GX3116e

16 CHANNEL DEVICE POWER SUPPLY (DPS) / SMU

- 16 Independent DPS / SMU Channels
- 4-Quadrant Operation (FV/MI, FI/MV)
- -2 V to +10.5 V Programmable per Channel
- Up to ±512 mA Full Scale per Channel
- Parallel Current Ganging up to 4 A per Card
- Kelvin Connection Sensing per Channel
- Over-current/voltage Sensing / Alarm per Channel
- External Trigger / Synchronization
- PXI Express / Hybrid Slot compatible

DESCRIPTION

The GX3116e Device Power Supply (DPS) delivers the highest density, most flexible, isolated semiconductor device power supply solution available. Each of the 16 independent, isolated, power supply channels provides 4-quadrant source-measure unit (SMU) functionality, making this the ideal solution for many existing and emerging multisite semiconductor test applications.

Greatly exceeding the capabilities of commonly available DPS instrumentation, the ability to force voltage/measure current (FV/MI) and force current/measure voltage (FI/MV) on an individual channel basis provides exceptional flexibility, and simplifies test system expansion by supporting hundreds of channels in 16 channel increments.

FEATURES

The GX3116e is a precision four-quadrant, 16 channel Device Power Supply (DPS) capable of forcing and measuring both voltage and current on all 16 channels independently. It incorporates two electrically isolated groups of 8 programmable voltage/current source and measurement channels.

Three programmable current ranges are available: 2.56 mA, 25.6 mA and 512 mA; the voltage output range is determined by the current range selection. In low current ranges the DPS can force between -2 V and 10.5 V, and in high current mode (>25.6 mA), the DPS can force between 0 V and 9.5 V. Multiple channels can be ganged together to achieve higher current levels, with a maximum current output of 2 A per bank; additionally, both banks can be ganged together to extend the total available output current to 4 A.

In constant voltage mode, the DPS forces a voltage whose current output is determined by the programmable source/sink current limits. The output voltage can be sensed either locally or remotely utilizing Kelvin connections available on a per channel basis. Kelvin connections provide the best voltage accuracy at the device under test (DUT), ensuring that the DUT receives the required excitation levels independent of cabling and other interconnects.

Each channel has a ground sense which can be connected to local ground or to the DUT ground. The ground sense, when connected to the DUT, is capable of tracking the DUT ground level and adjusting its output accordingly for additional configuration flexibility.

In constant current mode the DPS forces a current, and the voltage output is limited by programmable high/low voltage limits. Output voltage and current levels are set with 16 bits of resolution, and measurement readback with 24 bits of resolution. Each channel can be protected and disabled when an over current, over voltage or over temperature condition is detected.

SOFTWARE

The instrument is supplied with the GXSMU software package that includes a virtual instrument panel, and a Windows 32/64-bit DLL driver library and documentation. The virtual panel can be used to interactively program and control the instrument from a window that displays the instrument's settings and status.

Interface files are provided to support access to programming tools and languages such as ATEasy, LabView, LabView/Real-Time, C/C++, C#, Microsoft Visual Basic®, Delphi, and Pascal. An On-Line help file and a PDF User's Guide provides documentation that includes instructions for installing, using and programming the board. A separate software package, GtLinux, provides support for Linux 32/64 operating systems.

APPLICATIONS

- Semiconductor component test and characterization
- ATE board and system level test

POWER SUPPLIES

GX3116e

SPECIFICATIONS

HARDWARE	
I/O Connections	SMU: Hi, Lo (per channel) Kelvin: Hi, Lo (per channel)
Connector	DB 50 female

VOLTAGE SOURCE	
Resolution	16 bits
Range	-2.0 V - +10.5 V FS @ no load -1.0 V - +9.5 V FS @ full load
Accuracy	±(0.1% programmed value +15mV)
Isolation	±60 VDC (relative to PXI ground), CAT I (implemented in 8-channel groups)
Maximum Voltage	±60 VDC (Lo - PXI Gnd) ±20 VDC (Hi - Lo)
Noise / Ripple	<20 mVpp, 20 MHz, full load
Settling Time	10% of current range - 10 us typical 90% of current range - 100 us typical
Transient Response	±20 mV of programmed value (80% load change) 100 us typical

VOLTAGE MEASUREMENT	
Resolution	24 bits
Range	-2 VDC to +14 VDC
Accuracy	±0.02% of reading + 2% FS

CURRENT SOURCE	
Resolution	16 bits
Ranges	512 mA, 25.6 mA, 2.56 mA
Accuracy	±1% FS

CURRENT MEASUREMENT	
Resolution	24 bits
Ranges	512 mA, 25.6 mA, 2.56 mA
Accuracy	±0.02% of reading + 2% FS

POWER	
3.3 VDC	1.6 A
12 VDC	100 mA (min); 5.8 A (max)

ENVIRONMENTAL AND PHYSICAL	
Temperature Range	Operating: 0 to +40 °C Storage: -20°C to +70 °C
Format	PXIe, 3U single slot, hybrid slot compatible

Note: Specifications are subject to change without notice

ORDERING INFORMATION

GX3116e	16 Channel Device Power Supply (DPS) / SMU
CALIBRATION	
GX3116-CAL Series	GX3116 Calibration/Verification Service. Includes pre-verification data (post calibration data provided if applicable)
CalEasy	CalEasy License for all Supported Marvin Test Solutions Products (Single User License) with One Year Support and Subscription
CalEasy-2Y	CalEasy License for all Supported Marvin Test Solutions Products (Single User License) with Two Year Support and Subscription
CalEasy-3Y	CalEasy License for all Supported Marvin Test Solutions Products (Single User License) with Three Year Support and Subscription

POWER SUPPLIES

MARVIN TEST SOLUTIONS