



**Figure 3** For a system with an input voltage of 12V and three LEDs in series, in which the forward voltage is approximately 3V per LED (a), the filtered driver signal (green) stabilizes at approximately  $D \times V_{CC} = (9V/12V)5V = 3.75V$ . The comparator latches when the filtered Dim signal (yellow) goes lower than 2.5V, so the comparator begins interpreting the filtered driver signal after approximately 100  $\mu$ sec. Clearly,  $V_D$  is higher than the threshold reference voltage (red) when the comparator is active. After one of the LEDs shorts out (b),  $V_D$  stabilizes at approximately  $(6V/12V)5V = 2.5V$  and no longer exceeds the threshold.