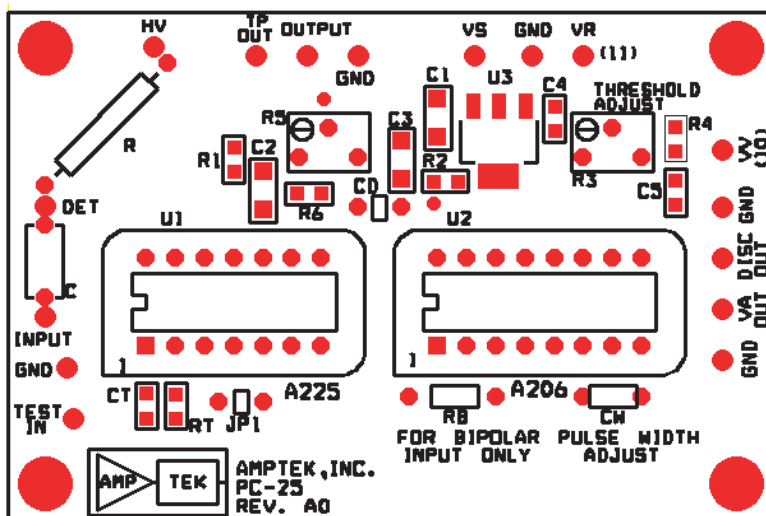


PC25 Test Board for the A225/A206

The PC25 is a printed circuit board which accepts the A225 charge sensitive preamplifier and shaping amplifier and the A206 voltage amplifier and discriminator. It is designed to be used for two purposes: to facilitate testing of these devices, together or separately, and to simplify their use in many applications. The board provides input test circuitry, gain adjustment, voltage reference for the A206, and convenient access to all active device pins. Ground plane construction minimizes noise pickup.



INPUTS

- INPUT:** A225, PIN 1; Charge preamplifier input. This input is diode protected and must be capacitively coupled to detector with capacitor of adequate rating. (Not supplied.)
- DET:** Input from detector. See Operating Notes.
- HV:** Detector bias voltage.
- TEST IN:** Input to test circuit as described in specifications.

OUTPUTS

- TP OUT:** A225, PIN 12; Timing pulse.
- OUTPUT:** A225; PIN 8; Shaped output.
- VA OUT:** A206; PIN 13; Voltage amplifier output.
- DISC OUT:** A206, PIN 9; Discriminator logic pulse out.
- 10, 11:** A206, PINS 10 and 11, Monitor points. Difference in potential between these pins is the discriminator threshold level set by "THRESHOLD ADJUST" potentiometer.

POWER and GROUND

- JP1:** A225, PIN 5; Output ground of A225. See Operating Notes.
- VS:** Power to the A225 and A206. See Operating Notes.

COMPONENTS

- THRESHOLD ADJUST (R₃, R₄):** Potentiometer to provide trigger level for the A206 discriminator.
- C₁, C₂, C₃, C₅:** Filter capacitors.
- C_T:** Test capacitor (2 pF).
- R_T:** Test pulse termination resistor (50 ohm).
- C_W:** Discriminator pulse width adjustment capacitor; A206, PINS 6 and 8.
- R_B:** Resistor to bias A206 for bipolar inputs; 330 kohm from PIN 3 to ground. (Not installed.)
- R₅, R₆:** Gain control voltage divider.
- C_D:** Differentiating capacitor for bipolar pulses. Direct connection for normal unipolar pulses.
- U₃:** Voltage reference device.
- HV Res:** Detector bias resistor. (Not installed.)
- HV Cap:** Detector coupling capacitor (H.V.). (Not installed.)

