1.1 Scope.

This specification covers the detail requirements for a hybrid precision voltage reference.

1.2 Part Number.

The complete part number per Table 1 of this specification is as follows:

Device	Part Number
−1	AD2700SD/883B
−2	AD2700UD/883B
−3	AD2701SD/883B
−4	AD2701UD/883B
−5	AD2702SD/883B
−6	AD2702UD/883B

1.2.3 Case Outline.

See Appendix 1 of General Specification ADI-H-1000: package outline: DH-14C.

1.3 Absolute Maximum Ratings. (T_A = +25°C unless otherwise noted)

Supply Voltage ($+V_{IN}$) −1 . . . . . +20 V
−2 . . . . . +20 V
−5 . . . . . +20 V
−6 . . . . . +20 V
Supply Voltage ($-V_{IN}$) −3 . . . . . −20 V
−4 . . . . . −20 V
−5 . . . . . −20 V
−6 . . . . . −20 V
10 V Short Circuit Protection (to GND) . . . . . Continuous
Storage Temperature Range . . . . . −65°C to +150°C
Lead Temperature (Soldering 10 sec) . . . . . +300°C

1.5 Thermal Characteristics.

Thermal Resistance θ_{JC} = 7°C/W
θ_{JA} = 20°C/W

AD2700/AD2701/AD2702—SPECIFICATIONS

Table 1.

Test	Symbol	Device	Design Limit @ +25°C	Sub Group 1	Sub Group 2, 3	Sub Group 7	Test Condition[1]	Units
Quiescent No Load Current	I_{CC}	−1, 2	14	14			V_{CC} = +15 V No Load	+mA max
	I_{EE}	−3, 4	14	14			V_{EE} = −15 V No Load	−mA max
	I_{CC}	−5, 6	17	17			V_{CC} = +15 V V_{EE} = −15 V No Load	+mA max
	I_{EE}	−5, 6	4	4			V_{CC} = +15 V V_{EE} = −15 V No Load	−mA max
Interim Output Error Initial End-Point Delta Limits	$+V_{RINT}$	−1, 2 −5, 6	5 10 5	5 10 5			+10.000 V Output	±mV max
Interim Output Error Initial End-Point Delta Limits	$-V_{RINT}$	−3, 4 −5, 6	5 10 5	5 10 5			−10.000 V Output	±mV max
Selection Output Error[2]	$+V_R$	−1	5.0		8.0	5.0	+10.000 V Output	±mV max
	$+V_R$	−2, 6	2.5		5.5	2.5	+10.000 V Output	±mV max
	$+V_R$	−5	5.0		10.0	5.0	+10.000 V Output	±mV max
	$-V_R$	−3	5.0		8.0	5.0	−10.000 V Output	±mV max
	$-V_R$	−5	5.0		10.0	5.0	−10.000 V Output	±mV max
	$-V_R$	−4, 6	2.5		5.5	2.5	−10.000 V Output	±mV max
Positive Output Line Regulation	$+V_{RLINE}$	−1, 2 −5, 6	900	900			+10 V Output @ V_{CC} = +13.5 V to +16.5 V	±μV max
Negative Output Line Regulation	$-V_{RLINE}$	−3, 4 −5, 6	900	900			−10 V Output @ V_{EE} = −13.5 V to −16.5 V	±μV max
Positive Output Load Regulation	$+V_{RLOAD}$	−1, 2 −5, 6	500	500			+10 V Output @ 0 to 10 mA Load Change	±μV max
Negative Output Load Regulation	$-V_{RLOAD}$	−3, 4 −5, 6	500	500			−10 V Output @ 0 to 10 mA Load Change	±μV max
Positive Output Adjust Range[3]	$+V_{RADJ}$	−1, 2 −5, 6	20	20			@ +10 V Output	±mV min
Negative Output Adjust Range[3]	$-V_{RADJ}$	−3, 4 −5, 6	20	20			@ −10 V Output	±mV min
Output Current	$+I_L$ $-I_L$	−1, 2 −3, 4 −5, 6	10	10	5		Thru a Resistive Load Tied to Pin 7, Common	±mA min

