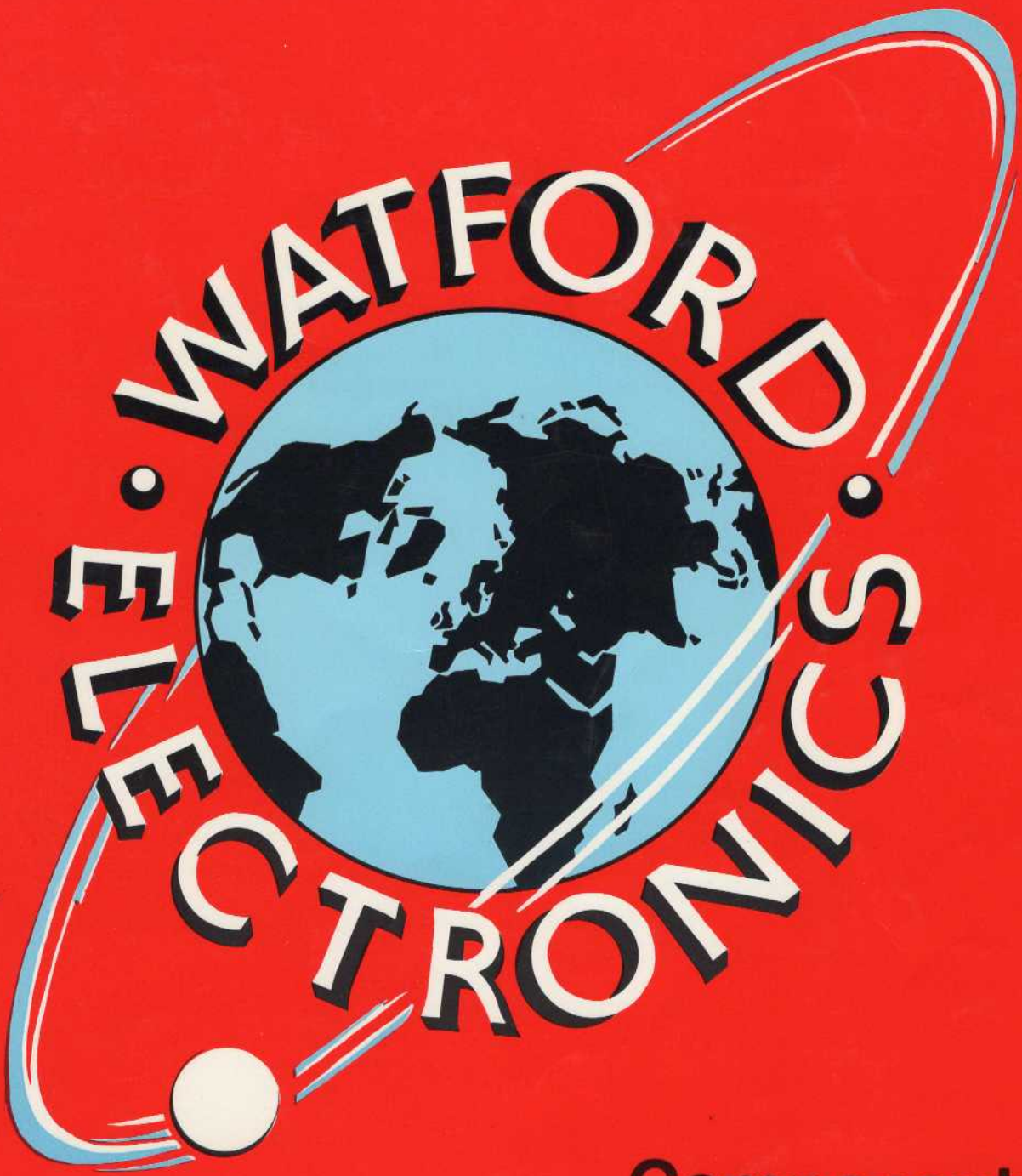
September 1978



Components Catalogue

serve the electronics world

WATFORD ELECTRONICS have been in business for the past six years and have grown to become one of the leading component suppliers to the amateur and professional markets.

Our main aim is to provide good quality components at competitive prices with return of post service where possible, combined with a wide range of devices always held in stock - in fact over 6,000 different items which help to give us the reputation of being a "One Stop Shop".

Nobody is perfect but we are constantly working to improve the service we offer by trying to stabilise or reduce prices, overcome stock deficiencies and so give a faster order turn round and also increase our product range to keep up with modern trends in electronics.

We feel sure that this new catalogue which covers our stock range in greater detail than ever before will prove useful and will help you to select your requirements easily and quickly.

We endeavour to despatch your order by return using first class post. Delays can be caused by illegible handwriting, incorrect description of components, incorrect pricing and VAT on an order resulting in the wrong amount being remitted. To enable us to give you the best possible service please follow the instructions given below.

ORDER FORM

Please use our printed order form where possible, a copy of which is enclosed with each order despatched, for use with your next order. A specimen order form is printed overleaf for your reference.

NAME & ADDRESS

Print your Name and Address clearly in BLOCK CAPITALS and include your telephone number should we need to contact you.

WRITING YOUR ORDER

Write the quantity of each component required on the left hand side of the page, the type number (if any) in the second column, then the full description, followed by the unit price and then the total cost of that item (excluding VAT) which should be entered in one of two separate columns headed 12½% VAT and 8% VAT. If the component in this catalogue is marked with an **asterisk (*)** either alongside the individual price or by the side of the heading of a section, then the VAT rating is 8%, otherwise it is 12½%.

V.A.T.

Total the two VAT columns separately. Add correct postage and packing charge (30p for orders under £10.00), plus any extra postage for certain heavy or bulky items as stated in the catalogue, to the 8% VAT column. The respective VAT should then be added to each column and the two totals added together to give the total value of the order. Please note that, according to Customs and Excise ruling, postage and packing, being a service, is liable to 8% VAT.

PAYMENT

Enclose crossed cheque or postal orders made payable to Watford Electronics for the total amount. Please do not forget to write your Bankers Card number on the back of the cheque.

Payment may be made by Giro Transfer. Our bankers are National Westminster Bank Limited. Bank Sorting Code 55-70-35. Account No. 05207673. It is not permissible to send cash in an ordinary envelope unless it is registered. Should the Post Office discover cash in an unregistered envelope, they will automatically register it and charge us with the cost which we shall have to pass on to you.

EXPORT ORDERS

There is no VAT payable on export orders. Overseas customers may pay by **Bankers Draft, International Money Orders, British Postal Orders** or **Giro Transfer** (see above). Carriage will be charged at cost and your order should indicate whether air or surface mail is required.

BEFORE POSTING YOUR ORDER .....

Please double check your order and pricing, ensuring that you have included your name and address and keep a copy so that you may check your components when they are received.

CORRESPONDENCE

Any correspondence should be written on a separate sheet of paper and not on the order as this may delay despatch. Any query or enquiry sent without an order should be accompanied by a stamped addressed envelope.

TECHNICAL INFORMATION

Data sheets are not normally supplied but if they are required a charge of 5p per page is levied for technical information where available.

CONDITIONS OF SALE

Please see inside back cover for our Conditions of Sale.

2

SPECIMEN ORDER FORM

MAIL ORDER FORM

(Use block Capitals)

Name MR. P. C. BOARD,
Address 741, LINEAR WAY,
DARLINGTON.
AMPSHIRE.
Telephone: (0212) 76013

Watford Electronics

33/35 Cardiff Road, Watford, Herts, WD1 8ED, England
Telephone: Watford 40588

Date 1st Sept., 1978

Please Supply

Quantity	Type No.	Description (please print clearly)	Unit Price	Cost of items in these two columns must NOT include VAT			
				Items rated @ 12½% VAT		Items rated @ 8% VAT	
				£	p	£	p
2	0.25W	Resistors 3K3 5%	1½p				
4	"	" 47K "	1½p				
1	"	" 1M "	1½p	0	11		
2	0.5W	" 33K "	2p	0	04		
1	"	" 10K 1%	10p	0	10		
3	5W	" 2K2 Wirewound	15p	0	45		
1	4.7µF/63V	Capacitor Electrolytic Axial	8p	0	08		
2	100µF/25V	" " "	8p	0	16		
1	100µF/16V	" " Radial	8p	0	08		
2	0.047µF/250V	" Polyester Radial	7p	0	14		
4	56pF	" Ceramic	3p	0	12		
3	680pF	" Polystyrene	8p	0	24		
1	1nF	" Silver Mica	20p	0	20		
2	500K	Preset 0.1W Horizontal	8p	0	16		
12	BC108	Transistor	9p			1	08
12	AY-1-5050	IC	180p	21	60		
1	CD4049	IC CMOS	20p			0	20
10	14 pin	DIL Sockets	12p			1	20
2	¼"	Stereo Socket enclosed	24p	0	48		
7	DPDT	Switch Submin. Toggle	70p			4	90
1	AWAB	Classic Case	965p			9	65 *
1	EH100	Headphones (Stereo Electret)	1595p	15	95		
1	47EM/8	Loudspeaker (7" x 4" 8Ω)	250p	2	50		
1	CX17	Soldering Iron	360p			3	60

VAT Registration 198 3523 28

In case of any queries on your last order please quote this date and number

This Page	42	41	20	63
Back Page	—		—	
Goods Total	42	41	20	63
Postage and Packing *			0	55 *
Sub Total	42	41	21	18
Plus VAT**	5	30	1	69
Totals	47	71	22	87
			47	71
Total Payment			70	58

* Add 30p postage and packing for all orders under £10.00. For Export orders postage is charged at cost.

**VAT not applicable to overseas order.

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Details of other items in stock can be found in our supplement within this catalogue.

STOP PRESS !!

A SPECIAL OFFER TO LAUNCH OUR NEW CATALOGUE

THE G.I. RANGE OF PIANO IC's AS SHOWN ON BBC's TOMORROW's WORLD

1 x AY-1-0212
5 x AY-1-1320
12 x AY-1-5050

£29.50 plus vat

WE will very shortly be making available the **W.E. Electronic Piano** based on the well known range of **G.I.** Integrated Circuits.

Our piano unlike many other designs using the **G.I.** IC's does not suffer from poor noise levels, quite honestly our piano sounds far superior to many commercial designs costing several times as much. On the prototype the breakthrough was inaudible at normal listening levels (S/N better than 50dB). **WE** are so pleased with the results of the prototype that we have applied to take out a patent covering several aspects of the design.

Because of the confidence that we have in the piano we have arranged with the manufacturers of the IC'S a regular delivery to meet with the expected demand.

The prototype will shortly be on demonstation in our shop when you will be able to hear and try it for yourself.

For latest additions to **Transistor** range please see page 17

IMPORTANT NOTE : ALL DEVICES ARE NEW BRANDED STOCKS WITH THEIR MAKERS NUMBERS. WE DO NOT OFFER FOR SALE MARKED OR UNMARKED, TESTED OR UNTESTED,SO CALLED NEW DEVICES WIDELY ADVERTISED AT LOW PRICES WHICH ARE IN OUR OPINION AT BEST OUT OF SPECIFICATION AND SHOULD BE AVOIDED.

DISCOUNTS available for devices of any one type in this list. 5% for 25+, 7½% for50+, 10% for 100+, (Special quotations available for larger quantities.)

VALUE ADDED TAX : All prices are exclusive of V.A.T. (Overseas customers do not send V.A.T.) At the time of going to press, devices marked * are rated at 8% all others are rated at 12½%. Please add V.A.T at current rates to the final total.

Type	Price	Vat	Outline	Pol/Mat	Vcb max V	Vce max V	Veb max V	Ic max mA	P tot mW	HFE min	Type	Notes
AC107	28p	*	X01	PNP/G	-15	-15	-5	10	80	35	AC107	LC AF AMP
AC117	35p	*	X04	PNP/G	-32	-18	-10	1A	1W	40	AC117	LC AF AMP
AC125	20p	*	T01	PNP/G	-32	-12	-10	100	500	50	AC125	MC PRE AMP DRIVER
AC126	20p	*	T01	PNP/G	-32	-12	-10	100	500	100	AC126	MC PRE AMP DRIVER
AC127	19p	*	T01	NPN/G	32	12	10	500	340	50	AC127	C/AC128
AC128	19p	*	T01	PNP/G	-32	-16	-10	1A	267	45	AC128	MC, Class A or B O/Put
AC141	24p	*	T01	NPN/G	32	18	10	1.2A	720	40	AC141	MC GP
AC141K	38p	*	X04	NPN/G	32	18	10	1.2A	720	40	AC141K	MC GP
AC142	24p	*	T01	PNP/G	-32	-20	-10	1.2A	720	40	AC142	MC GP
AC142K	38p	*	X04	PNP/G	-32	-20	-10	1.2A	860	40	AC142K	MC GP
AC176	20p	*	T01	NPN/G	32	20	10	1A	220	52	AC176	C/AC128
AC187	20p	*	T01	NPN/G	25	15	10	2A	225	100	AC187	C/AC188
AC187K	40p	*	T01	NPN/G	25	15	10	2A	225	100	AC187K	C/AC188
AC188	20p	*	T01	PNP/G	-25	-15	-10	2A	225	100	AC188	C/AC187
AC188K	40p	*	X04	PNP/G	-25	-15	-10	2A	1W	100	AC188K	MC AF GP
ACY17	35p	*	T05	PNP/G	-70	-32	-12	500	260	50	ACY17	MC AF GP
ACY18	40p	*	T05	PNP/G	-50	-30	-12	500	260	40	ACY18	MC AF GP
ACY19	40p	*	T05	PNP/G	-50	-30	-12	500	260	80	ACY19	MC AF GP
ACY20	40p	*	T05	PNP/G	-40	-20	-12	500	260	50	ACY20	MC AF GP
ACY21	35p	*	T05	PNP/G	-40	-20	-12	500	260	90	ACY21	MC AF GP
ACY22	40p	*	T05	PNP/G	-20	-15	-12	500	260	30	ACY22	MC AF GP
ACY28	40p	*	T01	PNP/G	-40	-15	-30	200	200	45	ACY28	LC RF AMP
ACY39	78p	*	T05	PNP/G	-110	-40	-25	500	260	50	ACY39	HV GP
ACY40	48p	*	T05	PNP/G	-32	-18	-12	500	260	30	ACY40	MC AF GP
ACY41	39p	*	T05	PNP/G	-21	-18	-12	500	260	50	ACY41	MC AF GP
ACY44	39p	*	T05	PNP/G	-50	-30	-12	500	260	40	ACY44	MC AF GP
AD140	70p	*	T03	PNP/G	-55	-55	-10	3A	35W	30	AD140	HC AF GP
AD149	68p	*	T03	PNP/G	-50	-30	-20	3.5A	27W	30	AD149	HC AF GP
AD161	42p	*	T066	NPN/G	32	20	10	1A	4W	80	AD161	MC AF GP
AD162	42p	*	T066	PNP/G	-32	-20	-10	1A	6W	50	AD162	MC AF GP
AF106	50p	*	T072	PNP/G	-20	-15	-0.3	10	60	25	AF106	LC FM GP
AF114	30p	*	T07	PNP/G	-32	-15	-2	10	75	50	AF114	LC RF Uhf Amp
AF115	30p	*	T07	PNP/G	-32	-15	-2	10	75	50	AF115	LC RF Mix Osc
AF116	30p	*	T07	PNP/G	-32	-15	-2	10	75	50	AF116	LC RF IF Amp
AF117	30p	*	T07	PNP/G	-32	-15	-2	10	75	50	AF117	LC HV RF Amp
AF118	55p	*	T07	PNP/G	-70	-20	-2	30	375		AF118	LC HV RF Vid Amp
AF121	48p	*	T01H	PNP/G	-25	-25		10	140	30	AF121	LC FM Amp
AF124	55p	*	T072	PNP/G	-32	-15	-2	10	75	50	AF124	LC RF Uhf Amp
AF125	35p	*	T072	PNP/G	-32	-15	-2	10	75	50	AF125	LC RF MIX Osc

TRANSISTORS

For discounts on **Transistors** see page 5 For latest additions to **Transistor** range please see page 17

Type	Price	Vat	Outline	Pol/Mat	Vcb max	Vce max	Veb max	Ic max	P tot	HFE min	Type	Notes
					V	V	V	mA	mW			
AF126	50p	*	T072	PNP/G	-32	-15	-2	10	75	50	AF126	LC RF GP
AF127	35p	*	T072	PNP/G	-32	-15	-2	10	75	50	AF127	LC RF & IF Amp
AF139	35p	*	T072	PNP/G	-20	-15	-0.3	10	60	10	AF139	LC Uhf Amp
AF150	60p	*	T07	PNP/G	-24	-24	-0.5	10	80	30	AF150	FM Vhf GP
AF178	70p	*	T012	PNP/G	-25	-25	-0.3	10	75	20	AF178	LC FM Amp
AF180	70p	*	T012	PNP/G	-25	-25		25	156	10	AF180	LC TV TUNER
AF186	50p	*	T012	PNP/G	-25		-0.5	15	100	20	AF186	LC Mix Osc 900MHz
AF239	42p	*	T072	PNP/G	-15	-15	-0.3	10	60	10	AF239	TV Uhf Oscillator
AFZ11	128p	*	T072	PNP/G	-20	-10	-0.5	10	83	20	AFZ11	LC LN AMP
AFZ12	126p	*	T072	PNP/G	-20	-10	-0.5	10	83	20	AFZ12	LC LN Amp
ASY26	40p	*	T05	PNP/G	-30	-15	-20	200	150	30	ASY26	MC RF Switch
ASY27	45p	*	T05	PNP/G	-25	-15	-20	200	150	30	ASY27	MC RF Switch
ASY50	95p	*	T01	PNP/G	-20	-10	-20	200	200	15	ASY50	LC RF Amp
ASY76	95p	*	T05	PNP/G	-40	-32	-10	500	260	26	ASY76	MC AF GP
ASZ21	60p	*	T018	PNP/G	-20	-15		50	120	30	ASZ21	LC FM Switch
BC107	09p	*	T018	NPN/S	50	45	6	100	300	110	BC107	LC AF GP Audio Driver
BC107B	10p	*	T018	NPN/S	50	45	6	100	300	200	BC107B	LC AF GP
BC108	09p	*	T018	NPN/S	30	20	5	100	300	120	BC108	LC AF GP
BC108B	10p	*	T018	NPN/S	30	20	5	100	300	200	BC108B	LC AF GP
BC108C	12p	*	T018	NPN/S	30	20	5	100	300	420	BC108C	LC AF GP
BC109	09p	*	T018	NPN/S	30	20	5	100	300	180	BC109	LC AF LN
BC109B	12p	*	T018	NPN/S	30	20	5	100	300	200	BC109B	LC AF LN
BC109C	12p	*	T018	NPN/S	30	20	5	100	300	420	BC109C	LC AF LN
BC113	20p		T0106	NPN/S	30	25	6	50	200	200	BC113	LC AF LN
BC114	20p		T0106	NPN/S	30	25	6	50	200	200	BC114	LC AF LN
BC115	20p		T0105	NPN/S	40	30	5	100	300	80	BC115	LC AF GP
BC116	20p		T0105	PNP/S	-45	-40	-5	100	300	35	BC116	LC AF GP
BC117	20p		T0105	NPN/S	120	120	5	50	300	30	BC117	LC AF HV
BC118	20p		T0106	NPN/S	45	45	4	200	200	50	BC118	LC AF GP
BC119	28p	*	T039	NPN/S	60	30	5	1A	800	40	BC119	MC AF GP
BC134	20p		T0106	NPN/S	45	45	4	200	200	150	BC134	LC AF GP
BC135	20p		T0106	NPN/S	45	45	5	200	200	50	BC135	LC AF GP
BC136	18p		T0105	NPN/S	60	40	5	100	300	40	BC136	LC AF GP
BC137	20p		T0105	PNP/S	-40	-40	-4	600	300	40	BC137	MC AF GP
BC140	35p	*	T039	NPN/S	80	40	7	1A	3.7W	40	BC140	MC AF GP
BC142	30p	*	T039	NPN/S	80	60	5	1A	800	20	BC142	MC AF GP
BC143	30p	*	T039	PNP/S	-60	-60	-5	1A	800	20	BC143	MC AF GP
BC147	08p		X09	NPN/S	50	45	6	200	250	110	BC147	LC AF Amp
BC147B	10p		X09	NPN/S	50	45	6	200	250	200	BC147B	LC AF Amp
BC148	08p		X09	NPN/S	30	20	5	200	250	110	BC148	LC AF Amp
BC148B	10p		X09	NPN/S	30	20	5	200	250	200	BC148B	LC AF Amp
BC148C	10p		X09	NPN/S	30	20	5	200	250	420	BC148C	LC AF Amp
BC149	08p		X09	NPN/S	30	20	5	200	250	200	BC149	LC AF LN
BC149C	10p		X09	NPN/S	30	20	5	200	250	420	BC149C	LC AF Amp
BC153	27p		T0106	NPN/S	40	40	5	100	200	50	BC153	LC AF GP
BC154	27p		T0106	NPN/S	40	40	5	100	200	160	BC154	LC AF LN
BC157	10p		X09	PNP/S	-50	-45	-5	100	300	70	BC157	LC AF Amp
BC159	11p		X09	PNP/S	-25	-20	-5	100	300	120	BC159	LC AF LN
BC160	42p	*	T039	PNP/S	-40	-40	-5	1A	3.2W	40	BC160	MC AF GP
BC167A	11p		T092	NPN/S	45	45	6	100	300	120	BC167A	LC AF GP
BC168C	12p		T092	NPN/S	20	20	5	100	300	380	BC168C	LC AF LN
BC169C	14p		T092	NPN/S	20	20	5	100	300	380	BC169C	LC AF LN

Type	Price	Vat	Outline	Pol/Mat	Vcb max	Vce max	Veb max	Ic max	P tot	HFE min	Type	Notes
					V	V	V	mA	mW			
BC170	18p		X10	NPN/S	20	20	5	100	300	35	BC170	LC AF GP
BC171	11p		X10	NPN/S	45	45	6	100	300	125	BC171	LC AF LN
BC172	11p		X10	NPN/S	25	25	5	100	300	125	BC172	LC AF GP
BC177	18p	*	T018	PNP/S	-45	-45	-5	100	300	70	BC177	LC AF GP
BC178	16p	*	T018	PNP/S	-30	-25	-5	200	300	70	BC178	LC AF Comp to BC107
BC179	18p	*	T018	PNP/S	-25	-20	-5	50	300	70	BC179	LC AF Comp to BC109
BC182	09p		T092	NPN/S	60	50	5	200	300	120	BC182	LC AF GP
BC182L	11p		T092	NPN/S	60	50	5	200	300	120	BC182L	LC AF GP
BC183	09p		T092	NPN/S	45	30	5	200	300	120	BC183	LC AF GP
BC183L	11p		T092	NPN/S	45	30	5	200	300	120	BC183L	LC AF LN
BC184	09p		T092	NPN/S	45	30	5	200	300	240	BC184	LC AF LN
BC184L	11p		T092	NPN/S	45	30	5	200	300	240	BC184L	LC AF LN
BC186	21p	*	T018	PNP/S	-40	-25	-5	100	300	40	BC186	LC AF Amp
BC187	28p	*	T018	PNP/S	-30	-25	-5	100	300	100	BC187	LC AF Amp
BC212	10p		X10	PNP/S	-60	-50	-5	200	300	60	BC212	LC AF GP
BC212L	11p		T092	PNP/S	-60	-50	-5	200	300	50	BC212L	LC AF GP
BC213	11p		X10	PNP/S	-45	-30	-5	200	300	80	BC213	LC AF LN
BC213L	12p		T092	PNP/S	-45	-30	-5	200	300	70	BC213L	LC AF GP
BC214	12p		X10	PNP/S	-45	-30	-5	200	300	140	BC214	LC AF GP
BC214K	14p		X10	PNP/S	-45	-30	-5	200	300	125	BC214K	LC AF LN
BC214L	13p		T092	PNP/S	-45	-30	-5	200	300	125	BC214L	LC AF GP
BC307B	20p		X10	PNP/S	-50	-45	-5	100	300	240	BC307B	LC AF GP
BC308	20p		X10	PNP/S	-30	-25	-5	100	300	75	BC308	LC AF GP
BC327	15p		X10	PNP/S	-50	-45	-5	800	500	63	BC327	MC AF GP
BC328	15p		X10	PNP/S	-30	-25	-5	800	500	63	BC328	MC AF GP
BC338	12p		X10	NPN/S	30	20	5	800	360	100	BC338	MC AF GP
BC441	36p	*	T039	NPN/S	75	60	5	2A	1W	40	BC441	MC AF GP
BC461	36p	*	T039	PNP/S	-75	-60	-5	2A	1W	40	BC461	MC AF HV
BC462	36p	*	T039	NPN/S	75	60	5	2A	1W	40	BC462	MC AF Comp to BC461
BC547	12p		T092	NPN/S	50	45	6	100	500	110	BC547	MC AF GP
BC548	12p		T092	NPN/S	30	30	6	100	500	110	BC548	MC AF GP
BC549C	13p		T092	NPN/S	30	30	6	100	500	420	BC549C	MC AF GP
BC557B	13p		X10	PNP/S	-50	-45	-5	200	300	75	BC557B	LC AF GP
BC558	20p		X10	PNP/S	-30	-25	-5	200	300	75	BC558	LC AF GP
BC559C	20p		X10	PNP/S	-30	-25	-5	200	300	125	BC559C	LC AF GP
BCY30	57p	*	T05	PNP/S	-64	-50	-45	100	250	10	BCY30	LC AF Amp
BCY34	75p	*	T05	PNP/S	-32	-25	-16	100	250	15	BCY34	LC AF Amp
BCY39	80p	*	T039	PNP/S	-64	-60	-12	250	410	10	BCY39	LC AF Switch
BCY40	78p	*	T039	PNP/S	-32	-24	-12	250	410	15	BCY40	LC AF Switch
BCY42	48p	*	T018	NPN/S	40	25	5	200	300	45	BCY42	LC AF GP
BCY43	85p	*	T018	NPN/S	40	25	5	200	300	75	BCY43	LC AF GP
BCY58	90p	*	T018	NPN/S	32	32	7	200	1W	120	BCY58	MC AF GP
BCY59	90p	*	T018	NPN/S	45	45	7	200	1W	120	BCY59	MC AF GP
BCY70	15p	*	T018	PNP/S	-50	-40	-5	200	350	50	BCY70	LC AF GP
BCY71	20p	*	T018	PNP/S	-45	-45	-5	200	350	100	BCY71	LC AF LN
BCY72	20p	*	T018	PNP/S	-25	-25	-5	200	350	50	BCY72	LC AF GP
BCY78	25p	*	T018	PNP/S	-32	-32	-5	200	1W	120	BCY78	LC AF GP
BCZ10	145p	*	X02	PNP/S	-25	-25	-20	50	250	15	BCZ10	LC AF Amp
BCZ11	145p	*	X02	PNP/S	-25	-25	-20	50	250	25	BCZ11	LC AF Amp
BD106A	125p		X03	NPN/S	36	36	5	2.5A	12W	50	BD106A	HC RF GP
BD112	95p		T03	NPN/S	80	60	5	12A	20W	50	BD112	HC RF GP
BD115	65p	*	T039	NPN/S	245	180	5	150	6W	22	BD115	MC RF HV
BD121	78p	*	T03	NPN/S	60	35	6	5A	45W	30	BD121	HC RF GP

