OMEGA®

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LINEAR IC TRAINER
OMEGA TYPE ETB-85

OMEGA TYPE ETB-85 Experimental Training Board has been designed specifically for the study of ten popular and most useful Linear Integrated Circuits (ICs). The capabilities of this trainer extend far beyond the experiments described. Although only a finite number of experiments have been described yet other circuits as per individuals requirements can also be designed using the available components and power supplies.

Practical experience on this board carries great educative value for Science and Engineering Students.

OBJECT

OP-AMP IC 741

The following experiments can be performed :

01 To measure the quiescent supply current
02 To null the offset voltage
03 To measure open-loop voltage gain under closed loop condition.
04 To measure output resistance
05 To measure differential input resistance
06 To measure unity gain bandwidth
07 To measure the rated output
08 To measure the slewing rate
09 To measure the full power response
10 To measure input offset voltage
11 To measure input bias and offset current
12 To measure input noise voltage
13 To measure input noise current
14 To measure Common Mode Rejection Ratio (CMRR)
15 To measure Common Mode Input Resistance (CMIR)
16 Application as Inverting amplifier
17 Application as Non-inverting amplifier
18 Application as difference amplifier
19 Application as Inverting summing amplifier
20 Application as Non-inverting summing amplifier
21 Application as D.C. Voltage follower
22 Application as A.C. Voltage follower
23 Application as differentiator
24 Application as Integrator
25 Application as semi Log-amplifier
26 Application as unipolar limiter
27 Application as bipolar limiter
28 Application as positive peak clipper
29 Application as negative peak clipper
30 Application as AC-DC converter
31 Application as High Pass Filter
32 Application as Low Pass Filter
33 Application as Triangle to Sine Wave Converter
34 Application as 500Hz-5KHz Square Wave Generator
35 Application as Wien-Bridge Oscillator
36 Application as Pulse Generator
37 Application as linear to log potentiometer
38 Application as random noise generator

FET INPUT OP-AMP IC CA 3130

The following experiments can be performed :

39 Application as high input impedance voltage follower
40 Application as pulse generator with independent control of ON and OFF periods
41 Application as active full wave rectifier without using diodes

HIGH SPEED COMPARATOR IC 710

The following experiments can be performed :

42 To measure open loop voltage gain under closed loop condition
43 To measure output resistance
44 To measure differential input resistance
45 To measure unity gain bandwidth
46 To measure the rated output
47 To measure the slewing rate
48 To measure the full power response
49 To measure input offset voltage
50 To measure input bias and offset current
51 To measure input noise voltage
52 To measure input noise current
53 To measure Common Mode Rejection Ration (CMMR)
54 To measure Common Mode Input Resistance (CMIR)
55 Application as a comparator
56 Application as a pulse width modulator
57 Application as a level detector
58 Application as Schmitt Trigger

Continue...

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LINEAR IC TRAINER
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TIMER IC NE 555

The following experiments can be performed :

59 Application as pulse width modulator
60 Application as pulse position modulator
61 Application as linear ramp generator
62 Application as 50% duty cycle oscillator
63 Application as Monostable Multivibrator
64 Application as Astable Multivibrator
65 Application as Frequency divider
66 Application as Schmitt trigger
67 Application as Event failure alarm
68 Application as Sine to Square Wave Converter

FUNCTION GENERATOR IC 566

The following experiment can be performed :

69 To study the linearity and accuracy of output waveforms

PHASE LOCKED LOOP IC NE 565

The following experiments can be performed :

70 Measurement of centre frequency 'f_o'
71 To study V_{co} sensitivity and linearity
72 Measurement of capture range and lock range
73 To study locking of V_{co} to harmonic of input signal
74 Detection of F.M. Signal

FIXED VOLTAGE REGULATOR IC 7812 & IC 7912

The following experiments can be performed :

75 To measure Line Regulation
76 To measure Load Regulation
77 To suppress oscillations at input and output
78 To study minimum input to output voltage Difference required for proper operation
79 To increase the output voltage using resistors
80 To increase the output voltage using zener diodes
81 To continuously vary the output voltage

VARIABLE VOLTAGE REGULATOR IC 723

The following experiments can be performed :

82 To measure Line Regulation
83 To measure Load Regulation
84 To measure Ripple Rejection
85 Application as basic voltage regulator
86 Application as Low voltage regulator (2 to 7V)
87 Application as High voltage regulator (7 to 21V)
88 Application as increased current output voltage regulator Using external NPN power transistor
89 Application as fold back current limiting regulator

VARIABLE VOLTAGE REGULATOR IC CA 3085

The following experiments can be performed :

90 To measure Line Regulation
91 To measure Load Regulation
92 To measure Ripple Rejection
93 Application as 3 to 23V variable output voltage regulator
94 Application as fixed voltage regulator
95 Application as current regulator
96 Application as High Gain Amplifier (upto 100KHz)

FEATURES

The board consists of the following built in parts :

01 0-30V D.C. at 500mA, continuously variably unregulated Power Supply.
02 ± 12V D.C. at 250 mA, IC Regulated Power Supply.
03 ± 6V D.C. at 200 mA, IC Regulated Power Supply.
04 1 KHz square wave signal source with variable output level.
05 100 Hz sine wave signal source with variable output level.
06 Pulser for generating trigger pulses.
07 D.C. Ammeter, 65mm rectangular dial with switch selectable ranges of 50 mA,250mA and 500mA.
08 D.C. Voltmeter, 65mm rectangular dial, dial with switch selectable ranges of 100mV,1V and 40V.
09 Two toggle switches, NPN power transistor 2N 3055, Transistor BC 177, Two IC 741 Three IC 3130, IC 710, IC 723, IC 3 IC 555, IC 566, IC 565,IC 7812, IC 7912, Electronic Load, 8 potentiometers, 45 fixed value resistors, 22 capacitors, 3 silicon signal diodes, 3 zener diodes, LED, 3 sets of 3 interconnected sockets each for multi-connections wherever required.
10 Mains ON/OFF switch, fuse and Neon Indicator are provided.
11 The unit is operative on 230VAC ±10% at 50Hz.
12 Adequate no. of patch cords stackable from rear both ends 2mm spring loaded plug length 50cm.
13 Good Quality, reliable terminal/sockets are provided at appropriate places on panel for connections & observation of waveforms.
14 Strongly supported by detailed Operating Instructions, giving details of Object, Theory, Design procedures, Report Suggestions and Book References.
15 Weight : 10.800 Kg. (Approx.)
16 Dimension : W 445 x H 260 x D470

OTHER APPARATUS REQUIRED (Not Included):

01 Sine Square Wave Oscillator OMEGA TYPE SS-305
02 Digital Frequency Counter OMEGA TYPE DFC-20M
03 A.C. Millivoltmeter OMEGA TYPE ACV-25
04 Band Pass Filter
05 Dual trace CRO 20MHz OMEGA TYPE CRO-20

We are committed to the continuous development of our products, and therefore reserve the right to amend specifications without prior notice.

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