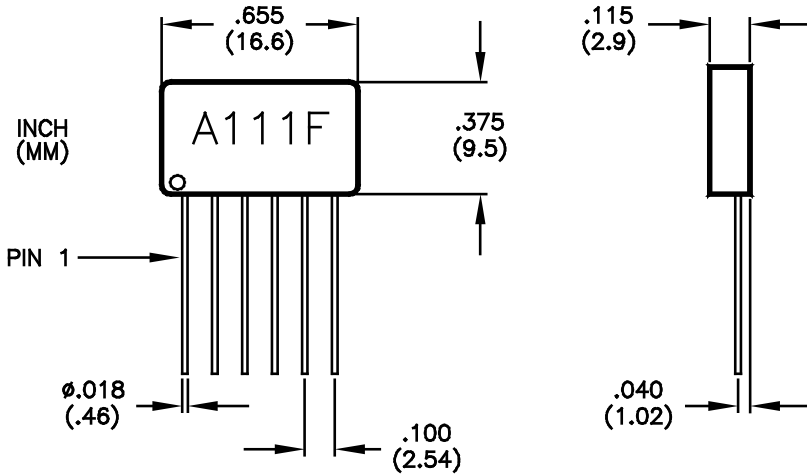


# CHARGE SENSITIVE PREAMPLIFIER & DISCRIMINATOR

# A111F

The **A111F** is a high density version of the Amptek A111 Charge Sensitive Preamplifier and Discriminator. The A111F features a Single In-line Package (SIP).

### A111F PACKAGE



Weight: 1.6 grams with 0.100 inch (2.5 mm) long leads

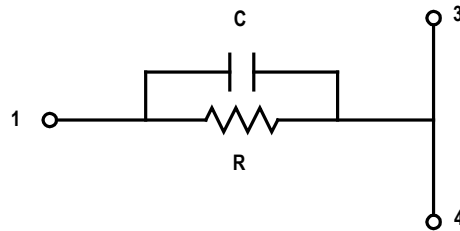
### A111F PIN CONFIGURATION

Pin 1	Input
Pin 2	Ground & Case
Pin 3 & 4	Threshold Adjust
Pin 4	Analog Monitor
Pin 5	V (+4 to +18 VDC)
Pin 6	Output

### APPLICATION NOTE: A111F THRESHOLD ADJUSTMENT

#### A) Increasing the Threshold of the A111F:

Increasing the threshold of the A111F beyond the x10 provided by shorting out Pins 3 and 4 can be achieved by an RC feedback as shown below.



Apart from unit to unit variation, the discrimination levels will be as follows:

- 1) Shorting out Pins 3 and 4 will result in x10 increase of nominal threshold:  $(5 \times 10^4 \text{ electrons}) \times 10 = 5 \times 10^5 \text{ electrons}$ .
- 2) Shorting out Pins 3 and 4 plus feedback:
  - R = 50 k    C = 2.2 pF : x 17
  - R = 20 k    C = 3.3 pF : x 23
  - R = 5 k     C = 4.7 pF : x 40
  - R = 2 k     C = 6.8 pF : x 88

Intermediate values can be obtained by adjusting the value of R.

#### B) Decreasing the Threshold of A111F:

Decreasing the threshold of the A111F beyond the nominal  $5 \times 10^4$  electrons can be achieved by adding a resistor from Pin 4 to ground. A 300 ohm resistor will approximately double the sensitivity resulting in a threshold of  $2.5 \times 10^4$  electrons.

*Please refer to the A111 specifications for further informaton*