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Type	Price	Vat	Outline	Pol/Mat	Vcb max V	Vce max V	Veb max V	Ic max mA	P tot mW	HFE min	Type	Notes
BD123	98p	*	TO3	NPN/S	90	60	6	5A	45W	30	BD123	HC AF GP
BD124	115p	*	XO3	NPN/S	70	45		2A	15W	35	BD124	HC FM GP
BD131	45p	*	TO126	NPN/S	70	45	6	3A	11W	40	BD131	HC AF GP
BD132	45p	*	TO126	PNP/S	-45	-45	-4	3A	11W	40	BD132	HC AF GP
BD133	43p	*	TO126	NPN/S	90	60	6	3A	11W	40	BD133	HC RF HV
BD135	38p	*	TO126	NPN/S	45	45	5	1A	12W	40	BD135	MC AF GP
BD136	36p	*	TO126	PNP/S	-45	-45	-5	1A	12W	40	BD136	MC AF GP
BD137	36p	*	TO126	NPN/S	60	60	5	1A	12W	40	BD137	MC AF GP
BD138	50p	*	TO126	PNP/S	-60	-60	-5	1A	12W	40	BD138	MC AF GP
BD139	40p	*	TO126	NPN/S	80	80	5	1A	12W	40	BD139	MC AF HV
BD140	36p	*	TO126	PNP/S	-80	-80	-5	1A	12W	40	BD140	MC AF HV
BD142	59p	*	TO3	NPN/S	50	40	5	15A	117W	13	BD142	HC AF GP
BD144	198p	*	TO3	NPN/S	400	400	5	250	8W	5	BD144	MC AF EHV
BD145	198p	*	TO3	NPN/S	60	60	5	5A	15W	45	BD145	HC RF GP
BD158	45p	*	T0126	NPN/S	325	300	5	500	20W	30	BD158	LC AF EHV
BD181	125p	*	TO3	NPN/S	55	40	7	10A	78W	20	BD181	HC AF GP
BD205	110p	*	TOP66	NPN/S	55	45	5	10A	90W	30	BD205	HC AF GP
BD206	110p	*	TOP66	PNP/S	-55	-45	-5	10A	90W	30	BD206	HC AF GP
BD222	75p	*	TOP66	NPN/S		60		4A	36W	20	BD222	HC AF GP
BD245	60p	*	TOP3	NPN/S	55	45	5	15A	80W	40	BD245	HC AF GP
BD378	65p	*	TO126	PNP/S	-75	-60	-5	2A	25W	30	BD378	HC AF Power Amp
BD434	42p	*	TO126	PNP/S	-22	-22	-5	4A	36W	50	BD434	HC AF GP
BD517	65p	*	X17	NPN/S	60	60	4	2A		60	BD517	HC RF GP
BD695A	65p	*	TOP66	NPN/S	45	45	5	8A	70W	750	BD695A	HC AF Darlington (COMP)
BD696A	65p	*	TOP66	PNP/S	-45	-45	-5	8A	70W	750	BD696A	HC AF Darlington (PAIR)
BDY11	220p	*	TO3	NPN/S	100	70		4A	150W	10	BDY11	HC AF AV
BDY17	195p	*	TO3	NPN/S	80	60	7	15A	115W	10	BDY17	HC AF GP
BDY60	110p	*	TO3	NPN/S	120	60	5	10A	30W	45	BDY60	HC RF GP
BDY61	165p	*	TO3	NPN/S	100	60	5	10A	30W	45	BDY61	HC RF GP
BF115	34p	*	TO72	NPN/S	50	30	5	30	145	45	BF115	MG FM GP
BF154	25p	*	TO106	NPN/S	30	20	4	50	300	25	BF154	GC FM TV IF Amp
BF158	29p	*	TO106	NPN/S	30	12	2	50	200	20	BF158	TV IF AMP
BF160	30p	*	TO106	NPN/S	30	12	2	50	200	20	BF160	MG FM GP
BF161	60p	*	TO72	NPN/S	50	50	4	20	175	20	BF161	TV Uhf Osc
BF167	30p	*	TO72	NPN/S	40	30	4	25	150	30	BF167	GC TV IF Amp
BF173	25p	*	TO72	NPN/S	40	25	4	25	260	40	BF173	TV IF Amp
BF177	24p	*	TO39	NPN/S	100	60	5	50	600	20	BF177	HV TV Video O/Put
BF178	25p	*	TO39	NPN/S	185	115	5	50	600	20	BF178	HV TV Video O/Put
BF179	30p	*	TO39	NPN/S	250	115	5	50	600	20	BF179	MV TV Video O/Put
BF180	35p	*	TO72	NPN/S	30	20	3	20	150	13	BF180	GC TV Uhf Amp
BF181	35p	*	TO72	NPN/S	30	20	3	20	150	13	BF181	TV Uhf Osc
BF182	35p	*	TO72	NPN/S	25	20	3	15	150	10	BF182	MG TV Uhf Mix
BF183	35p	*	TO72	NPN/S	25	20	3	15	150	10	BF183	TV Uhf Osc
BF184	38p	*	TO72	NPN/S	30	20	5	30	145	75	BF184	HG FM/AM GP
BF185	33p		TO72	NPN/S	30	20	5	30	145	34	BF185	FM/AM MG
BF194	12p		XO9	NPN/S	30	20	5	30	250	67	BF194	HG FM/AM GP
BF195	12p		XO9	NPN/S	30	20	5	30	250	36	BF195	MG FM/AM Amp
BF196	12p		XO9	NPN/S	40	30	4	25	250	27	BF196	GC TV IF Amp
BF197	14p		XO9	NPN/S	40	20	4	25	250	38	BF197	TV IFAmp
BF198	18p		X10	NPN/S	40	30	4	25	250	27	BF198	GC TV IF Amp
BF199	18p		X10	NPN/S	40	20	4	25	250	38	BF199	TV IF Amp
BF200	30p	*	TO72	NPN/S	30	20	3	20	150	15	BF200	FM & TV GP
BF224	18p		X10	NPN/S	45	30	4	50	360	30	BF224	TV IF Am

Type	Price	Vat	Outline	Pol/Mat	Vcb max V	Vce max V	Veb max V	Ic max mA	P tot mW	HFE min	Type	Notes
BF224A	18p		X10	NPN/S	45	30	4	50	360	25	BF224A	TV IF amp
BF244	29p			FET							BF244	SEE TABLE AT
BF244B	30p		TO92	FET							BF244B	END OF LIST
BF256	60p										BF256	
BF257	30p	*	TO39	NPN/S	160	160	5	100	500	25	BF257	MV TV Videp O/Put
BF258	30p	*	TO39	NPN/S	250	250	5	100	800	25	BF258	HV TV Video O/Put
BF259	30p	*	TO39	NPN/S	300	300	5	100	500	25	BF259	LC Vhf EHV
BF336	35p	*	TO39	NPN/S	185	180	5	100	800	20	BF336	TV Vidio O/P HV
BF337	39p	*	TO39	NPN/S	300	225	5	100	800	20	BF337	TV Vidio O/P EHV
BF394	27p		TO92	NPN/S	30	30	4	50	310	65	BF394	HG FM GP
BF594	40p		TO92	NPN/S	30	20	5	30	250	65	BF594	HG FM GP
BF595	38p		TO92	NPN/S	30	20	5	30	250	35	BF595	MG FM GP
BFR39	25p		TO92	NPN/S	90	80		2A	800	50	BFR39	MC AF HV
BFR40	28p		TO92	NPN/S	70	60		2A	800	75	BFR40	MC AF GP
BFR41	28p		TO92	NPN/S	60	50		2A	800	100	BFR41	MC AF GP
BFR79	28p		TO92	PNP/S	-90	-80		2A	800	50	BFR79	MC AF HV
BFR80	28p		TO92	PNP/S	-70	-50		2A	800	75	BFR80	MC AF GP
BFR81	28p		TO92	PNP/S	-60	-50		2A	800	100	BFR81	MC AF GP
BFR98	105p	*	TO39	NPN/S	40	20	3.5	360	3.5W	10	BFR98	MC Uhf GP
BFX29	28p	*	TO5	PNP/S	-60	-60	-5	600	600	50	BFX29	MC RF GP
BFX81	45p	*	TO5	PNP/S	-25	-20		10	500	30	BFX81	
BFX84	26p	*	TO5	NPN/S	100	60	6	1A	800	30	BFX84	MC AF GP
BFX85	28p	*	TO5	NPN/S	100	60	6	1A	800	70	BFX85	MC AF GP
BFX86	28p	*	TO5	NPN/S	40	35	6	1A	800	70	BFX86	MC AF GP
BFX87	28p	*	TO5	PNP/S	-50	-50	-5	600	600	40	BFX87	MC AF GP
BFX88	28p	*	TO5	PNP/S	-40	-40	-5	600	600	40	BFX88	MC AF GP
BFY18	50p	*	TO18	NPN/S	60	40	3	100	300	30	BFY18	LC RF GP
BFY50	20p	*	TO5	NPN/S	80	35	6	1A	800	30	BFY50	MC AF GP
BFY51	20p	*	TO5	NPN/S	60	30	6	1A	800	40	BFY51	MC AF GP
BFY52	20p	*	TO5	NPN/S	40	20	6	1A	800	60	BFY52	MC AF GP
BFY53	28p	*	TO5	NPN/S	40	20	6	1A	800	30	BFY53	MC AF GP
BFY55	45p	*	TO5	NPN/S	80	35	7	1A	800	40	BFY55	MC AF GP
BFY56	45p	*	TO39	NPN/S	80	55	7	1A	800	30	BFY56	MC AF GP
BFY64	40p	*	TO5	PNP/S	-40	-40	-5		700	80	BFY64	MC RF GP
BSX20	18p	*	TO18	NPN/S	40	15	5	500	360	40	BSX20	LC Uhf Switch
BSX26	75p	*	TO18	NPN/S	40	15	4	200	360	30	BSX26	LC Uhf Switch
BSX29	45p	*	TO18	PNP/S	-12	-12	-4	200	360	30	BSX29	LC Uhf Switch
BSX78	55p	*	TO18	NPN/S	40	20	5	100	300	80	BSX78	LC RF Switch
BSY26	20p	*	TO18	NPN/S	20	15	6	100	300	20	BSX26	LC RF Switch
BSY38	20p	*	TO18	NPN/S	20	15	5	100	300	30	BSY38	LC Vhf Switch
BSY65	30p	*	TO18	NPN/S	20				300	30	BSY65	LC Vhf Switch
BSY95A	18p	*	TO18	NPN/S	20	15	5	200	300	50	BSY95A	LC Vhf Switch
BU105	140p		TO3	NPN/S	500		5	2.5A	10W	2	BU105	EHV TV Horizontal Line O/P
BU205	190p		TO3	NPN/S	1500	700		3A	10W	2	BU205	EHV TV Horizontal Line O/P
BU208	225p		TO3	NPN/S	1500	700		7.5A	12W	2	BU208	EHV TV Horizontal Line O/P
E421	96p	*		MOSFET							E421	SEE TABLE AT
E1819	68p	*		MOSFET							E1819	END OF LIST
E5567	65p			FET							E5567	SEE TABLE

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Type	Price	Vat	Outline	Pol/Mat	Vcb max V	Vce max V	Veb max V	Ic max mA	P tot mW	HFE min	Type	Notes
MD8001	158p	*	TO5	NPN/S	40	40		200	360	185	MD8001	Dual Transistor
ME1120	125p		TO106	NPN/S	130	120	4	200	200	20	ME1120	LC AF HV
ME4102	10p		TO106	NPN/S	60	45	5	30	200	200	ME4102	LC AF LN
ME6002	10p		TO106	NPN/S	40	30	5		360	75	ME6002	MC RF GP
MJ400	90p	*	TO66	NPN/S	350	325	5	1A	2.5W	30	MJ400	EHV TV Video O/Put
MJ491	160p	*	TO3	PNP/S	-60	-60	-5	4A	87W	10	MJ491	HC AF Power Amp
MJ2955	120p	*	TO3	PNP/S	-100	-60	-7	15A	150W	5	MJ2955	HC AF GP
MJE170	150p	*	TO126	PNP/S	-40	-40	-7	3A	12W	50	MJE170	HC AF GP
MJE180	150p	*	TO126	NPN/S	40	40		3A	12W	50	MJE180	HC AF GP
MJE340	54p	*	TO126	NPN/S	300	300	3	500	20W	30	MJE340	LC AF EHV
MJE370	58p	*	TO126	PNP/S	-30	-30	-4	3A	25W	25	MJE370	HC AF GP
MJE520	65p	*	TO126	NPN/S	30	30	4	3A	25W	25	MJE520	HC AF GP
MJE521	74p	*	TO126	NPN/S	40	40	4	4A	40W	40	MJE521	AC AF GP
MJE2955	105p	*	TOP66	PNP/S	-70	-60	-5	10A	90W	20	MJE2955	HC AF HV
MJE3055	70p	*	TOP66	NPN/S	70	60	5	10A	90W	20	MJE3055	HC AF HV
MPF102	32p		TO92	FET							MPF102	SEE TABLE AT
MPF103	36p		TO92	FET							MPF103	END OF LIST
MPF104	36p		TO92	FET							MPF104	" " "
MPF105	36p		TO92	FET							MPF105	" " "
MPF106	50p		TO92	FET							MPF106	SEE TABLE AT
MPF107	50p		TO92	FET							MPF107	END OF LIST
MPS3904	40p		TO92	NPN/S	60	40	6	200	310	100	MPS3904	LC AF LN
MPSA05	25p		TO92	NPN/S	60	60	4	500	500	50	MPSA05	MC AF GP
MPSA06	25p		TO92	NPN/S	80	80	4	500	500	50	MPSA06	MC AF GP
MPSA55	25p		TO92	PNP/S	-60	-60	-4	500	625	50	MPSA55	MC AF GP
MPSA56	25p		TO92	PNP/S	-80	-80	-4	500	625	50	MPSA56	MC AF GP
MPSA70	34p		TO92	PNP/S	-40	-40	-4	100	310	40	MPSA70	LC AF GP
MPSU02	58p	*	X17	NPN/S	60	40	5	800	6W	50	MPSU02	MC AF GP
MPSU05	50p	*	X17	NPN/S	60	60	4	2A	10W	80	MPSU05	MC AF HV
MPSU06	56p	*	X17	NPN/S	80	80	4	2A	10W	80	MPSU06	HC AF GP
MPSU52	65p	*	X17	PNP/S	-60	-40	-5	800	60W	50	MPSU52	MC AF GP
MPSU55	55p	*	X17	PNP/S	-60	-60	-4	2A	1W	80	MPSU55	MC AF HV
MPSU56	60p	*	X17	PNP/S	-80	-80	-4	2A	1W	80	MPSU56	MC AF HV
MPU131	39p	*	PLAS	PUJ						350	MPU131	PROG UJ SEE TABLE
NKT275	45p	*	TO1	PNP/G	-15	-15	-5	250	200	30	NKT275	LC AF Amp
NKT720	45p	*									NKT720	
OC23	170p	*	TO3	PNP/G	-55	-24	-12	1A	16W	50	OC23	HC RF GP
OC25	170p	*	TO3	PNP/G	-40	-40	-10	4A	23W	15	OC25	HC AF GP
OC26	170p	*	TO3	PNP/G	-32	-32		3.5A	13W	20	OC26	
OC28	105p	*	TO3	PNP/G	-80	-60	-40	8A	30W	20	OC28	HC AF GP
OC29	160p	*	TO3	PNP/G	-80	-32	-20	8A	30W	45	OC29	HC AF GP
OC35	130p	*	TO3	PNP/G	-60	-32	-20	8A	30W	25	OC35	HC AF GP
OC36	130p	*	TO3	PNP/G	-80	-32	-40	8A	30W	30	OC36	HC AF GP
OC41	148p	*	XO1	PNP/G	-16	-15	-10	50	50	18	OC41	LC RF Switch
OC42	32p	*	XO1	PNP/G	-16	-15	-10	50	50	35	OC42	LC RF Switch
OC43	55p	*	XO1	PNP/G	-15	-15	-12	50	80	50	OC43	LC RF Switch

Type	Price	Vat	Outline	Pol/Mat	Vcb max V	Vce max V	Veb max V	Ic max mA	P tot mW	HFE min	Type	Notes
OC44	31p	*	XO1	PNP/G	-15	-12	-12	10	83	45	OC44	LC RF Amp
OC45	28p	*	XO1	PNP/G	-15	-15	-12	10	83	25	OC45	LC RF Amp
OC46	28p	*	XO1	PNP/G	-20	-20	-15	125	83	40	OC46	LC RF Amp
OC70	28p	*	XO1	PNP/G	-20	-20	-10	10	125	15	OC70	LC AF GP
OC71	28p	*	XO1	PNP/G	-20	-20	-10	10	125	30	OC71	LC AF GP
OC72	30p	*	XO2	PNP/G	-16	-16	-10	125	165	30	OC72	MC AF GP
OC73	45p	*	XO1	PNP/G	-32	-30	-20	10	125	25	OC73	LC AF GP
OC74	40p	*	XO2	PNP/G	-20	-20	-6	300	550	40	OC74	MC AF GP
OC75	36p	*	XO1	PNP/G	-20	-20	-10	10	125	55	OC75	LC AF GP
OC76	36p	*	XO2	PNP/G	-32	-32	-10	125	125	30	OC76	MC AF GP
OC77	66p	*	XO2	PNP/G	-60	-60	-10	250	125	45	OC77	MC AF HV
OC79	76p	*	XO2	PNP/G	-26	-13	-6	300	550	50	OC79	MC AF GP
OC81	28p	*	XO2	PNP/G	-32	-10	-3	200	600	50	OC81	MC AF GP
OC81D	28p	*	XO2	PNP/G	-16	-16	-3	10	150	20	OC81D	LC AF GP
OC82	40p	*	XO2	PNP/G	-16	-16	-6	200	600	15	OC82	LC AF GP
OC82D	40p	*	XO2	PNP/G	-16	-16	-6	10	150	30	OC82D	LC AF GP
OC83N	48p	*	TO1	PNP/G	-32	-20	-10	1A	220	40	OC83N	MC AF GP
OC84	44p	*	TO1	PNP/G	-32	-20	-3	500	600	50	OC84	MC AF GP
OC122	48p	*		NPN/G	50	50		500	295	150t	OC122	
OC123	48p	*	TO7	PNP/G	-50				295	60	OC123	LC AF Amp
OC139	110p	*		NPN/S	20	20		250	140	40	OC139	
OC140	110p	*	RO9	NPN/G	20				85	50	OC140	MC AF HS Switch
OC141	110p	*		NPN/G	20	20		200	130	100t	OC141	
OC170	40p	*	TO7	PNP/G	-20	-20	-1	10	80	75	OC170	LC RF Amp
OC171	40p	*	TO7	PNP/G	-20	-20	-1	10	80	75	OC171	LC RG Amp
OC200	48p	*	XO2	PNP/S	-30	-25	-20	100	250	15	OC200	LC AF Amp
OC201	75p	*	XO2	PNP/S	-25	-20	-20	100	250	20	OC201	LC AF Amp
OC202	95p	*	XO2	PNP/S	-15	-10	-10	100	250	40	OC202	LC AF Amp
OC203	85p	*	XO2	PNP/S	-60	-50	-30	100	250	10	OC203	LC AF Amp
OC204	85p	*	XO2	PNP/S	-32	-32	-12	250	300	10	OC204	LC AF Amp
OCP71	120p	*		PNP/G		-25		20	50		OCP71	PHOTO TRANSISTOR
TIP29	43p		TOP66	NPN/S	40	40	5	1A	30W	40	TIP29	MC AF GP
TIP29A	44p		TOP66	NPN/S	60	60	5	1A	30W	40	TIP29A	MC AF HV
TIP29B	56p		TOP66	NPN/S	80	80	5	1A	30W	40	TIP29B	MC AF HV
TIP29C	60p		TOP66	NPN/S	100	100	5	1A	30W	40	TIP29C	MC AF HV
TIP30	47p		TOP66	PNP/S	-40	-40	-5	1A	30W	40	TIP30	MC AF GP
TIP30A	50p		TOP66	PNP/S	-60	-60	-5	1A	30W	40	TIP30A	MC AF HV
TIP30B	64p		TOP66	PNP/S	-80	-80	-5	1A	30W	40	TIP30B	MC AF HV
TIP30C	65p		TOP66	PNP/S	-100	-100	-5	1A	30W	40	TIP30C	MC AF HV
TIP31	50p	*	TOP66	NPN/S	40	40	5	3A	40W	20	TIP31	HC AF GP
TIP31A	50p	*	TOP66	NPN/S	60	60	5	3A	40W	20	TIP31A	HC AF HV
TIP31B	58p	*	TOP66	NPN/S	80	80	5	3A	40W	20	TIP31B	HC AF HV
TIP31C	66p	*	TOP66	NPN/S	100	100	5	3A	40W	20	TIP31C	HC AF HV
TIP32	55p	*	TOP66	PNP/S	-40	-40	-5	3A	40W	20	TIP32	HC AF GP
TIP32A	55p	*	TOP66	PNP/S	-60	-60	-5	3A	40W	20	TIP32A	HC AF HVT
TIP32B	70p	*	TOP66	PNP/S	-80	-80	-5	3A	40W	20	TIP32B	HC AF HV
TIP32C	75p	*	TOP66	PNP/S	-100	-100	-5	3A	40W	20	TIP32C	HC AF HV
TIP33	80p	*	TOP3	NPN/S	40	40	5	10A	80W	20	TIP33	HC AF GP
TIP33A	80p	*	TOP3	NPN/S	60	60	5	10A	80W	20	TIP33A	HC AF HV
TIP33B	100p	*	TOP3	NPN/S	80	80	5	10A	80W	20	TIP33B	HC AF HV
TIP33C	110p	*	TOP3	NPN/S	100	100	5	10A	80W	20	TIP33C	HC AF HV

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Type	Price	Vat	Outline	Pol/Mat	Vcb max	Vce max	Veb max	Ic max	P tot	HFE min	Type	Notes
					V	V	V	mA	mW			
TIP34	85p	*	TOP3	PNP/S	-40	-40	-5	10A	80W	20	TIP34	HC AF GP
TIP34A	85p	*	TOP3	PNP/S	-60	-60	-5	10A	80W	20	TIP34A	HC AF HV
TIP34B	110p	*	TOP3	PNP/S	-80	-80	-5	10A	80W	20	TIP34B	HC AF HV
TIP34C	110p	*	TOP3	PNP/S	-100	-100	-5	10A	80W	20	TIP34C	HC AF HV
TIP35	219p	*	TOP3	NPN/S	40	40	5	25A	90W	10	TIP35	HC AF GP
TIP35A	225p	*	TOP3	NPN/S	60	60	5	25A	90W	10	TIP35A	HC AF HV
TIP35B	240p	*	TOP3	NPN/S	80	80	5	25A	90W	10	TIP35B	HC AF HV
TIP35C	270p	*	TOP3	NPN/S	100	100	5	25A	90W	10	TIP35C	HC AF HV
TIP36	280p	*	TOP3	PNP/S	-40	-40	-5	25A	90W	10	TIP36	HC AF GP
TIP36A	280p	*	TOP3	PNP/S	-60	-60	-5	25A	90W	10	TIP36A	HC AF HV
TIP36B	280p	*	TOP3	PNP/S	-80	-80	-5	25A	90W	10	TIP36B	HC AF HV
TIP36C	325p	*	TOP3	PNP/S	-100	-100	-5	25A	90W	10	TIP36C	HC AF HV
TIP41A	66p	*	TOP66	NPN/S	60	60	5	6A	2W	15	TIP41A	HC AF HV
TIP41B	73p	*	TOP66	NPN/S	80	80	5	6A	2W	15	TIP41B	HC AF HV
TIP42A	72p	*	TOP66	PNP/S	-60	-60	-5	6A	2W	15	TIP42A	HC AF HV
TIP42B	82p	*	TOP66	PNP/S	-80	-80	-5	6A	2W	15	TIP42B	HC AF HV
TIP2955	65p	*	TOP3	PNP/S	-100	-60	-7	15A	90W	20	TIP2955	HC AF HV
TIP3055	52p	*	TOP3	NPN/S	100	70	7	15A	90W	20	TIP3055	HC AF HV
TIS43	34p			UJ							TIS43	SEE TABLE
TIS44	45p		TO92	NPN/S	25		3	50	250	20	TIS44	LC Vhf Switch
TIS45	45p		TO92	NPN/S	40	15	5	200	250	30	TIS45	MC RF Switch
TIS46	45p		TO92	NPN/S	40	15	5	200	250	30	TIS46	MC RF Switch
TIS47	50p		TO92	NPN/S	40	15	4.5	200	250	20	TIS47	MC RF Switch
TIS48	50p		TO92	NPN/S	40	15	4.5	200	250	40	TIS48	MC RF Switch
TIS49	50p		TO92	NPN/S	40	15	4.5	200	250	40	TIS49	MC RF Switch
TIS50	47p		TO92	PNP/S	-12	-12	-4	200	250	30	TIS50	LC RF Switch
TIS60	52p		TO92	NPN/S	40	25	5	400	300	100	TIS60	MC AF GP
TIS62	52p		X10	NPN/S	30	12	3	30	200	30	TIS62	MG FM/AM GP
TIS74	47p			FET							TIS74	SEE TABLE
TIS90	20p		TO92	NPN/S	40	40	5	400	625	100	TIS90	MC AF GP
TIS91	24p		TO92	PNP/S	-40	-40	-5	400	625	100	TIS91	MC AF GP
UC734	98p			FET							UC734	SEE TABLE
ZTX107	12p		X11	NPN/S	60	45	5	100	300	125	ZTX107	LC AF GP
ZTX107B	14p		X11	NPN/S	60	45	5	100	300	240	ZTX107B	LC AF GP
ZTX108	12p		X11	NPN/S	45	30	5	100	300	125	ZTX108	LC AF GP
ZTX109	14p		X11	NPN/S	45	30	5	100	300	240	ZTX109	LC AF LN
ZTX212	28p		X11	PNP/S	-60	-50	-5	200	500	60	ZTX212	LC AF GP
ZTX300	15p		X11	NPN/S	25	25	5	500	300	50	ZTX300	MC AF GP
ZTX301	15p		X11	NPN/S	35	35	5	500	300	50	ZTX301	MC AF GP
ZTX302	20p		X11	NPN/S	35	35	5	500	300	100	ZTX302	MC AF GP
ZTX303	25p		X11	NPN/S	45	45	5	500	300	50	ZTX303	MC AF GP
ZTX304	24p		X11	NPN/S	70	70	5	500	300	50	ZTX304	MC AF HV
ZTX311	17p		X11	NPN/S	20	15	5	200	300	50	ZTX311	LC RF Switch
ZTX314	24p		X11	NPN/S	40	15	5	200	300	40	ZTX314	LC Vhf Switch
ZTX320	30p		X11	NPN/S	30	15	3	50	250	20	ZTX320	LC Vhf Amp
ZTX326	30p		X11	NPN/S	30	15	2	50	200	25	ZTX326	LC Uhf Amp
ZTX341	20p		X11	NPN/S	100	100	5	100	300	30	ZTX341	LC AF HV
ZTX500	15p		X11	PNP/S	-25	-25	-5	500	300	50	ZTX500	MC AF GP
ZTX501	15p		X11	PNP/S	-35	-35	-5	500	300	50	ZTX501	MC AF GP
ZTX502	19p		X11	PNP/S	-35	-35	-5	500	300	100	ZTX502	MC AF GP
ZTX503	15p		X11	PNP/S	-45	-45	-5	500	300	50	ZTX503	MC AF GP

