

WELLINGTON VHF GROUP    DECEMBER 2017  
MEMBERS-ONLY TRADING TABLE CASH & CARRY PRICES

Orders should be sent by email to: tradingtable@vhf.nz  
We will advise you of the stock status and the cost of post, packing, etc.

Prices are in New Zealand dollars. Non-members of the VHF Group please add 25% to all prices.

Sales at meetings. It is not physically possible to bring the whole Trading Table to the meeting.  
Please telephone or email on the Wednesday, the day before the meeting, to ensure that the goods you want are brought to the meeting.

LOOK FOR POP-UP DEALS ON TRADE ME: vhfgrp

ITEMS NEW TO THE TRADING TABLE

Coilcraft 7M3-682 shielded coil adjustable 5.4 to 8.2 uH.	\$1
L59BL/GEW dual colour (red and green) 5 mm LED.	15c
MJE2955T 60 V 10 A 75 W PNP power transistor in TO220 case.	\$1
7905 5 V 1 A negative 3-terminal regulator in TO220 case.	\$1
MMBV109LT1 VHF varicap diode. 29 pF @ 3 V, 8 pF @ 12V.	50c
UPC2709 21 dB gain 2.4 GHz MMIC. 5 V @ 25 mA DC input.	\$2
TP5088 DTMF generator. 14 pin SOP14 surface mount.	\$3
1N4148 150 mA 100 V fast (4 ns) switching diode.	5c
MUR420 4 A 200 V fast recovery (35 ns) rectifier diode.	50c

Our thanks to Terry ZL2BAC for the above items.

1296 MHz isolator (circulator with internal dummy load). Adjusted and tested by Wayne, ZL2BKC.	\$20
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Extruded Heatsinks

100 mm H x 85 mm W x 60 mm D (768 g) 1.3°C/W    Pair.	\$7
The above is a pair originally for a constructing a power attenuator.	
100 mm H x 85 mm W x 30 mm D (384 g) 2.6°C/W    Single.	\$3.50

MOTOROLA RF POWER TRANSISTORS

2N6367    30 MHz. 9 W SSB/CW PEP output. 13 V DC.	\$10
MRF475    30 MHz. 12 W SSB/CW PEP output. 13 V DC.	\$10

Our thanks to Peter, ZL2AYX, for the above transistors.

NGA-286 GaAs MMIC DC-6 GHz	\$3
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Performance at 2.4 GHz:

Pout -1 dB compression +15.5 dBm	IP3	+30.9 dBm
Gain        +14.4 dB    NF 3.4 dB at 2 GHz	Idc	50 mA at +4.0 V

SGA-5389 SiGe MMIC DC-3.2 GHz	\$3
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Performance at 2.4 GHz:

Pout -1 dB compression +14.1 dBm	IP3	+26.6 dBm
Gain        +15.4 dB    NF 2.8 dB at 1.95 GHz	Idc	60 mA at +3.5 V

Our thanks to John, ZL4JY, for locating these MMICs.

UHF VARICAP (VARIABLE CAPACITANCE DIODE) BB149A 50c

Just when you thought it was safe to come out of hiding (I can't finish that project because I can't buy a decent performance varactor diode), we go and spoil your excuse. This surface mount version of the BB409 has the lowest parasitic inductance and resistance of any UHF varactor diode that we have ever come across, and hence the highest Q.

The BB149A is an ideal replacement for varactors such as BB109 and BB409. They are designed as tuning diodes for VHF and UHF oscillators, such as those in 70cm and 23cm ATV receive converters, and for VHF and UHF transmitters, such as 23cm FM ATV.

TUNING VOLTAGE	1 V	2 V	4 V	10 V	20 V
CAPACITANCE	18 pF	14 pF	10 pF	5 pF	2.5 pF

5 mm Cyan (Blue-Green) LED HLMP-CE34-Y1CDD \$1.50 each  
Made by Avago (formerly Hewlett-Packard). A similar LED is \$4.90 at Jaycar.  
This colour of LED is used in traffic lights and railway signals.

J310 VHF-UHF N-CHANNEL JUNCTION FET \$1.50 each  
Low noise, wide dynamic range, FET as featured in many QEX designs.  
Our thanks to David, ZL2SX, for locating these FETs.

CABLE TV MODULATOR \$1,500 VALUE FOR ONLY \$50  
A higher freight charge applies – please ask for a quote.

