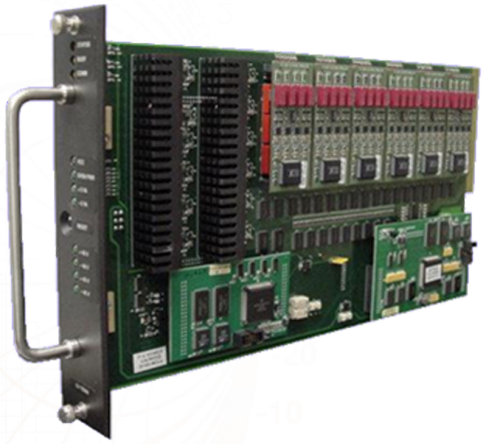
EVTDDB

Extended Voltage TDDB
200 V / 10 mA



DATA SHEET

Cascade Microtech's Extended Voltage Time Dependent Dielectric Breakdown Module (EVTDDB) is designed specifically for TDDB testing of thick-gate oxides and Bias Temperature Stress testing (BTS) of copper backend dielectrics and barrier layers.

Dedicated, high-accuracy ammeters measure every DUT at the same high speed during stress, many times per second, regardless of total system capacity. This instantly captures breakdown precursor events (soft breakdown and noise) and DUT failures. There is no scanning of measurements. During SILC characterization the TDDB ammeters measure all DUTs in parallel to minimize their time off stress conditions. This reduces relaxation, measures all DUTs with the same timing and reduces total SILC experiment time.

With an intuitive, full-featured test suite, TDDB/BTS and SILC experiment data, both stress and use condition measurements, are analyzed quickly to determine DUT failure times. The data analysis tools offer Arrhenius and voltage/E-field evaluation for accurate lifetime projections with confidence intervals. All data can easily be exported to other applications for analysis.

