

PULSE AMPLITUDE DISCRIMINATOR

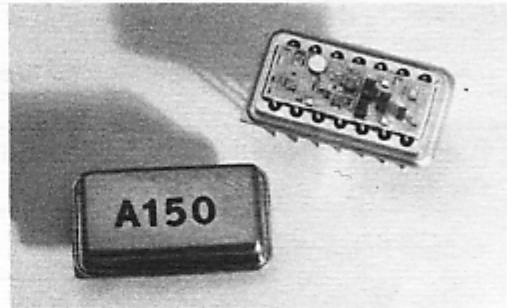
A150

FEATURES

- Low Power 17mW
- Repetition Rate > 4 MHz
- Tunnel Diode, Snap Action Switching
- Radiation Hard (10^6 Rads Si)
- High Reliability Screening

APPLICATIONS

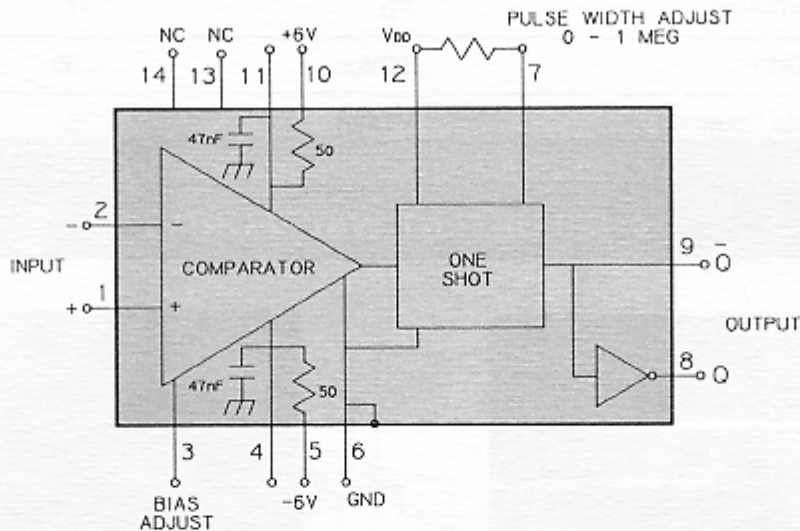
- Space Instrumentation
- Portable Instrumentation
- Nuclear Instrumentation



The A150 is a high performance hybrid pulse amplitude discriminator developed for use in precision pulse spectroscopy.

Its low power dissipation (17mW), high speed (> 4 MHz), and radiation hardness (10^6 Rads), make it ideal for space flight use. The A150 is packaged in a standard 14-pin hybrid DIP.

A150 CONNECTION DIAGRAM



PIN	FUNCTION
1	Non-Inverting Input
2	Inverting Input
3	Bias Adjust (Resistance to Pin 4 reduces operating current)
4	- Vs Direct
5	- Vs through 50 ohms
6	Case and Ground
7	Pulse Width Adjust (must be connected to pin 12 either directly for minimum pulse width, or through a resistor).

PIN	FUNCTION
8	Output (positive)
9	Output (negative)
10	+ Vs through 50 ohms
11	+ Vs Direct
12	V _{DD} bias for output CMOS one-shot
13	N.C.
14	N.C.

