

ESTRADA

**Fully-Integrated High-Throughput
Test Cell for Wafer-Level Reliability**



DATA SHEET

The ESTRADA™ turnkey wafer-level reliability (WLR) test system provides a smooth highway toward accelerated reliability assessments and process qualifications on 300 mm wafer processes. This comprehensive WLR test cell is optimized for high-volume intrinsic reliability testing and is ready-to-use right out of the box. With several pre-validated configurations available, specifying and deploying a highly-capable test system has never been easier or quicker – no time is wasted searching for various equipment pieces and myriad options from multiple vendors, evaluating their suitability and compatibility, writing software, setting up the system, or worrying about support.

Everything needed for intrinsic reliability testing of TDDb, SILC, HCI, and BTI on the wafer is provided by the ESTRADA high-performance integrated measurement solution. ESTRADA systems marry the industry's gold standard for engineering probe stations with a proven fast parallel reliability test system and high-performance probe cards. Don't risk delays or lose productivity when an optimized solution is already available from industry leader Cascade Microtech.

FEATURES / BENEFITS

Confidence	Fast path to first data with comprehensive, pre-validated solutions. Single source for specification, ordering, installation, and support. Worldwide support network, with local teams throughout Asia, U.S., and Europe.
Throughput	High parallel DUT capacity for faster reliability study completion and better statistics. Parallel characterization measurements for faster experiment completion. Stepping capability for automatic, unattended test at multiple touchdowns.
Best of Breed	Cascade Microtech's CM300-S shielded, low-noise, semiautomatic probe station. Cascade Microtech's Symphony™ parallel, high-accuracy WLR instrumentation with fast sampling for data detail. Celadon Systems' VersaTile high-performance probe cards. Cascade Microtech's Conductor WLR test executive software for unattended test efficiency.



FES Packages



FEL Packages

		For 300 mm semi-automated single-site testing	For 300 mm semi-automated full-wafer testing (up to 17 sites)
For Constant Voltage TDDb, SILC, and BTS testing of 2-terminal structures	±40 V, 350 mA per DUT	FES-HAT package Up to 30 parallel DUTs	FEL-HAT package Up to 192 parallel DUTs
	±150 V, 10 mA per DUT	FES-HVT package Up to 30 parallel DUTs	FEL-HVT package Up to 128 parallel DUTs
For HCI and conventional BTI testing of 4-terminal structures	±15 V, 100 mA per DUT	FES-AHC package Up to 8 parallel DUTs	FEL-AHC package Up to 48 parallel DUTs
	±150 V, 100 mA per DUT	FES-HVH package Up to 6 parallel DUTs	FEL-HVH package Up to 24 parallel DUTs

SUBSYSTEM SPECIFICATIONS

Subsystem	Key Specifications
CM300-S probe station	<p>Semi-automated station for automated testing at multiple touchdowns.</p> <p>20°C~300°C chuck and thermal system for broad test temperature range.</p> <p>Shielded Microchamber® for low-noise measurements.</p> <p>eVue™ digital microscope and VueTrack™ technology for camera-assisted alignment and stepping.</p> <p>Motorized large-area bridge for multi-site probe alignment ("FEL" packages only).</p> <p>Velox™ productivity software.</p> <p>See CM300 data sheet and product highlights, as well as Velox™ product highlights.</p>
Symphony full-featured reliability test system with Conductor software	<p>Modular, scalable, compact WLR test system.</p> <p>Up to eight Application Modules of mixed types for high-parallel DUT capacity system with Zeus reliability experiment software.</p> <p>Test executive software to automate test execution including stepping.</p> <p>See Symphony data sheet.</p>
High-accuracy TDDDB Application Module ("HAT" packages only)	<p>Constant Voltage TDDDB, Stress Induced Leakage Current (SILC), and Bias Temperature Stress (BTS) test algorithms.</p> <p>Up to ±40 V, up to 350 mA/DUT, high-accuracy voltage sources and ammeters.</p> <p>Up to 48 DUTs in parallel per Module (384 max per Symphony).</p> <p>True parallel measurements, >40 Hz sampling.</p> <p>See HATDDDB Module data sheet.</p>
Advanced HCI Application Module ("AHC" packages only)	<p>HCI and conventional BTI test algorithms.</p> <p>Up to ±15 V on Gate/Drain/Substrate, up to 100 mA/DUT, high-accuracy SMUs.</p> <p>Up to 12 DUTs in parallel per Module (96 max per Symphony).</p> <p>Parallel stress/measurement.</p> <p>See AHCI Module data sheet.</p>
High Voltage TDDDB Application Module ("HVT" packages only)	<p>Constant Voltage TDDDB, Stress Induced Leakage Current (SILC), and Bias Temperature Stress (BTS) test algorithms.</p> <p>Up to ±150 V, up to 10 mA/DUT, high-accuracy voltage sources and ammeters.</p> <p>Up to 32 DUTs in parallel per Module (256 max per Symphony).</p> <p>True parallel measurements, >40 Hz sampling.</p> <p>See HVTDDDB Module data sheet.</p>
High Voltage HCI Application Module ("HVH" packages only)	<p>HCI and conventional BTI test algorithms.</p> <p>Up to ±150 V on Gate/Drain/Substrate, up to 100 mA/DUT, high-accuracy SMUs.</p> <p>Up to 6 DUTs in parallel per Module (48 max per Symphony).</p> <p>Parallel stress/measurement.</p> <p>See HVHCI Module data sheet.</p>
Celadon TV19LL VersaTile probe card platform.	<p>Up to 1x32 or 2x16 probes per test site.</p> <p>Up to 17 individually adjustable test sites per 300 mm multi-site VersaPlate full-wafer VersaPlate optimized for target test temperature and TCE-compensated to match wafer thermal expansion.</p> <p>Up to 300°C continuous use.</p> <p>Low-leakage cables.</p>

WAFER DESIGN RECOMMENDATIONS

Specification	"FES" Packages	"FEL" Packages
Recommended minimum pad size when testing at 25°C*	40 µm x 40 µm for single touchdown 50 µm x 50 µm for stepping	70 µm x 70 µm for single touchdown 80 µm x 80 µm for stepping
Recommended minimum pad size when testing at 200°C*	45 µm x 45 µm for single touchdown 55 µm x 55 µm for stepping	80 µm x 80 µm for single touchdown 90 µm x 90 µm for stepping
Recommended minimum pad size when testing across broad temperature range 25°C ~175°C**	50 µm x 50 µm for single touchdown 60 µm x 60 µm for stepping	90 µm x 90 µm for single touchdown 100 µm x 100 µm for stepping

* Assumes probe card is optimized for same test temperature.

** Assumes probe card is optimized for midpoint test temperature (100°C).

FACILITY REQUIREMENTS

For physical dimensions, AC power and other facility needs, and environmental considerations, see ESTRADA Facilities Planning Guide.

REGULATORY COMPLIANCE

CE certified, CB compliance tested, certified for US and Canada (cNRTLus).

WARRANTY

Warranty*	One year
Service contracts**	Multi-year programs available

* See Cascade Microtech's Terms and Conditions of Sale for more details.

** Service contracts cover Cascade Microtech equipment only – third-party items such as probe cards have manufacturer warranty only.

ORDERING INFORMATION

Please contact your local Cascade Microtech sales representatives to configure and quote your system.

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