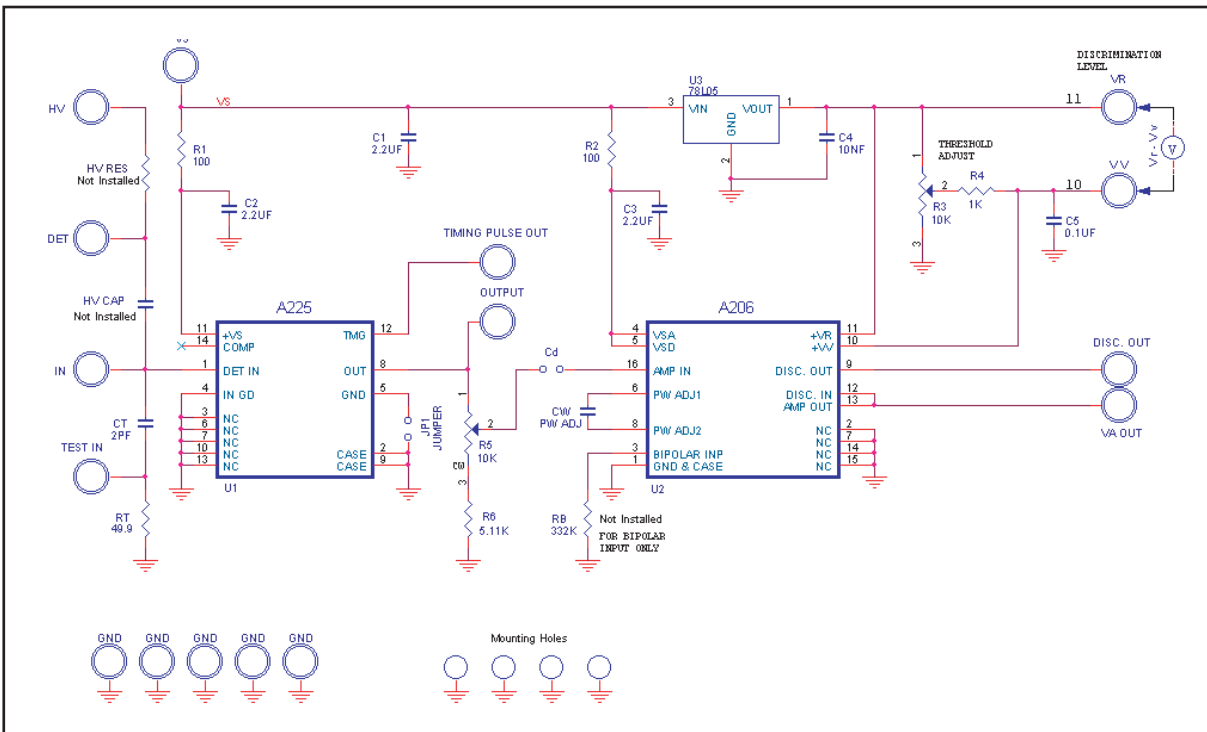
SIZE

2.625 in x 1.750 in
(6.67 cm x 4.45 cm)

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PC25 Wiring Diagram for the A225/A206



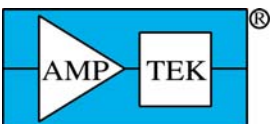
PC25 Operating Notes

A225

- 1) **TESTING A225:** The A225 may be tested simply by connecting power (+4 to +25 VDC) to "V_S" and a square wave to "TEST IN." See A225 Operating Notes. **DO NOT CONNECT PULSER DIRECTLY TO THE "IN" POST.**
- 2) **DETECTOR CONNECTION:** The "DET" post provides a connection point for a detector and its bias network. A coupling capacitor "C" of adequate voltage rating must be connected between this point and the "IN" post, as shown in the figure. A bias resistor "R" may be connected as shown between "DET" and "HV." The detector bias voltage is then applied to "HV." Note that the "IN" post, which is PIN 1 of the A225, must always be capacitively coupled and is provided only for connection to detector bias networks external to the board.
- 3) **POSITIVE INPUT:** Jumper JP1 is A225 PIN 5, output ground, and is connected by jumper to the ground plane. To accommodate positive inputs, remove jumper and connect this point to a negative supply. See A225 Operating Notes.
- 4) **GROUNDING:** In some applications it will be desirable to separate the A225 input and output grounds. To do so, remove jumper and use "JP1" for output ground connection. See A225 Operating Notes.

A225 with A206

- 1) **GAIN CONTROL:** The A206 input connects to potentiometer R₅ which attenuates the A225 output.
- 2) **BIPOLAR PULSE:** A jumper is provided in series with the A206 input (PIN 16). For a bipolar output, replace this jumper with a capacitor, C_D of about 20 pF. This value can be adjusted experimentally for maximum signal to noise ratio for a particular system. It is also necessary to connect R_B, 330 kohm, from PIN 3 to ground to re-bias the voltage amplifier for bipolar operation.
- 3) **GROUNDING:** Ground planes for the A225 and A206 are connected in three places. They may be separated by cutting these lines if separate grounds are required.
- 4) **POWER:** V_S = +4 to +25 VDC if the A225 is used alone without the A206
V_S = +10 to +18 VDC if the A225 is used together with the A206



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