Keysight Technologies

# 6540A Series Single-Output, 200 W DC Power Supplies

Data Sheet



KEYSIGHT TECHNOLOGIES

# Introduction

## Speed and accuracy for test optimization

This reliable series of 200 W DC power supplies can be controlled either from the front panel or via an analog programming voltage. When used in a test system, the fast up and down programming helps decrease test time. Quickly reacting protection features, including fast crowbar, CV/CC mode crossover and over-voltage protection help protect your valuable assemblies from damage. The linear topology produces very low ripple and noise, which allows you to make extremely accurate measurements of the devices which you are testing.

Lab bench use is enhanced by the fan speed control, which helps to minimize acoustic noise.

# Specifications

| **Specifications** *(at 0 ° to 55 °C unless otherwise specified)* | **6541A** | **6542A** | **6543A** | **6544A** | **6545A** |
|---|---|---|---|---|---|
| **Number of outputs** | 1 | 1 | 1 | 1 | 1 |
| **GPIB** | No | No | No | No | No |
| **Output ratings** | | | | | |
| Voltage | 0 to 8 V | 0 to 20 V | 0 to 35 V | 0 to 60 V | 0 to 120 V |
| Current | 0 to 20 A | 0 to 10 A | 0 to 6 A | 0 to 3.5 A | 0 to 1.5 A |
| Maximum current (50 °C/55 °C) | 18 A/17 A | 9 A/8.5 A | 5.4 A/5.1 A | 3.2 A/3 A | 1.4 A/1.3 A |
| **Programming accuracy** (at 25 °C ± 5 °C) | | | | | |
| Voltage 0.06% + | 5 mV | 10 mV | 15 mV | 26 mV | 51 mV |
| Current 0.15% + | 26 mA | 13 mA | 6.7 mA | 4.1 mA | 1.7 mA |
| **Ripple and noise** from 20 Hz to 20 MHz | | | | | |
| Voltage rms | 300 µV | 300 µV | 400 µV | 500 µV | 700 µV |
| peak-to-peak | 3 mV | 3 mV | 4 mV | 5 mV | 7 mV |
| Current rms | 10 mA | 5 mA | 3 mA | 1.5 mA | 1 mA |
| **Load regulation** | | | | | |
| Voltage | 1 mV | 2 mV | 3 mV | 4 mV | 5 mV |
| Current | 1 mA | 0.5 mA | 0.25 mA | 0.25 mA | 0.25 mA |
| **Line regulation** | | | | | |
| Voltage | 0.5 mV | 0.5 mV | 1 mV | 1 mV | 2 mV |
| Current | 1 mA | 0.5 mA | 0.25 mA | 0.25 mA | 0.25 mA |

**Transient response time**

Less than 100 µs for the output voltage to recover to its previous level (within 0.1% of the voltage rating of the supply or 20 mV, whichever is greater) following any step change in load current of up to 50% of the output current rating of the supply

| **Supplemental characteristics** *(Non-warranted characteristics determined by design and useful in applying the product)* | **6541A** | **6542A** | **6543A** | **6544A** | **6545A** |
|---|---|---|---|---|---|
| **Average programming resolution** | | | | | |
| Voltage | 2 mV | 5 mV | 10 mV | 15 mV | 30 mV |
| Current | 6 mA | 3 mA | 2 mA | 1.2 mA | 0.5 mA |
| OVP | 13 mV | 30 mV | 54 mV | 93 mV | 190 mV |
| **OVP accuracy** | 160 mV | 400 mV | 700 mV | 1.2 V | 2.4 V |

# Specifications, continued

| **Specifications** *(at 0 ° to 55 °C unless otherwise specified)* | **6541A-J04** Special order option | **6544A-J09** Special order option | **6545A-J05** Special order option |
|---|---|---|---|
| **Number of outputs** | 1 | 1 | 1 |
| **GPIB** | No | No | No |
| **Output ratings** | | | |
| Voltage | 13 V | 70 V | 150 V |
| Current | 15.3 A | 3 A | 1.2 A |
| Maximum current (50 °C/55 °C) | 13.77 A/13 A | 2.7 A/2.55 A | 1.08 A/1.02 A |
| **Programming accuracy** (at 25 °C ± 5 °C) | | | |
| Voltage 0.06% + | 8.5 mV | 31 mV | 65 mV |
| Current 0.15% + | 21 mA | 4.1 mA | 1.7 mA |
| **Ripple and noise** from 20 Hz to 20 MHz | | | |
| Voltage rms | 300 µV | 600 µV | 900 µV |
| peak-to-peak | 3 mV | 6 mV | 9 mV |
| Current rms | 8 mA | 1.5 mA | 1 mA |
| **Load regulation** | | | |
| Voltage | 1 mV | 4.5 mV | 7 mV |
| Current | 1 mA | 0.25 mA | 0.25 mA |
| **Line regulation** | | | |
| Voltage | 0.5 mV | 1.5 mV | 2.5 mV |
| Current | 1 mA | 0.25 mA | 0.25 mA |

**Transient response time**

Less than 100 µs for the output voltage to recover to its previous level (within 0.1% of the voltage rating of the supply or 20 mV, whichever is greater) following any step change in load current of up to 50% of the output current rating of the supply

| **Supplemental characteristics** *(Non-warranted characteristics determined by design and useful in applying the product)* | **6541A-J04** Special order option | **6544A-J09** Special order option | **6545A-J05** Special order option |
|---|---|---|---|
| **Average programming resolution** | | | |
| Voltage | 3.5 mV | 1.4 mV | 37.5 mV |
| Current | 5 mA | 1.2 mA | 0.5 mA |
| OVP | 23 mV | 110 mV | 250 mV |
| **OVP accuracy** | 260 mV | 1.5 mV | 3 V |

# Supplemental characteristics for all model numbers

**DC floating voltage:** Output terminals can be floated up to ± 240 VDC from chassis ground

**Remote sensing:** Up to half the rated output voltage can be dropped in each load lead. The drop in the load leads subtracts from the voltage available for the load.