AMPTEK A150

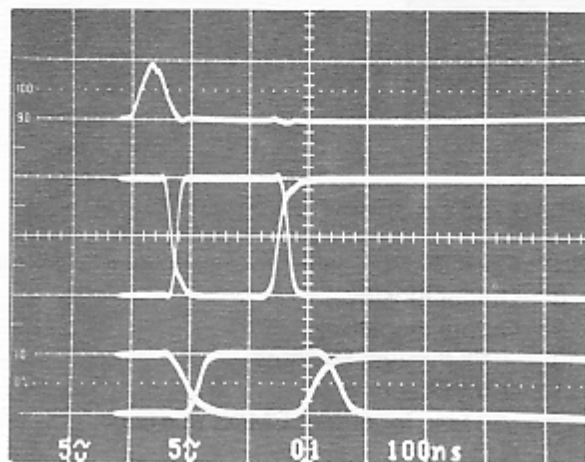
Absolute Maximum Ratings

Supply Voltage V_S	$\pm 8V$
CMOS Supply V_{DD}	+ 18V
Input Voltage	$\pm V_S$
Operating Temperature Range	- 55°C to + 110°C
Storage Temperature	- 65°C to + 110°C
Lead Temperature Range (Soldering, 10 sec.)	300°C

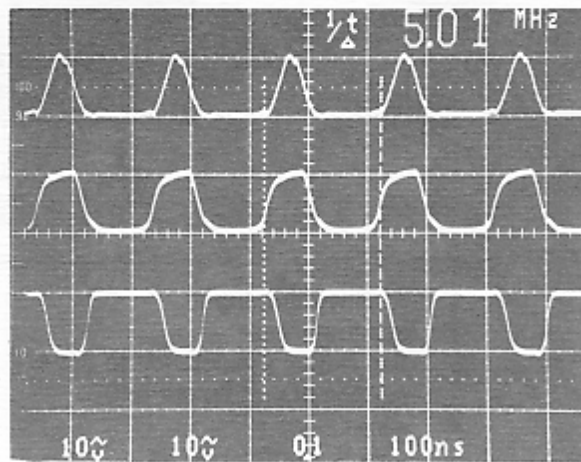
Electrical Characteristics $V_S = \pm 6V, V_{DD} = + 10V, T_A = + 25^\circ C$

Parameter	Symbol	Min	Typ	Max	Units
Output Pulse Width — Positive	T_{WP}	160	195	210	ns
Output Pulse Width — Negative	T_{WN}	150	185	200	ns
Output Pulse Delay — Positive	T_{DP}		70	120	ns
Output Pulse Delay — Negative	T_{DN}		60	80	ns
Input Threshold Offset	V_{OS}		± 1	± 5	mV
Supply Voltage	V_S	± 4.5	± 6	± 8	V
Supply Current	I_S	± 1.3	± 1.5	± 1.7	mA
CMOS Supply	V_{DD}	+ 4	+ 10	+ 18	V
Power Consumption	P_D		17		mW
Input Offset Drift	TCV_{OS}		- 30	± 10	$\mu V/^\circ C$
Minimum Pulse Detected	VT_{min}		15		mV

A-150 OUTPUT WAVEFORMS



Upper: Input Pulse
 Middle: Outputs at $V_{DD} = + 10V$
 Lower: Outputs at $V_{DD} = + 5V$