Type	Price	Vat	Outline	Pol/Mat	Vcb max	Vce max	Veb max	Ic max	P tot	HFE min	Type	Notes
					V	V	V	mA	mW			
ZTX504	25p		X11	PNP/S	-70	-70	-5	500	300	50	ZTX504	MC AF HV
ZTX531	25p		X11	PNP/S	-45	-45	-5	500	300	40	ZTX531	LC AF LN
ZTX550	25p			NPN/S							ZTX550	Med Power
40250	85p	*	TO66	NPN/S	50	40	5	4A	29W	25	40250	HC AF GP
40251	97p	*	TO3	NPN/S	50	40	5	15A	117W	15	40251	HC AF GP
40311	50p	*	TO5	NPN/S		30	2V5	700	1W	75	40311	MC AF GP
40313	125p	*	TO66	NPN/S	300		2V5	2A	35W	40	40313	HC AF EHV
40315	55p	*	TO5	NPN/S		35	2V5	700	1W	70	40315	HC AF GP
40316	85p	*	TO66	NPN/S		40	5	4A	29W	20	40316	HC AF GP
40317	52p	*	TO5	NPN/S		40	2V5	700	1W	40	40317	HC AF GP
40319	71p	*	TO5	PNP/S		-40	-2V5	700	1W	35	40319	MC RF GP
40320	56p	*	TO5	NPN/S		40	2V5	700	1W	40	40320	MC AF GP
40323	60p	*	TO5	NPN/S		18	2V5	700	1W	70	40323	MC AF GP
40324	85p	*	TO66	NPN/S		35	2V5	4A	29W	20	40324	HC AF GP
40326	52p	*	TO5	NPN/S		40	2V5	700	1W	40	40326	MC AF GP
40327	62p	*	TO5	NPN/S	300		5	1A	1W	40	40327	MC AF GP
40347	80p	*	TO5	NPN/S	60	40	7	1A5	1W	25	40347	MC AF GP
40348	105p	*	TO5	NPN/S	90	65	7	1A5	1W	30	40348	HC AF GP
40360	43p	*	TO5	NPN/S		70	4	700	1W	40	40360	MC AF HV
40361	45p	*	TO5	NPN/S	70		4	700	1W	75	40361	MC AF GP
40362	45p	*	TO5	PNP/S	-70		-4	700	1W	35	40362	MC AF GP
40406	65p	*	TO5	PNP/S		-50	-4	700	1W	30	40406	LC AF LN
40407	52p	*	TO5	NPN/S		50	4	700	1W	40	40407	LC AF GP
40408	70p	*	TO5	NPN/S		90	4	700	1W	40	40408	MC AF HV
40411	295p	*	TO3	NPN/S	90		4	30A	150W	35	40411	HC AF GP
40412	65p	*	TO5	NPN/S	250	150	3	1A	1W	40	40412	MC AF EHV
40467A	95p	*		FET							40467A	SEE TABLE
40468A	65p	*		FET							40468A	END OF LIST
40594	90p	*	TO5	NPN/S	95		4	2A	1.2W	70	40594	HC AF GP
40595	98p	*	TO5	PNP/S	-95		-4	2A	1.2W	70	40595	HC AF GP
40603	65p	*		FET							40603	SEE TABLE
40636	125p	*	TO3	NPN/S		70	4	15A	115W	20	40636	HC AF GP
40673	68p	*		MOSFET							40673	SEE TABLE
2N526	58p	*	TO5	PNP/G	-45	-30	-15	500	225	64	2N526	MC AF GP
2N696	35p	*	TO5	NPN/S	60	40	5	500	600	20	2N696	MC AF GP
2N697	25p	*	TO5	NPN/S	60	40	5	500	600	40	2N697	MC AF GP
2N698	44p	*	TO5	NPN/S	120	60	7	500	800	20	2N698	MC AF GP
2N699	54p	*	TO5	NPN/S	120	80	5	500	600	40	2N699	MC AF HV
2N706A	19p	*	TO18	NPN/S	25	15	5	200	300	20	2N706A	LC RF Switch
2N707	39p	*	TO18	NPN/S	56	25	4	200	300	9	2N707	LC RF GP
2N708	19p	*	TO18	NPN/S	40	15	5	200	300	30	2N708	LC RF Switch
2N753	26p	*	TO18	NPN/S	25	15	5	200	300	40	2N753	MC RF Switch
2N914	32p	*	TO18	NPN/S	40	15	5	200	360	30	2N914	LC RF Switch
2N916	27p	*	TO18	NPN/S	45	25	5	100	360	50	2N916	LC RF GP
2N918	40p	*	TO72	NPN/S	30	15	3	50	200	20	2N918	LC Vhf Amp
2N919	40p	*	TO18	NPN/S	25	15	5	220	360	20	2N919	MC RF Switch
2N920	51p	*	TO18	NPN/S	25	15	5	220	360	40	2N920	MC RF Switch
2N930	18p	*	TO18	NPN/S	45	45	5	30	300	100	2N930	LC AF LN
2N961	61p	*	TO18	PNP/G	-12	-12	-2	100	150	20	2N961	LC Vhf Switch
2N985	64p	*	TO18	PNP/G	-15	-7	-3	200	150	40	2N985	LC Vhf Switch
2N987	54p	*	TO72	PNP/G	-40	-40	-1	10	86	40	2N987	LC RF Amp
2N1091	61p	*	TO5	NPN/G	25	15	20	400	120	40	2N1091	MC RF Switch

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Type	Price	Vat	Outline	Pol/Mat	Vcb max V	Vce max V	Veb max V	Ic max mA	P tot mW	HFE min	Type	Notes
2N1131	22p	*	TO5	PNP/S	-50	-35	-5	600	600	20	2N1131	MC AF GP
2N1132	22p	*	TO39	PNP/S	-50	-35	-5	600	600	30	2N1132	MC AF GP
2N1302	35p	*	TO5	NPN/G	25	25	25	300	150	20	2N1302	MC RF Switch
2N1303	50p	*	TO5	PNP/G	-30	-25	-25	300	150	20	2N1303	MC RF Switch
2N1304	50p	*	TO5	NPN/G	25	20	25	300	150	40	2N1304	MC RF Switch
2N1305	28p	*	TO5	PNP/G	-30	-20	-25	300	150	40	2N1305	MC RF Switch
2N1306	35p	*	TO5	NPN/G	25	15	25	300	150	60	2N1306	MC RF Switch
2N1307	50p	*	TO5	PNP/G	-30	-15	-25	300	150	60	2N1307	MC RF Switch
2N1308	46p	*	TO5	NPN/G	25	15	25	300	150	80	2N1308	MC RF Switch
2N1613	23p	*	TO5	NPN/S	75	50	7	600	800	40	2N1613	MC AF GP
2N1670	150p	*		UJ							2N1670	SEE TABLE
2N1671A	211p	*		UJ							2N1671A	AT END
2N1671B	215p	*		UJ							2N1671B	OF LIST
2N1893	28p	*	TO5	NPN/S	120	80	7	500	800	40	2N1893	MC AF HV
2N1986	60p		TO5	NPN/S	50	25	5	1A	600	60	2N1986	MC AF GP
2N1990	30p		TO5	NPN/S	100	60	3	1A	600	20	2N1990	LC AF HV
2N2160	350p	*		UJ							2N2160	SEE TABLE
2N2217	43p	*	TO5	NPN/S	60	30	5	800	800	20	2N2217	MC RF Switch
2N2218A	34p	*	TO5	NPN/S	75	40	6	800	800	40	2N2218A	MC RF GP
2N2219A	20p	*	TO5	NPN/S	75	50	6	800	800	100	2N2219A	MC RF GP
2N2220A	23p	*	TO18	NPN/S	75	40	6	800	500	20	2N2220A	MC RF Switch
2N2221A	23p	*	TO18	NPN/S	75	40	6	800	500	40	2N2221A	MC RF GP
2N2222	19p	*	TO18	NPN/S	60	30	5	800	500	100	2N2222	MC RF GP
2N2222A	20p	*	TO18	NPN/S	75	40	6	800	500	100	2N2222A	MC RF GP
2N2297	45p	*	TO5	NPN/S	80	35	7	1A	800	40	2N2297	MC RF GP
2N2303	45p	*	TO5	PNP/S	-50	-35	-5	500	600	75	2N2303	MC RF GP
2N2368	21p	*	TO18	NPN/S	40	15	4	500	360	20	2N2368	LC Uhf Switch
2N2369A	15p	*	TO18	NPN/S	40	15	4	500	360	40	2N2369A	LC Uhf Switch
2N2476	125p	*	TO5	NPN/S	60	20	5	500	600	20	2N2476	MC RF Switch
2N2483	28p	*	TO18	NPN/S	60	60	6	50	360	40	2N2483	LC AF LN
2N2484	25p	*	TO18	NPN/S	60	60	6	50	360	100	2N2484	LC AF LN
2N2646	48p	*		UJ							2N2646	SEE TABLE
2N2784	55p		TO18	NPN/S	75		4	2A	15W	8	2N2784	HC Vhf GP
2N2846	140p	*	TO5	NPN/S	60	30	5	500	800	30	2N2846	MC RF Switch
2N2894	30p	*	TO18	PNP/S	-12	-12	-4	200	360	30	2N2894	LC Vhf Switch
2N2904A	22p	*	TO5	PNP/S	-60	-60	-5	600	600	40	2N2904A	MC AF GP
2N2905A	22p	*	TO5	PNP/S	-60	-60	-5	600	600	100	2N2905A	MC AF GP
2N2906A	22p	*	TO18	PNP/S	-60	-40	-5	600	400	40	2N2906A	MC AF GP
2N2907	22p	*	TO18	PNP/S	-60	-40	-5	600	400	100	2N2907	MC AF GP
2N2907A	22p	*	TO18	PNP/S	-60	-60	-5	600	400	100	2N2907A	MC AF GP
2N2926R	08p		TO98	NPN/S	25	25	5	100	200	55	2N2926R	LC AF GP
2N2926O	08p		TO98	NPN/S	25	25	5	100	200	90	2N2926O	LC AF GP
2N2926Y	08p		TO98	NPN/S	25	25	5	100	200	150	2N2926Y	LC AF GP
2N2926G	10p		TO98	NPN/S	25	25	5	100	200	235	2N2926G	LC AF LN
2N3011	24p	*	TO18	NPN/S	30	12	5	200	360	30	2N3011	LC Vhf Switch
2N3053	20p	*	TO5	NPN/S	60	40	5	700	100	50	2N3053	MC AF GP
2N3054	55p	*	TO66	NPN/S	90	60	7	4A	25W	25	2N3054	HC AF GP
2N3055	48p	*	TO3	NPN/S	100	60	7	15A	115W	20	2N3055	HC AF HV
2N3108	32p	*	TO5	NPN/S	100	60	7	1A	800	40	2N3108	MC AF HV
2N3121	40p	*	TO18	PNP/S	-45	-45	-4	500	360	30	2N3121	MC AF GP
2N3133	43p	*	TO5	PNP/S	-50	-35	-4	600	600	40	2N3133	MC AF GP
2N3135	33p	*	TO18	PNP/S	-50	-35	-4	600	400	40	2N3135	MC RF GP
2N3250	30p	*	TO18	PNP/S	-50	-40	-5	200	360	50	2N3250	LC RF GP
2N3252	36p	*	TO5	NPN/S	60	30	5	1A	1W	30	2N3252	MC RF Switch

Type	Price	Vat	Outline	Pol/Mat	Vcb max	Vce max	Veb max	Ic max	P tot	HFE min	Type	Notes
					V	V	V	mA	mW			
2N3302	30p	*	TO18	NPN/S	60	30	5	500	360	100	2N3302	MC RF GP
2N3441	140p	*	TO66	NPN/S	160	140	7	3A	25W	25	2N3441	HC AF HV
2N3442	140p	*	TO3	NPN/S	160	140	7	10A	117W	20	2N3442	HC AF HV
2N3563	20p		TO106	NPN/S	30	12	2	50	200	30	2N3563	LC Vhf Amp
2N3614	169p	*	TO3	PNP/G	-60	-35	-30	15A	77W	60	2N3614	HC AF GP
2N3615	135p	*	TO3	PNP/G	-80	-50	-40	15A	77W	30	2N3615	HC AF HV
2N3638A	15p		TO105	PNP/G	-25	-25	-4	500	300	30	2N3638A	MC AF GP
2N3663	26p	*	TO98	NPN/S	30	12	3	25	200	20	2N3663	LC Vhf Amp
2N3702	11p		TO92	PNP/S	-40	-25	-5	200	360	60	2N3702	LC AF GP
2N3703	11p		TO92	PNP/S	-50	-30	-5	200	360	30	2N3703	LC AF GP
2N3704	11p		TO92	NPN/S	50	30	5	800	360	300	2N3704	MC AF GP
2N3705	11p		TO92	NPN/S	50	30	5	800	625	150	2N3705	MC AF GP
2N3706	11p		TO92	NPN/S	40	20	5	800	625	600	2N3706	MC AF GP
2N3707	11p		TO92	NPN/S	30	30	6	30	360	100	2N3707	LC AF LN
2N3708	11p		TO92	NPN/S	30	30	6	30	360	45	2N3708	LC AF LN
2N3709	11p		TO92	NPN/S	30	30	6	30	360	45	2N3709	LC AF GP
2N3710	16p		TO92	NPN/S	30	30	6	30	360	90	2N3710	LC AF LN
2N3711	12p		TO92	NPN/S	30	30	6	30	360	180	2N3711	LC AF LN
2N3713	215p	*	TO3	NPN/S	80	60	7	10A	150W	25	2N3713	HC RF GP
2N3715	250p	*	TO3	NPN/S	100	80	7	10A	150W	50	2N3715	HC RF GP
2N3772	195p	*	TO3	NPN/S	100	60	7	30A	150W	15	2N3772	HC AF HV
2N3773	288p	*	TO3	NPN/S	160	140	7	30A	150W	15	2N3773	HC AF HV
2N3819	22p			FET							2N3819	SEE TABLE AT
2N3820	45p			FET							2N3820	END OF LIST
2N3823	65p			FET							2N3823	" " "
2N3824	70p			FET							2N3824	" " "
2N3866	90p	*	TO39	NPN/S	55	30	3V5	400	5W	10	2N3866	MC Power Amp
2N3903	20p		TO92	NPN/S	60	40	6	200	310	50	2N3903	LC AF GP
2N3904	18p		TO92	NPN/S	60	40	6	200	310	100	2N3904	LC AF LN
2N3905	18p		TO92	PNP/S	-40	-40	-5	200	310	50	2N3905	MC AF GP
2N3906	17p		TO92	PNP/S	-40	-40	-5	200	310	100	2N3906	MC AF GP
2N4037	52p	*	TO5	PNP/S	-60	-40	-7	1A	1W	50	2N4037	MC AF GP
2N4041	80p	*		NPN/S	60	40		1.5A	10W	10	2N4041	
2N4058	17p		TO92	PNP/S	-30	-30	-6	30	360	100	2N4058	LC AF LN
2N4061	17p		TO92	PNP/S	-30	-30	-6	30	360	90	2N4061	LC AF GP
2N4062	17p		TO92	PNP/S	-30	-30	-6	30	360	180	2N4062	LC AF LN
2N4064	120p	*	TO5F	NPN/S	300	250	7	1A	10W	40	2N4064	MC RF EHV
2N4069	45p	*		NPN/S	150	150		1A	1W	30	2N4069	
2N4234	36p		TO5	PNP/S	-40	-40	-7	3A	1W	30	2N4234	HC RF GP
2N4236	45p	*	TO5	PNP/S	-80	-80	-7	3A	1W	30	2N4236	HC RF HV
2N4286	20p		X13	NPN/S	30	25	6	100	250	150	2N4286	LC AF LN
2N4289	20p		X13	PNP/S	-60	-45	-7		250	100	2N4289	LC AF LN
2N4859	65p			FET							2N4859	SEE TABLE
2N4871	60p			UJ							2N4871	END OF LIST
2N4898	135p	*	TO66	PNP/S	-40	-40	-5	4A	25W	20	2N4898	HC RF GP
2N4922	55p	*	TO126	NPN/S	60	60	5	3A	30W	20	2N4922	HC AF GP
2N5102	250p	*		NPN/S	90	50		3.5A	70W	10	2N5102	
2N5135	42p			NPN/S	30	25		200	300	50	2N5135	
2N5136	42p		TO105	NPN/S	30	20	3	500	220	20	2N5136	MC AF GP
2N5138	20p		TO106	PNP/S	-30	-30	-5	100	200	50	2N5138	LC AF LN
2N5172	25p		TO98	NPN/S	25	25	5	100	200	100	2N5172	LC AF GP
2N5179	30p	*	TO72	NPN/S	20	12	2V5	50	200	25	2N5179	LC Uhf Amp
2N5180	38p	*		NPN/S	30	15			180	20	2N5180	
2N5191	70p	*	TO126	NPN/S	60	60	4	4A	40W	25	2N5191	HC AF HV

TRANSISTORS

For discounts on **Transistors** see page 5 For latest additions to **Transistor** range please see page 17

Type	Price	Vat	Outline	Pol/Mat	Vcb max V	Vce max V	Veb max V	Ic max mA	P tot mW	HFE min	Type	Notes
2N5305	40p	*	TO98	NPN/S	25	25	12	300	400	2K	2N5305	LC AF Darlington Amp
2N5457	32p			FET							2N5457	SEE TABLE AT
2N5458	32p			FET							2N5458	END OF LIST
2N5459	32p			FET							2N5459	" " "
2N5485	35p			FET							2N5458	" " "
2N5777	45p	*		PHOTO/D	25	25	8	250	250	2.5K	2N5777	Photo Darlington
2N6027	40p			P.UJ							2N6027	SEE TABLE
2N6109	50p	*	TOP66	PNP/S	-60	-50	-5	7A	40W	30	2N6109	HC AF GP
2N6258	560p	*	TO3	NPN/S		60		10A		15	2N6258	HC AF GP
2N6388	126p	*	TOP66	NPN/S	80	80	5	10A	40W	1K	2N6388	HC RF Darlington
2SD234	50p	*	TOP66	NPN/S	60	50	10	3A	25W	40	2SD234	HC AF POWER AMP
3N128	112p	*		MOSFET							3N128	SEE TABLE AT
3N140	112p	*		MOSFET							3N140	END OF LIST

FIELD EFFECT TRANSISTORS

Type	Price	Vat	Case	Style	Vds max V	Ids max mA	J/temp C	P tot max mW	Gmo min/max	Ciss max pf	Crss max pf	Type	Notes
BF244	29p		T092	NJD	30	10	150	300	3.0/6.5	4	1.1	BF244	LC AF GP
BF244B	30p		T092	NJD	30	10	125	300	3.0/6.5	8	2.2	BF244B	LC AF GP
BF256	60p		F018	NJD	30	30	150	300	4.5	4.5	1.2	BF256	GC TV Uhf Amp
E421	96p	*	P018	NJD	25	30	125	350	4.5/9	3.5	0.8	E421	Differantial amp pair
E1819	68p	*	T072		20	50	175	330	12.0 typ	6.0	0.03	E1819	See Mosfets
E5567	65p											E5567	
MPF102	32p		T092	NJD	25	20	135	300	2.0/7.5	7	3	MPF102	100Mhz RF amp & mixer
MPF103	36p		T092	NJD	25	20	135	300	1.0/5.0	7	3	MPF103	LC GP Amp
MPF104	36p		T092	NJD	25	10	135	300	1.5/5.5	7	3	MPF104	LC GP Amp
MPF105	36p		T092	NJD	25	16	135	300	2.0/6.0	7	3	MPF105	LC GP Amp
MPF106	50p		T092	NJD	25	10	125	200	2.5	5	1.2	MPF106	400Mhz RF amp & mixer
MPF107	50p		T092	NJD	25	20	125	200	4.0/8.0	5	1.2	MPF107	GC TV Uhf Amp
TIS74	47p		F018	NJD	30	100	150	360		10	3.5	TIS74	LC AF Chopper
UC734	98p		T072	NJD	30	20	200	300	3.5/6.5	4	0.8	UC734	400Mhz RF Amp
2N3819	22p		T092	NJD	25	20	150	360	2.0/6.5	8	4	2N3819	LC AF GP
2N3820	45p		T092	PJD	20	15	150	360	0.8/5.0	32	16	2N3820	LC AF GP
2N3823	65p		T072	NJD	30	20	175	300	3.5/6.5	6	2	2N3823	100Mhz RF amp & mixer
2N3824	70p		T072	NJD	50	20	200	300	4.5/	6	3	2N3824	LC RF Switch
2N4859	65p		T018	NJD	30	250	200	1.8W		18	8	2N4859	LC RF Switch
2N5457	32p		T092	NJD	25	16	135	310	1.0/5.0	7	3	2N5457	LC AF GP
2N5458	32p		T092	NJD	25	16	135	310	1.5/5.5	7	3	2N5458	LC AF GP
2N5459	32p		T092	NJD	25	16	135	310	2.0/6.0	7	3	2N5459	LC AF GP
2N5485	35p		T092	NJD	25	30	150	310	3.5/7.0	5	1	2N5485	400Mhz RF amp & switch
								MOSFETS					
3N128	112p	*	T072	NMD	20	25	175	330	5.0/12.0	7	0.28	3N128	250Mhz Vhf amp & oscillator
3N140	112p	*	T072	NMD	20	50	175	400	6.0/18.0	7	0.03	3N140	300Mhz Vhf amp
40467A	95p	*	T072	NMD	20	50	175	330	4.0/		0.028	40467A	220Mhz Vhf
40468A	65p	*	T072	NMD	20	30	175	380	7.5 typ	5.5	0.28	40468A	125Mhz RF amp & mixer
40603	65p	*	T072	NMD	20	50	175	330	10.0 typ	5.5	0.03	40603	LC Vhf GP
40673	68p	*	T072	NMD	20	50	175	330	12.0 typ	6.0	0.03	40673	GC TV Uhf amp
E1819	68p	*	T072	NMD	20	50	175	330	12.0 typ	6.0	0.03	E1819	GC TV Uhf amp

For discounts on **Transistors** see page 5

UNIJUNCTION TRANSISTORS

Type	Price	Vat	Outline	Vb1b2	Ie	P tot	Intrinsic Stand-off Ratio		Type	Notes
				V	uA	mW	min	max		
TIS43	34p		TO92	35	1	300	0.55	0.82	TIS43	
2N1670	150p	*							2N1670	
2N1671A	211p	*		35	2	450	0.47	0.62	2N1671A	
2N1671B	215p	*	TO5	65	2	450	0.47	0.62	2N1671B	
2N2160	350p	*		35	2	450	0.47	0.62	2N2160	
2N2646	48p	*	TO18	35	2	300	0.56	0.75	2N2646	
2N4871	60p		TO92	30		300	0.7	0.85	2N4871	
2N6027	40p								2N6027	
MPU131	39p	*	TO92				MPU131			Ia = 200mA, G.A.R.V. = 40Volts, V(f) = 1.5Volts, The min valley current @ 10K ohms = 70uA and at 1M ohm = 50uA

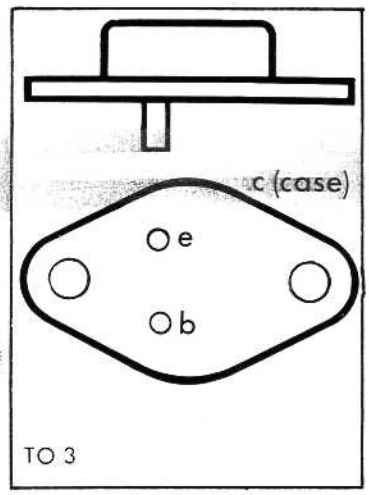
Abbreviations used in the above lists

AF	Audio Frequency	**HC**	High Current	**LC**	Low Current	**PD**	Photo Darlington
D/Amp	Darlington Amp	**HG**	High Gain	**LG**	Low Gain	**RF**	Radio Frequency
EHV	Extra High Voltage	**HS**	High Speed	**LN**	Low Noise	**Uhf**	Ultra High Frequency
GC	Gain Controlled	**HV**	High Voltage	**MC**	Medium Current	**Vhf**	Very High Frequency
GP	General Purpose	**IF**	Intermediate Frequency	**MG**	Medium Gain		

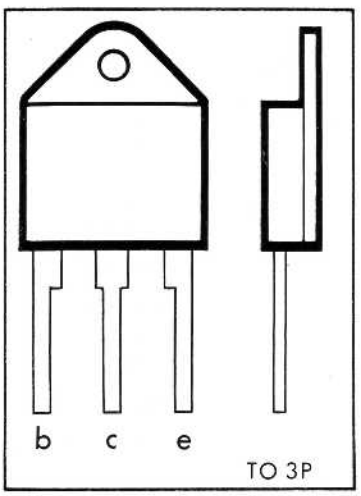
LATEST TRANSISTOR ADDITIONS

BC107B	10p*	2N1595	82p	2N3740	92p	2N4895	
BC173	12p	2N2497	292p	2N3771	233p	2N4901	156p
BC337	12p	2N2959		2N3792	163p	2N4921	62p
BC477	25p*	2N3020	40p	2N3822	126p	2N4984	
BLY83	649p*	2N3228	130p	2N3879	269p	2N5308	34p
MJE371	60p*	2N3251	128p	2N3962	75p	2N5461	61p
MPSA12	40p	2N3295	595p	2N4220	95p	2N5758	469p
TIP120	46p	2N3478	150p	2N4264		2N5879	170p
TIS59	42p	2N3487	640p	2N4314	82p	2N6230	180p
2N388		2N3565	30p	2N4399	283p	2N6358	480p
2N441		2N3568		2N4400	1040p		
2N492A		2N3569		2N4427	75p		

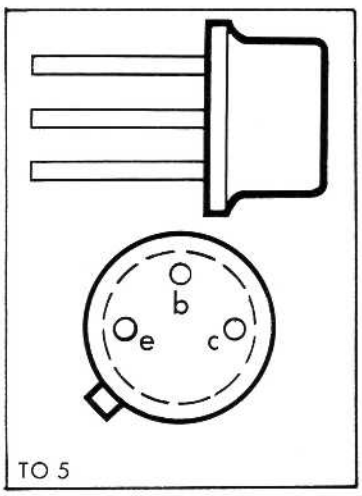
TRANSISTOR OUTLINES



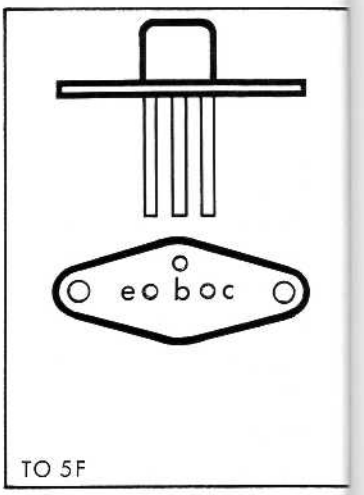
TO 3



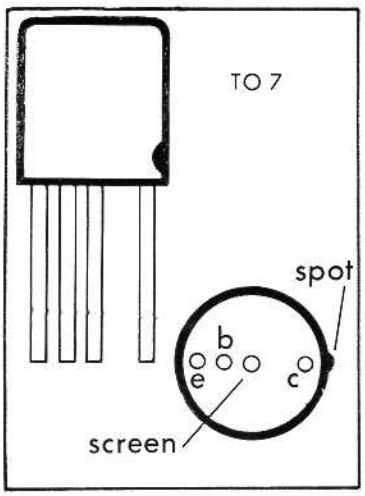
TO 3P

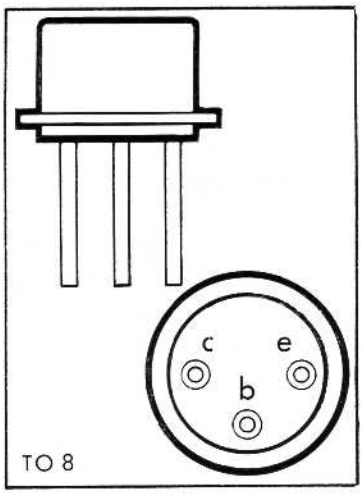


TO 5

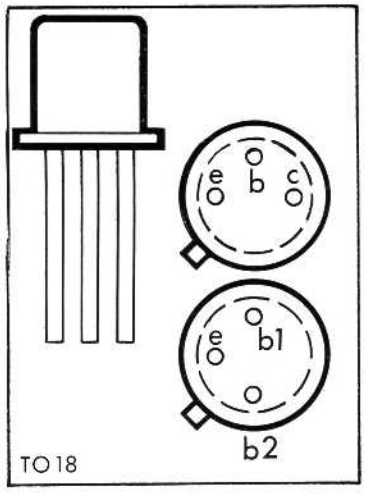


TO 5F





TO 8



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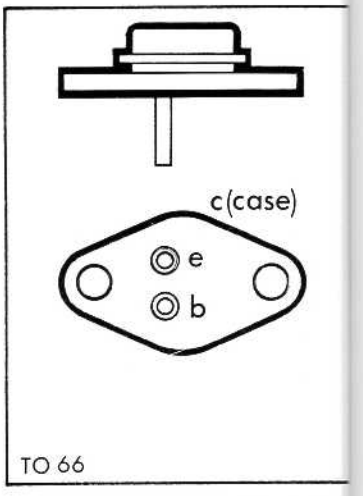
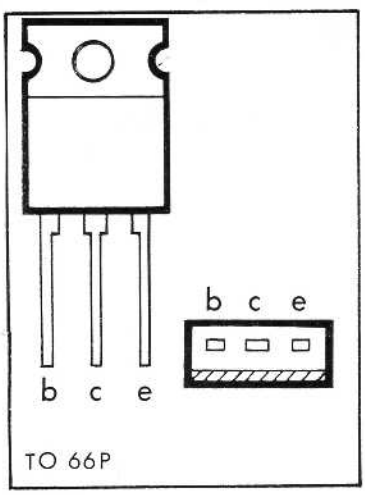
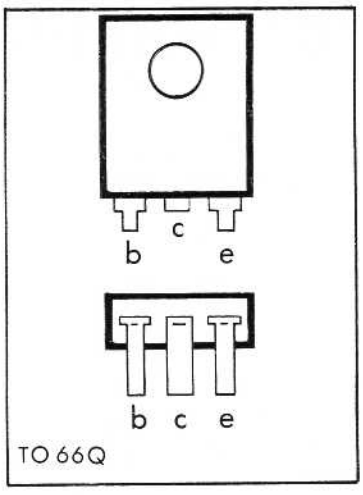


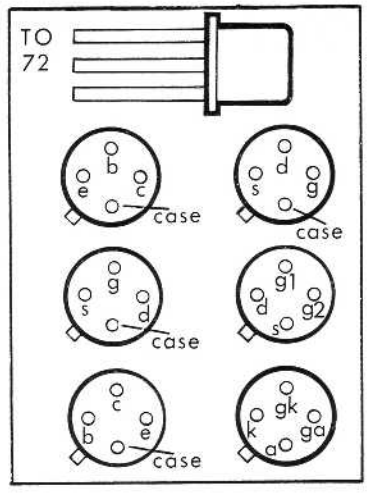
TO 66

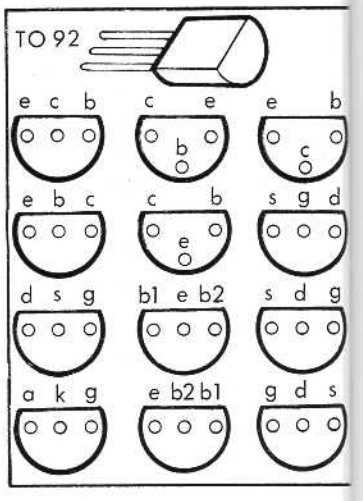


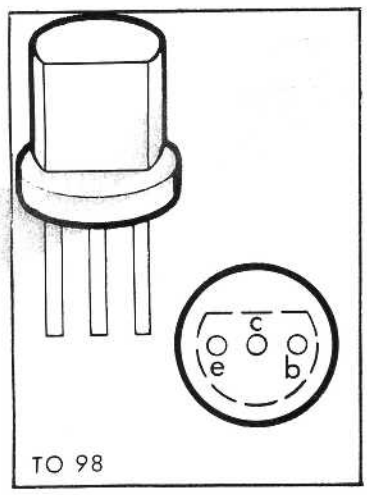
TO 66P



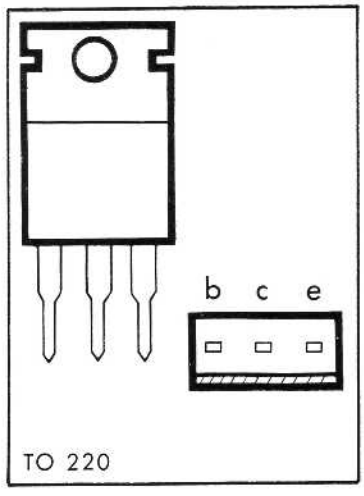
TO 66Q



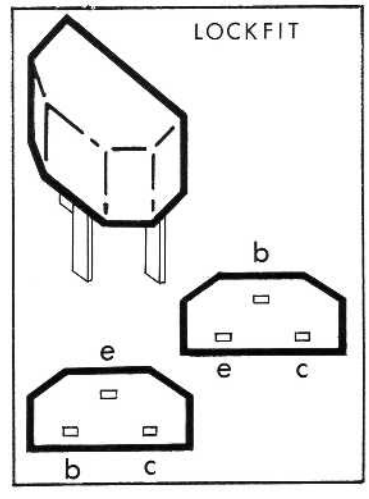


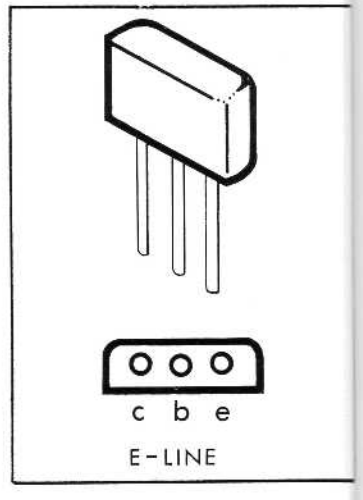


TO 98



TO 220





E-LINE

TEXAS TTL *

Discounts:- 15+ 5%, 25+ 7½%, 50+ 10%, 100+ 20% any mix.

