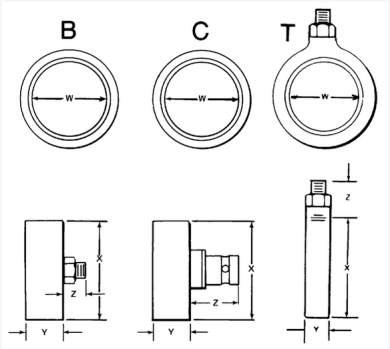
ORTEC

ORTEC ULTRA

Ion-implanted silicon detectors for alpha spectroscopy

ORTEC ULTRA comprises 66 models (ion-implanted silicon d etectors for alpha spectroscopy). The models differ in active area, d epletion depth and warranted resolution, among other things – c ompare them in the model table.



Detector type

Ion-implanted silicon, partially depleted [1]

Specifications

Detector type	Ion-implanted silicon, partially depleted	[1]
Resolution measurement conditions	^{241}Am 5.486 MeV alphas; standard ORTEC electronics; 1 µs shaping time c onstants	[2]
Resolution measurement and warranty temperature	21 ±1 °C	[1]
Bias polarity	Positive	[2]
Alpha Suite compatibility	Requires an approved special for Alpha Suite compatibility and warranted system specifications	[3]
Resolution reference geometry	Thin-window point source; distance at least 2 times the detector diameter	[4]

Models

Model	Minimum active area	Minimum depletion depth	Guaranteed maximum alpha resolution	Ordering mounts
U-011-025-300	≥25 mm² [3]	≥300 µm [3]	≤11 keV FWHM [3]	B, C, T (closed back) [3]
U-011-025-500	≥25 mm² [3]	≥500 µm [3]	≤11 keV FWHM [3]	B, C, T (closed back) [3]
U-011-050-300	≥50 mm² [3]	≥300 µm [3]	≤11 keV FWHM [3]	B, C, T (closed back) [3]
U-011-050-500	≥50 mm² [3]	≥500 µm [3]	≤11 keV FWHM [3]	B, C, T (closed back) [3]
U-012-025-100	≥25 mm² [3]	≥100 µm [3]	≤12 keV FWHM [3]	B, C, T (closed back) [3]
U-012-025-500	≥25 mm² [3]	≥500 µm [3]	≤12 keV FWHM [3]	B, C, T (closed back) [3]
U-012-050-100	≥50 mm² [3]	≥100 µm [3]	≤12 keV FWHM [3]	B, C, T (closed back) [3]
U-012-100-300	≥100 mm² [3]	≥300 µm [3]	≤12 keV FWHM [3]	B, C, T (closed back) [3]
U-012-100-500	≥100 mm² [3]	≥500 µm [3]	≤12 keV FWHM [3]	B, C, T (closed back) [3]
U-012-150-500	≥150 mm² [3]	≥500 µm [3]	≤12 keV FWHM [3]	B, C, T (closed back) [3]
U-013-025-300	≥25 mm² [3]	≥300 µm [3]	≤13 keV FWHM [3]	B, C, T (closed back) [3]
U-013-050-300	≥50 mm² [3]	≥300 µm [3]	≤13 keV FWHM [3]	B, C, T (closed back) [3]

