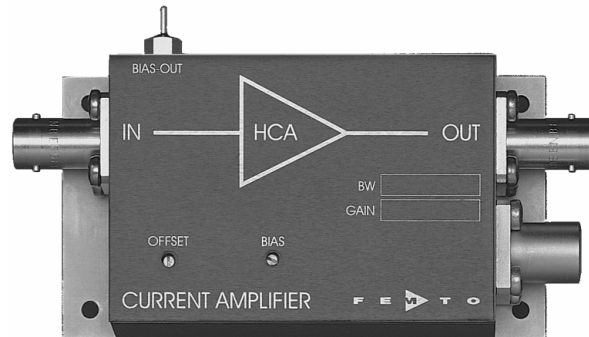


# Datasheet

# HCA-20M-100K-C

## High Speed Current Amplifier



### Features

- **Bandwidth and Frequency Response Independent of Detector Capacitance (up to 50 pF)**
- **Low Noise 3.5 pA/√Hz Equivalent Input Noise Current**
- **Bandwidth DC ... 20 MHz**
- **Transimpedance (Gain) 1 x 10<sup>5</sup> V/A**
- **Protection against ± 3.5 kV Transients**

### Applications

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

### Specifications

	<i>Test Conditions</i>	<i>V<sub>s</sub> = ± 15 V, T<sub>a</sub> = 25°C</i>
Gain	Transimpedance	1 x 10 <sup>5</sup> V/A (@ 50 Ω load)
	Gain Accuracy	± 1 %
Frequency Response	Lower Cut-Off Frequency	DC
	Upper Cut-Off Frequency (- 3 dB)	20 MHz
	Rise / Fall Time (10 % - 90 %)	18 ns
	Gain Flatness	± 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 μA typ.
	Input Bias Current Drift	0.8 nA / K
	Offset Current Compensation	± 20 μA adjustable by offset trimpot
	Input Current Range	± 15 μA (for linear amplification)
	Input Offset Voltage	3 mV
	DC Input Impedance	50 Ω (virtual) // 5 pF
	Output	Output Voltage Range
Output Impedance		50 Ω (terminate with 50 Ω load for best performance)
Bias Output	Bias Output Voltage Range	± 12 V, adjustable by bias trimpot
	Bias Output Impedance	10 kΩ // 1 μF

**Datasheet****HCA-20M-100K-C****High Speed Current Amplifier**

## Specifications (continued)

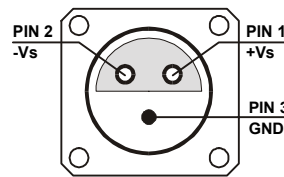
Power Supply	Supply Voltage	$\pm 15$ V
	Supply Current	$\pm 70$ mA typ. (depends on operating conditions, recommended power supply capability minimum $\pm 150$ mA)
Case	Weight	210 g (0.5 lbs)
	Material	AlMg4.5Mn, nickel-plated
Temperature Range	Storage Temperature	$-40 \dots +100$ °C
	Operating Temperature	$0 \dots +60$ °C

## Absolute Maximum Ratings

Input Voltage	$\pm 5$ V
Input Voltage Transient	$\pm 3.5$ kV (pulsewidth 10 ns)
Power Supply Voltage	$\pm 22$ V

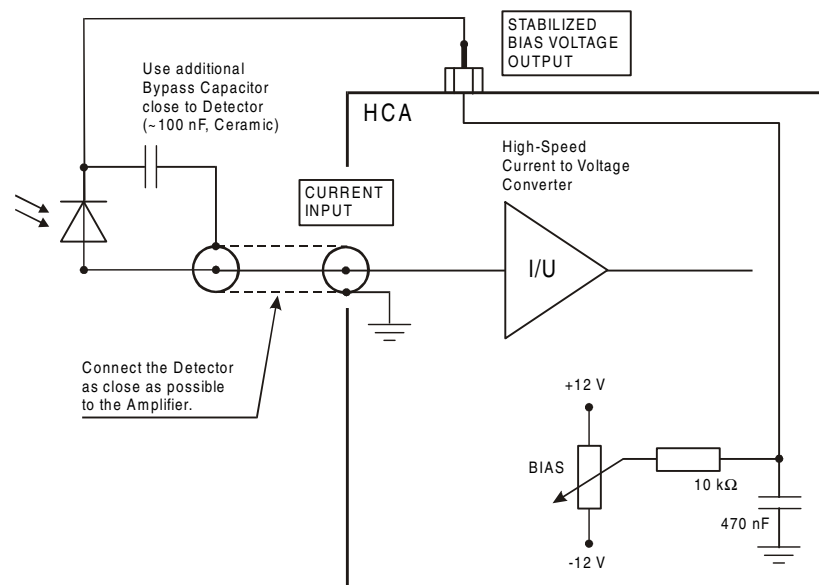
## Connectors

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.



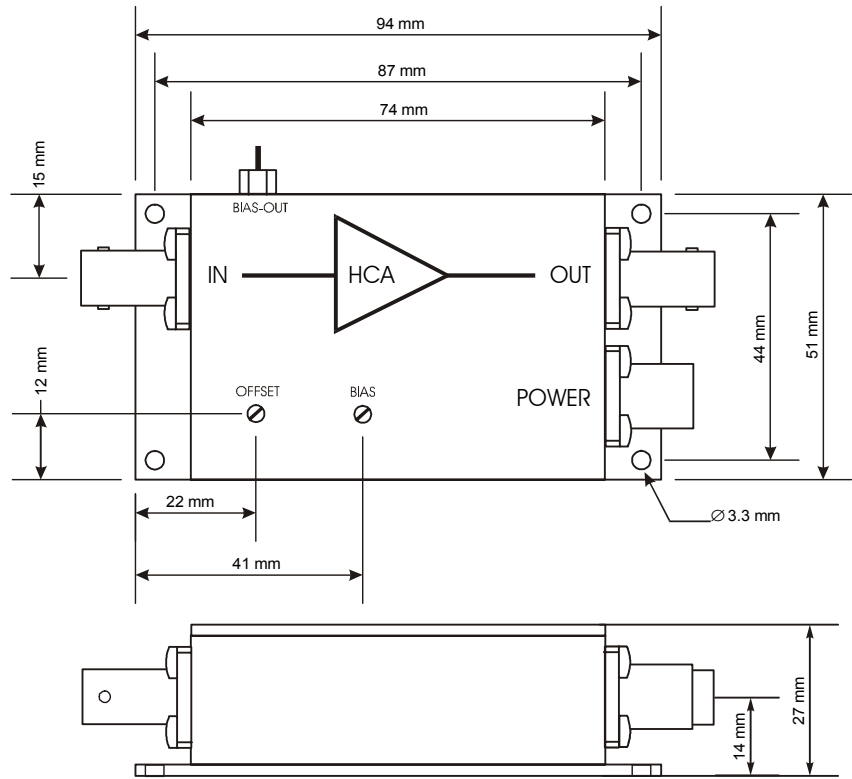
AZ01-0201-20

# Datasheet

# HCA-20M-100K-C

## High Speed Current Amplifier

### Dimensions



DZ01-0201-22

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SOPHISTICATED TOOLS FOR SIGNAL RECOVERY

