

KI-3020A: Semiconductor Curve Tracer

Testing Instrument



Supported Devices:

Diodes:

Rectifier, Zener Diode, Tunnel diode

Transistors:

NPN, PNP, FET and MOSFET

Thyristors:

SCR, TRIAC, DIAC, UJT and PUT

Supported Circuit Bias:

Sweeping voltages (V_{ce} or V_{ds}):

5/10/20/30/40/50/60/80/100/150/200V

Stepping base current (I_b):

10/20/50 μ A; 0.1/0.2/0.5/1.0/2.0mA

Stepping gate voltage (V_g):

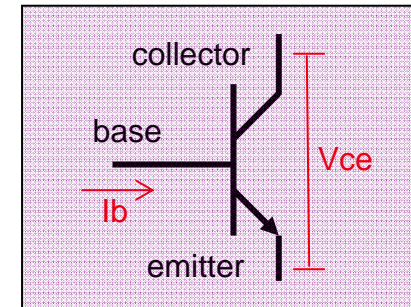
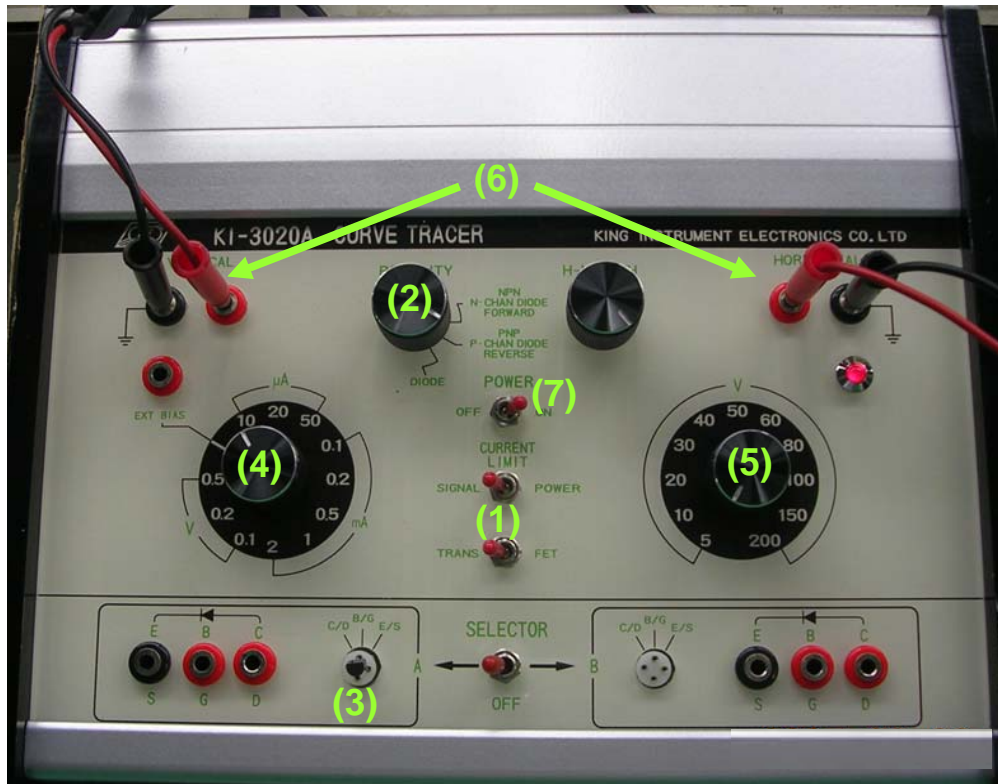
0.1/0.2/0.5V

- KI-3020A is a measurement platform allowing users to trace the I-V curve of different semiconductor devices, such as Diodes, Transistors, and Thyristors. With proper setup on the equipment panel, the I-V curve of the corresponding devices will be displayed on the screen of the oscilloscope for analysis purpose.
- The sweep voltage of KI-3020A is designed up to 200V, which is very suitable for power semiconductor devices measurement.

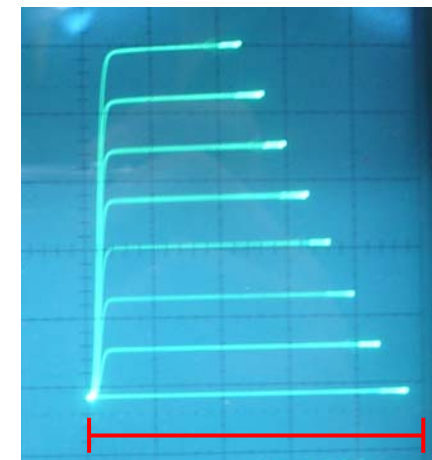
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Example: 7 steps to trace a NPN bipolar transistor



