

QT-205

PCB Diagnostic & Functional Test System



Qmax Users

- Airport Authorities / Airlines • Automobile Manufacturers • Defence / Space / Atomic Research Organisations
- Defence Workshops / Factories • Electronics Manufacturing / Servicing Companies • Heavy Engineering Industries • Port Authorities • Power Corporations • Private Corporates • Public Sector Enterprises
- Steel / Cement plants • Telecom / Telephone Industries • Textile Industries / Garment Machinery Manufacturers.

Applications

- PCB Repair Centers • Production line Board Recovery / Functional Test Centers • In-house maintenance

Qmax is a global leader in the field of Automated Test Equipment PCB Repair, Diagnostic and Board Functional Test Systems. The QT-205 Mixed Signal Functional Test System is a proven model being used by thousands of users world over for varied applications. QT-205 can effectively test Digital, Analog and Mixed Technology ICs in In-Circuit, as wired condition and gives clear PASS-FAIL results. Hybrids, ASICs and house-coded ICs can be checked using QSM signature method. Optional IDDE software makes new device test program generation easy with graphical user interface.

POWERFUL FEATURES

In-Circuit Functional Test Library (Digital/Analog/Mixed Signal) of >21K devices

QSM VI Signature method for testing ASICs / Hybrids & Discretes

Test logic families: **TTL / CMOS / ECL / EIA / LSI / Linear / Memory**

In-circuit IC **identify** feature for house coded ICs and ICs with their number erased.

Automatic internal pull-up/down for open collector and ECL devices

Functional testing without need for learning from known good board or circuit diagram using Digital Simulators and Analog evaluation Software.

On-Line Simulation makes accurate testing of sequential devices possible even when their Reset pins are disabled in In-Circuit conditions.

Board **Learn / Compare mode** increases board recovery rate

Built-in Resistance, Capacitance and Voltage **measurement capability**

Powerful logic waveform display window for **failure confirmation**

CircuitTracer for schematic generation / reverse engg. applications (Optional)

IDDE software for easy **Device Test Program Generation** (Optional)

Russian Device Library (Optional)

SPECIFICATIONS

DIGITAL TEST CAPABILITY

No of i/o channel	: 48 Channels – Desk Top Version
Drive output Current	: 650mA per pin/channel as per Interim Defence Standards 00-53/1.
Pin Memory	: 8K X4 bits RAM behind each pin.
Pattern Depth	: 8K test vectors.
Pattern Rate	: 500 KHz.
Clock Rate	: 0.25 MHz (Min. Clock tick 0.5 MHz)
Test Rate	: Programmable from 62.5 Hz to 0.5 MHz.
Loops & Conditional Loops	: Unlimited.
Drive States	: Hi, Low and Tristate Hybrid pin drivers detachable by user.
Driver High	: 0 to +10V Programmable in steps of 80mV.
Drive Low	: 0 to -10V Programmable in steps of 80mV.
Sense High	: +/-10V, 80mV accuracy
Sense Low	: +/-10V, 80mV accuracy
Input impedance	: 100K minimum
Sensor Threshold	: Dual.
Terminator	: Programmable 100K to 50 E pull up / Down. Programmable value to +/- 13 V.
Guard / Flying channel Functions	: 8 channels programmable. : True Digital/Analog Device power-on In-circuit Functional IC Test; In-circuit Unknown Device Identify; Loop Test, Board Learn/Compare Test, In-circuit Impedance/Resistance, Capacitance and Voltage Measurement; Automatic circuit compensation; Automatic pull-up/down for open collector and ECL ICs; Automatic Guarding Guide for Bus based devices. Logic Analyzer Display for failure analysis; Digital Scope display; Multiple Test Library; Interactive QSM VI Signature Technique for general purpose PCB repair; Clear Pass/Fail indication for ease of use; On-line Design Rule Checker; Circuit Tracer (optional); IDDE for test program generation (optional); On-line help function.
DUT power supply	: Software controlled automatic ON-OFF with manual override; with max. current ratings as follows : +5V @ 25A, -5V @ 0.3A, +12V @ 9A, -12V @ 0.8A. (Optional higher current ratings will be quoted on request.)
Measurements	: R : up to 2 MOHMS C : 100 pF to 10,000 µF V : +/- 13V DC
Failure data display	: Logic Timing Diagram / Waveform / Clip status / Message Window in single screen.