Frequency agile: 45 to 500 MHz. Adjustable from the front panel.  
Supplied tuned to Channel 16.  
Fully filtered: Broadcast-quality Vestigial Sideband filter.  
RF Output: 5 milliwatts. Adjustable from the front panel.  
Video Input: Composite PAL. 1 Volt. Adjustable from the front panel.  
Audio Input: 1 Volt. Adjustable from the front panel.  
AC Input: Nominal 230 V.

Please see the advert and photo in February 2014 Q-Bit.

70 CM LINEAR POWER AMPLIFIER – NOT A KIT – READY TO USE \$125  
TESTED AND COMPLETE WITH TEST CERTIFICATE – ONLY THREE IN STOCK

430 to 440 MHz  
Output >20 Watts at -1 dB compression  
Typical gain 28 to 31 dB  
Drive 20 to 30 mW for 20 Watt output  
DC Power 3 A at 13.6 V for 20 Watt output

RG-58C/U COAXIAL CABLE Professional-grade. \$1.50 per metre  
Inner conductor: 19 strand 0.19 mm tinned annealed copper wire  
Outer conductor: 120 strand 0.12 mm tinned annealed copper wire braid. 93% coverage. Please ask for a freight quote for the particular length of cable you require. No freight charge for pick-up at our Lower Hutt bulk store or at our Tawa meetings.

NATIONAL MF4CN-100 LOW-PASS FILTER IC \$2.50 each

Features:

5 V to 14 V DC supply.

Switched capacitor 4th-order Butterworth low-pass filter.

Unity gain at low input frequencies. Maximally-flat response within the passband.

-3 dB at cut-off frequency. -24 dB per octave attenuation above cut-off frequency.

Cut-off frequency adjustable between 0.1 Hz and 10 kHz at 10 V supply.

Cut-off frequency proportional to oscillator frequency.

Add one resistor and capacitor for internal oscillator, or use external clock.

Two can be cascaded for -48 dB per octave above cut-off frequency.

8-pin Dual In Line (DIL) package.

Our thanks to Ted, ZL2TB, for the MF4CN-100 ICs.

CFPS-73A 16.000000 MHz oscillator \$4 each \$20 for 10  
Surface Mount 7.2 x 5.2 x 1.4 mm  
+3.3 V supply at 7 mA. HCMOS output stage. +/-20 parts per million (+/-320 Hz) calibration accuracy and temperature stability.

14.4 Volt 360 mAh Nickel Metal Hydride Rechargeable Battery Pack – Limited stock  
Consists of 12 cells each 1.2 Volt 360 mAh in a heat-shrink package \$10

NEW EPROM 27C512-12 120 ns read access time \$5

NEW RAM 4116 50c each 25 for \$10 50 for \$17 100 for \$30

IC SOCKETS – Similar to the Jaycar PI-6506 family

14 pin 0.3" wide	25 c each	\$2.00 for 10	\$3.50 for 20
24 pin 0.6" wide	40 c each	\$3.50 for 10	\$6.00 for 20
28 pin 0.6" wide	50 c each	\$4.00 for 10	\$7.00 for 20

LIGHTNING ARRESTOR

N female input and output connectors, 70 V breakdown voltage. \$25

MIC29302BU

3 Amp, low-drop-out, adjustable (1.25 V to 26 V) voltage regulator. \$1

Telephone loading coil. Bifilar wound on a toroidal core. \$1

One coil: 11 mH, 2 ohm DC resistance.

Both coils connected series-aiding: 44 mH, 4 ohm DC resistance.

2-TERMINAL CERAMIC RESONATOR

3.58 MHz ceramic resonator for Alivo transceiver \$2.50

Used in ZL2AMJ Alivo 80 metre transceiver VCXO, as described in April 1998 and May/June 1999 Break-In.

3-TERMINAL CERAMIC RESONATOR

3.58 MHz ceramic resonator, 3-terminal. \$2.50

This is a 2-terminal resonator, plus two internal feedback capacitors connected to the centre (grounded) pin, to simplify oscillator construction. An oscillator using a CMOS inverter requires just the resonator and a 1 Meg bias resistor.

UHF F+M+F Tee connector, poly insulator. \$5.00

SO-238 Female-Female barrel connector, for joining two PL-259 cables. \$2.50

BNC male crimp connector Radiall R 141075 for RG-174/U cable.  
Element 14 sells them for \$20 EACH. Our price is \$2.50 each or 10 for \$20

Belling-Lee TV antenna female chassis-mount connector. Insulated mounting flange.  
\$2.50 each or 10 for \$20

F Crimp Connector for Quad Screened RG-6/U 75 ohm TV coax.  
Similar to Jaycar PP-0704. \$1.20 each or 10 for \$10

Custom-made leads, using quad-screened RG-6/U, with the above connector on each end.  
Pricing: \$6.00 plus \$1.50 per metre.

