SYSTEM

- Up to 8-Site Parallel Testing
- Cable Mount
- Text Mode Test Program Develop Environments
- Tester Controller: PC with Windows XP
- AC Power: 220V@30A±5%, Single phase, 3-wire (L, N, G configured)

ARBITRARY WAVEFORM & DIGITIZER BOARD

AWG

- Pin Counts Per Module: 2
- 4 Single-ended or 2 Differential
- Resolution: 16 Bits
- Sampling Rate: 40M SPS Max, 625k SPS min
- Waveform Memory: 4M
- Output Range: ±5Vpp@50 ohm Load
  ±10Vpp@a High-Impedance Load
- Accuracy: ±0.1dB
- DC Offset Range: ±2.5V@50 ohm Load
- Accuracy: ±5mV
- Sine Waveform:
  - Harmonic products ans spurs: -75dBc
  - Output Impedance: 50 ohm; 75 ohm.
  - Filter: Analog, 2MHz, 500kHz, 50kHz, 5k, Through.
- Trigger Input:
  - TTL Rising Edge PW: 40ns min
  - SYNC Output:TTL Duty Cycle: 20% to 80%
- Marker Output:TTL 8 Sample Clock Periods
- Frequency Range: 1Hz - 1MHz

Digitizer

- Pin Counts Per Module: 4
- Resolution: 500KSPS 16-1bit, 10MSPS 14-bit
- Sampling Rate: 10M SPS max
- Waveform Memory: 4M
- Input Mode: Single-ended or Differentials
- Input Range: ±10V(500K), ±5V, ±2.5V, ±1V, ±0.5V, ±0.1V
- DC Offset Range: ±2V
- Impedance: 1M ohm, 50 ohm for Single-ended
  10K ohm, 100 ohm for Differentials
- Input Coupling Mode: DC, AC Coupling
- Filter: 2KHz, 10KHz, 2MHz, 1KHZ Notch Filter
- Trigger Mode:
  - TTL Rising Edge PW: 40ns min
  - Master/Slave Form Arbitrary Waveform Module

DVC PRECISION MEASUREMENT BOARD (DUAL CHANNEL)

- Two Independent, Full Four-Quadrant V/I Source
- Voltage to ±45V, Current to ±2A
- Voltage Force and Measure Range: 1V, 2V, 4V, 8V, 16V, 32V, 48V
- Voltage Force and Measure Resolution: 16 bits
- Voltage Force Accuracy: ±(0.05% of value+0.05% of range)
- Voltage Measure Accuracy: ±(0.03% of+0.03% of range)
- Voltage Clamp Resolution: 16 bits
- Current Force and Measure Range: 2μA, 20μA, 200μA, 2mA, 200mA, 1A, 2A
- Current Force and Measure Resolution: 16 bits
- Current Force and Measure Accuracy:
  - 2μA - 200μA: ±(0.05% of value+0.05% of range+10nA)
  - 2mA - 200mA: ±(0.1% of value+0.1% of range)
  - 1A - 2A: ±(0.3% of value+0.1% of range)
- Current Clamp Resolution: 16 bits
- Differential Voltage Measure between Two Channels
- Measure Resolution: 16 bit
- Measure Accuracy: ±(0.2% of range+200uV)
  20mV, 100mV, 200mV, 1V, 2V, 4V, 10V, 20, 100V

OVC PRECISION MEASUREMENT BOARD (OCTAL CHANNELS)

- 8 independent V/I Resource
- System Ground
- Voltage Force and Measure Range: 2V, 4V, 8V, 16V, 20V
- Voltage Force and Measure Resolution: 16 bits
- Voltage Force and Measure Accuracy:
  - 2V: ±(0.05% of range)
  - 4V: ±(0.05% of range)
  - 8V: ±(0.05% of range)
  - 16V: ±(0.05% of range)
  - 20V: ±(0.05% of range)
- Voltage clamp Resolution: 16 bits
- Current Force and Measure Range: 1μA, 10μA, 100μA, 1mA, 10mA, 100mA, 200mA
- Current Force and Measure Resolution: 16 bits
- Current Force and Measure Accuracy:
  - 1μA: ±(0.2%+2nA)
  - 10μA: ±(0.1%+100nA)
  - 100μA: ±(0.1%+100nA)
  - 1mA: ±(0.1%+1μA)
  - 10mA: ±(0.1%+10μA)
  - 100mA: ±(0.1%+100μA)
  - 200mA: ±(0.1%+200μA)
- Current Clamp Resolution: 16 bits
- 10KSPS DDS programmable to any Channel
- 10KSPS Digitizer Multiplexed to Two Channels
- DVM Differential Voltage Measure between Two Channels

QVC BOARD (QUAD VOLTAGE CURRENT)

- 4 independent V/I resource
- 16 bit ADC for voltage and current measure
- Vmax: ±45V
- Imax: ±1A
- Vrange: 1V, 2V, 4V, 8V, 16V, 20V, 32V, 45V
  Accuracy: ±(0.05% of value+0.05% range)
- Irange: 2μA, 20μA, 200μA:
  Accuracy: ±(0.1% of value+0.1% of range+10nA)
  2mA, 20mA, 200mA, 1A:
  Accuracy: ±(0.1% of value+0.1% of range)

