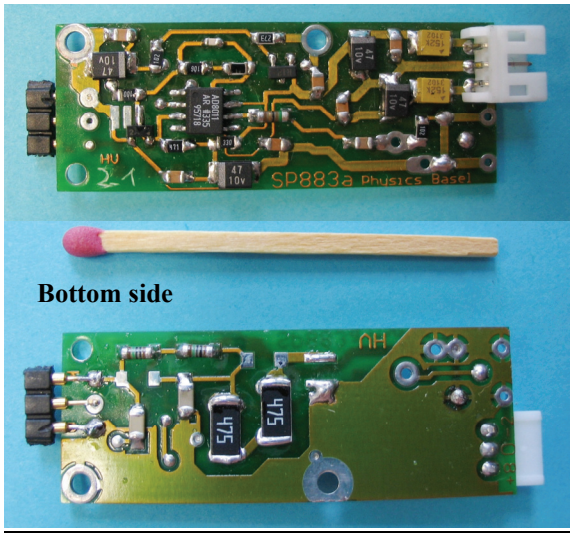
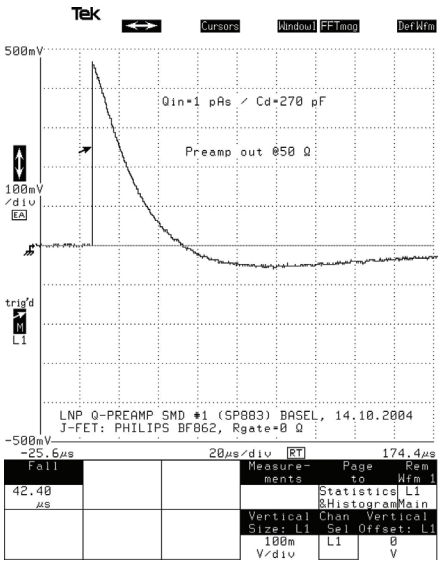
PHYSICS BASEL
ELECTRONIC LAB 2.17
KLINGELBERGSTR. 82
CH-4056 BASEL
SWITZERLAND

LOW NOISE / LOW POWER CHARGE PREAMPLIFIER SMD VERSION (SP 883A)