10 GHz MICROWAVE DETECTOR KIT \$20  
As described in Q-Bit. Contains all the necessary components, including the gold-plated SMA connector and reprint of Q-Bit article.

STAINLESS STEEL 2 mm diameter antenna wire.  
Only the wire is supplied, complete with pre-formed anti-eye-poking loop at one end.  
The purchaser supplies the mounting base. The wire is cut to 5% over length so that the purchaser can trim the length for minimum SWR, to compensate for stray inductance or stray capacitance in the mounting base.

2 metre quarterwave whip \$1  
70 cm 5/8 wave whip \$1  
70 cm quarterwave whip 50c

HIGH PERFORMANCE 10 MHz CLOCK SOURCE/COMB GENERATOR KIT \$25  
As described in February 2009 Q-Bit.

HIGH PERFORMANCE 20 MHz CLOCK SOURCE \$25

Aluminium rod 295 mm long by 8 mm diameter  
Ideal for Uda-Yagi antenna directors at 70 cm and all elements at Channel 25.  
15c each 10 for \$1 (less than the scrap metal value)

Aluminium rod 370 mm long by 8 mm diameter  
Ideal for Reflector of 70 cm Uda-Yagi antennas. Limited quantity, each one sold with nine of the 295 mm rods. 9 + 1 rod kit for \$1

Single-hole HF-VHF powdered iron core 60c each \$4 for bag of 12  
9.5 mm OD 4.0 mm ID 12.7 mm Long  
a = 23 nH  
Inductance =  $n^2a$  Therefore 12 turns = 3.3 uH

#### BROADBAND (40 TO 860 MHz) CLASS-A LINEAR AMPLIFIERS

PHILIPS BGX885N TEST AT 435 MHz Requires +24 V at 230 mA \$39.60  
50 ohm test: Gain 16.5 dB 280 mW CW output at -1 dB gain compression

MOTOROLA CA922A TEST AT 435 MHz Requires +24 V at 400 mA \$49.70  
50 ohm test: Gain 16.5 dB 830 mW CW output at -1 dB gain compression

PHILIPS BGD802 TEST AT 435 MHz	Requires +24 V at 400 mA	\$59.80
50 ohm test: Gain 17.5 dB	1.5 W CW output at -1 dB gain compression	

The heat sink for the BGX885N should have a thermal rating of 8°C/W, or less. The heat sink for the CA922A and BGD802 should have a thermal rating of 5°C/W, or less.

Eddystone diecast aluminium boxes, including free pre-drilled holes.

120 mm x 94 mm x 29 mm	\$4
120 mm x 94 mm x 56 mm	\$6
187 mm x 120 mm x 56 mm	\$10

75 ohm BNC female 4-hole panel mount connector	\$2
50 ohm TNC female single-hole (9.5 mm) panel mount connector	\$2

2500 ohm linear mini pre-set pots. Single-hole (6.3 mm) panel mount, complete with mounting nut, knob and 0 to 10 scale. 12 mm diameter by 12 mm long body.	\$1
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Extruded Heatsinks

100 mm H x 85 mm W x 60 mm D (768 g) 1.3°C/W	Pair.	\$7
The above is a pair originally for a constructing a power attenuator.		
100 mm H x 85 mm W x 30 mm D (384 g) 2.6°C/W	Single.	\$3.50
221 mm H x 100 mm W x 23 mm D (568 g) 1.8°C/W		\$5
116 mm H x 295 mm W x 48 mm D (735 g) 1.3°C/W		\$7

The 1.3°C/W heatsink is ideal for the output stage of a 100% duty cycle 25 Watt RF output transmitter, 50% duty cycle 50 Watt RF output transmitter, or 25% duty cycle 100 Watt RF output transmitter.

10-piece trimming tool set	\$7
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Hippo clip (wider mouth than crocodile clip)	20c
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7809 9 Volt 3 terminal regulator TO-220	\$1
Bias regulator for Mitsubishi RF power modules.	

Ex-equipment SBL-1 economy double-balanced mixer up to 500 MHz	\$5
Ex-equipment SRA-1 premium double-balanced mixer up to 500 MHz	\$15
NJ8820B Plessey synthesizer IC	\$3

5-40 pF compression mica trimmers by Hunts. Bag of five.	\$1
Suitable for 2 metre RF power amplifiers.	