MVC BOARD

- 2 independent V/I resource
- 16 bit ADC for voltage and current measure
- Vmax: +100V to -45V
- Imax: ±500mA
- Vrange: 4V, 8V, 16V, 32V, 50V, 100V
  Accuracy: ±(0.05% of value+0.1% of range)
- Irange: 2μA ,20μA, 200μA:
  Accuracy: ±(0.1% of value+0.2% of range+10nA)
  2mA, 20mA, 200mA, 500mA:
  Accuracy: ±(0.1% of value+0.2% of range)

NAC BOARD (NANO AMPERE CURRENT)

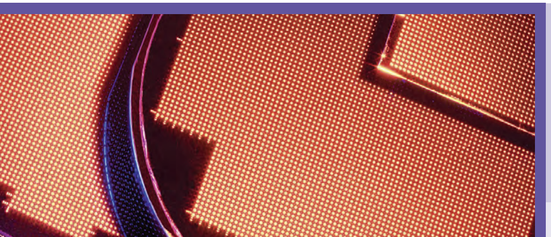
- 2 Channels Floating Ground System
- 16 bit ADC for voltage and current measure
- Vmax: ±40V
- Imax: ±100mA
- Vrange: 2.5V,5V,10V,20V,40V
  Accuracy: ±(0.05% of value+0.1% of range)
- Irange: 10nA, 100nA, 1μA, 10μA, 100μA, 1mA, 10mA, 100mA
  Accuracy: ±(0.1% of value+0.1% of range)

MFB BOARD (MULTIPLE FUNCTION BOARD)

- 8 Pairs Channels (AWG/WD)
- RAMP force accuracy: ±4V Range: 1mV
  ±12V Range: 2.5mV
- Measure accuracy: 4V: 1mV
  10V: 2.5mV
- AWG/RAMP sample rate: 1Msps@64K length
- Digitizer Sample rate: 250Ksps@64K length
- SDIO (Data Acquisition) Sample Rate: 1Msps@64K length

PVC PULSED V/I RESOURCE

- 2 Independent V/I Resource
- Floating Ground, Pulse Mode
- Voltage Force and Measure Range: 4V, 8V, 16V, 32V, 48V
- Voltage Force and Measure Resolution: 16 bits
- Irange: 150mA, 300mA, 1.5A, 3A, 5A, 10A, 15A, 30A
- Vmax: ±45V
- Imax : 30A



TR6850 SERIES

Test Research, Inc.

Headquarters
7F., No.45, Dexing West Rd.,
Shilin Dist., Taipei City 11158, Taiwan
TEL: +886-2-2832-8918
FAX: +886-2-2831-0567
E-Mail: sales@tri.com.tw
http://www.tri.com.tw

Hsinchu, Taiwan
7F., No.47, Guangming 6th Rd., Zhubei City, Hsinchu County 30268, Taiwan
TEL: +886-3-553-9796
FAX: +886-3-553-9786

- Voltage Force and Measure Accuracy:
  - 8V: ±(0.3%+12mV)
  - 16V: ±(0.3%+24mV)
  - 32V: ±(0.3%+48mV)
  - 46V: ±(0.3%+96mV)
- Voltage Clamp Resolution: 16 bits
- Current Force and Measure Resolution: 16 bits
- Current Force and Measure Accuracy:
  - 150mA: ±(0.5%+0.375mA)
  - 300mA: ± (0.5%+0.75mA)
  - 1.5A: ±(0.5%+3.75mA)
  - 3A: ±(0.5%+7.5mA)
  - 5A: ±(0.5%+12.5mA)
  - 10A: ±(0.5%+25mA)
  - 15A: ±(1%+37.5mA)
  - 30A: ±(1%+75mA)
- Programmable Pulse Period
- Protection Timer

TMU & RELAY CONTROL BOARD

- CPU Trigger or External Trigger
- Positive/Negative Slope
- Counter, Time, Rising/Failing Time
- Time Resolution: 625ps Propagation Delay
- Timeout Function and Overflow State
- Input Waveform: Sine, Square, Sawtooth
- Low Impedance Inputs: A, B
- ±10V Range: Impedance 2K/1M Ohm Nominal
- ±2.5V Range: Impedance 2K/1M Ohm Nominal
- Input Threshold Accuracy: 0.5% of Range
- High Impedane Inputs Impedance:
  - Range: ±5V Zin > 4M Ohm
  - Range: ±20V Zin = 2.1M Ohm
  - Range: ±50V Zin = 2.1M Ohm
  - Channel: 80 (Use DS2803 as Relay Driver)

MATRIX BOARD

- Two-wire Force/Sense Input Channel
- Two-wire Force/Sense Output Channel
- Contact Current: 1A
- Contact Voltage: 60V
- Type Resistor: <1Ω

