i have tantalum capacitor 10 micro farad cylindical capACITOR AND TRISTOR MOSFET ZENNER DIODE AND RESISTOR AND TRANSISTOR HOW TO CHECK IT ON LONG RUNNER ELECTRONUIC COMPONENT TESTER IN TABLE FORM TO KEEP PIN TEST AND WHAT WOULD BE RESULT IN TABLE FORM IN LCD



To test various electronic components like a tantalum capacitor, cylindrical capacitor, thyristor, MOSFET, Zener diode, resistor, and transistor using a Longrunner electronic component tester (a popular multifunctional device based on the Transistor Tester by Karl-Heinz Kübbeler), you can use the following format to check and record the results.

General Testing Instructions:

- 1. **Turn off** the tester.
- 2. **Insert the component** legs into test sockets **pin 1, pin 2, pin 3** (any order, it autodetects).
- 3. **Turn on** the tester.
- 4. The display will show:
 - Component Type
 - Pinout
 - Values (e.g., resistance, capacitance, threshold voltage)

Table Format for Testing Components

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Component Type	Pins Used (1,2,3)	Detected As	LCD Display Result Example	Notes
Tantalum Capacitor 10µF	1 & 2	Capacitor	C=10.02μF ESR=0.80Ω Vloss=2%	ESR and Vloss help check health
Electrolytic Capacitor	1 & 2	Capacitor	C=47.1μF ESR=1.2Ω Vloss=5%	Watch ESR: high = bad
Resistor	1 & 2	Resistor	R=1.002kΩ	Accuracy ±1% typical
Zener Diode	1 & 2	Diode (may show Vf)	Diode, Vf=0.78V (Zener voltage NOT shown directly)	Zener voltage not measured
MOSFET (N-channel)	1, 2, 3	MOSFET-N	N-E-MOS D=1 G=2 S=3 Vth=2.1V Cgs=300pF	Shows pinout + threshold
Transistor (NPN)	1, 2, 3	NPN Transistor	NPN B=1 C=2 E=3 hFE=125 Uf=0.68V	Pinout, gain, and Vbe shown
Transistor (PNP)	1, 2, 3	PNP Transistor	PNP B=1 C=2 E=3 hFE=95 Uf=0.65V	
Thyristor (SCR)	1, 2, 3	Thyristor	Thyristor A=1 G=2 K=3	May need manual gate triggering

Important Notes:

- MOSFETs and BJTs will show gate/base threshold voltage, gain, and capacitance.
- Zener diodes are usually recognized as diodes only. Zener breakdown voltage is not measured on basic testers.
- Capacitor ESR (Equivalent Series Resistance) is a good health indicator; high ESR means it's degraded.
- Always discharge capacitors before testing.
- Thyristors/SCRs might not always trigger properly without a load—use caution.

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555 IC AND LED i have tantalum capacitor 10 micro farad cylindical capACITOR AND TRISTOR MOSFET ZENNER DIODE AND RESISTOR AND TRANSISTOR HOW TO CHECK IT ON LONG RUNNER ELECTRONUIC COMPONENT TESTER IN TABLE FORM TO KEEP PIN TEST AND WHAT WOULD BE RESULT IN TABLE FORM IN LCD

Here's a **complete table** to help you test all the components you listed—including **555 Timer IC, LED, capacitors, thyristor, MOSFET, Zener diode, resistor, transistor**—on your **Longrunner Electronic Component Tester** (based on the popular Karl-Heinz Kübbeler tester).

✓ How to Use:

- 1. Insert component pins into pin 1, 2, 3 in any order (unless specified).
- 2. Power on the tester.
- 3. LCD display shows:
 - Component type
 - Pinout
 - Electrical values
- 4. **Record results** in this format for your own logs or repair work.

Component Testing Table for Longrunner Tester

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No.	Component	Pins Used	Detected As	LCD Display Example	Notes
1	LED	1 & 2	Diode	Diode: Uf=1.84V	Shows forward vo polarity shown
2	Tantalum Capacitor (10µF)	1 & 2	Capacitor	C=10.02μF ESR=0.8Ω Vloss=2%	Tantalum is polariz Check ESR and Vlc
3	Cylindrical Electrolytic Capacitor	1 & 2	Capacitor	C=47.0μF ESR=1.1Ω Vloss=3%	Also shows health
4	Zener Diode	1 & 2	Diode	Diode Uf=0.76V	Zener breakdown voltage not testec forward shown
5	Resistor	1 & 2	Resistor	R=1.00kΩ	Accurate to ±1% t
6	NPN Transistor	1, 2, 3	NPN Transistor	NPN B=1 C=2 E=3 hFE=130 Uf=0.68V	Gain (hFE) and pin shown
7	PNP Transistor	1, 2, 3	PNP Transistor	PNP B=1 C=2 E=3 hFE=105 Uf=0.65V	Same as above
8	MOSFET (N-Ch)	1, 2, 3	N-E-MOS	D=1 G=2 S=3 Vth=2.2V Cgs=300pF	Pinout + Gate thre + capacitance
9	Thyristor (SCR)	1, 2, 3	Thyristor	Thyristor A=1 G=2 K=3	May not latch unle triggered by test
10	555 Timer IC	N/A	Not Detected	No unknown or damaged part found or No result	➤ ICs like 555 ca be tested on this c

Extra Notes:

• You cannot test ICs like the 555 Timer directly on the Longrunner tester. You need to build a test circuit or use a dedicated IC tester.