AWA AM modulator module Type 2285 for the 2284 TX module.	\$10
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TNC male crimp connector for RG-316/U cable.	\$4
Telegärtner J010B0007.	

Chassis-mount square-flange BNC female connector. Kings KC-79-289-MC7.	\$2.50 each or 10 for \$20
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## MACHINE SCREWS

All screws are 10 for 20c, 50 for 70c, 100 for \$1, 250 for \$2, 500 for \$3.

Mixed pricing applies. For example, buy a total of 100, say 10 of one size, 20 of two sizes, and 50 of another size, and pay only the 100 price.

## SILVER-PLATED MICROWAVE CAVITY TUNING SCREWS – USA THREADS

Most with lock nuts

2-56 (2.1 mm diameter) 6 mm long with 5/64" A/F hex socket head

4-40 (2.8 mm diameter) 6 mm long with 3/32" A/F hex socket head

4-40 (2.8 mm diameter) 11 mm long with 3/64" A/F hex socket end  
1/4" diameter 9.4 mm long 36 threads per inch with screwdriver slot

## STAINLESS STEEL MACHINE SCREWS – USA THREADS

Some with spring washers

2-56 (2.1 mm diameter) 4 mm long with Phillips head

2-56 (2.1 mm diameter) 9.5 mm and 12 mm long with 1/16" A/F hex socket head

4-40 (2.8 mm diameter) 9.5 mm long with 5/64" A/F hex socket head

4-40 (2.8 mm diameter) 16 mm long with 5/64" A/F hex socket head

6-32 (3.4 mm diameter) 9.5 mm and 12 mm long with 3/32" A/F hex socket head

## DIGITAL 3 mm LEDs.

These LEDs include internal current-setting resistors, for direct connection to 5 V, where they draw 10 mA. The LEDs can be used on a higher supply voltage, or at lower currents, by the addition of an external resistor. Three colours available: red, yellow and green. 10 c each.

## TV CHANNEL CHANGE PUSH BUTTONS

Made by Mitsumi of Japan. Spring loaded SPST switch. Ideal for driving CMOS and other low-current applications. Set of four complete with mounting bracket. \$1.50

## MONOLITHIC MICROWAVE AMPLIFIER (MMIC)

ERA-2	DC to 6 GHz 25 mW 15 dB gain @ 1 GHz +5 V 80mA	\$4
INA-03184	DC to 3 GHz 1 mW 25 dB gain @ 1 GHz +4 V 10 mA	\$3
INA-10386	DC to 2 GHz 10 mW 26 dB gain @ 1 GHz +6 V 45 mA	\$3
MAR-3	DC to 2 GHz 10 mW 12 dB gain @ 1 GHz +5 V 30 mA	\$2.50
MAV-11	DC to 1 GHz 50 mW 12 dB gain @ 500 MHz +5.5 V 60 mA	\$6
NGA-286	DC to 6 GHz 35 mW 14 dB gain @ 2.4 GHz +4 V 50 mA	\$3
SGA-5389	DC to 3 GHz 25 mW 15 dB gain @ 2.4 GHz +3.5 V 60 mA	\$3

## MINI-CIRCUITS LABS VOLTAGE-CONTROLLED OSCILLATORS

MODEL	TUNING RANGE	OUTPUT	PRICE
POS-75	37.5 to 75 MHz	+8 dBm	\$31
POS-200	100 to 200 MHz	+10 dBm	\$31
POS-400	200 to 380 MHz	+9 dBm	\$36
POS-535	300 to 525 MHz	+8 dBm	\$36

POS-1060                      750 to 1060 MHz                      +12 dBm                      \$39

POS-75 to POS-535 require +12 V DC power at about 20 mA, and +1 V to +16 V tuning voltage.  
 POS-1060 requires +8 V DC power at about 30 mA, and +1 V to +20 V tuning voltage.

TYPICAL FREQUENCY VERSUS TUNING VOLTAGE

MODEL	1	2	4	6	8	10	12	14
	16	V						
POS-200	90	99	114	129	145	161	176	192
	208	MHz						
POS-400	185	202	230	259	289	322	351	382
	407	MHz						
POS-535	279	305	347	381	421	460	488	524
	556	MHz						
POS-1060	675	697	737	784	834	887	942	997
	1045	MHz						

SUGGESTED USES

POS-200 is useful for testing: 2-metre Amateur equipment and antennas.

