



Semi-Con Tester

QT2216 Micro ATE





Micro ATE QT2216

An Overview



The semiconductor industry has never been so competitive before. There is this need to reduce cost so as to remain competitive or face being knocked out of the market. The semiconductor test industry has always been very capital intensive and this is due primarily to the very costly test equipment that were used to do final test.

The functional testers with AC timing that has been dominating the market cost in excess of US\$200K upwards. The cost of maintaining such a tester is also exorbitant. Ultimately, this increase the final cost of the product.

Qmax's latest innovative product, the "No Foot- print" QT2216 Full Functional mixed signal tester is designed to help the semiconductor companies doing final test be more competitive in the following ways:

1. **Cost effectiveness in terms of capital and maintenance.**
2. **No Foot Print means less space needed on test floors**
3. **Functional Flexibility**

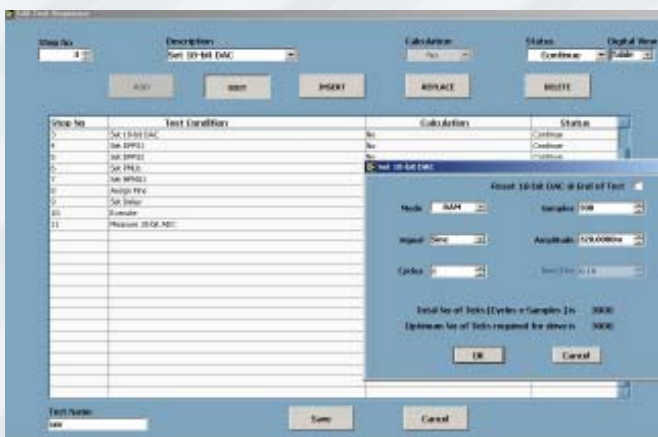
The advantage of the QT2216 is its adaptability. It can be loaded with different modules to alter its configuration to suit different devices and varied test conditions. It can be configured to test **ADC** including **Sigma Delta type, DAC, High speed digital, Opto, linear, high voltage / current devices etc.**

Just imagine, the complete QT2216 sits on a standard manipulator and replaces the test head you would find in most final test systems found today on the test floor. Imagine no more 19 inch tall rack based testers occupying very expensive test floor space. Imagine the cost saving. Imagine low maintenance cost. Imagine your soaring profits.

The other tests include open / short, Diode drop test, DC parametric and AC parametric.

QT2216 is powered by a Pentium PC and interface to most handlers using standard SOT/ EOT and binning signal handshake protocol using a optically isolated 16 Digital Inputs and Outputs.

Qmax testers can also be integrated to Trim Form handler for In Assembly Test.



Micro ATE QT2216

Specifications

- o Main Board houses the Main Test Vector Processor and Interface to the Host PCI card.
- o Interface to the device specific Load Board through 256 Pogo pins.
- o 8 Slots for resource cards
 - o Slot 1 DPSS1 (2 channels)
 - o Slot 2 PMU1 (2 Channels)
 - o Slot 3 Digital Card. (8 channels)
 - o Slot 4 Digital I/O for Load Board (32 or 80).
 - o Slot 5 AC PMU.
 - o Slot 6 Digital Card (8 Channels)
 - o Slot 7 High Voltage / High Current PMU2 (2 Channels)
 - o Slot 8 High Voltage / High Current DPSS2 (2 Channels)



Main Test Vector Processor

- Test Vector Instruction Sequence RAM of 4k by 64 bits.
- Single Burst sequence of 4k patterns.
- Basic timing units programmable from 10ns to 655us.
- Programmable pattern duration from 50ns in multiples of basic timing units.
- Two programmable event pulses for placement of drive phase assert and return in steps of 10ns.
- Two timing strobes for sampling receiver data and can be placed anywhere within a pattern in steps of 10ns.
- Unconditional loops up to 64k
- Conditional loops for event synchronization with zero dead times.
- On the Fly programmable basic timing units and pattern duration.
- Data formats supported are NR, RZ, RO, SBC and RZ
- Special purpose Interface for 18 bit DAC with 4096 samples for Wave Generation or as arbitrary wave form generator.



Each DPSS has two independent programmable power supply for the device under test.

