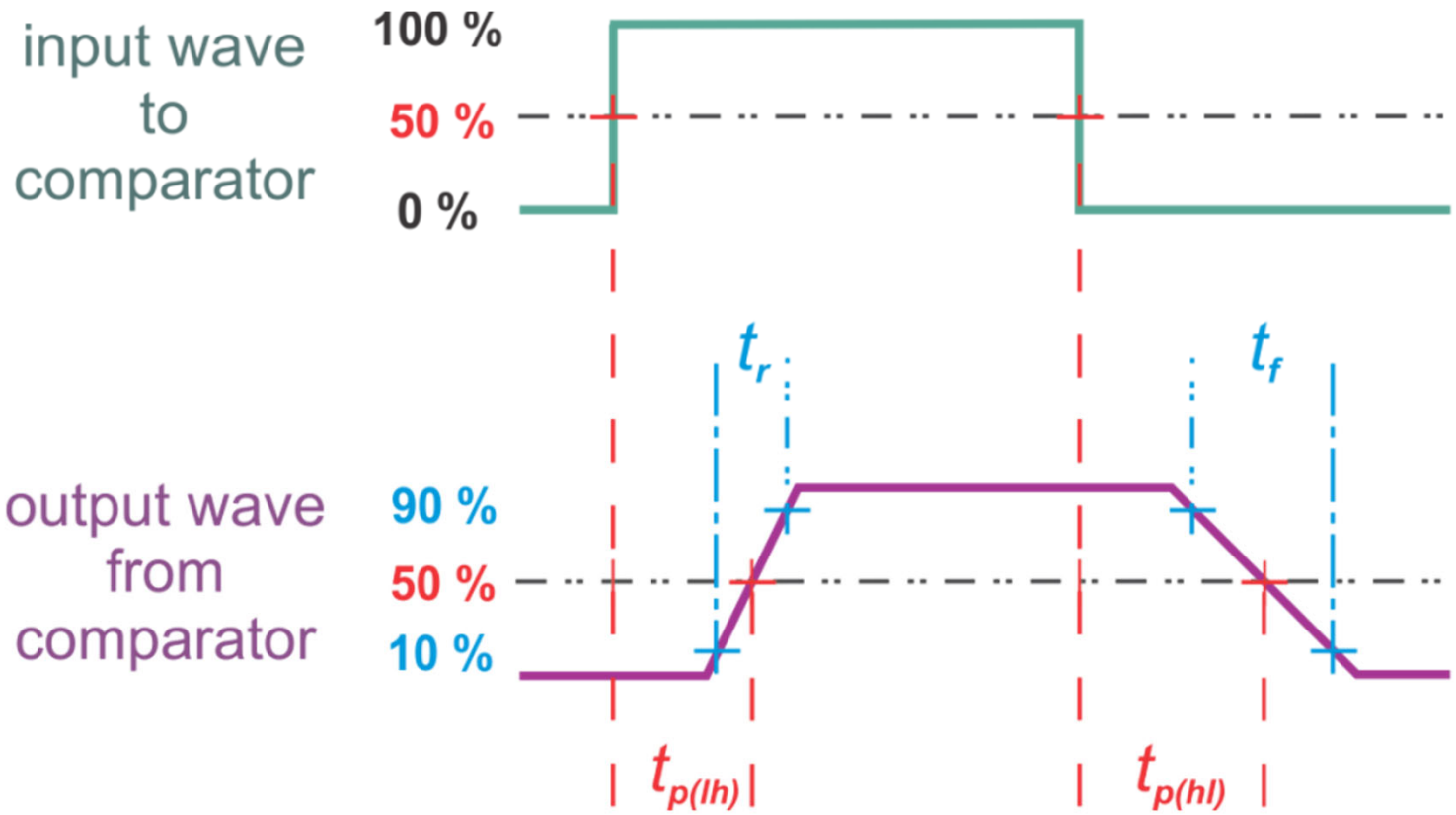
