DATA SHEET

Mobile Communications

DC Power Module for the N6700 Modular Power System

Introduction

Designed specifically to test battery-powered (mobile) devices in manufacturing

- Up to 4 outputs in 1U of rack space
- Modern connectivity – USB, LXI-C certified LAN, and GPIB
- Fast output voltage transient response to ensure uninterrupted tests
- Built-in digitizing measurement system for fast, accurate measurements

Designed for manufacturing, automated test environments

The Keysight Technologies, Inc. N6783A-MFG mobile communications DC power module offers advanced features specifically for testing battery-powered (mobile) devices in manufacturing or automated test environments. The N6783A-MFG has excellent voltage transient response which ensures a stable output voltage is maintained at the device under test (DUT) during load transients. This maximizes system throughput by eliminating inadvertent device shutdowns that occur if the voltage is allowed to droop too low, such as when a non-specialized power supply is used. The built-in digitizer also allows for maximum throughput by providing fast, accurate, flexible measurements that are customizable to the level of speed and accuracy desired.

KEYSIGHT TECHNOLOGIES

Key features

- Up to 4 outputs in 1U of rack space when used in the N6700B low-profile modular power system mainframe
- Modern connectivity – USB, LXI-C certified LAN, and GPIB (resides in mainframe, not module)
- Fast output voltage transient response to ensure uninterrupted tests
- High-speed digitized measurements increase system throughput by performing fast measurements up to every 20 µs with the built-in 50 kHz digitizer
- Two current measurement ranges for accurate measurement of transmit as well as stand-by currents
- Current sinking for testing and calibrating charger circuitry
- Protection features, such as overvoltage and over-current protection (OVP and OCP)
- Part of the flexible N6700 modular power system family which enables you to customize your test system to your specific needs with over 20 DC power modules to choose from

Part of the N6700 modular power system family

The new N6783A-MFG is a part of the N6700 modular power system family, which consists of the N6700 low-profile mainframes for automated test environments and the N6705 DC power analyzer mainframe for R&D. The product family has four mainframes and over 25 DC power modules, providing a complete spectrum of solutions, from R&D through design validation and manufacturing. For more information please visit: www.keysight.com/find/n6700

Advanced mobile device test: battery drain analysis, battery emulation

The N6783A-MFG was designed for manufacturing test only. For advanced battery drain analysis and/or battery emulation in R&D use the N6781A 2-quadrant source/measure unit for battery drain analysis. For additional details visit www.keysight.com/find/n6781

Performance Specifications and Characteristics

This is an abbreviated list of the specification and characteristics. For the full list of specifications and characteristics, please see the *N6700 Module Power System Specifications Guide, literature number N6700-90001.*

N6783A-MFG specifications

DC Output ratings	
Voltage	6 V
Current[1]	– 2 A; 0 to +3 A
Power	18 W
Output ripple and noise (PARD) (from 20 Hz to 20 kHz)	
CV peak-to-peak	8 mV
CV rms	1.5 mV
Load effect (regulation) (for any output load change, with a maximum load-lead drop of 0.5V/lead)	
Voltage	6 mV
Current	2 mA
Source effect (regulation)	
Voltage	2 mV
Current	1 mA

1. Output current is derated 1% per °C above 40 °C.

N6783A-MFG specifications (continued)

Programming accuracy (@ 23 °C ± 5 °C after a 30 minute warm-up)	
Voltage	0.1% + 10 mV
Positive current	0.1% + 1.8 mA
Measurement accuracy (@ 23 ºC ± 5 ºC)	
Voltage[2]	0.05% + 5 mV
Current high range[2]	0.1% + 600 µA
Current low range (≤ 150 mA)[2]	0.1% + 75 µA
Load transient recovery (Time to recover to within settling band for a load change from 0.15 A to 1.5 A and from 1.5 A to 0.15 A at 6 V output.)	
Voltage setting[3]	± 75 mV
Time[3]	< 45 µs

2. Applies when measuring the default value of 1024 data points.
3. When relay Option 761 is installed, the settling band is ± 90 mV. The time is < 75 µs.

Supplemental Characteristics

N6783A-MFG characteristics

Programming ranges	
Voltage	15 mV to 6.12 V
Positive current	5 mA to 3.06 A
Negative current	Fixed at – 2 A
Programming resolution	
Voltage	2.5 mV
Positive current	1 mA
Measurement resolution	
Voltage	300 µV
Current high range	100 µA
Current low range (≤ 0.150 A)	5 µA
Programming temperature coefficient per °C	
Voltage	25 ppm + 50 µV
Current	25 ppm + 10 µA
Measurement temperature coefficient per °C	
Voltage	25 ppm + 40 µV
Current high range	25 ppm + 2.5 µA
Current low range (≤ 0.150 A)	25 ppm + 1.5 µA
Maximum up-programming and down-programming time with full resistive load (time from 10% to 90% of total voltage excursion)	
Voltage Settling from 0 V to Full Scale	4.0 ms
Voltage Settling from Full Scale to 0 V	4.0 ms
Maximum up-programming and down-programming settling time with full resistive load (time from start of voltage change until voltage settles within 0.1% of the full-scale voltage of its final value)	
Voltage Settling from 0 V to Full Scale	20 ms
Voltage Settling from Full Scale to 0 V	20 ms

Supplemental Characteristics (continued)

N6783A-MFG characteristics

Over-voltage protection	
Accuracy without disconnect relays	0.25% + 75 mV
Accuracy with disconnect relays	0.25% + 275 mV
Nominal range	0 – 10 V
Programmable delay time	60 µs – 5 ms (from occurrence of over-voltage condition to start of output shutdown)
Over-Current protection	
Programmable delay time	0 – 255 ms
Nominal Range	5 mA – 3.06 A
Output ripple and noise (PARD)	
CC rms	4 mA
Common mode noise (from 20 Hz – 20 MHz; from either output to chassis)	
Rms	1 mA
Peak-to-peak	6 mA
Remote sense capability	
	Outputs can maintain DC specifications with up to a 0.5-volt drop per load lead. Maximum sense lead resistance is limited to 300mΩ/lead.
Series and parallel operation	
	Identically rated outputs can be operated directly in parallel. N6783A modules cannot be used in series with other N6783A modules or any other N67xx module. Auto-series and auto-parallel operation is not available.
Down-programming capability	
Continuous power	12 W
Continuous current (applies above 0.50 V output)	2 A

Ordering information

Model number: N6783A-MFG
Description: Mobile Communications DC Power Module

Web resources

Visit our web sites for additional product information and literature.

N6783A-MFG Mobile Communications DC Power Module
www.keysight.com/find/n6783a-mfg

N6700B Low-Profile Modular Power System Mainframe
www.keysight.com/find/n6705

N6781A 2-Quadrant Source/Measure Unit for Battery Drain Analysis
www.keysight.com/find/n6781

Related literature

- *Keysight N6700 MPS Low-Profile Modular Power System Product Overview*, literature number 5989-1411EN
- *N6700 Modular Power System Specifications Guide*, literature number N6700-90001

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

KEYSIGHT TECHNOLOGIES