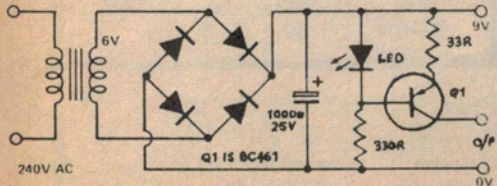
Constant Current Source

This circuit uses a standard panel mounting LED to provide a constant reference voltage for a transistor in a constant current generator.



The output current I, is given by the equation

$$I = \frac{V_{LED} - V_{BE}}{R_E}$$

When the circuit is not connected to a load, the LED is extinguised, giving a visible indication of when the circuit is operating.

INTERNATIONAL ELECTRONICS UNLIMITED

TTL - 7400

Buy $10.00 -any mix- deduct 10%
Buy $25.00 -any mix- deduct 15%

7400	.11	7441	.85	7493	.48	74165	.95
7401	.16	7442	.59	7494	.75	74166	1.19
7402	.14	7443	.65	7495	.75	74170	1.90
7403	.14	7444	.73	7496	.75	74173	1.49
7404	.16	7445	.65	74100	1.15	74174	1.19
7405	.19	7446	.81	74107	.37	74175	.95
7406	.29	7447	.59	74121	.37	74176	.84
7407	.28	7448	.79	74122	.38	74177	.84
7408	.22	7450	.17	74123	.45	74180	.95
7409	.17	7451	.20	74125	.54	74181	2.30
7410	.16	7453	.20	74126	.58	74182	.85
7411	.25	7454	.20	74132	.75	74185	2.20
7413	.43	7460	.20	74141	.85	74190	1.25
7414	.65	7464	.35	74145	.90	74191	1.15
7415	.25	7465	.35	74148	1.25	74192	.89
7416	.35	7470	.38	74150	.98	74193	.85
7417	.35	7472	.35	74151	.88	74194	1.15
7420	.16	7473	.35	74153	.60	74195	.74
7423	.37	7474	.31	74154	1.20	74196	.98
7425	.35	7475	.49	74155	.75	74197	.95
7426	.22	7476	.34	74156	.75	74198	1.69
7427	.35	7483	.68	74157	.85	74199	1.69
7430	.20	7485	.88	74158	1.39	74S200	3.95
7432	.23	7488	.38	74160	1.23	74279	.79
7437	.25	7489	2.25	74161	.95		
7438	.25	7490	.43	74162	1.39		
7439	.50	7491	.75	74163	.95		
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74LS02	.19	74LS74	.34	74LS160	.79	74LS256	1.15
74LS03	.19	74LS83	.75	74LS161	.79	74LS257	.69
74LS04	.21	74LS85	.79	74LS162	.79	74LS258	.69
74LS05	.21	74LS86	.35	74LS163	.79	74LS259	.69
74LS08	.21	74LS90	.50	74LS165	1.39	74LS260	1.39
74LS09	.20	74LS92	.50	74LS168	.89	74LS266	.29
74LS10	.20	74LS93	.50	74LS169	.89	74LS279	.50
74LS11	.20	74LS95	.85	74LS170	1.49	74LS283	.72
74LS13	.39	74LS109	.34	74LS173	.97	74LS290	.59
74LS14	.79	74LS112	.35	74LS174	.73	74LS293	.64
74LS15	.21	74LS113	.35	74LS175	.73	74LS295	.89
74LS20	.21	74LS114	.35	74LS181	2.45	74LS298	.89
74LS21	.21	74LS122	.69	74LS190	.89	74LS365	.49
74LS22	.21	74LS123	.83	74LS191	.89	74LS366	.49
74LS26	.29	74LS125	.45	74LS192	.88	74LS367	.49
74LS27	.24	74LS126	.45	74LS193	.88	74LS368	.49
74LS28	.26	74LS132	.71	74LS194	.83	74LS378	.89
74LS30	.21	74LS133	.29	74LS195	.65	74LS390	1.49
74LS32	.25	74LS136	.34	74LS196	.79	74LS393	1.29
74LS33	.28	74LS138	.68	74LS197	.79	74LS395	1.69
74LS37	.28	74LS139	.69	74LS240	1.85	74LS490	1.78
74LS38	.28	74LS151	.59	74LS241	1.85	74LS670	2.19
74LS40	.23	74LS153	.59	74LS242	1.70		
74LS42	.60	74LS155	.69	74LS243	1.70		
74LS51	.21	74LS156	.69	74LS244	1.70		