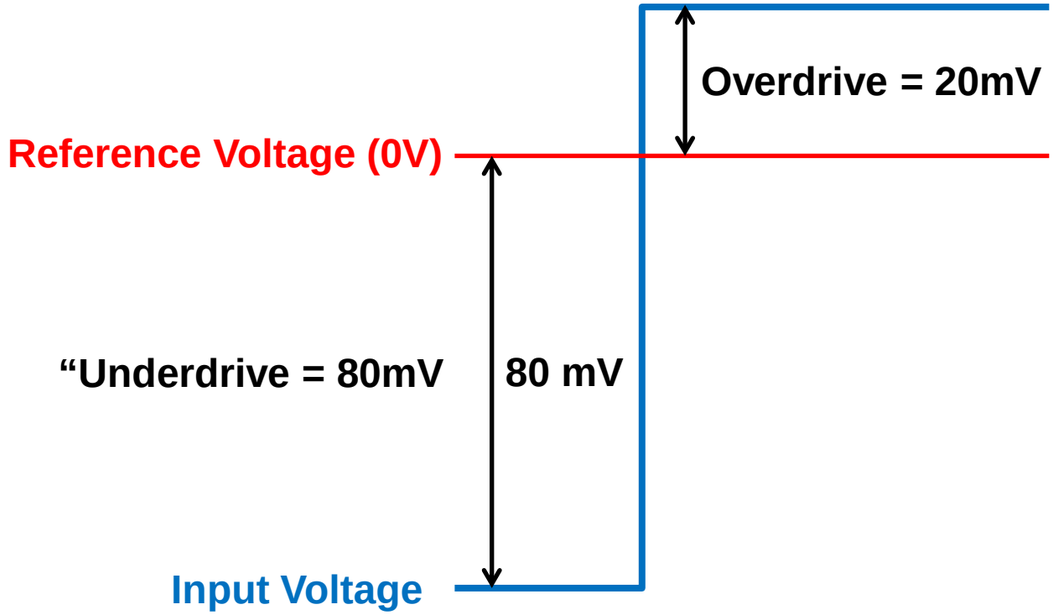
Propagation Delay and Rise/Fall Time