Please add 8% VAT to all TTL's

Type	Pin	Function	Price
7400	14	Quad 2 I/P NAND	13p
7401	14	Quad 2 I/P NAND O.C.	13p
7402	14	Quad 2 I/P NOR	14p
7403	14	Quad 2 I/P NAND O.C.	14p
7404	14	Hex Inverter	14p
7405	14	Hex Inverter O.C.	18p
7406	14	Hex Inv./Buffer	38p
7407	14	Hex Buffer	38p
7408	14	Quad 2 I/P AND	17p
7409	14	Quad 2 I/P AND O.C.	17p
7410	14	Triple 3 I/P NAND	15p
7411	14	Triple 3 I/P AND	20p
7412	14	Triple 3 I/P NAND O.C.	17p
7413	14	Dual 4 I/P NAND Schmitt	30p
7414	14	Hex Inverter Schmitt	51p
7416	14	Hex Inverter/Buffer O.C.	30p
7417	14	Hex Buffer O.C.	30p
7420	14	Dual 4 I/P NAND	16p
7421	14	Dual 4 I/P AND	29p
7422	14	Dual 4 I/P NAND O.C	24p
7423	16	Dual 4 I/P NOR with Strobe Exp.	27p
7425	14	Dual 4 I/P NOR-Strobe	27p
7426	14	Quad 2 I/P NAND O.C.	36p
7427	14	Triple 3 I/P NOR	27p
7428	14	Quad 2 I/P NOR Buffer	35p
7430	14	8 I/P NAND	17p
7432	14	Quad 2 I/P OR	25p
7433	14	Quad 2 I/P NOR Buffer O.C.	40p
7437	14	Quad 2 I/P NAND Buffer	30p
7438	14	Quad 2 I/P NAND Buffer O.C.	33p
7440	14	Dual 4 I/P NAND Buffer	17p
7441	14	BCD to Decimal decoder/driver	74p
7442	16	BCD to Decimal decoder	68p
7443	16	Excess 3 to decimal TTL O/P	115p
7444	16	Excess 3 gray to decimal TTL O/P	112p
7445	16	BCD to Decimal Decoder 30V O/P	94p
7446	16	BCD to 7 segment Decoder 30V O/P	94p
7447	16	BCD to 7 segment Decoder 15V O/P	82p
7448	16	BCD to 7 segment active high O/P for discreet drivers	51p 56p
7450	14	Dual 2 wide 2 I/P AOI	17p
7451	14	Dual 2 wide 2 I/P AOI	17p
7453	14	4 - wide 2 I/P AOI	17p
7454	14	4 - wide 2 I/P AOI	17p
7460	14	Dual 4 I/P Expander	17p
7470	14	J-K Flip-Flop (AND I/P)	28p
7472	14	J-K Flip-Flop (AND I/P)	25p
7473	14	Dual J-K Flip-Flop	32p
7474	14	Dual D type Flip-Flop	27p
7475	16	Quad Latch	38p
7476	16	Dual J-K Flip-Flop	36p
7480	14	Gated Full Adder	48p
7481	14	16 Bit RAM Access read/write direct write I/P	86p
7482	14	2 Bit Binary Full Adder	69p
7483	16	4 Bit Binary Full Adder	72p
7484	16	16 Bit RAM	95p
7485	16	4 Bit Comparator	106p
7486	14	Quad Exclusive OR	31p
7489	16	64 Bit Random Access Memory	210p
7490	14	Decade Counter	33p
7491	14	8 Bit Shift Register SISO	75p
7492	14	Divide by 12 Counter	38p
7493	14	4 Bit Binary Counter	32p
7494	16	4 Bit Shift Register PISO	78p
7495	14	4 Bit Shift Register PISO	65p
7496	16	5 Bit Shift Register PIPO	57p
7497	16	6 Bit Serial Binary Counter	189p
74100	24	Dual Quad Latch	119p
74104	14	Gated J-K master/slave P. & C.	62p
74105	14	Gated J-K master/slave P. & C.	62p
74107	14	Dual J-K Flip-Flop	29p
74109	16	Dual J-K Flip-Flop (M/S)	54p
74110	14	J-K Flip-Flop Data Lockout	54p
74111	16	Dual J-K Flip-Flop Data Lockout	68p
74112	16	Dual J-K Flip-Flop	125p
74116	24	Dual Quad Latch Master Reset	198p
74118	16	Hex S-R Latch	83p
74119	24	Hex S-R Latch	149p
74120	16	Dual Pulse Synchroniser	115p
74121	14	Monostable Multivibrator	25p
74122	14	Monostable Multivibrator	46p

Type	Pin	Function	Price
74123	16	Dual Monostable Multivibrator	48p
74125	14	Quad 3-state Buffer	38p
74126	14	Quad 3-state Buffer	57p
74128	14	50 ohm Line Driver	74p
74132	14	Quad 2 I/P NAND Schmitt	73p
74136	14	Quad Exclusive OR O.C.	65p
74141	16	BCD to Decimal Decoder/Driver	56p
74142	16	Counter Latch Decimal Decoder/Driver	209p
74143	24	4 Bit Counter Latch 7 Segment Driver	314p
74144	24	4 Bit Counter Latch 7 Segment Driver O.C.	314p
74145	16	BCD to Decimal 15V 80mA O/P	65p
74147	16	4 to 10 Line Priority Encoder	175p
74148	16	3 to 8 Line Priority Encoder	109p
74150	24	16 Bit Data Selector	99p
74151	16	8 Bit Data Selector	64p
74153	16	Dual 4 to 1 Line Selector	64p
74154	24	4 to 16 Line Decoder	96p
74155	16	Dual 2 to 4 Line Demultiplexer	53p
74156	16	Dual 2 to 4 Line Demultiplexer O.C.	80p
74157	16	Quad 2 to 1 Line Selector	65p
74159	24	4 to 16 Line Decoder O.C.	185p
74160	16	Synchronous Decade Counter	82p
74161	16	Synchronous Binary Counter	92p
74162	16	Synchronous Decade Counter	92p
74163	16	Synchronous Binary Counter	92p
74164	14	8-bit Shift Register SIPO	105p
74165	16	8-bit Shift Register PISO	105p
74166	16	8-bit parallel Synchronous load serial out	140p
74167	16	Decade Decimal Rate Multiplier	200p
74170	16	4 by 4 Register Files	185p
74172	24	16-bit Quadriport Register File	625p
74173	16	Quad 3 state Latch	120p
74174	16	Hex D-type Flip-Flop	87p
74175	16	Quad D-type Flip-Flop	87p
74176	14	Decade Counter	75p
74177	14	Binary Counter	78p
74178	14	4 bit Shift Register	153p
74180	14	8-bit Parity Generator	85p
74181	24	4-bit Arithmetic Logic Unit	165p
74182	16	Carry-Look-Ahead-Unit	88p
74184	16	BCD to Binary and Binary/ to BCD Converters	135p
74185	16	BCD to Binary and Binary/ to BCD Converters	135p
74188	16	256-bit ROM fusible	275p
74190	16	Up/Down Decade Counter	95p
74191	16	Up/Down Binary Counter	95p
74192	16	Reversible Decade Counter	98p
74193	16	Reversible Binary Counter	98p
74194	16	4-bit Shift Register PIPO	98p
74195	16	4-bit Shift Register PIPO	98p
74196	14	Decade Counter	93p
74197	14	Binary Counter	80p
74198	24	8-bit PIPO Bidirectional	150p
74221	16	Dual Monostable Multivibrator	132p
74246	16	BCD to Seven Segment Decoder/Driver	204p
74247	16	BCD to Seven Segment Decoder/Driver	204p
74248	16	BCD to Seven Segment Decoder/Driver	240p
74249	16	BCD to Seven Segment Decoder/Driver	204p
74251	16	Data Selector/Multiplexer	125p
74265	16	Quad Complementary Output	63p
74273	20	Octal D Type Flip-Flop	320p
74278	16	4 Bit Register	220p
74279	16	Quad S-R Latch	119p
74283	16	4 Bit Binary Adder	173p
74284	16	4 x 4 Binary Multiplier	385p
74285	16	4 x 4 Binary Multiplier	395p
74290	14	Divide by 2 and 5 Decade Counter	125p
74293	14	Dual 4 Bit Binary Counter	125p
74297			236p
74298	16	Quad 2 I/P Multiplier and Storage	185p
74365	16	Hex Bus Driver	128p
74366	16	Hex Bus Driver	118p
74367	16	Hex Bus Driver	124p
74368	16	Hex Bus Driver	124p
74390	16	BCD Decade Counter	184p
74393	14	Dual 4 Bit Binary Counter	184p
74490	16	Dual Decade Counter	198p
75150	14	Dual Line Driver	175p
75491	14	MOS to LED Driver	92p
75492	14	MOS to LED Driver	92p

TEXAS 74LS *

Discounts:- 15+ 5%, 25+ 7½%, 50+ 10%, 100+ 20% any mix.

For latest additions please see page 92

Type	Pin	Function	Price
74LS00	14	Quad 2 I/P NAND	13p
74LS01	14	Quad 2 I/P NAND O.C.	13p
74LS02	14	Quad 2 I/P NOR	14p
74LS03	14	Quad 2 I/P NAND O.C.	14p
74LS04	14	Hex Inverter	14p
74LS05	14	Hex Inverter O.C.	23p
74LS08	14	Quad 2 I/P AND	22p
74LS09	14	Quad 2 I/P AND O.C.	22p
74LS10	14	Triple 3 I/P NAND	20p
74LS11	14	Triple 3 I/P AND	22p
74LS12	14	Triple 3 I/P NAND O.C.	23p
74LS13	14	Dual 4 I/P NAND Schmitt	38p
74LS14	14	Hex Inverter Schmitt	75p
74LS15	14	Triple 3 I/P AND	30p
74LS20	14	Dual 4 I/P NAND	20p
74LS21	14	Dual 4 I/P AND	22p
74LS22	14	Dual 4 I/P NAND O.C	22p
74LS26	14	Quad 2 I/P NAND O.C.	48p
74LS27	14	Triple 3 I/P NOR	28p
74LS28	14	Quad 2 I/P NOR Buffer	48p
74LS30	14	8 I/P NAND	22p
74LS32	14	Quad 2 I/P OR	27p
74LS33	14	Quad 2 I/P NOR Buffer O.C.	39p
74LS37	14	Quad 2 I/P NAND Buffer	39p
74LS38	14	Quad 2 I/P NAND Buffer O.C.	39p
74LS40	14	Dual 4 I/P NAND Buffer	28p
74LS42	16	BCD to Decimal decoder	98p
74LS47	16	BCD to 7 segment Decoder 15V O/P	63p
74LS48	16	BCD to 7 segment active high O/P for discreet drivers	120p
74LS49	14	BCD to 7 segment Decoder O.C.	120p
74LS51	14	Dual 2 wide 2 I/P AOI	24p
74LS54	14	4 - wide 2 I/P AOI	28p
74LS55	14	Expandable 2-wide 4 I/P AOI	30p
74LS63		PLA Hex Current Sense Gate	150p
74LS73	14	Dual J-K Flip-Flop	46p
74LS74	14	Dual D type Flip-Flop	41p
74LS75	16	Quad Latch	48p
74LS76	16	Dual J-K Flip-Flop	40p
74LS78	14	Dual J-K Flip-Flop	40p
74LS83	16	4 Bit Binary Full Adder	115p
74LS85	16	4 Bit Comparator	118p
74LS86	14	Quad Exclusive OR	43p
74LS90	14	Decade Counter	38p
74LS91	14	8 Bit Shift Register SISO	104p
74LS92N	14	Divide by 12 Counter	89p
74LS93	14	4 Bit Binary Counter	89p
74LS95BN	14	4 Bit Shift Register PIPO	116p
74LS96	16	5 Bit Shift Register PIPO	116p
74LS107	14	Dual J-K Flip-Flop	44p
74LS109AN	16	Dual J-K Flip-Flop (M/S)	55p
74LS112	16	Dual J-K Flip-Flop	55p
74LS113	14	Dual J-K Flip-Flop	50p
74LS114	14	Dual J-K Flip-Flop	50p
74LS122	14	Monostable Multivibrator	70p
74LS123	16	Dual Monostable Multivibrator	70p
74LS124	16	Dual Voltage Controlled Oscillator	180p
74LS125AN	14	Quad 3-state Buffer	60p
74LS126	14	Quad 3-state Buffer	60p
74LS132	14	Quad 2 I/P NAND Schmitt	95p
74LS136	14	Quad Exclusive OR O.C.	55p
74LS138	16	3 Line to 8 Line Decoder/Demultiplexer	85p
74LS139	16	2 Line to 4 Line Decoder/Demultiplexer	85p
74LS145	16	BCD to Decimal 15V 80mA O/P	108p
74LS147	16	4 to 10 Line Priority Encoder	170p
74LS148	16	3 to 8 Line Priority Encoder	173p
74LS151	16	8 Bit Data Selector	96p
74LS153	16	Dual 4 to 1 Line Selector	76p
74LS155	16	Dual 2 to 4 Line Demultiplexer	96p
74LS156	16	Dual 2 to 4 Line Demultiplexer O.C.	96p
74LS157	16	Quad 2 to 1 Line Selector	76p
74LS158	16	Quad 2 Line to 1 Line Selector Inverting	96p
74LS160AN	16	Synchronous Decade Counter	128p
74LS161AN	16	Synchronous Binary Counter	98p
74LS162AN	16	Synchronous Decade Counter	138p
74LS163AN	16	Synchronous Binary Counter	102p

Type	Pin	Function	Price
74LS164	14	8-bit Shift Register SIPO	114p
74LS165	16	8-bit Shift Register PISO	75p
74LS166	16	8-bit parallel Synchronous load serial out	226p
74LS170	16	4 by 4 Register Files	288p
74LS173	16	Quad 3 state Latch	105p
74LS174	16	Hex D-type Flip-Flop	106p
74LS175	16	Quad D-type Flip-Flop	110p
74LS181	24	4-bit Arithmetic Logic Unit	398p
74LS183	14	Dual Carry-Save Full Adder	298p
74LS189	16	64-Bit Random Access Memory 3 State	TBA
74LS190	16	Up/Down Decade Counter	140p
74LS191	16	Up/Down Binary Counter	140p
74LS192	16	Reversible Decade Counter	132p
74LS193	16	Reversible Binary Counter	130p
74LS194	16	4-bit Shift Register PIPO	166p
74LS195	16	4-bit Shift Register PIPO	136p
74LS196	14	Decade Counter	100p
74LS197	14	Binary Counter	140p
74LS221	16	Dual Monostable Multivibrator	96p
74LS240	20	Octal Inverter 3-State	236p
74LS241	20	Octal Buffer 2-State	231p
74LS242	14	Quad Transceiver Inverted 3-State	232p
74LS243	14	Quad Transceiver Non-Inverted 3-State	232p
74LS245	20	Octal Transceiver Non-Inverted 3-State	270p
74LS247	16	BCD to Seven Segment Decoder/Driver	190p
74LS248	16	BCD to Seven Segment Decoder/Driver	190p
74LS249	16	BCD to Seven Segment Decoder/Driver	190p
74LS251	16	Data Selector/Multiplexer	134p
74LS253	16	Dual 4 Line to 1 Line Selector 3 State	142p
74LS257AN	16	Quad 2 Line to 1 Line Selector/ 3 State Non Inverted	110p
74LS258AN	16	Quad 2 Line to 1 Line Selector/ 3 State Inverted	110p
74LS259	20	8-Bit Addressable Latch	160p
74LS261	16	4 x 2 Binary Multiplier	450p
74LS266	14	Quad 2-I/P Exclusive No O.C.	52p
74LS273	20	Octal D Type Flip-Flop	244p
74LS275	20	7-Bit x 4-Bit Binary Multiplier 3-State	250p
74LS279	16	Quad S-R Latch	66p
74LS283	16	4 Bit Binary Adder	192p
74LS290	14	Divide by 2 and 5 Decade Counter	128p
74LS293	14	Dual 4 Bit Binary Counter	128p
74LS295	14	4 Bit Right/Left Shift Register 3-State	185p
74LS298	16	Quad 2 I/P Multiplexer and Storage	68p
74LS324	14	Single Voltage Controlled Oscillator	240p
74LS325	16	Dual Voltage Controlled Oscillator	290p
74LS326	16	Dual Voltage Controlled Oscillator	294p
74LS327	14	Dual Voltage Controlled Oscillator	286p
74LS347			48p
74LS348	16	8Line to 3 Line Priority Encoder	186p
74LS352	16	Dual 4 Line to 1 Line Selector	228p
74LS353	16	Dual 4 Line to 1 Line Selector 3-State	228p
74LS365AN	16	Hex Bus Driver	65p
74LS366AN	16	Hex Bus Driver	65p
74LS367AN	16	Hex Bus Driver	65p
74LS368AN	16	Hex Bus Driver	66p
74LS373	20	Octal Transparent Latch	180p
74LS375	16	Quad Latch	160p
74LS377	20	Octal D-Type Flip-Flop W/Enable	212p
74LS378	20	Hex D-Type Flip-Flop	184p
74LS379	16	Quad D-Type Flip-Flop W/Enable	215p
74LS384		8 Bit Multiplier	86p
74LS386	14	Quad Exclusive OR	86p
74LS390	16	BCD Decade Counter	230p
74LS393	14	Dual 4 Bit Binary Counter	230p
74LS395AN	16	4 Bit Cascadable Shift	218p
74LS396			215p
74LS398	16	Quad 2 I/P Multiplexer W/Storage/ and Q Bar	276p
74LS399	16	Quad 2 I/P Multiplexer	230p
74LS445		BCD to Decimal Decoder/Driver	150p
74LS447		BCD to 7 Segment Decoder/Driver	144p
74LS490		Dual Decade Counter	180p
74LS668		Syncronous Up/Dwn Counter	182p
74LS669		Syncronous Binary Up/Down Counter	182p
74LS670	16	4 x 4 Register File 3-State	248p

LATE ADDITIONS

74LS168	155p	74LS202	345p	74LS300	175p
74LS169	150p	74LS244	155p	74LS302	175p
74LS199	T.B.A.	74LS280	250p	74LS323	468p
74LS200	345p	74LS299	468p	74LS346	185p
74LS374	T.B.A.				
74LS385	155p				
74LS673	1050p				
74LS674	1450p				

Discounts:- 15+ 5%, 25+ 7½%, 50+ 10%, 100+ 20% any mix.

For latest additions please see page 92

Type	Pin	Function	Price
4000B	14	Dual 3 I/P NOR with inverter	15p
4001B	14	Dual 2 I/P NOR	15p
4002B	14	Dual 4 I/P NOR	16p
4006B	14	18 Stage Static Shift Register	92p
4007B	14	Dual Complementary Pair + Inverter	18p
4008B	16	4 Bit Full Adder	82p
4009B	16	Hex Buffer/Converter	38p
4010B	16	Hex Buffer/Converter (Non-Inverting)	38p
4011B	14	Quad 2 I/P NAND	18p
4012B	14	Dual 4 I/P NAND	18p
4013B	14	Dual "D" Flip-Flop with set/reset	45p
4014B	16	8 stage Static Shift Register	80p
4015B	16	Dual 4 stage Static Shift Register	82p
4016B	14	Quad Bilateral Switch	45p
4017B	16	Decade Counter/Divider	82p
4018B	16	Pre settable divide by "N" counter	87p
4019B	16	Quad AND-OR Select Gate	48p
4020B	16	14 stage Binary Ripple Counter	99p
4021B	16	8 stage Static Shift Register	95p
4022B	16	Divide by 8 Counter/Divider	85p
4023B	14	Triple 3 I/P NAND	22p
4024B	14	7 stage Binary Counter	66p
4025B	14	Triple 3 I/P NOR	19p
4026B	16	Decode Counter with 7 segment Driver	180p
4027B	16	Dual J-K Flip-Flop Master-Slave	45p
4028B	16	BCD to Decimal Decoder	81p
4029B	16	Pre settable Up/Down Counter	99p
4030B	14	Quad Exclusive OR	58p
4031B	16	64 stage Static Shift Register	205p
4032B	16	Triple Serial Adder	100p
4033B	16	Decade Counter/Divider	145p
4034B	24	8 stage Static Bidirectional Register	116p
4035B	16	4 stage PIPO Shift Register	111p
4036B	24	4 word x 8 bit RAM	325p
4037B	14	Triple AND/OR Bi-Phase Pairs	100p
4038B	16	Triple Serial Adder	108p
4039B	24	4 work x 8 bit RAM	320p
4040B	16	12 stage Binary Ripple Counter	105p
4041B	14	Quad True/Complement Buffer	80p
4042B	16	Quad Clocked "D" Latch	75p
4043B	16	Quad 3 state NOR R/S Latch	94p
4044B	16	Quad 3 state NAND R/S Latch	95p
4045B	16	21 stage Counter	145p
4046B	16	Micropower Phase Lock Loop	128p
4047B	14	Monostable/Astable Multivibrator	87p
4048B	16	Multi-function Expandable 8-I/P Gate	58p
4049B	16	Hex Buffer/Converter (inverting)	48p
4050B	16	Hex Buffer/Converter (non-inverting)	48p
4051B	16	Single 8 Channel Multi/Demultiplexer	72p
4052B	16	Diff. 4 Channel Multi/ Demultiplexer	72p
4053B	16	Triple 2 Channel Multi/ Demultiplexer	72p
4054B	16	4 Segment Display Driver	110p
4055B	16	BCD 7 Segment Decoder/Driver	128p
4056B	16	BCD 7 Segment Decoder/Driver	135p
4057B	28	4-Bit Arithmetic Logic Unit	2170p
4059B	24	Programmable Divide by "N" Counter	480p
4060B	16	14 stage Ripple Binary Counter	115p
4061B	16	256 Word RAM	1425p
4062B	16	200 Stage Shift Register	995p
4063B	16	4-Bit Magnitude Comparator	110p
4066B	14	Quad Bilateral Switch	58p
4067B	24	Single 24 Channel Multi/ Demultiplexer	380p
4068B	14	8 Input NAND	22p
4069B	14	Hex Inverter	20p
4070B	14	Quad Exclusive - OR	32p
4071B	14	Quad2 Input OR	21p
4072B	14	Dual 4 Input OR	21p
4073B	14	Triple 3 Input AND	21p
4075B	14	Triple 3 Input OR	23p
4076B	16	4-Bit D-Type Register	85p
4077B	14	Quad Exclusive NOR	40p
4078B	14	8 Input NOR	21p
4081B	14	Quad 2 I/P AND	20p
4082B	14	Dual 4 I/P AND	21p
4085B	14	Dual 2 wide 2 I/P AOI	74p
4086B	14	4 wide 2 I/P AOI Exp	73p
4089B	16	Binary Rate Multiplier	150p
4093B	14	Quad 2 I/P NAND Schmitt	85p
4094B	16	8 Stage Shift and Store Register	190p
4095B	14	J-K Flip-Flop (Master Slave)	105p
4096B	14	J-K Flip-Flop (Master Slave)	105p
4097B	24	Diff. 8 Stage Multi/ Demultiplexer	372p
4098B	16	Dual Monostable Multivibrator	110p

Type	Pin	Function	Price
4099B	16	8 - Bit Addressable Latch	145p
4160B	16	Decade Counter Asynchronous Clear	109p
4161B	16	4 Bit Bin Counter Asynchronous Clear	109p
4162B	16	Decade Counter Synchronous Clear	109p
4163B	16	4 Bit Bin Counter Synchronous Clear	109p
4174B	16	Hex D Type Flip-Flop	110p
4175B	16	Quad D Type Flip-Flop	99p
4194B	16	4 Bit Bi-directional Shift Register	108p
4408	16	Binary-to-Phone Pulse Converter	720p
4409	16	Binary-to-Phone Pulse Converter	720p
4410	16	2-of-8 Tone Encoder	720p
4411	24	Bit-Rate frequency Generator	958p
4412F	16	Universal Low Speed Modem	1650p
4412V	16	Universal Low Speed Modem	1380p
4415F	16	Quad Precision Timer/Driver	795p
4415V	16	Quad Precision Timer/Driver	795p
4419	16	2-of-8 Keypad to Binary Encoder	280p
4422	16	Remote Control Transmitter	545p
4433	24	3½ Digit A/D Converter	995p
4435	16	3½ Digit A/D Logic Sub System	825p
4440	40	LCD Watch/Clock Circuit	1275p
4450	6	Oscillator 2 to the power of 16 Divider/Buffer	295p
4451	16	Oscillator/Divider/Buffer	295p
4452	14	Digitally Trimmed Frequency Divider	TBA
4490F	16	Hex Contact Bounce Eliminator	695p
4490V	16	Hex Contact Bounce Eliminator	525p
4501B	16	Triple Gate	19p
4502B	16	Hex Inverter/Buffer Strobed	120p
4503B	16	Hex 3 State Buffer	69p
4506B	16	Dual 2-Wide 2 I/P AND-OR-INVERT	51p
4507B	14	Quad Exclusive OR	55p
4508B	24	Dual 4 Bit Latch	298p
4510B	16	BCD Up/Down Counter	99p
4511B	16	BCD to 7 Seg Latch Decoder/ Driver	150p
4512B	16	8 Channel Data Selector	98p
4513B	18	BCD to 7 Seg Latch Decoder Driver	206p
4514B	24)	4 Bit Latch 4-16 (High)	265p
4515B	24)	Line Decoder (Low)	299p
4516B	16	Binary Up/Down Counter	120p
4517B	16	Dual 64 Bit Shift Register	382p
4518B	16	Dual BCD Up Counter	102p
4519B	16	4 Bit AND/OR Selector	55p
4520B	16	Dual Binary Up Counter	108p
4521B	16	24 State Frequency Divider	228p
4522B	16	Divide by "N" 4 Bit Counter BCD	149p
4526B	16	Divide by "N" 4 Bit Counter Binary	149p
4527B	16	BCD Rate Multiplier	152p
4528B	16	Dual Retriggerable Monostable	99p
4529B	16	Dual 4-Ch Analogue Data Selector	145p
4530B	16	Dual 5 I/P Majority Logic Gate	85p
4531B	16	12 Bit Parity Tree	135p
4532B	16	8 Bit Priority Encoder	115p
4534B	24	Real Time 5-Decade Counter	575p
4536B	16	Programmable Timer	365p
4538B	16	Dual Retriggerable Resettable Monostable	142p
4539B	16	Dual 4 Channel Data Selector	105p
4541B	14	Programmable Oscillator/Timer	135p
4543B	16	BCD to 7 Seg Latch Decoder Driver	155p
4549B	16	Successive Approximation Register	375p
4553B	16	3 Digit BCD Counter	398p
4554B	16	2 x 2 Bit Parallel Binary Multiplier	150p
4555B	16	Dual Bin to 1 of 4 Decoder	75p
4556B	16	Dual Bin to 1 of 4 Decoder	72p
4557B	16	1 to 64 Bit Variable Length Shift Register	365p
4558B	16	BCD to 7 Segment Decoder	105p
4559B	16	Successive Approximation Register	375p
4560B	16	NBCD Adder	210p
4561B	14	9's Complementer	65p
4562B	14	128 Bit Static Shift Register	375p
4566B	16	Industrial Time Base Generator	155p
4568B	16	Phase Comparator Programmable Counter	268p
4569B	16	Programmable "Divide by N" Dual 4 Bit BCD or Binary Counter	280p
4572B	16	Hex Gate	26p
4580B	24	4 x 4 Multiport Register	595p
4581B	24	4 Bit Arithmetic Logic Unit	297p
4582B	16	Look Ahead Carry Block	130p
4583B	16	Dual Schmitt Trigger	75p
4584B	14	Hex Schmitt Trigger	63p
4585B	16	4 Bit Magnitude Comparator	105p

N.B. CMOS prefix & suffix codes:-

	Motorola	RCA
Unbuffered	MC1 .... CP	CD .... AE
Buffered	MC1 .... BCP	CD .... BE

LINEAR IC's

Discounts:- 25+ 5%, 50+ 7½%, 100+ 10% of any one type.

