

IST MODEL 878 TECHNICAL SPECIFICATIONS

DRIVING CONDITION IN FUNCTIONAL TEST

LOW DRIVE	$I_c \leq 10 \text{ ma}$ $I_b \leq 0.9 \text{ ma}$
HIGH DRIVE	$I_c \leq 350 \text{ ma}$ $I_b \leq 75 \text{ ma}$
DRIVING PULSE $\leq 300 \text{ us}$	

CONSTANT CURRENT SOURCE

RANGE	LOW	HIGH
1	3 ma	50 ma
2	10 ma	150 ma
3	30 ma	400 ma
4	35 ma	500 ma
5	40 ma	650 ma
6	50 ma	750 ma
7	70 ma	1000 ma

DUT OUTPUT LEVEL THRESHOLD LEVEL

LOGIC	OUT-CIRCUIT	IN-CIRCUIT
HIGH	11.0 V	6.80 V
LOW	1.18 V	2.20 V

DIODE FORWARD VOLTAGE (V_f) MEASUREMENT

MIN. $V_f > 0.1 \text{ V}$ WITH FORWARD CURRENT FROM 50 ma to 1,000 ma

ZENER DIODE BREAKDOWN VOLTAGE (V_z)

FROM 0.1V TO 30V WITH BIAS CURRENT FROM 3 ma TO 80 ma

VOLTAGE REGULATOR OUTPUT VOLTAGE (+/- V_o)

FROM 0.2 V to 26.0 V WITH OUTPUT LOADING CURRENT FROM 50 ma to 1.0 AMP

PARAMETERS FOR LEAKAGE CURRENT MEASUREMENT

BIPOLAR / MOSFET TRANSISTORS: I_{ces} , I_{ceo} , I_{cbo} , & I_{dss}
DIODE: I_r THYRISTOR (SCR/TRIAC): I_{drm}

TEST RANGE*	RESOLUTION	ACCURACY	GIVEN VOLTAGE
0-400 μA	0.1 nA	+/- 2%	0-1,099 V Programmable
0-4 μA	1 nA	+/- 1%	0-1,099 V Programmable
0-40 μA	10 nA	+/- 1%	0-1,099 V Programmable
0-400 μA	100 nA	+/- 1%	0-1,099 V Programmable
0-4 mA	1 μA	+/- 1%	0-1,099 V Programmable
0-40 mA	10 μA	+/- 1%	Not Available

MOSFET AND J-FET LEAKAGE CURRENT MEASUREMENTS

MOSFET: I_{gss} J-FET: I_{dss} , I_{gss}

TEST RANGE*	RESOLUTION	ACCURACY	GIVEN VOLTAGE
0-400 μA	0.1 nA	+/- 2%	0-30 V Programmable
0-4 μA	1 nA	+/- 1%	0-30 V Programmable
0-40 μA	10 nA	+/- 1%	0-30 V Programmable
0-400 μA	100 nA	+/- 1%	0-30 V Programmable
0-4 mA	1 μA	+/- 1%	0-30 V Programmable
0-40 mA	10 μA	+/- 1%	0-30 V Programmable

PARAMETERS FOR BREAKDOWN VOLTAGE MEASUREMENT

BIPOLAR / MOSFET TRANSISTORS: BV_{ceo} , BV_{ces} , BV_{cbo} , & BV_{dss}
DIODE: BV_r THYRISTOR: BV_{drm}

TEST RANGE	RESOLUTION	ACCURACY	GIVEN CURRENT
0-30 V	0.03 V	+/- 1%	0-40 mA auto-ranging
30-1,099 V	1.05 V	+/- 1%	0-4 mA auto-ranging

HIGH VOLTAGE SUPPLY

Max Output Voltage: 1,099 V
Max Output Wattage: 3 W

* - Autoranging

ACCESSORIES FURNISHED:

- 120 V or 220 V AC POWER ADAPTOR
- INSTRUCTION MANUAL
- THREE POINT PROBING DEVICE FOR IN-CIRCUIT TESTING
- TEST SOCKET ADAPTOR FOR TESTING SMD PACKAGES

OPTIONAL ACCESSORIES:

