DEMO CIRCUIT 817A
QUICK START GUIDE

LTC2927
Single Power Supply Tracking Controller

DESCRIPTION

Demonstration circuit DC817A is intended for evaluating the performance of the LTC2927 Single Power Supply Tracking Controller. The board contains two LTC2927s tied to a common ramping signal, providing tracking and sequencing for two power supplies. As assembled, DC817A operates directly with two DC222 buck outputs.

Design files for this circuit board are available. Call the LTC factory.

PERFORMANCE SUMMARY

Specification s are at T_A = 25°C

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V_{CC}	Input Supply Voltage Range		2.6		5.5	V
$V_{CC(UVLO)}$	Supply Undervoltage Lockout	V_{CC} RISING	2.2	2.5	2.7	V
• $V_{CC(UVLO)}$	Supply Undervoltage Lockout Hysteresis			25		mV
$V_{ON(TH)}$	ON Pin Threshold Voltage	V_{ON} RISING	1.210	1.230	1.250	V
• $V_{ON(HYST)}$	ON Pin Hysteresis		30	75	150	mV
V_{TRACK}	TRACK Pin Voltage	V_{TRACK}= -10µA	0.77	0.8	0.82	V
		V_{TRACK}= -1mA	0.77	0.8	0.82	V
$V_{FB(CLAMP)}$	FB Pin Clamp Voltage	1µA • I_{FB} • 1mA	1.5	2.0	2.3	V

OPERATING PRINCIPLES

The LTC2927 controls the output voltage of a power supply by introducing a small current into the supply's feedback node. When this current is at its maximum, the supply's output is forced to zero; decreasing this current to zero allows the supply's output to rise to its normal, regulated output.

The RAMP pin is driven by an internally generated constant current source, which when loaded with capacitor, produces a linear voltage ramp. By varying the injected current under the control of this "master" ramping signal, the slave supply output is made to follow the master ramp in a predictable fashion.

Any slave power supply, which has an accessible inverting feedback node of less than 1.5V, and a feedback divider current in the range of 10µA to 1mA, may be controlled with the LTC2927. Tracking behavior is configured using two resistors, RTA and RTB. A valid Vcc supply for the LTC2927 must be present before the tracked supply is enabled or powered up.

Boost converters and certain linear regulators are generally incompatible with the LTC2927 control technique.

DC817A includes two LTC2927 controllers driven by a common ramp signal. The first controller

generates the ramp signal and monitors Vcc with its ON pin. The second controller's RAMP pin is driven by REMPBUF of the first; its ON pin is defeated by being tied to V_{CC}.

To reconfigure DC817A for use with other supplies, five components may be changed: C3 to control the master ramp rate, and RTA1, RTB1, RTA2, and RTB2 to control the relative behavior of the two supplies. Hold-off time, ramp rate, and offset are all defined by the resistors. For details on calculating these component values, consult the LTC2927 data sheet.

QUICK START PROCEDURE

As a design example, DC817A is populated for operation with two DC222 slave supplies, using the LT1735 Buck Regulator, which are configured for 3.3V and 2.5V output. The first LTC2927 controls the 3.3V supply, while the second controls the 2.5V supply.

Connect the slave supplies as shown in Figure 1, attaching both the RUN/SS and VOSENSE lines to the DC817A. Next apply 5V to all boards; the outputs will begin tracking up once the ON pin of U1 detects a valid 5V input.

The tracking waveforms are shown in Figure 2 and Figure 3. Also shown in Figure 2 and Figure 3 is an optional "enable " waveform, which is simply a switch closure to ground on U1's ON pin (see Figure 1 for location of this pad). This may be driven by an open collector, such as an enable signal from a microcontroller or separate supply monitor.

.

