SIMPLE NPN TRANSISTOR MATCHING SETUP

Creating + and -10V supply for the constant current supply.

Adjust for -10V at point -10V.

DUT1 is the transistor being tested for matching.

Small desk fan or old computer fan to create a stream of room temperature air.

Both the transistors waiting to be tested and the transistor under test should be in a stream of moving air that is room temperature. Sticking the waiting transistors in anti-static foam is a good idea.

Hand pick and match input and feedback resistor to 0.1%.

You can use +/-15V supply because Z1 regulates the voltage to be adjusted to 10V. The -10V trim must be done if the power supply is changed.

Power supply bypass caps.

Each chip has .1uF cap close to power supply connections. The 4.7uF caps are for where the power supply comes into your PCB or breadboard.

The goal is to find transistors whose VBE matches to + or -2 millivolt. The typical voltage will nominally be around -600 millivolts or so. Use plastic tweezers to handle the devices because they are VERY temperature sensitive. After they are in the test socket measure the voltage after about 1 minute so the device has time to settle at room temperature.

The meter MUST be capable of reading to the millivolt range. Preferably to the 10 microvolt range. The voltage read will be negative (e.g. -610mV).