SpikeSafe SMU: Precision pulses with low noise digitizer simplify generation of IV curves.

500mA SpikeSafe SMU Source Measure Unit

- Speed up your test system with precision and accuracy
- Fast pulse with nanosecond rise times keep junction temperature low
- Integrated low noise digitizer with ranges to 400V
- Measurements synchronized with fast pulse
- Easily generate IV plots using Vektrex developed Control Panel Software
- Integrated bias source enables in-situ junction temperature measurements

CONFIGURATION

1 source channel

DRIVE CAPABILITY

DC, SINGLE PULSE, CONTINUOUS PULSE, MONOPULSE, SWEEP, QCW and BIAS
500mA
400V max compliance

MEASURE CAPABILITY

4 wire measure, ranges 10V, 100V and 400V

CE RoHS COMPLIANT

OVERVIEW

SpikeSafe SMU is a precision pulsed source measure unit that precisely sources pulsed current and simultaneously measures voltage. A precision pulsed source measure unit (SMU) has fast rise/fall times, programmable load tuning and on-the-fly pulse width correction. Together, these mean the device has less heating and more uniform heating. The result is unmatched measurement stability - described by one customer as “crazy stable”. With Spikesafe protecting your devices, never again be concerned that your SMU will blow up your device, your wafer or itself. Finally, with nanosecond pulse rise times and precision digital triggering, reproducible light measurements for high power devices are possible. Improve your measurements with precision and accuracy and reduce your cost of test.

ACCURATE AND REPEATABLE PULSING - NANOSECOND RISE TIMES

For measurement accuracy, precision pulsing and digital triggering are foundation requirements that the SpikeSafe SMU provides. Digital power enables the SpikeSafe SMU to provide sustained power and highly accurate pulses at full power. Nanosecond rise times and pulse widths (50μs, 10μs and 1μs) offer unparalled flexibility. With the SpikeSafe SMU, light measurement and other photometric measurement accuracy will be greatly improved enhancing your market position.

EASILY AND RAPIDLY GENERATE IV CURVES

Leverage SpikeSafe SMU fast pulsing and sweep capability to simply and rapidly generate temperature independent IV curves. Vektrex developed Control Panel Software Application delivered with the Spikesafe SMU provides access to all Spikesafe SMU features. Easily Connect, Control, Configure, Monitor, Measure and improve your testing.

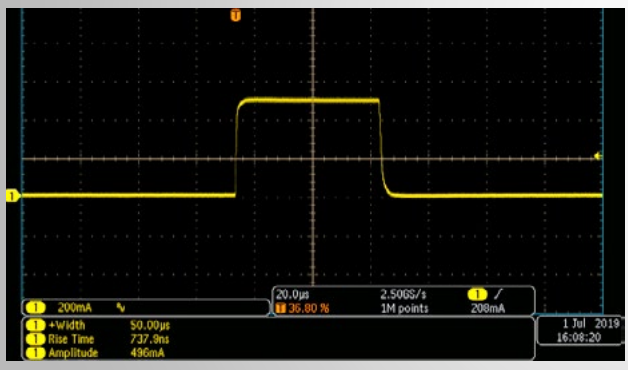
CRAZY STABLE DIGITIZER

The crazy stable digitizer is amazing. Low noise and precision allow measurement visibility not previously available. High voltage range allows accurate Vf measurement above 10V. One and done – precision and accuracy eliminate need for averaging improving your test system and speeding tests.

APPLICATIONS

- Measurements in constant current and pulsed modes
- Device Characterization
- Short pulses speed binning applications
- Testing to measurement standards
- Calibration Applications
- Thermal resistance and junction temperature measurements
- Easily generate IV curves
- JEDEC ETM Junction Temperature Measurements

500mA SpikeSafe SMU



Precision pulsing plus a low noise digitizer ensure repeatable precise measurements.

SpikeSafe SMU allows you to see more about your measurements than previously possible. Knowledge is power! A hardware timing system with 1us pulse capability, micro-edge placement, and on-the-fly pulse width adjustment reduces junction heating eliminating shifts in measured parameters caused by heating. Low noise digitizer synchronized to pulses allows Vf measurements to be precisely timed. Measuring Vf(0) is possible. Learn more about your devices with better measurements; possible when using SpikeSafe SMU.

CURRENT SOURCE PERFORMANCE

Modes	DC, Single Pulse, Continuous Pulse, Sweep, Bias
Max Output Current	500mA
Max Compliance Voltage	400V
Max DC Output Power	200W
Max Pulsed Output Power	200W
Output Current Accuracy	0.05%+10µA (Low Range) 0.05%+75µA (High Range)

MEASURE PERFORMANCE

Measure Method	4 wire
Ranges	3 Ranges, 10V, 100V and 400V
Input Impedance	1MΩ -1.4MΩ
Coupling	DC Coupled, All Ranges
Maximum Common Mode	Sense+ or Sense- must be <420VDC from Chassis Ground or Force+ or Force-
ADC Sample Rate	500,000 samples/second, continuous sampling
Digitizer Type	True Differential
Resolution	18 Bits
Programmable Measurement Aperture	2µs to 400ms, 500kHz samples boxcar averaged to form measurement points
Measurement Trigger	Software or hardware
Hardware Trigger Edge Polarity	Programmable
Trigger Delay	Programmable 0 to 400ms, 2µs resolution
Measurement Points Per Acquisition	1 to 525
Autozero Function	Reduces measurement offset

PULSE PERFORMANCE

Time Base Accuracy	50ppm
Pulse Width Range	Min (1µs, 10µs, 50µs) to 15000s
Pulse Width Resolution	1µs (11ns with pulse width offset)
Pulse Width Accuracy	1µs (50ns with pulse width offset)
Pulse Period Range	30µs-30000s
Duty Cycle Range	0-100%
Pulse Width Jitter	<30ns typical
Rise/Fall Time	200ns to 3µs
Sweep Steps	3-10000 (Pulsed Sweep mode)

TRIGGER IN

Signal Type	3.3V logic (5V tolerant)
Polarity	Programmable
Modes Supported	Multiple Pulse, Pulsed Sweep, Modulated Current
Programmable Delay	Programmable delay, 0µs to 30s
Delay Programming Resolution	1µs
Delay Jitter	Multiple Pulse Mode: 3.4µs Pulsed Sweep Mode: 107µs

TRIGGER OUT

Signal Type	5V logic, 50Ω pull-up and open collector outputs
Polarity	Programmable
Trigger Jitter	<10ns typical
Programmable Delay	Programmable delay, 0µs to 30s

Follow this link to access complete specifications for the SpikeSafe SMU.