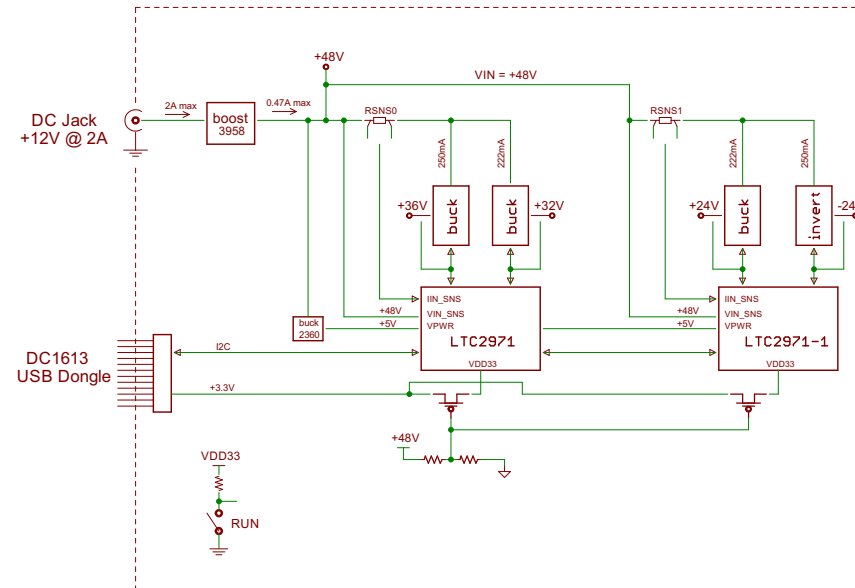


REVISION HISTORY			
ECO	REV	DESCRIPTION	APPROVED   DATE
-	1	PROTOTYPE	MIKE P. 9-5-2019

## BLOCK DIAGRAM



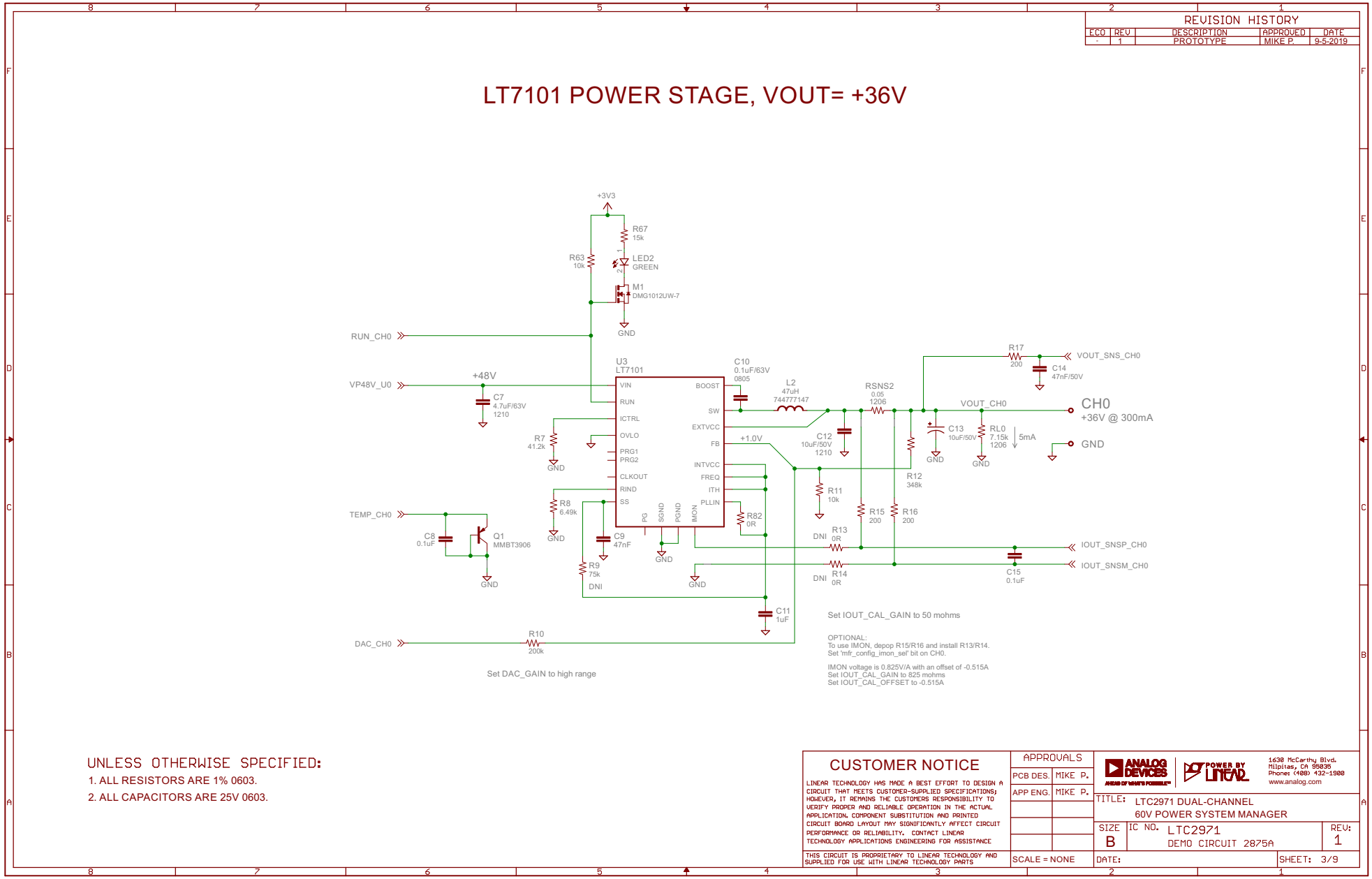
CH0: boost (7101) +36V @ 0.3A  
 CH1: buck (3991) +32V @ 0.3A  
 CH2: buck (8630) +24V @ 0.4A  
 CH3: invert (3758) -24V @ 0.4A