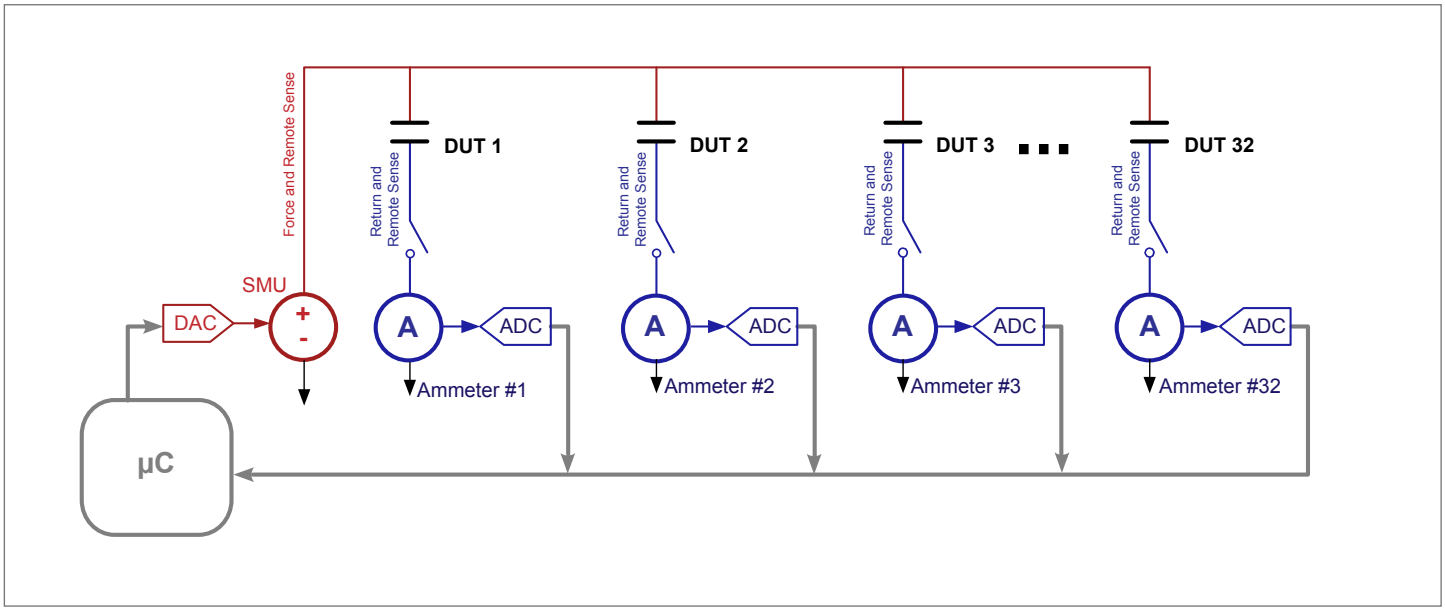
FEATURES / BENEFITS

Flexibility	Compatible with both 1164 and Symphony™ reliability test systems Broad measurement range, setpoints up to ±200 V Temperatures up to 450°C Package and wafer-level testing in same system Accurate source/measurement system Full-featured test suite, including constant voltage TDDB, SILC and BTS
Full parallel measurements	Dedicated, high-accuracy ammeter for each DUT position — no switching or scanning Continuous monitoring — more than 100 samples per second Instant capture and detailed recording of leakage current changes
Maximum efficiency	Industry's best package-level test throughput with 1164 Highly parallel wafer-level reliability testing with 1164 or Symphony

CascadeMicrotech®

FULL PARALLEL MEASUREMENT

1 SMU	To source and measure voltage for all DUTs in parallel using Kelvin connections (remote sense)
32 ammeters	One per DUT To continuously monitor DUT leakage current without scanning through a switch matrix



Full parallel measurement system: dedicated, high-accuracy ammeters, one each per DUT.

SPECIFICATIONS

Parameter	SMU Specification	Ammeter Specification
Capacity	Up to 32 DUTs	Up to 32 DUTs
Maximum voltage	±200 V	–
Source resolution	7 mV (40 V – 200 V) 310 µV (below 40 V)	–
Source accuracy	0.1 % ± 14 mV (40 V – 200 V) 0.1 % ± 2.5 mV (below 40 V)	–
Maximum current compliance	±320 mA total/32 DUTs (below 100 V) ±225 mA total/32 DUTs (100 V – 150 V) ±150 mA total/32 DUTs (150 V – 200 V)	±12 mA per DUT
Maximum current measurement	–	±10 mA per DUT
Measure resolution	20 µV (40 V – 200 V) 5 µV (4 V – 40 V) 500 nV (below 4 V)	40 nA (100 µA – 10 mA) 400 pA (1 µA – 100 µA) 4 pA (10 nA – 1 µA) 40 fA (below 10 nA)
Measure accuracy	0.1 % ± 14 mV (40 V – 200 V) 0.1 % ± 2.5 mV (4 V – 40 V) 0.1 % ± 500 µV (below 4 V)	±0.1 % ± 500 nA (100 µA – 10 mA) ±0.1 % ± 5 nA (1 µA – 100 µA) ±0.1 % ± 50 pA (10 nA – 1 µA) ±0.1 % ± 20 pA (below 10 nA)
Sampling interval	<0.01 sec	<0.01 sec

*Data, design and specification depend on individual process conditions and can vary according to equipment configurations.
Not all specifications may be valid simultaneously.

RECOMMENDED OPERATING RANGE

Voltage set-point range	20 mV ~ 200 V
Current measurement range	50 pA ~ 10 mA
DUT power range	Up to 2 W per package

REGULATORY COMPLIANCE

Certification	CE, SEMI S2

WARRANTY

Warranty*	Fifteen months from date of delivery or twelve months from date of installation (whichever comes first)
Service contracts	Single- and multi-year programs available to suit your needs

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

ORDERING INFORMATION

Consult factory for more detailed specifications, additional options, suitability of configuration for intended usage, part numbers, pricing, and delivery.

EVTDDB-DS-0715

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