SHACKNEWS

HIGHVELD AMATEUR RADIO CLUB

FEBRUARY 2012

COMMUNICATION IS THE NAME OF THE GAME

Meeting This months meeting was well attended. A couple of items found on the SARL Forum were discussed regarding ATU's, coax and open-wire feeders.
The content of the clubs Sunday bulletins was discussed in depth. Frank, ZS6TMV, due to work commitments, has opted out from doing bulletins and the club thanks him for the effort that he has put in to it in the past. Sid, ZS6GQ, has offered his services as a bulletin reader.

Welcome to Jan, ZS6JRK, who has joined the club.

ZS6SSC Social Club The next get together takes place on the 17 March at Rex's qth. Time 14:00 for 14:30. The usual applies regarding catering for a SSC do.

A Doctor was addressing a large audience in Tampa: 'The material we put into our stomachs is enough to have killed most of us sitting here, years ago. Red meat is awful. Soft drinks corrode your stomach lining. High fat diets can be disastrous, and none of us realizes the long-term harm caused by the germs in our drinking water. However, there is one thing that is the most dangerous of all and we all have eaten, or will eat it. Can anyone here tell me what food it is that causes the most grief and suffering for years after eating it?'

After several seconds of quiet, a 75-year-old man in the front row raised his hand, and softly said, 'Wedding Cake.'

Bob, a 70-year-old, extremely wealthy widower, shows up at the Country Club with a breathtakingly beautiful and very sexy 25-year-old blonde-haired woman who knocks everyone's socks off with her youthful sex appeal and charm and who hangs over Bob's arm and listens intently to his every word. His buddies at the club are all aghast.

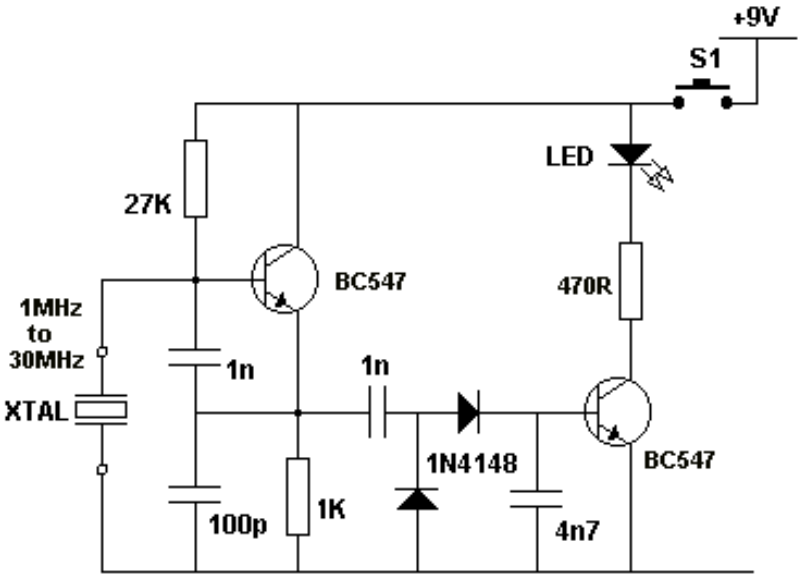
At the very first chance, they corner him and ask, 'Bob, how'd you get the trophy girlfriend?'
Bob replies, 'Girlfriend? She's my wife!'
They are knocked over, but continue to ask. 'So, how'd you persuade her to marry you?'
'I lied about my age', Bob replies.
'What, did you tell her you were only 50?'

Bob smiles and says, 'No, I told her I was 90.'

