

Reference Material (RM) Selection Table
(This table may be helpful to determine which RM to order.)

		RM 8096	RM 8097
1	Process	Fabricated on a multi-user 1.5 μm CMOS process followed by a bulk-micromachining etch	Fabricated using a polysilicon multi-user surface-micromachining MEMS process with a backside etch
2	Chip size	4600 μm by 4700 μm	1 cm by 1 cm
3	Layer reported on	Composite oxide	Poly1 or Poly2
4	Instrumentation	a) Vibrometer or comparable instrument for: Young's modulus b) Interferometric microscope or comparable instrument for: Residual strain Strain gradient Step height In-plane length Thickness c) Stylus profilometer or comparable instrument for: Thickness	a) Vibrometer or comparable instrument for: Young's modulus b) Interferometric microscope or comparable instrument for: Residual strain Strain gradient Step height In-plane length Thickness c) (Optional) Stylus profilometer or comparable instrument for: Thickness
5	Additional test structures in the Certification Plus grouping	a) Tensile test structures (to obtain Young's modulus of the metal2 layer) b) Thickness test structures (to obtain the thicknesses of all the layers in the process) c) Linewidth test structure (to obtain the linewidth of select oxide beam widths after covered with a conductive layer)	a) Linewidth (to obtain the linewidth of either poly1 or poly2 for select beam widths) b) Thickness (to obtain the thickness of the poly1 or poly2 layer along with data for stiction studies) c) Fatigue (to obtain Young's modulus, ultimate strength, and fatigue for the poly1 layer) d) A 2.5 mm ruler (for calibration purposes)
6	Integrity of Beams	Most beams in tact	Lot 95: Many beams may be missing or severed
7	Effective Young's modulus and thickness	$E \approx 60 \text{ GPa}$, $u_{cE} \approx 9 \text{ GPa}$, $u_{cE}/E \approx 15 \%$ $t_{oxide} \approx 2.7 \mu\text{m}$, $u_{coxide} \approx 0.1 \mu\text{m}$, $u_{coxide}/t_{oxide} \approx 3.7 \%$	Lot 95, poly2: $E \approx 127 \text{ GPa}$, $u_{cE} \approx 19 \text{ GPa}$, $u_{cE}/E \approx 15 \%$ nominal $\alpha \approx 1.375 \mu\text{m}$, $u_{c\alpha} \approx 0.052 \mu\text{m}$, $u_{c\alpha}/\alpha \approx 3.8 \%$
8	Supply	Limited supply	Supply currently not expected to be an issue