AUTO-CALIBRATION & DIAGNOSTIC BOARD

- Standard Cells
- Standard DVM and GPIB Interface

PEB64 PATTERN BOARD

- Pin Configuration (I/O Channels): 64 pins
- Parametric Measurement Unit: 8 Sets
- Voltage Force and Measure Accuracy: ±(1% of range)
- Current Force and Measure Accuracy: ±(1% of range)
- Pin Level Source: Per Pin
- Driver Voltage Range: -2.0V to +8V
  Accuracy: ±(0.3% of 8V range)
- Comparator Voltage Range: -2.0V to +8V
  Accuracy: ±(0.5% of 8V range)
- Min. Pulse Width: 10ns
- Micro Instruction: CALL, RET, MATCH, MPAT, MLEN, RPT, LOOP, LPEND, STOP, TS
- Min. Period: 30ns - 40ms
- Period Resolution: 10ns
- Data Rate: 33MHz
- Timing Generators: 4 edge/Pin
- Edge Placement Resolution: 2.5ns
- Timing Set: 16 change on the fly
- Drive Mode: 0, 1, NF, NRZ, RZ, RO, SBC
- IO Mode: 0, 1, NF
- Strobe Mode: Edge/Window
- Pattern Memory Depth: 4M - 8M
- Fail Memory Depth: 4K
- Pattern Symbol: 0/1//X/Z/L/H
- Time Measurement Resolution: 10ns

OP-LOOP BOARD

- Four OP AMP Loop
- DC Measurement: 16 bits
- Common Mode DAC: 16 bits
- AC Stimulus: 16 bits High Speed DAC
- AC measurement: 10MSPS, 12 Bit ADC
- Loop Reference DAC: 16 bits
- Input Offset Voltage (Vos)
- Input Offset Current (Ios)
- Open Loop Gain (Avol)
- Command Mode Rejection Ration (CMRR)
- Power Supply Rejection Ration (PSRR)
- Gain-Bandwidth Product (GBW)
- Slew Rate (SR)

KVS BOARD

- 2 Channels Floating Ground System
- 16bit ADC for voltage and current measure
- 16 bit DAC for voltage and current force
- Vmax: 1000V
- Imax: 15mA
- Vrange: 100V, 200V, 500V, 1000V accuracy: 0.25% of range
- Irange: 15μA, 150μA, 1.5mA, 15mA I accuracy: 0.35% of range
- Time Max: 10 sec

USA
1923 Hartog Drive
San Jose, CA 95131 U.S.A.
TEL: +1-408-567-9898
FAX: +1-408-567-9288
E-mail: triusa@tri.com.tw

Malaysia
C11-1, Ground Floor, Lorong Bayan Indah 3 Bay Avenue, 11900 Bayan Lepas Penang, Malaysia
TEL: +604-6461171
E-mail: trimy@tri.com.tw

Europe
O'Brien Strasse 14
91126 Schwabach
Germany
TEL: +49-9122-631-2127
FAX: +49-9122-631-2147
E-mail: trieurope@tri.com.tw

Japan
2-9-9 Midori, Sumida-ku,
Tokyo, 130-0021 Japan
TEL: +81-3- 6273-0518
FAX: +81-3- 6273-0519
E-mail: trijp@tri.com.tw

Korea
No.207 Daewoo-Technopia,
768-1 Wonsi-Dong, Danwon-Gu,
Ansan City, Gyeonggi-Do, Korea
TEL: +82-31-470-8858
FAX: +82-31-470-8859
E-mail: trikr@tri.com.tw

Shenzhen, China
5F3, Guangxia Road, Shang-mei-lin Area, Fu-Tian District, Shenzhen, Guangdong, 518049, China
TEL: +86-755-83112668
FAX: +86-755-83108177
E-mail: shenzhen@cn.tri.com.tw

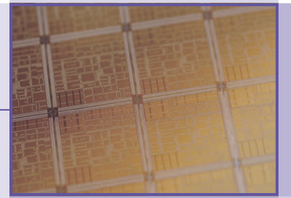
Suzhou, China
63 Huoju Road, Suzhou New District, 215009, China
TEL: +86-512-68250001
FAX: +86-512-68096639
E-mail: suzhou@cn.tri.com.tw

Shanghai, China
W. 6F., Building18, 481 Guiping Road, Shanghai, 200233, China
TEL: +86-21-54270101
FAX: +86-21-64957923
E-mail: shanghai@cn.tri.com.tw

C-6850-EN-1202

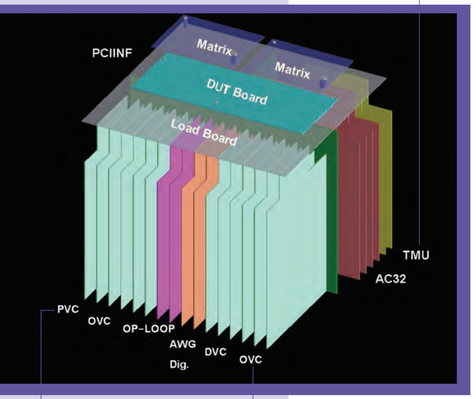
T R 6 8 5 0

- MAXIMUM 256 LOGIC I/O CHANNELS
- TMU FOR TIMING PARAMETERS MEASUREMENT
- MULTIPLE V/I MODULES ARE SUITABLE FOR WIDE RANGE OF TEST APPLICATION
- HIGH-PRECISION MEASUREMENT UNIT
- ARBITRARY WAVEFORM GENERATOR AND DIGITIZER
- EASY PROGRAMMING & DEBUGGING
- RICH DEBUGGING & ANALYTIC TOOLS



TRI innovation

TMU:
- 80 Relay-control and 4 TMUs
- Timing Parameters Testing for Pulse Width, Pulse Period Frequency, Propagation Delay, and Rising/Falling Time



TR6850
Hardware Architecture

OVC:
- 8 PMU with up to ±20V, ±200mA Forcing and Measuring Capability
- 16-bit resolution

PVC:
- 2 Floating Ground Pulse PMU with up to ±45V and 30A Forcing and Measuring Capability
- 16-bit Resolution

THE BEST "POWER MANAGEMENT IC+ MIXED SIGNAL" TESTER

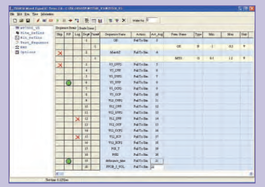
The TR6850 features a text mode program that links with Microsoft Visual Studio. NET 2005 for rich debugging and analytic tools. It runs on a Windows XP operating system and offers a user-friendly GUI.

