

Kentech -1.25 kV picosecond pulse generator

June 13, 2016
Item 01712

Two-channel -1.25 kV pulse generator with 600 picosecond fall time on leading edge of output pulse. Inter-channel jitter of 9 picoseconds RMS. Trigger jitter of 10 picoseconds RMS. Requires warmup of two hours for the trigger delay to stabilize.

Description	Channel 1 (Top)		Channel 2 (Bottom)		Unit
	Value	St. Dev.	Value	St. Dev.	
10/90 Fall time (leading edge)	580	12	650	22	ps
20/80 Fall time (leading edge)	380	6	413	10	ps
10/90 Rise time (trailing edge)	2.511	.022	2.617	.043	ns
20/80 Rise time (trailing edge)	1.279	.021	1.597	.024	ns
Pulse width	6.303	.007	6.252	.020	ns
Mean pulse height	-1.276	.006	-1.249	.017	kV
Minimum voltage (from leading-edge overshoot)	-1.306	.005	-1.304	.005	kV
Maximum voltage (from trailing-edge overshoot)	+71.6	4.7	+66.8	4.8	V

The slightly worse characteristics of channel 2 are due to the knee near the minimum voltage on the leading edge. In figure 1 below, compare the flatter bottom of channel 1 with that of channel 2. Note that the 20/80 fall times between the two channels are much closer because this difference is only apparent near the end of the leading edge.

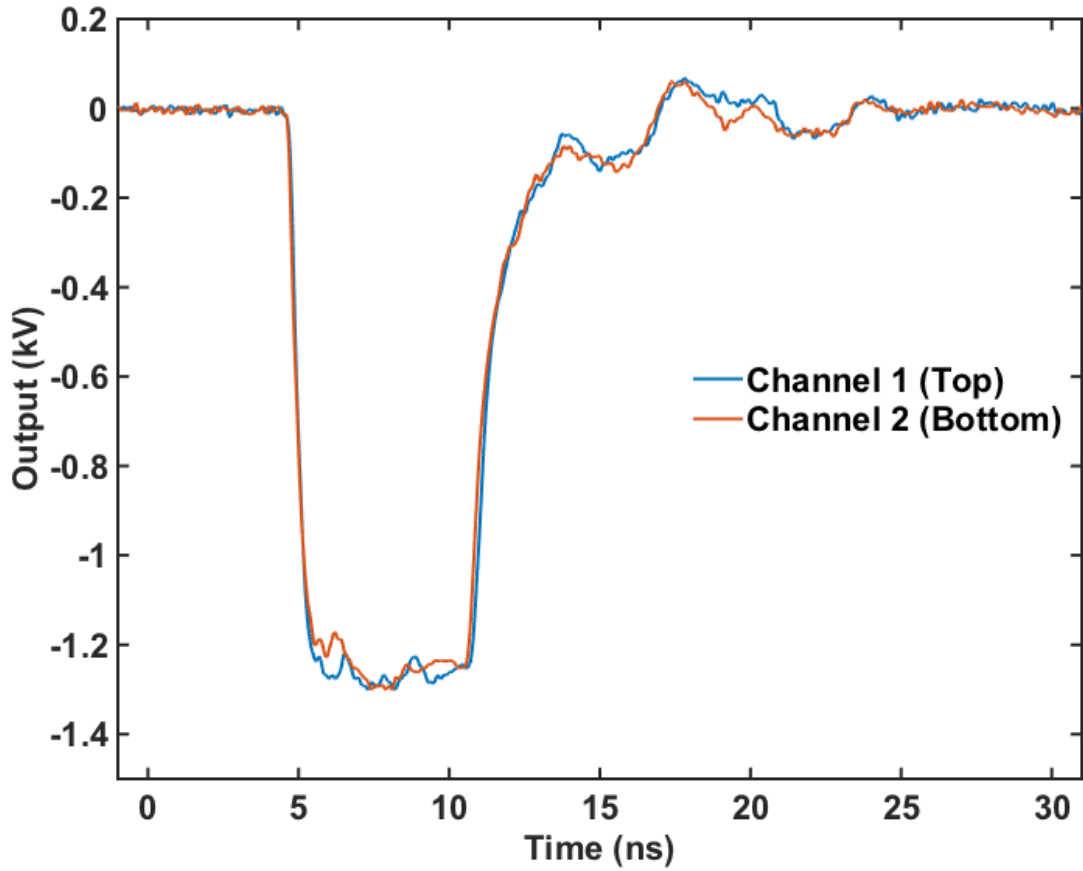


Figure 1: Channel 1 and channel 2 outputs into 50 ohm load.

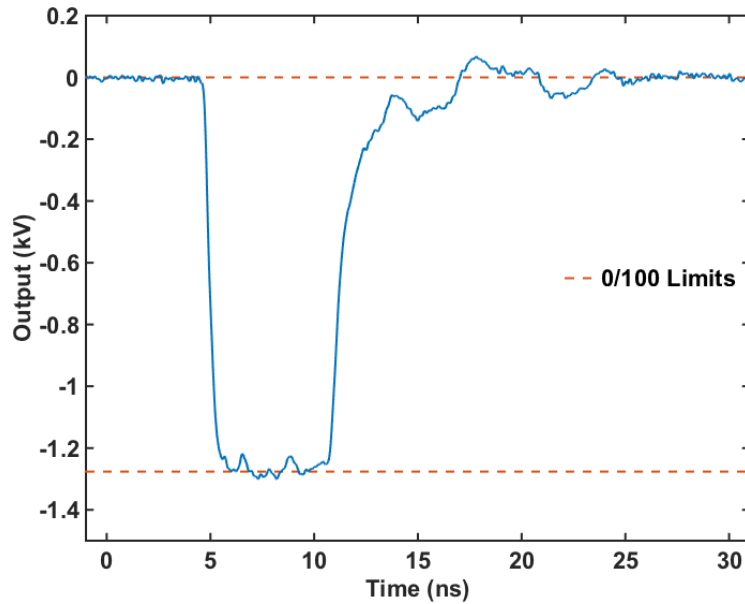


Figure 2: Channel 1 output overview including definition of negative output level.