POS-535 is useful for testing: 70-centimetre Amateur equipment, UHF Communications, and UHF PRS.

POS-1060 is useful for testing: 32-centimetre Amateur equipment and UHF Communications.

MICROWAVE COMPONENTS

Microwave dummy load inserts. These consist of a graphite-composite cone, to be inserted in a suitable length of waveguide. Be careful, the pointed end is VERY SHARP.

The diameter, of the large end of the cone, is almost equal to the narrow dimension of the waveguide, so the large end can be fixed in a central position by two “blobs” of silicone rubber. Alternatively, the large diameter end has a tapped hole (used during manufacture of the conical shape), so the cone can be mounted centrally on a waveguide end wall with a suitable bolt. Three sizes are available: \$5

7.6 mm diameter by 73 mm long, for 10 GHz

4.2 mm diameter by 56 mm long, for 24 GHz

3.3 mm diameter by 40 mm long, for 47 GHz

Waveguide O-rings, to waterproof the joint between waveguide flanges. Three sizes available:

- 30 mm OD by 3.2 mm diameter                      20c each
- 19 mm OD by 1.6 mm diameter                      20c each
- 14 mm OD by 1.6 mm diameter                      20c each

WG20 19 GHz 5-pole bandpass filter. This can be modified for 24 GHz, by reducing the size of the resonant cavities. The filter features a WG20 flange and waveguide elbow, at one end, and a SMA connector to WG20 transition, at the other end. \$8

WG20 waveguide for 24 GHz band. 250 mm long.		
WG20 flange at each end. There is an E-plane bend near one end.		\$10
74LS05M SMD	20c each, six for \$1	
3-pin DIN cord audio plug (Jaycar catalogue PP-0302, usually \$1.45)		50c
12 V 0.5 A plug pack power transformer (Jaycar catalogue MP-3026, usually \$24.95)		\$12
12 V 0.5 A + 12 V 0.5 A power transformer (RS catalogue 207-699, usually \$21.60)		\$7.50
Bolt-in feed-through pi-section (C-L-C) low pass filters ERIE		\$1
3.15A 20x5 fast-blow fuse		20c ea
5A 20x5 slow-blow fuse		40c ea
4-cell AAA cell holder		\$1
ABS black plastic project box 82 x 53 x 30 mm.		\$2.50
2.1 mm DC power connector PCB-mount		\$1
300 ohm balanced to 75 ohm F coax VHF/UHF TV/FM balun		\$3
1 uF 50 V bi-polar electrolytic capacitor	40c each	10 for \$3
22 uF 16 V tantalum bead capacitor	70c each	10 for \$5

## SECOND HAND ITEMS

The following surface-mount ICs are ex-equipment, and are supplied mounted on a double-sided G10 printed circuit board.

IAM-81008	VHF/UHF (to 5 GHz) active double-balanced mixer	\$1.50
PCF8591T	A>D and D>A converter	\$2
UMA1014T	50 MHz to 1.1 GHz frequency synthesizer	\$5
33072, 34072	Dual op amps	20c
74HC4066D	Quad CMOS transmission gate	20c
VAM-6	Low noise amplifier - surface-mount version of MAR-6	\$2.50
MAR-8	Low noise amplifier	\$2.50
BC149B	NPN low noise AF	10c

## TV TRANSMITTER SAW FILTER

You should consider using one of the following filter modules, if you are building an analogue ATV transmitter. VSB filters are described in April 2002 Q-Bit.

Vestigial Sideband (VSB) Surface Acoustic Wave (SAW) filter for 67.25 MHz Vision I.F. and 72.75 MHz Sound I.F. 50 ohm input and output impedance.	\$10
Vestigial Sideband filter module for 38.90 MHz Vision I.F.	\$20

## MORE EX-EQUIPMENT ITEMS



Colpitts crystal oscillator on double-sided PCB, complete with 65.136 MHz, 67.568 MHz, 68.784 MHz or 69.392 MHz overtone crystal \$2

Siemens + Matsushita surface mount inductors. 1210 body size: 3.2 mm L, 2.5 mm W, 1.9 mm H  
22, 220, 470, 560 nH. 1, 2.2, 470 uH 20c each

Surface mount ferrite chokes. Body size 9 mm L, 3 mm W, 3 mm H. 10 for \$1

Surface mount resistors, 0805 size, mixed bag - our choice of values - usually includes a selection consisting of zero ohm and 10 ohm to 100 k ohm. 100 for \$1