VERSION 3.0 / FEBRUARY 2006

Top side





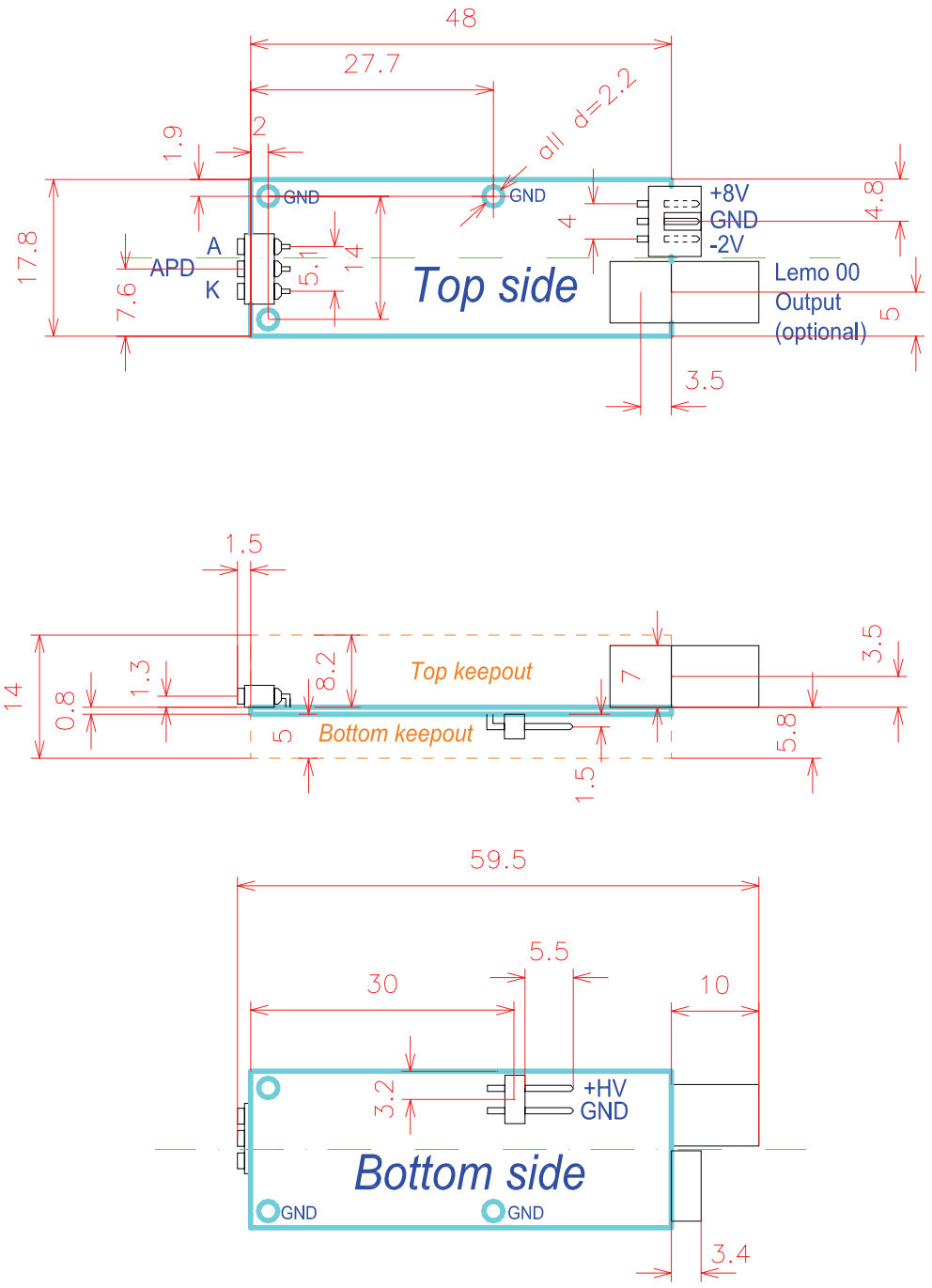
APPLICATION: COMPACT CHARGE SENSITIVE PREAMPLIFIER FOR LAAPDS

Technology: J-FET BF862 (Philips) + Low Power Current Feedback OpAmp AD8011AR (AD)
APD Bias Voltage: Max.+500 V_{DC}, to APD via 22 Meg, LP-filtered by 10 Meg and 4.7 nF (f_c= 3.4 Hz)
Detector Capacitance (Cd) Range: 82... 300 pF
PCB Size: 48 mm x 17.8 mm

TYPICAL SPECIFICATIONS (T = 25° C):

- **Supply Voltage:** +8 V, -2 V / Via 3pin JST/JAE 2mm connector (Farnell: 361-6198)
- **Quiescence Current / Power Consumption:** +8 V: 6 mA, -2 V: 1 mA => **total 50 mW**
- **Gain:** 1 V/pC @ High Z, 0.5 V/pC @50 Ω
- **Maximum Output Voltage:** 6 V_p @ High Z, 3 V_p @50 Ω
- **Maximum Input Charge:** 6 pC
- **Output Polarity:** Positive
- **Feedback Time Constant:** 25 µs (1 pF //25 Meg)
- **Rise-time @ 50 Ω:**
  - Cd = 82 pF: 4 ns
  - Cd = 270 pF: 11 ns
- **RMS Noise** (shaping with ORTEC Research Amp. 450 / Ti = 250 ns, Tdiff = 2 µs)**:**
  - Cd = 82 pF: 650 e_{rms}
  - Cd = 270 pF: 1'800 e_{rms}

DIMENSIONS AND CONNECTIONS (NOT TO SCALE):



Weight = ca. 3.3 g without LEMO 00 connector / ca. 8.5 g with LEMO 00 connector

Prevent from bedewing during operation!