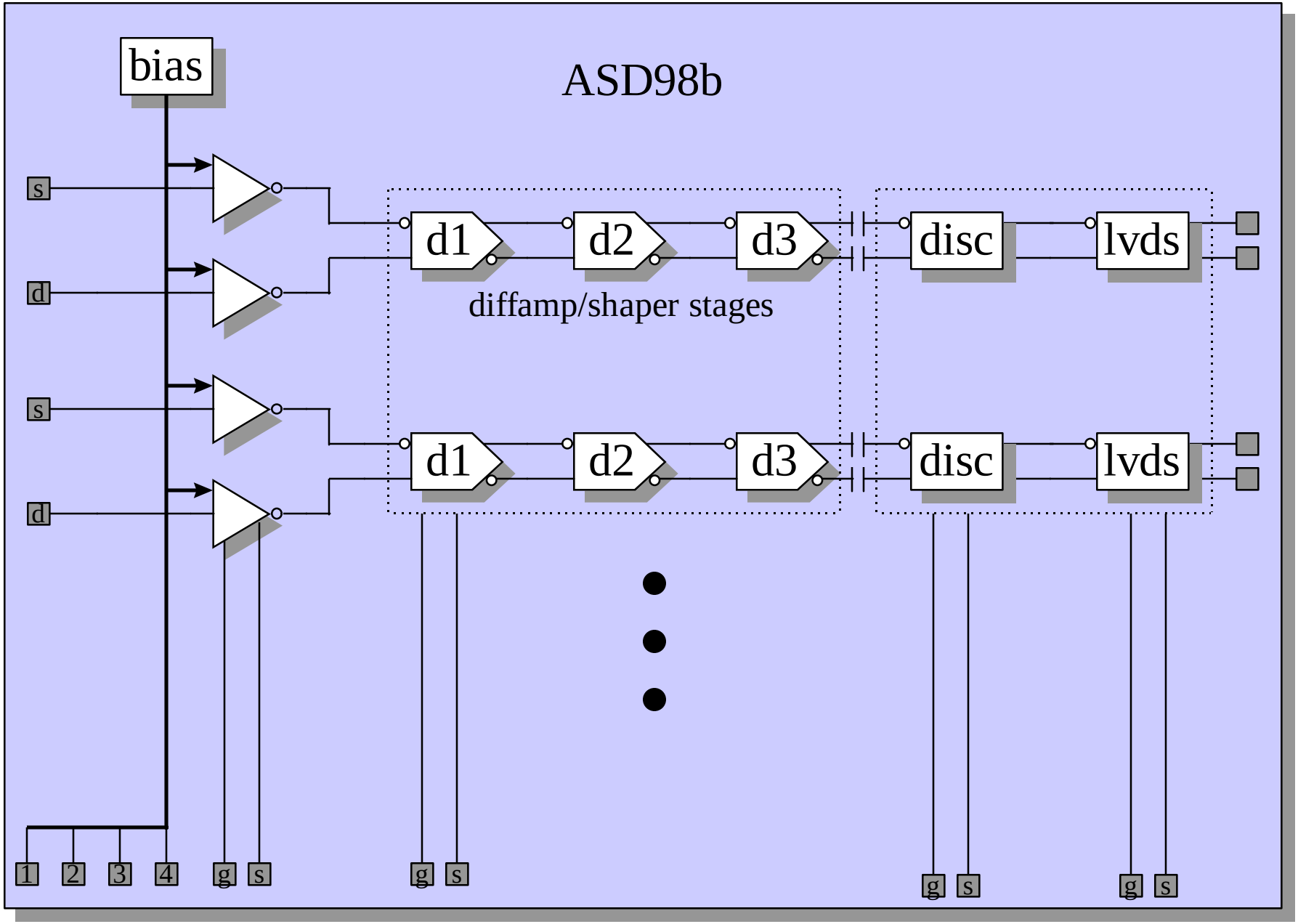
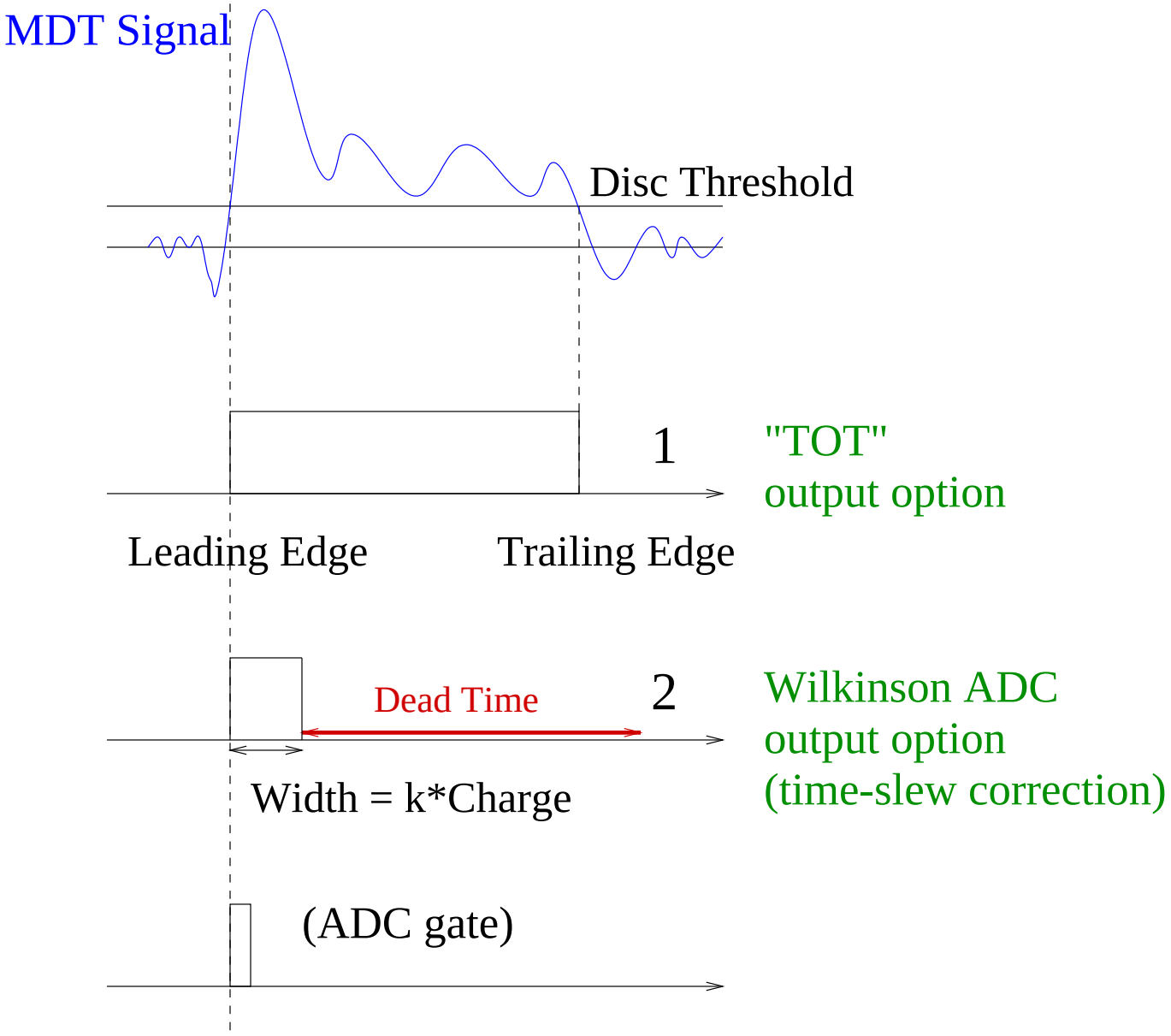
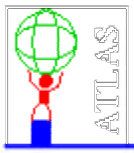

