an optical feedback loop, the micromirror is designed to minimize effects such as drift, hysteresis, and temperature dependent performance. The angle is set using electrostatic actuation.

Electrostatic driven mirrors combine the high pointing stability and the high fill factor required typically in fiber optic components.

FEATURES
- Low drift
- 2 independent axes
- Continuous tilting
- Single mirror
- 1 mm diameter mirror
- High fill factor

APPLICATIONS
- Optical Beam Steering
- Reconfigurable Add-Drop Multiplexer
- Vibration control in free space optics
- Optical Processor

ORDERING INFORMATION
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM-10-AU</td>
<td>Ø1.0 mm Mirror Gold surface</td>
</tr>
<tr>
<td>TM-10-AL</td>
<td>Ø1.0 mm Mirror Aluminium surface</td>
</tr>
</tbody>
</table>

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# Typical Specifications (All Designs)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Unit</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
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</thead>
<tbody>
<tr>
<td>Max. Actuation Voltage</td>
<td>V</td>
<td>40</td>
<td></td>
<td>44</td>
</tr>
<tr>
<td>Surface Finish</td>
<td>-</td>
<td></td>
<td></td>
<td>Gold or Aluminium</td>
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<tr>
<td>Reflectivity (900-2000 nm)</td>
<td>%</td>
<td></td>
<td></td>
<td>95</td>
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<tr>
<td>Mirror Size – X</td>
<td>mm</td>
<td>1.0</td>
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<td></td>
</tr>
<tr>
<td>Mirror Size – Y</td>
<td>mm</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mirror Radius of Curvature</td>
<td>m</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tilt Angle – X (Mechanical) @ 40 V</td>
<td>deg</td>
<td></td>
<td>±3.5°</td>
<td></td>
</tr>
<tr>
<td>Tilt Angle – Y (Mechanical) @ 40 V</td>
<td>deg</td>
<td></td>
<td>±3.5°</td>
<td></td>
</tr>
<tr>
<td>Resonant Frequency - X</td>
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<td>&gt;700</td>
<td></td>
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<tr>
<td>Resonant Frequency - Y</td>
<td>Hz</td>
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<tr>
<td>Package</td>
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<td>TO46</td>
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</table>

**ESD**

Unprotected = VERY SENSITIVE

Overvoltage above 45 V can permanently damage the device.

## Ordering Information

- **Surface Finish**
  - AL = Aluminium
  - AU = Gold
- **Mirror Size**
  - 10 = Ø1.0 mm
- **Angle X (inner)**
  - X35 >= ±3.5° (mechanical @ 40V)
- **Angle Y (outer)**
  - Y35 >= ±3.5° (mechanical @ 40V)
- **Window**
  - N = no window
  - G = glass without coating
  - AR 15 = anti reflective coating @ 1550nm (normal incidence)
Figure 1: Pin layout of Ø1.0 mm micro-mirror chip on TO46

Figure 2: Typical tilt angle (mechanical) vs. applied voltage

Figure 3: Typical step response