TR6850 seamlessly connects to all popular probers and handlers, and supports max. 8-site parallel testing capability.

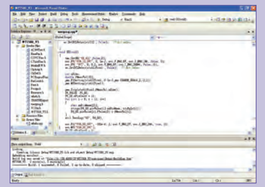
All these features make TR6850 the best "Power Management IC+Mixed Signal" tester for both engineering verification and mass production.

FEATURES:
- 64 to 256 pin logic I/O pin with 64 pin increments.
- High-precision measurement unit.
- 40MSPS/16bit Arbitrary waveform generator, 10MSPS/14 bit Digitizer.
- Max. 8-Sites parallel testing.
- Enable grading the test results.
- Easy Programming & Debugging:
  Link with Visual Studio.NET to develop a C++ test program.
- Rich Debugging & Analytic Tools:
  Module Debug Tools, SPC, Parametric Wafer Map Tool, Pattern Editor, Shmoo, etc.
- Capability to generate Wafer Map Files & Trim Files.
- Multiple Store Modes to meet different requirements in saving Datalog.
- Yield Alarm Management.
- Able to analyze test performance.

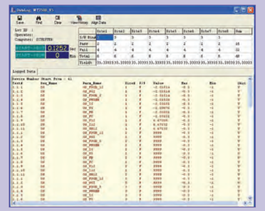
TEST SEQUENCE EDITOR
Table to designate compared parametrics and test flow.



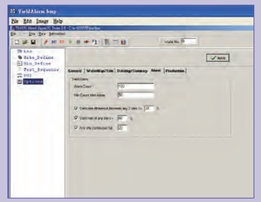
TEST PROGRAM EDITOR
The TR6850 links with Visual Studio.NET to provide an easy programming, easy debugging environment. TR6850 S/W system will auto-create a new function skeleton for each new inserted sequence item. Users only need to focus on developing test logic. Users can easily add 3rd party's library to enhnace test performance or control external instruments.



DATALOG WINDOW
Display readable aligned test data, 1 line per test parameter. If test result is fail, the output will be highlighted in red.

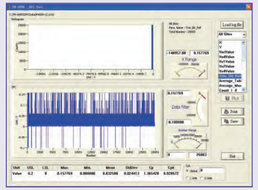


YIELD ALARM
The TR6850 will issue a warning message & turn prober buzzer ON when yield is abnormal. The yield management can warn the operator to check what's wrong early and improve the mass production yield. There are 3 abnormal yield types that can be checked out:
1. Any two sites' yield difference is greater than a set criterion.
2. Any site's yield is too low.
3. Any site's continuous fail count exceeds a specified count.

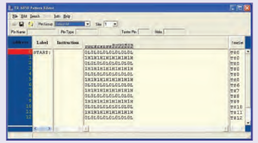


PRODUCTION WINDOW
Compact window to display test results & summary in mass production.

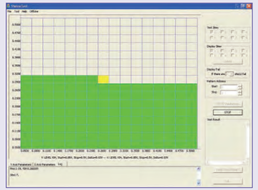
AC RESULT ANALYSIS TOOLS
The timing diagram help user understand relative timing among tester input and device output. With the graphic waveform, users can verify edited waveform as well.



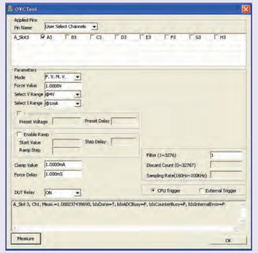
SPC TOOL
Engineering analysis tool to view each test parameter's statistics: test value histogram, min/max/mean value, standard deviation, Cp, Cpk.



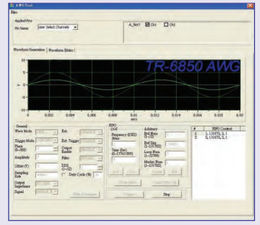
PATTERN EDITOR
View pattern file offline or view pattern memory online. Enable modifing pattern and save to file, also refreshing the patterns online by designating a specified range.



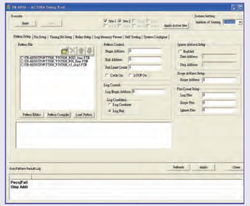
SHMOO TOOL
Enable to vary multiple parameters simultaneously to scan device's boundary.



DC DEBUG TOOLS
The TR6850 provides several DC modules (eg. OVC, PVC, OPAMP-LOOP) to measure DC parameters in different purposes. Users can change the testing parameters to process various measurements in the tool.



AWG/DIGITIZER DEBUG TOOLS
Use AWG & Digitizer debug tools to control the TR6850 AWG/Digitizer module for debugging purpose.



AC DEBUG TOOLS
The TR6850 provides two AC modules (eg. PEB64, TMU) to measure AC parameters in different purposes. Users can change the testing parameters to process various measurements in the tool.