For latest additions please see page 92

TYPE	PIN	CASE	FUNCTION	PRICE
702*	14	DIL	Op Amp DC to 30MHz ..	75p
709C*	8	DIL	Op Amp ..	35p
709C*	14	DIL	Op Amp ..	38p
709C*	8	T05	Op Amp ..	42p
710*	14	DIL	Differential Comparator	67p
733*	14	DIL	Differential Video Amp ..	125p
741*	8	DIL	Op Amp ..	22p
741*	14	DIL	Op Amp ..	35p
741*	8	T05	Op Amp ..	35p
747C*	14	DIL	Dual Op Amp ..	78p
748C*	8	DIL	Op Amp ..	36p
748*	8	T05	Op Amp ..	45p
753*	8	DIL	IF Amp ..	150p
810*	8	DIL	Differential Comparator	159p
⊕AY-1-0212	16	DIL	Master Tone Generator ..	580p
⊕AY-1-1313*	40	DIL	Priority Latching Network	660p
⊕AY-1-1320	40	DIL	Piano Keyboard Circuit ..	315p
⊕AY-1-5050	14	DIL	7 Stage Frequency Divider	180p
⊕AY-1-5051	10	T05	4 Stage Frequency Divider	145p
⊕AY-1-6721/6	12	T05	6 Stage Frequency Divider	195p
AY-3-8500*	28	DIL	T.V. Games Generator ..	375p
AY-3-8550*	28	DIL	T.V. Games Generator ..	450p
AY-3-8600*	28	DIL	T.V. Games Generator ..	900p
AY-3-8710*	28	DIL	T.V. Tank Battle Game ..	850p
AY-5-1224A*	16	DIL	4 Digit Clock Chip ..	260p
AY-5-1230A*	28	DIL	4 Digit Clock Chip ..	450p
⊕AY-5-1315	18	DIL	Rhythm Generator ..	560p
⊕AY-5-1317A	40	DIL	Chord Generator ..	630p
AY-5-3500*	28	DIL	3¾ Digit DVM ..	510p
AY-7-3507*	18	DIL	3½ Digit DVM ..	415p
AY-5-4007*	24	DIL	4 Digit Counter/Display ..	650p
⊕ see separate music page				
CA3011*	10	T05	IF Amp ..	82p
CA3014*	10	T05	IF Amp ..	137p
CA3018*	12	T05	N.P.N. Transistor Array ..	68p
CA3020	12	T05	8 MHz Amp (0.5W) ..	170p
CA3023	12	T05	Video Amp ..	170p
CA3028A*	8	T05	Differential/Cascode Amp	80p
CA3035	10	T05	High Gain Amp Array ..	240p
CA3036	10	T05	Dual Darlington Array ..	110p
CA3043	12	T05	FM IF Amp ..	190p
CA3045*	14	DIL	N.P.N. Transistor Array ..	140p
CA3046*	14	DIL	N.P.N. Transistor Array ..	71p
CA3048	16	DIL	Quad Op Amp ..	200p
CA3075	14	DIL	FM IF Amp ..	175p
CA3080E	8	DIL	Transconductance Amp ..	80p
CA3081*	16	DIL	High Current N.P.N. Array	190p
CA3089E	16	DIL	FM IF System ..	210p
CA3090AQ	16	QIL	Stereo Multiplex Decoder	398p
CA3123	14	DIL	AM Receiver Sub System	200p
CA3130*	8	T05	MOS Op Amp ..	85p
CA3140*	8	T05	MOS Op Amp ..	80p
ICL7106*	40	DIL	3½ Digit A/D Converter LCD	795p
ICL7107*	40	DIL	3½ Digit A/D Converter LED	975p
ICL8038CC*	14	DIL	VCO Function Generator	340p
ICM7205*	24	DIL	Clock MUX Display ..	1150p
LM301AP*	8	DIL	Op Amp ..	30p
LM301AT*	8	T05	Op Amp ..	40p
LM308T*	8	T05	Op Amp ..	95p
LM318H*	8	T05	Op Amp ..	205p
LM318S*	8	DIL	Op Amp ..	195p
LM324A*	14	DIL	Quad Op Amp ..	68p
LM339N*	14	DIL	Quad Comparator ..	60p
LM348N*	14	DIL	Quad 741 Op Amp ..	90p
LM379	14	DIL	Dual 6 Watt Audio Amp ..	375p
LM380	14	DIL	Audio Power Amp ..	90p
LM381	14	DIL	Low Noise Dual Pre Amp	145p
LM381AN	14	DIL	Low Noise Dual Pre Amp	248p
LM382	14	DIL	Low Noise Dual Pre Amp	122p
LM3900	14	DIL	Quad Op Amp ..	60p
LM3909N*	8	DIL	LED Flasher/Oscillator ..	70p
LM3911	8	DIL	Temperature Controller ..	100p
⊕M252AA*	16	DIL	Rhythm Generator ..	750p
⊕M253AA*	24	DIL	Rhythm Generator ..	795p
MC663*	14	DIL	Dual J-K Flip-Flop ..	275p
MC724*	14	DIL	Quad 2 I/P NOR ..	175p
MC845*	14	DIL	Clocked Flip-Flop ..	260p
MC1303	14	DIL	Dual Stereo Pre Amp ..	88p
MC1304P	14	DIL	FM Stereo Demodulator ..	260p
MC1310P	14	DIL	FM Stereo Demodulator ..	150p
MC1312PQ	14	DIL	4 Channel SQ Decoder ..	195p
MC1458P*	8	DIL	Dual Op Amp ..	42p

TYPE	PIN	CASE	FUNCTION	PRICE
MC1495*	14	DIL	Quadrant Multiplier ..	390p
MC1496*	14	DIL	Balanced Mod/Demodulator	92p
MC1496L*	14	DIL	Balanced Modulator ..	92p
MC1710CG	8	T05	Differential Comparator	79p
MC3340P	8	DIL	Electronic Attenuator ..	120p
MC3360P	8	DI L	¼ Watt Audio Amp ..	120p
MC3401P	14	DIL	Quad Op Amp ..	52p
MEM780	14	DIL	Quad MOS FET Switch ..	205p
MFC4000B	4	QIL	¼ Watt Audio Amp ..	85p
MFC6000	6	QIL	..	95p
MFC6040*	6	QIL	Electronic Attenuator ..	97p
MK50362*	40	DIL	4/6 Digit Clock (Alarm + Snooze + Calender) ..	650p
MK50398N*	28	DIL	6 Digit BCD Counter/Latch/ Display Driver ..	635p
MM2112-2N*	16	DIL	256 x 4 RAM ..	210p
NE350	14	DIL	..	160p
NE515	14	DIL	Differential Amp ..	80p
NE518A	14	DIL	Voltage Comparator ..	210p
NE555*	8	DIL	Monolithic Timer ..	29p
NE556DB*	14	DIL	Dual 555 Timer ..	60p
NE560*	16	DIL	Phase Locked Loop ..	325p
NE561*	16	DIL	Phase Locked Loop ..	395p
NE562B*	16	DIL	Phase Locked Loop/ Demodulator ..	410p
NE565A*	14	DIL	Phase Locked Loop ..	120p
NE566*	8	DIL	Function Generator ..	160p
NE567V*	8	DIL	Tone Decoder P.L.L. ..	170p
NE571	16	DIL	Compander ..	450p
PA263	8	QIL	5 Watt Audio Amp ..	290p
RAM2102-2*	16	DIL	1K x 1 RAM ..	150p
ROM2513*	24	DIL	64 x 8 x 5 Character/ Generator ..	550p
RC4136	14	DIL	Quad Hi-Performance/ Op amp ..	120p
SAS560*	16	DIL	Electronic Touch Plate ..	195p
SAS570*	16	DIL	Electronic Touch Plate ..	195p
SG3402*	14	DIL	Balanced Modulator ..	295p
SL403D	10	DIL	3 watt Audio Amp ..	250p
SL414A	10	DIL	3 Watt Audio Amp ..	250p
SL437A	24	DIL	Composite TV IF Amp ..	560p
SN72733N	14	DIL	Differential Video Amp ..	125p
SN76003N	12	DIL	4 watt Audio Amp ..	170p
SN76013N	12	DIL	4 watt Audio Amp ..	140p
SN76013ND	12	DIL	4 watt Audio Amp ..	120p
SN76023N	12	DIL	3 watt Audio Amp ..	140p
SN76023ND	12	DIL	3 watt Audio Amp ..	120p
SN76033N	12	DIL	4 watt Audio Amp ..	175p
SN76115N	14	DIL	Stereo Decoder ..	215p
SN76227N	14	QIL	Colour (PAL) Decoder ..	115p
SN76477N*	16	DIL	Complex Sound Generator	225p
TAA621AX1	14	QIL	4 Watt Audio Amp ..	228p
TAA661A	10	T05	FM Amp / Detector ..	155p
TAA700	16	QIL	TV Signal Processor ..	353p
TAA960	10	T05	Active Filter Amp ..	320p
TAD100	14	DIL	Radio Receiver ..	159p
TBA120S	14	DIL	Demodulator ..	70p
TBA540	16	DIL	TV Colour Processor ..	215p
TBA540Q	16	QIL	TV Colour Processor ..	220p
TBA550Q	16	QIL	TV Signal Processor ..	330p
TBA641-A12	14	QIL	2.2 Watt Audio Amp ..	250p
TBA641-BX1	14	QIL	4½ Watt Audio Amp ..	250p
TBA641-B11	14	QIL	4½ Watt Audio Amp ..	230p
TBA651	16	DIL	Tuner IF Amp ..	180p
TBA800	12	QIL	5 Watt Audio Amp ..	90p
TBA810S	12	QIL	7 Watt Audio Amp ..	95p
TBA820	14	QIL	2 Watt Audio Amp ..	70p
TBA920Q	16	QIL	TV LIne Oscillator ..	260p
TBA990Q	16	QIL	Colour TV Demodulator ..	270p
TCA270Q	16	QIL	Sync TV Demodulator ..	235p
TCA270SQ	16	QIL	Sync TV Demodulator ..	235p
TDA1022	16	DIL	Bucket Brigade ..	595p
TDA2020	14	DIL	20 Watt Audio Amp ..	320p
TL081CP*	8	DIL	BIFET Op Amp ..	52p
TL082CP*	8	DIL	Dual BIFET Op Amp ..	96p
TL084CP*	14	DIL	Quad BIFET Op Amp ..	130p
UAA170	16	DIL	LED Display Driver ..	198p
ZN414	3	T018	AM Radio Receiver ..	95p
ZN424E	14	DIL	Gated Linear Amp ..	135p
ZN425E*	16	DIL	8 bit D/A and A/D converter ..	415p

TLO81 Series GENERAL PURPOSE OP-AMPS
TLO71 Series LOW NOISE AUDIO OP-AMPS
TLO61 Series LOW POWER BIFET OP-AMPS

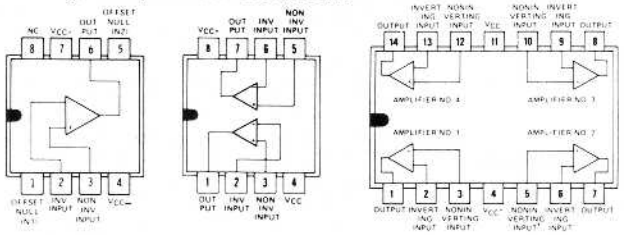
TLO81CP (Single Op-Amp)
TLO82CP (Dual Op-Amp)
TLO84CN (Quad. Op-Amp)

GENERAL FEATURES

- Low Power Consumption
- Wide Common-Mode and Differential Voltage Ranges
- Low Input Bias and Offset Currents
- High Input Impedance . . . JFET-Input Stage
- Internal Frequency Compensation
- Latch-Up-Free Operation
- High Slew Rate . . . 13 V/us Typ

Description

The TLO81 JFET-input operational amplifier family is designed to offer a wider selection than any previously developed operational amplifier family. Each of these JFET-input operational amplifiers incorporates well-matched, high voltage JFET and bipolar transistors in a monolithic integrated circuit. The devices feature high slew rates, low input bias and offset currents, and low offset voltage temperature coefficient.



TLO71CP (Single Op-Amp)
TLO72CP (Dual Op-Amp)
TLO74CN(Quad. Op-Amp)

GENERAL FEATURES

- Low Noise . . . Vn = 18nV/$\sqrt{Hz}$ Typ
- Low Harmonic Distortion . . . 0.01% Typ
- Wide Common-Mode and Differential Voltage Ranges
- Output Short-Circuit Protection
- High Input Impedance . . . JFET-Input Stage
- Internal Frequency Compensation
- Low Power Consumption
- Latch-Up-Free Operation
- High Slew Rate . . . 13 V/us Typ

Description

The JFET-input operational amplifiers of the TLO71 series are designed as low-noise versions of the TLO81 series amplifiers with lower input bias current, offset current, and offset voltage. The low harmonic distortion and low noise make the TLO71 series ideally suited as amplifiers for high-fidelity and audio preamplifier applications. Each amplifier features JFET-inputs (for high input impedance) coupled with bipolar output stages all integrated on a single monolithic chip.

* *
* TEXAN OWNERS! *
* Improve the performance of your TEXAN amplifier (20 watt and 30 watt versions) with the **TEXAS TLO71** Low Noise Audio op-amp. By replacing the 741's in the pre-amp stages the noise level and total harmonic distortion may be considerably reduced. *
* *

TLO61CP (Single Op-Amp)
TLO62CP (Dual Op-Amp)
TLO64CN (Quad Op-Amp)

GENERAL FEATURES

- Very Low Power Consumption
- Typical Supply Current . . . 150uA
- Wide-Common Mode and Differential Voltage Ranges
- Low Input Bias and Offset Currents
- Output short circuit Protection
- High Input Impedance . . . JFET-Input Stage
- Internal Frequency Compensation
- Latch-Up-Free Operation
- High Slew Rate . . . 3.5V/us Typical

Description

The JFET-input operational amplifiers of the TLO61 series are designed as low-power versions of the TLO81 series amplifiers. They feature high input impedance, wide bandwidth, high slew rate and low input offset bias currents. The TLO61 series feature the the same terminal assignments as the TLO71 and the TLO81 series.

Type			Price
TLO81CP	..	..	48*
TLO82CP	..	..	84p*
TLO84CN	...	..	130p*
TLO71CP	..	..	76p*
TLO72CP	..	..	125p*
TLO74CN	..	..	199p*
TLO61CP	..	..	76p*
TLO62CP	..	..	125p*
TLO64CN	..	..	199p*

24 T.V. CONTROLLER

GENERAL DESCRIPTION

A 1024 six bit word size (at least) static or dynamic memory and a character generator (7 x 5) used with the SF.F 96364 allows you to change any TV set into a visual display for a computing system. SF.KEX 68364 1.0 board effects this change.

This processor performs text refreshment, character writing and cursor management on TV screen.

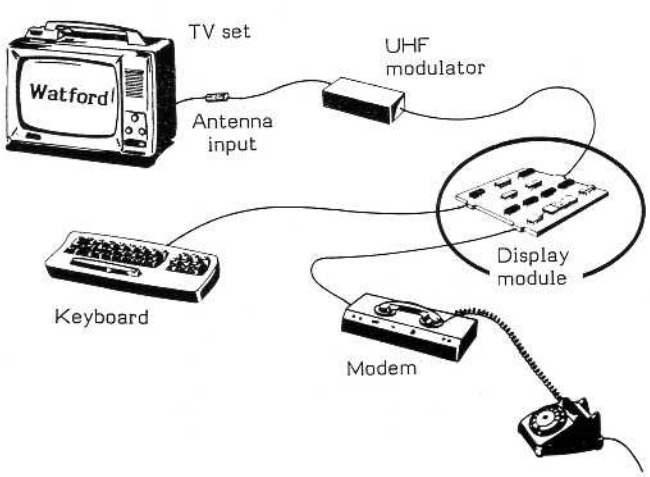
An internal top generator, CCIR compatible, ensures control of any TV set.

Line erasing, line end erasing and other special function capabilities make it strictly compatible with any computing system (computer or microprocessor).

The SF.F 96364 is manufactured in MOS N channel silicon gate technology.

PRINCIPAL FEATURES

- Single power supply +5V
- TTL-LS compatible
- 250mW typical power consumption
- 1.6 MHz typical clock frequency
- Dual in line 28 pin package
- 16 lines, 64 characters display
- Text shifts up when index reaches the end of a page
- Page-linking capability
- Variable display size
- Brilliancy increasement and character flickering capability
- Automatic line erasing of the new line in generic mode
- Automatic end of line erasing (after carriage return)
- Flickering cursor (2 Hz typical) mobile in the 4 directions
- Read cursor address
- Read refresh memory possibility for a block transmission or a "Hard copy coupling"
- Static or dynamic memory, the controller assumes memory refresh
- Light pen capability for character position (address)



DISPLAY INTERFACE MODULE

SF.KEX 68364 I/O module in connection with a full ASCII keyboard and an ordinary TV display (625 lines CCIR standard) provides a cheap computer terminal.

This whole set may be connected with a Modem, a microprocessor or a computer with asynchronous serial transmission (ASCII coded RS232 type).

The SF.KEX 68364 1.0 can be directly joined to the video input of the TV set. If there is no video input on the set the UHF antenna input is used via a UHF modulator.

PRINCIPAL FEATURES

- 16 lines of 64 characters display and memory
- Parallel keyboard input (ASCII coded) TTL compatible
- Asynchronous serial transmission input/output ± 12 V (RS232) fit for use with a Modem, a microprocessor or a computer. Maximum baud rate 1200
- Synchro output, TTL compatible, without interfacing, to 625 lines CCIR standard TV set
- Power supplies +5V, 1A; +12V, 100mA; -12V, 100mA

TECHNICAL SPECIFICATION

- Display of one page; 16 lines of 64 characters in a 5 x 7 matrix
- Winking (2 Hz) cursor showing next displayable character position
- Four directions cursor movement and screen management by ASCII control character
- Displayed text shifts one line upward when the 16th line is written (mode roll-up)
- 64 different characters display (capitals, figures, special characters). Small letters ASCII codes are changed into capital codes for display
- Screen contents put in read-write static memories SF.F 80102 (6 x 1024 bit memories). Characters memorized in their ASCII code form
- 1.008 MHz display synchron clock frequency to avoid a beat frequency with the 50 Hz local supply
- Usual or inverted video (black on white or white on black display capability)
- Asynchronous serial transmission (RS232) with 7 ASCII coded bits, even parity bit and 1 stop bit. Capability of choice of 1 or 2 stop bits, parity bit or no parity, odd or even parity (by strap)
- Baud rate selection capability: 110, 150, 200, 300, 600, or 1200 bauds by strap
- Keyboard and modulator supplied by display interface module

Integrated Circuit SF.F 96364 £11.75*

Complete Module SF. KEX 68364 £136.50*

ASCII KEYBOARD

Intended for professional microprocessor applications.

This one keyboard will meet most present and future requirements.

Full 128-character ASC11 8-bit code.

Tri-mode MOS encoding.

Application notes for auto repeat, numeric pad and serial output.

Upper and lower case characters generated by keyboard with latching shift-lock.

Selectable polarity.

Size :- 305 x 140 x 32mm
(12¼" x 5½" x 1¼")

MOS/DTL/TTL compatible outputs.

New guaranteed OEM grade components.

Needs +5 and -12V supply.

Board has space for small low-cost DC/DC converter so that entire unit operates off single 5V rail.

User selection of positive or negative logic data and strobe output.

Alpha lock.

Extra loose keys available.

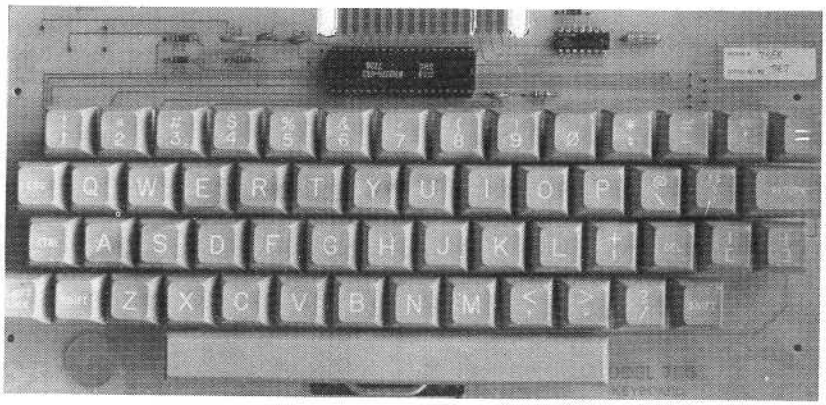
Supplied complete with gold plated PCB connector and full technical data.

Rugged mil. spec. G-10 PCB with plated through holes.

2 Key roll-over.

DC level and pulse strobe signal for easy interface to any 8-bit input port microprocessor system, video display or terminal board.

Strobe width 1ms.



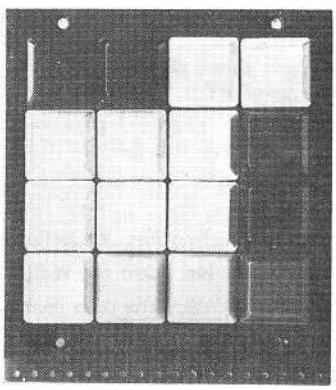
Price £59.50* + 80p P&P

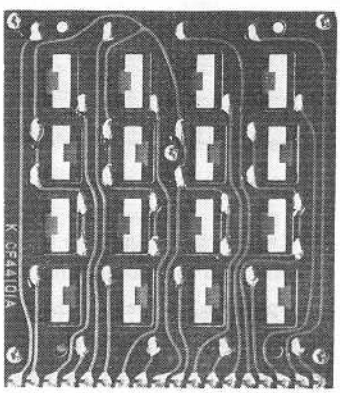
KEY PAD

A 4 x 4 matrix push button reed switch assembly, suitable for various applications. With a little ingenuity it could be adapted for use as a numeric or hexadecimal data entry terminal, or alternatively, for page selection in ORACLE and CEEFAX decoders. There are 18 pin connections, one to each switch, with the remaining two providing a common return. The colours of the keys are 9 x white, 4 x black, 2 x yellow, 1 x red. All the key caps are interchangeable.

Key pad base 80 x 74 x 10mm. Key size 15 x 15 x 6mm.
Key travel 4mm.

Price £4.50*





SOUND AND VISION MODULATORS*

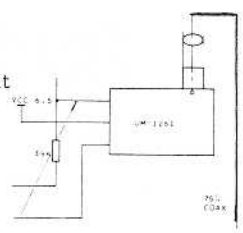
A range of sound and vision modulators to interface between your Home Computers and T.V. Games etc. All models are pre-assembled and pre-aligned ready for direct insertion into your P.C.B.'s. Small physical size, high reliability and low cost make these modulators an ideal choice.

SOUND MODULATOR UM1263

Specification

Sound Carrier	6.0MHz
Sound Carrier Output	0.2V p-p
F.M. Sensitivity	20KHz/volt
Frequency Stability (VCC ±10%)	7KHz
Sound Sub Carrier Level	-25DB

Size - (L)43 x (W)30 x (H)18.5mm
Only three soldering joints plus one phono plug connection required.

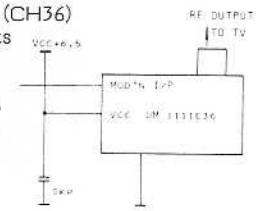


Price 250p

UHF TV RF MODULATOR UM1111E36
FOR BLACK AND WHITE APPLICATIONS ONLY

Specification

Vision Carrier	591.5MHz (CH36)
Volt Supply	5 - 10 Volts
Current Drain	Typ 1mA
RF Output (VMOD = 0)	Typ 4mV
RF Output (VMOD = 1.5)	Typ -20DB
Modulation Input Resistance	700 Ohms
Oscillator Stop Voltage	2.0 Volts
Output Impedance	75 ohms



Price 250p

PAL COLOUR ENCODER/UHF MODULATOR UM1163

Specification

Vision Carrier	591.5MHz (CH36)
Volt Supply	5 - 10 Volts
Current Drain	Typ 1mA
RF Output (VMOD = 0)	Typ 4mV
RF Output (VMOD = 1.5)	Typ -20DB
Modulation Input Resistance	700 Ohms
Oscillator Stop Voltage	2.0 Volts

Price 450p

OHIO SCIENTIFIC

OHIO SCIENTIFIC has made a major breakthrough in small computer technology which dramatically reduces the cost of personal computers. This new machine can entertain your whole family with spectacular video games and cartoons, made possible by its ultra high resolution graphics and fast BASIC. It can help you with your personal finances and budget planning, made possible by its decimal arithmetic ability and cassette storage capabilities. It can assist you in school or industry as an ultra powerful scientific calculator, made possible by its advanced scientific maths functions and built - in "immediate" mode which allows complex problem solving without programming! This computer can actually entertain your children while it educates them in topics ranging from naming the president of the United States of America to tutoring trigonometry all possible by its fast expanded BASIC graphics and data storage ability.