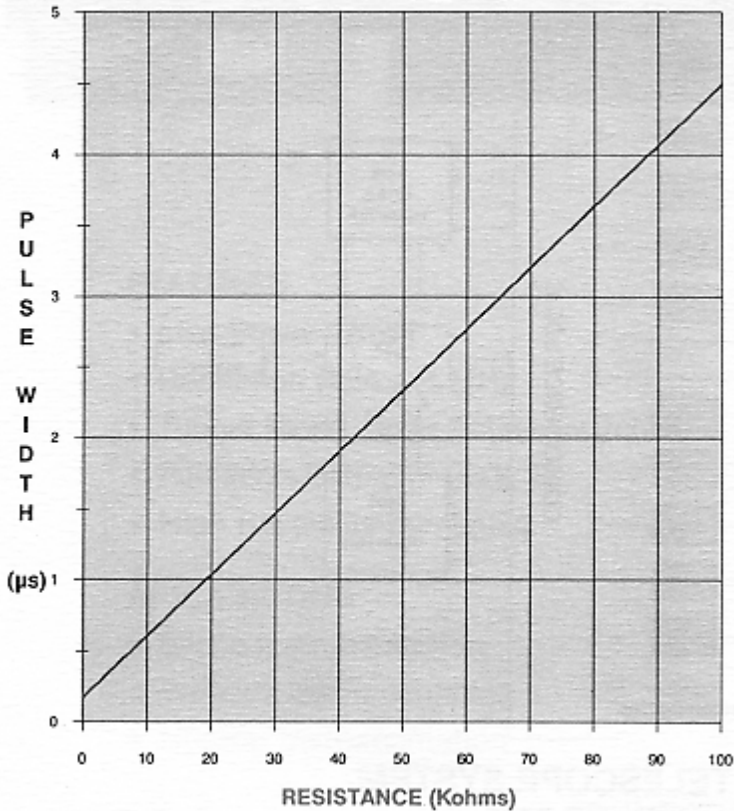


Upper: Input Pulse at 5 MHz
 Middle: Pin 9 Output at $V_{DD} = + 10V$
 Lower: Pin 8 Output at $V_{DD} = + 10V$

A150 PULSE WIDTH vs RESISTANCE

(between Pin 7 & 12)

