TA2400 Fast Pulse / Timing Preamplifier
2.4 GHz, DC coupled

FEATURES
- Small signal bandwidth DC ... 2400MHz
- Voltage gain 14dB (x5)
- 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 TA2400 is a fast pulse preamplifier with a small signal bandwidth of 2.4GHz. 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

Voltage gain: 14 dB / x5, 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: 2400 MHz, V_{OUT} = 200mV_{RMS}

Full power bandwidth: 875 MHz, V_{OUT} = 2V_{P-P}
Slew rate: 5500 V/µs (2V step)
Input offset voltage: 5.25mV max., +/- 20 µV/°C typ.
Input referred noise: 2.8 nV/√Hz (20Hz...1MHz) 3.2µV_{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

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

Pulse Response:
200mV_{P-P} output signal

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