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LM307H	.30	LM382N	1.75	LM748CN	.35
LM308H	.89	LM385K	.45	LM1310N	2.80
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LM320K 5,5.2,12, 15	1.29	LM561N	2.95	CA3046	1.19
		LM565N	1.19	CA3081	1.49
LM320T 5,12,15	1.19	LM565H	1.39	CA3082	1.45
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LM324N (LM2902N)	1.52	LM566CN	1.19	LM7524	.79
LM339N	1.58	LM567CN	1.29	LM7525	.79
LM340K 5,6,8,12, 15,18,24	1.29	LM567H	1.49	80388	4.59
LM340T 5,6,8,12, 15,18,24 (78-- Equiv.)	1.19	LM703H	.59	75451CN	.35
		LM703CN	.39	75452CN	.35
		LM709N	.25	75453CN	.35
		LM709H	.29	75454CN	.35
		LM710N	.59	75491N	.71
		LM711N	.39	75492N	.85
		LM723H	.55		
		LM723N	.52		
		LM733H	.79		
		LM739N	.99		

IC SOCKETS

Low Profile Solder Tail				Wire Wrap	
8 pin	$.16	24 pin	$.36	8 pin	.45
14 pin	.19	28 pin	.44	14 pin	.49
16 pin	.21	40 pin	.61	16 pin	.55
18 pin	.28				

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tested and passed logic test-
not full parametric specs
minimum 10 pcs or $1 per item

7400	.05	7460	.05
7401	.07	7472	.12
7402	.05	7473	.12
7403	.05	7474	.10
7404	.06	7476	.12
7405	.06	7483	.18
7406	.09	7485	.25
7407	.09	7486	.12
7409	.07	7491	.20
7410	.05	7493	.14
7416	.12	7495	.20
7420	.06	74100	.40
7423	.12	74107	.12
7425	.12	74123	.18
7426	.09	74125	.22
7427	.09	74126	.22
7430	.07	74132	.22
7432	.08	74141	.25
7437	.07	74145	.25
7438	.07	74150	.40
7440	.05	74151	.20
7441	.30	74153	.15
7442	.20	74154	.40
7443	.20	74163	.35
7444	.20	74164	.35
7445	.20	74177	.25
7446	.30	74180	.25
7448	.30	74182	.25
7450	.06	74191	.30
7451	.07	74192	.28
7453	.06	74194	.28
7454	.05	74195	.18

JUMBO LED White- red light

14/$1.00 150/$10.00

CERAMIC DISC CAPACITORS - 50V

1pf	22pf	56pf	120pf	270pf	820pf	.022uf
5pf	27pf	68pf	150pf	390pf	.001uf	.030uf
7pf	33pf	82pf	180pf	470pf	.0047uf	.050uf
10pf	47pf	100pf	220pf	600pf	.01uf	.1uf

	1pf/.u50uf	.1uf
1-10 per value	$.10ea	$.15ea
10-100	.05ea	.10ea
100-	.04ea	.08ea

MM5314	Clock Chip	3.95	
MM5316	Clock Chip	.95	
MM5370	Clock Chip	3.95	
MM5375AA	Clock Chip	2.95	
CT7001	Clock Chip	4.95	
2513(caps)	Char. Gen.	3.95	
2513(L.C.)	Char. Gen.	3.95	
MM1101	256 bit RAM	.65	
MM1103	1K RAM	.75	
MM5261	1K RAM	.55	
MM5262	1K RAM	.95	
F93410	256 bit RAM	.95	
2510	Dual 50 bit Shift Reg.	.95	
2511	Dual 100 bit Shift Reg.	.95	
2518	Hex 32 bit Shift Reg.	1.25	
2522	Dual 132 bit Shift Reg.	.95	
MM5016	500/512 bit Shift Reg.	.95	
SL-5-4025	Quad 25 bit Shift Reg.	.59	

CAPACITOR KIT - ceramic disc

50V, 24 values, 10 capacitors each

1pf	33pf	82pf	220pf	820pf	.022uf
5pf	47pf	100pf	270pf	.001uf	.030uf
10pf	56pf	150pf	470pf	.0047uf	.050uf
22pf	68pf	180pf	600pf	.01uf	.1uf

...$11.95

ELECTRONIC BUZZER

Miniature, Solid State
6V 15ma (4-9V oper.) $1.29 ea.
12V 15ma (8-20V oper.) $1.29 ea.