The machine can be economically expanded to assist in your business, remotely control your home, communicate with other computers and perform many of the other tasks via the broadest lines of expansion accessories in the microcomputer industry.

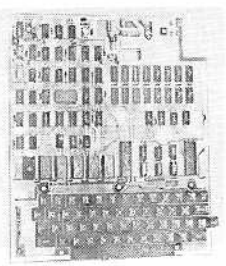
The machine is super easy to use because it communicates naturally in BASIC, an English-like programming language. So you can easily instruct it or program it to do what ever you want, but you dont have to. You dont because it comes with a complete software library on cassette including programmes for each application stated above. OHIO SCIENTIFIC also offers you hundreds of of inexpensive programmes on ready-to-run cassettes. Programme it yourself or just enjoy it, the choice is yours.

Standard Features

- Uses the ultra powerful 6502 microprocessor
- 8K Microsoft BASIC-in-ROM
- Full feature BASIC runs faster than currently available personal computers and all 8080-based business computers.
- 4K static RAM on board expandable to 8K
- Full 53-key keyboard with upper-lower case and user programmability
- Kansas City standard audio cassette interface for high reliability
- Full machine code monitor and 1/0 utilities in ROM
- Direct access video display has 1K of dedicated memory (besides 4K user memory), features upper case, lower case, graphics and gaming characters for an effective screen resolution of up to 256 by 256 points. Normal TV's with overscan display about 24 rows of 24 characters, without overscan up to 30 x 30 characters.

Extras

- Available expander board features 24K static RAM (additional mini-floppy interface, port adapter for printer and modern and OSI 48 line expansion interface).
- Assembler/editor and extended machine code monitor available



Superboard II

£263.45 incl. p/p

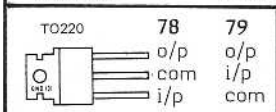
PLUS VAT AT 8%

COMING SOON
THE W.E.
BUSINESS & HOME COMPUTER

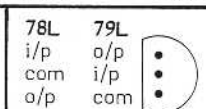
The **WATFORD ELECTRONICS** Z80 based computer is being designed to allow extreme flexibility in both cost and sophistication. We believe that this is the correct policy, allowing even those with a modest budget to enter into this fascinating field. In its simplest form the **W.E.80** computer will be supplied as a kit with two small boards; one holding the components for the C.P.U. and memory, the other, the base board, part of which will contain a 19 key keyboard and an 8 digit, 7 segment display which is fully addressable. Both boards will fit into a standard Vero rack case. The system will be expanded considerably to provide full keyboard, V.D.U., cassette and/or mini floppy disc. Special emphasis will be placed on the ability to develop the **W.E.80** into a fully functional computer for the professional as well as the amateur user.

VOLTAGE REGULATORS *

Type	Pin	Outline	Voltage	Mode	Rating	Price p
723	14	DIL	+2V to +37V	Variable	0.15A	45p
723	10	T05	+2V to +37V	Variable	0.15A	53p
78L05AWC	3	T092	+5V	Fixed	0.1A	30p
78L62AWC	3	T092	+6.2V	Fixed	0.1A	30p
78L82AWC	3	T092	+8.2V	Fixed	0.1A	30p
78L12AWC	3	T092	+12V	Fixed	0.1A	30p
78L15AWC	3	T092	+15V	Fixed	0.1A	30p
79L05	3	T092	-5V	Fixed	0.1A	65p
79L12	3	T092	-12V	Fixed	0.1A	65p
79L15	3	T092	-15V	Fixed	0.1A	65p
79M05AUC	3	T0220	-5V	Fixed	0.5A	95p
79M06AUC	3	T0220	-6.2V	Fixed	0.5A	95p
79M08AUC	3	T0220	-8.2V	Fixed	0.5A	95p
79M12AUC	3	T0220	-12V	Fixed	0.5A	95p
79M15AUC	3	T0220	-15V	Fixed	0.5A	95p
FT8N24	3	T0220	+24V	Fixed	1A	99p
LM300H	8	T05	+2 to 20V	Variable	500mW	170p
LM304H	10	T05	0V to +40V	Variable	0.025A	150p
LM305H	8	T05	+4.5 to +40V	Variable	0.045A	140p
LM309H	3	T05	+5V	Fixed	0.2A	140p
LM309K	3	T03	+5V	Fixed	1A	135p
LM317H	3	T05	+1.2 to +37V	Variable	0.5A	270p
LM317K	3	T03	+1.2 to +37V	Variable	1.5A	350p
LM320-12	3	T0220	-12V	Fixed	1A	165p
LM320-15	3	T0220	-15V	Fixed	1A	165p
LM323K	3	T03	+5V	Fixed	3A	625p
LM325N	14	DIL	+ and -15V	Fixed	0.1A	240p
LM326N	14	DIL	+ and - 12V	Fixed	0.1A	240p
LM327N	14	DIL	+5V and -12V	Fixed	0.1A	260p
LM341-15	3	T0220	+15V	Fixed	1A	90p
MC7805CK	3	T03	+5V	Fixed	1A	145p
MC7805P	3	T0220	+5V	Fixed	1A	90p
MC7812CK	3	T03	+12V	Fixed	1A	145p
MC7812P	3	T0220	+12V	Fixed	1A	90p
MC7815CK	3	T03	+15V	Fixed	1A	145p
MC7815P	3	T0220	+15V	Fixed	1A	90p
MC7818CK	3	T03	+18V	Fixed	1A	145p
MC7818P	3	T0220	+18V	Fixed	1A	90p
MC7905CK	3	T03	-5V	Fixed	1A	220p
MC7905P	3	T0220	-5V	Fixed	1A	115p
MC7908P	3	T0220	-8V	Fixed	1A	115p
MC7912CK	3	T03	-12V	Fixed	1A	220p
MC7912P	3	T0220	-12V	Fixed	1A	115p
MC7915P	3	T0220	-15V	Fixed	1A	115p
MC7918P	3	T0220	-18V	Fixed	1A	115p
MC7918CK	3	T03	-18V	Fixed	1A	220p
MVR5	3	T03	+5V	Fixed	0.6A	180p
MVR12	3	T03	+12V	Fixed	0.6A	180p
TAA550C	2	T018	+34V to 36V	Fixed	0.015A	50p
TBA625B	3	T05	+12V	Fixed	0.14A	115p
TDA1412	3	T0126	+12V	Fixed	0.5A	150p



TO220



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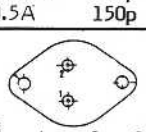


TO3

	1	2	CASE
Pos. Regulator:	OUT	IN	GND
Neg. Regulator:	OUT	GND	IN

DIODES

Type	P.I.V.	If max mA	Ir max nA	APPLICATION	Price
AA119	30	100	90	R.F. Circuits	18p
AA120	1	10		Junction Diode	20p
AA129	45	35	350	AM Detector	20p
AAY30					20p
BA100	60	90	60	General Purpose	12p
BAX13	50	75		High Speed	12p
BY100	800	450	10	Silicon Rectifier	24p
BY126	650	1A		Silicon Rectifier	12p
BY127	1250	1A		Silicon Rectifier	12p
BYZ10	800	6A		Silicon Rectifier	75p
BYZ12	500	6A		Silicon Rectifier	70p
BYZ13	400	6A		Silicon Rectifier	58p
OA9					75p
OA47	25	150	10	General Purpose	10p
OA70					12p
OA79	45	35	350	AM Detector	15p
OA81	115	50	275	General Purpose	15p
OA85	115	35	250	General Purpose	14p
OA90	30	30	300	RF Detector	7p
OA91	115	50	75	General Purpose	7p
OA95	115	150	80	General Purpose	8p
OA200	50	160	100	General Purpose	9p
OA202	150	160	100	General Purpose	8p
PL4004	400	1.5A		Power Rectifier	15p
1N914	75	75	25	High Speed Logic	4p
1N916	75	75	25	High Speed Logic	6p
1N4001*	50	1A	50uA	Power Rectifier	5p
1N4002*	100	1A	50uA	Power Rectifier	5p
1N4003*	200	1A	50uA	Power Rectifier	6p
1N4004*	400	1A	50uA	Power Rectifier	6p
1N4005*	600	1A	50uA	Power Rectifier	6p
1N4006*	800	1A	50uA	Power Rectifier	7p
1N4007*	1000	1A	50uA	Power Rectifier	7p
1N4148	75	75	25	General Purpose	4p
1N5401*	100	3A		Power Rectifier	15p
1N5402*	200	3A		Power Rectifier	15p
1N5404*	400	3A		Power Rectifier	20p
1N5406*	600	3A		Power Rectifier	24p
1N5408*	1000	3A		Power Rectifier	30p
1S44	40	75	50	General Purpose	20p
1S920	50	200	100	General Purpose	12p
1S921	100	200	100	General Purpose	12p

The cathode (k) of a diode is usually recognised by a thick band at one end i.e.

ZENER DIODES

BZY88 or BZX88 Series 400mW DO7 Package 5% Tolerance

Voltages Available

2.7 3.0 3.3 3.6 3.9 4.3 4.7
5.1 5.6 6.2 6.8 7.5 8.2 9.1
10 11 12 13 15 16 18
20 22 24 27 30 33 36
39

Price each 9p

1N47 Series 1.3Watt DO14 Package 5% Tolerance

Voltages Available

3.3 3.6 3.9 4.3 4.7 5.1 5.6
6.2 6.8 7.5 8.2 9.1 10 11
12 13 15 16 18 20 22
24 27 30 33

Price each 17p

Also available at 1.3 watt :-
75V @ 39p each
160V @ 58p each

NOISE DIODE Z5J Price 160p

Noise output = 50mV peak to peak (min)
Noise quality = Fine grass with no low frequency streaks. The mean level remaining steady over the supply range of 19 to 25 Volts.

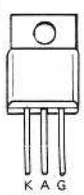
VARICAP DIODES

Type	Application	Price
MVAM2	Double Silicon for AM Tuning	135p
MVAM115	15VAM	115p
BA102	Silicon VHF	25p
BB104	Dual Varicap VHF	40p
BB105B	Silicon for UHF Tuners	40p
BB106	Silicon for VHF Tuners	40p

THYRISTORS, TRIACS & BRIDGES

THYRISTORS*

Type	Outline	Current	P.I.V.	Price
TIC44	T018	0.6A	30	22p
TIC45	T018	0.6A	60	25p
TIC47	T018	0.6A	200	30p
2N5060	T092	0.8A	30	28p
2N5062	T092	0.8A	100	30p
2N5064	T092	0.8A	200	35p
CRS1/05	T05	1A	50	38p
CRS1/10	T05	1A	100	42p
CRS1/20	T05	1A	200	47p
CRS1/40	T05	1A	400	52p
CRS1/60	T05	1A	600	70p
TIC106A	Plastic	5A	100	32p
TIC106C	Plastic	5A	300	35p
TIC106D	Plastic	5A	500	39p
TIC106M	Plastic	5A	600	43p
TIC116A	Plastic	8A	100	38p
TIC116C	Plastic	8A	300	48p
TIC116D	Plastic	8A	500	58p
TIC116M	Plastic	8A	600	85p
TIC126A	Plastic	12A	100	42p
TIC126C	Plastic	12A	300	59p
TIC126D	Plastic	12A	500	72p
TIC126M	Plastic	12A	600	95p
TIC126N	Plastic	12A	800	120p
BT106	Stud	1A	700	150p
BT116	T0127	15A	700	150p
2N4444	Plastic	8A	500	140p



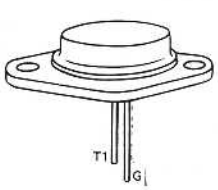
BRIDGE RECTIFIERS *

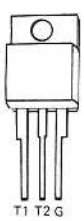
Type	Case	Current	P.I.V.	Price
WO-005	B	1A	50V	20p
WO-01	B	1A	100V	22p
WO-02	B	1A	200V	25p
WO-04	B	1A	400V	29p
B1/60	B	1A	600V	34p
B2/05	B	2A	50V	35p
B2/10	A	2A	100V	44p
B2/20	A	2A	200V	46p
B2/40	B	2A	400V	53p
B2/60	C	2A	600V	65p
B4/10	B	4A	100V	72p
B4/20	B	4A	200V	75p
B4/40	B	4A	400V	79p
B4/60	B	4A	600V	105p
B4/80	B	4A	800V	120p
B6/10	B	6A	100V	73p
B6/20	B	6A	200V	78p
B6/40	B	6A	400V	85p
BY122	A	3A	120V	50p
BY164	A	1.4A	120V	56p
VM18	4p/DIL	1A	400V	40p

Please note: The positive output on some rectifiers is identified by a blue spot.

TRIACS*

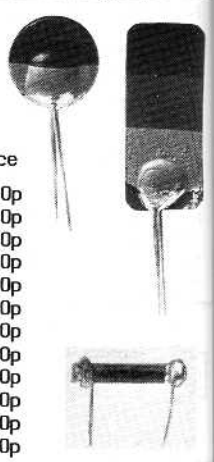
Type	Outline	Current	Voltage	Price
TIC206A	Plastic	3A	100	48p
TIC206D	Plastic	3A	400	50p
TIC206E	Plastic	3A	500	60p
TIC206N	Plastic	3A	800	75p
TIC226A	Plastic	8A	100	54p
TIC226D	Plastic	8A	400	64p
TIC226E	Plastic	8A	500	79p
TIC226N	Plastic	8A	800	108p
TIC236A	Plastic	12A	100	60p
TIC236D	Plastic	12A	400	70p
TIC236E	Plastic	12A	500	86p
TIC236N	Plastic	12A	800	115p
TIC246A	Plastic	16A	100	95p
TIC246D	Plastic	16A	400	105p
TIC246E	Plastic	16A	500	115p
TIC246N	Plastic	16A	800	195p
TIC246P	Plastic	16A	1000	240p
TIC263D	Plastic	25A	400	160p
TIC263E	Plastic	25A	500	235p
TIC263N	Plastic	25A	800	295p
TIC263P	Plastic	25A	1000	480p
40430	T066	6A	400	175p
40528	T05	2.5A	100	125p
40669 (T2800D)	Plastic	8A	400	99p





THERMISTORS

Type	Case	Resistance at 25 C	Max Dissipation	Price
VA1034	Disc	47R	1W	20p
VA1039	Disc	500R	1W	20p
VA1040	Disc	130R	1W	20p
VA1055	Rod	15K	0.6W	20p
VA1056	Rod	47K	0.6W	20p
VA1058	Disc			20p
VA1066	Rod	4.7K	0.6W	20p
VA1067	Rod	150K	0.6W	20p
VA1077	Plate	32R	1W	20p
VA1098	Rod	1.5K	0.6W	20p
VA1100	Disc	15R	1W	20p
R53	Bead	4200R	3mW	210p



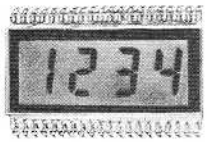
DIACS*

Type	Outline	Breakover Voltage	Price
T143Y 32	DO7	32±4V	20p*

SEVEN SEGMENT DISPLAYS

Type	Size	Style	Common	Colour	Price
DL704	0.3"	Single	Cathode	Red	99p *
DL707	0.3"	Single	Anode	Red	99p *
DL727	0.3"	Dual	Anode	Red	180p *
DL728	0.5"	Dual	Cathode	Red	180p *
DL747	0.6"	Single	Anode	Red	180p *
MAN3610	0.3"	Single	Anode	Red	190p *
MAN3620	0.3"	Single	Anode	Red	190p *
FND357	0.35"	Single	Cathode	Red	130p *

Type	Size	Style	Common	Colour	Price
TIL312	0.3"	Single	Anode	Red	105p*
TIL313	0.3"	Single	Cathode	Red	105p*
TIL321	0.5"	Single	Anode	Red	115p*
TIL322	0.5"	Single	Cathode	Red	115p*
XAN351	0.3"	Single	Anode	Green	180p *
XAN362	0.3"	Single	Anode	Red	140p *
XAN3052	0.3"	Single	Anode	Green	180p *
3902	0.5"	3½ Digit LCD			875p *
3906	0.5"	4 Digit LCD			975p *



CLOCK MODULE*
MA1012

The MA1012 Clock Module combines a monolithic MOS LSI integrated circuit, 4-digit 0.5" LED display, power supply and other associated discrete components on a single printed circuit board to form a complete electronic clock assembly. The user need only connect the module to the transformer supplied, add a few switches to construct a pretested digital clock.
Data sheet supplied with each module.

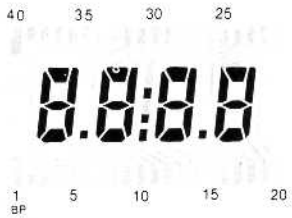
£9.95*
incl.Transformer

Features include:-

* Alarm output switch
* 12 or 24 hour display format
* 50 or 60 cycle operation
* Power failure indication
* Brightness control capability
* Sleep or snooze timers
* Direct drive - no RFI
* Low cost - compact design

3902
3½ Digit LCD Display

3906
4 Digit LCD Display



Two superb liquid crystal displays for use in clock, instrument or numeric applications.
Ideal for battery operation

Operating voltage :	4V to 17V
With all segments on :	
Current	10uA
DC resistance	50MΩ
Capacitance	3000pf

LIGHT DEPENDENT RESISTORS

Type	ORP12	ORP61
Incidence of illumination	End-on	Side-on
Cell resistance at 50 lux	2400R	60K
Min dark resistance	10M	200M
Min bright resistance	20R	2K
Max power dissipation	200mW	70mW
Max cell voltage	110V	350V
Price	63p*	85p*

Two cadmium sulphide photoconductive cells sensitive to visible light. They have maximum sensitivity in the green, yellow, orange and red parts of the spectrum (480-690nm wavelength)

When supplied by a 50Hz AC source as opposed to DC the resistance values are 1 to 1.3 times greater.

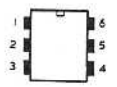
LIGHT-EMITTING DIODES
Supplied with clips

Type	Light Colour	Light output typ @ If mcd	mA	Forward voltage max @ If V	mA	Price
TIL209	Red	1.0	20	2.0	20	13p*
TIL211	Green	1.5	25	4.0	25	17p*
TIL212	Yellow	2.0	10	2.75	10	18p*
TIL220	Red	1.5	20	2.0	20	15p*
Standard	Red	2.0		1.8		14p*
"	Yellow	10		2.1		18p*
"	Green	3.0		2.2		18p*
"	Amber	1.2		2.0		18p*

The TIL Texas series are typically 0.125" diameter The standard range are typically 0.2" diameter. Cathode is denoted by flat side of device. Spare clips are available for both the above types, at a cost of 2p*

OPTO ISOLATORS

Type	Current Transfer Ratio min	@ If mA	Isolation Ratio kV	Price
TIL111	12.5	16	1.5	85p*
TIL112	2.0	10	1.5	85p*
TIL114	12.5	16	2.5	95p*
TIL117	50	10	2.5	110p*



1 anode 4 emitter
2 cathode 5 collector
3 nc 6 base

Note : Base lead provided for conventional transistor biasing.

PHOTO TRANSISTOR
OCP71

Vceo	
Vcbo	
Vebo	
Ic	
P tot	
Hfe	

Price: 120p*

PHOTO DARLINGTON
2N5777

Vceo	25v
Vcbo	25v
Vebo	8v
Ic	250mA
P tot	250mW
Hfe	2500

Price: 45p*

RESISTORS

RESISTORS
HIGH STABILITY MINIATURE

Power	Range	Series	Material	Price 1-99	Price 100+
¼watt	2.2R -4.7M (5%)	E24	Carbon Film	1½p	1p
½watt	2.2R - 4.7M (5%)	E12	Carbon Film	2p	1½p
1watt	2.2R - 10M (5%)	E12	Carbon Film	5p	4p
½watt	10R - 1M (2%)	E24	Metal Film	6p	4p
½watt	5R - 1M (1%)	E24	Metal Oxide	10p	8p
5watt	0.47R - 220K(5%)	E24	Wire wound	15p	13p
Special Types					
(i) ½watt	0.1R (1%)		Metal Oxide	120p	-
(ii) ½watt	1.0R (1%)		Metal Oxide	115p	-
(iii) ½watt	10M (1%)		Metal Oxide	55p	-
(iv) ½watt	10M (10%)		Carbon	5p	3½p
(v) ½watt	22M (2%)		Carbon Film	15p	12p
(vi) 3watt	0.22R (5%)		Metal Oxide	20p	15p

Do not mix values to obtain quantity discount prices.

'E' SERIES RESISTOR GUIDE

1.0R	10R	100R	1.0K	10K	100K	1.0M
1.1R	**11R**	**110R**	**1.1K**	**11K**	**110K**	**1.1M**
1.2R	12R	120R	1.2K	12K	120K	1.2M
1.3R	**13R**	**130R**	**1.3K**	**13K**	**130K**	**1.3M**
1.5R	15R	150R	1.5K	15K	150K	1.5M
1.6R	**16R**	**160R**	**1.6K**	**16K**	**160K**	**1.6M**
1.8R	18R	180R	1.8K	18K	180K	1.8M
2.0R	**20R**	**200R**	**2.0K**	**20K**	**200K**	**2.0M**
2.2R	22R	220R	2.2K	22K	220K	2.2M
2.4R	**24R**	**240R**	**2.4K**	**24K**	**240K**	**2.4M**
2.7R	27R	270R	2.7K	27K	270K	2.7M
3.0R	**30R**	**300R**	**3.0K**	**30K**	**300K**	**3.0M**
3.3R	33R	330R	3.3K	33K	330K	3.3M
3.6R	**36R**	**360R**	**3.6K**	**36K**	**360K**	**3.6M**
3.9R	39R	390R	3.9K	39K	390K	3.9M
4.3R	**43R**	**430R**	**4.3K**	**43K**	**430K**	**4.3M**
4.7R	47R	470R	4.7K	47K	470K	4.7M
5.1R	**51R**	**510R**	**5.1K**	**51K**	**510K**	**5.1M**
5.6R	56R	560R	5.6K	56K	560K	5.6M
6.2R	**62R**	**620R**	**6.2K**	**62K**	**620K**	**6.2M**
6.8R	68R	680R	6.8K	68K	680K	6.8M
7.5R	**75R**	**750R**	**7.5K**	**75K**	**750K**	**7.5M**
8.2R	82R	820R	8.2K	82K	820K	8.2M
9.1R	**91R**	**910R**	**9.1K**	**91K**	**910K**	**9.1M**

E12 SERIES RESISTORS ARE IN LIGHT PRINT

E24 SERIES COMBINES BOTH LIGHT AND DARK PRINT

Resistor Colour Code

0	Black	5	Green
1	Brown	6	Blue
2	Red	7	Violet
3	Orange	8	Grey
4	Yellow	9	White

VARIABLE RESISTORS
PRESETS

Vertical Presets (Standard) **Values** (Linear Law)

0.25 Watt Carbon Track

To fit 0.1" grid

250R 500R 1.0K 2.2K
4.7K 10K 22K 47K
100K 220K 470K 1.0M
2.0M 4.7M

Price 10p each

Horizontal Presets (Standard) **Values**

0.25 Watt Carbon Track

To fit 0.1" grid

500R 1.0K 1.5K 2.2K
4.7K 10K 22K 47K
100K 220K 470K 1.0M
2.0M 3.3M

Price 10p each

Vertical Presets (Miniature) **Values** (Linear Law)

0.1 Watt Carbon Track

To fit 0.1" grid

50R 100R 220R 470R
680R 1.0K 2.2K 4.7K
6.8K 10K 15K 22K
47K 68K 100K 220K
350K 470K 680K 1.0M
2.5M 4.7M

Price 8p each

Horizontal Presets (Miniature) **Values** (Linear Law)

0.1Watt Carbon Track

To fit 0.1" grid

100R 220R 300R 500R
1.0K 2.5K 4.7K 10K
22K 47K 100K 250K
500K 1.0M 2.5M 5.0M

Price 8p each

Precision Multiturn Presets **Values** (Linear Law)

PCB Mounting

1 Watt Carbon Track

100R 500R 1.0K 2.0K
5.0K 10K 20K 1.0M

Whilst stocks last Price 75p each

SPECTROL
HIGH PRECISION INDUSTRIAL CERMET TRIMMING POTENTIOMETER

43P Series

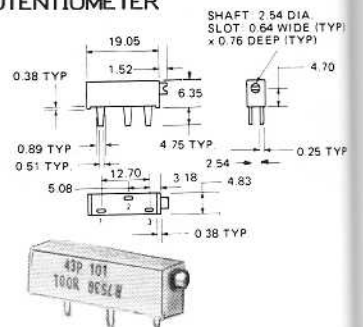
¾" rectangular multiturn

0.75 watt @ 25 deg C Tol 10%

Available in :

100R 200R 500R 1K 2K

5K 10K 20K 50K 100K



These 20 turn cermet trimpots with brush contacts and unique 'T' slider block design assure excellent setability and stability.

Price 95p each

ROTARY

Single Gang (Carbon Track)
available in both :
Lin 0.5Watt
Log 0.25Watt

Lin track also available in

Values (Lin and Log)
5.0K 10K 25K 50K
100K 250K 500K 1.0M
2.0M
500R 1.0K 2.0K

Price 27p

ROTARY

Single Gang (Carbon Track)
With Double Pole Switch

available in both :
Lin 0.5Watt
Log 0.25Watt

Values (Lin and Log)
5.0K 10K 25K 50K
100K 250K 500K 1.0M
2.0M

Price 59p

ROTARY

Dual Gang (Carbon Track)

available in both :
Lin 0.5Watt
Log 0.25Watt

Values (Lin and Log)
5.0K 10K 25K 50K
100K 250K 500K 1.0M
2.0M

Price 70p

ROTARY

Dual Gang (Carbon Track)
With Double Pole Switch

Log 0.25 Watt available in :

Lin 0.5 Watt available only in

Values (Lin and Log)
10K 100K 500K 1.0M
100K

Price 105p

ROTARY

Single Gang (Wirewound)
available in :
Lin 1.0Watt

Values (Lin)
50R 100R 250R 500R
1K 5K 10K

Price 105p

SLIDER POTENTIOMETERS

Slider Travel 60mm

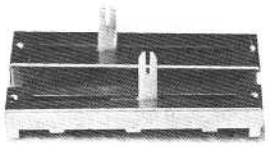
Single Gang (Carbon Track)
available in both :
Lin 0.25Watt
Log 0.25Watt

Values (Lin and Log)
5.0K 10K 25K 50K
100K 250K 500K

Price 70p

Dual Gang (Carbon Track)
available in both :
Lin 0.25Watt
Log 0.25Watt

Values (Lin and Log)
10K 25K 50K 100K
250K 500K



Price 80p

BEZELS for above Slider Potentiometers

Self-stick graduated anodised aluminium Bezel.

Price: 20p

35mm SLIDER POTENTIOMETERS

Single Gang (Carbon Track)
available in :
Linear

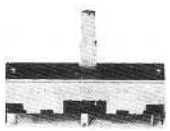
Values (Lin)
10K 100K 1.0M

Price 50p

Dual Gang (Carbon Track)
available in :
Logarithmic

Values (Log)
100K 1.0M

Price 50p



THUMBWHEEL POTENTIOMETERS

25mm dia
Logarithmic with switch

Value (Log)
5.0K only

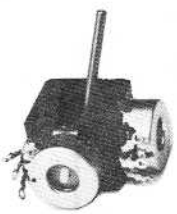
Price 32p

JOYSTICK POTENTIOMETERS

Dual Axis
Supplied with two potentiometers that operate on a dual axis, ideal for T.V. games. Rated at 0.5watt.

