

# TA1800B Fast Pulse / Timing Preamplifier

## 1.8 GHz, DC coupled

### FEATURES

- Small signal bandwidth DC ... 1800MHz
- Voltage gain 20dB (x10)
- DC coupling
- Closed loop OP-Amp design
- Low noise
- High output drive
- Single supply operation / internally generated bipolar supply / internal supply regulation

### APPLICATIONS

- Pre-amp for ultra fast detectors (MCP, PMT, ...)
- Oscilloscope and transient recorder pre-amp
- High precision Time-of-Flight
- Photon-/Ion- counting
- Wideband signal processing

### DESCRIPTION

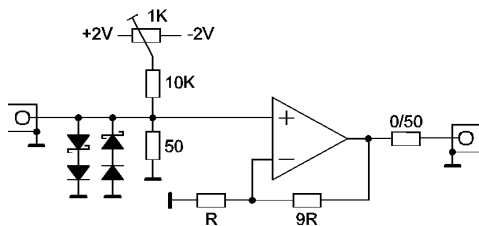
The TA1800B is a fast pulse preamplifier with a small signal bandwidth of 1.8GHz.

A unique feature for such high speed amplifiers is the DC coupling. DC coupling avoids count rate effects due to non DC balanced pulse trains and the corresponding coupling capacitor charging.

A test with a 30mV<sub>P-P</sub> pulse and a P7889 100ps TOF analyzer showed an improvement of 10...15% in peak width (FWHM) when a TA1800B was used for amplification of the small pulse signal.



### SPECIFICATIONS



**Voltage gain:** 20 dB / x10, non inverting

**Input:** BNC, 50 Ohm, DC coupled

**Outputs:** BNC, low impedance, DC coupled  
 $V_{OUT} = +/- 1.3V$  max.  
 $I_{OUT} = +/- 150mA$  max.

**Small signal bandwidth:**  
 1800 MHz,  $V_{OUT} = 200mV_{RMS}$

**Full power bandwidth:**  
 1500 MHz,  $V_{OUT} = 2V_{P-P}$

**Slew rate:** 5500 V/ $\mu$ s (2V step)

**Input offset voltage:**  
 5.25mV max., +/- 20  $\mu$ V/ $^{\circ}$ C typ.  
 adjustable (ref. circuit diagram)

**Input referred noise:** 2.5 nV/ $\sqrt$ Hz  
 (20Hz...1MHz) 2.5 $\mu$ V<sub>RMS</sub>

**Noise Figure:** (100MHz) 16dB

### Material:

**Case:** extruded aluminium sheath  
 Al Mg Si 0.5  
**Lid:** die cast, GD-Al Si 12  
**Size:** 65/101 x 60 x 35 mm  
**Weight:** 124 g

### Power Requirements:

**Connector:** 2.1 mm center pin  
**Supply Voltage:** nominal +12V  
 voltage range +10 ... +18V  
**Supply Power:** 2.5W  
 False polarity protection

### Absolute maximum ratings:

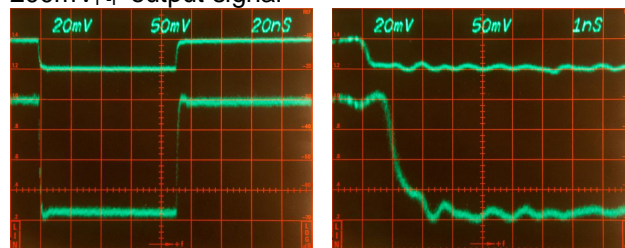
**Supply:** 25V (100ms max.)  
**Signal input:** +/- 1.8V, +/- 140mA  
 ESD rating: 3000V HBM, 200V MM

### Accessories:

- External wall power supply (included)
- L-clips (AB-WL) for wall-/screw -mounting (optional)

### Pulse Response:

200mV<sub>P-P</sub> output signal



### Available Options:

- 50  $\Omega$  output impedance
- Input AC coupling