SYSTEM

- Up to 8-Site Parallel Testing
- Cable Mount
- Text Mode Test Program Develop Environments
- Tester Controller: PC with Windows XP
- AC Power: 220V@20A±5%, Single phase, 3-wire (L, N, G configured)

ARBITRARY WAVEFORM & DIGITIZER BOARD

AWG

- Pin Counts Per Module: 2
- 4 Single-ended or 2 Differential
- Resolution: 16 Bits
- Sampling Rate: 40M SPS Max, 625k SPS min
- Waveform Memory: 4M
- Output Range: ±5Vpp@50 ohm Load
  ±10Vpp@a High-Impedance Load
- Accuracy: ±0.1dB
- DC Offset Range: ±2.5V@50 ohm Load
- Accuracy: ±5mV
- Sine Waveform:
  - Harmonic products ans spurs: -75dBc
  - Output Impedance: 50 ohm: 75 ohm.
  - Filter: Analog, 2MHz, 500kHz, 50kHz, 5k, Through.
- Trigger Input:
  - TTL Rising Edge PW: 40ns min
  - SYNC Output: TTL Duty Cycle: 20% to 80%
- Marker Output: TTL 8 Sample Clock Periods
- Frequency Range: 1Hz - 1MHz

Digitizer

- Pin Counts Per Module: 4
- Resolution: 500KSPS 16-1bit, 10MSPS 14-bit
- Sampling Rate: 10M SPS max
- Waveform Memory: 4M
- Input Mode: Single-ended or Differentials
- Input Range: ±10V(500K), ±5V, ±2.5V, ±1V, ±0.5V, ±0.1V
- DC Offset Range: ±2V
- Impedance: 1M ohm, 50 ohm for Single-ended
  10K ohm, 100 ohm for Differentials
- Input Coupling Mode: DC, AC Coupling
- Filter: 2KHz, 10KHz, 2MHz, 1KHZ Notch Filter
- Trigger Mode:
  - TTL Rising Edge PW: 40ns min
  - Master/Slave Form Arbitrary Waveform Module

DVC PRECISION MEASUREMENT BOARD (DUAL CHANNEL)

- Two Independent, Full Four-Quadrant V/I Source
- Voltage to ±45V, Current to ±2A
- Voltage Force and Measure Range: 1V, 2V, 4V, 8V, 16V, 32V, 48V
- Voltage Force and Measure Resolution: 16 bits
- Voltage Force Accuracy: ±(0.05% of value+0.05% of range)
- Voltage Measure Accuracy: ±(0.03% of+0.03% of range)
- Voltage Clamp Resolution: 16 bits
- Current Force and Measure Range: 2μA, 20μA, 200μA, 2mA, 200mA, 1A, 2A
- Current Force and Measure Resolution: 16 bits
- Current Force and Measure Accuracy:
  - 2μA - 200μA: ±(0.05% of value+0.05% of range+10nA)
  - 2mA - 200mA: ±(0.1% of value+0.1% of range)
  - 1A - 2A: ±(0.3% of value+0.1% of range)
- Current Clamp Resolution: 16 bits
- Differential Voltage Measure between Two Channels
- Measure Resolution: 16 bit
- Measure Accuracy: ±(0.2% of range+200uV) 20mV, 100mV, 200mV, 1V, 2V, 4V, 10V, 20, 100V

OVC PRECISION MEASUREMENT BOARD (OCTAL CHANNELS)

- 8 independent V/I Resource
- System Ground
- Voltage Force and Measure Range: 2V, 4V, 8V, 16V, 20V
- Voltage Force and Measure Resolution: 16 bits
- Voltage Force and Measure Accuracy:
  - 2V: ±(0.05% of range)
  - 4V: ±(0.05% of range)
  - 8V: ±(0.05% of range)
  - 16V: ±(0.05% of range)
  - 20V: ±(0.05% of range)
- Voltage clamp Resolution: 16 bits
- Current Force and Measure Range: 1μA, 10μA, 100μA, 1mA, 10mA, 100mA, 200mA
- Current Force and Measure Resolution: 16 bits
- Current Force and Measure Accuracy:
  - 1μA: ±(0.2%+2nA)
  - 10μA: ±(0.1%+100nA)
  - 100μA: ±(0.1%+100nA)
  - 1mA: ±(0.1%+1μA)
  - 10mA: ±(0.1%+10μA)
  - 100mA: ±(0.1%+100μA)
  - 200mA: ±(0.1%+200μA)
- Current Clamp Resolution: 16 bits
- 10KSPS DDS programmable to any Channel
- 10KSPS Digitizer Multiplexed to Two Channels
- DVM Differential Voltage Measure between Two Channels

QVC BOARD (QUAD VOLTAGE CURRENT)

- 4 independent V/I resource
- 16 bit ADC for voltage and current measure
- Vmax: ±45V
- Imax: ±1A
- Vrange: 1V, 2V, 4V, 8V, 16V, 20V, 32V, 45V
- Accuracy: ±(0.05% of value+0.05% range)
- Irange: 2μA, 20μA, 200μA: Accuracy: ±(0.1% of value+0.1% of range+10nA) 2mA, 20mA, 200mA,1A: Accuracy: ±(0.1% of value+0.1% of range)