Silicon SW diode assorted 400 mw	$.05ea
1N4148 (1N914) Silicon diode 400 mw	.10
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1N4006 Silicon rect. diode 600V 400mw	.10
Zener diode 400 mw - 2.4V, 3.6V, 5.1V, 6.5V, 6.8V, 10V, 12V, 14.5, 15V, 120V	.15
Germanium diode 400 mw	.08

TANTALUM CAPACITORS - solid dipped

.1u/35V	$.20	6.8/6	$.25	15/50	$.40
.22/35	.20	6.8/16	.25	22/16	.40
.33/35	.20	6.8/50	.30	33/10	.50
1/35	.20	10/16	.30	47/6	.50
2.2/20	.25	10/25	.35	47/25	.55
2.2/35	.25	10/50	.35	56/6	.65
3.3/35	.25	15/10	.35	100/20	1.25
4.7/16	.25	15/20	.35		

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Rohm QUALITY RELIABILITY

+ 1%, 1/4w, + 50 PPM/OC
Standard Decade Values 10.5 - 464K

Qty.	Ea.	Min 10/value	Min 100/value
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100-999	.20	.10	$9.00/100
1000-			8.00/100

Carbon Film Fesistors + 5% 1/4w, 1/2w

Qty.	Ea.	Min 10/value	Min 100/value
1-99	$.10	$.05	
100-	.10	.04	$3 00/100

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2N2218A	NPN Low Power Trans TO-5	.69
2N2222A	NPN Low Power Trans TO-18	.29
2N2223	NPN Low Power Trans. TO-5	.69
2N2369	NPN Low Power Trans TO-5	.29
2N2904	PNP Low Power Trans TO-5	.49
2N2905A	PNP Low Power Trans TO-5	.76
2N3227	NPN Low Power Trans TO-18	.69
2N3904	NPN Low Power Trans TO-92	.17
2N3906	PNP Low Power Trans TO-92	.17
SCA 13572	NPN Pwr Trans - 200V TO-5	1.75

TANTALUM CAPACITOR KIT

solid dipped, 12 values, 5 each

.1uf/35V	2.2/35	10/25	33/10
.33/35	4.7/16	15/20	47/25
1/35	6.8/16	22/16	56/6

capacitors only.....$14.95

BEZELS - with red filters

140-2 cut-out 1.125" x 2.375"
max .062" panel thickness $1.75
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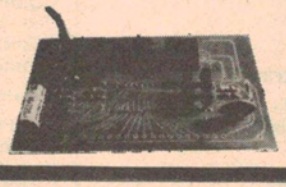
max .125" panel thickness $2.75

TRIMPOT - Single Turn

Mepco - Cermet 8014
.5w, + 100 PPM/°C + 20%
500 ohm, 2K, 10K, 20K, 50K, 100K, 500K. 1M.

1-9	10-99	100-999	1000-
$.75ea	.69	.63	.57

Carbon Film + 5% 1/4 w or 1/2 w
15 ea. of 12 values:
100, 220, 470, 1K, 1.5K, 3.3K
4.7K 6.8K, 10K, 33K, 100K, 1M.
$5.45



CLOCK KIT - Mark I
6 digit clock kit with one PC board. Accommodates MM5314 clock chip and 6 FND 359 displays contains all components except transformer. Includes 3 switches. Board has terminals for remote displays. $10.95

Carbon Film + 5% 1/4w or 1/2w
Usage Evaluated Assortment
5 to 20 ea of 44 values.
$12.95

TRIMPOT - 25 turn

Bourns - Cermet 3299W
PC Mount, vert. adj.
2K, 10K, 20K

1-9	10-999	100-
$1.65e	1.50	1.35

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Silver plated copper circuits holds 5 - 16 pin DIP IC's and interconnection holes. $1.00