ANALOG PIN ELECTRONICS

Analog Test Methodology:	: Clip-on Analog Functional test.
Analog Test Frequency	: 0.0078 Hz. Minimum to 0.25 MHz Maximum .
No of Pins/Channels	: 3 independent Drive / Sense multiplexed to 48.
DC Voltage	: + / -13V.
Drive output Current	: 250mA per pin / ch.
Input impedance	: > 2 meg Ohms
Pulse Width	: 2 micro sec to 16 milli sec.
Programmable Load	: 50 E, 200 E, 1K, 10K and 100K: V up to +/-13V Programmable.
DC stimulus	: 8 programmable.
Resolution	: 12 bits ADC / DAC for each channel.
Drive Pattern	: User definable and standard waveform include sine, ramp, triangle, square etc.

ANALOG PIN ELECTRONICS (contd.)

Pin Memory	: 8K X 24 bits RAM. This is used to store, drive or read signals from the pin under test.
Frequency	: 0.25 Hz to 250 KHz
Amplitude	: 0.1V to +/- 13V Peak.
Drive Source Impedance	: Programmable in 5 steps from 50 ohms to 100 kohms.
Function Generator	: Can be used as a Function Generator with max. amp of +/- 13V.
DRC Check	: Auto DRC check on Interactive / Board Learn / Test

QSM AND VI TRACE

Test Method	: Qmax Signature Method (QSM) and Standard VI Trace as universal test technique.
Drive pattern	: Sine wave at 2.5V High @ 25mA, Med @ 6.25mA, Low @ 1.25mA 8.0V High @ 20mA, Med @ 4mA, Low @ 0.4mA 13V High @ 6.5mA, Med @ 0.65mA, Low @ 0.065mA
Drive Frequencies	: 40 Hz, 312 Hz, 2.5 KHz.
Test Methods/ Features	: Test Interpretation • Comparison (Pass / Fail) Modes : Linear / Non Linear • Node wise • Dual Probe – Direct on-line “live” comparison mode; Configurable for use with Test fixtures; able to detect any illegal shorts / open between any pins / nodes; Deviation and occurrences failure report for effective failure analysis • Interactive live mode • Direct on-line comparison • On Screen Board layout • Auto / Manual of component Signature • True adjacent pin short test • Quick compare test store • Built-in component library • Dual probe – Selectable voltage / Frequency ranges • No UUT power required

DIGITAL OSCILLOSCOPE

No of Channels	: 3 (Single or Multiple trace)
Resolution	: 12 Bit Resolution.
Amplitude	: 0 to 13V (In 5 Ranges)
Time Base	: 80 microsec. to 9.6 millisecond.
Trigger	: Auto, Normal, Single, positive or negative trigger
Input Impedance	: 50 ohms to >5 Mohms.
Sampling rate	: 0.5 MHz to 1.9 KHz
Memory	: 8K memory per channel.

ESD DAMAGE TEST

Drive Frequencies	: 40 Hz, 312 Hz, 2.5 KHz.
Drive Voltages	: 13V Max. to 2.5V Min.
Drive Current	: 25mA Max. @ 2.5V to 0.065mA Min. @ 13V

GENERAL

CE Mark	: Approved
Interface	: USB Interface ver. 2.0 with Windows 2000 / XP operating system (Optional).
Power requirement	: 110VAC@8A / 220VAC@4A. Auto-switchable with short-circuit protection. UL, CSA, CB, CE MARK approved SMPS unit. Equipment case earthed.
Physical Dimension	: Approx. 47 cm (W) X 41.5 cm (D) x 29 cm (H).
Weight	: Approx. 30Kgs net.

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