PX Ref: an LTZ1000−based 7V reference

based on the circuit by Andreas of the EEVBlog forum
See http://www.eevblog.com/forum/metrology/ultra−precision−reference−ltz1000/msg249123/#msg249123

Vz+ Sense

15V
15V

D3 ZENER

Q1 2N3904
R8 1k 0W25
U2A LT1013
C4 0.1uF
GND
GND

C14 0.1uF

METAL FOIL R3
METAL FOIL R2 78k

1N414B D2

Unity−gain buffer

15V
C33 0.1uF

Vz+ Sense
R30 10k 0W25
U30 LTC2057
R32 22R 0W25
Vz+ Buf
C30 0.1uF
C31 0.1uF
R31 10k 0W25
C32 0.1uF
GND
GND

See http://www.eevblog.com/forum/metrology/px−reference/msg1386871/#msg1386871

ADA4522−1 may also be substituted.

C13
R6 10k 0W25

METAL FOIL R4 1k
13V/1k R45
METAL FOIL R5

Vishay metal foil divider

R7 1M 0W25
C1 0.1uF

0.5mA

U2B LT1013
C15 0.1uF
C8 0.1uF

H+

20mA?
20mA?

0.1mA 4mA 0.1mA

U1

C11 0.1uF

0W25 C10

LTZ1000A

4mA 0.2mA
C12 0.1uF

0W25 400k R9

H+

C2 0.1uF
1N414B D1

METAL FOIL R1

C3 22nF

Vz− Sense
GND

CONN_1X1

15V
1N5819 D4
C9 0.1uF
GND

CONN_1X1
CONN_1X1
CONN_1X1

Vz+ Buf
Vz+ Sense

Impact of resistor drift (according to data sheet):

R1:   1/100
R2:   1/330
R3:   1/500
R4/R5: 1/100

Impact of resistor drift (according to janaf):

R1:   −1/770
R2:   −1/250
R3:   −1/1400
R4/R5: 1/100

(See http://www.eevblog.com/forum/metrology/ultra−precision−reference−ltz1000/msg615470/#msg615470)

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