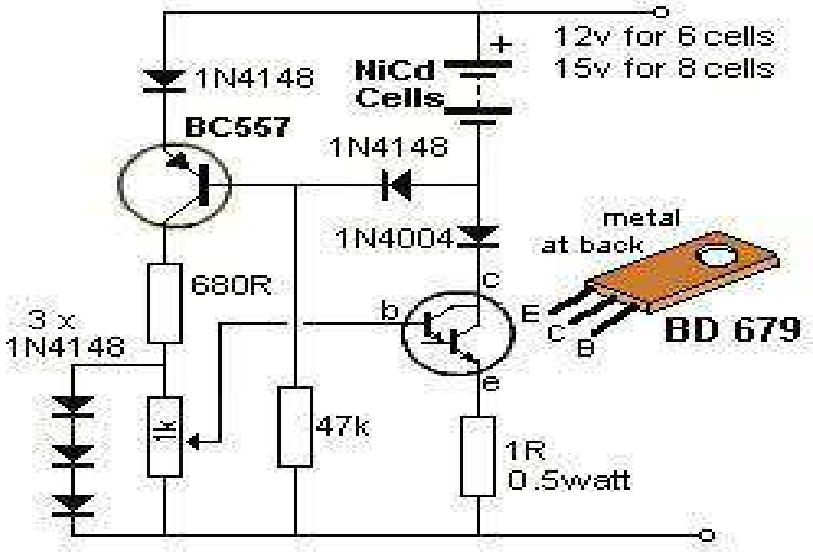
CRYSTAL TESTER

This circuit will test crystals from 1MHz to 30MHz. When the crystal oscillates, the output will pass through the 1n capacitor to the two diodes. These will charge the 4n7 and turn on the second transistor. This will cause the LED to illuminate.

Use it to test all those crystals in your junk box.



NiCd BATTERY CHARGER



This NiCd battery charger can charge up to 8 NiCd cells connected in series. This number can be increased if the power supply is increased by 1.65v for each additional cell. If the BD679 is mounted on a good heatsink, the input voltage can be increased to a maximum of 25v. The circuit does not discharge the battery if the charger is disconnected from the power supply.
Usually NiCd cells must be charged at the 14 hour rate. This is a charging current of 10% of the capacity of the cell for 14 hours. This applies to a nearly flat cell. For example, a 600 mAh cell is charged at 60mA for 14 hours. If the charging current is too high it will damage the cell. The level of charging current is controlled by the 1k pot from 0mA to 600mA. The BC557 is turned on when NiCd cells are connected with the right polarity. If you cannot obtain a BD679, replace it with any NPN medium power Darlington transistor having a minimum voltage of 30v and a current capability of 2A. By lowering the value of the 1 ohm resistor to 0.5 ohm, the maximum output current can be increased to 1A.

DARLINGTON TRANSISTORS

These are available as:
BD679 NPN-Darlington, 2N6284 NPN-Darlington, TIP122 NPN-Darlington, TIP127 PNP-Darlington

History of the IC

British radar engineer Geoffrey Dummer introduces the concept of the integrated circuit at a tech conference in the United States. The world is about to change.

At the heart of every electronic device today — from computers to aircraft navigation systems — is a little circuit that has changed computing and ushered in the digital era, much as the steam engine helped usher in the Industrial Revolution.

The integrated circuit brings together components with different functions and puts them in a compact miniature board. The credit for the first working example eventually went to Texas Instruments engineer Jack Kilby. But Kilby was building on work done before him.

Dummer, who worked for his country's defense ministry, first published the idea of an integrated circuit at the 1952 Symposium on Progress in Quality Electronic Components in Washington, D.C.

"With the advent of the transistor and the work in semiconductors generally, it seems now possible to envisage electronic equipment in a solid block with no connecting wires," he told the audience at the conference, according to the *Electronic Product News*. "The block may consist of layers of insulating, conducting, rectifying and amplifying materials, the electronic functions being connected directly by cutting out areas of the various layers." Dummer tried unsuccessfully for the next few years to build such a circuit, until the British Government turned off the funding for his project.

By then, work on the idea of the IC had moved to the United States. The challenge with creating a practical IC was that all the components in the circuit had to have no faults. Also, there couldn't be too many wires in the interconnects for a complex circuit, or else the circuit would be slow.

Kilby found a solution in the summer of 1958. His idea was to make all the components and the chip out of the same block of semiconductor material, and layer the metal needed to connect them on top of it.

The first integrated circuit was fairly crude — it had only a transistor and other components on a slice of germanium. But it did show the potential of the IC, which continues today to get smaller and more complex.

Just a few months later, Robert Noyce, one of the co-founders of Fairchild Semiconductor and Intel, solved some of the problems related to the interconnects, sharing the credit with Kilby for the practical IC.

Kilby patented the invention and won the 2000 Nobel Prize in Physics for his role in the creation of the IC.