MVC BOARD

- 2 independent V/I resource
- 16 bit ADC for voltage and current measure
- Vmax: +100V to -45V
- Imax: ±500mA
- Vrange: 4V, 8V, 16V, 32V, 50V, 100V Accuracy: ±(0.05% of value+0.1% of range)
- Irange: 2μA, 20μA, 200μA: Accuracy: ±(0.1% of value+0.2% of range+10nA) 2mA, 20mA, 200mA, 500mA: Accuracy: ±(0.1% of value+0.2% of range)

NAC BOARD (NANO AMPERE CURRENT)

- 2 Channels Floating Ground System
- 16 bit ADC for voltage and current measure
- Vmax: ±40V
- Imax: ±100mA
- Vrange: 2.5V, 5V, 10V, 20V, 40V Accuracy: ±(0.05% of value+0.1% of range)
- Irange: 10nA,100nA,1μA,10μA,100μA,1mA, 10mA,100mA Accuracy: ±(0.1% of value+0.1% of range)

MFB BOARD (MULTIPLE FUNCTION BOARD)

- 8 Pairs Channels (AWG/WD)
- RAMP force accuracy: ±4V Range: 1mV ±12V Range: 2.5mV
- Measure accuracy: 4V: 1mV 10V: 2.5mV
- AWG/RAMP sample rate :1Msps@64K length
- Digitizer Sample rate : 250Ksps@64K length
- SDIO (Data Acquisition) Sample Rate: 1Msps@64K length

PVC PULSED V/I RESOURCE

- 2 Independent V/I Resource
- Floating Ground, Pulse Mode
- Voltage Force and Measure Range: 4V, 8V, 16V, 32V, 48V
- Voltage Force and Measure Resolution: 16 bits
- Irange: 150mA, 300mA, 1.5A, 3A, 5A, 10A, 15A, 30A
- Vmax: ±45V
- Imax: 30A

SPECIFICATIONS

TR6850S SERIES

- Voltage Force and Measure Accuracy:
  - 8V: ±(0.3%+12mV)
  - 16V: ±(0.3%+24mV)
  - 32V: ±(0.3%+48mV)
  - 46V: ±(0.3%+96mV)
- Voltage Clamp Resolution: 16 bits
- Current Force and Measure Resolution: 16 bits
- Current Force and Measure Accuracy:
  - 150mA: ±(0.5%+0.375mA)
  - 300mA: ±(0.5%+0.75mA)
  - 1.5A: ±(0.5%+3.75mA)
  - 3A: ±(0.5%+7.5mA)
  - 5A: ±(0.5%+12.5mA)
  - 10A: ±(0.5%+25mA)
  - 15A: ±(1%+37.5mA)
  - 30A: ±(1%+75mA)
- Programmable Pulse Period
- Protection Timer

TMU & RELAY CONTROL BOARD

- CPU Trigger or External Trigger
- Positive/Negative Slope
- Counter, Time, Rising/Failing Time
- Time Resolution: 625ps Propagation Delay
- Timeout Function and Overflow State
- Input Waveform: Sine, Square, Sawtooth
- Low Impedance Inputs: A, B
- ±10V Range: Impedance 2K/1M Ohm Nominal
- ±2.5V Range: Impedance 2K/1M Ohm Nominal
- Input Threshold Accuracy: 0.5% of Range
- High Impedane Inputs Impedance:
  - Range: ±5V Zin > 4M Ohm
  - Range: ±20V Zin = 2.1M Ohm
  - Range: ±50V Zin = 2.1M Ohm
  - Channel: 80(Use DS2803 as Relay Driver)

MATRIX BOARD

- Two-wire Force/Sense Input Channel
- Two-wire Force/Sense Output Channel
- Contact Current: 1A
- Contact Voltage: 60V
- Type Resistor: <1Ω

AUTO-CALIBRATION & DIAGNOSTIC BOARD

- Standard Cells
- Standard DVM and GPIB Interface

PEB64 PATTERN BOARD

- Pin Configuration (I/O Channels): 64 pins
- Parametric Measurement Unit: 8 Sets
- Voltage Force and Measure Accuracy: ±(1% of range)
- Current Force and Measure Accuracy: ±(1% of range)
- Pin Level Source: Per Pin
- Driver Voltage Range: -2.0V to +8V Accuracy: ±(0.3% of 8V range)
- Comparator Voltage Range: -2.0V to +8V Accuracy: ±(0.5% of 8V range)
- Min. Pulse Width: 10ns
- Micro Instruction: CALL, RET, MATCH, MPAT, MLEN, RPT, LOOP, LPEND, STOP, TS
- Min. Period: 30ns - 40ms
- Period Resolution: 10ns
- Data Rate: 33MHz
- Timing Generators: 4 edge/Pin
- Edge Placement Resolution: 2.5ns
- Timing Set: 16 change on the fly
- Drive Mode: 0, 1, NF, NRZ, RZ, RO, SBC
- IO Mode: 0, 1, NF
- Strobe Mode: Edge/Window
- Pattern Memory Depth: 4M - 8M
- Fail Memory Depth: 4K
- Pattern Symbol: 0/1//X/Z/L/H
- Time Measurement Resolution: 10ns

OP-LOOP BOARD

- Four OP AMP Loop
- DC Measurement: 16 bits
- Common Mode DAC: 16 bits
- AC Stimulus: 16 bits High Speed DAC
- AC measurement: 10MSPS, 12 Bit ADC
- Loop Reference DAC: 16 bits
- Input Offset Voltage (Vos)
- Input Offset Current (Ios)
- Open Loop Gain (Avol)
- Command Mode Rejection Ration (CMRR)
- Power Supply Rejection Ration (PSRR)
- Gain-Bandwidth Product (GBW)
- Slew Rate (SR)

KVS BOARD

- 2 Channels Floating Ground System
- 16 bit ADC for voltage and current measure
- 16 bit DAC for voltage and current force
- Vmax: 1000V
- Imax: 15mA
- Vrange: 100V, 200V, 500V, 1000V accuracy: 0.25% of range
- Irange: 15μA, 150μA, 1.5mA, 15mA I accuracy: 0.35% of range
- Time Max: 10 sec

Test Research, Inc.