- THREE COLOR CODED TEST LEADS w/MINI PLUGS & TEST CLIPS
- TEST SOCKET ADAPTOR FOR TESTING OPTOISOLATORS
- HEAVY DUTY TEST SOCKET ADAPTOR FOR HIGH VOLUME PRODUCTION TEST

DIMENSIONS:

9.2" WIDE x 6.3" DEEP x 2.8" HIGH (23.3 cm x 16 cm x 7.1 cm)

SHIPPING WEIGHT:

7.5 lbs (3.4kg)

AC/AC POWER ADAPTOR:

INPUT: 120 VAC or 220 VAC +/- 5% 50/60 Hz
OUTPUT: 36 VAC with C.T. 800mA Max.



MODEL 878

PROGRAMMABLE PARAMETRIC TESTER FOR SEMICONDUCTOR DEVICES



The IST 878 is a low cost test instrument that provides in-circuit or out-circuit testing for a wide range of discrete semiconductors including:

- Bipolar Transistors
- MOSFETs
- IGBTs
- Diodes
- Zener Diodes
- Junction FETs
- SCRs
- TRIAC
- Optoisolators
- Voltage Regulators
- TVS (Varistors, SIDACs)



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INTRODUCING THE IST MODEL 878 PROGRAMMABLE PARAMETRIC TESTER FOR SEMICONDUCTOR DEVICES

Low/High Drive – Indicates that the DUT requires low or higher driving current in order to pass function tests. Higher driving current indicates DUT has poor current gain or some degree of malfunction.

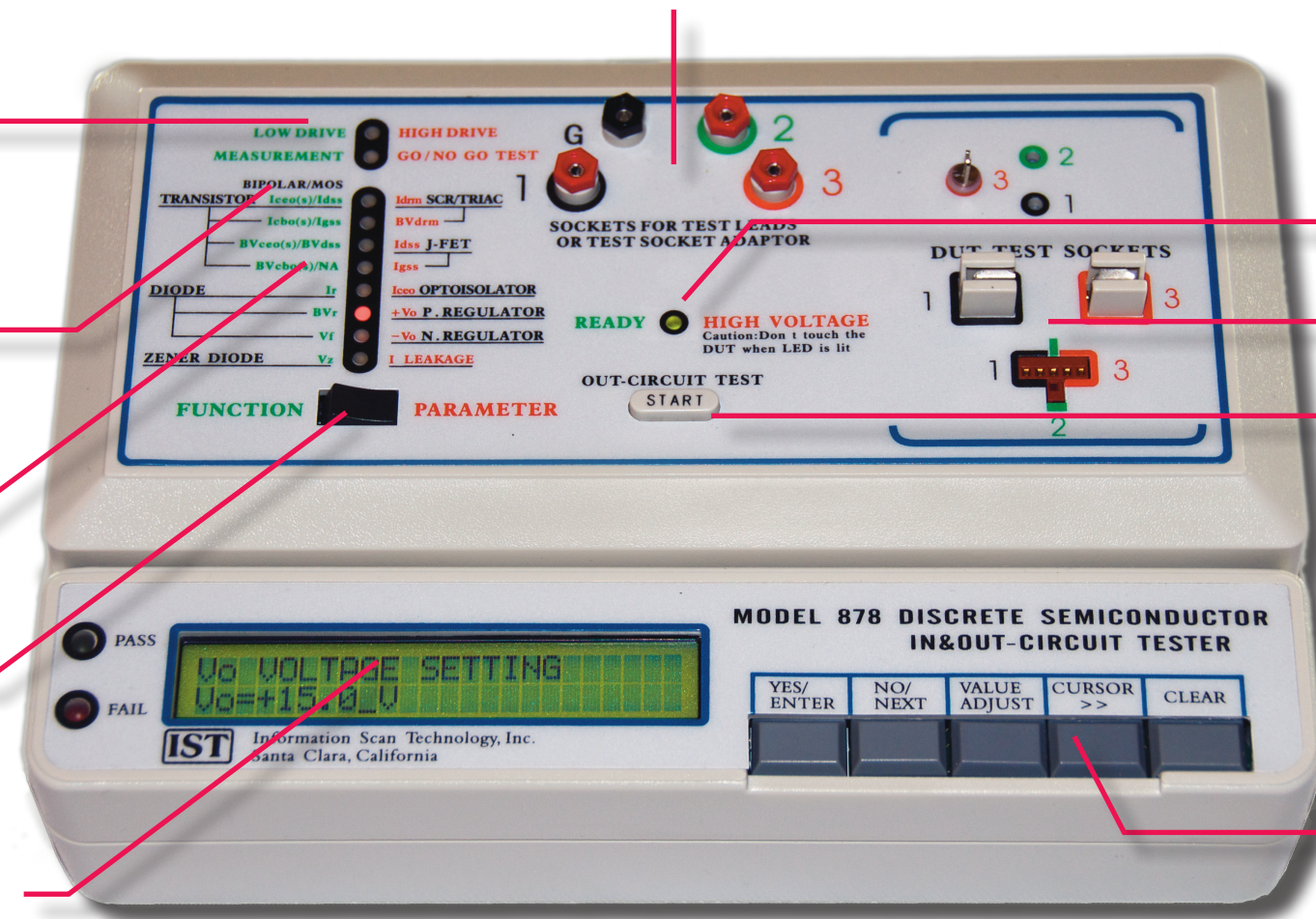
Measurement / Testing Mode – Indicates current mode as measurement or Go / No Go testing mode.