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- Always discharge capacitors before testing.
- For components like MOSFETs and thyristors, testing may vary depending on how the device triggers or latches.
- This tester uses **auto-detection**, so order of pins usually doesn't matter.

Would you like this in **Excel** or **PDF** format for printing or recordkeeping?



Thyristor (SCR) 1, 2, 3 Thyristor Thyristor A=1 G=2 K=3 May not latch unless triggered by test C106 M IS IT THRISTOR

Yes, the C106M is indeed a Thyristor (SCR).

✓ C106M Specifications (Quick Summary):

Parameter	Value
Туре	Silicon Controlled Rectifier (SCR)
Part Number	C106M
Max Voltage	400V
Max Current (It)	4 A
Gate Trigger Current (Igt)	~200 µA to 500 µA
Case Style	TO-225AA (Plastic)
Polarity	Anode (A), Cathode (K), Gate (G)

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How to Test C106M (Thyristor) on Longrunner Tester

Component	Pins Used	Detected As	LCD Display Example	Notes
C106M	1, 2, 3	Thyristor	Thyristor A=1 G=2	It may not latch unless
			K=3	triggered correctly by tester.

- Make sure to try different pin combinations (1-2-3, 2-3-1, etc.) to detect correct Anode, Gate, and Cathode.
- The tester sometimes fails to latch high-voltage SCRs, especially if the gate trigger current is outside its limited test pulse.

If Not Detected:

- Try using a manual test:
 - 1. Connect a small load (e.g. LED with resistor) in series with Anode and Cathode.
 - 2. Apply a brief gate pulse (via resistor or touch) and see if the LED stays on.
 - 3. This confirms the SCR is functioning (latching behavior).

Would you like a circuit diagram for manually testing the C106M SCR?



BROWN GREN ORANG GOLD RESITANCE

The color bands **Brown – Green – Orange – Gold** on a resistor represent its resistance value and tolerance. Here's how to decode it:

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Resistor Color Code:

Band No.	Color	Value
1	Brown	1 (1st digit)
2	Green	5 (2nd digit)
3	Orange	×1,000 (multiplier)
4	Gold	±5% (tolerance)

✓ Final Value:

- **Digits**: 1 (Brown), 5 (Green) → **15**
- Multiplier: Orange = ×1,000
- Tolerance: Gold = ±5%

$$\bigcirc$$
 \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc 15 × 1,000 = 15,000 ohms = 15 kΩ ±5%



Would you like a printable resistor color code chart?

HFE IS GAIN IN TRANSISTOR

Yes, you're absolutely right!



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What is hFE?

- hFE (sometimes written as β) is the DC current gain of a bipolar junction transistor (BJT).
- It tells you how much the collector current (Ic) is amplified compared to the base current (lb).

Formula:

$$hFE = \frac{I_C}{I_R}$$

So if a transistor has:

- Base current (lb) = 1 mA
- Collector current (Ic) = 100 mA

Then:

$$hFE = \frac{100 \text{ mA}}{1 \text{ mA}} = 100$$



On the Longrunner Tester:

• It shows something like:

NPN B=1 C=2 E=3 hFE=125 Uf=0.67V

- → This means:
- NPN transistor
- Base = Pin 1, Collector = Pin 2, Emitter = Pin 3
- Gain = 125
- Vbe = 0.67V

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Typical hFE Ranges:

Transistor Type	hFE Range
Small Signal (e.g., 2N3904)	100–300
Power Transistors	20–100
Darlington Pairs	1,000+

Let me know if you'd like a quick reference chart for transistor pinouts or hFE values!



SO FOR AMPLIFYING CURRENT

Yes, exactly! A transistor is used to amplify current, and hFE (or β) tells you how much it amplifies the current.

How Transistor Amplifies Current (Using hFE):

In a BJT (Bipolar Junction Transistor):

$$I_C = hFE \times I_B$$

So if you:

- Apply a small base current (lb)
- The transistor allows a much larger collector current (Ic) to flow
- This is how **current amplification** works.

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P Example:

If a transistor has:

- hFE = 100
- Base current = 1 mA

Then:

Collector current =
$$100 \times 1 \text{ mA} = 100 \text{ mA}$$

The transistor amplifies the 1 mA input to 100 mA output.

③ Use in Amplifier Circuits:

- Small input signal (current or voltage) applied to base
- Larger output appears at the **collector**
- The transistor acts like a current amplifier

% Applications:

Application	Role of Transistor
Audio Amplifier	Amplifies mic/speaker signals
Switch (digital)	Turns load on/off with small signal
Signal Amplifier	Boosts weak radio or sensor signals

Would you like a simple amplifier circuit diagram using a transistor?

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