Headquarters
7F., No.45, Dexing West Rd.,
Shilin Dist., Taipei City 11158, Taiwan
TEL: +886-2-2832-8918
FAX: +886-2-2831-0567
E-Mail: sales@tri.com.tw
http://www.tri.com.tw

Hsinchu, Taiwan
7F., No.47, Guangming 6th Rd., Zhubei City, Hsinchu County 30268, Taiwan
TEL: +886-3-553-9796
FAX: +886-3-553-9786

USA
1923 Hartog Drive
San Jose, CA 95131 U.S.A.
TEL: +1-408-567-9898
FAX: +1-408-567-9288
E-mail: triusa@tri.com.tw

Malaysia
C11-1, Ground Floor, Lorong Bayan Indah 3 Bay Avenue, 11900 Bayan Lepas Penang, Malaysia
TEL: +604-6461171
E-mail: trimy@tri.com.tw

Europe
O'Brien Strasse 14
91126 Schwabach
Germany
TEL: +49-9122-631-2127
FAX: +49-9122-631-2147
E-mail: trieurope@tri.com.tw

Japan
2-9-9 Midori, Sumida-ku,
Tokyo, 130-0021 Japan
TEL: +81-3- 6273-0518
FAX: +81-3- 6273-0519
E-mail: trijp@tri.com.tw

Korea
No.207 Daewoo-Technopia,
768-1 Wonsi-Dong, Danwon-Gu,
Ansan City, Gyeonggi-Do, Korea
TEL: +82-31-470-8858
FAX: +82-31-470-8859
E-mail: trikr@tri.com.tw

Shenzhen, China
5F3, Guangxia Road, Shang-mei-lin Area, Fu-Tian District, Shenzhen, Guangdong, 518049, China
TEL: +86-755-83112668
FAX: +86-755-83108177
E-mail: shenzhen@cn.tri.com.tw

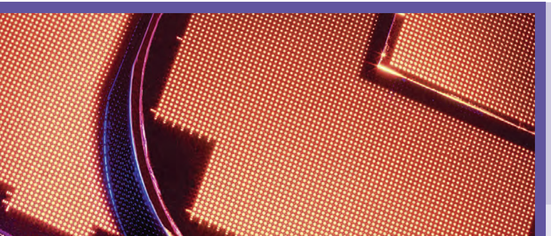
Suzhou, China
63 Huoju Road, Suzhou New District, 215009, China
TEL: +86-512-68250001
FAX: +86-512-68096639
E-mail: suzhou@cn.tri.com.tw

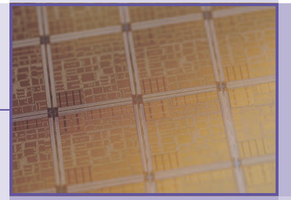
Shanghai, China
W. 6F., Building18, 481 Guiping Road, Shanghai, 200233, China
TEL: +86-21-54270101
FAX: +86-21-64957923
E-mail: shanghai@cn.tri.com.tw

C-6850S-EN-1202

T R 6 8 5 0 S

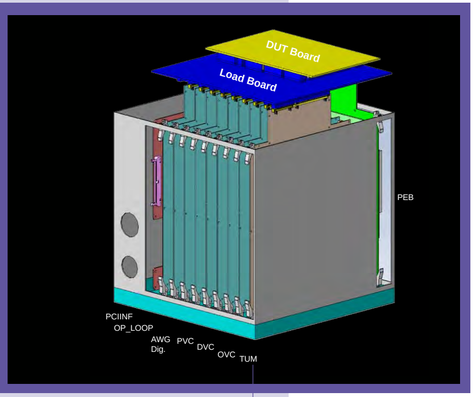
- MAXIMUM 64 LOGIC I/O CHANNELS
- TMU FOR TIMING PARAMETERS MEASUREMENT
- MULTIPLE V/I MODULES ARE SUITABLE FOR WIDE RANGE OF TEST APPLICATION
- HIGH-PRECISION MEASUREMENT UNIT
- ARBITRARY WAVEFORM GENERATOR AND DIGITIZER
- EASY PROGRAMMING & DEBUGGING
- RICH DEBUGGING & ANALYTIC TOOLS
- CAPABILITY TO GENERATE WAFER MAP & TRIM FILES





TRI innovation

OVC:
- 8 PMU with up to ±20V, ±200mA Forcing and Measuring Capability
- 16-bit resolution



TR6850S
Hardware Architecture

TMU:
- 80 Relay-control and 4 TMUs
- Timing Parameters Testing for Pulse Width, Pulse Period Frequency, Propagation Delay, and Rising/Falling Time

PVC:
- 2 Floating Ground Pulse PMU with up to ±45V and 30A Forcing and Measuring Capability
- 16-bit Resolution

THE BEST "POWER MANAGEMENT IC+ MIXED SIGNAL" TESTER

The TR6850S features a text mode program that links with Microsoft Visual Studio. NET 2005 for rich debugging and analytic tools. It runs on a Windows XP operating system and offers a user-friendly GUI.