U-013-050-500	≥50 mm² [3]	≥500 µm [3]	≤13 keV FWHM [3]	B, C, T (closed back) [3]
U-013-100-100	≥100 mm² [3]	≥100 µm [3]	≤13 keV FWHM [3]	B, C, T (closed back) [3]
U-013-150-300	≥150 mm² [3]	≥300 µm [3]	≤13 keV FWHM [3]	B, C, T (closed back) [3]
U-014-025-100	≥25 mm² [3]	≥100 µm [3]	≤14 keV FWHM [3]	B, C, T (closed back) [3]
U-014-050-100	≥50 mm² [3]	≥100 µm [3]	≤14 keV FWHM [3]	B, C, T (closed back) [3]
U-014-100-300	≥100 mm² [3]	≥300 µm [3]	≤14 keV FWHM [3]	B, C, T (closed back) [3]
U-014-100-500	≥100 mm² [3]	≥500 µm [3]	≤14 keV FWHM [3]	B, C, T (closed back) [3]
U-014-150-100	≥150 mm² [3]	≥100 µm [3]	≤14 keV FWHM [3]	B, C, T (closed back) [3]
U-014-150-500	≥150 mm² [3]	≥500 µm [3]	≤14 keV FWHM [3]	B, C, T (closed back) [3]
U-014-300-500	≥300 mm² [3]	≥500 µm [3]	≤14 keV FWHM [3]	B, C, T (closed back) [3]
U-015-100-100	≥100 mm² [3]	≥100 µm [3]	≤15 keV FWHM [3]	B, C, T (closed back) [3]
U-015-150-300	≥150 mm² [3]	≥300 µm [3]	≤15 keV FWHM [3]	B, C, T (closed back) [3]
U-015-300-300	≥300 mm² [3]	≥300 µm [3]	≤15 keV FWHM [3]	B, C, T (closed back) [3]
U-015-450-500	≥450 mm² [3]	≥500 µm [3]	≤15 keV FWHM [3]	B, C, T (closed back) [3]
U-016-150-100	≥150 mm² [3]	≥100 µm [3]	≤16 keV FWHM [3]	B, C, T (closed back) [3]
U-016-300-100	≥300 mm² [3]	≥100 µm [3]	≤16 keV FWHM [3]	B, C, T (closed back) [3]
U-016-450-300	≥450 mm² [3]	≥300 µm [3]	≤16 keV FWHM [3]	B, C, T (closed back) [3]
U-017-300-500	≥300 mm² [3]	≥500 µm [3]	≤17 keV FWHM [3]	B, C, T (closed back) [3]
U-017-450-100	≥450 mm² [3]	≥100 µm [3]	≤17 keV FWHM [3]	B, C, T (closed back) [3]
U-018-300-300	≥300 mm² [3]	≥300 µm [3]	≤18 keV FWHM [3]	B, C, T (closed back) [3]
U-019-300-100	≥300 mm² [3]	≥100 µm [3]	≤19 keV FWHM [3]	B, C, T (closed back) [3]
U-019-450-500	≥450 mm² [3]	≥500 µm [3]	≤19 keV FWHM [3]	B, C, T (closed back) [3]
U-020-450-300	≥450 mm² [3]	≥300 µm [3]	≤20 keV FWHM [3]	B, C, T (closed back) [3]
U-020-600-500	≥600 mm² [3]	≥500 µm [3]	≤20 keV FWHM [3]	B, C, T (closed back) [3]
U-021-450-100	≥450 mm² [3]	≥100 µm [3]	≤21 keV FWHM [3]	B, C, T (closed back) [3]
U-021-600-300	≥600 mm² [3]	≥300 µm [3]	≤21 keV FWHM [3]	B, C, T (closed back) [3]
U-022-600-100	≥600 mm² [3]	≥100 µm [3]	≤22 keV FWHM [3]	B, C, T (closed back) [3]
U-022-600-500	≥600 mm² [3]	≥500 µm [3]	≤22 keV FWHM [3]	B, C, T (closed back) [3]
U-023-600-300	≥600 mm² [3]	≥300 µm [3]	≤23 keV FWHM [3]	B, C, T (closed back) [3]
U-023-900-500	≥900 mm² [3]	≥500 µm [3]	≤23 keV FWHM [3]	B, C [3]
U-024-600-100	≥600 mm² [3]	≥100 µm [3]	≤24 keV FWHM [3]	B, C, T (closed back) [3]
U-025-900-300	≥900 mm² [3]	≥300 µm [3]	≤25 keV FWHM [3]	B, C [3]
U-027-900-100	≥900 mm² [3]	≥100 µm [3]	≤27 keV FWHM [3]	B, C [3]
U-028-900-500	≥900 mm² [3]	≥500 µm [3]	≤28 keV FWHM [3]	B, C [3]
U-028-1200-500	≥1200 mm² [3]	≥500 µm [3]	≤28 keV FWHM [3]	B, C [3]
U-030-900-300	≥900 mm² [3]	≥300 µm [3]	≤30 keV FWHM [3]	B, C [3]
U-030-1200-300	≥1200 mm² [3]	≥300 µm [3]	≤30 keV FWHM [3]	B, C [3]
U-033-900-100	≥900 mm² [3]	≥100 µm [3]	≤33 keV FWHM [3]	B, C [3]