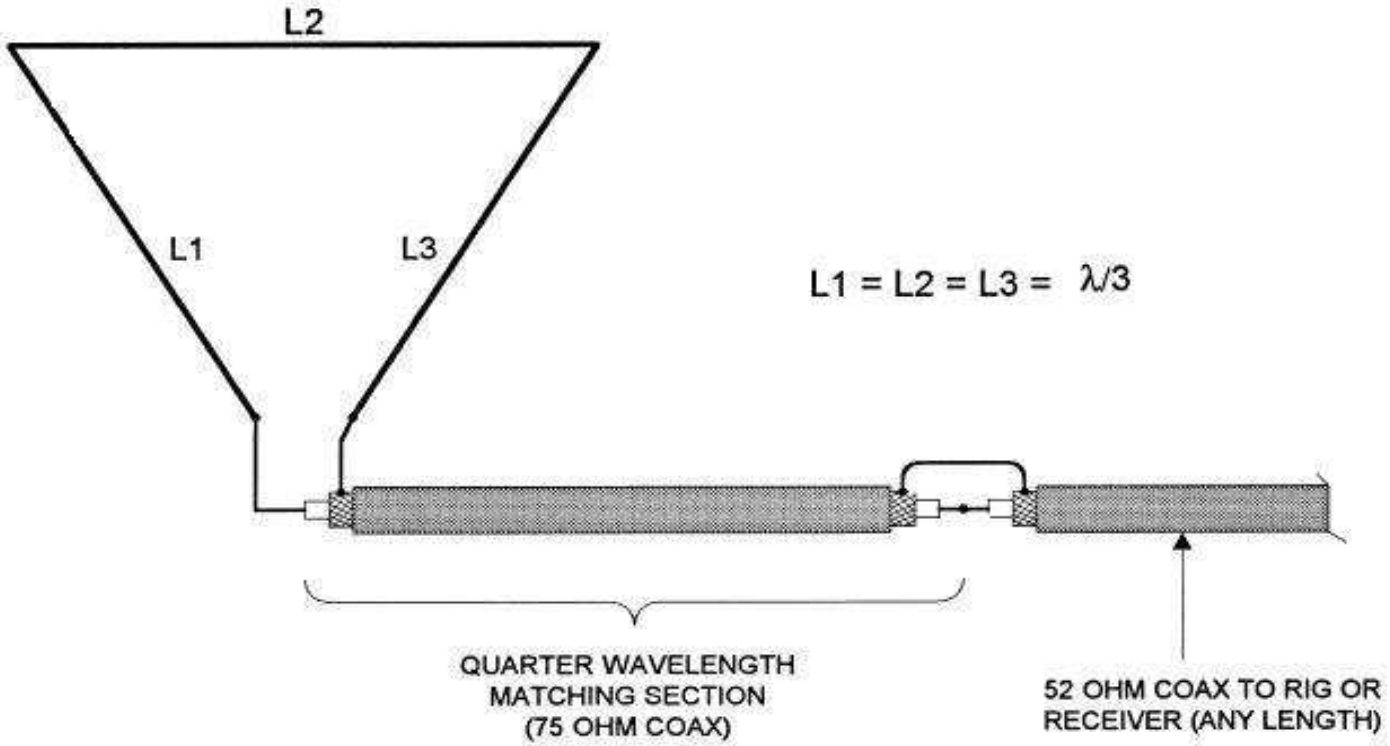
Some thoughts on Antenna Impedance

While it is true that a resonant dipole has an impedance very close to 50 + j 0 (50 ohms resistive), antennas in general can have quite a range of impedance. In fact, the radiation resistance of the resonant dipole is very dependant upon the height over ground. The radiation resistance over realistic earth will vary from 45 to 100 ohms. There are probably more antennas being used off resonance or at harmonics of the resonant frequency than there are being operated at resonance. For example, the G5RV is almost never operated at its resonant frequency, which would be between 4 and 5 Mhz.

Folded Dipoles can have impedances of several hundred ohms at resonance, depending on wire diameter and spacing.

Verticals can have impedances at resonance from about 35 ohms and up, depending upon ground impedance.

Delta Loop Antenna



CLUB INFORMATION

Postal address PO Box 19937 Sunward Park 1470

Website http://www.zs6hvb.za.net
Back Issues of Shacknews available on the club website
e-mail zs6hvb@zs6hvb.za.net
Repeater 145.1875 MHz input - 145.7875 MHZ output
Linked to 70 cm - 438.850 Mhz (Sunday bulletins)

Bulletins Sunday morning - 145.7875 MHz & 7062 KHz @ 08h45.
Relay - 80M - 3662KHz

Monthly meeting venue

Germiston Methodist Church
Room at back of the offices
Lady Duncan Rd
Germiston

3rd Saturday of the month at 14:30

Committee

Chairman	Ton van Dijk	ZS6ANA	011-432-5494
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