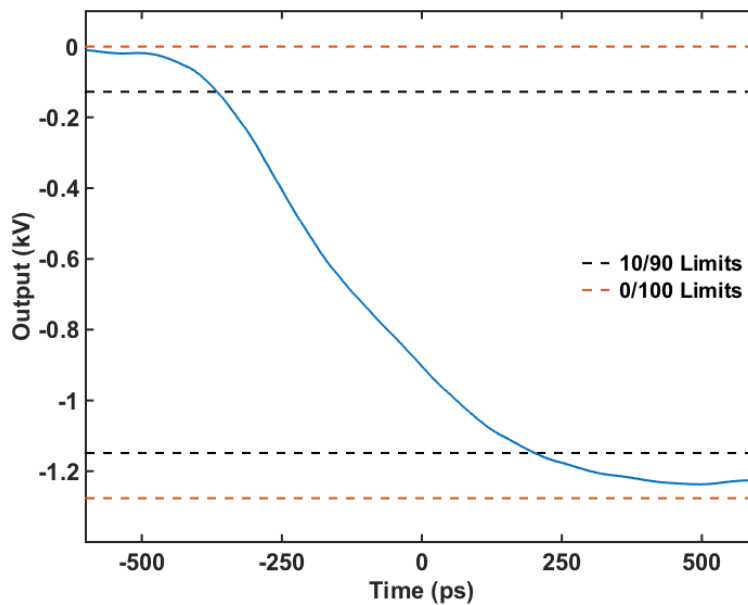


Figure 3: Channel 1 output on falling (leading) edge showing fall time according to 10/90 limits.

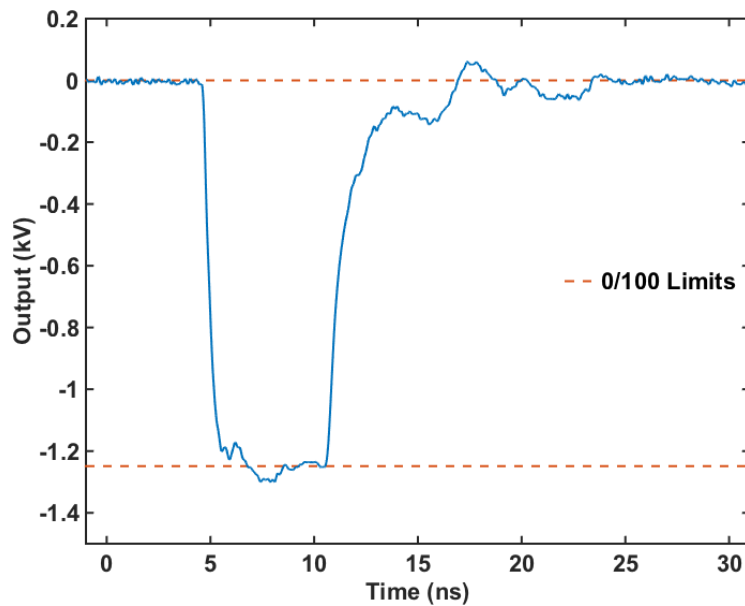


Figure 4: Channel 2 output overview including definition of negative output level.

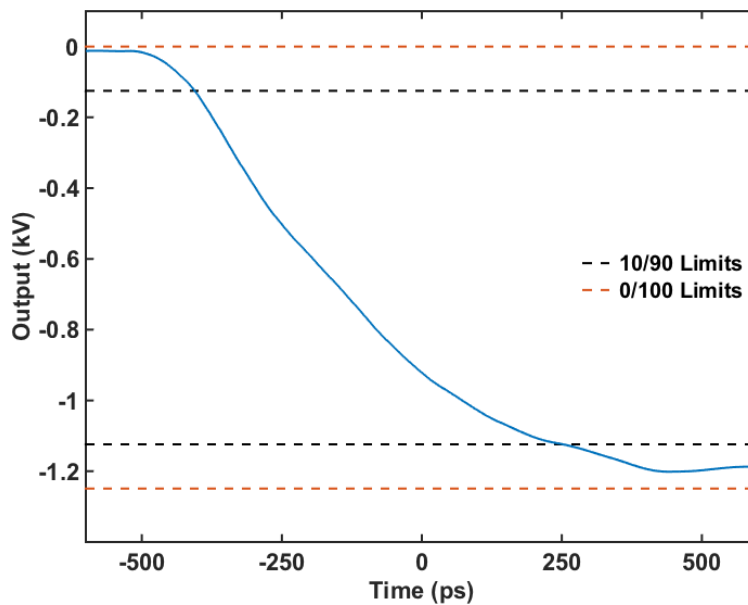


Figure 5: Channel 2 output on falling (leading) edge showing fall time according to 10/90 limits.