Result shown on the scope



$I_b = 70\mu A$
 $I_b = 60\mu A$
 $I_b = 50\mu A$
 $I_b = 40\mu A$
 $I_b = 30\mu A$
 $I_b = 20\mu A$
 $I_b = 10\mu A$
 $I_b = 0\mu A$

$V_{ce} = 5V$

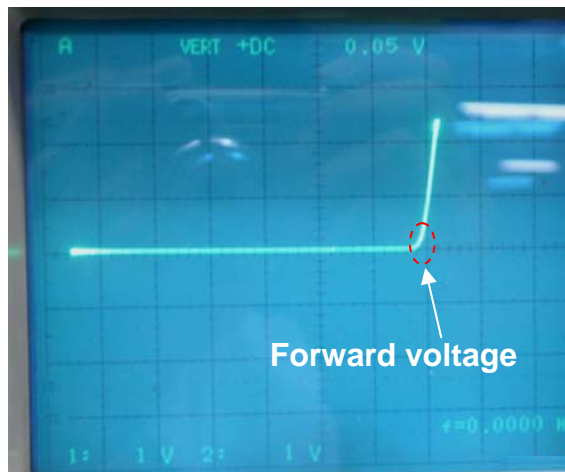
The instrument alternatively supply **seven** steps of base current in very short period so that all measuring results will show on same screen.

- (1) Select device type to "Transistor" and device power to "Low"
- (2) Set polarity to "NPN"
- (3) Place it on the testing socket
- (4) Set Base current I_b equal to $10\mu A$ / step
- (5) Set Collector-Emitter sweeping voltage V_{ce} equal to $5V$
- (6) Connect Horizontal and Vertical output to oscilloscope inputs
- (7) Turn on the Power

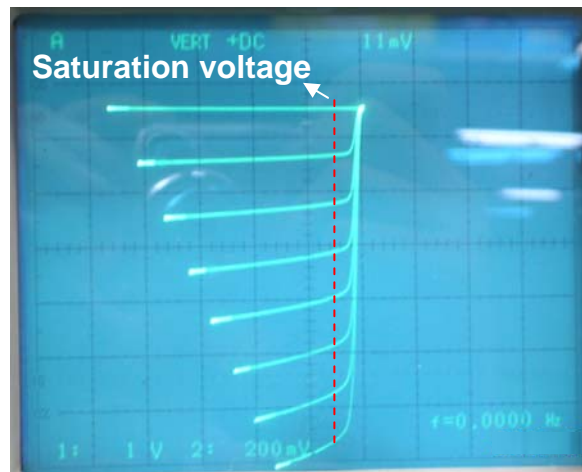
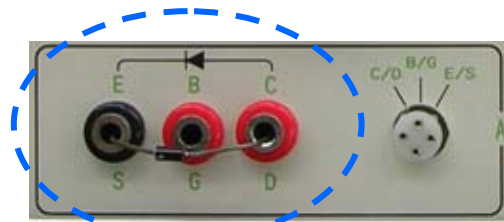
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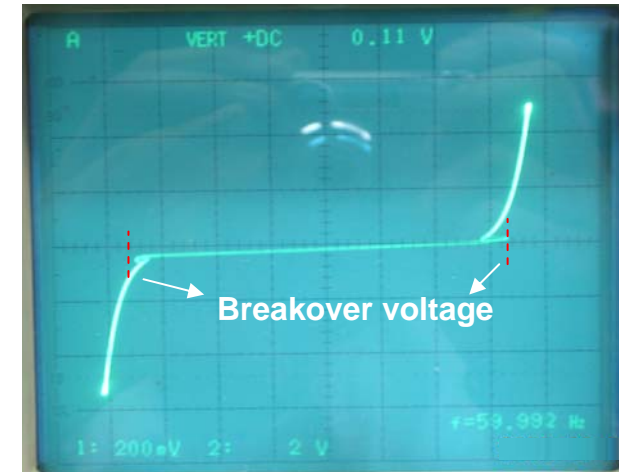
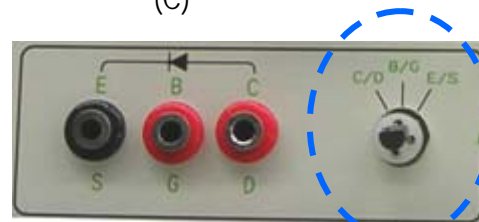
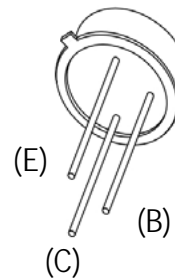
Determining device parameters from I-V curves displayed on oscilloscope screen



Diode



PNP Bipolar



TRIAC