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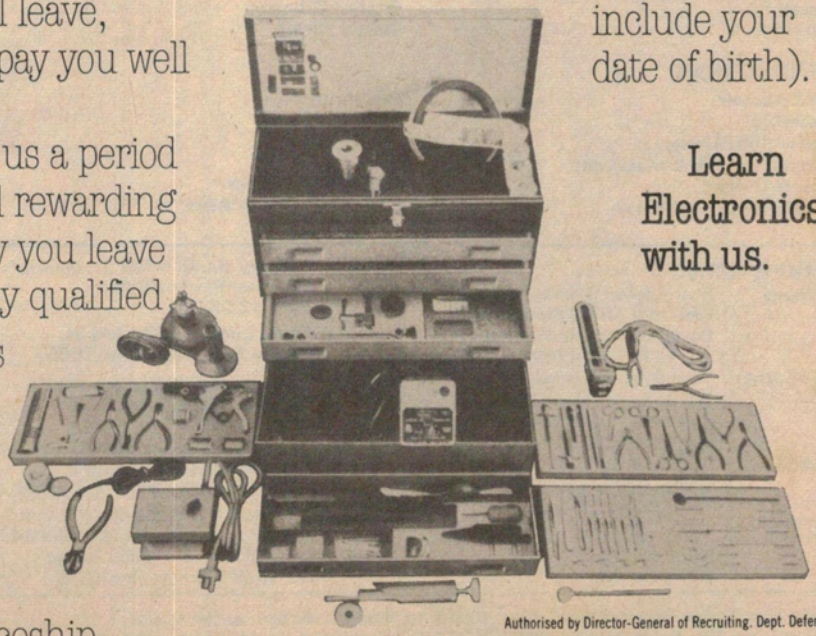

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The competition don't like the sound of this at all.

For quite some time, other manufacturers have been trying to produce tape with the qualities of the Maxell UD-XL. At the same time, Maxell have been quietly perfecting an even better series.

The UD-XL I and UD-XL II tapes are designed to attain maximum performance at the ferric and chrome position on your tape deck. Whichever tape position you choose, Maxell can give you a better performance.

UD-XL I TAPE, FOR FERRIC (norm.) POSITION (120*us*)

UD-XL I offers an excellent sensitivity of 1 dB higher than even UD-XL. MOL performance is also 1 dB higher over the entire audio frequency spectrum. The result is a new standard in ferric tape, with wider dynamic range and less distortion than ever before.

How does the UD-XL I compare then, with ordinary low-noise tapes?

Sensitivity is higher by 2.5 dB, and MOL performance by as much as 6 dB.

Yet, for all this UD-XL I requires no special bias or equalization. Simply set your tape selector as you normally would at the ferric position – but there the comparison ends.

UD-XL II TAPE, FOR THE CHROME POSITION (70*us*)

UD-XL II tape is such a dramatic improvement on most other tape that can be used in this position, that comparison is really unfair.

For example, if you're familiar with conventional chromium-dioxide tape, you'll know of the associated problems of head wear, poor output uniformity and relatively high price – plus low maximum output level and rather high distortion.

UD-XL II tape offers you excellent MOL, sensitivity, and an output improvement of more than 2 dB over the entire frequency range.

Maxell's unique 'Epitaxial' process gives you absolute sensitivity and stability, and no drop-out problems. What's more, the shells are moulded in diamond cut dies, and made to tolerances 5 times greater than the Philips standard. And, like all Maxell tapes, UD-XL II has the unique 5-second cleaning leader.

In short, if you're recording in the chrome position, you can now achieve all the advantages – with none of the drawbacks.

A prospect we think you'll find very exciting – even if the competition don't.

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simply excellent

For details on all Maxell Recording Tape write to Maxell Advisory Service, P.O. Box 49, Kensington, N.S.W. 2033

WT3/79

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Shown above is the SB-7000, Technic's best selling linear phase speaker, and the SB-007 system. This is an exact image of its famous big brother in terms of performance capabilities as much as appearance.. But around half the size . . . and cost. So now true linear phase response can be enjoyed in a convenient, compact format.

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