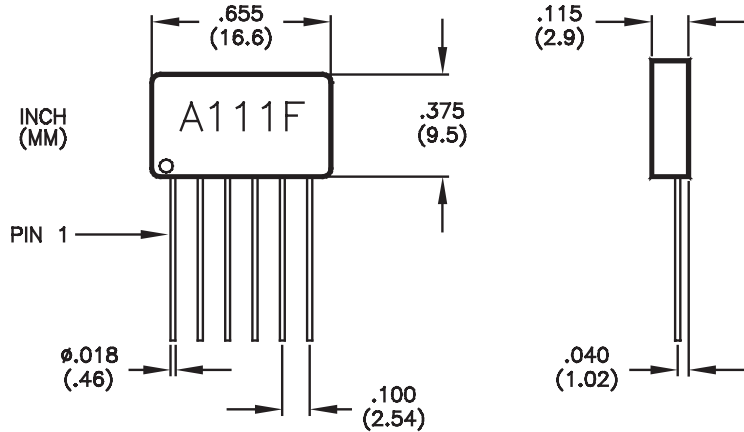


# CHARGE SENSITIVE PREAMPLIFIER & DISCRIMINATOR

# 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 DIAGRAM



## A111F PIN CONFIGURATION

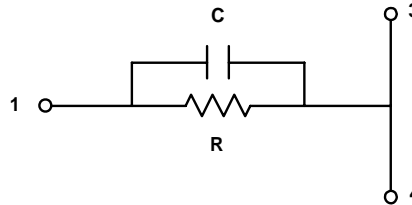
Pin 1	Input
Pin 2	Ground & Case
Pins 3 & 4	Threshold Adjust
Pin 4	Analog Monitor
Pin 5	V (+4 to +18 VDC)
Pin 6	Output

Weight: 1.75 grams

## 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 & 4 can be achieved by an RC feedback as shown below.



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

- Shorting out Pins 3 and 4 will result in x10 increase of nominal threshold:  
( $5 \times 10^4$  electrons)  $\times 10 = 5 \times 10^5$  electrons.
- 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 information.**

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