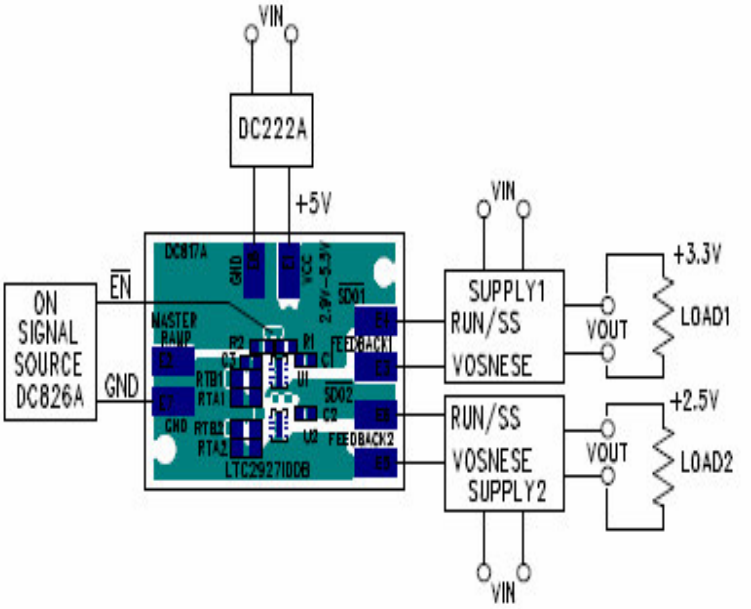

Figure 1. Test Setup

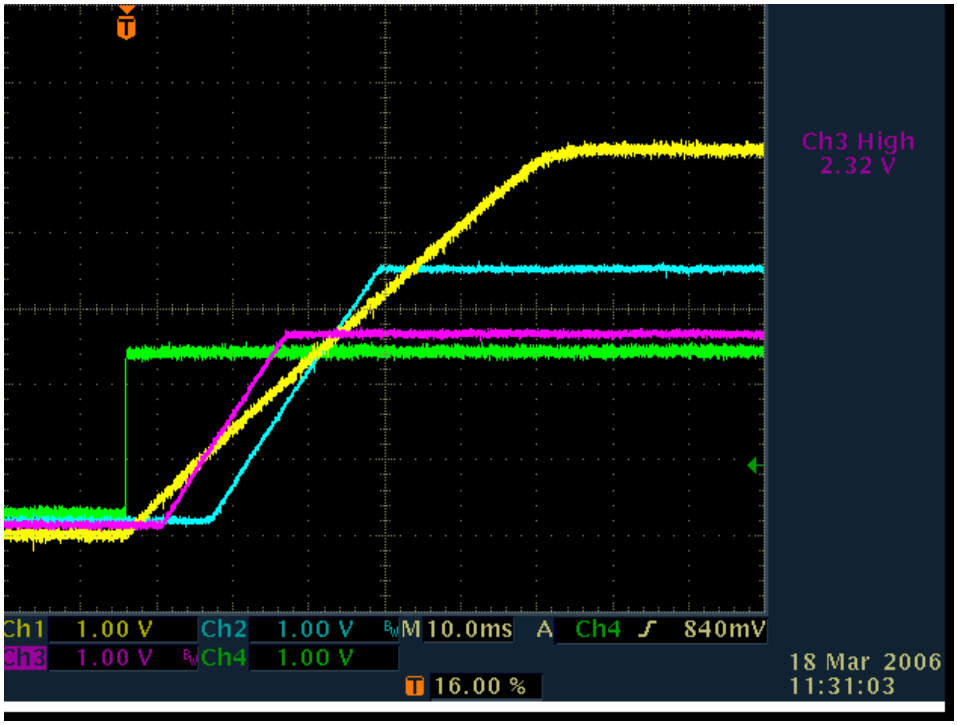

Figure 2. Startup Waveforms

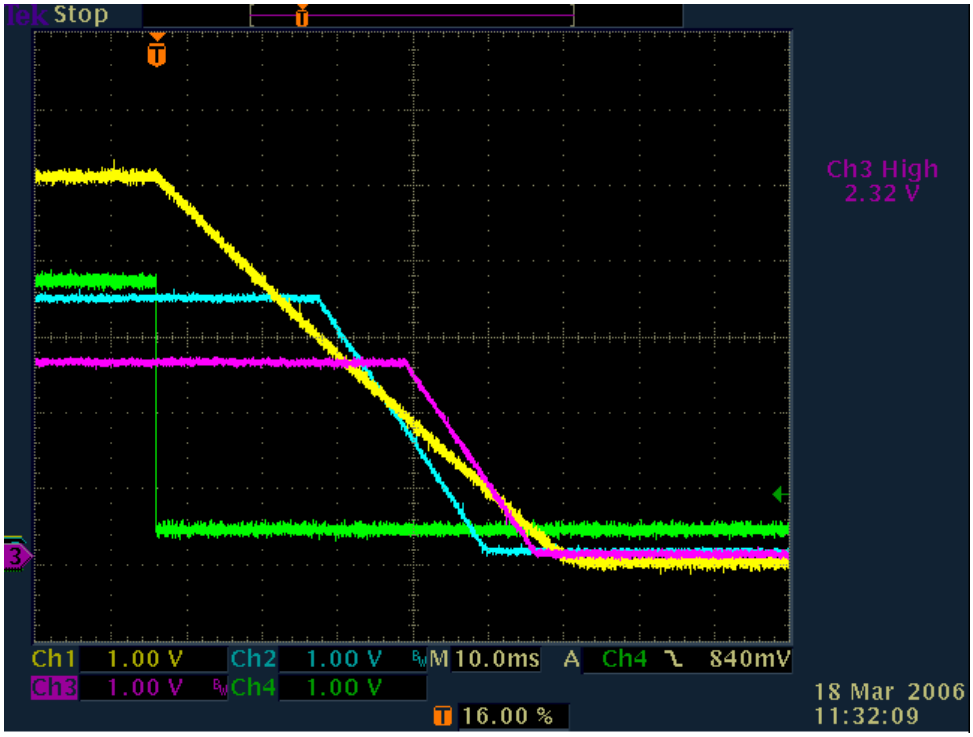

Figure 3. Shutdown Waveforms

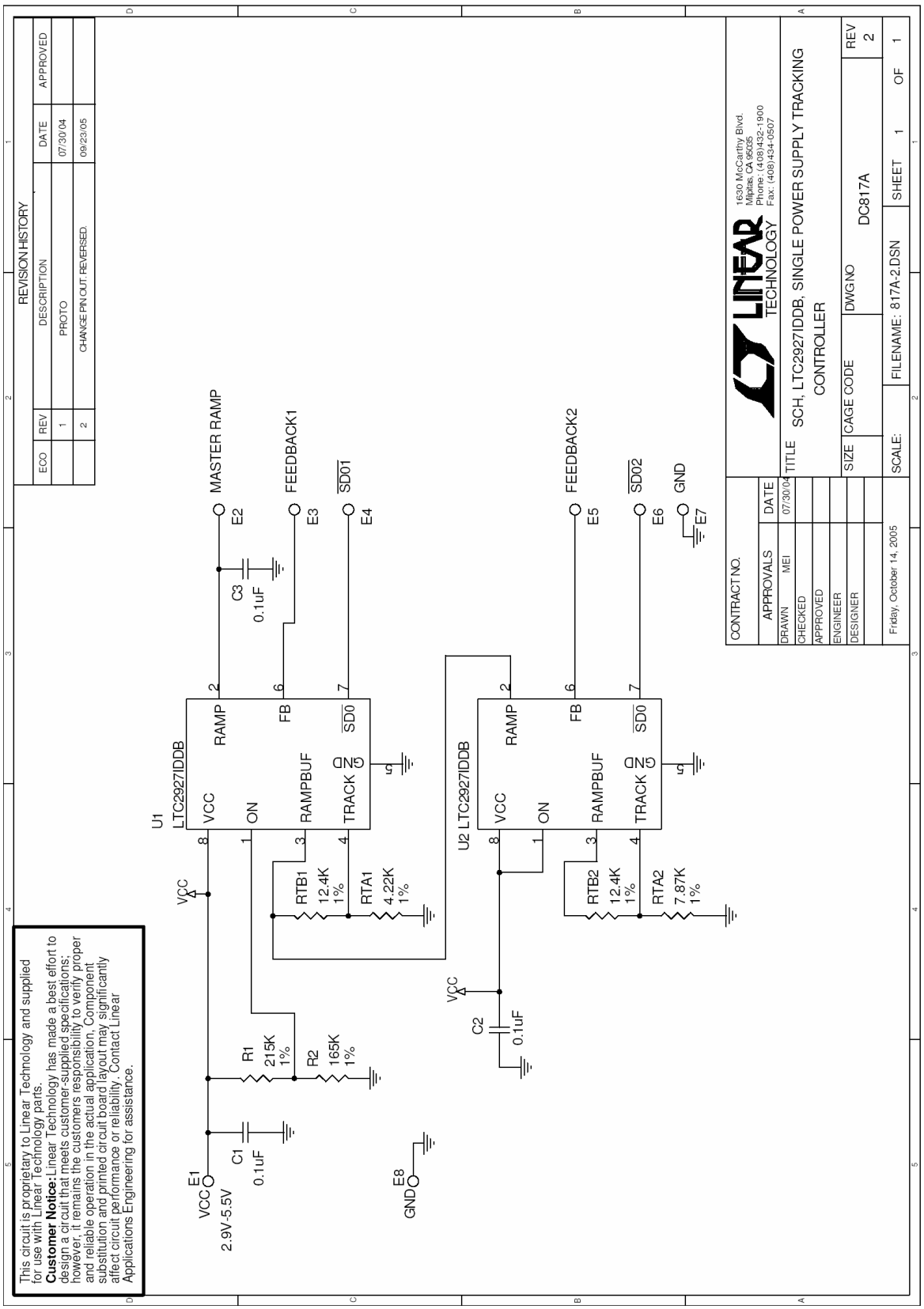

Figure 4. Reference A

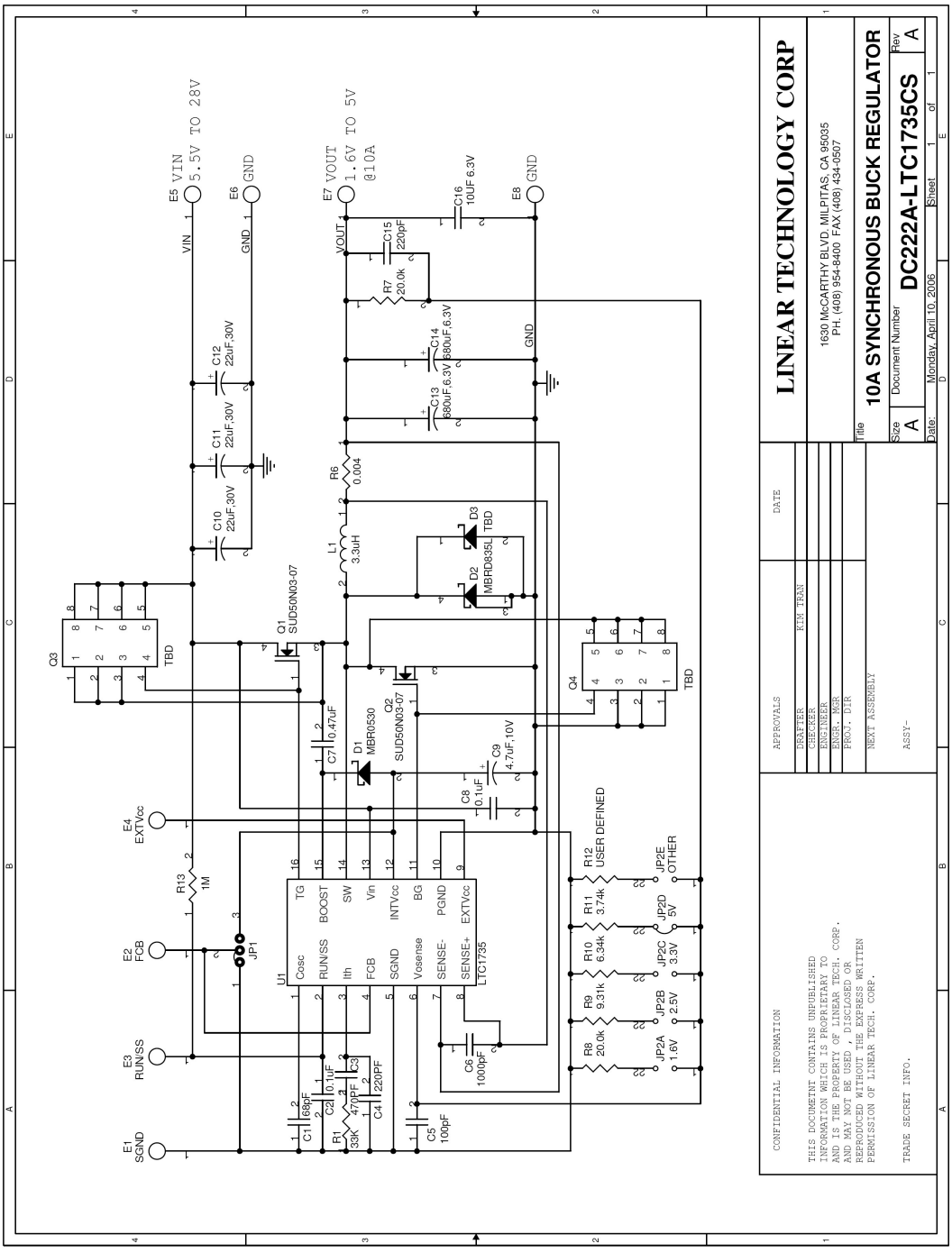

Figure 5. Reference B