Value (Lin)
200K

Singles Price 175p
Pairs Price 250p



CAPACITORS

CERAMIC
50 volt Miniature

								Price
0.5pF	1.0pF	1.5pF	2.2pF	3.3pF	4.7pF	5.6pF	6.8pF	
8.2pF	10pF	12pF	15pF	18pF	22pF	27pF	33pF	
39pF	47pF	56pF	68pF	82pF	100pF	120pF	150pF	
180pF	220pF	270pF	330pF	390pF	470pF	560pF	680pF	
820pF	1.0nF	1.2nF	1.5nF	1.8nF	2.0nF	2.2nF	3.3nF	
3.9nF	4.7nF	5.6nF	6.8nF	10nF	..	..	..	3p
15nF	22nF	33nF	47nF	..	..	..	..	4p
100nF	..	..	..	..	..	..	..	6p

SILVER MICA

3.3pF	4.7pF	6.8pF	8.2pF	10pF	12pF	15pF	18pF	
22pF	27pF	33pF	39pF	47pF	50pF	56pF	68pF	
75pF	82pF	85pF	100pF	120pF	150pF	200pF	250pF	9p
300pF	330pF	360pF	390pF	470pF	600pF	820pF	..	16p
100pF	1200pF	1800pF	2000pF	2200pF	3300pF	..	..	20p

MYLAR FILM
100 volt 10%

1nF	2nF	4nF	5nF	10nF	..	..	..	6p
15nF	20nF	30nF	40nF	50nF	56nF	..	..	7p
100nF	..	..	..	..	..	..	..	8p
150nF	200nF	..	..	..	..	..	..	10p

50 volt 10%

470nF	..	..	..	..	..	..	..	12p

POLYSTYRENE
60 volt 5%

10pF	22pF	27pF	33pF	39pF	47pF	56pF	68pF	
82pF	100pF	120pF	140pF	150pF	160pF	180pF	200pF	
220pF	270pF	325pF	330pF	390pF	400pF	430pF	470pF	
500pF	560pF	680pF	750pF	820pF	1000pF	..	..	6p
1.2nF	1.5nF	1.8nF	2.2nF	2.7nF	3.3nF	3.9nF	4.7nF	
5.6nF	6.8nF	8.2nF	10nF	..	..	..	..	10p
47nF	..	..	..	..	..	..	..	12p

FEED THROUGH CHASSIS MOUNTING
350 volt

1000pF	..	..	..	8p

NON POLARISED
25 volt

4.7uF	8uF	..	..	48p

For use in crossover networks

CONVERSION TABLE
Farads

micro (uF)	nano (nF)	pico (pF)
0.001	1	1,000
0.005	5	5,000
0.01	10	10,000
0.047	47	47,000
0.1	100	100,000
0.47	470	470,000
1.0	1,000	1,000,000

DUBILIER
1000 volt 20%

				Price
10nF	15nF	..	..	20p
22nF	..	..	..	22p
47nF	..	..	..	26p
100nF	..	..	..	38p
470nF	..	..	..	48p

1500 volt

10nF	..	..	..	20p

600 volt

100nF	..	..	..	30p
220nF	..	..	..	35p

POLYESTER AXIAL LEAD
400 volt 10%

1nF	1.5nF	2.2nF	3.3nF	
4.7nF	6.8nF	10nF	15nF	9p
18nF	..	..	..	10p
22nF	33nf	..	..	11p
47nF	68nF	..	..	14p
100nF	..	..	..	17p
150nF	220nF	..	..	24p
330nF	470nF	..	..	41p
680nF	..	..	..	48p
2.2uF	..	..	..	60p

160 volt 10%

10nF	12nF	39nf	100nF	
150nF	220nF	..	..	11p
330nF	470nF	..	..	19p
0.68uF	1.0uF	..	..	22p
1.5uF	..	..	..	29p
2.2uF	..	..	..	32p
4.7uF	..	..	..	36p

POLYESTER RADIAL LEAD
250 volts 20%

0.01	0.015uF	..		5p
0.022	0.027uF	..		5p
0.033	0.047	0.068	0.1uF	7p
0.15uF	..	..	..	8p
0.22uF	..	..	..	10p

250 volt 10%

0.33uF	..	..	..	10p
0.47uF	..	..	..	11p
0.68uF	..	..	..	19p
1.0uF	..	..	..	19p
1.5uF	..	..	..	30p
2.2uF	..	..	..	34p

SIEMENS POLYCARBONATE CAPACITORS

A self healing layer capacitor that offers, mechanical protection, insulating plates and parallel plug in leads.

250 volt range

Value nF	L x B x H	Price
1.0	9.0 x 2.6 x 7.3	6p
1.5	9.0 x 2.6 x 7.3	6p
2.2	9.0 x 2.5 x 7.3	6p
3.3	9.0 x 2.3 x 7.3	6p
4.7	9.0 x 2.3 x 7.3	6p
6.8	9.0 x 2.7 x 7.3	6p
8.2	9.0 x 2.3 x 7.3	7p
10	9.0 x 2.3 x 7.3	7p
12	9.0 x 2.5 x 7.3	7p
15	9.0 x 2.9 x 7.3	7p
18	9.0 x 2.3 x 7.3	8p
22	9.0 x 2.6 x 7.3	8p
27	9.0 x 2.4 x 7.3	8p
33	9.0 x 2.6 x 7.3	8p
39	9.0 x 2.9 x 7.3	9p
47	9.0 x 3.2 x 7.3	9p
56	9.0 x 3.5 x 7.3	9p
68	9.0 x 3.5 x 9.1	9p
82	9.0 x 3.5 x 11.0	11p
100	9.0 x 3.9 x 11.5	10p
100 volt range		
100	9.0 x 3.2 x 8.1	9p
120	9.0 x 3.5 x 8.3	12p
150	9.0 x 3.6 x 10.0	12p
180	9.0 x 4.1 x 10.0	15p
220	9.0 x 4.7 x 10.0	15p
270	9.0 x 5.0 x 11.5	19p
330	9.0 x 5.5 x 11.5	19p
390	9.0 x 6.6 x 11.5	23p
470	9.0 x 7.2 x 12.5	22p
560	9.0 x 8.4 x 12.5	30p
680	11.5 x 8.0 x 13.0	27p
1uF	11.5 x 9.8 x 11.5	28p
1.5uF	16.5 x 9.8 x 11.5	35p
2.2uF	16.5 x 9.8 x 11.5	45p

Lead spacings :

Capacitor Length	Lead Spacing
9.0mm	7.5mm
11.5mm	10mm
16.5mm	15mm

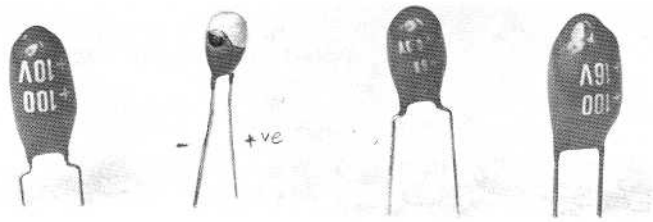
ELECTROLITIC CAPACITORS

Value uF	10v	16v	25v	35v	40v	50v	63v
0.47	-	-	-	-	-	-	8p
1.0	-	-	-	-	-	-	7p
1.5	-	-	-	-	-	-	7p
2.2	-	-	-	-	-	-	7p
2.5	-	-	-	-	-	-	7p
3.3	-	-	-	-	-	-	7p
4.7	-	-	-	-	-	-	8p
6.8	-	-	-	-	-	-	8p
8	-	-	-	-	-	-	8p
10	-	6p	6p	7p	-	-	7p
15	-	-	-	-	-	-	9p
22	-	-	6p	-	8p	-	8p
33	-	-	-	7p	-	-	12p
40	-	7p	-	-	-	-	-
47	-	7p	6p	-	-	-	10p
50	-	-	-	-	-	11p	11p
68	-	-	-	-	-	-	27p
80	-	-	8p	-	-	-	-
100	6p	8p	8p	-	12p	15p	17p
125	-	-	8p	-	-	-	-
160	-	-	8p	-	-	-	-
220	-	-	13p	-	-	25p	-
250	-	-	13p	-	-	-	-
330	-	-	-	32p	-	-	-
470	-	16p	18p	32p	-	32p	-
640	10p	-	25p	-	-	-	-
1000	14p	20p	27p	49p	-	50p	54p
1500	-	20p	30p	-	-	-	-
2200	-	34p	45p	-	-	52p	-
3300	-	-	62p	-	68p	-	-
4700	-	-	68p	-	85p	-	-

The above ELECTROLITIC CAPACITORS are Axial or PCB lead types. This does not apply to the TAG END CAPACITORS. Tolerances on the above types are +50% -20%

TANTALUM BEAD CAPACITORS

Value uF	3v	6v	10v	16v	20v	25v	35v
0.1	-	-	-	-	-	-	13p
0.22	-	-	-	-	-	-	13p
0.33	-	-	-	-	-	-	13p
0.47	-	-	-	-	-	-	13p
0.68	-	-	-	-	-	-	13p
1.0	-	-	-	-	-	-	13p
1.5	-	-	-	-	13p	13p	13p
2.2	-	-	-	13p	-	-	13p
3.3	-	-	-	13p	-	-	13p
4.7	-	-	13p	-	-	-	15p
6.8	-	-	-	13p	-	-	15p
10	-	-	-	13p	15p	-	-
15	-	-	18p	20p	-	-	-
22	-	16p	18p	25p	-	-	-
33	-	-	20p	30p	-	-	-
47	-	20p	-	35p	-	-	-
68	-	30p	-	-	-	-	-
100	16p	25p	35p	50p	-	-	-



TAG END CAPACITORS

4700uF	@70v	..	..	..	..	..	135p
4700uF	@25v	..	..	..	..	..	68p
4500uF	@16v	..	..	..	..	..	38p
4000uF	@40v	..	..	..	..	..	67p
3300uF	@64v	..	..	..	..	..	94p
3000uF	@50v	..	..	..	..	..	68p
2500uF	@40v	..	..	..	..	..	65p
2000uF	@70v	..	..	..	..	..	89p
2000uF	@25v	..	..	..	..	..	48p
2000uF + 2000uF	@40v	..	..	..	..		95p
32uF + 32uF	@325v	..	..	..	..		175p
200uF + 100uF + 50uF + 100uF	@325v	..	..				195p
10,000uF	@50V	..	..	..	..	..	225p
15,000uF	@40V	..	..	..	..	..	450p

PLEASE NOTE

V.A.T. All prices in this catalogue are exclusive of V.A.T. The current ratings are 8% and 12½%. All items or prices marked with an asterisk (*) are rated at 8%, the remainder at 12½%.

NOTE: Overseas customers do not pay V.A.T.

CARRIAGE & PACKING

30p* should be added to all cash orders under £10.00 nett value. There is no standard carriage charge for orders over £10.00. On certain bulky items additional carriage is payable as indicated in this catalogue.

On Overseas orders carriage will be charged at cost (air or surface as required).

On invoiced orders there is a minimum 75p handling and administration charge.

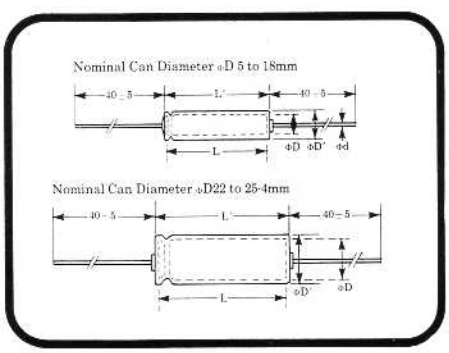
High quality range of miniature insulated **Axial** and **Radial** aluminium capacitors. For use in coupling, decoupling and general purpose circuitry particularly in television receivers, radios tape recorders, calculators, and industrial equipment. Each capacitor has a black sleeve and is marked with :- Capacitance, Rated Voltage, Polarity Indication, Date Code and Manufacturers Name and/or Logo.

AXIAL

Value	16V	25V	63V
0.47uF	-	-	7p(100V) (5 x 13)
1uF	-	-	7p(100V) (5 x 13)
2.2uF	-	-	7p (5 x 13)
3.3uF	-	-	7p (5 x 13)
4.7uF	-	-	8p (6.3 x 13)
10uF	-	-	8p (6.3 x 18)
22uF	7p (5 x 13)	8p (6.3 x 13)	10p (8 x 18)
33uF	-	8p (6.3 x 18)	10p (10 x 20)
47uF	8p (6.3 x 16)	8p (6.3 x 18)	12p (10 x 20)
100uF	10p (8 x 16)	8p (8 x 18)	20p (12.5 x 25)
220uF	12p (10 x20)	15p (10 x 25)	27p (16 x 30)
330uF	20p (10 x 25)	27p (12.5 x 25)	44p (16 x 30)
470uF	17p (12.5 x 25)	19p (12.5 x 30)	50p (16 x 40)
1000uF	24p (12.5 x 30)	32p (16 x 30)	57p (22 x 40)
2200uF	38p (16 x 40)	46p (18 x 40)	52p(40V) (22 x 40)
3300uF	54p (18 x 40)	-	-
4700uF	63p (22 x 40)	-	-

Misc

10uF	25p (500V) (16 x 40)	470uF	35p (50V) (16 x 30)
47uF	68p (500V) (25.4 x 50)	1000uF	52p (50V) (22 x 40)



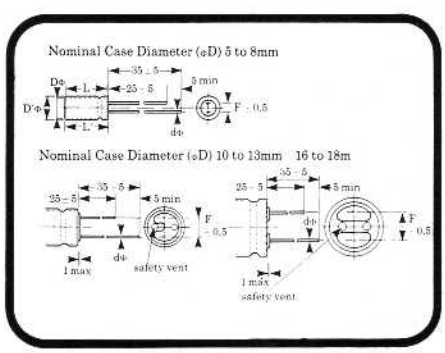
⌀D(mm)	⌀d (mm)	⌀D'(mm)	L'(mm)
5 to 10	0.6	⌀D−1	L+1
12,5 to 25.4	0.8	⌀D−1	L+2

RADIAL

Value	16V	25V	63V
0.47uF	-	-	8p (5 x11)
1uF	-	-	8p (5 x 11)
2.2uF	-	-	8p (5 x 11)
3.3uF	-	-	8p (5 x 11)
4.7uF	-	-	8p (6.3 x 11)
10uF	8p (5 x 11)	-	9p (8 x 11.5)
22uF	8p (6.3 x 11)	-	10p (10 x 16.5)
33uF	9p (6.3 x 11)	9p (8 x 11.5)	11p (10 x 16.5)
47uF	10p (8 x 11.5)	10p (8 x 14)	12p (10 x 20.5)
100uF	10p (10 x 12.5)	11p (10 x 16.5)	19p (13 x 20.5)
220uF	12p (10 x 20.5)	16p (13 x 20.5)	29p (16 x 25.5)
330uF	15p (13 x 20.5)	26p (13 x 24.5)	34p (16 x 31.5)
470uF	17p (13 x 20.5)	-	-
1000uF	26p (16 x 25.5)	31p (16 x 35.5)	-
2200uF	41p (18 35.5)	49p (18 x 40)	-
	-	-	-
	-	-	-

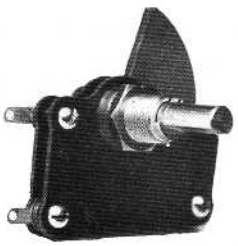
⌀D(mm)	F(mm)	⌀d (mm)	⌀D'(mm)	L'(mm)
5	2	0,5	D+0,5	L+1
6,3	2,5	0,5	D+0,5	L+1
8	3,5	0,5	D+0,5	L+1
10	5	0,65	D−0,5	L+1,5
13	5	0,65	D−0,5	L+1,5
16	7,5	0,65	D−0,5	L+1,5
18	7,5	0,8	D−0,5	L+1,5

Note: Capacitors with diameters 10mm and above have safety vents, hence the 1mm extra length.

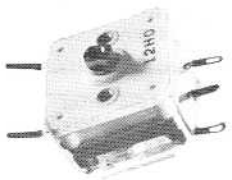


TUNING CAPACITORS

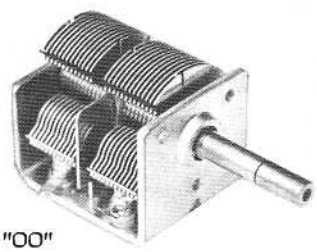
Type	Description	Values in picafarads	Price
Dilecon	Single Solid Dielectric	100, 300	140p
"	" " "	500	165p
High Q	Dual solid Dielectric (Enclosed with trimmers.) Female tapped spindle	250 + 250	95p
0-1-365	Single Air Spaced Dielectric	365	245p
00-2-365	Dual Air Spaced Dielectric	365 + 365	275p
00-2-365SM	As above, with slow motion drive	365 + 365	325p
00-208/176	Dual Air Spaced with Trimmers	208 front + 176 rear ..	289p
00-208/176SM	As above, with slow motion drive	208 front + 176 rear ..	330p
00-3-25	Triple Air Spaced Dielectric	25 + 25 + 25	430p
L3	Triple Air Spaced Dielectric	310 + 310 + 310	495p
L3SM	As above, with slow motion drive	310 + 310 + 310	495p
C804	Single Air Spaced Dielectric Available in 7 different values	5 10 15	175p *
		25 50	185p *
		100 150	225p *



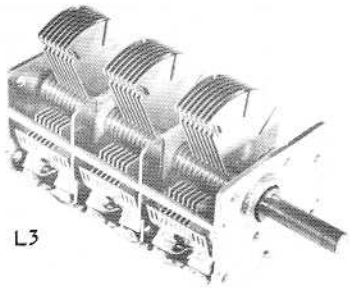
DILECON



HIGH Q



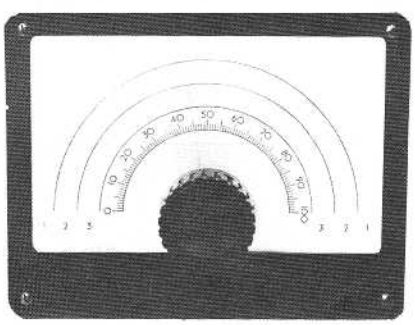
"OO"



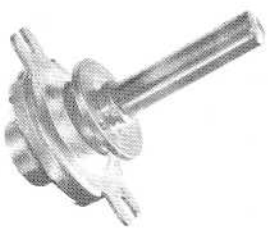
L3

REDUCTION UNITS for the above

4511/DAF	Epycyclic Reduction Drive 6 : 1 Ratio. Complete with double anchor fixing cage and dial flange directly coupled to output shaft.	115p *
4103	Dual Ratio Reduction Ball Drive providing ratios of 6 : 1 and 36 : 1 with calibrated dial marked 0-100 plus three blank ranges for individual calibration. Assembly comprises of an aluminium back plate, drive unit, scale and spare scale,cover, hair line cursor escutcheon and knob.	650p *
45DD	54mm diameter Drum Drive with indented flange lip for positive location of drive cord. For use with ¼"dia shafts. Secured by grub screws.	32p *



4103

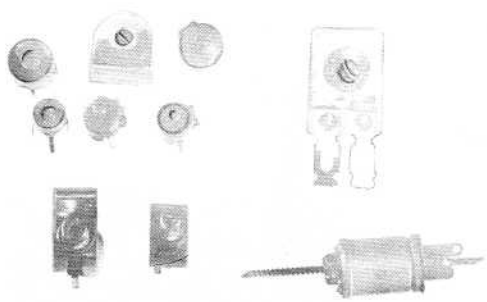


4511/DAF

C804

TRIMMERS

Type	Values in pF	Price
Ceramic	2-7pF, 4-15pF, 6-25pF 8-30pF,	20p
Miniature Ceramic PCB Mounting	2.5-6pF, 3-10pF, 10-40pF, ..	22p
	5-25pF, 5-45pF, 5-65pF, 10-88pF,	30p
Compression	3-30pF, 3-40pF, 8-80pF, ..	25p
	25-190pF, ...	30p
	100-500pF, ...	45p
Beehive	5-60pF	50p



TUNING COILS

DENCO TUNING COILS TYPES DP and TYPE T

A range of Tuning coils developed to comply with the modern trend in radio design of making smaller and more compact equipment. They are also ideal for use in Signal Generators, Beat Frequency Oscillators, Wavemeters, C.W. Monitors etc., These coils can be used for quick change chassis mounting by insertion in a Noval (B9A) type of valveholder or can be used as a permanent fixture by assembly to chassis via the moulded 0BA nut at the opposite end of coil. Every coil is provided with an airtight can that can be used as an ideal screening can for the coil. The coil formers are colour moulded to provide easy circuit identification. Complete range for Superhet or Straight receivers covering approx. 150KHz to 80MHz on the DP range and 150KHz to 31.5MHz on the 'T' range.

DIMENSIONS

Former diameter	0.375"
Maximum overall height - excluding adjusting stem of core and pins	1.250"
Plug-in base diameter	0.625"
Fixing hole diameter	0.250"

Core . . $\frac{1}{2}$" x $\frac{1}{4}$"dia (6BA threaded insert).

COLOUR Code as follows
DP Range

BLUE	Signal Grid Coil with Aerial - coupling winding
YELLOW	Signal Grid Coil with Inter-Valve coupling winding
GREEN	Grid Coil with Reaction and coupling windings
RED	Superhet 465KHz IF Oscillator
WHITE	Superhet 1.6MHz IF Oscillator

COLOUR Code as follows
'T' Range

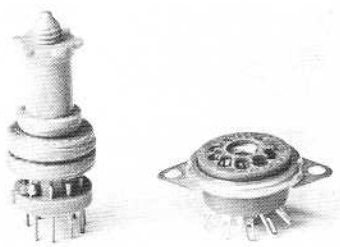
BLUE	Aerial Coil with base input winding
YELLOW	Interstage RF Coil with couplings
RED	465KHz IF Oscillator
WHITE	1.6MHz IF Oscillator

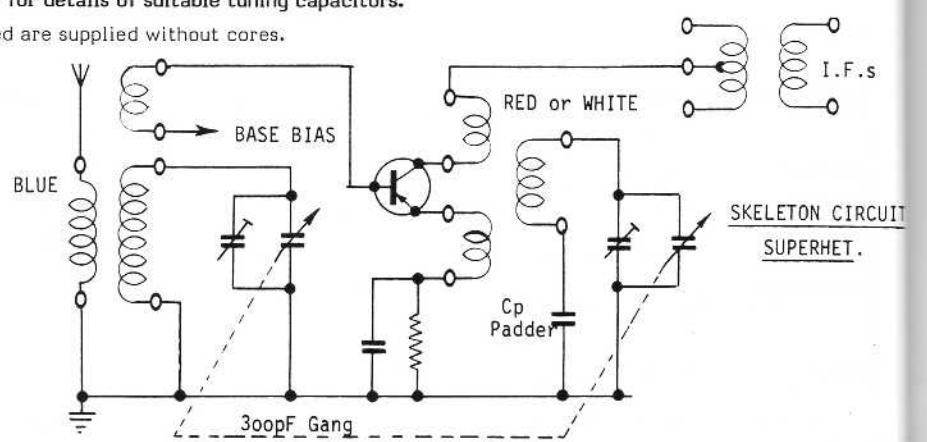
RANGE	MHz	METRES	TUNED BY	BLUE	YELLOW	GREEN	RED	WHITE
1/DP	.15/0.4	2000/750	300 or 310pF	86p	86p	92p	86p	86p
2/DP	.515/1.545	580/194	300 or 310pF	86p	86p	92p	86p	86p
3/DP	1.67/5.3	180/57	300 or 310pF	86p	86p	92p	86p	86p
4/DP	5/15	60/20	300 or 310pF	86p	86p	92p	86p	86p
5/DP	10.5/31.5	28/9.5	300 or 310pF	86p	86p	92p	86p	86p
6/DP	30/50	10/6	50pF	76p	76p	-	76p	-
7/DP	45/78	6.6/3.8	50pF	76p	76p	-	76p	-
1/ T	.15/0.4	2000/750	300 or 310pF	108p	108p	-	93p	93p
2/ T	.515/1.545	580/194	300 or 310pF	93p	93p	-	93p	93p
3/ T	1.67/5.3	180/57	300 or 310pF	93p	93p	-	93p	93p
4/ T	5/15	60/20	300 or 310pF	93p	93p	-	93p	93p
5/ T	10.5/31.5	28/9.5	300 or 310pF	93p	93p	-	93p	93p

B9A Valveholders are available for the above coils at 25p each

See JACKSON Variable Capacitor section for details of suitable tuning capacitors.

Note : DP coils 6 & 7 Blue, Yellow and Red are supplied without cores.





DENCO AERIAL COILS ON A FERRITE ROD

MW/LW 5FR 5" x3/8" Diameter Ferrite Rod with separate Medium and Long wave coils.
Transistor Radio Application

MW 370uH 550 - 1550KHz
LW 4.1mH 150 - 280 KHz

Use with 00 gang 208pF tuning capacitor **102p**

MW 5FR as above but MW only .. **80p**

Plain Ferrite Rods
5" x 3/8" **28p**
5" x 1/4" **28p**

DENCO OSCILLATOR COIL

TOC-1 Transistor MW for use with type 00 gang 176pF tuning capacitor.

Note : See separate section for suitable tuning capacitors.

Order as TOC-1 .. .. **84p each**

DENCO MINIATURE IF TRANSFORMERS

Denco IF Transformers are wound on a ferrite pot core, using an adjustable core for tuning. The transformers come complete with their own screening can and two fixing clips. The dimensions of the cans are as follows : Single tuned transformers 17/32" square x 11/16" high Double tuned transformers 17/32" square x 1½" high.

Type	Nominal Frequency	Q Factor	Notes	Price
IFT13	470KHz	110	single tuned	**79p**
IFT14	470KHz	130	single tuned	**79p**
IFT15	10.7MHz		See below	**88p**
IFT16	1.6MHz		single tuned	**79p**
IFT17	1.6MHz		single tuned	**79p**
IFT18/465	465KHz		double tuned	**104p**
IFT18/1.6	1.6MHz		double tuned	**92p**

10.7MHz IF TRANSFORMER

IFT15 A 10.7MHz double tuned transformer with tapped secondary and primary windings. Wound on a polystyrene former complete with a iron dust core and sub miniature polystyrene capacitors. The dimensions of this transformer are the same as RDT2 and both transformers come supplied in their own screened cans. Bandwidth of single transformer at 6dB is approx. 250KHz. Unloaded 'Q' of winding is 70.

Order as IFT15 **88p**

10.7MHz FM RATIO DISCRIMINATOR

RDT2. Ratio discriminator transformer RDT2 is a sub miniature 10.7MHz transformer. The secondary winding is of a bifilar construction. With a peak separation of 220KHz. Ideal for both PCB and Chassis mounting. The dimensions are as follows : 17/32" square x 7/8" high.

Order as RDT2 **94p**

TOKO COILS

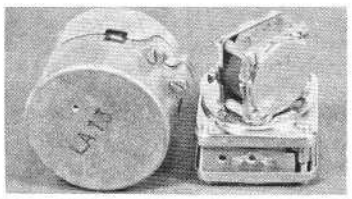
Type	Application	Price
BLR3107N	Stereo MPX Filter 19 & 38KHz ..	195p
CFU050D	470KHz Filter 6KHz Bandwidth ..	70p
KACS K586HM	Quadrature Detector Coil for use with CA3089	33p
KACS 9339	Quadrature Detector Coil for use with CA3089	35p
S3T / D2	Ratio Detector, twin coil	250p
Y18576 AQ	G.P. MW. Osc Coil 100uH variable	35p
6A-6408	MW. IF Coil 360uH	35p
10RA / RB	43mH Choke Fixed	35p
87-1192	11-75mH Variable Inductor ..	35p
YRCS 11098	1st IF Transformer 455KHz ..	35p
YRCS 12374	2nd IF Transformer 455KHz ..	35p
YHCS 11100 AC2	3rd IF Transformer 455KHz ..	35p

CERAMIC FILTER
10.7MHz

Blue or White spot **Price 50p**

POT CORES
Mullard

Type	Size in mm L x H x D	Frequency	Price
LA3	28 x 18 x 28	100 500KHz	75p
LA5	42 x 24 x 42	30 100KHz	100p
LA7	42 x 24 x 42	10KHz	100p
LA13	50 dia x 42		190p



COILS

RF CHOKES (DENCO)

Type	Inductance	Current	Impedance	Range	Price
RFC5	2.5mH	600mA	20ohms	2/60MHz	94p
RFC7	19mH	100mA	135ohms	2/60MHz	106p

RF CHOKES
(PCB Mounting miniature)

Available in the following values										Price
1	4.7	10	22	33	47	100	220	330	470uH	30p
750uH		1	1.5	2.5	5.0	10mH..	..	..		30p
43	100mH ..	..	..	..	..	..	..	..		60p

Maximum current : 7mA

CRYSTALS

RADIO CONTROL CRYSTALS

Channel	Tx Frequency	Rx Frequency	Price per pair
Brown	26.995MHz	26.540MHz	350p
Red	27.045MHz	26.590MHz	350p
Orange	27.095MHz	26.640MHz	350p
Yellow	27.145MHz	26.690MHz	350p
Green	27.195MHz	26.740MHz	350p
Blue	27.245MHz	26.790MHz	350p

Suitable holders are also available for the above crystals 30p

These crystals should be ordered in matched pairs.
Dimensions are : 10mm x 3.7mm x 13mm high.
Pin length is 6mm.