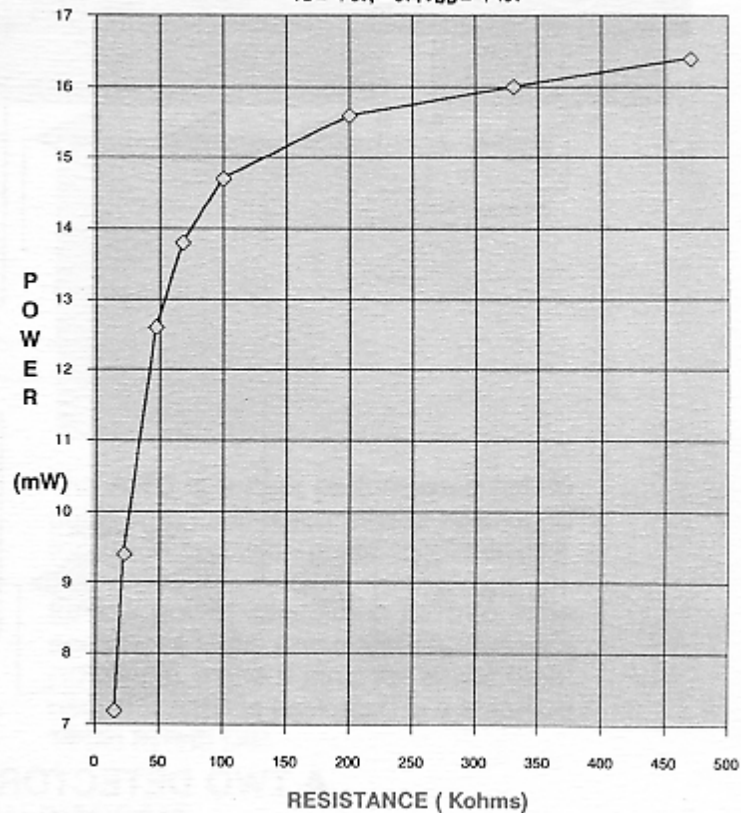
$V_s = +6V, -6V; V_{DD} = +10V$



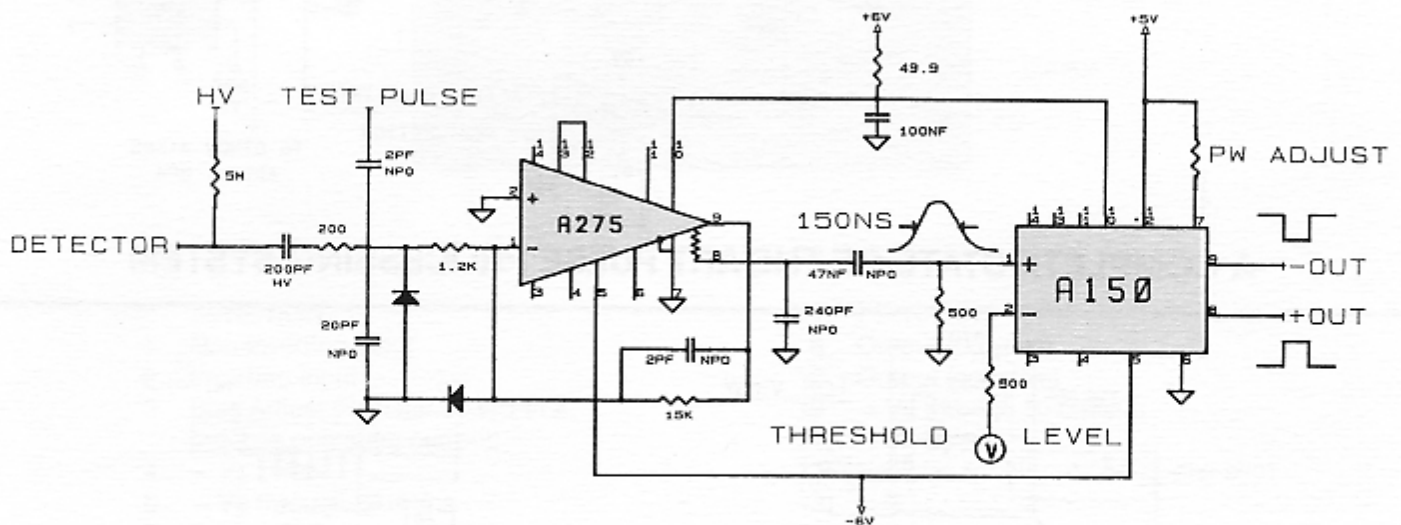
A150 POWER DISSIPATION vs RESISTANCE

(between Pin 3 & 4)