Surface mount tantalum capacitors 2.2 uF 6 V, 22 uF 6 V. 10 for \$1

#### WALKIE PRINTED CIRCUIT BOARDS (undrilled)

Walkie transmit board. Use 12 MHz or 36 MHz crystal to multiply to 144 MHz. \$10

Walkie receive board. Use 45 MHz crystal to mix 144 MHz down to 10.7 MHz. \$10

9027 kHz close tolerance professional crystal, in resistance weld HC51/U holder (same size as HC6/U). Available in matched sets for use in ladder bandpass filters (CW, SSB, AM).\$4

Matched set of six, for 6-pole filter \$20

Matched set of eight, for 8-pole filter \$25

AC mains filter capacitor block - Two class X2 100 nF phase to neutral; two class Y2 4n7 phase to ground and neutral to ground. Made by Evox Rifa. 50c

HSMS-2810 \$2.20

Surface mount Schottky diode, for high efficiency detector, mixer and harmonic multiplier use. 20 V peak inverse voltage. 1.2 pF max junction capacitance.

LOW NOISE TRANSISTOR BFS17A (SURFACE MOUNT) \$1.00

Max collector-emitter volts	15 V	Max collector current	25 mA
Max dissipation	300 mW	Typical current gain	75
Typical transition frequency	2.8 GHz	Typical noise figure	2.5 dB (800 MHz)
Typical gain			13.5 dB (800 MHz)

The BFS17A is suggested for low noise amplification at, up to, 925 MHz, and for oscillator/multipliers at, up to, 2.4 GHz. It has better performance than BF199, BF494, BSX20, BFX89, BFY90, etc.

LOW NOISE TRANSISTOR BFG520 (SURFACE MOUNT) \$1.90

Max collector-emitter volts	15 V	Max collector current	70 mA
Max dissipation	300 mW	Typical current gain	120
Typical transition frequency	9 GHz	Typical gain	13 dB (2 GHz)
Typical noise figure	1.1 dB (900 MHz), 1.9 dB (2 GHz)		

The BFG520 is suggested for low noise amplification at, up to, 2.5 GHz, and for oscillator/multiplier at, up to, 5.6 GHz. It has better performance than BFG67, MRF901, BFR91A.

SIEMENS B 62152 A 8 - X17 MINIATURE 2-HOLE FERRITE CORES \$1

For the DJ7VY pre-amplifier, featured in VHF Communications. Two cores required for the 19 dB gain version, or one core for the 9.5 dB gain version. Original article reprint: 50c

What's special about the DJ7VY pre-amplifier? The secret is the ferrite core. By using the correct

amount of RF negative feedback: the input SWR improves, without degrading the noise figure (~1.3 dB NF at 146 MHz, ~2.0 dB NF at 440 MHz); the dynamic range is 102 dB; the third order output intercept is +33 dBm. The gain is 19 dB, from 70 MHz to 570 MHz.

1SV128 PIN diode for voltage-controlled, constant impedance, low intermodulation, IF and RF attenuators. See October 2000 Q-Bit. Not suitable for transmit/receive RF switching. \$1 each

920 to 945 MHz isolator 10 watt	\$23	4 GHz isolator	\$23
12 V 0.5 A power transformer plus 7 V 0.1 A winding			\$4
JMS-1 Double-balanced mixer 500 MHz. Surface mount.			\$16
JMS-2 Double-balanced mixer 1000 MHz. Surface mount.			\$23
TUF-5 Double-balanced mixer 1500 MHz			\$28
SRA-149 Double-balanced mixer 500 MHz. High isolation.			\$29
MRF660 10 W 440 MHz	\$14	880-990 MHz VCO 404A	\$12
BF960 Low Noise UHF FET	\$1.50	SGM2006M Low Noise UHF FET	\$1.50
836 MHz bandpass filter	\$2.90	962 MHz bandpass filter	\$2.50
SAA5020 Teletext clock	\$10	SAA5050 Teletext ROM	\$10
40347V1 40V 1A 8W NPN AF 50c		BFW16A 1 W 400 MHz	\$3
7815 15 volt regulator \$1.50		2N4920 80V 1A 30W PNP AF	\$1
5 pF, 30 pF plastic Rx trimmers	60c	35 pF ceramic UHF Tx trimmers	90c
Jackson Brothers C801 air-variables	25 pF close-spaced or 30 pF wide-spaced		\$3

Ceramic Caps and Philips polycarbonate. \$8 per 100. You can mix values to make hundreds

0.82 pF, 1, 1.2, 1.5, 1.8, 2.2, 3.3, 4.7, 10, 18, 22, 27, 33, 47, 68, 220 pF, 1.5 nF. Large disc 100 nF, 220 nF. Philips polycarbonate. 47 nF 250 V, 47n 400V, 300n 63V, 0.47 uF 250 V, 0.47 uF 400 V.