### ASSUMPTIONS:

1. All buck and boost regulators 90% efficient at full load.
2. Inverting regulator 85% efficient at full load.
3. Input DC jack currents based on two outputs fully loaded.

CUSTOMER NOTICE		APPROVALS		ANALOG DEVICES		POWER BY LINEAR		1630 McCarthy Blvd. Milpitas, CA 95035 Phone: (408) 432-1900 www.analog.com	
LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMER'S RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE.		PCB DES.	MIKE P.	TITLE: LTC2971 DUAL-CHANNEL 60V POWER SYSTEM MANAGER		SIZE		REV: 1	
THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.		APP. ENG.	MIKE P.	IC NO. LTC2971 DEMO CIRCUIT 2875A		DATE:		SHEET: 1/9	
		SCALE = NONE							





## LT3991 POWER STAGE, VOUT= +32V



LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMERS RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE

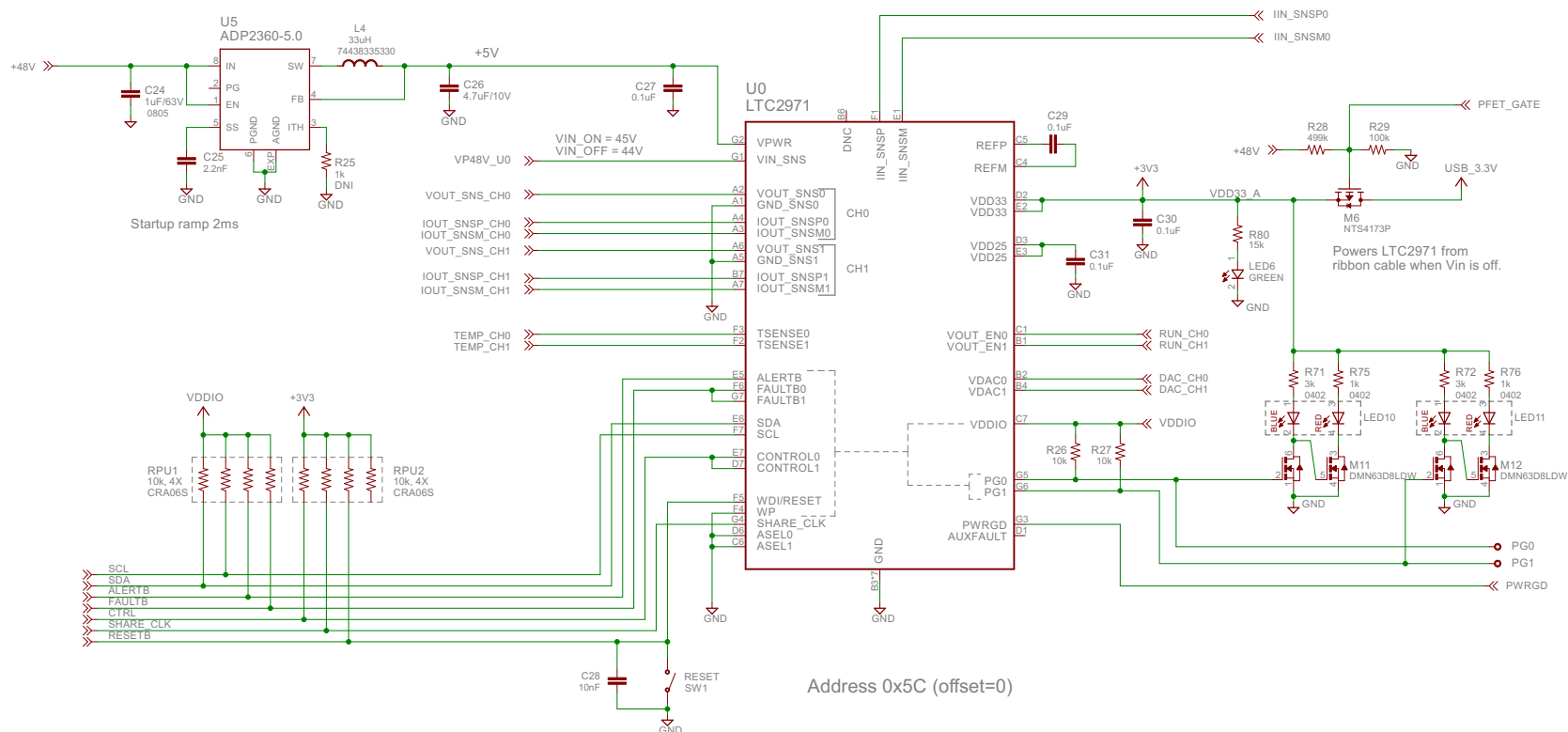

DATE:	SHEET: 4/9
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REVISION HISTORY				
ECO	REV	DESCRIPTION	APPROVED	DATE
-	1	PROTOTYPE	MIKE P.	9-5-2019

## LTC2971

### 2-CHANNEL +/- 60V POWER SYSTEM MANAGER

ADP2360 Step-Down +48V to +5V  
to power the LTC2971 devices



UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTORS ARE 1% 0603.
2. ALL CAPACITORS ARE 25V 0603.

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LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMER'S RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE.		PCB DES.	MIKE P.	TITLE: LTC2971 DUAL-CHANNEL 60V POWER SYSTEM MANAGER		SIZE: IC NO. LTC2971		REV: 1	
THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.		APP ENG.	MIKE P.	B		DEMO CIRCUIT 2875A		SHEET: 5/9	
SCALE = NONE		DATE:							

8 7 6 5 4 3 2 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	APPROVED	DATE
-	1	PROTOTYPE	MIKE P.	9-5-2019

F

E

D

C

B

A

### LTC8630 POWER STAGE, VOUT = +24V

VP48V\_U1 >> +48V

RUN\_CH2 >>

TEMP\_CH2 >>

DAC\_CH2 >>

+3V3

R65 10k

R69 15k

LED4 GREEN

M3 DMG1012UW-7

GND

U6 LT8630

VIN 18

BOOST 20

SW 14

IND 14

VOUT 12

EN/UV 3

PG 5

INTVCC 16

RT 8

GND 19

TR/SS 19

FB 11

C32 4.7uF/63V 1210

C33 0.1uF

Q3 MMBT3906

R30 8.66k

C34 4.7uF/10V

GND

R31 124k

C36 0.1uF/63V 0805

L5 33uH 7447785133

C37 22pF

C38 10uF/35V 1210

RSNS4 0.05 1206

R33 287k

C39 10uF/35V

RL2 1206 5mA

R32 10k

GND

0.808V

Set IOUT\_CAL\_GAIN to 50 mohms

R36 200

C40 0.1uF

IOUT\_SNSP\_CH2