$V_S = +6V, -6V; V_{DD} = +10V$

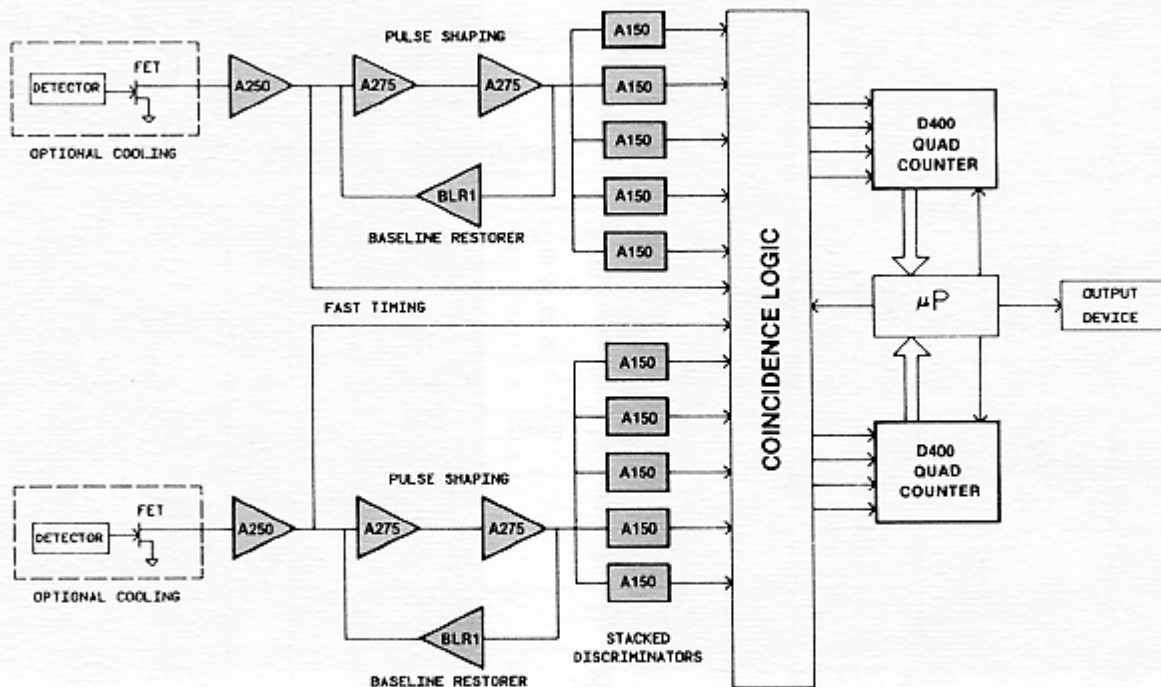


APPLICATION NOTES

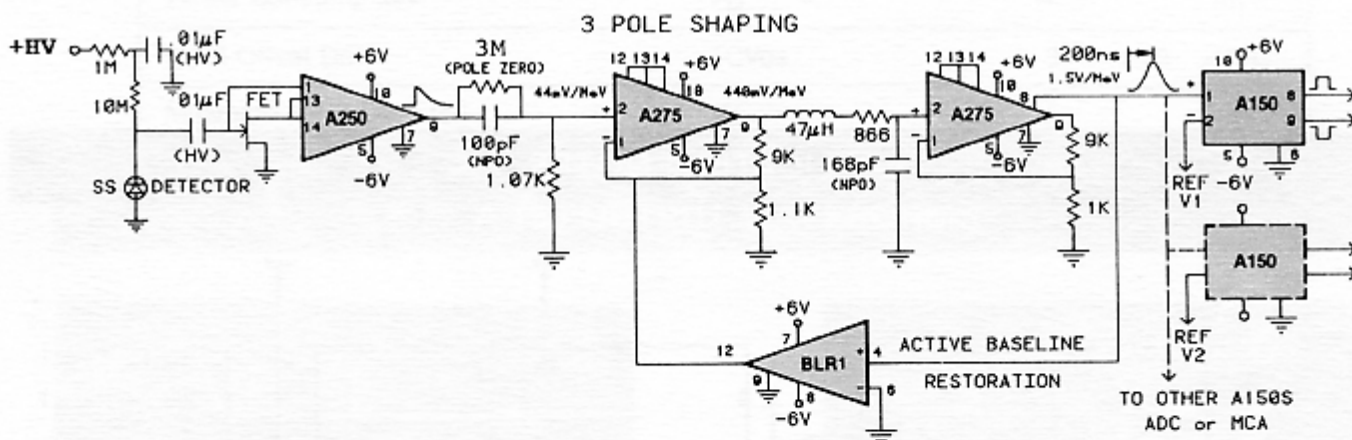


LOW LEVEL DISCRIMINATOR WITH VOLTAGE CONTROLLED THRESHOLD

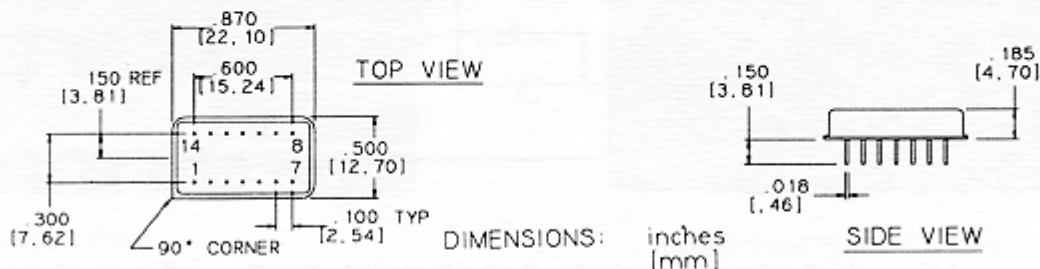
APPLICATION NOTES



A TWO DETECTOR TELESCOPE SYSTEM



A COMPLETE STATE-OF-THE-ART PULSE PROCESSING SYSTEM



14 PIN DUAL IN-LINE HYBRID PACKAGE