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Power Management IC Development Tools ***category:***

Click to view products by Analog Devices ***manufacturer:***

Other Similar products are found below :

EVAL-ADM1168LQEBZ EVB-EP5348UI MIC23451-AAAYFL EV MIC5281YMME EV DA9063-EVAL ADP122-3.3-EVALZ ADP130-0.8-EVALZ ADP130-1.2-EVALZ ADP130-1.5-EVALZ ADP130-1.8-EVALZ ADP1714-3.3-EVALZ ADP1716-2.5-EVALZ ADP1740-1.5-EVALZ ADP1752-1.5-EVALZ ADP1828LC-EVALZ ADP1870-0.3-EVALZ ADP1871-0.6-EVALZ ADP1873-0.6-EVALZ ADP1874-0.3-EVALZ ADP1882-1.0-EVALZ ADP199CB-EVALZ ADP2102-1.25-EVALZ ADP2102-1.875EVALZ ADP2102-1.8-EVALZ ADP2102-2-EVALZ ADP2102-3-EVALZ ADP2102-4-EVALZ ADP2106-1.8-EVALZ ADP2147CB-110EVALZ AS3606-DB BQ24010EVM BQ24075TEVM BQ24155EVM BQ24157EVM-697 BQ24160EVM-742 BQ24296MEVM-655 BQ25010EVM BQ3055EVM NCV891330PD50GEVB ISLUSBI2CKIT1Z LM2744EVAL LM2854EVAL LM3658SD-AEV/NOPB LM3658SDEV/NOPB LM3691TL-1.8EV/NOPB LM4510SDEV/NOPB LM5033SD-EVAL LP38512TS-1.8EV EVAL-ADM1186-1MBZ EVAL-ADM1186-2MBZ