R37 200

IOUT\_SNSM\_CH2

R38 200

VOUT\_SNS\_CH2

C41 47nF/50V

CH2 +24V @ 400mA

GND

+3V3

SW2

R34 100k

R35 20 1210

M8 DMN6140L

GND

CREATE FAULT

Ramps up in 8.3ms

UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTORS ARE 1% 0603.
2. ALL CAPACITORS ARE 25V 0603.

CUSTOMER NOTICE		APPROVALS		TITLE:	
LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMER'S RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE.		PCB DES.	MIKE P.	LTC2971 DUAL-CHANNEL	
		APP ENG.	MIKE P.	60V POWER SYSTEM MANAGER	
				SIZE	IC NO.
				B	LTC2971
THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS		SCALE = NONE		DATE:	REV: 1
				SHEET: 6/9	

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POWER BY LINEAR

2. ALL CAPACITORS ARE 25V 0603.

LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMERS RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE

THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS

PCB DES.	MIKE P.
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APP ENG.	MIKE P.
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SCALE = NONE



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Phone: (408) 432-1900  
[www.analog.com](http://www.analog.com)

**TITLE:** LTC2971 DUAL-CHANNEL  
60V POWER SYSTEM MANAGER

SIZE	IC NO.	LTC2971	REV:
B		DEMO CIRCUIT 2825A	1

DATE:	SHEET: 6/9
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REVISION HISTORY				
ECO	REV	DESCRIPTION	APPROVED	DATE
-	1	PROTOTYPE	MIKE P.	9-5-2019



1. ALL RESISTORS ARE 1% 0603.
2. ALL CAPACITORS ARE 25V 0603.

LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMERS RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE

THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND  
SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS

A	PCB DES.	MIKE P.
	APP ENG.	MIKE P.

H	APP ENG.	MIKE P.
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[illegible]


T		
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SCALE NONE

SCALE = NONE

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**ANALOG  
DEVICES**  
AHEAD OF WHAT'S POSSIBLE



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Phone: (408) 432-1900  
[www.analog.com](http://www.analog.com)

**TITLE:** LTC2971 DUAL-CHANNEL  
60V POWER SYSTEM MANAGER

SIZE B	IC NO. LTC2971 DEMO CIRCUIT 2875A	REV: 1
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DATE:	SHEET: 8/9
2	1



