

BIPOLAR JUNCTION TRANSISTOR HFE

Using the Bipolar Junction Transistor hFE test, the FTI-1000 applies a programmable voltage from the Emitter to Collector of the Device Under Test, or DUT. A low power current source then ramps the base current while the collector current is monitored. Once the programmed collector current is reached, power is removed, and the hFE is calculated using the programmed collector current, and applied base current.

TEST CAPABILITY

Collector Current Range – 0 to 100A.

Base Current Range – 0 to 10A*.

Collector to Emitter Bias Voltage range – 0 to 55V.

*Note: Base currents of greater than 100mA require the HPS CH1 hardware configuration.

PARAMETERS

IC – The collector current at which the hFE will be calculated.

VCE- The applied collector to emitter voltage bias at which the hFE will be calculated.

Samples- The amount of samples used when measuring the collector current. Increased samples will typically improve accuracy.

Pulsewidth- The maximum length of time the test will be run.

LIMITS

HFE_Min- The minimum calculated hFE for a passing device.

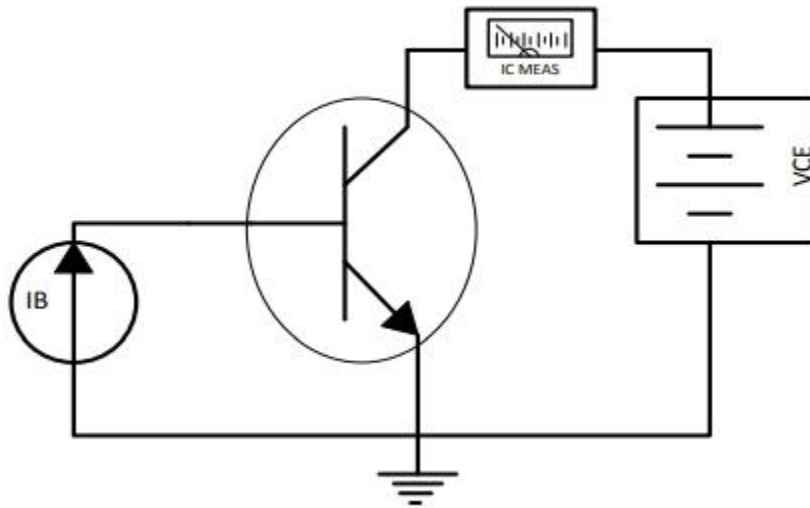
HFE_Max- The maximum calculated hFE for a passing device.

hFE Screen View Of The Passed Parameters

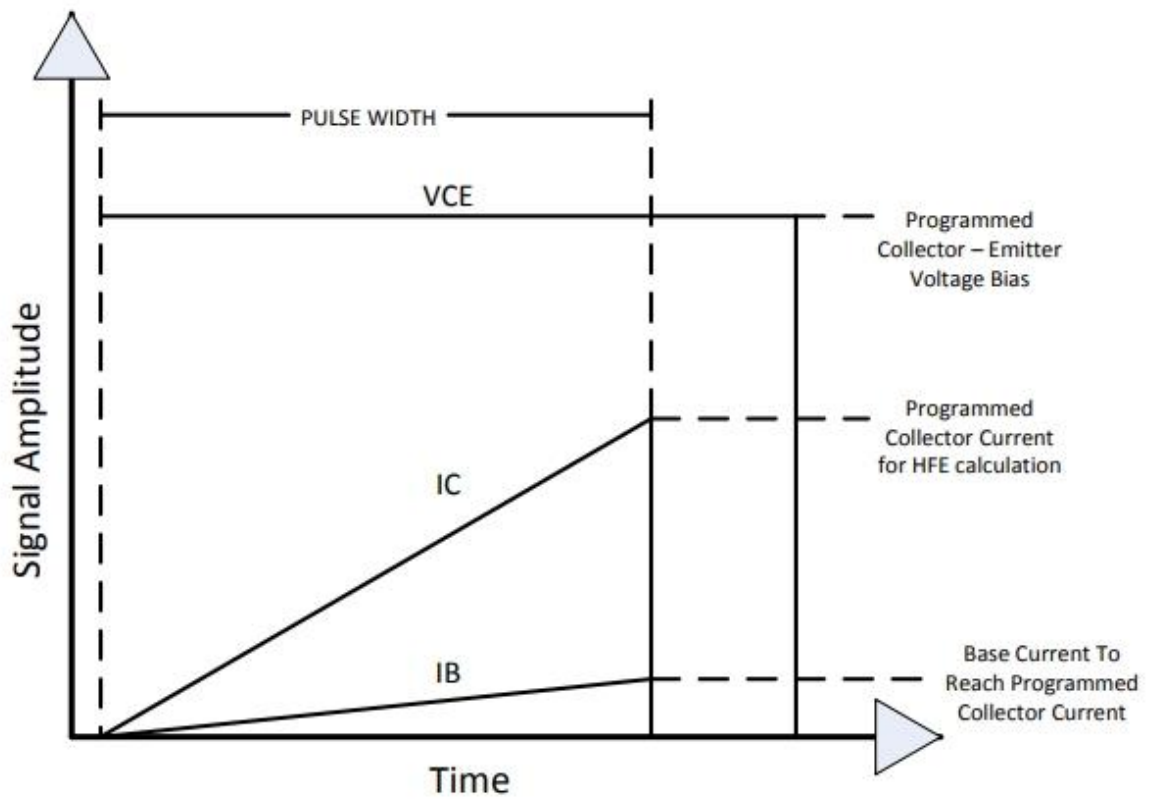
Limits	
HFE_Max	HFE_Max
HFE_Min	HFE_Min
Setup	
IC	0
PulseWidth	0.0005
VCE	0
Z_SuperUser	
Samples	1
HFE_Max	

TEST CONFIGURATION AND PROFILE

HFE Test Configuration



hFE Test Profile



*Note – The waveforms of the test profile diagram are drawn to describe the test theory. Actual waveforms will vary based on the device tested, and programmed values.

Test Data Logging

Once completed, the hFE test will display the calculated value in the data log screen of FTI Studio. Below is an example of a DUT that has failed the hFE test.



The screenshot shows a data log window with the following text:

DEVICE 12	FLOW HFE Testing	SITE 1	SBIN 2	HBIN 2	FAIL
TestName	Test	Min	Value	Max	
HFE	11.0F	50.0	20.125	120.0	HFE