Device and Parameter Indicators – LEDs show test settings with parameter indicated with a green light and test type with a red light.

Parameter / Function Switch – Selects between a detailed parametric test or a self-configuring function and leakage current test

LCD Display and Status Indicator – The 2x24 LCD display shows user prompts, test results, and other operating information. The Pass or Fail LED shows the test result of a functional test or Parametric Go/No Go Test.

Test Adaptor Sockets – Sockets for test leads with miniature banana plugs or test adaptors for SMD and Optoisolator testing.



Ready / High Voltage Indicator – LED turns green when all test conditions are entered and red to indicate when a test is in progress and high voltage is being applied to the DUT.

DUT Test Sockets – The Device Under Test (DUT) can be loaded into one of the three test sockets in any direction without regard to the function or polarity of each pin. Function and polarity of corresponding pins are detected automatically during testing and are shown on the LCD display once the test is completed.

Start Button – When the green “Ready” LED is lit, this button initializes an out-circuit test.

Function Key Switches – Keys to select and setup testing procedure desired. Use to choose device type, parameters, and test condition values. Also used to clear test settings or to interrupt a test in progress.

FEATURES AND ADVANTAGES

No Setup

Self configuring test set-up allows for arbitrary loading of the Device Under Test (DUT). The DUT's polarity, function, and orientation is automatically detected. There's no need to find the right pin to access before testing.

Accessible Results

Pass or fail LEDs indicators quickly shows testing result status. A backlit LCD display shows observed measurements: parameter data, device type, device classification, and the function or polarity of each pin.

Detects Current Leaks

Sensitive current measurement detects damaged or degraded devices with leakage problems.

Versatile Operation

Multiple test sockets and test slot adaptor provides support for most types of through-hole and SMD component testing.

Constant Current Sink or Current Bias

Switches between a constant current sink for regulator output loading or current bias for measuring Diode or Zener Diode voltage.

Fingertip Test Activation

3-point probing device with fingertip test activation button makes in-circuit PCB testing fast and easy.

Programmable Voltage Source

Programmable voltage source up to 1,099 volts for breakdown voltage and leakage current testing.

Includes 22 Types of Testing Routines.

- Bipolar Transistors (I_{ceo} , I_{ces} , I_{cbo} , BV_{ceo} , BV_{ces} , BV_{cbo})
- MOSFETs (I_{dss} , I_{gss} , BV_{dss})
- Diodes (I_r , BV_r , V_f)
- Zener Diodes (V_z , I_z)
- Thyristor (I_{drm} , BV_{drm})
- J-FET (I_{dss} , I_{gss})
- Optoisolator (I_{ceo})
- Regulator (+/- V_o , +/- I load)
- I leakage*

* - Measures the voltage and current across any two terminals up to 1,099V for voltage and down to the “nA” range for current. Used for testing the clamping voltage (V_{br}) of Transient Voltage Suppressors, measuring the input impedance of a device (by OHM's law $R=V/I$), or detecting leakage current between two points (I leak).