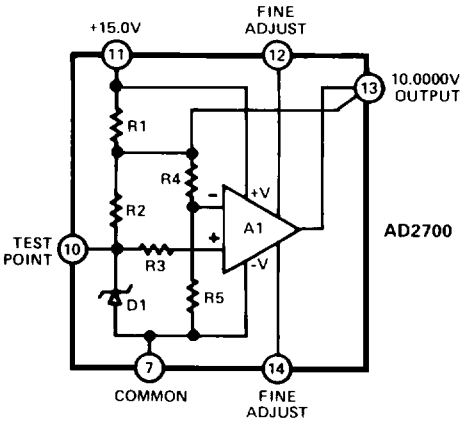
NOTES

[1]T_A = +25°C, V_S = +15 V unless otherwise specified. All tests, after 3 minute warm-up period, at +15 V supplies and 2 kΩ load to common unless otherwise specified. All measurements are referenced to Pin 7 of the device.

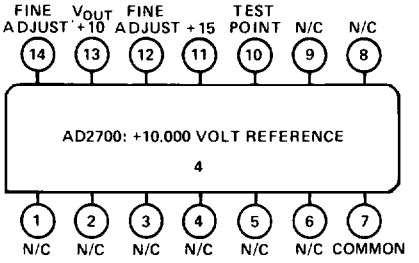
[2]Output voltage error as a function of temperature is determined using the box method. Each unit is tested at T_{min}, T_{max} and +25°C. At each temperature V_{OUT} must fall within the rectangular area bounded by the minimum and maximum temperature and whose maximum V_{OUT} value is equal to V_{OUT} nominal plus or minus the maximum +25°C error plus the maximum drift error from +25°C.

[3]See Figure 1 for trim circuits.

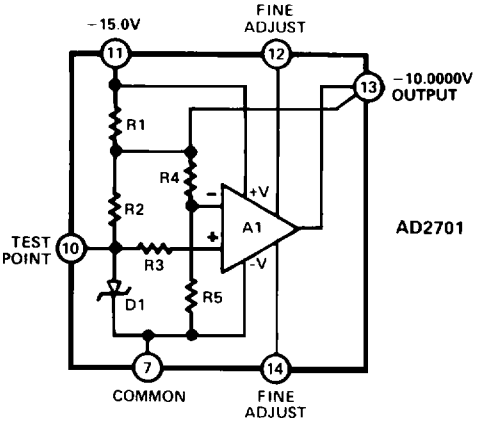
3.2.1 Functional Block Diagram and Terminal Assignments.



