

### Totally Depleted Silicon Surface Barrier Detectors

**Main Application:** Particle identification, telescopes of detectors, any type of  $\Delta E$  measurements. In addition to  $\Delta E/\Delta x$  experiments, the uniformly high field of B Series detectors makes them the best choice for rise-time discrimination or for precision timing experiments. These detectors are also useful in any experiment where an A Series detectors is used; B Series detectors are preferable if radiation damage is likely.

#### Ordering Information

- **To Order:** Add the appropriate letter **prefix** for the mounting desired. Example: **TB**-015-050-150.
- **NOTE:** Alpha Suite Compatible Detectors: ULTRA-AS and Low-Background R Series detectors in B-mount are guaranteed compatible with the Alpha Suite products (DUO, MEGA, ARIA, ENSEMBLE). All other detectors require an approved special for compatibility and warranted specifications.

Active Area (mm <sup>2</sup> )	Guaranteed Maximum Resolution (keV)**		Depletion Depth 150 $\mu\text{m}$ Range: 125–175 $\mu\text{m}$	Depletion Depth 200 $\mu\text{m}$ Range: 176–225 $\mu\text{m}$	Depletion Depth 250 $\mu\text{m}$ Range: 226–275 $\mu\text{m}$	Depletion Depth 300 $\mu\text{m}$ Range: 276–350 $\mu\text{m}$	Depletion Depth 400 $\mu\text{m}$ Range: 351–450 $\mu\text{m}$
	$\alpha$	$\beta$	Model No.	Model No.	Model No.	Model No.	Model No.
50	15	6	B-015-050-150	B-015-050-200	B-015-050-250	B-015-050-300	B-015-050-400
	16	7	B-016-050-150	B-016-050-200	B-016-050-250	B-016-050-300	B-016-050-400
150	17	9	B-017-150-150	B-017-150-200	B-017-150-250	B-017-150-300	B-017-150-400
	18	10	B-018-150-150	B-018-150-200	B-018-150-250	B-018-150-300	B-018-150-400
300	19	12	B-019-300-150	B-019-300-200	B-019-300-250	B-019-300-300	B-019-300-400
	20	15	B-020-300-150	B-020-300-200	B-020-300-250	B-020-300-300	B-020-300-400
450	23	17	B-023-450-150	B-023-450-200	B-023-450-250	B-023-450-300	B-023-450-400
	24	19	B-024-450-150	B-024-450-200	B-024-450-250	B-024-450-300	B-024-450-400

Active Area (mm <sup>2</sup> )	Guaranteed Maximum Resolution (keV)**		Depletion Depth 500 $\mu\text{m}$ Range: 451–550 $\mu\text{m}$	Depletion Depth 700 $\mu\text{m}$ Range: 650–750 $\mu\text{m}$	Depletion Depth 1000 $\mu\text{m}$ Range: 950–1050 $\mu\text{m}$	Guaranteed Maximum Resolution (keV)**		Depletion Depth 1500 $\mu\text{m}$ § Range: 1450–1550 $\mu\text{m}$
	$\alpha$	$\beta$	Model No.	Model No.	Model No.	$\alpha$	$\beta$	Model No.
50	15	8	B-015-050-500	B-015-050-700	B-015-050-1000	17	12	B-017-050-1500
	16	9	B-016-050-500	B-016-050-700	B-016-050-1000			
150	17	9	B-017-150-500	B-017-150-700	B-017-150-1000	19	14	B-019-150-1500
	18	10	B-018-150-500	B-018-150-700	B-018-150-1000			
300	19	13	B-019-300-500	B-019-300-700	B-019-300-1000	21	16	B-021-300-1500
	20	14	B-020-300-500	B-020-300-700	B-020-300-1000			
450	21	16	B-021-450-500	B-021-450-700	B-021-450-1000	24	19	B-024-450-1500
	23	18	B-023-450-500	B-023-450-700	B-023-450-1000			

Active Area (mm <sup>2</sup> )	Guaranteed Maximum Resolution (keV)**		Depletion Depth 2000 $\mu\text{m}$ § Range: 1950–2050 $\mu\text{m}$
	$\alpha$	$\beta$	Model No.
50	18	13	B-018-050-2000
150	20	15	B-020-150-2000
300	23	18	B-023-300-2000
450	26	21	B-026-450-2000

\* All standard totally depleted detectors are cut off-axis from the parent crystal at a specific angle that will minimize ion channeling. Supplied in T Mount unless specified otherwise by appropriate letter prefix. Other areas and depths available on special order.

\*\* First three digits of Model No. indicate total system resolution FWHM for <sup>241</sup>Am, 5.486-MeV alphas, using standard ORTEC electronics and 0.5- $\mu\text{s}$  shaping time constants. Beta resolution approximated by pulser width FWHM.

§ Requires special order.

# B Series

## Totally Depleted Silicon Surface Barrier Detectors

### Mounting Arrangements

**A** This is a "ring mount"; i.e., the silicon wafer is offered on its ring without output connectors. This infrequently used arrangement is available on special request.

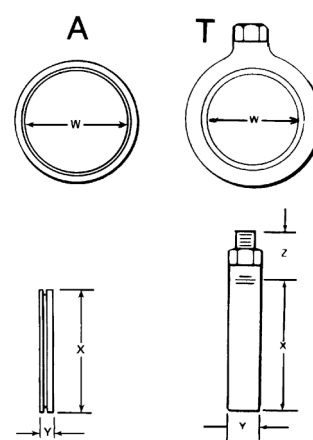
**T** Microdot on the side of the can; without adjustable screws. (Open back.)

Dimensions are given in millimeters.

§ Built into a Microdot connector only.

For detectors 1500 or 2000  $\mu\text{m}$  deep, add 1.5 mm to the Y dimension.

Detector Size (mm <sup>2</sup> )	W (Nominal)	Type A Mount		Type T § Transmission Mount		
		X	Y	X	Y	Z
050	8.0	15.2	3.7	19.4	7.9	9.9
150	13.8	22.0	3.7	26.1	7.9	9.9
300	19.5	27.1	3.7	31.6	7.9	9.9
450	23.9	30.5	3.7	34.8	7.9	9.9
Tol.	$\pm 0.5$	$\pm 0.3$	$\pm 0.3$	$\pm 0.3$	$\pm 0.3$	$\pm 0.3$



Specifications subject to change  
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