U-035-1200-100	≥1200 mm² [3]	≥100 µm [3]	≤35 keV FWHM [3]	B, C [3]
U-035-1200-500	≥1200 mm² [3]	≥500 µm [3]	≤35 keV FWHM [3]	B, C [3]
U-035-2000-500	≥2000 mm² [3]	≥500 µm [3]	≤35 keV FWHM [3]	B, C [3]
U-037-1200-300	≥1200 mm² [3]	≥300 µm [3]	≤37 keV FWHM [3]	B, C [3]
U-040-2000-300	≥2000 mm² [3]	≥300 µm [3]	≤40 keV FWHM [3]	B, C [3]
U-042-1200-100	≥1200 mm² [3]	≥100 µm [3]	≤42 keV FWHM [3]	B, C [3]
U-043-2000-500	≥2000 mm² [3]	≥500 µm [3]	≤43 keV FWHM [3]	B, C [3]
U-048-2000-300	≥2000 mm² [3]	≥300 µm [3]	≤48 keV FWHM [3]	B, C [3]
U-050-2000-100	≥2000 mm² [3]	≥100 µm [3]	≤50 keV FWHM [3]	B, C [3]
U-050-3000-500	≥3000 mm² [3]	≥500 µm [3]	≤50 keV FWHM [3]	B, C [3]
U-055-3000-300	≥3000 mm² [3]	≥300 µm [3]	≤55 keV FWHM [3]	B, C [3]
U-058-2000-100	≥2000 mm² [3]	≥100 µm [3]	≤58 keV FWHM [3]	B, C [3]
U-060-3000-100	≥3000 mm² [3]	≥100 µm [3]	≤60 keV FWHM [3]	B, C [3]
U-060-3000-500	≥3000 mm² [3]	≥500 µm [3]	≤60 keV FWHM [3]	B, C [3]
U-065-3000-300	≥3000 mm² [3]	≥300 µm [3]	≤65 keV FWHM [3]	B, C [3]
U-070-3000-100	≥3000 mm² [3]	≥100 µm [3]	≤70 keV FWHM [3]	B, C [3]

Sources

[1] Si Charged Particle Radiation Detectors for Alpha Spectroscopy
RTEC (AMETEK) · product-page · ULTRA / ULTRA AS comparison table ('Diode Structure') and footnote †; footnote * below the introduction t ext · checked 2026-10-16
https://web.archive.org/web/20261016000000/https://www.ortec-online.com/products/radiation-detectors/silicon...

[2] ULTRA and ULTRA AS Ion-Implanted-Silicon Charged-Particle Detectors
RTEC (AMETEK) · brochure · p. 2–3, footnote * under the ULTRA / ULTRA-AS ordering tables; p. 1, footnote ** · checked 2026-10-16
https://edge.sitecorecloud.io/ametekinc1236b-ametekb19a-productiondcfa-1d17/media/Project/Ametek/ortec-onlin...

[3] ORTEC Product Guide
RTEC (AMETEK) · catalog · PDF p. 11 (printed p. 8), 'Ordering Information' note; PDF p. 4 (printed p. 1), table 'ULTRA Ion-Implanted Detectors', Ac tive Area column; PDF p. 11: 'The next group of digits; PDF p. 4 (printed p. 1), table 'ULTRA Ion-Implanted Detectors', column 'Minimum De pletion Depth 300 µm' · checked 2026-10-16
https://web.archive.org/web/20230405035438/https://www.ortec-online.com/-/media/ametekortec/product-guide/pr...

[4] Introduction to Charged-Particle Detectors
ORTEC (AMETEK) · application-note · PDF p. 3, 'Energy Resolution and Noise' · checked 2026-10-16
https://web.archive.org/web/20220928135003/https://www.ortec-online.com/-/media/ametekortec/other/introducti...

Every value is taken from the manufacturer’s own document; the number after the value refers to the source list. Always check against the latest datasheet before ordering.

The data comes from the manufacturer’s published documents. Manufacturers may change specifications; the current configuration and performance are confirmed in the quotation.