Mini electrolytics. Values can be mixed to make a 100. 100 uF 4 V, 220 uF 4 V, 100 uF 10 V, 4.7 uF 16 V, 2.2 uF 40 V, 47 uF 40 V, 47 uF 63 V. \$6 for 100

Larger electrolytics 1,500 uF 40 V \$2 for 10  
2.2 uF and 4.7 uF 35 V bead tantalum 10c

UNELCO METAL CASE MICA UHF TRANSMIT CAPS 27 pF, 33 pF \$1

Six hole ferrite beads	20c	two hole balun ferrite core	\$1
3 mH, 20 mH, 33 mH mini coils	50c	1 microhenry microchoke	50c
6-pin DIN plug or socket		BNC cord socket for URM43	\$2.50
C-type Tee connector F+M+F	\$4	C male plug for URM43	\$4
38.9 MHz TV receiver SAW filter	\$4	21.4125 MHz 18 kHz 4 pole filter	\$15
BNC square flange socket		\$2.50 each 10 for \$20, 50 for \$80, 100 for \$140	

4.433 MHz, 5.5 MHz, 6.0 MHz, 6.5 MHz Murata bandpass ceramic filter \$3

ELCO (Japan) Switch mode regulated power supply. AC input 85 to 264 Volts. DC Output 5 V at 2 A, +12 V at 0.3 A, -12 V at 0.2 A. Compact size. \$30

8-button keyboard for DTMF and similar uses. 2 x 4 matrix. \$4  
12-button keyboard for DTMF and similar uses. 3 x 4 matrix. \$5

16-button keyboard kit for DTMF and similar uses. 4 x 4 matrix.	\$6
Dual 7 segment red LED display 10 mm high common anode	\$3
TA7809 9 Volt 3 terminal regulator.	\$1.2
TL072 Dual JFET input low noise OP-amp 8 pin case	\$2
LM358 Dual low power drain OP-amp 8 pin case	80c
NE5532 Dual bipolar input low noise OP-amp 8 pin case	\$2.5
NE5534 Single bipolar input low noise OP-amp (better than NE5532) 8 pin case	\$2
2SC3358 bipolar 7 GHz fT used in our low-noise pre-amps	\$3

#### COMPACT HIGH EFFICIENCY SWITCHING MODE DC POWER SUPPLY

230V AC in. +5 V 3 A, +12 V 0.3 A, -12 V 0.3 A out \$50

12 volt 120 mA DC brushless (electronic drive) fan \$20

#### ELECTRET MICROPHONE INSERTS

\$3

Loud speakers 100 x 150 (4" x 6") elliptical 4 Ohm 5 Watt usually \$16.00, now \$10

Round replacement speakers for Japanese transceivers \$5

Frame diameters available 8 ohm: 57 mm, 66 mm, 70 mm. 16 ohm: 77 mm. 32 ohm: 57 mm

#### HIGH PERFORMANCE SHF single gate GaAsFET, MESFET and HEMT

FHX05LG Typical 11 dB gain, 0.8 dB NF at 10 GHz. \$25

FHX35LG Typical 14 dB gain, 0.6 dB NF at 3.4 GHz. \$15

NE76084 Typical 10 dB gain, 0.6 dB NF at 3.4 GHz. \$12

ATF-10135AVANTEK GaAsFET - as used in QST preamps \$25

uPB585G Divide by 4, Input <500 MHz to >2.5 GHz. \$11

#### RF HYBRID AMPLIFIERS

M57714 440 MHz 5 W FM amplifier module \$49

M57716 440 MHz 20 W linear amplifier module \$68

M57745 440 MHz 33 W linear amplifier module \$86

S-AU11 910 MHz 10 W FM amplifier module \$56

M57761 925 MHz 8 W FM amplifier module \$56

M57768 910 MHz 13 W FM amplifier module \$56

PF0031 920 MHz 6 W linear amplifier module \$56

M67715 1300 MHz 2 W linear amplifier module \$94

M57762 1300 MHz 10 W linear amplifier module \$104

#### MITSUBISHI PIN DIODE TRANSMIT-RECEIVE ANTENNA SWITCH MODULES

MD001H 25W 400-512 MHz \$26 MD003 5W 800-940 MHz \$16

MD003H 25W 800-940 MHz \$24

7.488 MHz. Hermetic crystal oscillator. Divide to 3.744 MHz for low cost 80 m transmitter; divide down to data clocks of 38.4 kHz, 19.2 kHz, 9600 Hz, 4800 Hz, 2400 Hz. \$5

