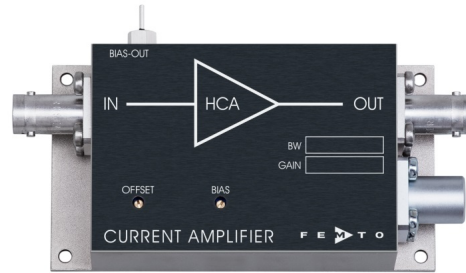


Datasheet

HCA-4M-500K-C

High-Speed Current Amplifier



Features

- Bandwidth and Frequency Response Independent of Detector Capacitance (up to 500 pF)
- Low Noise 3.5 pA/√Hz Equivalent Input Noise Current
- Bandwidth DC ... 4 MHz
- Transimpedance (Gain)  $5 \times 10^5$  V/A
- Protection against  $\pm 3.5$  kV Transients

Applications

- Photodiode and Photomultiplier Amplifier
- Spectroscopy
- Charge Amplifier
- Ionisation Detectors
- Preamplifier for Lock-Ins, A/D Converters, etc.

Specifications

	Test Conditions	$V_s = \pm 15$ V, $T_a = 25^\circ\text{C}$
Gain	Transimpedance	$5 \times 10^5$ V/A (@ 50 $\Omega$ load)
	Gain Accuracy	$\pm 1$ %
Frequency Response	Lower Cut-Off Frequency	DC
	Upper Cut-Off Frequency (-3 dB)	4 MHz
	Rise / Fall Time (10% - 90%)	90 ns
	Gain Flatness	$\pm 0.3$ dB
Input	Equ. Input Noise Current	3.5 pA/√Hz (@ 100 kHz)
	Equ. Input Noise Voltage	0.8 nV/√Hz (@ 100 kHz)
	Input Bias Current	18 $\mu\text{A}$ typ.
	Input Bias Current Drift	0.8 nA / K
	Offset Current Compensation	$\pm 6$ $\mu\text{A}$ adjustable by offset trimpot
	Input Current Range	$\pm 3$ $\mu\text{A}$ (for linear amplification)
	Input Offset Voltage	3 mV
	DC Input Impedance	50 $\Omega$ (virtual) // 5 pF
Output	Output Voltage Range	$\pm 1.5$ V (@ 50 $\Omega$ load) for linear operation and low harmonic distortion
	Output Impedance	50 $\Omega$ (terminate with 50 $\Omega$ load for best performance)
Bias Output	Bias Output Voltage Range	$\pm 12$ V, adjustable by bias trimpot
	Bias Output Impedance	10 k $\Omega$ // 1 $\mu\text{F}$

SOPHISTICATED TOOLS FOR SIGNAL RECOVERY



DE-HCA-4M-500K-C\_R3/JM/18MAR2019

**Datasheet**

**HCA-4M-500K-C**

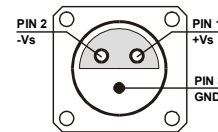
**High-Speed Current Amplifier**

Specifications (continued)

Power Supply	Supply Voltage Supply Current	$\pm 15$ V $\pm 50$ mA typ. (depends on operating conditions, recommended power supply capability minimum $\pm 150$ mA)
Case	Weight Material	210 g (0.5 lbs) AlMg4.5Mn, nickel-plated
Temperature Range	Storage Temperature Operating Temperature	$-40 \dots +100$ °C $0 \dots +60$ °C
Absolute Maximum Ratings	Input Voltage Input Voltage Transient Power Supply Voltage	$\pm 5$ V $\pm 3.5$ kV (pulsewidth 10 ns) $\pm 22$ V

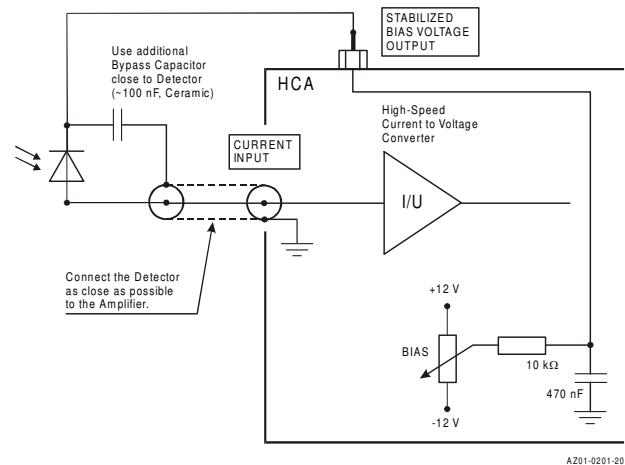
Connectors

Input	BNC
Output	BNC
Power Supply	LEMO series 1S, 3-pin fixed socket
	Pin 1: +15V
	Pin 2: -15V
	Pin 3: GND



Application Diagrams

Photo Detector Biasing in Photoconductive Mode:  
Best choice for high speed applications and optimum signal to noise performance.



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SOPHISTICATED TOOLS FOR SIGNAL RECOVERY

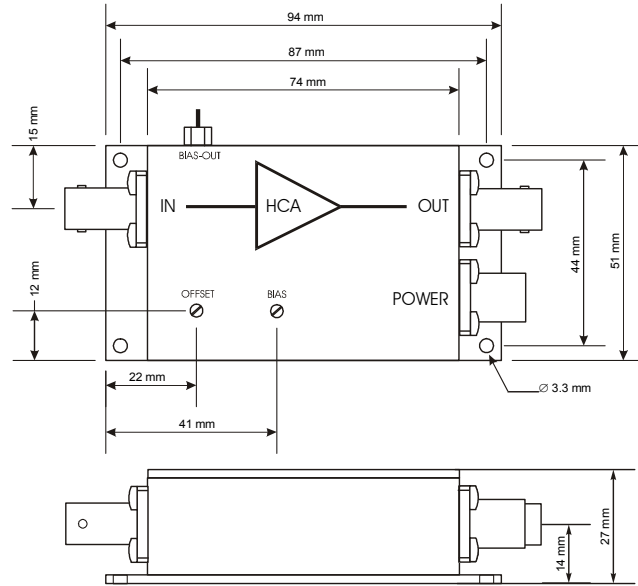


**Datasheet**

**HCA-4M-500K-C**

**High-Speed Current Amplifier**

Dimensions



DZ01-0201-22

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**SOPHISTICATED TOOLS FOR SIGNAL RECOVERY**