- Force Voltage - Measure Current Mode
- Supply programmable from -12V to +12V in steps of 5.86mV



Specifications (Contd.)

- RAM based DPPS for Force voltage and measure current with 4k depth and time base programmable
- 4 Current Measure Ranges from
 - +/- 100mA FS (48uA Resolution).
 - +/- 10mA FS (4.8uA Resolution).
 - +/- 1mA FS (480nA Resolution).
 - +/- 100uA FS (48nA Resolution).

Each PMU has two independent channels for FVMC, FCMV and Waveform Digitizer at 20MSPs.

Force Voltage – Measure Current Mode:

		Driver Full Scale					
		+/-0.5V Res=244uV		+/-6V Res=2.93mV		+/-13V Res=6.35mV	
Range	Source	FSC	Res	FSC	Res	FSC	Res
1	10E	+/-5mA	2.44uA	+/-60mA	29.3uA	+/-130mA	63.5uA
2	100E	+/-500uA	244nA	+/-6mA	2.93uA	+/-13mA	6.35uA
3	1K	+/-50uA	24.4nA	+/-600uA	293nA	+/-1.3mA	635nA
4	10K	+/-5uA	2.44nA	+/-60uA	29.3nA	+/-130uA	63.5nA
5	100K	+/-500nA	244pA	+/-6uA	2.93nA	+/-13uA	6.35nA
6	1M	+/-50nA	24.2pA	+/-600nA	293pA	+/-1.3uA	635pA

Force Current – Measure Voltage Mode:

Measure Voltage	Res @	+/-0.5V	- 244uV
		+/-6V	- 2.93mV
		+/-13V	- 6.35mV

Force Current Range

Range	Source	FSC	Res
1	10E	+/-100mA	63.5uA
2	100E	+/-10mA	6.35uA
3	1K	+/-1mA	635nA
4	10K	+/-100uA	63.5nA
5	100K	+/-10uA	6.35nA
6	1M	+/-1uA	635pA

Each PMU one High Voltage / High Current channel for FVMC and FCMV.

- 2 ranges for force voltage / measure voltage;
 - 16V to +24V FS.
 - 16V to +44V FS.
- 6 ranges for Measure Current / force current mode;

V o l t a g e R a n g e

+24V to -16V

+44V to -16V

Source	Sink	Source	Sink
+3A	-2A	+6A	-2A
+240mA	-160mA	+480mA	-160mA
+24mA	-16mA	+48mA	-16mA
+2.4mA	-1.6mA	+4.8mA	-1.6mA
+240uA	-160uA	+480uA	-160uA
+24uA	-16uA	+48uA	-16uA

Each Digital Card has 8 channels with 4k X 8 RAM behind each pin.

- Each driver can drive Logic One / Zero / Hi-Z state or Terminate to a preprogrammed voltage within -2V to +7V
- Logic levels are programmable from -2V to +7V in 10mV steps
- Each driver can choose its drive levels from either one of the preprogrammed pallets.
- Each Pin Receiver has programmable upper and lower thresholds within the range of -2V to +7V and can be selected for each pin receiver from either one of the preprogrammed pallets.
- 2 bit compare RAM and 2 bit acquisition RAMS are provided for both hardware compare and for reading fault date for FA.
- Pull-up, Pull-Down, Both or None are user programmable for each pin.
- Uses Digital Highway 0 for measurement of frequency through any pin receiver and uses the pin receiver thresholds.
- Maximum frequency of measurement is 50MHz.
- Digital Highway 1 is used for pulse width measurement of any signal routed through pin receiver and using the pin receiver thresholds.
- Digital Highway 2 is also used for pulse width measurement simultaneously.
- It is also possible to measure time between two events occurring at Digital highway 1 and 2.
- Time resolution is 0.833ns. Optional 0.4165ns
- Optional Jitter measurements up to 4095 readings in one shot.
- Optional Load Board user logic interface to PCI
- Opto Coupler handler interface
- Generic Test Program Development Platform using simple Graphical user Interface
- Engineering mode / Production mode with security passwords.
- Extensive data log / Binning
- Programmable low yield threshold.
- Lab View Software

Qmax reserves the right to change or modify the specifications without prior notice.

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Authorised Distributor :