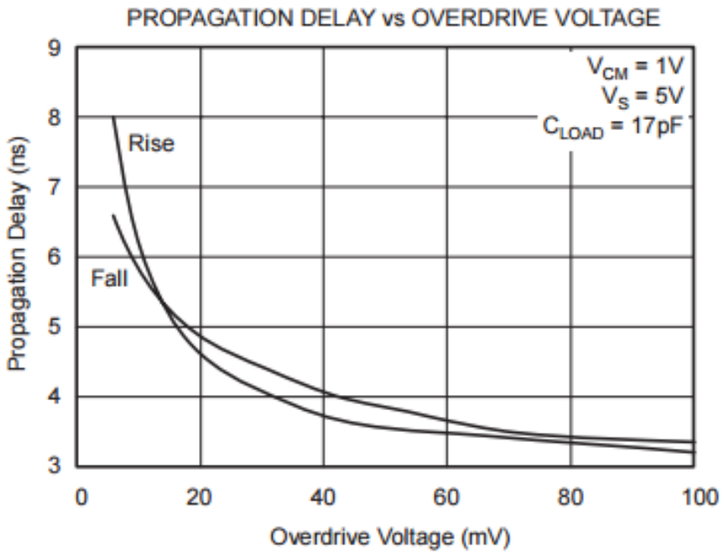
Input Overdrive - Definition

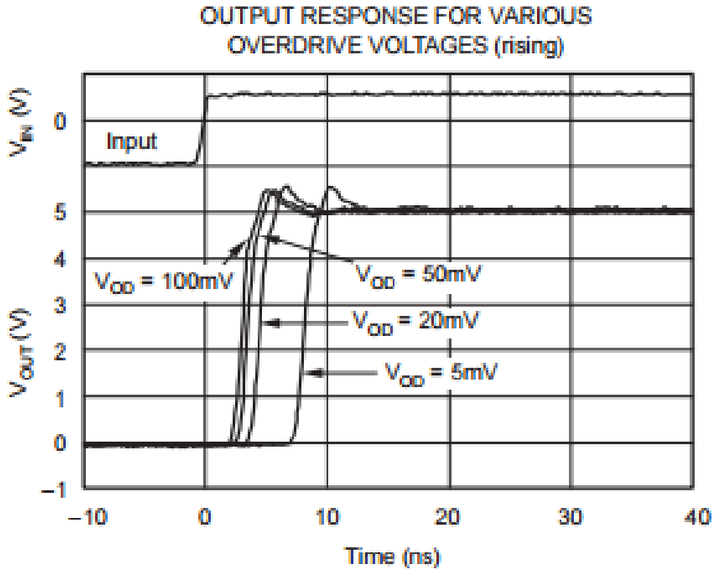
- A commonly misunderstood specification is input overdrive.
- Overdrive is NOT the total change in input voltage!
- **Overdrive is defined as the amount of differential input voltage *exceeding* the reference voltage**



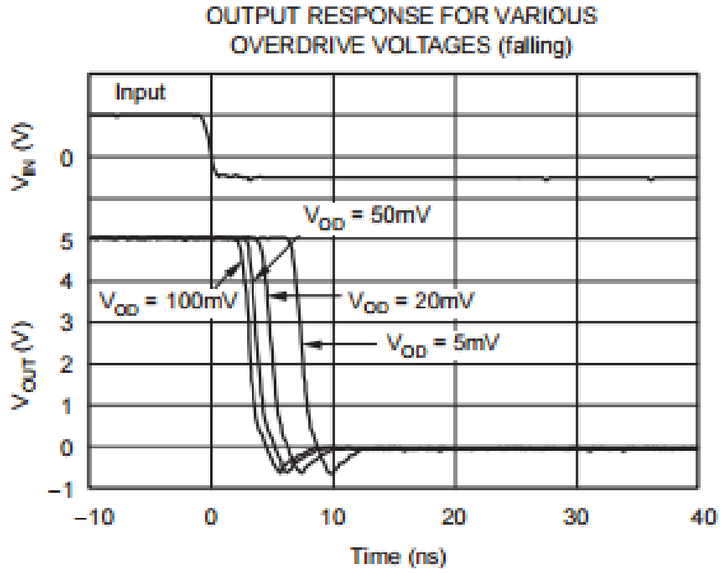
Example:
100mVpp input step with 20mV overdrive

Input Overdrive vs. Propagation Delay

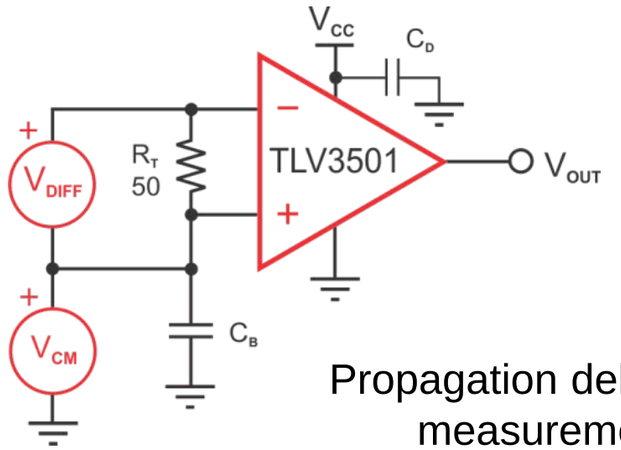




Prop delay $t_{P(LH)}$



Prop delay $t_{P(HL)}$



Propagation delay time measurement

Temp	Overdrive	Typical	Maximum
25°C	5 mV	7.5 ns	10 ns
-40°C to 85°C			12 ns
25°C	20 mV	4.5 ns	6.4 ns
-40°C to 85C			7 ns

Propagation delay t_{PD} , ΔVin = 100 mV