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_{P-P} 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

**Outputs:**
- BNC, low impedance, DC coupled
  - \( V_{OUT} = \pm 1.3V \) max.
  - \( I_{OUT} = \pm 150mA \) max.

**Small signal bandwidth:**
- 1800 MHz, \( V_{OUT} = 200mV_{RMS} \)

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

**Slew rate:**
- 5500 V/µs (2V step)

**Input offset voltage:**
- 5.25mV max., +/- 20 µV/°C typ. adjustable (ref. circuit diagram)

**Input referred noise:**
- 2.5 nV/√Hz (20Hz…1MHz) 2.5µV_{RMS}

**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

**Available Options:**
- 50 Ω output impedance
- Input AC coupling