10.752 MHz. Voltage Controlled Crystal Oscillator (VCXO). Hermetic case. New. \$10

10 MHz. 5 ppm Temperature Compensated Crystal Oscillator (TCXO). Rakon. Non-hermetic case. Fine frequency trimmer. Requires 5 V at 1 mA; gives 1.6 V p-p AC-coupled output. Ideal for direct drive of 74HCxxx ICs. Removed from equipment and tested. \$10

Parallel resonant crystals 4.000 MHz, 8.000 MHz, 17.7344 MHz \$3

Series resonant crystals: 65.136 MHz, 67.568 MHz, 68.784 MHz, 69.392 MHz	\$4
HT/RF feed through ceramic insulator - for passing high voltages through metal or insulated sheet up to about 7 mm thickness. Complete with threaded rod, washers and nuts.	\$1
Air-variable capacitor - receive or low power transmit - various 30 pF, 60 pF maximum. Limited numbers of each type, please give substitute required.	\$1
Air-variable capacitor - butterfly type push-pull VHF transmitting type.	\$5
Compression mica broadcast padder.	\$1
50 ohm N female connectors for IEC50-3-3 cable.	\$5
2-cell AA-size battery holder.	20c
ECONOMY SWITCH-MODE POWER SUPPLY	\$10
Outputs: 5 Volt at 1.2 Amp, 12 Volt at 0.6 Amp, 20 Volt at 0.2 Amp, 32 Volt at 26 mA.	
Input: 230 Volt AC nominal	Made by Speedy-Tech Singapore
VHF/UHF SWR bridge PCB, with standard modifications.	\$15
With custom modifications for ATV, as described in January 2000 Q-Bit.	\$20
Ferrite rod. VHF grade ferrite rod. 8 mm diameter x 25 mm long.	50c
RF POWER TRANSISTORS - carefully removed from equipment, and tested:	
2N3733 VHF/UHF TO-60 case. 1 W input gives 12 W output at 146 MHz, and 6 W output at 440 MHz; 2 W input gives 8 W output at 440 MHz	
Above performance at 28 Volts DC - reduced output at 13.6 V.	\$5
2N5643 40 W RF out, 100 to 200 MHz, 28 V DC, 2 W drive at 100 MHz, 3 W drive at 144 MHz.	
Reduced output at 13.8 V DC.	\$10
PT9782A 100 W RF out, 30 to 200 MHz, Controlled Q, 28 V DC, 4 W drive at 50 MHz, 8 W drive at 144 MHz. Reduced output at 13.8 V DC. Similar to MRF317.	\$20
KCK VHF transmit grade disc ceramics. Ex equipment. 10 pF, 22 pF, 33 pF. Plenty of 10 pF, and 22 pF; limited supplies of 33 pF.	20c
Dual circulator. N female input, N male output. 50 W power rating. Requires one dummy load, equal in power rating to maximum expected reflection from the antenna.	
775 to 1000 MHz 0.3 dB forward loss, 50 dB reverse loss at 925 MHz.	\$40
Miniature step-down switching regulator, 50 x 50 x 10 mm. Input: 8 V to 28 V. Output: 5 V. Current limit at about 1.5 A. Any number can be paralleled for more output current. \$10	
SECONDHAND EPROMs – REMOVED FROM EQUIPMENT UV erased	
2716 plentiful	\$1
27C256 plentiful	\$2
PLCC package: 27C010, 27C101, 27C201 medium quantities	\$4
IERC Large TO220 Heatsinks	50c

IERC Large TO3 Heatsinks		\$1
Push-on TO5 heat sinks		50c
Instrument knobs - for 6 mm shaft		\$1
Compression mica trimmers. Ideal for VHF and UHF transmitters. Three types:		
404 (6 to 70 pF)	limited quantities	\$2
405 (10 to 80 pF)	limited quantities	\$2
4004 (6 to 60 pF)	plentiful	\$2
Murata receive grade disc ceramic capacitors. 1.5 nF.		20 for \$1