ASD98b
bias
s
d
s
d
d1
d2
d3
diffamp/shaper stages
d1
d2
d3
disc
lvds
disc
lvds
1
2
3
4
g
s
g
s
g
s
g
s

MDT Electronics

ASD99b (Wilkinson) Functions





MDT Electronics

ASD - programmable

1) Test pulse injection

3-bit capacitor select	10 fC – 80 fC (8 switched 50 fF - capacitors @ 200mV)	3
8-bit mask register	select channels for calibration injection	8

2) Discriminators

Location	Variable	DAC type	Res	LSB	Range	comments	
DISC1	**Threshold:** VDD/2 ± 128mV complementary, > 4 times nominal threshold (± 30mV)	VDAC (R-chain)	8-bit	1 mV	256 mV	at last gain stage (DA4 input)	8
	Hysteresis: 0 – 20mV (0 – 7 prim. Electrons), @ threshold coupling	CDAC	4-bit	1.875 uA	300 uA	0 – 100mV hysteresis at DISC1	4
DISC2	**Threshold:** 0 – 128 mV	VDAC (R-chain)	4-bit	16 mV	128 mV		4
	Hysteresis: fixed						

3) Wilkinson ADC

Variable	Nominal, adjustable range	DAC type	Res	LSB	range	
"run down"-current	T_{NOM} = 70 ns, 35 ns - 140 ns	CDAC	4-bit	1 uA	16 uA	4
gate (time window) width	T_{NOM} = 15 ns, 8 ns - 64 ns	-	5-bit	-	-	5
dead time	T_{NOM} = 10 - 20 ns, 0 - 1024 ns	-	4-bit	-	-	4

4) DC Offset (most probably eliminated in bipolar version)

Variable	adjustable range	DAC type	Res	LSB	range	
DC level after 1. shaper/gain stage	few 100 mV	2 x CDAC	4-bit	-	16 uA	8

5) Output

Channel mode	HI, LO, Active, Disable (GND) preamp	2-bit / channel	16
Chip mode	TOT (Time Over Threshold), ADC	1-bit	1

Total bits: 57 (63)