FERRITE BEADS
Mullard

A selection of ferrite beads for use in applications where there is a need to suppress unwanted parasitic oscillations.

Type	Size mm Dia x L	Hole Dia mm	Suppression Frequency	Price
FX1115	4.2 x 5.5	1 x 1.8	1MHz	3p
FX1242	4.1 x 5.7	1 x 1.3	10MHz	3p
FX1516	5.9 x 12.4	2 x 0.7	10MHz	5p
FX1898	6.3 x 12.4	6 x 0.7	10MHz	8p

CRYSTALS
GENERAL PURPOSE

100KHz	..	..	362p
455KHz	..	..	495p
1.0MHz	..	..	362p
1.0080MHz	..	..	392p
1.6MHz	..	..	395p
1.8MHz	..	..	395p
3.27680MHz		..	323p
4.0MHz	..	..	290p
4.0320MHz	..	..	323p
4.433619MHz		..	130p
5.0MHz	..	..	323p
7.680MHz	..	..	323p
8.0MHz	..	..	323p
10.7MHz	..	..	323p
18.0MHz	..	..	323p
48.0MHz	..	..	323p
Holders	..	..	20p

COIL FORMERS
with slugs

We can offer for self-winders three coil formers complete with ferrite slugs. All have the standard two screw fixings. For those requiring enamelled copper wire please see separate cable section.

Former Dia			
4mm	..	..	15p
7mm	..	..	18p
10mm	..	..	18p

TRANSFORMERS

An extremely good range of **Low Voltage Transformers** with 240 volt primaries, suitable for 50-60Hz operation, with protective varnish finish. Split bobbin construction eliminates the need for an interwinding screen and gives improved isolation between primary and secondary windings. The usefulness of these transformers is better understood if you refer to the accompanying chart. This gives details on how to obtain different voltages and current ratings by simple interconnections of the windings.

ALL PRIMARIES ARE 240 VOLTS

Type	Secondaries 1	Secondaries 2	Size (mm) W x H x D	Fixing Centres	Weight grams	Price	P&P
8VA							
181	6V .5A,	6V .5A	50 42 44	58 x 4BA	250gm	£1.95*	
182	9V .4A,	9V .4A	50 42 44	58 x 4BA	250gm	£1.95*	
186	12V .3A,	12V .3A	50 42 44	58 x 4BA	250gm	£1.95*	
187	15V .25A,	15V .25A	50 42 44	58 x 4BA	250gm	£1.95*	
12VA							
741	4.5V 1.3A	4.5V 1.3A	54 46 46	69 x 2BA	400gm	£2.20*	20p*
742	6V 1A	6V 1A	54 46 46	69 x 2BA	400gm	£2.20*	20p*
743	12V .5A	12V .5A	54 46 46	69 x 2BA	400gm	£2.20*	20p*
749	15V .4A	15V .4A	54 46 46	69 x 2BA	400gm	£2.20*	20p*
750	20V .3A	20V .3A	54 46 46	69 x 2BA	400gm	£2.20*	20p*
24VA							
1471	6V 1.5A	6V 1.5A	69 57 60	85 x 2BA	675gm	£2.50*	45p*
1472	9V 1.2A	9V 1.2A	69 57 60	85 x 2BA	675gm	£2.50*	45p*
1473	12V 1A	12V 1A	69 57 60	85 x 2BA	675gm	£2.50*	45p*
1474	15V .8A	15V .8A	69 57 60	85 x 2BA	675gm	£2.50*	45p*
1475	20V .6A	20V .6A	69 57 60	85 x 2BA	675gm	£2.50*	45p*
50VA							
290	6V 4A	6V 4A	79 65 62	92 x 2BA	1Kg	£3.50*	45p*
291	9V 2.5A	9V 2.5A	79 65 62	92 x 2BA	1Kg	£3.50*	45p*
292	12V 2A	12V 2A	79 65 62	92 x 2BA	1Kg	£3.50*	45p*
293	15V 1.5A	15V 1.5A	79 65 62	92 x 2BA	1Kg	£3.50*	45p*
294	20V 1.2A	20V 1.2A	79 65 62	92 x 2BA	1Kg	£3.50*	45p*
295	25V 1A	25V 1A	79 65 62	92 x 2BA	1Kg	£3.50*	45p*
296	30V .8A	30V .8A	79 65 62	92 x 2BA	1Kg	£3.50*	45p*

3-31

ALL PRIMARIES ARE 240 VOLTS

Type 100VA	Secondaries				Size (mm)			Fixing	Weight	Price	P&P
1961	12V	4A	12V	4A	89	75	68	57 x 43.5 (2BA)	1.5Kg	£6.50*	55p
1962	15V	3A	15V	3A	89	75	68	57 x 43.5 (2BA)	1.5Kg	£6.50*	55p
1963	20V	2.5A	20V	2.5A	89	75	68	57 x 43.5 (2BA	1.5Kg	£6.50*	55p
1965	30V	1.5A	30V	1.5A	89	75	68	57 x 43.5 (2BA)	1.5Kg	£6.50*	55p
1966	50V	1A	50V	1A	89	75	68	57 x 43.5 (2BA)	1.5Kg	£6.50*	55p

The above transformers have two secondary windings with voltages as indicated beneath the tags ie,

0 - V . 0 - V

Where V is the voltage specified. These four tags may be wired in four different ways to give secondary outputs as follows :

(1) Two separate windings 0 - V, 0 - V. The current I available from each winding is given by :-

$$I = \frac{(VA)}{2V}$$

where (VA) is the VA rating for the transformer.

(2) By connecting the two centre tags a centre tapped configuration V - 0 - V may be achieved. Current I per half winding is given by

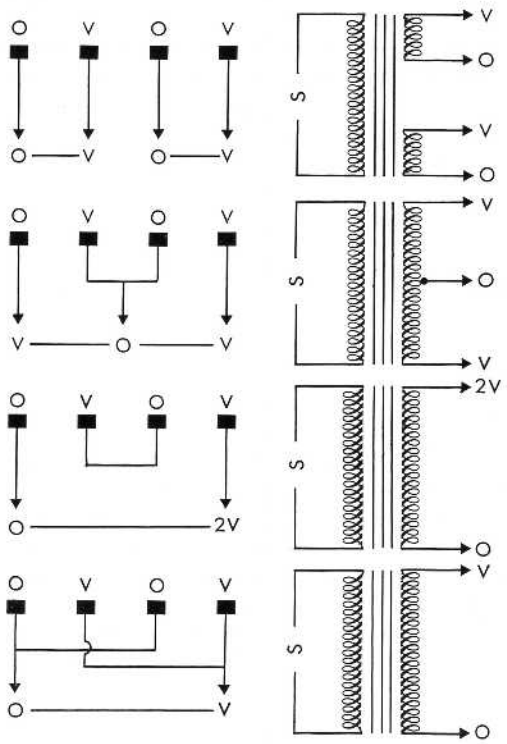
$$I = \frac{(VA)}{2V}$$

(3) By connecting the centre tags a single winding secondary of voltage 2V can be made. Current I is given by

$$I = \frac{(VA)}{2V}$$

(4) By connecting the sets of tags in parallel as shown a single secondary winding of voltage V is given with twice the current availability given by

$$I = \frac{(VA)}{V}$$



Example

An 0 - 12, 0 - 12 12VA transformer may be connected as above to give the following outputs:-

(1) 0 - 12, 0 - 12 0.5A per winding
(2) 12 - 0 - 12 0.5A per half winding
(3) 0 - 24 0.5A
(4) 0 - 12 1A

LOW VOLTAGE TRANSFORMERS

In addition to the above range of low voltage transformers we are also able to offer the following:-

240V AC Primaries
1.2VA

Model	Voltage	Current	Size	Price
600	6 - 0 - 6	100mA	30 x 27 x 25	98p*
900	9 - 0 - 9	75mA	30 x 27 x 25	98p*
1200	12 - 0 -12	100mA	30 x 27 x 25	98p*

240V AC Auto Transformers

Model	Voltage	Current	Price	P&P
3030	30-25-20-0-20-25-30	2Amp	545p*	60p*
301	30 - 24 - 20 - 15 - 12 - 0	1Amp	375p*	48p*
302	30 - 24 - 20 - 15 - 12 - 0	2Amp	445p*	60p*

OUTPUT/DRIVER TRANSFORMERS

LT44 44p* 20K — Prim / Sec — Miniature Driver 1K c.t.

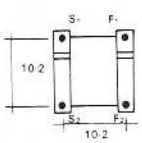
LT700 44p* 1.2K — Prim / Sec — Miniature Output 3.2Ωc.t. 200mW

MOT 38p* 1.2K — Miniature Output 8.0Ωc.t. 200mW

LINE TRANSFORMER

Prim: 100V line. Sec: 8 , 15 .
Price250p* Rating max 15W

PULSE TRANSFORMER
High Frequency



For use in pulse applications, including Thyristor and Triac circuits. Ideal for sound to light units.
Ratio:- 1:1
Size:- 13 x 13 x 15mm

Price 145p*

CABLES

3 Core (Heat resistant) Mains Cable CB1

Cotton covered cable suitable for electric irons, toasters and small electric fires etc. 5mm/3Amp.
Available in 2½ metre lengths.

Price 85p*/length

2 Core Mains Cable CB2

Flexible mains cable with a cross section of 6mm and capable of carrying 10Amps.

Price 18p*/metre

3 Core Mains Cable CB3

General purpose 3 core mains cable. 5mm cross sectional area. White PVC sheath. Rated at 7Amps.

Price 16p*/metre

3 Core Mains Cable CB4

General purpose mains cable.
3mm. 2Amp (White)
4mm, 3Amp (Black)

Price 12p*/metre

3 Core Mains Cable CB5

7mm/13Amp PVC sheath.

Price 28p*/metre

2 Core Figure of eight CB6

Multi-stranded figure of eight cable in a grey PVC sheath.

Price 11p*/metre

Single Core Extra Flexible CB7

Extra flexible cable suitable for test leads etc. 55/0.1mm plain copper with pliable PVC insulation. Red or Black.

Price 16p*/metre

Twin Core Screened CB8

Individually screened two core cable (figure of eight). PVC sheath.

Price 14p*/metre

Coax Cable CB9 VHF

300 ohm twin feeder coax cable for TV and TV games.

Price 12p*/metre

Coax Cable
UHF 50 ohm CB10
UHF 75 ohm CB11

50 ohm :- Ideal for oscilloscope or other high frequency measuring equipment leads.

Price 28p*/metre

75 ohm :- For TV's and TV games etc.

Price 19p*/metre

Single Core Screened CB12

Single screened cable, PVC covered. 3mm dia.

Price 10p*/metre

25 Core Cable CB13

25 way stranded cable with three single and one twin screen. ½" dia black PVC sheath.

Price 60p*/metre

Ribbon Cable

10 way CB14	17p*/foot
20 way CB15	32p*/foot
34 way CB16	47p*/foot
50 way CB17	65p*/foot

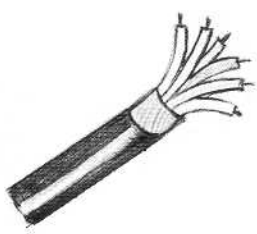
10 and 20 way are multi-coloured and follow the resistor colour code. 34 and 50 way are both grey.

2 Core Flat Ribbon Cable CB18

Ideal loudspeaker cable, lies unnoticed under the carpet.

Price 8p*/metre

Six Core Screened CB19



Six core with overall screen. Black PVC sheath.

Price 28p*/metre

Four Core Screened CB20

Individually screened four way cable. PVC sheath.

Price 24p*/metre

TOGGLE SWITCHES

Model	Type	Tags	Action	Rating	Size	Price p
Standard						
TS1	SPST	2	On-Off (chrome toggle)	250V@2A	25.5 x 13.8 x 14mm	28p*
TS2	SPDT	4	On-On (chrome toggle)	250V@2A	25.5 x 13.8 x 14mm	34p*
TS3	DPDT	6	On-On (chrome toggle)	250V@2A	29 x 18 x 17mm	38p*
Miniature						
TS4	SPST	2	On-Off (red dolly)	250V@2A	12 x 6 x 9mm	54p*
TS5	SPDT	3	On-On (red dolly)	250V@2A	12 x 6 x 9mm	59p*
TS6	SPDT	3	On-Off-On (chrome toggle)	250V@2A	12 x 8 x11mm	78p*
TS7	SPST	3	On-Biased On (chrome toggle)	250V@2A	12 x 6 x10mm	85p*
TS8	DPDT	6	On-On (red dolly)	250V@2A	12 x11 x 10mm	70p*
TS9	DPDT	6	On-Off-On (chrome toggle)	250V@2A	12 x11 x 10mm	79p*
TS10	DPDT	6	On-Off-Biased On (chrome toggle)	250V@2A	12 x11 x 10mm	115p*
			Dollies are removable to give chrome toggle.			
Micro Miniature						
TS11	SPST	2	On-Off (chrome toggle)	250V@2A	8 x 5 x 7mm	48p*
TS12	SPDT	3	On-Off (chrome toggle)	250V@2A	8 x 5 x 7mm	52p*
TS13	DPDT	6	On-On (chrome toggle)	250V@2A	8 x 5 x 7mm	59p*
			N.B. The above switches are marked 125V@3A Their rating at 250V is 2A			
Hi-Fi Type						
TS14	DPDT	6	On-On (Brushed aluminium tog)	250V@2A	20 x 9 x 15mm	38p*
TS15	4PDT	12	On-On (Brushed aluminium tog)	250V@2A	46 x 11 x 19mm	54p*

ROCKER SWITCHES

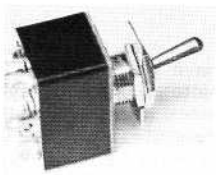
Standard						
RS1	SPST	2	On-Off (Black)	250V@10A	30 x 14 x 18mm	23p*
RS2	SPST	3	On-Off-On (White, marked 1-0-2)	250V@5A	30 x 14 x 16mm	30p*
RS3	DPST	4	On-Off (White with red markings)	250V@10A	30 x 25 x 20mm	40p*
RS4	SPST	3	On-Off (Red neon with chrome bezel)	250V@5A	25 x 11 x 22mm	52p*

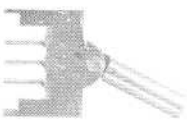
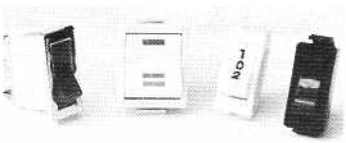
PUSH BUTTON SWITCHES

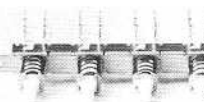
High Quality						
PB1	SPST	2	Push on-Push off (With Red Knob)	250V@2A	11 x 7 x 17mm	65p*
PB2	SPDT	3	Push on-Push on (With Red Knob)	250V@2A	11 x 7 x 17mm	70p*
PB3	DPDT	6	Push on-Push on (With Red Knob)	250V@2A	11 x11 x 17mm	85p*
Good Quality						
PB4	SPST	2	Push to make (Red top, chrome body)	250V@2A	16 x 11mm (dia)	35p*
Miniature						
PB5	SPST	2	Push to make	250V@1A	16 x 6mm (dia)	15p*
PB6	SPST	2	Push to break	250V@1A	16 x 6mm (dia)	25p*
Printed circuit type						
PB7	DPDT	6	Push to make-Push to break (black)	250V@1.5A	25 x 9 x 7mm	54p*
PB8	DPDT	6	Push to make-Push to break / Less knob	250V@1.5A	24 x10 x11mm	25p*
PB9	DPDT	6	Bank of 4 intercancelling switches Less knobs	250V@1.5A	63 x 21 x 8mm	110p*
PB10	DPDT	6	Bank of 4 independent switches/ Less knobs.(action as PB8)	250V@1.5A	63 x 21 x 8mm	110p*
PB11	4PDT	12	Bank of 8 intercancelling switches/ complete with black knobs (limited stock)	250V@1.5A		215p*
PB Knob			Brushed aluminium knob for above		28 x 10mm(dia)	14p*
Foot Switch						
PB12	DPDT	6	Push to make-Push to break (Unmounted) (heavy duty)	250V@2A	38 x 15 x 35mm	185p*
Pedal Switch						
PB13	SPST		Push to make - Release to break	250V@5A		240p*

SLIDE SWITCHES

SS1	DPDT	6	On-On (Black slider) miniature	250V@½A	15 x 7 x 7mm	13p*
SS2	DPDT	6	On-On (Black slider)	250V@1A	22 x 13 x 8mm	14p*
SS3	DPDT	6	On-Off-On (Black slider)	250V@1A	22 x 13 x 8mm	15p*
SS4	4PDT	12	On-On (Black slider)	250V@1A	30 x 9 x12mm	24p*





ROTARY SWITCH

MINIATURE ROTARY SWITCH

MAKA SWITCH TYPE

1" DIAMETER, 12 POSITON ROTARY SWITCH, MOULDED WAFER AND DIECAST POSIDEX MECHANISM

Have you ever been into a Hi-Fi shop and whilst browsing through the different units noticed how silky smooth the action of the rotary switches are and maybe wondered why the types of switches normally available to the amateur are never as smooth in action as the ones fitted to professionally made equipment. Well if you have you can stop wondering, because now you can buy the same type of switch that the professionals use without having to pay a professional type price. The LORLIN miniature switch system enables you, without difficulty to make up single or multibanked miniature switches from a range of different pole and way configurated wafers together with other accessories .These switches really are a delight to use. The shafting assembly can accommodate up to 6 wafers plus a DPST mains switch. If required you can also fit the specially made screens and spacers. All assemblies are supplied with an adjustable stop to facilitate particular requirements. We are sure that after you have studied all the details on these switches you will agree that there are many applications that can be covered by this system of switches.

Electrical Specification

Max working voltage	300V AC/DC
Proof voltage	1,000 volts at normal temperature and pressure
Contact resistance	Less than 5 milliohms
Contact ratings (Brass silver plated)	150mA at250volts AC/DC 350mA at 110volts AC/DC
Switching per wafer	1 pole 12 way Break before make 2 pole 6 way Break before make 3 pole 4 way Break before make 4 pole 3 way Break before make 6 pole 2 way Break before make 1 pole 12 way Make before Break

Accessories

Mains Switch	DPST (4pins) 250VAC 2A
Screens	1" diameter
Spacers	3mm long

Mechanical Specification

Contacts	Silver plated brass, minimum 0.0001" silver ensures a life of 15,000 switching operations.
Rotors	Moulded acetal resin
Wafers	Moulded from glass filled diallyl phthalate (D.A.P.)
Spindle	Steel. ¼"diameter, 45mm long
Indexing	By two balls and compression springs housed in a diecast assembly with a life in excess of 100,000 operations. Torque ranges from 10 to 25ozs /inch (700 to 1,750gm/cm.) 30 degree indexing.
Finish	All metal parts bright nickel plated.
Accessories	Screens, spacers and DPST mains-switch.

Part	Description	Price
MSSA1	Shafting assembly	75p*
MSSW1	1P 12W Wafer BBM	47p*
MSSW2	2P 6W Wafer BBM	47p*
MSSW3	3P 4W Wafer BBM	47p*
MSSW4	4P 3W Wafer BBM	47p*
MSSW5	6P 2W Wafer BBM	47p*
MSSW6	1P 12W Wafer MBB	47p*

Part	Description	Price
MSMS1	Mains Switch	35p*
MSSC1	Screen	3p*
MSSP1	3mm Spacer	3p*

ROTARY MAINS SWITCH

Rotary Mains Switch (MS)

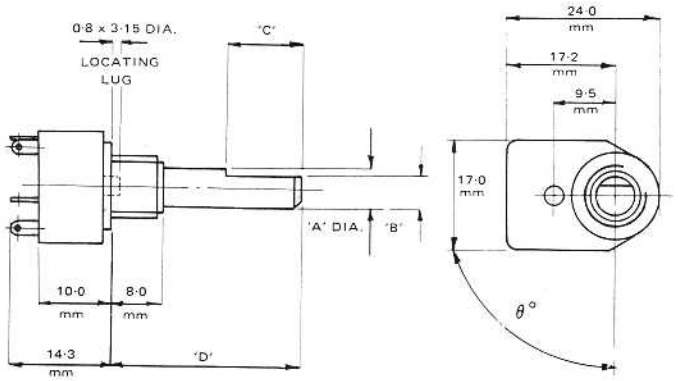
These double pole double throw mains switches have a snap action making them suitable for inductive circuits. They are designed to meet all the safety and reliability standards of BS: 415(1972) Approval Certificate No : 4369. Semco, Demco and Nemco approvals are applied for.

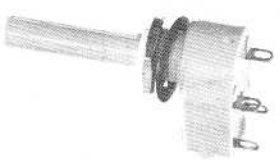
All moulded construction in flame retardent material. UL.SE1. Contact material Silver Cadmium Oxide.

Electrical Specification

Contact Rating	4 Amps at 250V AC
Current Surge	80 Amps for .01 seconds
Contact Resistance	Less than 20 milliohms
Insulation Resistance	Greater than 50,000 Megohms measured at 500V DC
Breakdown Voltage	Greater than 4KV RMS
Life	In the excess of 26,000 operations
Angle of Rotation	45 degrees

Order as Rotary Mains Switch (MS) **Price 42p***





ROTARY SWITCHES

Single Bank Rotary Wafer Switch with an adjustable stop

A single wafer in a moulded housing, ideal for keeping out foreign bodies that can cause numerous problems associated with normal open type wafer switches. The shaft length of these switches is 30mm.

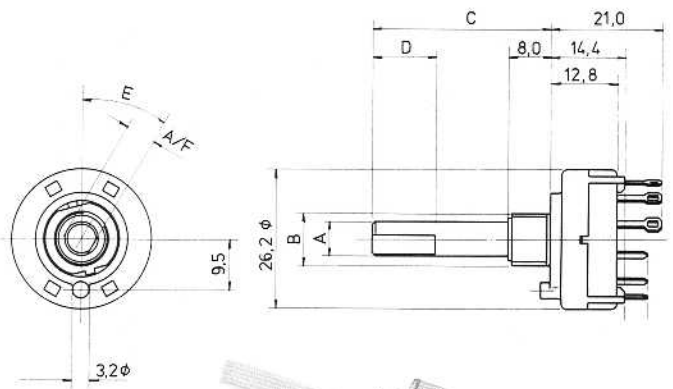
Electrical Specification

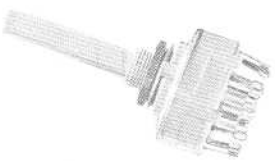
Max Working Voltage	300V AC/DC
Proof Voltage	1,000V at normal temperature and pressure
Contact Resistance	Less than 10milliohms
Contact Rating	150mA at 250V AC/DC 350mA at 110V AC/DC
Life	15,000 operations

Available in the following configurations
With adjustable stop ring (from 2way upwards)

1 pole	2 to 12 way	Make before break
2 pole	2 to 6 way	Make before break
3 pole	2 to 4 way	Make before break
4 pole	2 to 3 way	Make before break

Order as SB Rotary Switch Plus Configuration **Price 41p***





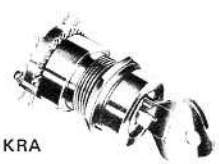
KEY OPERATED ROTARY SWITCHES TYPE KRA & KMS

These switches are available as lock switches and operation is by Yale key providing security against unauthorised operation. Panel cut-out 19mm + keyway. Max. panel thickness 7mm.

KRA A six position key operated switch assembly which will accommodate up to six wafers of the Maka Switch type. (see page 42) Note that the 60° indexing means that only alternate contacts are used. A Yale lock mechanism is fitted which allows the key to be removed in any position.

KMS Two position ON-OFF, key removable in both positions. 250V AC at 2Amps.

Model	Price
KMS	£2.60*
KRA	£2.40*


KRA

KMS

PLEASE NOTE

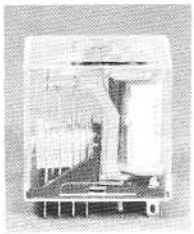
As distributors for these world renowned **Lorlin** range of Switches we are able to offer good quantity discounts.

Please phone for your requirements.

Tel: Watford 40588

RELAYS / LAMPS

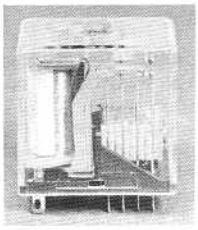
RL1 **Price 145p**
ITT/25A04C



Miniature type enclosed continental relay.

Max volts	12Vdc
Coil	185 ohms
Contacts	4.P.C.O.

RL2 **Price 145p**



Miniature continental relay.

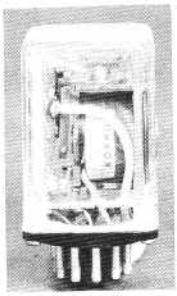
Max Volts	12-18Vdc
Coil	1,000 ohms
Contacts	4P.Changeover

RL3 **Price 148p**

Miniature (Siemens) relay continental type.

Max Volts	12-18Vdc
Coil	700 ohms
Contacts	2P.C.O.

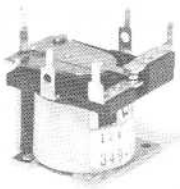
RL4 **Price 150p**



Mains operated relay.

Max Volts	240V AC
Coil	
Contacts	3.P.C.O.

RL5 **Price 185p**



Miniature P.C.B. type relay

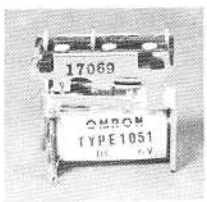
Max Volts	12Vdc
Coil	1640 ohms
Contacts	S.P.D.T. 250Vac @ 5amps 30Vdc @ 5amps

RL6 **Price 175p**
A2691-11-12

Miniature enclosed relay, continental type.

Max Volts	6Vdc
Coil	170 ohms
Contacts	S.P.C.O. Gold flashed contacts. 380Vac @ 6A

RL7 **Price 160p**
1051



Max Volts	6Vdc
Coil	130 ohms
Contacts	S.P.C.O. Microswitch action

Relay Base RB1 **Price 35p***

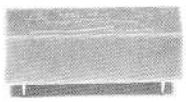
Continental type relay base for use with the following relays :- RL1,2,3 & 6

Reed RL11 **Price 25p**

Glass encapsulated reed relay. (less coil)

Contacts	S.P.S.T. 240V AC

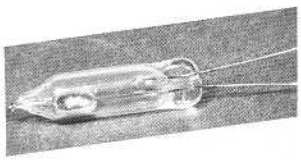
Reed/RL12 **Price 185p**



Extremely reliable, encapsulated reed relay.

Max Volts	24Vdc
Coil	5,000 ohms
Contacts	S.P.S.T.

Mercury Switch MS1 **Price 35p**



Small glass encapsulated switch that is actuated by physically tilting the switch and enabling the mercury to make contact between the two leads.

Reed RL13 **Price 150p**

Encapsulated Reed relay.

Max Volts	24V dc
Coil	4000 ohms
Contacts	S.P.S.T.

LAMPS & HOLDERS*

Model	Description	Price
LES Types		
Open Holder	Moulded nylon	8p*
Dome shaped Holder	Green, Red, Blue, Yellow, White.	18p*
Large Dome shaped/ holder	Red, Green, Yellow, Clear.	18p*
LES Bulbs	6V, 12V.	10p*
MES Types		
Open Holder	Moulded Nylon	8p*
Chrome Holder/ jewelled top cover	Red, Amber.	58p*
MES Bulbs	3.5V, 6V, 12V.	10p*

NEONS*

Mains sealed, with resistor

Model	Description	Price
Push fit types (requires 0.5" dia hole) Round Top	Red, Amber	26p*
Square Top	Red, Amber	26p*
Nut fixed type (requires 0.375" dia hole) Rectangular diamond/ facetted top	Red, Green	26p*
Bead type No resistor 95V AC	(Clear)	10p*