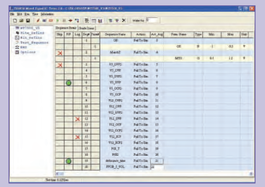
TR6850S seamlessly connects to all popular probers and handlers, and supports max. 8-site parallel testing capability.

All these features make TR6850S the best "Power Management IC+Mixed Signal" tester for both engineering verification and mass production.

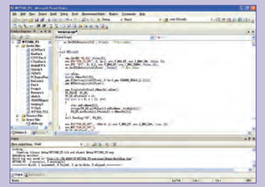
FEATURES:
- Max 64 pin logic I/O pin.
- High-precision measurement unit.
- 40MSPS/16bit Arbitrary waveform generator, 10MSPS/14 bit Digitizer.
- Max. 8-Sites parallel testing.
- Enable grading the test results.
- Easy Programming & Debugging:

  Link with Visual Studio.NET to develop a C++ test program.
- Rich Debugging & Analytic Tools:
  Module Debug Tools, SPC, Parametric Wafer Map Tool, Pattern Editor, Shmoo, etc.
- Capability to generate Wafer Map Files & Trim Files.
- Multiple Store Modes to meet different requirements in saving Datalog.
- Yield Alarm Management.
- Able to analyze test performance.

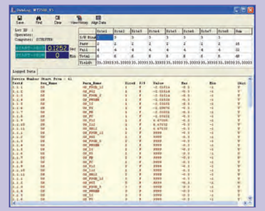
TEST SEQUENCE EDITOR
Table to designate compared parametrics and test flow.



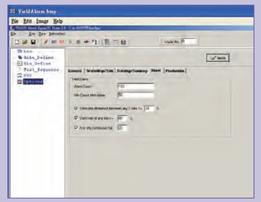
TEST PROGRAM EDITOR
TR6850S links with Visual Studio.NET to provide an easy programming, easy debugging environment.
TR6850S S/W system will auto-create a new function skeleton for each new inserted sequence item. Users only need to focus on developing test logic.
Users can easily add 3rd party's library to enhnace test performance or control external instruments.



DATALOG WINDOW
Display readable aligned test data, 1 line per test parameter. If the test result is fail, the output will be highlighted in red.

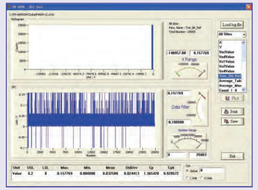


YIELD ALARM
The TR6850S will issue a warning message & turn prober buzzer ON when yield is abnormal. The yield management can warn the operator to check what's wrong early and improve the mass production yield. There are 3 abnormal yield types that can be checked out:
1. Any two sites' yield difference is greater than a set criterion.
2. Any site's yield is too low.
3. Any site's continuous fail count exceeds a specified count.

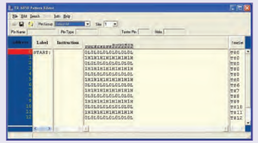


PRODUCTION WINDOW
Compact window to display test results & summary in mass production.

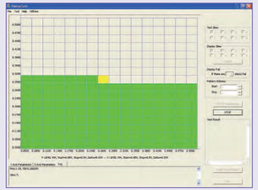
AC RESULT ANALYSIS TOOLS
The timing diagram help user understand relative timing among tester input and device output. With the graphic waveform, user can verify edited waveform as well.



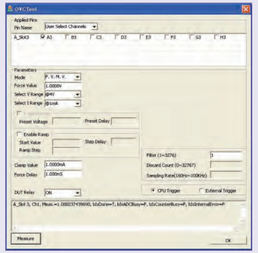
SPC TOOL
Engineering analysis tool to view each test parameter's statistics: test value histogram, min/max/mean value, standard deviation, Cp, Cpk.



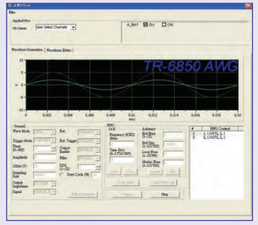
PATTERN EDITOR
View pattern file offline or view pattern memory online. Enable modifing pattern and save to file, also refreshing the patterns online by designating a specified range.



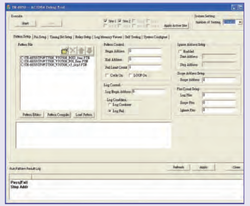
SHMOO TOOL
Enable to vary multiple parameters simultaneously to scan device's boundary.



DC DEBUG TOOLS
The TR6850S provides several DC modules (eg. OVC, PVC, OPAMP-LOOP) to measure DC parameters in different purposes. Users can change the testing parameters to process various measurements in the tool.



AWG/DIGITIZER DEBUG TOOLS
Use AWG & Digitizer debug tools to control the TR6850S AWG/Digitizer module for debugging purpose.



AC DEBUG TOOLS
The TR6850S provides two AC modules (eg. PEB64, TMU) to measure AC parameters in different purposes. Users can change the testing parameters to process various measurements in the tool.