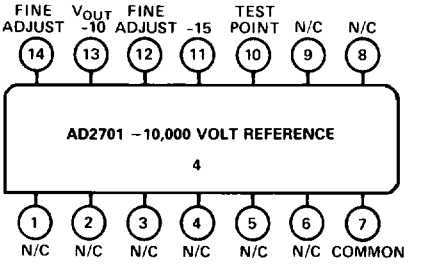
Device Type −1, −2



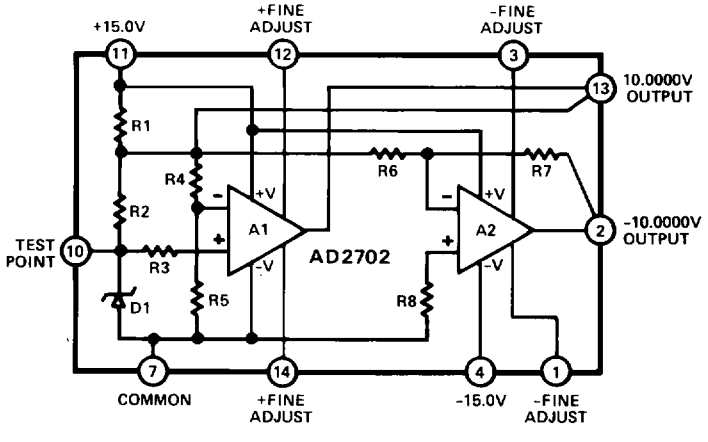
Device Type −1, −2



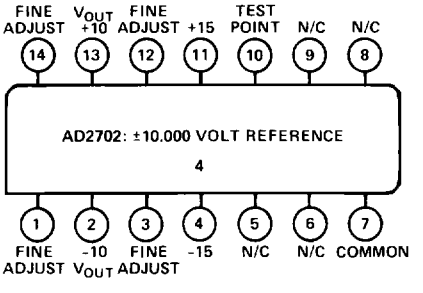
Device Type −3, −4



Device Type −3, −4



Device Type −5, −6



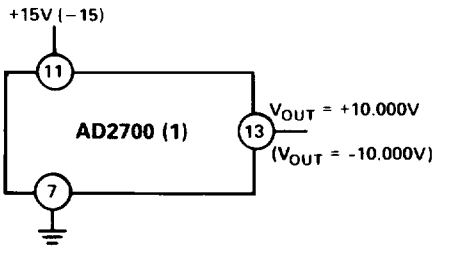
Device Type −5, −6

3.2.4 Microcircuit Technology Group.

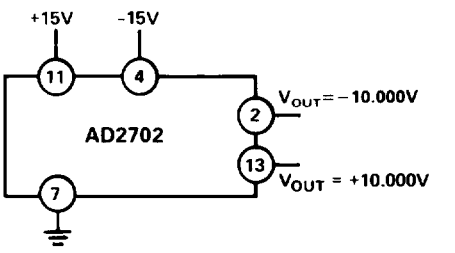
This microcircuit is covered by technology group (I).

4.2.1 Life Test/Burn-In Circuit.

Steady state life test is per MIL-STD-883 Method 1005. Burn-in is per MIL-STD-883 Method 1015 test condition (B).



Device Type −1, −2, (3), (4)



Device Type −5, −6

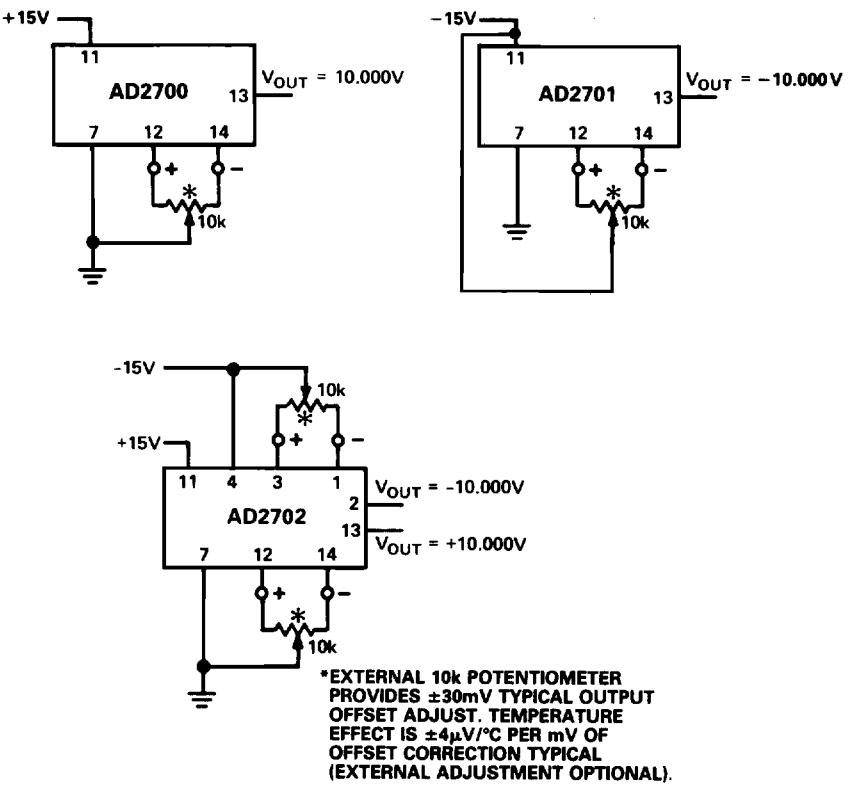


Figure 1. Fine Trim Connections