**Output programming response time:** The rise and fall time (10/90% and 90/10%) of the output voltage is less than 15 ms. The output voltage change settles within 1 LSB (0.025% x rated voltage) of final value in less than 60 ms.

**Down programming:** An active down programmer sinks approximately 20% of the rated output current

**Modulation:** (Analog programming of output voltage and current)
**Input signal:** 0 to -5 V
**Input impedance:** 10 kΩ nominal

**AC input:**
(AC input frequency 47 to 63 Hz)

| **Voltage** | 100 VAC | 120 VAC | 220 VAC | 240 VAC |
|---|---|---|---|---|
| **Current** | 4.4 A | 3.8 A | 2.2 A | 2.0 A |

**Input power:** 480 VA, 400 W at full load; 60 W at no load

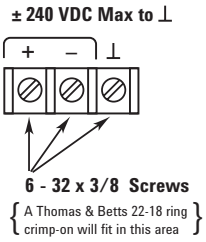
**Regulatory compliance:** Conforms to UL1244 and IEC 61010-1

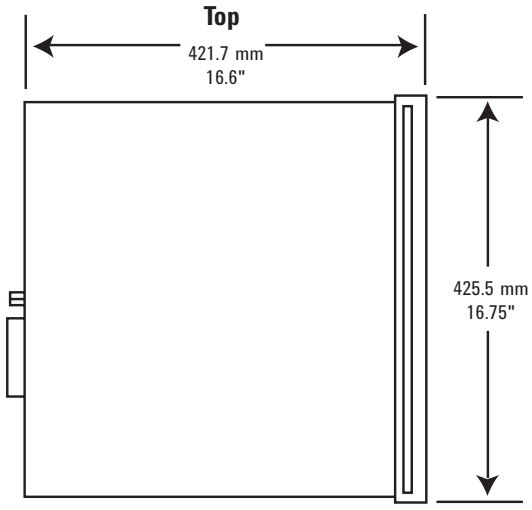
**Size:**
425.5 mm W x 88.1 mm H x 439 mm D
(16.75 in x 3.5 in x 17.3 in)

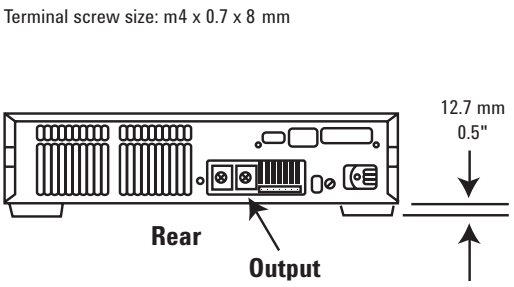
**Weight:** Net, 14.2 kg (31.4 lb); shipping, 16.3 kg (36 lb)

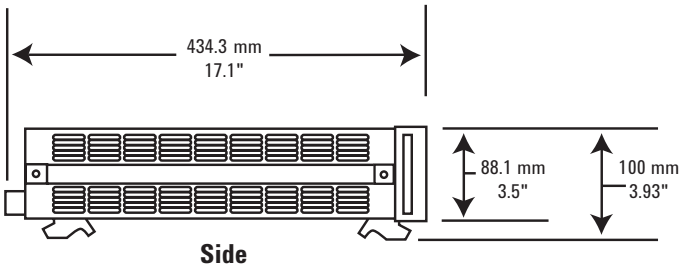
**Warranty:** One year

**Keysight Technologies, Inc. models:** 6541A, 6542A, 6543A, 6544A, 6545A



## Ordering information

**Opt 100** 87 to 106 VAC, 47 to 63 Hz
**Opt 120** 104 to 127 VAC, 47 to 63 Hz
**Opt 220** 191 to 233 VAC, 47 to 63 Hz
**Opt 240** 209 to 250 VAC, 47 to 63 Hz

**Opt 0L1** Full documentation on CD-ROM and printed user's guide. CD-ROM includes user's guide, service manual, and quick start guide
**Opt 0B3** Printed service manual

### Accessories

**1CM002A*** Rack mount flange kit 88.1 mm H (2U), 1.75 inch hole spacing, two flange brackets
**1CP001A*** Rack mount flange and handle kit 88.1 mm H (2U), two brackets and front handles
**E3663AC** Support rails for Keysight rack cabinets
**p/n 1494-0060** Accessory slide kit

## Application notes

*10 Practical Tips You Need to Know About Your Power Products*, 5965-8239E

*Understanding Linear Power Supply Operation (AN1554)*, 5989-2291EN

* Support rails required

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| | |
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| Switzerland | 0800 805353<br>Opt. 1 (DE)<br>Opt. 2 (FR)<br>Opt. 3 (IT) |
| United Kingdom | 0800 0260637 |

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