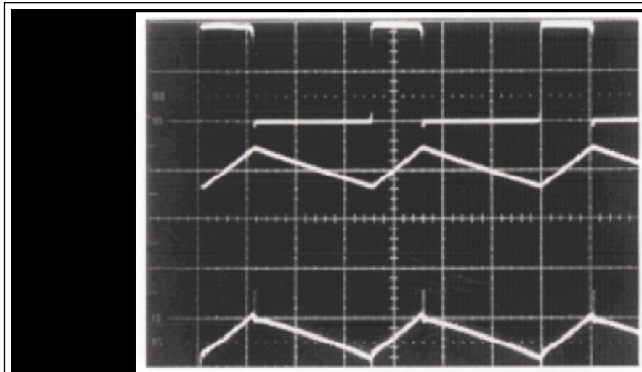
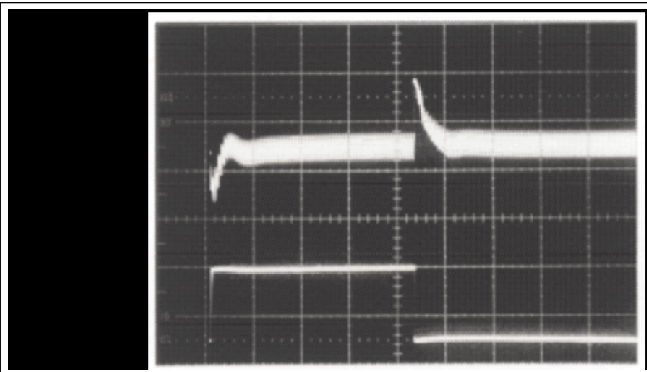


9.2.1.3 Application Curves



Continuous Mode Switching Waveforms $V_{IN} = 20\text{ V}$, $V_{OUT} = 5\text{ V}$, $I_{LOAD} = 2\text{ A}$, $L = 32\text{ }\mu\text{H}$, $C_{OUT} = 220\text{ }\mu\text{F}$, $C_{OUT}\text{ ESR} = 50\text{ m}\Omega$
A: Output Pin Voltage, 10 V/div.
B: Inductor Current 1 A/div.
C: Output Ripple Voltage, 50 mV/div.

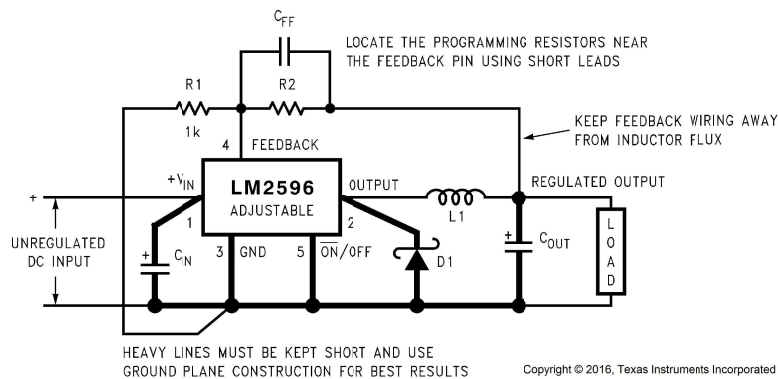
Figure 33. Horizontal Time Base: 2 $\mu\text{s}/\text{div}$



Load Transient Response for Continuous Mode $V_{IN} = 20\text{ V}$, $V_{OUT} = 5\text{ V}$, $I_{LOAD} = 500\text{ mA}$ to 2 A , $L = 32\text{ }\mu\text{H}$, $C_{OUT} = 220\text{ }\mu\text{F}$, $C_{OUT}\text{ ESR} = 50\text{ m}\Omega$
A: Output Voltage, 100 mV/div. (AC)
B: 500-mA to 2-A Load Pulse

Figure 34. Horizontal Time Base: 100 $\mu\text{s}/\text{div}$

9.2.2 LM2596 Adjustable Output Series Buck Regulator



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$$V_{OUT} = V_{REF} \left(1 + \frac{R_2}{R_1} \right)$$

where $V_{REF} = 1.23\text{ V}$

$$R_2 = R_1 \left(\frac{V_{OUT}}{V_{REF}} - 1 \right)$$

Select R_1 to be approximately 1 k Ω , use a 1% resistor for best stability.

C_{IN} — 470- μF , 50-V, Aluminum Electrolytic Nichicon *PL Series*

C_{OUT} — 220- μF , 35-V Aluminum Electrolytic, Nichicon *PL Series*

D1 — 5-A, 40-V Schottky Rectifier, 1N5825

L1 — 68 μH , L38

R1 — 1 k Ω , 1%

C_{FF} — See [Feedforward Capacitor \(\$C_{FF}\$ \)](#)

Figure 35. Adjustable Output Voltage Version